# AGRICULTURAL DEVELOPMENT AND LAND POLICY IN VIETNAM

Edited by Sally P. Marsh, T. Gordon MacAulay and Pham Van Hung

Hanoi Agricultural University No. 1

The University of Sydney

Australian Centre for International Agricultural Research 2006

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Marsh S.P., MacAulay T.G., and Hung P.V. (eds), 2006.
Agricultural development and land policy in Vietnam.
ACIAR Monograph No. 123, 272p.

1 86320 508 X (print)
1 86320 509 8 (electronic)

Technical editing by Joanne Mason, MasonEdit
Design by Clarus Design Pty Limited
Photographs by Sally Marsh and Rob Boulden
Printing by Lamb Printers Pty Ltd

# FOREWORD

Until 1980, the agricultural sector in Vietnam was collectivised. Most land was cooperatively used and only five per cent was left for individual household use. Farm decisions were made by the central government, which set areas and targets for each of the crops produced by the cooperatives which ran the farms.

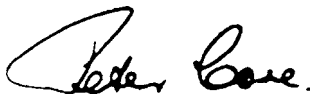
This system led to a fall in rice production below that needed to sustain the population, leading to serious food shortages.

New policies since 1981 to decollectivise agriculture have had considerable effect. Vietnam is self sufficient in rice and is a large exporter. However, the impact of these policies at the farm level, on factors such as household incomes, land use, credit provision and taxation, are important questions that have had little investigation.

Australian agricultural economists have considerable expertise in resolving socio-economic problems that arise during the development process and their experience was used in this project to assess the impact of the new government policies on land use in the agricultural sector during the transformation to a market-based economy. In the process the project provided opportunities for Vietnamese researchers to develop their skills in agricultural policy research, formulation and analysis.

The main aims of the project, which provided the information for this book, were to assess the impacts of the Vietnamese government's new policies on agriculture and to provide economic models suitable for analysing policy reforms.

This book brings together many of the outcomes of the project. The final chapter, containing policy briefs, is also being published as a separate volume in Vietnamese. The work will be useful to both Vietnamese policy makers and the international research community. It can also be freely downloaded from the ACIAR website, www.aciar.gov.au.



**Peter Core**
Director

Australian Centre for International Agricultural Research

# CONTENTS

# PREFACE

Land use has been central to the history and development of Vietnam, as has been true in other parts of the world. The ways in which land is used and ownership defined and transferred between generations have profound effects on the economic, social and political outcomes in a country. This is particularly true for Vietnam given her political history and the dramatic changes that have taken place over time in land use policy.

The current challenges facing Vietnamese agriculture in the context of land use are:

- The need to increase capacity for commercial farm production through both land consolidation and land accumulation.
- Ensuring that with the rising opportunity cost of labour there are opportunities for the under-utilised labour in agricultural areas to be employed and that as labour is withdrawn from agriculture land consolidation and accumulation can occur to raise the overall economic efficiency in rural areas.
- Maintaining livelihoods in subsistence households given small farm size, fluctuating prices for crops being sold on world markets, and increasing input prices.
- The need to allow flexibility in land use (at the moment constrained by policy) to allow farmers to respond to market signals and thus maximise their incomes.

These are difficult challenges and a better understanding of how policies can be developed to progress the goals of a more efficient use of resources and improved incomes and income distributions is important.

The long-term development of Vietnamese agriculture depends on the efficient and effective use of land. This is related to the policies adopted in relation to land, land markets and the associated inputs and resources. With some 75 per cent of the population still living in rural areas, the issues of land consolidation, flexibility of land use, the role of technical change, and the impacts of policies related to taxes and credit will all be important. As the rest of the economy develops there is likely to be strong demand for significant changes in the structure and ownership of land in the future.

Within the work involved in the project, data were collected in four provinces: two in the North and two in the South. Each was chosen for their different characteristics in relation to agricultural land use. The data were used to describe the nature and the structure of farms, the markets in land-use rights and land exchange of various types. It became clear that such exchanges were limited except for rental arrangements. It was also found that each farm, particularly in the North, was made up of a significant number of plots of land. One of the many policy issues being considered is the amalgamation of these plots. From the analysis it became clear that there were both benefits and costs to having a large number of plots and that as the demand for labour rises elsewhere in the economy and thus the opportunity cost of agricultural labour rises there will be incentives for farmers to reduce the number of plots they operate. Thus, encouraging development elsewhere in the economy will raise the efficiency of agriculture. Also, it became clear that reducing the transaction costs in land exchange and in rural adjustment generally (including those for obtaining credit) is likely to be a powerful means of bringing about the transformation of agriculture.

The work for the project involved the Faculty of Economics and Rural Development at Hanoi Agricultural University, Agricultural and Resource Economics at the University of Sydney and a contribution from the International Rice Research Institute. The chapters in this book are a collection of many of the papers written at various stages through the life of the ACIAR Project ADP 1/1997/092 entitled 'Impacts of Alternative Policies on the Agricultural Sector in Vietnam', which was financially supported by ACIAR. The book concludes in chapter 12 with a series of policy briefs that summarise the main findings of the research in a policy context.

One of the very significant outcomes of the project was the development of a wonderful team spirit within those working on the project. The sense of ownership and camaraderie in carrying out the work and the knowledge exchange and development has been very substantial. This will impact future generations of agricultural economists both within Vietnam and in Australia and there will also be future impacts on land use policy, particularly in Vietnam.

**Gordon MacAulay**
**Sally Marsh**
**Pham Van Hung**

# ACKNOWLEDGMENTS

The authors gratefully acknowledge ACIAR funding for this research. The research work reported here was also supported by a large number of people and the authors gratefully acknowledge their contributions to a wide range of areas including data collection, writing of research reports, workshops and presentations and also the many valuable discussions on a wide range of issues as well as the depth of understanding they brought to the complex issues associated with agricultural land policy in Vietnam. Our sincere thanks to all those who assisted with the project.

The project team consisted of the following people:

**Hanoi Agricultural University No. 1**

- Professor Dr To Dung Tien, Project Leader, Hanoi Agricultural University
- Dr Do Kim Chung (employed by and located within the Ministry of Agriculture and Rural Development)
- Dr Le Huu Anh
- Dr Pham Van Hung
- Mr Nguyen Trong Dac
- Mr Nguyen Huy Cuong
- Ms Chu Thi Kim Loan (left for PhD studies in Japan in October 2002)
- Ms Nguyen Phuong Le
- Dr Nguyen Quoc Chinh (commenced July 2002)
- Ms Nguyen Thi Minh Hien (left for PhD studies in Japan in October 2000)
- Ms Galina Barrett (Australian Youth Ambassador for Development located at HAU, April 2001 - March 2002)

and also a number of colleagues from Can Tho University and the University of Agriculture and Forestry in Ho Chi Minh City.

### The University of Sydney

- Professor T. Gordon MacAulay, Project Leader, University of Sydney
- Associate Professor Bob Batterham (retired 2001)
- Dr Guang Hua Wan, Senior Lecturer (resigned 2002)
- Ms Sally Marsh, Research Fellow (located at HAU during 2001-2004)
- Mr Michael Makaroff (part-time Research Assistant) – August 2000 – March 2002
- Ms Helena Clayton (part-time Research Assistant) – April - November 2002
- Ms Magella Clarke (part-time Research Assistant) – November 2002 – February 2003
- Mr Charles Bett (casual Research Assistant)
- Ms Galina Barrett (part-time Administrative assistant) – October – November 2002
- Ms Annette Vervoort (part-time Administrative assistant) – from February 2003
- Dr Abdul Sarker – 6 week placement under the Federal Government's SKILLMAX program as a Research Assistant, February - March 2002

### Consultants

- Dr Greg Hertzler, School of Agricultural and Resource Economics, University of Western Australia, Perth
- Professor Ben Kerkvliet, Department of Political and Social Change, Research School of Pacific and Asian Studies Australian National University, Canberra
- Dr Thaveeporn Vasavakul, Centre for Vietnamese Studies, Vietnam National University, Hanoi

### Members of the Project Advisory Committee

- Prof Dr To Dung Tien, Project Leader (Vietnam), Hanoi Agricultural University
- Dr Do Kim Chung, Research Institute for Agriculture and Rural Development Policy and Strategy, Ministry of Agriculture and Rural Development
- Dr Cao Duc Phat, Vice-Minister (former), Ministry of Agriculture and Rural Development, Hanoi
- Mr Nguyen Phuong Vy, Head, Department of Agricultural and Rural Development Policy, Ministry of Agriculture and Rural Development
- Dr Vu Hy Chuong, Deputy Director, Department of Scientific Research Management, Ministry of Science, Technology and Environment, Hanoi
- Prof Dr Chu Huu Quy, former Chair, Agricultural Economics Research Institute, Hanoi
- Dr Ray Trewin, Australian Centre for International Agricultural Research (ACIAR), Canberra
- Professor Gordon MacAulay, Project Leader (Australia), University of Sydney, Sydney
- Dr Sushil Pandey, Senior Economist, IRRI, Los Banos, Philippines

### ACIAR Program Managers

Dr Ray Trewin, Dr Donna Brennan and Dr Padma Lal, ACIAR Canberra.

# AUTHORS


- **T. Gordon MacAulay** is a Professor with the Agricultural and Resource Economics discipline group at the University of Sydney and Australian project leader for ACIAR Project ADP 1/1997/092. Professor MacAulay has been involved in collaborative work and teaching with Hanoi Agricultural University No. 1 since 1996.
  - Email: g.macaulay@usyd.edu.au
- **Pham Van Hung** is a Senior Lecturer with the Faculty of Economics and Rural Development at Hanoi Agricultural University No. 1, and member of the project team. From 2001 to 2005, Dr Hung undertook PhD studies in agricultural economics with an ACIAR John Allwright scholarship at the University of Sydney.
  - Email: pvhung@hau1.edu.vn
- **Sally P. Marsh** was employed as a Research Fellow with the Agricultural and Resource Economics discipline group at the University of Sydney when the research work for ACIAR Project ADP 1/1997/092 was undertaken. From March 2001 until May 2004 she was resident in Hanoi and based at Hanoi Agricultural University No. 1. Ms Marsh is currently employed as a Senior Research Officer with the School of Agricultural and Resource Economics at the University of Western Australia.
  - Email: spmarsh@cyllene.uwa.edu.au
- **To Dung Tien** is a Professor Doctor with the Faculty of Economics and Rural Development at Hanoi Agricultural University No. 1. and Vietnamese project leader for ACIAR Project ADP 1/1997/092. At the time of the commencement of the project Professor Tien was Dean of the Faculty of Economics and Rural Development.

- **Do Kim Chung** is an Associate Professor with the Faculty of Economics and Rural Development at Hanoi Agricultural University No. 1. and a member of the project team. Dr Chung has a PhD from the Asian Institute of Technology in Thailand and extensive research experience in land policy issues in Vietnam. Dr Chung was instrumental in the development of the project proposal, and from 2001 – 2004 was Acting Director of the Institute of Agricultural Economics within the Ministry of Agricultural and Rural Development in Vietnam.
  - Email: dokimchung@fpt.vn

- **Le Huu Anh** is an Associate Professor with the Faculty of Economics and Rural Development at Hanoi Agricultural University No. 1. and a member of the project team. Dr Anh has a PhD from Hanoi Agricultural University No. 1. Dr Anh is also the Vice Dean of the Post Graduate Faculty at Hanoi Agricultural University.
  - Email: lehuuanh97@yahoo.com

- **Nguyen Phuong Le** is a Lecturer with the Faculty of Economics and Rural Development at Hanoi Agricultural University No. 1. and a member of the project team. Ms Le has a Masters Degree from HAU, and is currently undertaking PhD studies in Chang Mai, Thailand.

- **Nguyen Trong Dac** is Head of the Department of Rural Development in the Faculty of Economics and Rural Development at Hanoi Agricultural University No. 1. and a member of the project team.

- **Nguyen Huy Cuong** is Vice Head of the Personnel Office at Hanoi Agricultural University No. 1. and a member of the project team. During 2002, Mr Cuong spent 3 months with the Agricultural and Resource Economics discipline group at the University of Sydney undertaking a small research project.

- **Nguyen Quoc Chinh** is a Senior Lecturer with the Faculty of Economics and Rural Development at Hanoi Agricultural University No. 1. and a member of the project team. Dr Chinh has a PhD in agricultural economics from the University of Los Banos in the Philippines.
  - Email: nqchinh@yahoo.com

- **Thaveeporn Vasavakul** is a visiting researcher at the Institute of Security and International Studies, Chulalongkorn University, Thailand. She is also affiliated with the Center for Vietnamese Studies at the Vietnam National University, Hanoi. Dr Vasavakul speaks fluent Vietnamese, and undertook a consultancy for ACIAR Project ADP 1/1997/092 in which she interviewed a number of Vietnamese policy makers about land policy issues.
  - Email: thaveeporn@netnam.vn

CHAPTER ONE

# AGRICULTURAL DEVELOPMENT AND LAND POLICY IN VIETNAM: AN OVERVIEW AND THEORETICAL PERSPECTIVE

T. GORDON MACAULAY, SALLY P. MARSH AND PHAM VAN HUNG

Land is a vitally important resource in Vietnam. The long-term development of Vietnamese agriculture depends on the efficient and effective use of land, and on the adoption of policies in relation to land, land markets, and associated inputs and resources. With around 75% of the population still living in rural areas, the issues of land consolidation and flexibility of land use, the role of technical change and the impacts of policies related to taxes and credit will all be important. As the rest of the economy develops there are likely to be demands for significant changes in the structure and ownership of land in the future. In this chapter results from a project on land use policies in Vietnam supported by the Australian Centre for International Agricultural Research are interpreted in a theoretical context. Information was obtained on farm size, farm incomes, the effects of plot size and the number of plots, the trading and application of land use rights, transaction costs for land use transfers, the use of credit, input and output pricing, and the flexibility of land use. Comments are made in relation to policy directions.

## Introduction

In December 1986 at the Sixth National Congress, the Government of Vietnam introduced a wide-ranging set of reforms known as *doi moi* (renovation), which recognised a number of the failures of central planning and were designed to gradually deregulate and liberalise the economy. Vietnam has undergone almost 20 years of reform following the *doi moi* resolutions. Despite some setbacks in the late 1990s when growth slowed, the economy is now sustaining strong economic growth, second only to China in South-East Asia (World Bank 2001a), and the country is considered to be successfully working towards a transition from a planned to a market-oriented economy (East Asia Analytical Unit 1997; United Nations 1999; World Bank 2003). The implementation of further broad-based reforms in 2000, including the New Enterprise Law and the revised Foreign Investment Law, and the signing of the United States – Vietnam Bilateral Trade Agreement in 2001 are examples of the improved policy environment that has enabled Vietnam to record strong economic growth in recent years. In addition, a broad spectrum of social indicators have shown widespread and visible improvements in the lives of the Vietnamese people (Asian Development Bank et al 2004)

Agricultural development, through land reforms, technological change and market development, is now recognised as being important in developing countries, and is closely linked with macroeconomic policies and enabling institutional environments. Since *doi moi* Vietnamese agriculture has responded to the reform environment. The most noticeable and publicised achievement is a rapid increase in rice production, such that Vietnam is now the second largest exporter of rice in the world behind Thailand. In addition, Vietnam is a significant player in world markets for coffee, pepper, cashew and seafood. Export earnings from agricultural and aquaculture products have been continuously increasing since 1990. Because agriculture in Vietnam is now more diversified, subsectors such as industrial crops, vegetables and livestock have developed rapidly and have been able to meet domestic demand. During the reform period the level of farming intensity has improved and new technology has been more widely applied.

These achievements in agricultural development are recognised as having being made possible by land reforms that began in 1981. Land policy is an essential component of economic development in all countries, and especially so in developing and transitional countries (Deininger 2003; Lerman et al 2002). In Vietnam more than 75% of the population lives in rural areas, and land and related policies have a direct effect on their livelihoods through influences on land tenure, size and fragmentation of land holdings, land use, land and credit markets, input and output markets, and technology development.

In this chapter results from a project on land policy changes in Vietnam supported by the Australian Centre for International Agricultural Research are interpreted in a theoretical context. The overall purpose of the project was to contribute to the understanding of policies needed to raise the income, wellbeing and economic capabilities of the rural population in Vietnam. This was

achieved by using various analysis methods and economic modelling of some key factors in the use of land as a resource. Information for the analyses was obtained at the micro-level from farm household surveys in four provinces. Data were provided on farm size, farm incomes, the effects of plot size and the number of plots, the trading and application of land-use rights, transaction costs for land use transfers, the use of credit, input and output pricing, and the flexibility of land use.

Vietnam is a country in transition from a planned to a market-oriented economy. Transition is not simply the adoption or modification of a few policies or programs but a passage from one mode of economic organisation to a completely different one (World Bank 1996). In this situation consideration of history, geography and culture becomes important as they are influential on not only what can be accomplished but also how quickly change can occur. The long-term development of Vietnamese agriculture depends on the efficient and effective use of its small land area, but land tenure and use sit within a complex historical, political and cultural context.

## Land policy in Vietnam: historical perspective and recent changes

### Land tenure in Vietnam: 1945–81

Both the history of the national liberation revolution and the economic development of Vietnam are closely linked to land issues. Conflicts over land policy (access to, and the ownership and use of, land) have been integral to the period of French colonial rule, the conflict with the United States, and the policies of the Communist Party Government after re-unification of Vietnam in 1975.

Before the birth of an independent Vietnam in 1945, agricultural land was divided into two categories: communal and private. In rural areas there were two main classes according to ownership of land: landlords and tenants. The landlord class accounted for only 2% of the whole population but occupied more than half of the total land area, while 59% of farm households were landless tenants of the landlord class (Cuc 1995).

After 1945 the new government implemented changes to economic development policy, including agricultural policy. In the first stage, up to 1952, the government carried out land redistribution and reduced rents for poor farmers and tenants. After the end of the French War in 1954 the north of Vietnam implemented a radical land reform program. The target was to nationalise land of the Vietnamese and French landlords and to redistribute it to peasants with little or no land, using the slogan 'land for ploughmen'. As a result, about a quarter of the land was redistributed to farmers on a more or less equitable basis, benefiting about 73% of the north's rural population (Cuc 1995; Kerkvliet 2000; Pingali & Xuan 1992).

Following this initial period of land reform, rural areas in the north of Vietnam entered a stage of agricultural collectivisation involving 'low-level' and 'high-level' cooperatives. By 1960 about 86% of all peasant households and

68% of total agricultural land were in low-level agricultural cooperatives, where farmers were still owners of their land and other production assets. In high-level cooperatives farmers pooled their land and other production forces (eg buffaloes, cattle and tools) under unified management. From 1961 to 1975 about 20,000 high-level cooperatives involving 80% of households were established (Cuc 1995; Pingali and Xuan 1992; Nakachi 2001).

In the south the government based in Saigon implemented land reform in a different way, using rent control and a land ownership ceiling program in 1956, and a distribution of land and titling program in 1970. Approximately 1.3 million ha of agricultural land were redistributed to over one million farmers under the latter program, which was known as 'the land to the tiller programme' and was completed by the end of 1974 (Pingali & Xuan 1992).

After the end of the war of reunification in 1975 the Vietnamese Government planned to further develop the movement toward agricultural collectivisation. In the north agricultural cooperatives enlarged their size from village to commune level. In the south farmers were still allowed to operate under a relatively free market until 1978, but then were urged to move gradually toward collectivisation. Results varied between regions and were particularly low in the Mekong Delta, where less than 6% of farmers belonged to an agricultural cooperative (Pingali & Xuan 1992). Unlike the north, agriculture in the south continued on a household farm basis although farmers worked in cooperatives. They shared their labour and production resources but were still the decision-makers about inputs and technologies used.

After 1975 Vietnam's economy in general, and agriculture in particular, suffered heavily in the aftermath of the war with the United States and from policies based on the central planning model and the collectivisation of agriculture. Under collectivised agriculture, production fell as a result of a lack of incentives for individuals to contribute to production, and gross output of agriculture increased annually at a low rate of 2% (Table 1). At the same time population growth increased rapidly (2.2–2.35% per annum), resulting in a need for more than a million tonnes of food to be imported each year during the period after the war, and much of the population suffered from hunger and poverty.

## Land reform in the period 1981–88

Reform in the agricultural sector started with the Communist decree known as the *Khoan 100* (Contract 100). Under this policy agricultural cooperatives assigned agricultural land to farming groups and individuals, who became responsible for three stages of crop cultivation. Outputs were still under the control of the cooperative, and at the end of the crop season farmers were given income in kind based on the output levels produced and labour input used throughout the three stages. Land was still owned by the government and managed by the agricultural cooperatives. Although small, the reform was the first step in the process of moving toward a market-oriented economy. The introduction of the system had a significant impact on agricultural production, especially rice which increased by 6.3% a year during the 1981–85 period. However, after 1985 growth in

agricultural production declined such that the overall growth rate of the total agricultural gross output in the period 1986–88 was only 2.2% annually. In early 1988 food supplies did not meet demand, leading to starvation in 21 provinces and cities in the north of Vietnam. In the south a series of conflicts arose in rural areas, especially in relation to land relations caused by 'equitable' land adjustment (Cuc 1995; Hung & Murata 2001; Pingali & Xuan 1992). It became obvious that further reform was needed.

In response to the crisis the *doi moi* in agriculture was carried out according to Resolution 10 of the Politburo in April 1988. Under this reform, which was commonly known as the *Khoan 10* (Contract 10) system, farmers were assigned agricultural land for 10–15-year terms and the farm household was recognised for the first time since the collectivisation period as the basic economic unit. Since this time most of the means of production (eg machines, buffaloes, cattle and agricultural instruments) have been recognised as privately owned. Another aspect of this policy was that farmers could be assigned the land they had owned prior to 1975 (Ministry of Agriculture and Rural Development 2000; Pingali & Xuan 1992).

However, *Khoan 10* was not supported by laws for the assignment and inheritance of land use rights (LUR) (Nakachi 2001). Problems also arose with facilities such as power stations, rural transport networks and markets, which had previously been the responsibility of the agricultural cooperatives (Cuc 1995). The 1993 Land Law was enacted in response to these problems.

**Table 1.** Annual growth rates of agriculture and crop outputs (%)

| Periods | Gross agricultural output [a] | Rice | Sugar cane | Soy bean | Tea | Coffee | Rubber |
|---|---|---|---|---|---|---|---|
| 1976–80 | 2.0 | −0.4 | 9.9 | 11.6 | 5.1 | 8.8 | 0.6 |
| 1981–85 | 5.5 | 6.3 | 8.8 | 9.5 | 7.4 | 23.4 | 2.4 |
| 1986–88 | 2.2 | 3.1 | 7.1 | 0.4 | −0.4 | 29.0 | −0.3 |
| 1989–93 | 4.8 | 4.7 | 3.3 | 6.6 | 5.7 | 35.1 | 17.6 |
| 1994–99 | 6.7 | 5.9 | 18.2 | 3.0 | 9.0 | 22.0 | 14.1 |
| 2000–03 | 4.6 | 2.4 | 1.8 | 11.8 | 11.7 | 8.7 | 6.2 |
| 1981–88 (averaged) | 4.5 | 4.6 | 5.3 | 6.5 | 5.0 | 28.9 | 1.9 |
| 1989–2003 (averaged) | 5.4 | 4.4 | 8.4 | 7.5 | 7.9 | 23.3 | 14.6 |

[a] At constant 1994 prices

Source: General Statistical Office 1999, 2000, 2001 and 2004.

## Land reform developments after *doi moi*

During the *doi moi* period a series of policies and laws in the agricultural sector, especially concerning land use, were issued. The most important policies were the Land Law (1993) and its revised versions (1998, 2001), the new Land Law (2003) and Ordinances 64/CP (1993) and 02/CP (1994) of the government dealing with the regulation of agricultural and forestry land allocation. There were also other policies that were directly related to land issues as well as supportive policies indirectly related to land issues.

Under the Land Law farmers were allocated land for long-term and stable use and were granted five rights of land use – the rights of transfer, exchange, lease, inheritance and mortgage. The duration of land allocation was 20 years for land used for annual crops and aquaculture, and 50 years for land used for perennial crops. The allocation could be renewed at the end of the period if the holder still had a need for the land. The Land Law also put ceilings on the land areas allocated to farm households. This limit for annual crop land was 2 ha in the northern and central provinces and 3 ha in the southern provinces. For perennial crop land the land limit was 10 ha in communes with flat fields and 30 ha in midland or mountainous communes (Ministry of Agriculture and Rural Development 2000).

Following the land allocation, agricultural land use titles were issued to farm households. By 1998 land use certificates (LUCs) had been issued to 71% of farm households, and by the end of 2000 this number was more than 90% (Do & Iyer 2003). For forestry land in upland and mountainous areas, where many traditional and cultural issues complicated land allocation, the certification process was slower (Ministry of Agriculture and Rural Development 2002a; Vy 2002). The process of issuing land use certificates is still continuing.

In 1998 two additional LUR were assigned to farmers, the right to re-lease land and the right to use the value of LUR as joint venture capital for investment. In 2001 further revisions to the 1993 Land Law resulted in farmers being assigned the right to gift their land to relatives, friends or others. The revisions also set out the circumstances for allowing land related changes and procedures for registration of changes. A new Land Law, which has replaced the 1993 Land Law and its revisions, was enacted in December 2003 and has been in effect since July 2004. For agricultural land there were no changes in the new law in the duration of land allocation and land area ceilings. However, significantly, for the first time land was officially recognised as being a 'special good', having a value and hence able to be traded. The law has confirmed that 'land is a significant internal force and capital of the state', and acknowledges that the real estate market including the market for LUR should be encouraged in urban areas. Individuals (farmers) and economic organisations are allowed to participate in the market.

Land policy changes in Vietnam since 1981 are recognised as contributing significantly to production increases and development in the agricultural and rural sectors. Total agricultural output increased by 6.7% annually during the period 1994–99 and about 4.6% during the period 2000–03. Food security

at the national level is no longer an issue and poverty has continuously decreased. But many challenges still exist for agriculture in Vietnam, such as falling agricultural product prices, increasing competition as Vietnam integrates with the global economy through the ASEAN Free Trade Agreement (AFTA) and the WTO, and a slowdown of agricultural production growth rates. Moreover, farmers in Vietnam are likely to remain relatively poor, and a high proportion of the population will continue to be involved in agriculture and live in rural areas. This will lead to heavy pressure on the rural sector, with a consequent need for continued policy reforms.

Considerable pressure is being exerted on the government in relation to the completion of the allocation and registration of LUR, and to issues related to compensation and the desirability of stable and long-term tenure. The government has given LUR to farmers in order to encourage the use of land as if it were their private property, but the State maintains ultimate ownership of the land.

## Property rights in Vietnam resulting from the 1993–2003 Land Laws

Land policies that distribute land to individuals and assign LUR (ie some degree of private property rights) allow the development of land markets that can bring about an efficient allocation of resources, given certain conditions. Because well-defined and enforceable private property rights are one of these necessary conditions, efficient allocation of resources depends on the nature of prevailing property rights (Perman et al 1999).

Under the Vietnamese Constitution land is the property of the people as a whole and the State administers it on their behalf. The new 2003 Land Law states that the government is the 'representative of the people's ownership'. Since land is 'owned' by the people as a whole, it is not possible for individuals (or corporations) to own land, although they (and foreigners) can own and transfer structures such as houses built on land. Vietnamese (but not foreign) individuals, households and organisations can hold and transfer rights to use land.

The intent of the 1993 land reform was to give farmers security of land tenure by allocating agricultural land to them for stable and long-term use and issuing land use certificates (LUCs). However, the duration of land allocation is still short, and has not been changed under the new 2003 Land Law. This may result in farmers still having insufficient incentive for long-term investment in agriculture. In addition, land use flexibility is still constrained, particularly the conversion to other crops in paddy areas that traditionally have grown rice.

By providing increased security of tenure over land, facilitating access to credit through allowing the use of LUR as collateral, and making LURs tradeable, the 1993 Land Law provided the foundations for a formal market for land in Vietnam (Do & Iyer 2003). However, as elsewhere in the world, LUR in Vietnam are not free of legislative requirements and constraints. The ability to transfer, lease, exchange, mortgage or inherit LUR varies between different categories of land, landholders and LUR (East Asia Analytical Unit 1997). Transfer of LUR involves payment of a tax by the transferor

and payment of a registration fee by the transferee. Likewise, conditions apply for the leasing of LUR. Households can make their LUR available for lease if the family is in poverty, if they have taken up other occupations or if they lack the capacity to work the land. Official restrictions placed on land transactions are discussed in more detail in Marsh and MacAulay (2002). Another constraint on the land market is that rental and land transfer values do not reflect true market prices but rather are determined within a pricing framework set by the central government, although the 2003 Land Law now specifies that the pricing framework should be close to the market price.

Vietnam has a large population and limited land, the value of land is high and LUR are very important. These rights are crucial to improved private sector development but there are ideological issues that remain important (AusAID 2001; East Asia Analytical Unit 1997; Fforde 1995). There is also debate regarding to what extent there should be an unrestricted land market. As LUR become longer in duration and can be implemented with fewer restrictions, they become more like the western concept of 'private' land ownership. However, it is also understood that there are benefits to be obtained in providing for long-term ownership of land, particularly its efficient use and investment in the productive capacity of the land.

## Key perspectives on Vietnamese agriculture related to land policy

### Labour

In Vietnam the combination of small land area and a large, growing rural population results in significant population pressure in relation to land. Following the *doi moi* economic reforms, the share of GDP generated by agriculture has been steadily falling (Government Statistical Office 2002, 2004). However, the employment share for the agricultural sector remains high, falling only from 71% to 66% between 1993 and 1998 (World Bank 2000). In recent years the composition of employment in the agricultural sector has changed. Since 1998 the proportion of people who mainly work on their own farm has dropped from almost two-thirds to slightly less than half, and many more are now in waged employment – 30% of workers in 2002 compared to 19% in 1998 (Asian Development Bank et al 2004).

Although labour market participation rates are among the highest in the world (Asian Development Bank et al 2004), in rural areas there are periods of surplus labour when both underemployment and unemployment are widespread. Small farm sizes combined with the high proportion of the population involved in agriculture means that labour productivity is low. There is potential for productivity growth as labour moves out of agriculture but there are restrictions to migration and movement of labour. However, growing rural/urban

income gaps are providing a strong incentive for migration to cities, and administrative barriers to population movement, no matter how severe, may not be sufficient to prevent this from occurring (Asian Development Bank et al 2004).

Despite high enrolment in primary and secondary schooling, education and skills are still limited in the rural population. Data collected in household surveys during the ACIAR project showed that most household heads had not completed primary education, and many had not had the opportunity to participate in training offered by government extension services. These services are under-resourced and unable to reach many farmers at the village and commune level (Be 2004). Because of better participation rates, education levels are now higher among the younger population, and from the 1990s there has been a visible upward trend in the labour market returns to education (World Bank 2003). However, secondary enrolment is lower in the poorer sector of the population because of both direct and indirect costs (Asian Development Bank et al 2004). With the poor concentrated in the rural population, education levels in this sector will remain lower.

## Poverty

It is well recognised that poverty, however measured, has declined in Vietnam to such a degree that it has been called 'one of the greatest success stories in economic development' (Asian Development Bank et al 2004, p xi). Using the expenditure approach and a poverty line computed to international standards, it has been estimated that the percentage of the population living in poverty has dropped from 58% in 1993 to 37% in 1998 and 29% in 2002. Accompanying this decline there has been a consistent improvement in a range of social indicators, from education enrolment to infant mortality.

However, there are striking and growing disparities in poverty reduction. Despite general improvement in farm incomes, poverty continues to be concentrated in the rural areas (Asian Development Bank et al 2004; United Nations 1999; World Bank 2000). Other things being equal, an urban household spends 78% more than a rural one (Asian Development Bank et al 2004). In addition, many rural households have income levels not far above the poverty line and are particularly vulnerable to 'income shocks' such as ill health or accidents, crop failure, investment failure (eg death of livestock), decreases in the prices of key agricultural commodities, low and unstable off-farm employment opportunities, and natural disasters, which can push them below the poverty line,.

There is evidence that the percentage of landless farmers is increasing in Vietnam, particularly in the Mekong Delta (Asian Development Bank et al 2004). A report by the World Bank in Vietnam (2000) considers that the imbalance of land ownership is getting larger, creating a visible gap between the landless poor and richer land owners, with households that are unable to make a living from the land finding few opportunities for stable income generation off the farm.

The rural industrial sector that would supply off-farm jobs is underdeveloped (Luong & Unger 1999), and the generally low level of education in rural areas provides a further constraint. Employment and income growth in agriculture, off-farm enterprises and services in rural areas are seen as being critical for poverty reduction in the future.

The Vietnamese Government maintains a strong emphasis on poverty reduction in its reform strategy, including a commitment to heavier investment in rural areas (World Bank 2003). The Asian Development Bank (Asian Development Bank et al 2004) considers that poverty reduction is likely to be sustained by the government's reform measures, as embodied in the Comprehensive Poverty Reduction and Growth Strategy.

## Small and fragmented land holdings

Approximately 80% of the population of some 80 million people in Vietnam live in rural areas, and there are over 11 million household farms. Land allocation policy has resulted in fragmented and small land holdings, especially in the north, because of the emphasis that was put on equitable allocation. Although land allocation has contributed significantly to agricultural and rural development in recent years, land fragmentation and small-sized farms are crucial issues which can lead to less efficient land use and conflicts about land.

Throughout Vietnam there are estimated to be between 75 and 100 million parcels or plots of land (Hung et al 2004; World Bank 2003), on average about seven to eight plots per household. Around 10% of these plots have an area of only 100 $m^2$ or less (Phien 2001). Small and scattered land holdings hamper mechanisation and technology adoption, and involve additional time and labour for farming activities that must be carried out in geographically distant plots (Blarel et al 1992; Hung et al 2004; Lan 2001). In the south of Vietnam the degree of land fragmentation is not so pronounced, with many farmers in the Mekong Delta having only one or two plots. There was less concern with equitable distribution in the south and land allocation to households was more likely to be based on land held prior to reunification in 1975 (Do & Iyer 2003; Luong & Unger 1999; Marsh & MacAulay 2002; Ravallion & van de Walle 2001, 2003).

Although farm sizes vary throughout the country, they are typically small, around 0.2 ha per capita (World Bank 2001a). Small farm sizes constrain the potential income from farm production, with around 50% of the farm households surveyed for the ACIAR project having a net value of farm production less than VND10 million (US$645) in 2000.

Although limits on land holdings are set by the Land Law, they are not binding in many provinces in the deltas because most land holdings are much lower than the 3 ha ceiling. In areas where there is unused land the limit is not strictly enforced. Land held in excess of the limit can be leased from the State, but lease money is not always charged, especially for land not considered highly productive (eg 'barren hills' in upland areas).

Small and fragmented land holdings are considered a problem for agricultural development, and the government is actively encouraging plot consolidation in northern Vietnam (Hung et al 2004), and allowing larger land holdings through supportive policies for larger 'commercial' farms. Research based on data from the 1993 Vietnam Living Standards Survey (VLSS) suggests that the land allocation process carried out in association with Contract 100 in 1988 and the Land Law of 1993 was not dominated by the rich or influential, and resulted in a remarkably egalitarian distribution of land (Ravallion & van de Walle 2001). However, more recent work based on data from the 1997–98 VLSS suggests that some degree of land accumulation by more wealthy and educated households, particularly those with a long history in a particular area, is occurring (Ravallion & van de Walle 2003).

## Land use rights markets

Although an LUR market is emerging in Vietnam in response to reforms that have given a degree of security and tenure to land holdings, it is still constrained. Considerable official restrictions exist for LUR transactions, with official decrees controlling the circumstances under which, and to whom, LUR can be transferred (Marsh & MacAulay 2002). However, following the 1993 Land Law many researchers have reported that land transfers are occurring (eg Chung 1994; Deininger & Jin 2003; Do & Iyer 2003; Fforde 1995; Ravallion & van de Walle 2003), many illegally (eg Do & Iyer 2003; Humphries 1999; Kerkvliet 2000; World Bank 2003). The reasons given for illegal transactions include the costs associated with registering LUR transactions, time-consuming and

Buffalo are often used for land preparation in small fragmented fields in the north of Vietnam. Excessive land fragmentation is perceived as a barrier to the adoption of mechanisation.

cumbersome procedures, unclear regulations, and opportunistic rent-seeking behaviour in near-urban districts and along newly constructed inter-regional roads. Humphries (1999) also notes that most households were issued with only one land use certificate for all their allocated plots, with the consequence that if a household wishes to dispose of or exchange any one of their plots they must (in theory) surrender their land use certificate and have it reissued. There are transaction costs involved in doing this, and in practice LUR transactions occur without being officially registered.

A second constraint arises because rental and land transfer values do not reflect true market prices, but rather are determined within a pricing framework set by the central government, with the actual prices fixed by the provincial or municipal authorities. The new Land Law, which came into effect in July 2004, has stipulated that the pricing framework for the LUR market should be more in line with market values. A third constraint relates to the reluctance of rural households to sell their LUR unless they have better prospects elsewhere with reasonably low risk.

There are conflicting reports on the extent of the LUR market. Based on an analysis using data from the 1997–98 VLSS, Ravallion and van de Walle (2003, p 11) state that 'A more active rental market has clearly not emerged since the reforms'. However, other work by World Bank researchers on land rental markets also using 1997–98 VLSS data states the contrary opinion, that 'Descriptive evidence on land market participation … points towards a rapid increase in land transactions, together with considerable differences across regions' (Deininger & Jin 2003, p 12).

Research work carried out by the ACIAR project team resulted in data showing that there is an active LUR market but the extent of the market varies substantially by region, and that there is more rental than sales activity, particularly so in northern Vietnam.

## Credit provision

Vietnam is in the process of implementing reforms to the banking system and undertaking a gradual liberalisation of credit markets (World Bank 2003). However, small household farms in Vietnam, and the rural sector in general, are recognised as facing significant credit constraints (Duong & Izumida 2002; World Bank 1998). Historically, the credit market in Vietnam has been seriously distorted by government intervention including priority credit given to state-owned enterprises and various commodity production programs (World Bank 1998). Additionally, agricultural credit policy in Vietnam is often used as an instrument of social welfare policy, targeting finance to poorer regions and households through the activities of the Vietnam Bank for Social Policy (previously known as the Vietnam Bank for the Poor).

Commercial credit availability for farm households commenced in 1993. Decree 14/CP gave farm households access to credit, whereas previously loans had only been available to households through institutions. Following this reform, credit could be provided directly to households by commercial banks and financial organisations. The 1993 Land Law allocated LUR to households and also gave them the right to use these as collateral for bank loans.

However, there are effective limits on the loan amounts that can generally be obtained using LUR as collateral. Banks consider LUR as the trust or guarantee for a loan that has the support of local government and sociopolitical groups in rural areas. The value of LUR is the same for each Red Book (the record of the LUR) and is independent of the land area or the value of land in the Red Book or the productive assets (eg industrial trees) on the land. Using LUR as a 'trustable mortgage' (*tin chap*), a household can therefore borrow a fixed amount. Based on current regulations, the amount that can be borrowed from the Vietnam Bank for Agriculture and Rural Development (VBARD) is not larger than VND10 million for household farms and VND20 million for commercial farms. The advantages of this arrangement are that households can access credit easily, and households with lower production levels and less capital can be supported. However, although LUR are accepted as collateral, if foreclosure occurs the bank cannot easily rent or sell the land. The difficulties associated with using LUR as collateral are well documented (Duong & Izumida 2002; Humphries 1999; Vietnam Economic Times 2001).

The use of LUR as a mortgage asset results in a high incidence of small and short-term loans, primarily for production. Survey work conducted for the ACIAR project showed that generally loans were around VND5–10 million. Such small and short-term loans constrain development of the farm household economy.

The incidence and extent of poverty in Vietnam has been reduced at an impressive rate in the last decade. These ethnic H'mong school children from Ha Giang province in the north-west mountainous region are still more likely to come from poor households, but face a brighter future.

Formal, semi-formal and informal credit providers operate together in the rural credit market in Vietnam. The formal banking sector, and particularly the VBARD, is now responsible for the bulk of loans made to rural households (Duong & Izumida 2002; Marsh et al 2004b).

## Changing policies

Vietnamese farmers have been operating under a continuously changing policy environment since recent land reforms first commenced in 1988 with Contract 100. Successive land reform policies since then have tended to reduce land fragmentation, and allow larger holding sizes, longer LUR, more flexibility in land use and more freedom to transfer LUR. These policies were intended to provide farmers with an environment in which they can feel confident about cultivating and investing in their land. However, many changes over a short time period can create a feeling of uncertainty about future changes, even though the liberalising direction of change has been consistent. In addition, there have been and continue to be problems associated with agricultural land management and the implementation of the 1993 Land Law and its revisions in 1998 and 2001. The new 2003 Land Law is directed towards addressing some of these problems.

Farmers in Vietnam are also facing a changing policy environment as a result of pressure for the widespread policy changes needed to meet the ASEAN Free Trade Agreement (AFTA) and WTO guidelines. These changes will primarily influence input and output prices for agricultural businesses through requirements to discontinue trade barriers and remove or reduce subsidies.

With this background in mind, it is important to discuss the nature of the changes that have taken place, the potential policy changes and how they fit in a theoretical context.

# Models of agricultural development

To understand the role of land in economic development a number of models will be considered in this section under the headings macro- and micro-models.

## Macro-development models

A useful starting point from the macro perspective is the Harrod-Domar model of economic development (Domar 1946; Harrod 1939; Ray 1998), which highlights the role of investment (Figure 1).

In this simple model firms produce and households consume. Households, by not consuming all of the income they derive from the firms, can save and the firms then invest these savings. It is assumed for the sake of simplicity that the economy is closed, that the investor creates a demand for investment goods, and that the investment may also include human capital.

In any economy consumption is usually less than the total income of households, with the remainder being savings. These savings provide for investment and so macroeconomic balance is achieved when savings equal investment. Economic growth is positive when investment exceeds the amount needed to replace the depreciation of the existing capital stock.

The model can be expressed as follows:

(1) $Y_t = C_t + S_t$

(2) $Y_t = C_t + I_t$

(3) $S_t = I_t$

(4) $K_{t+1} = (1\text{-}\delta)\, K_t + I_t$

where $Y$ is the total output, $C$ is consumption, $S$ is savings, $I$ is investment and $K$ is the capital stock in the economy with a depreciation rate of $\delta$. If the savings rate is $s$, the capital:output ratio is $\theta$ and the growth rate of output is $g$, then by rearranging the equations the following equilibrium condition, known as the Harrod-Domar equation, is obtained:

(5) $s/\theta = g + \delta$.

While this model is clearly a simplification, it highlights the role of investment and the two key variables of savings rate and capital: output ratio. However, as Meier (1995, p 91) points out the '… ultimate flaw as a theory of growth was the assumption of a strict link between the growth of capital stock on the one hand and the consequent growth of potential output on the other.' The implicit conclusion is that if the demand was appropriate then the only bottleneck to growth was a lack of physical capital. Meier also points out that the widespread use of the model for representing economic development arose because of the assumption that developing countries suffer from surplus labour where the marginal productivity is very low. Thus, capital investment was seen as a means of giving employment to otherwise unemployed labour.

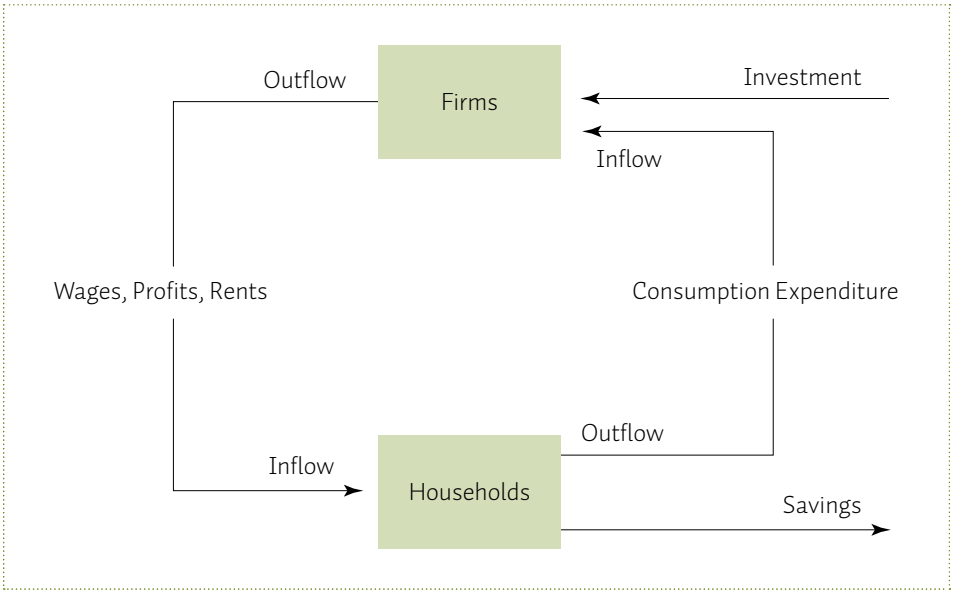



**Figure 1.** Relationships between production, consumption, savings and investment. Source: Ray (1998, p 52).

Ray (1998) reports an extended version of the Harrod-Domar model in which population growth is included. When this is done the approximate equilibrium condition becomes:

(6) $s/\theta \cong g^* + n + \delta$

where $n$ is the population growth rate and $g^*$ is the per capita rate of growth in income. For most economies there will therefore be a basic set of connections between the growth rate of the economy ($g$ or $g^*$), the ability to save and invest ($s$), the capacity to convert capital into output ($\theta$), the rate of depreciation of the capital stock and the rate of population growth ($n$). Agriculture in both developed and developing countries faces this rather fundamental set of relationships, which are key factors in determining the rate of growth in a macroeconomic context. In evaluating the framework of the Harrod-Domar model, investment is clearly significant. Land is one of the most important assets that farmers have, and the ability to use land as an asset against which to borrow for investment is thus important. In rural dominated countries such as Vietnam, both investment in agriculture and the mobilisation of savings from agriculture are essential.[1]

One way to better understand the role of agriculture in economic development is to consider models with two sectors: the agricultural or traditional sector and the modern or industrial sector with new technologies (Ray 1998, p 353). These are referred to as dual economy models. The basic flows involved in rural–urban transactions are the flow of surplus labour from agriculture and the flow of surplus food. The reverse flows from the modern sector are of equipment and machinery (eg tractors), chemicals and pesticides and also human capital generated in educational systems. Because the traditional sector is also likely to have a very large population, it is also a source of demand for goods produced by industry in the modern sector.

In the context of what is known as the Lewis model (Lewis 1954; Ray 1998), the traditional sector has a labour surplus, is family based, and can be characterised as using older and more labour-intensive technologies, while the modern sector is considered to be capital intensive and profit based. The traditional sector is the supplier of labour to the modern sector and the growth of the modern sector is limited by the available supply of capital (ie, savings and investment are limiting). It is assumed that labour can move from the traditional sector at a low opportunity cost.

The notion of surplus labour is represented in Figure 2, based on the idea that land is limited and thus there are diminishing returns to labour and possibly other inputs. In addition, not much capital is required to be able to farm the limited amount of land since traditional technologies are used. In Figure 2 the marginal product of labour is zero beyond point B.

[1] It is worth reflecting on the significance of the very recent introduction of automatic teller machines (ATMs) into Vietnam and the possibilities their widespread use might have for the mobilisation of savings, particularly in rural areas.

Another factor in the use of labour in the traditional sector is the concept that farm production or income is generally shared among the members of the household, and the effective wage is an average. Thus, it is the average output that matters, and as long as this is still positive then more labour is employed than would be the case for a profit maximising firm. Also, reducing the labour input would have little or no effect on the output of the traditional sector. Therefore, provided the average output is greater than alternatives elsewhere, labour stays employed in the traditional sector as disguised unemployment and the effective wage in the traditional sector remains lower than in the modern sector.

In the modern sector the capital stock is increased through investment of the profits generated in the sector. Thus, the total product curve TP for the modern sector

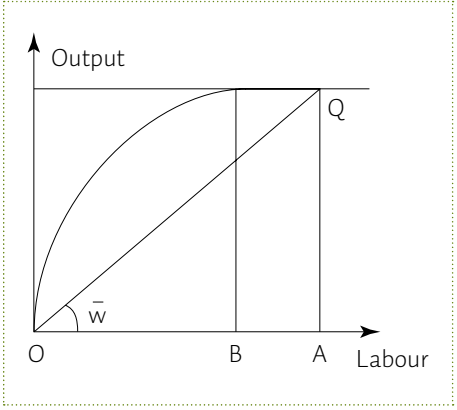



**Figure 2.** Representation of surplus labour on a family farm. Source: Ray (1998, p. 355).

rises, resulting in a shift in the marginal product curve MP for labour, which in a competitive system is the demand for labour (Figure 3). At the same time there is a large pool of underemployed labour so that the supply of labour is very elastic and wage rates are stable while this labour is being absorbed into the modern sector. Because the average return to labour in agriculture will be below the wage rate wm in the modern sector, transfer to the modern sector is attractive. Thus, labour moves out of agriculture and the output from agriculture does not change much because of the movement. Fei and Ranis (1961) extended this model to give it a more dynamic perspective, reflecting the changes that take place over time. First, surplus labour is transferred to the modern sector, then disguised unemployment is gradually reduced, and finally the impact of rising modern sector wages is felt in the traditional sector with the removal of most of the disguised unemployment. This process gives rise to the commercialisation of the traditional sector. Much fuller descriptions and details of these models are given in Ray (1998, chapters 4 and 10) and Todaro and Smith (2003, chapter 4).

These models provide a macro perspective on the current stage of development of Vietnamese agriculture and are also suggestive of future directions. Of course, the Vietnamese context has many special characteristics (as discussed above) that will affect the way in which the country will develop, but some of the broad and fundamental economic tendencies will be as characterised in the Harrod-Domar and Lewis models.

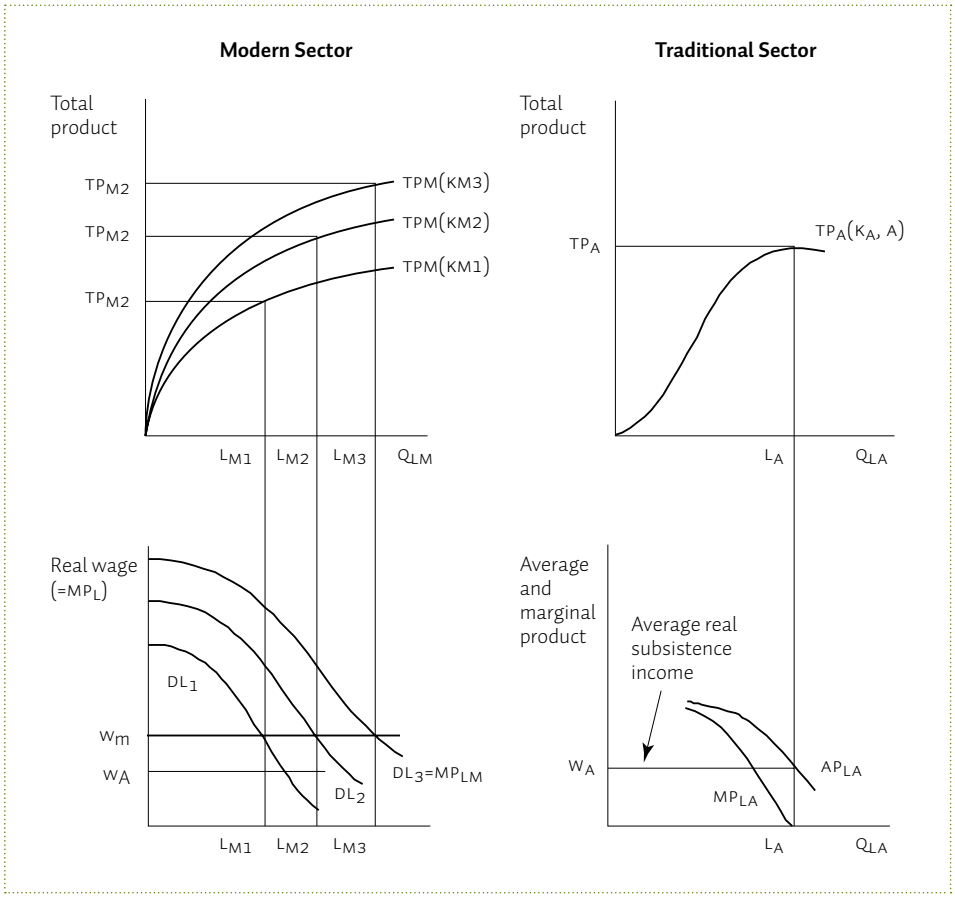



**Figure 3.** Lewis model of economic development. Source: adapted from Todaro and Smith (2003, p 118).

## Micro-economic models

### Land and labour markets and incentives for input use — imperfect markets

There are three dominant features of land use in Vietnam. First, the distribution of land among households is very much a function of the history of the country. Second, land for agricultural use is not owned but the rights over it are specified in a land use rights certificate. The third factor is that land is clearly scarce relative to labour and it is likely that there is considerable underemployment of labour in agriculture.[2] This observation is consistent with the Lewis model and also the Ranis and Fei modifications discussed above.

These observations raise the question of what are likely to be the effects of underemployment or unemployment on the use of land. Using the idea that labour will be employed to the point where its opportunity cost is equal to its marginal product, consideration of the effects of unemployment or underemployment on the opportunity cost will provide a perspective on how land will be used in the face of such imperfect labour markets. One way to take unemployment or underemployment into account is to allow for the probability $p$ of getting work that generates a return (Figure 4). This may also include the probability of working on the farm. Thus, the expected wage will be the going wage rate $w$ multiplied by the appropriate probability $p$. A probability of less than 1.0 changes the slope of the wage cost line for family labour, and so the optimal level of use of family labour on family-based farms will be L* rather than L** as in the case of hired labour. Family labour use will be higher where there are imperfections in the labour market than when there is an efficient labour market. Thus, land will be used more intensively with respect to labour. This may be a 'good' or 'bad' thing depending

[2] Recent estimates of production functions for two provinces in the north and two in the south of Vietnam using data from the ACIAR project ADP 1/97/0092 'Impacts of alternative policy options on the agricultural sector in Vietnam' have very small elasticities of production for family labour and hired labour (Hung & MacAulay 2005).

In the north the elasticity of scale for family labour was estimated to be 0.04 at average input levels and the marginal product of labour was 0.98 kg of rice equivalent per day of labour input. From the survey data, on average, one labour unit equivalent works about 195 days/yr, which is about 70% of the standard full-time work load of 270 days/yr. The price of rice is about VND1,500–1,800/kg and a typical rural wage rate is about VND15,000/day. Thus, the value of the marginal product of labour is of the order of VND1,470–1,760/day and the average wage rate is approximately 10 times this value.

In the south the elasticity of scale for family labour was 0.14 at average input levels, the marginal product of labour was about 10 kg of rice equivalent per day and the average product was 71 kg of rice equivalent per day. The average hours worked were estimated at 110 days/yr or 41% of the 270 days. The price of rice was about VND1,200–1,500/kg and the average wage about VND30,000–35,000/day. Thus, the value of the marginal product of labour is of the order of VND12,000–15,000/day with the wage rate being about 2.5–2.3 times this value.

on the real marginal cost of labour and whether unemployment in agriculture is keeping the real wage in the non-agricultural sectors too high.

The reverse effect may occur with market failure in the area of credit and possibly other inputs where market inefficiencies may cause the opportunity costs to be increased. In this case too little credit or other inputs will be used in agriculture. Restrictions and other difficulties in borrowing (eg a lack of ability to use assets such as land for collateral; poor infrastructure for the distribution and marketing of other inputs) may all increase the opportunity cost.

## Pooling and land consolidation

As the land area per household in Vietnam is very small, an important policy question is whether or not there are gains to be had from households working larger areas. On what grounds would larger farm sizes be recommended as a way of improving the efficiency of resource use?

Farms are likely to face returns to size in the areas of marketing and production. In marketing, bulk purchasing and selling may bring advantages, and this is most likely to be an issue of organisation of farmers or traders rather than of farm size. In production, mechanisation is an area of potential gains in efficiency. However, large farm sizes are needed over which to spread the capital cost of items such as a tractor.

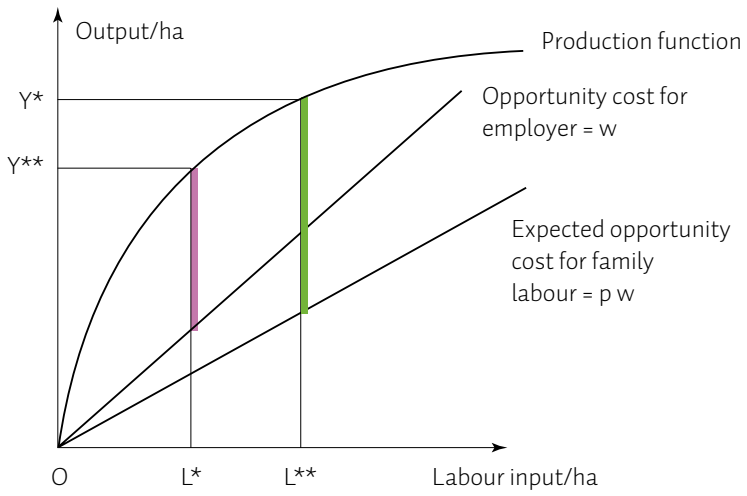



**Figure 4.** Opportunity cost of hired labour and family labour. Source: Adapted from Ray (1998, p 451).

In very simple terms the larger the area of land farmed by a household (given the severe limits on available land) the greater will be their income in total. However, in general, to increase one household's land area will require reducing the area available to one or more other households. If the expected real wage for labour used in agriculture is low (and considering the upper limits on the accumulation of land), imperfections in the labour and land markets may have significant consequences for land use regardless of the efficient farm size. Also, the ownership structure, as Ray (1998, p 454) points out in a study of West Bengal, affects productivity: '… the productivity of owned land exceeds the productivity on sharecropped land by about 50%'. Ray also suggests that a number of studies record an apparent negative relationship between farm area and productivity, which indicates that the smaller farms are more productive but appear to have less advantage in riskier environments. Results from the ACIAR survey data show that there appears to be little difference in productivity over the rather limited range of farm sizes studied (Hung & MacAulay 2005). The gains seem to be more pronounced in the north of Vietnam than in the south.[3]

One possibility is for the land market to evolve in such a way that an efficient farm size is reached through market forces. This is likely to be slow for a number of reasons, eg the land markets and the market in LUR seem to be very small because of the difficulty of using land for collateral in Vietnam. The value of land may be above the capitalised value of the income stream because of its value as collateral (Bardhan & Udry 1999). Thus, the smallholder wishing to expand must be able to pay the premium to cover the collateral value, and then once the land is mortgaged, it cannot be used to raise further collateral. If, as well, the credit market is imperfect, the small but efficient farmer will have considerable difficulty entering the land market. Thus, it is unlikely that land ownership or LUR will pass from the large farmer to the small farmer. In the case of Vietnam it is more likely to be from one small farmer to another because of the generally small areas farmed by most households. Experience in developing countries suggests that land is most often sold as a result of some family crisis, and it is more likely that it will move from small farmers to large farmers.

Thus, there are many incentives working against the consolidation of land. Clearly, there are benefits in ensuring that individual responsibility for production makes a large difference. The benefits of economies of size appear small but creating an environment in which land transactions can easily take place (eg with low transaction costs and suitable supporting inputs such as credit) will allow such benefits to be obtained, particularly as both technology and the opportunity costs of labour in the agricultural sector change.

[3] Using data collected for the ACIAR project ADP 1/97/0092, the provinces of Ha Tay and Yen Bai had average technical efficiency levels estimated from frontier production functions of 85%. For Binh Duong it was 58% and for Can Tho 72%. The net value of production in the provinces was VND28.3 million for Ha Tay, VND8.1 million for Yen Bai, VND33.8 million for Binh Duong and VND13 million for Can Tho. For details of the regressions see Hung and MacAulay (2005).

## Key factors in the use of land as a resource in Vietnam

In this last section of the chapter results derived from research work (see Appendix I for details) undertaken for the ACIAR project in four provinces, Ha Tay and Yen Bai in the north and Can Tho and Binh Duong in the south, are presented and discussed under subheadings representing key factors in the use of land in Vietnam.

### Benefits and costs associated with land fragmentation

The benefits and costs associated with land fragmentation are complex and include both private and social aspects. The negative impacts include reduced incentives for mechanisation, higher costs, loss of use of land due to boundaries, increased negative externalities, and more limited application of new technologies. On the other hand, land fragmentation may benefit farmers by spreading output risk and seasonal labour use, and allowing crop diversification.

Analysis of survey data from 508 plot-based observations from 185 farm households in the north of Vietnam indicated that the number of plots per household appeared to be correlated with the rice equivalent crop yields. The partial elasticity of the number of plots was negative, a result which suggests a negative effect of plot number on farm performance. This is consistent with findings of Wan and Cheng (2001) on crop production in China. Data analysis also showed that fragmentation was not a significant determinant of output risk spreading but it did appear to be a significant factor for crop diversity. In an upland province (Yen Bai) fragmentation was positively related to the total value of farm production, and in the delta provinces (Ha Tay and Can Tho) it was negatively related. This work is discussed in more detail in chapter 3 by Hung et al.

Plot-based production data collected from household surveys were also used to estimate economies of farm size and scale in the north and south, using a production function approach estimated by frontier regression methods (Hung & MacAulay 2005). The results were different for the two regions. In the south economies of size measured by farm area were not indicated, but the partial elasticity of scale of variable inputs used (fertiliser and labour) was higher than in the north. This suggests that increasing inputs could increase not only crop productivity but also farm output and technical efficiency. In the north results showed that economies of farm size exist, indicating that land consolidation and accumulation could result in increased crop productivity.

The Vietnamese Government has encouraged exchange of land to address excessive land fragmentation. Theoretical analysis suggests that land consolidation would be increased by an increase in the wage rate and a decrease in the transaction costs of both land transfer and obtaining credit (Hung et al 2004), and this is supported in an empirical analysis by Hung et al in chapter 10. As Vietnam appears to have surplus agricultural labour, at least for much of the production year, the real benefits to farm households from land consolidation may

not be apparent until the real opportunity cost of farm labour begins to rise. This opportunity cost will clearly be affected by a number of factors such as the availability of employment opportunities for farm family members, the wage rate associated with these opportunities, the level of education and age of the rural workforce, and the time of year and season. The transaction costs involved in job searching will be a factor, as will the reliability of employment. Therefore, creation of new off-farm jobs and movement of the agricultural labour force to other sectors of the economy will be a key policy for agricultural and rural development in the future.

## Farm size, farm income and poverty issues

Data from the household surveys showed that farm size is extremely variable within communes and between regions. Variability tends to be greater in areas with comparatively larger farm size, and is also associated with land type. Few of the surveyed farmers reported that they were farming land holdings over the land limits. Amongst the surveyed households, 80% farmed only 50% of the land in Ha Tay and 34% of the land in Yen Bai. Regression analyses showed that farm size is a consistently significant variable affecting income from farming activities.

The net value of production (NVP) from farms was also extremely variable. Some farmers in all provinces, but particularly in Binh Duong and Ha Tay, reported large NVPs; however, half of the surveyed farmers had an NVP of less than VND10 million. This median value for the NVP is low and remarkably similar across provinces, but in Binh Duong and Ha Tay provinces some households have a very large value for farm production that affects the average NVP. This indicates that, first, a substantial inequality exists between rural households in these provinces on the basis of farm production alone and, second, that poverty is a concern in all provinces.

Net income from off-farm activities made a substantial contribution to both average and median total household NVP in all provinces. The increase in average NVP ranged from 12% to 56%. Median NVP increases were higher, ranging from 32% to 106%. This indicates that off-farm employment is important in raising the incomes of the poorer 50% of households. A substantial number of households perceived that opportunities for off-farm employment were now greater than 5 years ago, especially in Binh Duong and Ha Tay provinces, which are adjacent to Ho Chi Minh City and Hanoi respectively.

Small farm size and small asset value are clearly linked to households classified as being in the 'poor' (*ho ngheo*) socioeconomic group. Poor households in Ha Tay have on average approximately half the land area of households classified as 'above average' (*ho giau*), and in Yen Bai poor households only have approximately one-fifth the land area of above average households.

The results indicating the importance of off-farm income and the link between small farm size and low incomes are consistent with the findings of other researchers (reported in Asian Development Bank et al 2004; World Bank, 2003). Farm size, farm income and poverty issues are explored further in this book by Chung in chapter 8, and Marsh et al in Chapter 9.

## Development of the market for land use rights

Based on analysis of the project survey data there is an active market for LUR but the level of activity varies considerably between provinces. Rental transactions were reported more often in the northern provinces and sales more often in the southern provinces. Some individual households have acquired a large percentage of their land holding, up to 100%, through buying or renting activities, as distinct from land that has been allocated or inherited. In Ha Tay province there has been a steadily increasing level of land transaction activity and land price over time, and the price paid for LUR appears to be a rational capitalisation of the rental price. Also, a similar percentage of households in Ha Tay from all socioeconomic groups are involved in the LUR rental market. The 'above average' group has acquired the majority of the land area transacted, both in terms of area per transaction and total area involved in renting and auction transactions. The majority of LUR bought have been acquired by households in the above average group, and all LUR sold have been from the 'poor' socioeconomic group. This observation is supported by an extensive literature (eg Binswanger & Elgin 1998) that suggests that small farmers are not able to raise (or repay) the capital required to buy land to enlarge their holdings.

The incidence of households involved in multiple LUR transactions over time indicates that some households are steadily accumulating land. Deininger and Jin (2003) suggest that a functioning LUR market should result in land transferring to small but efficient producers, as well as to households with larger endowments. Data from this study illustrate that this is indeed occurring but the effect is only minimal, and larger more wealthy households are obtaining the most land from the LUR rental market. This is possibly a desirable result in terms of allocative efficiency and the development of a commercial agriculture, but it raises poverty and equity concerns when few off-farm opportunities are available in rural areas. In Ha Tay province, however, where this trend is reported, off-farm opportunities could be expected to be higher than in other provinces further from major cities.

There is a clear demand for rental land, particularly so in the communes surveyed in the north. However, not surprisingly, lack of available land is perceived by farmers as a major constraint. Overcoming this will eventually be dependent on off-farm opportunities and the freedom of rural people to move freely and without substantial risk into other regions and occupations. Finance is also perceived as a significant constraint, particularly in the south, raising concerns about credit availability for farm households. On the other hand, farmers do not perceive market procedures and the limit on the amount of land that can be held as constraints. In practice, for the rental market at least, they see these as secondary issues compared to land availability and finance. This does not mean that transaction costs are low, but that they may be avoided through informal market transactions.

This research work on land markets is reported by Marsh et al in chapter 4. It is likely that an active LUR market, as appears to exist in Ha Tay, will tend to favour accumulation of land by the more wealthy

farmers. While this will assist with the commercialisation of Vietnamese agriculture, it will inevitably raise poverty and equity concerns while off-farm employment opportunities in rural areas remain low. The World Bank (2003, p 44) also notes that further land reforms will not result in changes that can be expected to bias benefits towards the poor, but rather land ownership 'could become gradually more concentrated in the hands of wealthier households'.

## Land use flexibility

That improvements in rural living standards during 1993–98 are considered to be driven predominantly by a diversification of on-farm activities (World Bank 2000) points to the importance of land use flexibility. However, despite evidence of changing land use, rice still accounts for over 60%, and food crops for over 70%, of the total sown areas. Despite an official policy that supports diversification, there still remain inconsistent government requirements and local pressures to produce rice and food (Hung & Murata 2001). These concerns about the use of land are linked closely to issues of rice policy and food security. Some 4 million ha of land in Vietnam is still 'required' to grow rice, although this represents a decrease of 0.2 million ha on land previously set aside for rice production.

A high proportion of the farmers surveyed during the ACIAR project reported land use changes in the last 5 years, and few perceived serious restrictions on land use. From the survey data it was found that production activities are more diverse in the northern than southern provinces, and production diversity is positively related to the number of plots. Of the surveyed provinces, Ha Tay had the greatest amount of both LUR transaction activity and reported land use change. This province is close to Hanoi and there are opportunities to provide products such as fish, meat, vegetables, flowers and fruit for the increasingly affluent Hanoi population. There has been a sharp rise in LUR transactions in Ha Tay since 1997 and an increase in the rental price being paid for land, indicating that crops more profitable than rice are being grown on rented land (Marsh et al 2005). This suggests that profitable land use change is driving LUR transaction activity. Ensuring that land or LUR are tradeable is necessary but not sufficient for a land market to develop: there also need to be actual or perceived profitable production opportunities. Issues related to land use and land use flexibility are explored further by Tien et al in chapter 3.

## Credit provision for rural investment

Credit provision for investment in production is crucial for rural development. Households need access to adequate credit to enable them to take advantage of market opportunities and expand their production. Research reported by Duong and Izumida (2002) has shown that credit-constrained farm households in Vietnam cannot optimise their production. Based on analysis of the survey data, the following conclusions can be drawn with regard to rural credit use in these four provinces. These issues are covered in more detail by Marsh et al in chapter 6. Many results are consistent with those of Duong and Izumida (2002), who surveyed farmers in three different provinces located in the northern, central and southern regions of Vietnam.

Farmers have a high awareness of alternative credit sources. Most rural credit is supplied by the formal sector, particularly the VBARD. Semi-formal sources and the Vietnam Bank for Social Policy are significant credit providers in the northern but not the southern communes. This effectively means that poor farmers in northern provinces have greater access to subsidised credit than those in southern provinces. Households also used informal credit sources but less so for loans taken out in 2001 than for loans held in 2000. This may indicate a lessening of credit constraints in the formal sector as a result of policy change, although many households reported differences between credit received and credit requested from formal credit sources. Farmers also said that credit constraints were affecting their ability to rent and buy land, especially in the south.

Credit use was widespread across all socio-economic groups. In fact, wealthier farmers accessed credit less than poorer farmers, which may indicate credit constraints in the commercial sector or lack of production opportunities for wealthier farmers. Anecdotal evidence suggests that farmers are reluctant to borrow as agricultural returns are low. It also illustrates the high priority placed by the government on enabling poorer farmers to have access to credit. It would appear that this policy has been successful but it is a concern that this may be at the expense of commercial agricultural development.

Generally, loan amounts obtained from the commercial formal sector were low, at less than VND10 million, and were for short- or medium-term loans. Loan amounts also appear to be unrelated to farm size. Uncertainty with the value and effectiveness of agricultural LUR as collateral is probably restricting both loan amounts and the availability of long-term loans suitable for development projects. Given the complex nature of land ownership, management and use in Vietnam, this will not be an easy problem to solve.

The new 2003 Land Law addresses some of the issues facing credit providers with regard to using LUR as collateral (Vietnam Economic Times 2003).

## Transaction costs in the land and credit markets

There is commitment in Vietnam to ongoing administration reforms (Asian Development Bank et al 2004), which should lead to a reduction in the transaction costs associated with the credit market, the market for LUR, and land consolidation through plot exchange. Separate comparative statics and empirical analyses suggest that if transaction costs are reduced then land consolidation would be encouraged and the market for LUR would also be likely to be more active (Hung et al 2004, chapter 10). That many land transactions occur informally suggests that the direct and indirect costs of transfers may be substantial. Many households complained of high transaction costs (eg complicated procedures and kickbacks) when obtaining credit (chapter 6).

## Technology development, extension and training

A number of analyses supported the need for increased research and extension activities. Many households nominated 'not sure what to do' or 'lack of knowledge to change' when asked why they did not change their

production activities (Marsh & MacAulay, 2003). Comparative statics analysis shows that land fragmentation is likely to decrease with increased agricultural production ability (Hung et al 2004). In econometric analysis using production data in Ha Tay, the education level was significant and positively related to the value of farm production (chapter 9). Additionally, frontier analysis suggests that technical efficiency in the northern provinces is high, pointing to the need for technology development to shift the production frontier; whereas technical efficiency was lower in the southern provinces, indicating the need for extension and training to improve farm productivity (Hung & MacAulay 2005).

## Summary and conclusions

Some of the key issues from a policy perspective can be summarised as follows:

- Care needs to be taken in applying a general policy of plot consolidation since there are a number of interacting factors involved. In some cases there may be gains to be made, and in other cases the gains are much less clear.
- The ability to use land as collateral and as a means of enhancing investment in agriculture seems to be very restricted at this time in Vietnam, with limits on borrowing and only a limited capacity to trade in LUR. In addition, LUR have a relatively short horizon of ownership in many cases. The use of land as collateral in the context of market failure in the credit and labour markets becomes even more limited.
- Lenders need to be able to liquidate land assets if land is to be used as collateral for loans.
- In general the effective transaction costs for land exchanges are high and difficult to implement (eg, all owned plots are on the one 'Red Book' certificate). Low transaction costs and ease of exchange are needed in both the land and credit markets for effective markets to develop.
- There is a significant need to have a more flexible and effective credit system, particularly for longer term debt related to land.
- Investments in human capital through education and extension services seem vital to the development of higher income levels in agriculture so that labour mobility and alternative employment opportunities are enhanced.

Land policy in Vietnam is a politically sensitive and complicated issue. There are social, historical and cultural perspectives that impinge on the economics of land policy (eg Kerkvliet 2000). Within policy circles there is disagreement on policies to encourage the land market, including the desirability of accumulation of land (see chapter 11). However, pressure is coming from both within and outside Vietnam to allow accumulation of land and changes in land use. Restrictions on the land market limit the capacity to both invest and disinvest, and also reduce the ability of Vietnamese agriculture to adjust to the economic and technological changes that take place. However, care needs to be taken to ensure that land policy liberalisation does not make a large section of the rural population vulnerable to poverty.

CHAPTER TWO

# AGRICULTURAL LAND USE FLEXIBILITY IN VIETNAM

TO DUNG TIEN, NGUYEN PHUONG LE AND SALLY P. MARSH

Agricultural land use flexibility in a market economy is important in allowing farmers to respond to market signals. Following the renovation in agriculture in 1988 in Vietnam, when farmers were able to make their own production decisions based on their available resources, crop patterns in some farm households have changed remarkably. Land use flexibility in practice is affected by several factors including: farmers' awareness of land use opportunities and possibilities, rules and regulations governing the use of land, and the ability of farmers to respond to market opportunities. In this chapter policies affecting flexible land use in Vietnam are outlined and discussed. Household survey data from four provinces are used to summarise common land uses and the economic returns from alternative land uses. Flower production in Ha Tay province is used as a case study to illustrate profitable land use change. The study shows that the flower industry plays a key role in generating household cash income even in farm households growing flowers on only 9% of their total cultivated area. Flower production also contributes to creating job opportunities for family labour as it requires more workdays than other crops. These results are used to discuss policy to promote more profitable land use.

## Introduction

Agricultural land use flexibility in a market economy is important in allowing farmers to respond to market signals such as the prices of inputs and outputs. Input prices directly affect investment levels and production costs, and output prices have an impact on production results and returns to investment. In a market economy prices are always fluctuating, and flexibility in land use allows producers to take advantage of market opportunities and reduce disadvantage when price changes occur. Additionally, agricultural production takes place under variable climatic conditions that increase production risk. Rigid and inflexible production in response to pre-determined targets doesn't allow adaptation to unusual changes in conditions. Farmers benefit from land use flexibility that allows them to reduce the risk associated with the production process, thus saving costs, reducing possible losses and increasing income.

Therefore, the extent to which land use flexibility exists has a direct effect on both farmers' incomes and agricultural development. Since 1986, following *doi moi* (renovation), Vietnam has moved from a centrally planned economy where agricultural production was under the control of the State to a socialist-orientated market economy where farm households have more individual control over their production activities. Assessing the impact of this increased land use flexibility is necessary to aid the development of appropriate policy recommendations in further strengthening flexibility of land use and production, and enhancing living standards for farmers.

Flexibility in the use of agricultural land indicates how readily land use patterns vary in order to adapt to changes in production conditions and opportunities, including:

- changing cropping patterns and livestock raising
- adopting appropriate advanced technology
- changing investment levels in production inputs.

Intensive investment is usually related to the adoption of modern technologies such as new varieties and breeds, fertilisers and crop protection methods.

In this chapter changes in land use since *doi moi* are briefly outlined, followed by a discussion on policies affecting flexible land use. Typical land use patterns in Vietnam are described and data from household surveys are used to illustrate the wide diversity of current land use and the economic returns from different land uses. A case study of flower production in a commune in Ha Tay province is used as an illustration of a high input / high return land use. Farmer perceptions of land use flexibility are explored, along with actual changes in land use reported by surveyed farmers. A discussion of the role of extension services in promoting land use change leads to conclusions and policy implications resulting from the discussion.

## Changes in land use since *doi moi*

Substantial changes in land use have undoubtedly occurred since *doi moi*. The growth in land area planted to industrial crops such as tea, coffee, rubber, sugarcane and pepper are readily shown by government statistical data (Figure 1), eg the rapid growth in the area planted to coffee, from 111,900 ha in 1988 to a peak of 565,300 ha in 2001.

Changes in land area planted to major food and annual industrial crops (maize, soybean, cassava, sweet potato and peanut) are shown in Figure 2. The area planted to sweet potato has steadily decreased since 1992 while the area planted to maize has more than doubled, from 431,800 ha in 1990 to 909,800 ha in 2003. Areas planted to soybean and cassava have increased since the year 2000, while peanut has been relatively constant at around 240,000 ha. Although not shown in Figure 2, the total area planted to rice has increased from 5,740,800 ha in 1988 to 7,449,300 ha (preliminary figure) in 2003 (GSO 1999, 2000, 2001, 2004).

The percentages of land area planted to some major annual food and industrial crops are provided in Table 1. The dominance of rice is clearly evident, with around 70% of the total land area planted to annual crops growing rice. The percentage areas planted to maize, cassava and soybean have increased since 2000, whereas the percentage area planted to sweet potato has decreased.

Land use changes are also being reported by researchers. Fforde (1995, p 91) reports that 'low profitability cash crops have been abandoned in favour of crops offering higher returns', citing examples such as the planting of high-value fragrant rice in the

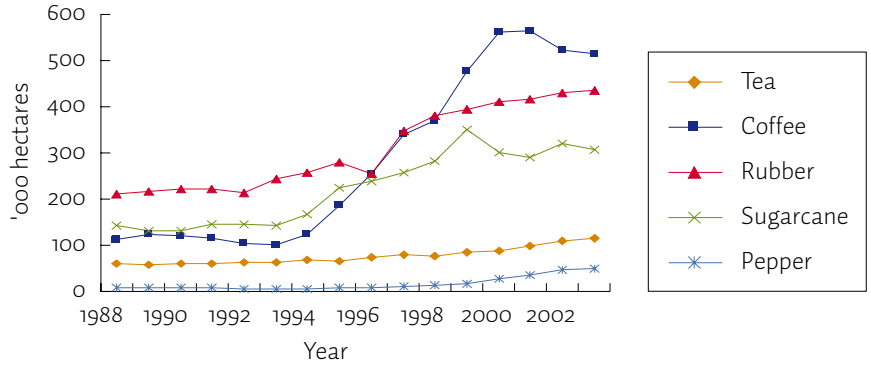



**Figure 1.** Area planted to tea, coffee, rubber, sugarcane and pepper 1988–2003. Data for 2003 is preliminary (Source: GSO, various years)

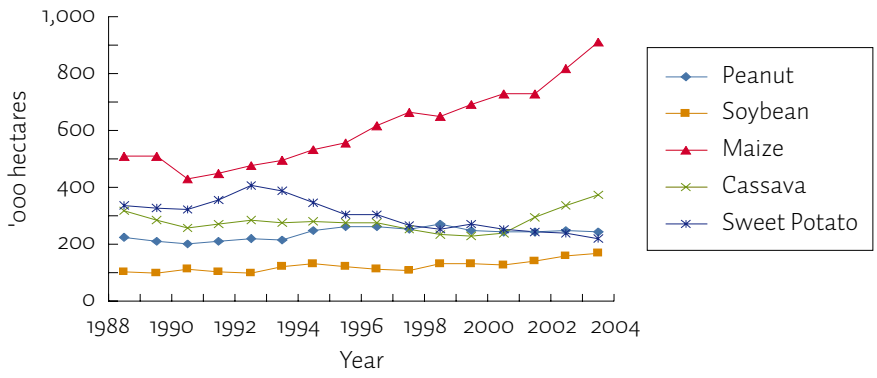



**Figure 2.** Area planted to peanut, soybean, maize, cassava and sweet potato 1988–2003. Data for 2003 is preliminary (Source: GSO, various years)

High value horticulture crops (lettuce, roses, chrysanthemums) being grown in Ha Tay province for the market in Ha Noi.

Red River delta. Khiem et al (1999) report that land reforms (and improved market access) have affected land use patterns in the northern uplands, with areas planted to fruit trees and horticultural crops 'increasing dramatically'. In districts close to towns and cities high-value horticulture and flower crops are becoming increasingly common, with some communes specialising in specific high-value crops. In some coastal areas of the Mekong Delta there is an expansion of more profitable rice–shrimp farming systems (Ben 2000). However, despite evidence of changing land use, rice still accounts for over 60%, and food crops over 70%, of the total sown area. Despite an official policy that supports diversification, there still remain inconsistent government documents and local pressures to produce food, in particular rice (Hung & Marata 2001).

There are conflicting views about the extent to which the use of land should be the province of the individual or controlled by the State. However, the centrality of state land management to government policies is still paramount (AusAID 2001). These concerns over the use of land are linked closely to issues of rice policy and food security. Control

**Table 1.** Major annual crops grown in Vietnam as a percentage of total area under all annual crops, 1995–2003

| Year | Area of each crop as a percentage of total area under all annual crops | | | | | | |
|---|---|---|---|---|---|---|---|
| | Food crops | | | | Annual industrial crops | | |
| | Rice | Maize | Sweet potato | Cassava | Sugarcane | Peanut | Soybean |
| 1994 | 73.3 | 5.9 | 3.8 | 3.1 | 1.9 | 2.8 | 1.5 |
| 1995 | 83.1 | 6.0 | 3.3 | 3.0 | 2.4 | 2.8 | 1.3 |
| 1996 | 73.8 | 6.5 | 3.2 | 2.9 | 2.5 | 2.8 | 1.2 |
| 1997 | 73.3 | 6.8 | 2.8 | 2.6 | 2.7 | 2.6 | 1.1 |
| 1998 | 73.5 | 6.5 | 2.5 | 2.4 | 2.8 | 2.7 | 1.3 |
| 1999 | 73.1 | 6.6 | 2.6 | 2.2 | 3.4 | 2.4 | 1.2 |
| 2000 | 72.7 | 6.9 | 2.4 | 2.3 | 2.9 | 2.3 | 1.2 |
| 2001 | 72.4 | 7.0 | 2.4 | 2.8 | 2.8 | 2.4 | 1.4 |
| 2002 | 70.8 | 7.7 | 2.2 | 3.2 | 3.0 | 2.3 | 1.5 |
| 2003[a] | 69.7 | 8.5 | 2.1 | 3.5 | 2.9 | 2.3 | 1.6 |

[a] Figures for 2003 are preliminary

Source: Adapted from data reported by the GSO, various years

over production in still exerted by the State, particularly with regard to rice production (World Bank in Vietnam 1998). Production targets are set at the local level in response to government directives and individual households may have to grow crops as directed. Some 4 million ha of land in Vietnam is still 'required' to grow rice, although this represents a decrease of 0.2 million ha on land previously set aside for rice production.

## Policies and factors affecting flexible land use

Three conditions need to be met to encourage land use flexibility:

1. Farmers themselves must be aware of possible and effective land use alternatives and be able to change their production activities accordingly. Farmer decision-making plays a key role in land use change. For flexible land use to occur, farmers need to respond to changing factors affecting the production process as well as production results. They also need a sufficient level of knowledge to apply the technology and management methods associated with the new land use. Additionally, community and government support in providing accurate market information and creating favourable conditions for business management in the farm household economy is necessary.
2. Farmers must have rights to change land use within the land use planning guidelines provided by the government. Under the 1993 Land Law, farmers have both rights and responsibilities in using land, as stated in the policies associated with land use rights. For example, planning of production activities depends on land classification; land size; the term of land use; and the degree to which land use, as stated on the land-use-rights certificate, is allowed to be changed. Land-related changes such as changing the land use purpose stated in the certificate or reshaping land plots are officially required to be registered with the local authorities. Registration can only be made after the changes are 'permitted by the People's Committee of the competent level and effected in accordance with current regulations' (Government of Vietnam 1998, p 87).
3. Farmers must have the necessary conditions to realise their desire to change land use. This is affected by government policy, and also by the financial resources, technical skill and knowledge situation of the farm household.

A number of land use polices have a considerable effect on land use flexibility, including those related to the:

- *term of agricultural land use.* Land use rights have, since 1993, been granted for 20 years for land used for annual crops and 50 years for land used for perennial crops. Annual and perennial crop land classifications are determined by the government and stated on the land-use-rights certificate.
- *amount of land that can be held by the farm household.* The Land Law has put a ceiling on the amount of land that can be allocated to individual households: for annually cropped land this is 2 ha in

the central and northern provinces and 3 ha in the southern provinces, and for land planted to perennials the limit on holdings is 10 ha. Land limits are not rigidly enforced in all areas, especially when there is unused land, but limits hold in the heavily populated delta areas. Although, theoretically, land use rights in excess of the land limit cannot be transferred to households, provision is made for households to be able to work land in excess of the limit. Land transferred in excess of the limit must be leased from the State; however, lease money is not always charged, especially for land not considered highly productive (eg 'barren hills' in upland areas).

- *rights and responsibilities of the agricultural land user.* As land is 'owned by the people as a whole' there are responsibilities associated with its use. Land use should be complete (*day du*), ie all land should be used; and reasonable (*hop ly*), ie the land should be farmed efficiently with appropriate crops and rotations and attention paid to maintaining the fertility of the land. In practice this is determined by restrictions on land use that are specified on the land-use-rights certificate.
- *tax on agricultural land.* Many land-related changes are required to be officially registered and incur a fee. Land tax on agricultural land has been abolished until 2008.

High value farming system in Soc Trang province in the Mekong Delta: rice-shrimp paddy field with coconuts on the bank.

- *agricultural land price*. Rental and land transfer values do not reflect true market prices, but rather are determined within a pricing framework set by the Central Government, with the actual prices fixed by the provincial or municipal authorities.

Other government policies which have an impact on land use include those related to: credit provision to rural households and rural industries, investment in rural areas and infrastructure, markets and prices, goods circulation and trade, education and training, and science and technology. Besides these policies, other factors also affecting land use flexibility are:

- the land use design and planning system from central government implemented by local government at provincial and district levels
- land use planning at the communal level such as the planning of irrigation systems, transportation networks and land allocation
- the service provision system at the communal level such as input supplies, land preparation, crop protection and the adoption level of new technology by farmers.

## Agricultural land use in Vietnam

### Typical land use patterns in Vietnam

In 2000 the natural land area of Vietnam was 32.9 million ha, of which 9.3 million ha (28%) was used for agriculture and 11.6 million ha (35%) for forestry. The land use pattern in Vietnam can be described according to the arrangement of crops and animals on each type of land and crop rotations on each plot of land. The main land use patterns (on suitable land types) can be summarised as:

- *specialised rice* – cropping patterns on a yearly basis include: 3 rice crops, 2 rice crops, 1 rice crop
- *rice + short-term crop* (STC) – cropping patterns include: 2 rice crops + STC, rice crop + 2 STC, rice crop + 1 STC; short-term crops can include vegetables, soybean, peanuts etc
- *specialised non-rice crop* – cropping patterns can encompass 3–4 crops/year or 1–2 crops/year and include vegetables, flowers and short-term medicine crops
- *perennial crop* – crops include perennial industrial crops such as rubber and coffee, fruit trees and medicine trees
- *pasture* – includes cultivated pasture and natural grazing pasture
- *forestry*
- *aquaculture*.

## Land use patterns in the study sites

In order to examine agricultural land use, a survey was conducted over two years (2001 and 2002) in four provinces: Ha Tay, Yen Bai, Binh Duong and Can Tho. Because these provinces differ in land type and quality, the land use patterns could be expected to differ substantially. In northern Vietnam, Ha Tay is located in the Red River Delta and has little land and a high level of agricultural intensity, whereas Yen Bai is a mountainous province with comparatively more land and a low level of agricultural intensity. In southern Vietnam, Binh Duong is located close to Ho Chi Minh City and is characterised by a diversified production, whereas Can Tho is located in the heart of the major rice growing region of the Mekong Delta. Two districts were selected in each province and two communes were chosen in each of those districts, with 20–25 households being surveyed in each commune. More detail about the survey design and methodology is contained in Appendix I.

The average farm size varied across the communes, ranging from 3,268 $m^2$ in Dai Dong commune (Ha Tay) to 35,266 $m^2$ in Lai Uyen commune (Binh Duong) and 46,931 $m^2$ in Dai Dong commune (Yen Bai) (Table 2). Plot numbers per household also varied, being generally much higher in the northern provinces compared to the southern provinces. Similarly, land types farmed by the households also varied, with more perennial land in the southern provinces Binh Duong and Can Tho, and a substantial percentage of forestry land (more than 60%) in Yen Bai.

The numbers of different land use patterns (or rotations) on different land types for the surveyed households in the eight northern communes are shown in Table 3. It can be seen that there are many different land use patterns, totalling 63 distinct land uses from this comparatively small sample of approximately 200 households. This indicates a diverse agriculture, although it is evident that there is greater land use diversity in Ha Tay province than in Yen Bai.

## Economic results from different land use patterns

As discussed above, land use patterns among the households are diverse. Production results and economic returns vary according to the type of land because of the different production activities that are possible on differing land types. Even on the same land type, economic returns from land use varies considerably due to different cropping patterns, technology adoption, input use level and marketing.

### Survey sites in the north: Ha Tay and Yen Bai provinces

The returns and costs associated with some of the main cropping rotations on cultivated land in the survey households are shown in Table 4, and returns and costs for some of the main crops grown in Table 5. Costs are cash costs and do not include the cost of family labour or any depreciation costs. These data are based on prices paid and received by individual farmers, and are average figures over the period 2000–01.

**Table 2.** Average farm size, plot numbers and percentage of perennial land in the surveyed households in 2000

| **Province** | **Ha Tay** | | | |
|---|---|---|---|---|
| District | Thach That | | Dan Phuong | |
| Commune | Dai Dong (n = 25) | Thach Hoa (n = 20) | Song Phuong (n = 26) | Tho Xuan (n = 26) |
| Average farm size (m2) | 3,268 | 9,412 | 5,310 | 3,910 |
| Number of plots | 8 | 7 | 5 | 5 |
| % perennial land | 0 | 26 | 42 | 0 |
| **Province** | **Yen Bai** | | | |
| District | Yen Binh | | Van Yen | |
| Commune | Dai Dong (n = 20) | Bao Ai (n = 22) | Mau Dong (n = 24) | Dong Cuong (n = 25) |
| Average farm size (m2) | 46,931 | 11,661 | 22,921 | 18,760 |
| Number of plots | 9 | 7 | 8 | 7 |
| % perennial land | 1 | 10 | 8 | 11 |
| **Province** | **Binh Duong** | | | |
| District | Thuan An | | Ben Cat | |
| Commune | Vinh Phu (n = 24) | An Son (n = 21) | Lai Uyen (n = 21) | An Tay (n = 22) |
| Average farm size (m2) | 4,267 | 10,538 | 35,266 | 12,729 |
| Number of plots | 2.3 | 2.7 | 2.5 | 2.3 |
| % perennial land | 35 | 68 | 93 | 58 |
| **Province** | **Can Tho** | | | |
| District | O Mon | | Chau Thanh | |
| Commune | Truong Thanh (n = 24) | Dong Hiep (n = 22) | Dong Thanh (n = 22) | Dong Phuoc (n = 22) |
| Average farm size (m2) | 15,943 | 16,725 | 9,082 | 12,605 |
| Number of plots | 2.2 | 2.0 | 2.4 | 2.0 |
| % perennial land | 34 | 3 | 85 | 43 |

The results from the survey of households in these provinces indicate that:

- Gross and net returns from land use in Ha Tay were higher than those in Yen Bai. It is likely that this is due to:
  - more fertile land in Ha Tay
  - a higher level of intensive farming (input investment and technology adoption)
  - a higher educational level of labour in Ha Tay (according to Human Development Indicators, Ha Tay ranked 25 while Yen Bai ranked 43 in the total of 51 rural provinces)
  - Ha Tay is located closer to big markets in Hanoi.
- On annual crop land, rotation combinations between rice and other crops bring higher returns compared to rice alone.
- On annual crop land, higher returns are obtained from land growing two or three crops, indicating that improving the irrigation system and enabling cropping intensity to increase to either two or three crops will result in higher returns.
- For other land, cropping patterns which include flowers, vegetables, baby corn or papaya with other short-term crops obtain high returns. For example, net returns from baby corn were VND29.1 million/ha, papaya with beans VND33.5 million/ha and vegetables VND49.6 million/ha.

**Table 3.** Number of different land use patterns amongst surveyed households in the northern communes

| Type of land | Commune | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Dai Dong | Thach Hoa | Song Phuong | Tho Xuan | Dai Dong | Bao Ai | Mau Dong | Dong Cuong | |
| Annual land[a] | 7 | 7 | 16 | 17 | 8 | 7 | 10 | 8 | |
| rice land | 2 | 2 | 1 | – | 1 | 1 | 2 | 3 | |
| rice land + other | 5 | 5 | 9 | 9 | 5 | 5 | 3 | 4 | |
| other crop land | – | – | 6 | 8 | 2 | 1 | 5 | 1 | |
| Perennial land | 4 | 3 | 6 | – | 6 | – | 3 | – | |
| Mixed garden | 4 | 5 | – | 3 | – | – | – | – | |
| Pond | 4 | – | 1 | 2 | – | – | – | – | |
| **Total** | **19** | **15** | **23** | **22** | **14** | **7** | **13** | **8** | **63** |

[a] Cropping patterns on annual land are broken down into those on rice land, rice + other crop land, and other crop land.

**Table 4**. Gross returns, costs and net returns from main cropping patterns in Ha Tay and Yen Bai (average per hectare of land in 2000–01)

| | Ha Tay | | | | Yen Bai | | | |
|---|---|---|---|---|---|---|---|---|
| | Dai Dong | Thach Hoa | Song Phuong | Tho Xuan | Dai Dong | Bao Ai | Mau Dong | Dong Cuong |
| **Gross returns/ha (mill VND)** | | | | | | | | |
| Rice–rice–maize | 28.76 | 28.33 | 28.48 | 29.42 | 18.76 | 23.83 | 25.92 | 22.52 |
| Rice–rice–soybean | 25.83 | 25.23 | 33.03 | 34.83 | 21.08 | – | – | 22.08 |
| Rice–rice–sweet potato | 23.01 | 21.01 | 37.22 | 22.14 | – | 23.67 | 25.67 | 25.77 |
| Rice–rice–potato | 37.21 | – | 64.37 | – | – | – | 33.84 | 31.94 |
| Rice–rice | 17.43 | 17.54 | 19.47 | – | 14.62 | 17.36 | 16.48 | 18.44 |
| Maize–maize | 12.62 | – | 11.64 | 12.35 | 9.82 | 11.17 | 13.14 | 12.03 |
| **Total cost/ha (mill VND)** | | | | | | | | |
| Rice–rice–maize | 11.00 | 7.12 | 9.03 | 12.24 | 8.35 | 8.61 | 7.28 | 11.55 |
| Rice–rice–soybean | 10.07 | 6.67 | 8.65 | 14.24 | 8.25 | – | – | 8.66 |
| Rice–rice–sweet potato | 6.48 | 5.95 | 7.28 | 6.33 | – | 6.33 | 6.17 | 7.74 |
| Rice–rice–potato | 15.18 | – | 17.24 | – | – | – | 14.78 | 13.68 |
| Rice–rice | 6.39 | 5.90 | 7.80 | – | 6.46 | 5.50 | 7.42 | 8.42 |
| Maize–maize | 8.11 | – | 7.80 | 7.92 | 3.45 | 4.15 | 4.43 | 4.51 |
| **Net returns/ha (mill VND)** | | | | | | | | |
| Rice–rice–maize | 17.75 | 21.21 | 19.18 | 17.18 | 10.40 | 15.21 | 18.64 | 10.95 |
| Rice–rice–soybean | 15.75 | 18.56 | 24.38 | 20.58 | 12.82 | – | – | 13.41 |
| Rice–rice–sweet potato | 16.52 | 15.04 | 29.93 | 15.81 | – | 17.34 | 19.50 | 18.02 |
| Rice–rice–potato | 22.03 | – | 47.49 | – | – | – | 19.05 | 18.24 |
| Rice–rice | 11.03 | 11.64 | 10.80 | – | 8.16 | 11.86 | 9.06 | 10.01 |
| Maize–maize | 4.51 | – | 3.8 | 4.43 | 6.37 | 7.02 | 8.71 | 7.51 |

**Table 5.** Gross returns, costs and net returns from main crops in Ha Tay and Yen Bai (average per hectare of land in 2000–01)

| | Ha Tay | | | | Yen Bai | | | |
|---|---|---|---|---|---|---|---|---|
| | Dai Dong | Thach Hoa | Song Phuong | Tho Xuan | Dai Dong | Bao Ai | Mau Dong | Dong Cuong |
| **Gross returns/ha (mill VND)** | | | | | | | | |
| Rice | 9.6 | 8.6 | 10.5 | 13.7 | 7.3 | 8.7 | 12.7 | 9.0 |
| Soybean | 6.2 | 23.0 | 8.9 | 8.3 | 2.6 | – | – | 2.5 |
| Sweet potato | 3.8 | 2.2 | 2.3 | 1.1 | – | 1.0 | 1.2 | 1.0 |
| Potato | 17.4 | – | 46.2 | – | – | – | 18.2 | 19.0 |
| Maize | 9.6 | 6.1 | 6.0 | 9.2 | 4.9 | 6.3 | 6.9 | 4.9 |
| **Total cost/ha (mill VND)** | | | | | | | | |
| Rice | 3.6 | 2.8 | 3.7 | 6.3 | 3.2 | 2.9 | 3.7 | 4.1 |
| Soybean | 3.0 | 6.5 | 2.0 | 2.6 | 1.5 | – | – | 1.5 |
| Sweet potato | 2.1 | 1.1 | 1.5 | 0.9 | – | 0.6 | 1.0 | 0.9 |
| Potato | 6.4 | – | 2.4 | – | – | – | 5.5 | 5.7 |
| Maize | 3.7 | 1.7 | 2.4 | 3.9 | 1.7 | 2.3 | 2.0 | 2.3 |
| **Net returns/ha (mill VND)** | | | | | | | | |
| Rice | 6.0 | 5.8 | 6.7 | 7.4 | 4.1 | 5.8 | 9.0 | 4.9 |
| Soybean | 3.2 | 16.5 | 6.9 | 5.7 | 1.1 | – | – | 1.0 |
| Sweet potato | 1.6 | 1.0 | 0.8 | 0.2 | – | 0.4 | 0.2 | 0.1 |
| Potato | 11.0 | – | 37.1 | – | – | – | 12.7 | 13.3 |
| Maize | 5.8 | 4.4 | 3.6 | 5.3 | 3.2 | 4.1 | 4.9 | 2.6 |

- On rice–cereal crop land, higher returns are obtained from cropping patterns which include 'food-stuff' (compared to 'food') crops such as potato, cabbage, tomato, squash, cucumber, beans and peas. Cropping patterns with only food crops (rice, maize, cassava and sweet potato) give lower returns while rotations of rice and other vegetables usually obtain an income of VND23.3–23.5 million/ha.
- Monoculture rice land returns a very low income. However, rotations using rice and livestock fodder crops or rice and fish result in higher incomes.

Returns and costs for perennial tree crops and aquaculture activities are shown in Tables 6 and 7 respectively. As for annual crops, these figures are based on prices paid and received by farmers, do not include the cost of family labour, and are averages for the communes over the period 2000–01. On all four main types of agricultural land, surveyed farmers had no land specifically reserved for raising livestock (pasture). Generally, gross and net returns from aquaculture production were higher than from cultivated land. Perennial trees also brought higher returns, especially in Song Phuong.

On perennial land, returns from different cropping patterns vary by region. In Song Phuong the income obtained is higher than that in Dai Dong (Thach That). One reason could be that the production cycle of perennial crops is longer than that of annual crops, and the level of production depends on the age of the trees. Perennial trees in different regions could have been at different production levels. Another reason is that because the technical requirements of perennial crops are higher than for other crops, the household head's knowledge and the capacity of members of the household for technological adoption are very important. Of all perennial crops grown, mango and pomelo (grapefruit) showed higher returns. Perennial crops showed higher returns than mixed gardens, in which there tends to be low investment because they are characteristic of subsistence production.

### Survey sites in the south: Binh Duong and Can Tho provinces

Returns from some of the main cropping rotations and perennial crops in communes in Can Tho and Binh Duong are shown in Tables 8 and 9. These figures show that, in general, higher returns are generated from perennial than from annual crops. In annual crops, cropping patterns with flowers obtain the highest returns, followed by rotations using two rice crops. There is little difference between the returns from growing two or three rice crops. For perennial land, the highest returns were obtained from ornamental plants, fruit trees and pepper. Rubber and cashew bring low returns.

## Assessment on returns to investment in production

To evaluate the efficiency of input use, which is one aspect of flexible land use, the levels of investment for three land use patterns on annual crop land were considered. The results are presented in Table 10. Investment levels of 'high', 'medium', 'low' and 'very low' correspond to relative absolute levels of investment made by the farm households (ie not quartiles). There is a clear return from high-input investment on specialised

**Table 6.** Gross returns, costs and net returns of some main perennial tree crops in Ha Tay and Yen Bai (average per hectare of land in 2000–01)

| | Ha Tay[a] | | Yen Bai[a] | | |
|---|---|---|---|---|---|
| | **Thach Hoa** | **Song Phuong** | **Dai Dong** | **Bao Ai** | **Mau Dong** |
| **Gross returns/ha (mill VND)** | | | | | |
| Pomelo | – | 89.8 | – | – | – |
| Longan | – | 54.0 | – | – | – |
| Lychee | 16.9 | 47.5 | – | – | 21.0 |
| Mango | – | 62.5 | – | – | – |
| Apricot | – | – | – | – | 40.0 |
| Tea | 26.3 | – | 6.1 | 13.3 | 5.9 |
| Coffee | – | – | – | – | 11.1 |
| Cinnamon | – | – | – | – | 26.3 |
| **Total costs/ha (mill VND)** | | | | | |
| Pomelo | – | 60.1 | – | – | – |
| Longan | – | 35.8 | – | – | – |
| Lychee | 6.1 | 27.0 | – | – | 14.7 |
| Mango | – | 58.8 | – | – | – |
| Apricot | – | – | – | – | 7.8 |
| Tea | 15.4 | – | 3.2 | 4.1 | 1.9 |
| Coffee | – | – | – | – | 5.6 |
| Cinnamon | – | – | – | – | 7.3 |
| **Net returns/ha (mill VND)** | | | | | |
| Pomelo | – | 29.7 | – | – | – |
| Longan | – | 18.2 | – | – | – |
| Litchi | 10.8 | 20.5 | – | – | 6.3 |
| Mango | – | 3.7 | – | – | – |
| Apricot | – | – | – | – | 32.2 |
| Tea | 10.9 | – | 2.8 | 9.2 | 4.0 |
| Coffee | – | – | – | – | 5.5 |
| Cinnamon | – | – | – | – | 19.0 |

a There were no data for perennial tree crops in Dai Dong and Tho Xuan communes (Ha Tay) and Dong Cuong commune (Yen Bai)

non-food crops, with income/ha double that from very low to medium input levels. The ratio of gross output to costs falls from 8.0 at very low levels of investment to 2.1 at high levels of investment, which is consistent with the expectation of lower marginal returns at higher levels of input.

The returns to investment are not so clear for the other two cropping patterns considered. In the case of a rotation with two rice crops and one specialised crop, income/ha is highest at medium levels of investment, although there is little difference in income/ha at all investment levels. The ratio of gross output to costs again shows a falling trend, from 2.9 at very low to 2.0 at high levels of investment. In the case of a rotation with two rice crops only, the highest income/ha is at low levels of input, suggesting over-investment in this particular rotation at high levels of input. As with the other rotations, the ratio of gross output to costs shows a falling trend, from 3.4 at very low to 1.4 at high levels of investment.

## Flower production in Ha Tay: a case study of high input / high return land use

Tho Xuan is a commune in Dan Phuong district, Ha Tay province, 25 km from Hanoi City. Following the implementation of policies allowing farmers to make choices about which crops to grow, many farmers in this commune changed from rice to flowers to take advantage of the increasing market in Hanoi for cut flowers. Floricultural products appear to have helped farmers in Tho Xuan commune to increase their incomes and improve their living standards remarkably.

Secondary data on crop production in Tho Xuan commune were gathered from commune annual reports and statistical data. Primary data on production and marketing of annual crops, especially flowers, were obtained through interviews with 40 representative flower-farm households in Tho Xuan commune. Those households were categorised into three groups: group 1 with 13 households growing flowers on more than 50% of their total cultivated area; group 2 with another

**Table 7.** Gross returns, costs and net returns from aquaculture in million VND (average per hectare of water surface in 2000–01)

| | Ha Tay | | | | Yen Bai | | | |
|---|---|---|---|---|---|---|---|---|
| | Dai Dong | Thach Hoa | Song Phuong | Tho Xuan | Dai Dong | Bao Ai | Mau Dong | Dong Cuong |
| Gross returns/ha | 26.9 | 25.7 | 46.3 | 36.8 | 36.1 | 11.8 | 28.7 | 45.8 |
| Total costs/ha | 13.3 | 9.7 | 10.9 | 7.9 | 9.3 | 3.8 | 8.6 | 21.9 |
| Net returns/ha | 13.6 | 15.9 | 35.5 | 28.9 | 26.9 | 8.1 | 20.1 | 23.8 |

13 households growing flowers on 20–50% of their total cultivated area; and group 3 with 14 households growing flowers on less than 20% of their total cultivated area. Comparative analyses were made of production from flowers and other annual crops to find out the differences between the three groups and to investigate the economic returns from flower production.

**Table 8.** Gross returns, costs and net returns for main cropping patterns in Binh Duong and Can Tho (average per hectare of cultivated land in 2001)

| | Binh Duong | | | | Can Tho | | | |
|---|---|---|---|---|---|---|---|---|
| | Vinh Phu | An Son | Lai Uyen | An Tay | Truong Thanh | Dong Hiep | Dong Thanh | Dong Phuoc |
| **Gross returns/ha (mill VND)** | | | | | | | | |
| 2 rice crops | 23.6 | 14.0 | – | 6.2 | 14.0 | 14.2 | – | 8.4 |
| 3 rice crops | 18.4 | – | – | – | 15.7 | 13.0 | 17.4 | 13.0 |
| 1 food crop | – | – | 13.0 | – | – | – | – | – |
| 2 rice +1 food crop | – | – | – | – | – | 22.3 | – | – |
| Flower | 66.6 | 13.4 | – | – | – | – | – | – |
| Vegetable | 8.4 | – | – | – | – | – | – | – |
| **Total costs/ha (milli VND)** | | | | | | | | |
| 2 rice crops | 9.3 | 3.1 | – | 5.6 | 11.7 | 6.5 | – | 8.6 |
| 3 rice crops | 8.8 | – | – | – | 9.1 | 6.1 | 4.3 | 7.5 |
| 1 food crop | – | – | 2.5 | – | – | – | – | – |
| 2 rice +1 food crop | – | – | – | – | – | 4.8 | – | – |
| Flower | 20.2 | 2.7 | – | – | – | – | – | – |
| Vegetable | 2.0 | – | – | – | – | – | – | – |
| **Net returns/ha (mill VND)** | | | | | | | | |
| 2 rice crops | 14.3 | 10.9 | – | 0.6 | 2.2 | 7.7 | – | –0.2 |
| 3 rice crops | 9.6 | – | – | – | 6.6 | 6.9 | 13.0 | 5.5 |
| 1 food crop | – | – | 10.5 | – | – | – | – | – |
| 2 rice +1 food crop | – | – | – | – | – | 17.6 | – | – |
| Flower | 46.4 | 10.7 | – | – | – | – | – | – |
| Vegetable | 6.4 | – | – | – | – | – | – | – |

## Overview of the flower industry in Tho Xuan commune

Flower growing has been carried out in Tho Xuan for nearly 10 years. Initially there were about ten households involved in flower growing, but now hundreds of households grow flowers, most having changed from rice growing into flower production. Initially, roses were the most popular flower grown in Tho Xuan but when roses were grown in neighbouring communes in large quantities, Tho Xuan farmers changed to growing tuberose and chrysanthemum. Because these flowers are grown in open fields, they are not protected against rain, storm, flood and diseases, and this influences flower quality significantly.

**Table 9.** Gross returns, costs and net returns for main perennial crops in Can Tho and Binh Duong (average per hectare of perennial land in 2001)

| | Binh Duong | | | | Can Tho | | | |
|---|---|---|---|---|---|---|---|---|
| | Vinh Phu | An Son | Lai Uyen | An Tay | Truong Thanh | Dong Hiep | Dong Thanh | Dong Phuoc |
| **Gross returns/ha (mill VND)** | | | | | | | | |
| Fruit trees | 136.0 | 16.7 | 23.0 | 21.7 | 16.6 | 3.7 | 25.2 | 8.0 |
| Ornamental plants | 50.0 | – | – | – | – | – | – | – |
| Rubber | – | – | 6.5 | 10.4 | – | – | – | – |
| Pepper | – | – | 36.4 | 35.2 | – | – | – | – |
| Cashew | – | – | – | 3.2 | – | – | – | – |
| **Total costs/ha (mill VND)** | | | | | | | | |
| Fruit trees | 9.0 | 4.2 | 6.3 | 0.9 | 2.6 | 0.5 | 4.9 | 3.0 |
| Ornamental plants | 0.8 | – | – | – | – | – | – | – |
| Rubber | – | – | 1.4 | 2.4 | – | – | – | – |
| Pepper | – | – | 10.1 | 7.5 | – | – | – | – |
| Cashew | – | – | – | 0.7 | – | – | – | – |
| **Net returns/ha (mill VND)** | | | | | | | | |
| Fruit trees | 127.0 | 12.4 | 16.7 | 20.9 | 14.0 | 3.2 | 20.4 | 5.0 |
| Ornamental plants | 49.3 | – | – | – | – | – | – | – |
| Rubber | – | – | 5.1 | 7.9 | – | – | – | – |
| Pepper | – | – | 26.3 | 27.7 | – | – | – | – |
| Cashew | – | – | – | 2.5 | – | – | – | – |

The crop structure in Tho Xuan commune has changed during recent years (Table 11). The percentage area devoted to food crops has decreased while the area growing flowers has increased rapidly, with an average annual growth rate of 46%. However, the area growing flowers is still relatively small, occupying only 0.98% of the total cultivated area in the year 2001.

## Costs and returns from the production of flowers and other crops

The total revenue and income generated from flower growing patterns were very high in comparison to those from other cropping patterns (Table 12). The total income from chrysanthemums was VND3.06 million/sao (a common land area measurement in north Vietnam equal to 360 $m^2$) and from tuberose VND3.04 million/sao, while equivalent figures for rotations of two rice, two rice + soybean, two rice + maize and two maize + jute rotations were just VND0.37, 0.62, 0.58 and 0.66 million /sao respectively. The ratio of total income to total cost for tuberose was the highest, at 6.4, while the equivalent figure for chrysanthemum was just 1.4. This is because growing chrysanthemum required a very high investment cost, around four times higher than tuberose and five times higher than non-flower patterns. Flower growing also returned a higher income (around VND40,000) per family working day, approximately two times higher than that for other cropping

**Table 10.** Economic result by level of investment in 2001 (calculated for all survey sites)

| Cropping pattern | Level of investment (costs) | Average cost per ha (mill. VND) | Gross output per ha (mill VND) | Income per hectare (mill VND) | Ratio of gross output: costs |
|---|---|---|---|---|---|
| Specialised crops (non-food crops) | High | 28.9 | 62.0 | 33.1 | 2.1 |
| | Medium | 10.2 | 26.5 | 16.2 | 2.6 |
| | Low | 5.5 | 18.9 | 13.4 | 3.4 |
| | Very low | 1.9 | 15.2 | 13.3 | 8.0 |
| 2 rice crops + 1 specialised crop | High | 18.2 | 36.5 | 18.3 | 2.0 |
| | Medium | 13.8 | 33.1 | 19.2 | 2.4 |
| | Low | 11.3 | 28.3 | 17.0 | 2.5 |
| | Very low | 8.4 | 24.6 | 16.3 | 2.9 |
| 2 rice crops | High | 14.3 | 20.6 | 6.3 | 1.4 |
| | Medium | 10.1 | 20.1 | 10.0 | 2.0 |
| | Low | 6.2 | 19.5 | 13.4 | 3.1 |
| | Very low | 4.9 | 16.6 | 11.7 | 3.4 |

patterns. These results help to confirm that the economic efficiency of flower production was much greater than that of other cropping patterns in the farm households.

However, family labour use is not included in the costs of production for the different crops shown in Table 12, and flower production requires more labour than other crops. While farmers usually spent only 20–30 workdays/sao/year for non-flower production, they were required to spend 70–80 workdays/sao/year for flower production. Flower production is therefore useful in creating job opportunities for farmers, but the high labour requirement could pose problems for households lacking sufficient family labour. Also, as wages rise the relative profitability of flower production can be expected to fall.

The farm households in group 1 generated the highest turnover, VND30.1 million, in 2002 from selling their crop products. Of this, the turnover from flowers accounted for 97% although they devoted just 70% of their land area to flower growing (Table 13). The turnover of farm households from group 2 was VND19.3 million, with the contribution from flowers being 89% from only 41% of their land area. Farm households in group 3 obtained the smallest turnover, just VND7.8 million, of which flower production contributed 49% though flowers occupied only 9% of their total land area. Other crops such as soybean and jute made a relatively small contribution to total sale turnover. Only in group 3 did crops other than flowers (mainly rice) contribute more than 50% of total turnover for the household.

Despite there being little difference in flower productivity levels between the three groups, the total flower production volumes were very different because farm households in the different groups planted flowers on a different percentage of their land area. However, it was found that the cash income

**Table 11.** Flower and other annual crop areas in Tho Xuan commune

| Type of plants | 1999 | | 2000 | | 2001 | | Annual growth rate (%) |
|---|---|---|---|---|---|---|---|
| | Area (ha) | Ratio (%) | Area (ha) | Ratio (%) | Area (ha) | Ratio (%) | |
| Flowers | 3.0 | 0.5 | 5.5 | 0.8 | 6.4 | 1.0 | 46.1 |
| Food crop | 501.7 | 77.1 | 501.7 | 76.9 | 501.1 | 76.7 | – 0.1 |
| Cash crops | 131.5 | 20.2 | 135.3 | 20.7 | 138.8 | 21.2 | 2.7 |
| soybean[a] | 81.5 | 62.0 | 87.2 | 64.5 | 93.8 | 67.6 | 7.3 |
| Other crops | 14.3 | 2.2 | 10.1 | 1.6 | 7.3 | 1.1 | –29.7 |
| Total area | 650.5 | 100.0 | 652.6 | 100.0 | 653.4 | 100.0 | 0.2 |

a Soybean is a major cash crop in this commune

Source: Statistical unit of Tho Xuan commune in 2002

generated by flower production accounted for a significant percentage (50–99%) of total crop cash income for all farm groups. Flower production also played a role in creating job opportunities for family labour as it required more workdays than other crops. Despite the higher investment cost, flower production, especially tuberose, generated higher returns in comparison with other crops. Flower production also generated much greater income per unit of land area, and income per family workday. Thus, flower production has been more profitable than other crops for these farm households and illustrates the advantages for households of being able to switch land use to a high return crop such as flowers.

## Land use change and land use flexibility issues

### Perceptions regarding the degree of land use flexibility

As part of the household survey, household heads were asked for their opinions about the degree of land use flexibility they had on their farm, their perceptions about restrictions that prevented land use change, and what land use changes they had made over the last 5 years. Few households reported major restrictions on their farming activities because of restrictions on land use (see Table 14). Generally, around 10% of households said they were only restricted on some of their land, except in Can Tho where the percentage

**Table 12.** Economic returns from flowers and other cropping patterns in the farm households (average for all households)

| Group | Flower | | Other cropping patterns | | | |
|---|---|---|---|---|---|---|
| | Tuberose | Chrysan-themum | 2 rice | 2 rice –soybean | 2 rice –maize | 2 maize –jute |
| Total revenue/sao ('000 VND) | 3545.1 | 5161.9 | 800.8 | 1171.0 | 1145.2 | 995.4 |
| Total cost /sao ('000 VND) | 479.9 | 2116.9 | 421.4 | 544.6 | 560.6 | 335.0 |
| Total income/sao ('000 VND) | 3065.3 | 3045.0 | 379.4 | 626.4 | 584.6 | 660.4 |
| Total income : total cost | 6.4 | 1.4 | 0.9 | 1.2 | 1.0 | 2.0 |
| Income/workday ('000 VND) | 38.7 | 43.5 | 19.0 | 21.8 | 19.9 | 19.6 |

Notes:

1. Total cost includes total production costs (material costs, service costs and other costs such as taxes, depreciation) but does not include the cost of family labour
2. Total income = total revenue – total cost

Source: Survey data, 2002

was lower. Over 75% of households in 12 out of 16 communes said that they didn't face any restrictions on their farming activities.

Households were asked for reasons why they had restrictions on land use. The reasons given varied from restrictions because of land type (eg 'can only grow rice on marshy land') and land zoning (eg 'not allowed to grow tea-plants on forest land', 'can't choose crops other than rice'); to restrictions imposed by the commune or cooperative (eg 'to fit with the irrigation timetable of the cooperative and adjoining plots', 'the cooperative doesn't allow growing fruit trees on paddy land'); or simply restrictions because of lack of funds. More households in Ha Tay province reported restrictions because of the organisation of agriculture (eg irrigation schedules, commune plans), whereas more households in Yen Bai and Binh Duong provinces reported restrictions because of land type or land zoning.

Generally speaking, these results support the idea that most households do not feel unduly restricted in their choice of cropping activities. This is supported by data on land use changes made by households during the past 5 years, which is discussed in the next section, and also by data presented in the section on the role of extension. 'Not being permitted to change' is not identified by farmers as a major reason constraining change (Table 18). Lack of knowledge and lack of funds are identified by farmers as being more important constraints to change.

## Changes in land use

Many households reported making changes to cropping and livestock activities in the last 5 years. As shown in Table 15, those in Ha Tay province reported the most changes (65% of households made changes), while those in Yen Bai province reported the least changes (37%). Over 40% of households in 12 out of 16 communes reported changes to crop and livestock produced in the last 5 years.

The changes reported by households are shown in Table 16, with many households reporting more than one change. There are some distinct differences, as might be expected, between provinces. One striking aspect of the data is the diversity of changes that have been made, particularly in Ha Tay. As stated in the previous section, this suggests that households are relatively free to change land use activities in these communes at least, and are doing so. This is as would be expected in an agricultural economy where households, either at an individual or commune level, are free to respond to a variety of market signals.

In all provinces farmers reported increasing the area planted to perennial crops and, in the two southern provinces in particular, changing the types of perennial crops grown. In Can Tho this has generally been replacing citrus with other fruit trees such as banana, mango, durian and longan; and in Lai Uyen district (Bing Duong) cashew has been replaced with either rubber or pepper. In all provinces except Yen Bai, many farmers state that they have replaced rice with either perennials or alternative annual crops. In Tho Xuan commune (Ha Tay) many farmers report replacing rice with flowers and vegetables. In the two northern provinces many households report an increase in animal enterprises, and others an increase in aquaculture.

**Table 13.** Returns from sale of household farm produce by farmer group

| Products | Group 1 | | Group 2 | | Group 3 | | Total | |
|---|---|---|---|---|---|---|---|---|
| | Value (mill VND) | Ratio (%) | Value (mill VND) | Ratio (%) | Value (mill VND) | Ratio (%) | Value (mill VND) | Ratio (%) |
| Flowers | 29.3 | 97.2 | 17.2 | 89.4 | 3.8 | 48.5 | 16.4 | 87.5 |
| Tuberose | 12.7 | 43.2 | 5.5 | 32.0 | 1.8 | 47.4 | 6.5 | 39.7 |
| Chrysanthemum | 16.6 | 56.8 | 11.7 | 68.0 | 2.0 | 52.6 | 9.9 | 60.3 |
| Other crops | 0.8 | 2.8 | 2.0 | 10.6 | 4.0 | 51.5 | 2.3 | 12.5 |
| Rice | 0.0 | 0.0 | 0.8 | 39.8 | 2.5 | 62.7 | 1.1 | 49.0 |
| Soybean | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Maize | 0.3 | 35.8 | 0.6 | 27.3 | 0.5 | 13.4 | 0.5 | 20.0 |
| Jute | 0.5 | 64.2 | 0.7 | 32.9 | 1.0 | 23.8 | 0.7 | 31.1 |
| **Total** | **30.1** | **100.0** | **19.3** | **100.0** | **7.8** | **100.0** | **18.8** | **100.0** |

Source: Farm survey data, 2002

**Table 14.** Percentage of surveyed households by province reporting restrictions on the crops or livestock they can grow or produce

| Province | Percentage of households (%) | | | |
|---|---|---|---|---|
| | Restrictions on all land | Restrictions on some land | No restrictions | No answer |
| Ha Tay (n = 99) | 1 | 12 | 83 | 4 |
| Yen Bai (n = 92) | 0 | 11 | 75 | 14 |
| Binh Duong (n = 88) | 3 | 10 | 78 | 8 |
| Can Tho (n = 90) | 1 | 3 | 73 | 22 |

Source: Household survey data – ACIAR project ADP 1/97/92

Changing land use in upland areas: extension workers inspect young eucalypt seedlings planted amongst low value cassava in Phu Tho province.

**Table 15.** Percentage of households by province reporting changes to cropping and livestock activities in the past 5 years

| Province | Percentage of households (%) | | | |
|---|---|---|---|---|
| | Have made changes | Have not made changes | Unsure | No answer |
| Ha Tay (n = 99) | 65 | 25 | 7 | 3 |
| Yen Bai (n = 92) | 37 | 50 | 1 | 12 |
| Binh Duong (n = 88) | 48 | 48 | 1 | 3 |
| Can Tho (n = 90) | 52 | 39 | 2 | 7 |

Source: Household survey data – ACIAR project ADP 1/97/92

**Table 16.** Changes in farming activities reported by surveyed households

| Reported change | Number of households[a] | | | |
|---|---|---|---|---|
| | Ha Tay (n = 64) | Yen Bai (n = 34) | Binh Duong (n = 42) | Can Tho (n = 47) |
| **Varietal changes** | | | | |
| Change rice varieties | 3 | 1 | 0 | 0 |
| Change other annual crop varieties | 3 | 0 | 0 | 0 |
| **Changes to annual crops grown** | | | | |
| Grow different annual crops | 16 | 0 | 2 | 0 |
| Reduce rice area | 2 | 0 | 3 | 0 |
| Reduce other annual crops area | 1 | 2 | 0 | 0 |
| Increase rice area | 1 | 1 | 0 | 2 |
| Increase other annual crops area | 4 | 5 | 1 | 1 |
| Change from rice to flowers, vegetables | 8 | 2 | 0 | 0 |
| **Change from annual to perennial crops** | | | | |
| Change from rice to perennial crops | 6 | 0 | 0 | 7 |
| Change from annual to perennial crops | 3 | 1 | 11 | 0 |
| **Changes to perennial crops grown** | | | | |
| Increase area of perennial crops | 13 | 7 | 4 | 4 |
| Change type of perennial crops | 1 | 5 | 14 | 29 |
| Reduce area of perennial crop | 1 | 1 | 1 | 2 |
| Reduce forest area | 1 | 0 | 1 | 0 |
| **Change to animal/aquaculture enterprises** | | | | |
| Reduce animal enterprises | 1 | 0 | 6 | 1 |
| Increase animal enterprises | 11 | 7 | 2 | 0 |
| Change to animal enterprise (same animal) | 2 | 1 | 0 | 1 |
| Change animal enterprises (different animal) | 0 | 1 | 2 | 0 |
| Trading (animals) | 1 | 0 | 0 | 0 |
| Increase aquaculture | 11 | 3 | 1 | 1 |
| **Other changes** | **2** | **3** | **2** | **0** |

a Not all households reported the nature of the change and many reported more than one

Source: Household survey data – ACIAR project ADP 1/97/92

The incidence of change in varieties grown is underestimated. Most households did not recognise varietal change as a change in farming activities. In another survey question households were asked about which new technologies they had introduced in the last 5 years, and many indicated they had made changes to varieties grown, particularly so in the two northern provinces Ha Tay and Yen Bai. There is also some overlap between categories in these data, as a result of farmers' replies. For example, an increase in perennial crop area may also mean a reduction in rice area, but this is sometimes not stated and so has only been categorised as an increase in perennial crop area.

## The role of extension services

When farming activities and markets are changing, as is the current situation in Vietnam as the rural economy is opened to global markets, the need for knowledge and information becomes critical. Ruttan (1998) notes that when traditional agricultural practices are followed, education is less important for farmers because they rely on traditional skills. However, when practices and concepts change, lack of education affects the capacity of people to grasp new ideas and change their traditional practices. The generally low basic education level of Vietnam's farmers, combined with the changing circumstances faced by them, provides a challenge for extension services to provide appropriate knowledge and information to enable farmers to adapt to new situations and opportunities.

The household survey asked farmers if they wanted to change their farming activities and, if so, what was preventing them from doing so. The percentage of respondents who indicated they would like to change their farming activities is shown in Table 17. The majority of households in all provinces said that they did not want to change their farming activities. In fact, this was the case for all communes except Song Phuong (Ha Tay) and Mau Dong (Yen Bai). Reluctance to change is understandable as changing activities is risky, especially when knowledge levels are low. Numerous studies have shown that farmers'

**Table 17.** Percentage of households by province saying they would like to change their farming activities

| Province | Percentage of households (%) | | | |
|---|---|---|---|---|
| | Would like to change | Maybe would like to change | Don't want to change | No answer |
| Ha Tay (n = 99) | 31 | 7 | 56 | 6 |
| Yen Bai (n = 92) | 32 | 5 | 52 | 11 |
| Binh Duong (n = 88) | 26 | 11 | 59 | 3 |
| Can Tho (n = 90) | 28 | 6 | 61 | 6 |

Source: Household survey data – ACIAR project ADP 1/97/92

adoption of new activities and technologies is dependent on obtaining sufficient knowledge about the activity or technology to minimise the perceived risk of change (eg Feder & Slade 1984; Lindner 1987; Marra et al 2003).

Over 25% of households in all provinces indicated that they do wish to change their farming activities, and the reasons for not being able to do so are shown in Table 18. Households in all provinces consistently nominated 'not sure what to do' as a reason. Additionally, a considerable number of households said they lack the skills to change, or were reluctant to do so because of the risks involved. Lack of funds was also clearly identified as a significant constraint to change, whereas being not permitted to change only seemed to be of concern in Ha Tay province.

## Conclusions

In order to adapt to the global market economy, agriculture in general and agricultural land use in particular needs to be flexible. Flexibility of land use creates conditions that encourage agricultural diversification, use resources more efficiently and reduce risk to farmers. The implications from data reported in this chapter are that Vietnamese farmers do have a fair degree of land use flexibility and are responding to this by introducing a number of land use changes. Economic returns from different land uses vary considerably and this could be expected to be a driving force for land use changes, with caveats that need to

**Table 18.** Reasons given by surveyed households for not being able to change their farming activities despite wishing to do so

| Reason[a] | Percentage of households (%) | | | |
|---|---|---|---|---|
| | Ha Tay (n = 38) | Yen Bai (n = 34) | Binh Duong (n = 33) | Can Tho (n = 30) |
| Not permitted to change | 26 | 0 | 6 | 10 |
| Other households don't want to change | 5 | 3 | 0 | 0 |
| Not sure what to do | 24 | 41 | 64 | 50 |
| Lack skills to change | 16 | 24 | 9 | 27 |
| Lack sufficient funds to change | 29 | 18 | 36 | 50 |
| Risk in changing is too high | 21 | 9 | 12 | 17 |
| Not sure about markets | 3 | 3 | 0 | 3 |
| Not enough labour | 0 | 3 | 0 | 3 |
| Other reasons | 8 | 12 | 15 | 17 |

a Households could nominate more than one reason

Source: Household survey data – ACIAR project ADP 1/97/92

account for the ability of farmers to change (adequate knowledge and capital) and the risk in doing so. Many farmers indicated that capital and knowledge constraints prevented them from changing land use.

The provision of services and proximity to markets obviously affect land use flexibility. In regions with well-developed service activities and market proximity, such as Ha Tay province and some areas of Binh Duong province, farmers have many options for profitable land use (eg ornamental plants, flowers) compared to more remote areas with a less developed service sector such as Yen Bai province. These land use changes have the potential to be very profitable for farmers in these regions.

Land use planning is currently unspecific and inappropriate in many regions, especially at the communal level. This can cause poorly planned agricultural land use, hindering the planning of cropping patterns and affecting returns from production. In addition, land use planning is inaccurate and rigid in some regions and this too hinders the flexibility of agricultural land use.

The role of information and extension in promoting land use change is important. Many farmers say they do not want to change their production activities, and many who would like to change are unsure of what they could do, lack the necessary skills, or have concerns about the risks involved. There would seem to be a clear need for improved extension activities and market information to enable farmers to make informed choices about possible changes to production activities. This is essential if Vietnam's farmers are to take advantage of opportunities and avoid production risks associated with the changing rural economy.

CHAPTER THREE

# THE ECONOMICS OF LAND FRAGMENTATION IN THE NORTH OF VIETNAM

PHAM VAN HUNG, T. GORDON MACAULAY AND SALLY P. MARSH

Land fragmentation, in which a single farm household operates more than one separate piece of land, is a significant issue in Vietnamese agriculture, especially in the north of Vietnam, as it is in many other developing countries. In Vietnam there are about 75 million plots of land, consisting of an average of seven to eight plots per farm household. Such fragmentation can be seen to have negative and positive benefits for farm households and the community generally. Analyses of survey data on household farm size, structure and production have led to the conclusion that small-sized farms are likely to be more fragmented, and that the number of plots held is a significant determinant of the equivalent rice yield of a household and a factor in crop diversification. Policies which allow the appropriate opportunity cost of labour to be reflected at the farm level may provide appropriate incentives to trigger farm size change and land consolidation. Policies which tip the benefits in favour of fewer and larger plots, eg strong and effective research and development, an active extension system and strong administrative management, may also lead to land consolidation.

## Introduction

Land fragmentation, where a single farm has a number of parcels of land, is one of the important features of agriculture in many countries, especially in developing countries. In Vietnam land fragmentation is common, especially in the north. For the whole country there are about 75 million parcels of land, with an average of seven to eight plots per farm household (Lan 2001; Marsh & MacAulay 2002). Because land fragmentation is considered an impediment to efficient crop production, many countries have implemented policies encouraging land consolidation. Such policies are in place in Kenya, Tanzania, Rwanda (Blarel et al 1992), Albania and Bulgaria (Sabates-Wheeler 2002), and are now being considered in Vietnam. In the larger context, if land fragmentation means that more labour and other resources are used than is necessary and that these resources can be used more effectively elsewhere in the economy, then there is likely to be an overall economic gain from reduced fragmentation. However, even though land fragmentation may have negative impacts on farms and the overall economy, there are reasons why there may be benefits to farmers whereby they attempt to keep some degree of fragmentation.

The aim of this chapter is to investigate the current situation of land fragmentation in the north of Vietnam and its effects on and relationship to crop productivity. An empirical model using data collected from farm household surveys is used to examine the relationship between productivity and land fragmentation and farm size. The role of land fragmentation in crop diversity is also considered.

The chapter commences with a discussion of Vietnamese agriculture and the issue of land fragmentation, followed by the causes, advantages and disadvantages of land fragmentation. Evidence from survey data of land fragmentation in the north of Vietnam and its relationship to crop productivity, farm size and other factors are presented. Empirical models are proposed which allow the examination of effects of land fragmentation on crop productivity and diversification. Conclusions and policy implications are drawn in the last section.

## Background

Vietnam started on its path of overall economic reforms with the introduction of the *doi moi* (renovation) policy in 1986. The aim of *doi moi* was to shift the Vietnamese economy from a central planning model to one largely based on market principles. In the agricultural sector the government's Resolution 10 of 1988 was a radical reform. The main aspects of this policy were to recognise the farm household as an autonomous economic unit, free up markets for inputs and outputs as well as the means of production (except land), and provide longer terms for land use (Hung & Marata 2001; Marsh & MacAulay 2002; Pingali & Xuan 1992). The new land policy effectively resulted in the demise of collectivised agriculture. Under the policy farmers were allocated land for 15 years and assigned 'contract levels' for inputs used, outputs and labour, which were to be stable for 5 years. Moreover, most of the means of production (machines, buffaloes and agricultural instruments) were now recognised as

being privately owned. Since then, Vietnam's agriculture has entered a new and relatively more stable development stage. However, the duration of land allocation was short and other land use rights were not supported by the legal system (Nakachi 2001). This meant that farmers did not have incentives for long-term investment in their land.

The 1993 Land Law was enacted in response to these problems. Under the Land Law farmers were allocated land for long-term and stable use and they were granted five rights of land use – the rights of transfer, exchange, lease, inheritance and mortgage. The most important principle of the land allocation was to maintain equality. Commonly, many localities in the north allocated a certain amount of land to each *dinh suat* (per capita equivalent). Other conditions that were taken into consideration during land allocation were social policies, land quality, the irrigation system, distance to plots and capacity for crop rotation. Annual crop land in Vietnam was divided into six categories. Therefore, in order to maintain the principle of equality, each household may have been allocated a number of plots with different categories, locations and land quality, often scattered over a wide area.

Concern about land fragmentation resulting from this 'equitable' allocation of agricultural land has emerged in recent years. There are different degrees of land fragmentation, with some regions and locations being more seriously fragmented than others. According to data from the Land Management Office, in 1998 farms in the Red River Delta (RRD) and the Northern mountainous and midlands

Farmers transplant rice seedlings in Ha Tay province. Each individual small paddy will belong to a different household.

regions had, on average, 7 and 10–20 plots, respectively (Lan 2001). Data from 42,167 farm households in Hung Yen province in the RRD show that after the land allocation was made in 1993, on average a farm had 7.6 plots (Hung Yen People's Committee 2002).

In 1998 the government issued a policy to promote the exchange of land plots so as to encourage larger plot areas. Since then, provinces in the north, especially in the RRD, have established steering committees for conducting pilot studies on plot exchange. Throughout the whole country there are 700 communes in 20 provinces where plot exchanges were and are being implemented, but progress is still slow. In these areas land was effectively reallocated to farmers with the aim of reducing the number of plots. In Thanh Hoa province, for example, the number of plots decreased by 51% after 3 years of implementation of the policy (1998–2001). On average, the number of plots per farm household decreased from 7.8 to 3.8 (Ministry of Agriculture and Rural Development 2002).

In reports made to the central and local governments, the conclusion is that the policy of plot exchange should be implemented wherever farmers realise there is a problem caused by fragmentation and where land relations are in order. This means that plot exchange should not lead to new conflicts related to land allocation. The most important principle is that farmers should voluntarily exchange land such that the result is larger plot areas for each individual (Ministry of Agriculture and Rural Development 2002). However, in many provinces the land reallocation process occurs without much input from farmers, who are only involved in the assessment of land quality in order to determine the exchange coefficients between different classes of land. Because land in Vietnam is still owned by the whole people or state, many farmers believe they do not have rights to be involved in either the reallocation process or discussion about land use planning in general.

## Reasons for land fragmentation

In the literature researchers have classified causes of land fragmentation into two broad categories: supply-side and demand-side (Bentley 1987; Blarel et al 1992). The supply-side causes refer to an exogenous imposition on farmers of a pattern of land areas, while the demand-side causes reflect varying degrees of fragmentation chosen by farmers (Blarel et al 1992).

A supply-side explanation of land fragmentation puts the view that it may happen involuntarily as a result of historical and geographical issues, population pressure and patterns of inheritance (Bentley 1987). Historical issues may be more significant where land is scarce. In most developing countries in Africa and Asia where labour is cheap, crop production is mainly carried out by hand cultivation and animal traction. In such cases, particularly on small-scale and self-sufficient farms, fragmentation is a certain result. Fragmentation is also commonly a result of geographical conditions where the terrain is hilly and upland areas exist. Historical and geographical causes of land fragmentation are hard to overcome and it may take a long time to consolidate such

land areas. Land fragmentation can also be explained by pressure of high population growth (Bentley 1987; Blarel et al 1992) in regions where farmers have less off-farm opportunities. Another cause of land fragmentation can be inheritance, where farmers want to give their children land of similar quality. The above mentioned explanations are observed in many developing countries, eg China (Nguyen et al 1996), Ghana and Rwanda (Blarel et al 1992).

In Vietnam land fragmentation has mainly been caused by the land allocation process (Research Institute of Agricultural Planning 2004), but also by the failure of land markets to operate effectively because of government regulations on land transactions (Bentley 1987; Blarel et al 1992). The market for the exchange of land use rights in Vietnam is still complicated and not well developed. Farmers who want to use their land as collateral for borrowing money from banks need permission and the seal of authority from the local government. Other transactions such as 'selling' or 'buying' of land use rights are completed only if they are recorded and certified by the local government. In many cases this is not done (Kerkvliet 2000).

Demand-side causes of land fragmentation arise when farmers consider that land fragmentation may have some benefits. In this case it is possible for the private benefits of land fragmentation to exceed its private costs (Blarel et al 1992), and farmers may choose to retain certain levels of fragmentation that they perceive are beneficial to them. By cultivating plots in different geographical areas, variation in output may be less because the risks caused by drought, flood and diseases are spread. Another reason farmers want to keep fragmented farms is that they may be able to use their seasonal labour more effectively. Although labour is generally in surplus in Vietnam, especially in the RRD, in peak times (transplanting and harvesting periods) and during the winter crop growing period more labour is demanded. Therefore, farmers may reduce peak-time labour periods by diversifying crops in different plots.

Another potential benefit is that the land user can mortgage or sell a portion of their land use rights. They may also give land to their children as an inheritance more easily when the children want to live separately. It is also possible that the transaction costs for reducing fragmentation are sufficiently high for farmers to decide not to undertake the set of land transactions that would be needed to reduce the degree of fragmentation. These benefits of land fragmentation are summarised in Table 1.

Land fragmentation causes many negative effects including higher costs, increased negative externalities, loss of land due to boundaries and a greater potential for disputes between neighbouring farmers (Blarel et al 1992; Lan 2001; Research Institute of Agricultural Planning 2004). Production costs may also be higher due to higher costs for labour as it takes more time to travel from plot to plot and to operate an activity such as irrigation for many small units of land. A major source of higher production costs is higher transport costs for inputs and outputs. Other problems caused by fragmentation may be higher negative externalities, resulting from farmers cultivating different crops or varieties (Bentley 1987) and leading to greater potential for disputes between neighbours. Land fragmentation

also causes land loss due to plot boundaries or bunds and access routes, which is directly related to the number of plots. In addition, it is hard to apply new technologies when farms are small and fragmented, as is the case in Vietnam. These disadvantages of land fragmentation are summarised in Table 1.

Despite these disadvantages of land fragmentation, farmers in many provinces, especially in the north and north–central regions of Vietnam, still retain their many parcels of land. This indicates that farmers may not want to exchange small plots for larger ones and probably benefit from some degree of land fragmentation, by reducing risks from flood, drought and diseases, making more efficient use of seasonal labour and enabling crop diversification.

## Land fragmentation in the north of Vietnam: evidence from survey data

### Measuring land fragmentation

Because there is no standard measurement of land fragmentation, it is difficult to determine when farm households are 'very fragmented' or 'less fragmented'. Bentley (1987) reports that most authors have used two simple measurements of land fragmentation: the number of plots per farm and the average farm size. Some authors have considered that land fragmentation should be measured by six parameters: farm size,

Motorbikes, but more often bicycles, are used by farmers to travel to their land plots that are commonly from one to three kilometres from their houses.

the number of plots, plot size, plot shape, spatial distribution and the size distribution of the fields (Bentley 1987; King & Burton 1982). In this chapter two main measures of fragmentation are used: the number of plots per farm household and a measure based on Simpson's diversification index. Blarel et al (1992) have also used these two indicators to measure land fragmentation in Ghana and Rwanda. Other measures such as farm size and plot size are also considered. Simpson's index of land fragmentation is defined as:

$$(1-\frac{\sum_j a_j^2}{A^2})$$

where $a_j$ is the area of the j-th plot, A is the farm size and $A = \sum a_j$. This index has a value between zero and one. A value of zero means that the farm household has only one parcel or plot of land, indicating complete land consolidation, while a value close to one means the household has numerous plots and the farm is 'very fragmented'.

## Evidence of fragmentation from survey data

Two provinces, Ha Tay and Yen Bai, in the north were chosen as research sites. In each province two districts, one where farm sizes were smaller than average and the other where farm sizes were larger than average, were chosen. This same procedure was followed in selecting two communes in each district. In Ha Tay province, Dai Dong and Thach Hoa communes in Thach That district, and Song Phuong and Tho Xuan communes in Dan

**Table 1.** Costs and benefits associated with land fragmentation

| Benefits of having many plots | | Costs of having many plots | |
|---|---|---|---|
| Private benefits | Public benefits | Private costs | Public costs |
| ▪ Risk spreading<br>  ▪ flooding<br>  ▪ diseases & pests<br>  ▪ output variation<br>▪ Inheritance flexibility<br>▪ Crop rotation flexibility/diversity<br>▪ Small parcels to transfer/sell/ mortgage<br>▪ Seasonal labour spreading | ▪ Equality of treatment<br>▪ Implicit insurance<br>▪ Increased biodiversity<br>▪ Reduced spread of diseases | ▪ Cost increases<br>▪ More labour used<br>▪ Border land loss<br>▪ Access difficult<br>▪ Disputes increased<br>▪ Irrigation difficult<br>▪ Mechanisation difficult<br>▪ Application of new technology difficult | ▪ Less labour released<br>▪ Mechanisation delayed<br>▪ Application of new technology delayed<br>▪ Planning of commercial production zones difficult<br>▪ Higher transaction costs when used as collateral<br>▪ Land use planning |

Phuong district, were selected. In Yen Bai province, the four communes were Dai Dong and Bao Ai in Yen Binh district, and Mau Dong and Dong Cuong in Van Yen district. Data for 2 years (2000 and 2001) were collected from approximately 200 households using prepared questionnaires. Further details of the survey are given in Appendix I.

Ha Tay province, located in the RRD, is characterised by low-lying land and a small farm size, while Yen Bai province is located in an upland region and has a larger farm size. Part of Ha Tay has some upland area, and therefore the average farm size is likely to be larger than that of other provinces in the RRD. According to data from the first survey, average farm sizes including settlement land, agricultural land, ponds and forestry land in Ha Tay and Yen Bai were 5,232 and 24,337 $m^2$, respectively, in the year 2000 (Table 2). More than 40% of the surveyed farms in Ha Tay had a farm size less than 3,000 $m^2$, while in Yen Bai this figure was 31%. Only 3% of the surveyed farms in Ha Tay had a farm size larger than 20,000 $m^2$, while in Yen Bai this figure was 37%, and even higher in some communes such as Dai Dong (55%).

Farm size is closely related to plot size because when farm size is small individual plot areas, on average, cannot be very large. In Ha Tay the average farm size and plot size in Dai Dong commune were 3,182 and 384 $m^2$ respectively, while these figures for Thach Hoa commune were 9,412 and 1,263 $m^2$. The same situation was also observed in Yen Bai, where the average farm size and plot size in Dai Dong commune were 46,931 and 5,364 $m^2$, and in Bao Ai they were 11,661 and 1,644 $m^2$.

The number of plots and farm size do not appear to be significantly related (Hung & MacAulay 2002), which means that land consolidation may occur without land accumulation through plot exchanges. In Ha Tay and Yen Bai 53% and 54%, respectively, of the total number of plots had areas of less than 400 $m^2$, although the average areas of a plot in the two provinces were different (1,126 $m^2$ in Ha Tay and 3,084 $m^2$ in Yen Bai).

Households in the surveyed areas had an average of 6.8 plots of land, with the figures for Ha Tay and Yen Bai being 6.2 and 7.6 plots, respectively (Table 2). The average number of plots also varied from region to region and commune to commune. Only 9% of farms in Ha Tay had more than 11 plots, compared to more than 24% for Yen Bai. If the degree of fragmentation is measured by the number of plots, Yen Bai's farms were 'more fragmented' than those in Ha Tay, while if the degree of fragmentation is measured by Simpson's index the conclusion is the reverse. On average Simpson's index was 0.68 for farms in Ha Tay and 0.51 for those in Yen Bai. More than 74% of farms in Ha Tay had an index value higher than 0.6 while for Yen Bai it was only 46%. This means that in Yen Bai there were larger plots and/or smaller plots because the index is sensitive to the area of the largest or smallest plots.

Land fragmentation can be more serious if plots are scattered over wider areas. To measure this, distances from farm houses to all plots were estimated. In more than 27% of farms in Ha Tay and 33% in Yen Bai farmers had to travel more than 5 km to reach their plots. According to data in

**Table 2.** Land fragmentation in Ha Tay and Yen Bai provinces, 2000

| Provinces | Yen Bai | Ha Tay | Total |
|---|---|---|---|
| Number of households | 91 | 97 | 188 |
| Farm size (m²) | | | |
| Mean | 24,327 | 5,232 | 14,475 |
| Median | 11,890 | 3,702 | 4,176 |
| Areas of plot (m²) | | | |
| Average plot area | 3,222 | 847 | 2,116 |
| Average area of smallest plots | 211 | 303 | 258 |
| Average area of largest plots | 17,751 | 2,741 | 10,007 |
| Simpson's index | | Percentage of households | |
| 0–0.2 | 19.8 | 4.1 | 11.7 |
| 0.2–0.4 | 17.6 | 3.1 | 10.1 |
| 0.4–0.6 | 16.5 | 18.6 | 17.6 |
| 0.6–0.8 | 30.8 | 42.3 | 36.7 |
| 0.8–1.0 | 15.4 | 32.0 | 23.9 |
| Mean[a] | 0.51 | 0.68 | 0.59 |
| Median[a] | 0.58 | 0.72 | 0.68 |
| Number of plots | | | |
| <= 2 | 8.8 | 3.1 | 5.9 |
| 3–5 | 25.3 | 48.5 | 37.2 |
| 6–8 | 28.6 | 27.8 | 28.2 |
| 9–11 | 13.2 | 11.3 | 12.2 |
| > 11 | 24.2 | 9.3 | 16.5 |
| Mean[a] | 7.55 | 6.18 | 6.84 |
| Median[a] | 7 | 5 | 6 |
| Distance of plot from house (m) | | Percentage of plots | |
| 0–300 | 23.3 | 18.5 | 21.1 |
| 300–700 | 43.7 | 32.2 | 38.4 |
| 700–1,000 | 11.5 | 11.9 | 11.7 |
| 1,000–3,000 | 18.3 | 34.7 | 25.8 |
| > 3,000 | 3.2 | 2.7 | 3.0 |
| Mean (m) [a] | 653.1 | 805.4 | 722.9 |
| Median[a] | 500 | 600 | 500 |

[a] Expressed in relevant units, not percentages

Source: Household survey data 2000: ACIAR Project ADP 1/97/92

Table 2, about 37% and 22% of the total number of plots in Ha Tay and Yen Bai, respectively, were located further than 1 km from the farmer's house.

Some authors assert that fragmentation is a serious problem for agricultural production in Vietnam (Lan 2001; Ministry of Agriculture and Rural Development 2002; Research Institute of Agricultural Planning 2004). In order to investigate this, the correlation between fragmentation and costs and returns (in equivalent rice yields) was calculated and tested on six main crops (first and second rice crops, maize, soybeans, vegetables, and flowers and fruits). Without taking into account other interacting variables, fragmentation appeared to have little or no effect on land productivity of individual crops. However, this may not be the case for a combination of crops because the relationship between fragmentation and aggregate yields of crops in a rotation may be different to the correlation between fragmentation and the yield of individual crops. There were significant correlations between fragmentation levels and total expenses for a rice–rice crop rotation but for other rotations it was not significant. It was also found that there were significant correlations between fragmentation and labour use in three major groups of crops (rice–rice, flowers and fruit). Correlations were strong with family labour, with correlation coefficients of 0.43 for flower and fruit crops. Therefore, fragmentation is likely to have a significant effect on labour use and to some extent on costs related to crops. In the RRD agricultural labour is still in surplus; however, in the future when the opportunity for off-farm jobs is greater, land fragmentation may become a more serious problem.

## An empirical model and results

In this estimation of the relationship between productivity and fragmentation and farm size the production function is written as:

$$(1) \qquad y = \alpha F(l_f(N), l_h(N), x(N)).\ h(A)$$
$$h(A) = A^{\mu 1}\, e^{\mu 2 A}$$

where $y$ is the yield, $lf$ and $lh$ are family and hired labour respectively, $x$ is a vector of other variable production inputs (fertilisers, seed, pesticides etc), $N$ is the number of plots and $\alpha$ is the agricultural production ability (Deininger & Jin 2003) of farm households. It is assumed that land fragmentation affects the level of production inputs used.

The yield function $y$ is assumed to be separable into functions $F$ and $h$. Function $F$ is the yield per unit of land area while function $h$ incorporates economies of farm size (MacAulay & Hertzler 2000). If there are no economies or diseconomies of size, $\mu 1$ will be one, $\mu 2$ will be zero and function $h$ will equal the area $A$. Function $F$ can be designed with the variables in different forms. In order to examine the relationships between not only fragmentation and productivity but also fragmentation and production inputs, the translog form is used. However, because the problem of collinearity occurs for the full translog form, the squared terms and interactive terms of variables with few observations are excluded from the model (eg, there are only 81 observations for hired labour in the total 508 observations).

In the model it was expected that fragmentation, represented by the number of plots, would have a negative sign while dummy variables for the number of crops per year (representing soil quality), cash crops and land use change would have positive signs. Land use change means that farm households change land use from 'traditional crops' (rice, corn, vegetables) to fruits, fish or flowers. Results are provided in Table 3.

The production function was estimated using frontier regression methods with panel data (508 plot-based observations over 2 years from 188 farm households in the north of Vietnam). The software used was LIMDEP version 7.0 (Greene 1998). From the results it would seem that a reasonable response function has been estimated (transcendental form in land area and translog form in other variable inputs except hired labour). The values of $\lambda^2$, which is equal to $\sigma^2_u/\sigma^2_v$ (where $\sigma^2_u$ is the variance of the one-side error term $U$ and $\sigma 2_v$ is the variance of two-side disturbances $V$), were reasonable and significantly different from zero at 1%, indicating that the model disturbances capture technical inefficiency.

For the estimated model the coefficient of farm area and its exponential term were statistically different from zero, implying that farm area has an effect on productivity, as reflected in the equivalent rice yield. As a result an increase in farm area may increase crop yield but with decreasing rates. Thus, in terms of crop productivity, economies of farm size are likely to be present in the north of Vietnam.

The coefficient of the number of plots was statistically different from zero and negative, and the partial elasticity of the number of plots was also negative.[1] This result suggests that there is a negative effect of the number of plots on farm performance. Wan and Cheng (2001) also found that there was a negative relationship between the number of plots and individual crop productivity in China. The coefficients of interaction terms between the number of plots and family labour and other money expenses were statistically different from zero and positive, supporting the idea that the number of plots has increased family labour costs and other money expenses. Therefore, fragmentation has an effect on not only crop productivity but also on labour and other money expenses.

The coefficient of family labour was statistically different from zero at 1% and negative. If the level of seed application remains constant, a reduction in the number of plots may cause the elasticity of family labour to be negative.[2] This result suggests that the number of plots also increases the level of family labour used and, therefore, land consolidation or a reduction in the number of plots of the farm household may release more labour for other sectors of the economy. These empirical results are consistent with theoretical results derived from comparative statics analysis and reported in Hung et al (2004).

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1 The elasticity of the number of plots is equal to $(-1.081 + 0.211\ Ln(X_5) + 0.064\ Ln\ (X_7)) = -0.32$, which is estimated at the average level of $X_5$ and $X_7$ (where $X_5$ is family labour while $X_7$ is other money expenses).

2 The elasticity of family labour is equal to $(-0.212 - 0.04\ Ln(X_1) + 0.211\ Ln(X_8)) = 0.036$ which is estimated at the average level of $X_1$ and $X_8$ (where $X_1$ is expenditure of seed application and $X_8$ the number of plots).

**Table 3.** Results from frontier regression analysis of annual crop yield function for Ha Tay and Yen Bai provinces

| Estimates[a] | Coefficients | t-value | |
|---|---|---|---|
| Intercept | 6.751 | 23.65 | *** |
| Seed application | 0.106 | 2.14 | ** |
| Nitrogen input | −0.141 | −2.08 | ** |
| Potassium input | −0.034 | −0.80 | |
| Phosphorus input | −0.001 | −0.10 | |
| Family labour | −0.212 | −3.85 | *** |
| Hired labour | 0.021 | 1.70 | * |
| Other money expenses | −0.111 | −3.13 | *** |
| Number of plots | −1.081 | −5.13 | *** |
| Farm area | 0.074 | 2.25 | ** |
| Farm areas (exp) | −0.001 | −1.65 | * |
| Seed application × nitrogen | 0.013 | 1.67 | * |
| Seed application × potassium | −0.003 | −1.67 | * |
| Seed application × family labour | −0.040 | −2.85 | *** |
| Seed application × other money expenses | 0.011 | 1.64 | * |
| Seed application × number of plots | −0.016 | −1.12 | |
| Nitrogen × potassium | 0.021 | 2.59 | *** |
| Nitrogen × phosphorus | −0.001 | −0.27 | |
| Nitrogen × family labour | 0.016 | 0.53 | |
| Nitrogen × other money expenses | 0.023 | 1.57[b] | |
| Nitrogen × number of plots | 0.062 | 1.19 | |
| Potassium × phosphorus | −0.002 | −1.36 | |
| Potassium × family labour | 0.003 | 0.26 | |
| Potassium × other money expenses | −0.008 | −0.94 | |
| Potassium × number of plots | 0.019 | 1.20 | |
| Family labour × other money expenses | 0.022 | 1.58[b] | |
| Family labour × number of plots | 0.211 | 3.52 | *** |
| Other money expenses × number of plots | 0.064 | 1.56[b] | |
| Dummy for the number of crops (soil quality) | 0.195 | 3.81 | *** |
| Dummy for paddy crops | −0.126 | −2.62 | *** |
| Dummy for cash crops | 0.407 | 6.66 | *** |
| Dummy for land use change | 0.452 | 6.58 | *** |
| Sample size, n | 508 | | |
| Log likelihood function | −265.39 | | |
| Lambda squared ($\lambda^2 = \sigma^2u/\sigma^2v$) | 0.464 | 2.85 | *** |
| Sigma squared ($\sigma^2v$) | 0.098 | 11.38 | *** |

***, **, and * are significant at 1%, 5% and 10% respectively

a The dependent variable is the equivalent rice yield of a crop rotation (kg/sao/year)

b The coefficient is significant at about 12%

Estimates of the partial elasticities of scale for the three fertiliser inputs, seed application, family and hired labour, and other money expenses were very low, ranging from –0.07 to 0.07, suggesting that farmers in the two provinces in the north had applied intensive farming techniques and had reached a level around the maximum point of the production function. This leads to the conclusion that a change of technology is needed, and a policy on technological change should be considered for agricultural development in the future.

For the estimated model the coefficients of the dummy variables for cash crops and land use change were statistically different from zero and positive, while the coefficient of the dummy for paddy crops (rice, corn, cassava and sweet potato) was negative. This means that paddy crops have lower equivalent yields than other crops and farmers may increase both their crop outputs and their incomes by producing cash crops (vegetables, soybean, peanuts, flowers and fruit). Farmers' crop outputs and incomes increase as crop patterns change from producing 'traditional crops' to other crops such as fruit, flowers and fish, suggesting that retaining a 'quota' policy on the area of rice land may not help farmers to increase their outputs and incomes. Under current government policy the area of land required to grow rice remains at about 4 million ha.

## The relationship of land fragmentation to crop diversity

Farmers can benefit from having numerous parcels of land because their crop patterns can be more diversified and flexible on different land types and land qualities on scattered plots. In order to test the relationship between fragmentation and the level of crop diversity, a simple 'semi-log' model is used. In linear form the model proposed can be written as:

$$(2) \quad Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 Ln(X_4) + \beta_5 Ln(X_5) + \beta_6 Ln(X_6) + \delta_1 D_1 + \delta_2 D_2 + \delta_3 D_3 + \delta_4 D_4 + \varepsilon$$

where

- $Y$ = the number of land uses (no)
- $X_1$ = Simpson's index of land fragmentation of a household (%)
- $X_2$ = the agricultural ability of the farm household (%)
- $X_3$ = the education level of a household head (levels of X3 = 0 to 5 equivalent to illiterate, primary, secondary, high school, college and university)
- $X_4$ = the age of a household head (years)
- $X_5$ = the number of household members over 12 years old (persons)
- $X_6$ = the farm size of a household (in sao, a unit of land area measurement commonly used in the north of Vietnam equal to 360 $m^2$.)

$D_1$ = the dummy variable for cash crops; $D_1 = 1$ if the household cultivates vegetables, flowers and high-value cash crops for market, and $D_1 = 0$ otherwise

$D_2$ = the dummy variable for change of land use; $D_2 = 1$ if the household changes a purpose of land use from 'traditional crops' to fruit trees and fish, and $D_2 = 0$ otherwise

$D_3$ = the dummy variable for training; $D_3 = 1$ if the household participates in at least one course of training, and $D_3 = 0$ otherwise

$D_4$ = the dummy variable for labour working off-farm; $D_4 = 1$ if the household has at least one member working off-farm, and $D_4 = 0$ otherwise

$\beta i$ ($i = 0–6$) and $\delta_j$ ($j = 1–4$) are coefficients to be estimated and $\varepsilon$ is the disturbance.

Crop diversity is defined as the number of land uses. There are complicated crop patterns in the research sites such as multiple crops cultivated in a rotation, mixed orchards and perennial crops. In this model the same crops in different seasons are counted as different land uses: eg spring and summer rice count as two land uses, mixed orchards and forests are counted as one land use, and fish farming is also counted as a land use. The dependent variable is the number of land uses, which varies from two to ten. Therefore, a truncated regression method is applied, and results are given in Table 4.

For the estimated model the coefficient of land fragmentation measured by Simpson's index was positive and statistically different from zero at 1%, implying that land fragmentation has a strong effect on crop diversity as reflected in the number of land uses. As a result, at higher levels of fragmentation crop patterns may be more diversified. In the context of subsistence-oriented agricultural production, this may lead to security of not only food but also farmers' incomes, and this is why in some provinces farmers may want to keep existing levels of land fragmentation. Therefore, the trade-off between the level of crop diversity and land fragmentation and commercial production should be questioned and is an area which needs further study.

From the results, both an increase in the ability of the farm household and the education level of the household head may increase the level of crop diversity. However, the coefficient of the dummy variable for training was not statistically different from zero. A reason could be that the proportion of farm households attending at least one course of training was only 19%. Farm size was statistically correlated with the number of land uses, implying that a larger farm may be more diversified. Although diversified crop patterns require more labour, both on-farm and off-farm labour were not related to the level of crop diversity, possibly because agricultural labour in the study areas is still in surplus. The age of the household head (representing experience of farm households) was statistically different from zero and positive, indicating that a farmer's experience is a significant factor influencing the degree of crop diversity. An explanation for this could be that older farmers have more experience in farming and hence may be more risk-averse, while younger household heads may take a decision to specialise in cultivating few crops.

**Table 4.** Crop diversity response function in the north of Vietnam

| Estimates | Coefficients | Marginal effects |
|---|---|---|
| $\beta_0$ Intercept | −5.059 | −4.455 |
| | (−2.32)** | (−2.32)** |
| $\beta_1$ Simpson's index of fragmentation | 0.032 | 0.028 |
| | (5.59)*** | (5.59)*** |
| $\beta_2$ The agricultural ability of household | 0.015 | 0.013 |
| | (1.91)* | (1.91)* |
| $\beta_3$ The education level of household head | 0.254 | 0.224 |
| | (2.22)** | (2.22)** |
| $\beta_4$ Age of household head | 1.179 | 1.048 |
| | (2.21)** | (2.21)** |
| $\beta_5$ Household members over 12 years old | 0.165 | 0.146 |
| | (0.62) | (0.62) |
| $\beta_6$ Farm size | 0.698 | 0.615 |
| | (5.86)*** | (5.86)*** |
| $\delta_1$ Dummy variable for cash crops | 0.493 | 0.434 |
| | (1.16) | (1.16) |
| $\delta_2$ Dummy variable for change of land uses | 0.650 | 0.572 |
| | (1.26) | (1.26) |
| $\delta_3$ Dummy variable for training | −0.158 | −0.139 |
| | (−0.57) | (−0.57) |
| $\delta_4$ Dummy variable for off-farm labour | 0.169 | 0.149 |
| | (0.72) | (0.73) |
| Sigma ($\sigma$) | 1.525 | 1.617 |
| | (19.08)*** | (18.38)*** |
| Log likelihood function | −520.274 | −535.370 |
| Number of observations | 346 | 346 |

***, **, and * are significant at 1%, 5% and 10% respectively

Numbers in parentheses are the absolute t-value

## Conclusion

From a theoretical point of view fragmentation of plots on farms has both benefits and costs, as shown in Table 1. The relative values of these benefits and costs, which will be different for different farm households, will affect the economics of land fragmentation for individual households and for the public more generally. In this chapter results from empirical analyses of farm household survey data investigating the economics of land fragmentation in the north of Vietnam are reported.

Using data from 508 plot-based observations from 188 farm households, it was found that an increase in the number of plots per farm had a negative impact on crop productivity (measured in equivalent rice yield) and increased family labour use and other money expenses. Data analysis also showed that fragmentation was a significant factor for crop diversity.

As Vietnam appears to have surplus agricultural labour, at least for much of the production year, the real benefits to farm households from land consolidation may not be apparent until the real opportunity cost of farm labour begins to rise. This opportunity cost will clearly be affected by a number of factors such as the availability of employment opportunities for farm family members and the wage rate associated with these opportunities, the level of education and age of the rural workforce, and the time of year and season. The transaction costs involved in job searching will be an issue, as will the reliability of employment. Therefore, creation of new off-farm jobs and movement of the agricultural labour force to other sectors of the economy will be a key policy issue for agricultural and rural development in the future.

These results have much wider applicability than just to Vietnam. Across many developing countries land fragmentation is a significant policy issue. Clearly, there are tradeoffs involved but it is apparent that as the opportunity cost of labour rises there will be incentives for land consolidation. In a similar way, if the costs associated with land transactions can be reduced and productivity raised, then land consolidation will be more likely to occur. These are general findings and are a result of the basic economic decision-making processes of farm households.

CHAPTER FOUR

# FARM SIZE CHANGE AND THE MARKET FOR AGRICULTURAL LAND USE RIGHTS IN VIETNAM SINCE 1993

SALLY P. MARSH, PHAM VAN HUNG, NGUYEN TRONG DAC AND T. GORDON MACAULAY

Over the last decade the Vietnamese government has instigated land reforms that recognise the household as the basic unit of production and allocate land use rights to households. Under the 1993 Land Law these rights can be transferred, exchanged, leased, inherited and mortgaged. The Land Law provided the foundation for the development of a market for land use rights (LUR). During 2001, 400 farm households were surveyed in four provinces in Vietnam. Details were sought about the involvement of households in the LUR market, as well as evidence of land accumulation and consolidation. Analysis of the data shows that there is an active market for LUR but the level of activity varies considerably between provinces. In Ha Tay province there has been a steadily increasing level of land transaction activity and land price over time. Data from this province show that although a similar percentage of households from all socioeconomic groups are involved in the LUR rental market, the 'above average' group controls the majority of the land area transacted. Lack of available land and, in some cases, labour, inadequate credit access and reluctance to sell land use rights are identified as constraints to the land use rights market, rather than transaction costs and the limit on land holdings.

## Introduction

In December 1986 at the Sixth National Congress the Government of Vietnam introduced a wide-ranging set of reforms (known as *doi moi*) which recognised a number of the failures of central planning and were designed to gradually deregulate and liberalise the economy. Associated with these reforms the 1993 Land Law (which followed the 1988 Resolution 10) formalised the farm household as the main unit of agricultural production and provided for the allocation of land use rights (LUR) to households. LUR give households farm decision-making rights related to the purchase and use of inputs, the sale of outputs and, to some extent, the use of land. The 1993 Land Law also gave security of tenure over allocated land, with LUR granted for 20 years for annual crop and aquaculture land and 50 years for perennial crop land. Land ceilings were imposed of 2–3 ha for annual crop land and 10 ha for perennial crop land in delta communes and 30 ha in midland and mountainous communes.

Under the 1993 Land Law LUR can be transferred, exchanged, leased, inherited and mortgaged. Revisions to the Land Law in 1998 added two new additional rights: that of using LUR as capital in joint-venture arrangements, and the right to re-lease LUR. By virtue of providing increased security of tenure over land, facilitating access to credit and making LUR tradeable, the 1993 Land Law provided the foundations for a formal market for land (Do & Iyer 2003).

Land transactions for agricultural land in four provinces which were undertaken following these land reforms are investigated in this chapter. The purpose is to assess the extent of the market for LUR in various regions, and to identify factors either constraining or encouraging this market. Additionally, the data are used to investigate the extent to which different socioeconomic groups are involved in the land market. It should be stressed at the outset that this research is only concerned with agricultural land, not with land market activities in urban areas.

This chapter commences with background information on land fragmentation in Vietnam and constraints to the land market identified by previous research, followed by a brief review of theoretical perspectives on rural land markets in developing countries. The method used to obtain the data on land holdings and land transactions in four provinces is then outlined and results presented. These data are discussed under headings of land holdings and land sources, the extent of market-based LUR transfers, the involvement of households in the LUR market, and evidence of land consolidation and land loss. Conclusions and policy implications are drawn in the final section of the chapter.

## Background

Under the Vietnamese Constitution land is the property of the people as a whole and the State administers it on their behalf. The new Land Law, passed by the National Assembly in November 2003, states that the government is the 'representative of the people's ownership' (Vasavakul 2003). Since land is 'owned' by the people as a whole, it is not possible for individuals (or corporations) to own land. However, since the 1993 Land Law, individuals, households and organisations can hold and transfer rights to use land. The process of land allocation in Vietnam that began in 1981 and was formalised in the 1993 Land Law is still ongoing, although it is largely complete for agricultural land, as distinct from forestry land. Approximately 80% of the population of some 80 million people live in rural areas and there are over 11 million household farms in Vietnam. Farm sizes vary throughout the country but they are typically small, around 0.2 ha per capita (World Bank 2001). The average size of farms in the Mekong Delta is 1.2 ha, considerably larger than average farm sizes in the Red River Delta.

The land allocation process varied between districts although equity between households was of primary consequence. Consideration was given both to land quality and the number of people, or more specifically labour equivalents, in a household. Consequently, the amount of land allocated varied between households and the land was typically split into a number of plots of varying land quality. The World Bank (1998, p 10) reports 'on average, farms in the Red River Delta comprise eight or nine noncontiguous plots often no larger than 200 to 500 square meters each'. In mountainous areas the number of plots allocated to households tended to be even greater as the land quality was extremely variable. Typically, not all land within a commune was allocated, and a proportion was kept (usually between 5 and 10%) 'to defray public expenses or readjust land allocation periodically to demographic changes such as family members returning from military service' (Chung 1994, p 4). Other land such as ponds, lakes and garden areas, which are difficult to divide, were often also left unallocated and then assigned to individual households on the basis of competitive bidding.

In the south of Vietnam the degree of land fragmentation is not so pronounced, with many farmers in the Mekong Delta having only one or two plots. There was less concern with equitable distribution in the south, and land allocation to households was also more likely to be based on land held prior to reunification in 1975 (Do & Iyer 2003; Luong & Unger 1999; Marsh & MacAulay 2002; Ravallion & van de Walle 2001, 2003).

Small and fragmented land holdings are considered a problem for agricultural development in Vietnam, and the government is actively encouraging plot consolidation in northern Vietnam (Hung et al 2004). Throughout Vietnam it is estimated that there are 70–100 million parcels or plots of land (Vy 2000, pers comm; World Bank 2003), with around 10% of these plots having an area of only 100 $m^2$ or less (Phien 2001). Small and scattered land holdings hamper mechanisation and technology adoption, and involve additional time and

labour for farming activities that must be carried out in geographically distant plots (Blarel et al 1992; Hung et al 2004; Lan 2001).

Considerable official restrictions still exist for LUR transfers. Official decrees restrict the circumstances under which, and to whom, LUR can be transferred (see Marsh & MacAulay 2002). However, following the 1993 Land Law many researchers have reported that land transfers are occurring (Chung 2000; Do & Iyer 2003; Fforde 1995; Khiem et al 1999; Ravallion & van de Walle 2003; Deininger & Jin 2003). It has also been reported that many land transfers occurred illegally both before and after the 1993 Land Law (Chung 1994; Do & Iyer 2003; Humphries 1999; Kerkvliet 2000; Vietnam News 2002; World Bank 2003). One main reason given for these illegal transactions is the costs associated with registering LUR transfers. Most households were issued with only one land use certificate for all their allocated plots (Humphries 1999). However, as this author points out, the consequence of this now is that if a household wishes to dispose of or exchange any one of their plots they must (in theory) surrender their land use certificate and have it reissued. There are transaction costs involved in doing this, and in practice LUR transactions occur without being officially registered. Other reasons for illegal transactions include time-consuming and cumbersome procedures, unclear regulations, and opportunistic rent-seeking behaviour in near-urban districts and along newly constructed interregional roads.

It is also widely considered that further land reform, particularly the need for a better regulatory framework, is needed to remove constraints and encourage the further development of the land market (AusAID 2001; United Nations 1999; World Bank 1998, 2003). Lee-Alaia et al (2002, p 28) have argued that 'the government's intervention in the allocation, transfer, use and valuation of land … seriously frustrates the development of a free market in land use rights.' Based on an analysis using data from the 1997–98 Vietnam Living Standards Survey (VLSS), Ravallion and van de Walle (2003, p 11) state that 'A more active rental market has clearly not emerged since the reforms.' However, other work by World Bank researchers on land rental markets using the 1997–98 VLSS data states the contrary opinion, that 'Descriptive evidence on land market participation … points towards a rapid increase in land transactions, together with considerable differences across regions' (Deininger & Jin 2003, p 12).

## Rural land markets in developing countries

An essential part of development policy is the production of policies that will create and enforce efficient property rights. Deininger (2003, pp xix–xx) notes that property rights affect economic growth in a number of ways. First, secure property rights increase the incentive of households to invest, and provide them with better access to credit. Hence, secure and well-defined land rights are of key importance for households' asset ownership, productive development and the functioning of factor markets. Secure land tenure also facilitates the transfer and sale of land through rentals

and sales, which results in a more efficient allocation of land. Property rights in the form of land use certificates (LUCs) rather than land ownership *per se* have a similar effect. For example, Besley (1995) states that tradeable LUCs enable a land market to develop; security of tenure increases farmers' willingness to undertake long-term investments; and if LUCs are able to be used as collateral, farmers can access credit and transform illiquid assets into money.

A market for land or LUR should theoretically translate into allocative efficiency gains, where better managers gain land from poorer managers (Bardhan & Udry 1999; Deininger 2003). However, low levels of land sales are typically observed in rural areas in many developing countries (Bardhan & Udry 1999). This occurs for a variety of social, cultural and political reasons, including limited opportunities for investments elsewhere and the fact that land is a comparatively risk-free form of investment. Multiple market imperfections in the capital, credit, insurance, labour and land markets also affect the functioning of the land market in developing countries (Bardhan & Udry 1999; Deininger 2003; Ray 1998). Hence, if the credit market fails other markets will have to adjust accordingly; for example, a farmer without access to working capital may be constrained to lease out part or even all of his land and his labour as well (Ray 1998).

Because land rental markets typically have lower transaction costs and require little capital outlay, they operate more freely than land sale markets in developing countries (Bardhan & Udry 1999). Therefore, the land market should still be able to adjust towards allocative efficiency through a functioning rental market. These authors argue that as, in unmechanised agriculture, there is little empirical support for the notion that large farms are more efficient than smaller farms, then land should, theoretically, pass from large to smaller family-operated farms, although they note that this seldom occurs. Deininger and Jin (2003) also argue that land transactions should favour the small producer with good agricultural ability. However, power relations and policy distortions, particularly those that favour larger landholders, can affect the outcomes of land markets (Binswanger et al 1993; Deininger 2003). Also, superior access to credit available to larger landholders through the use of land as collateral effectively means that larger landholdings can be more productive. Many transition countries facing situations of multiple market imperfections place restrictions on the free operation of the land market because of the risk of land concentrating in the hands of larger, wealthier farmers, and concerns about potential negative effects on both productivity and equity (Deininger & Jin 2003).

The land market (in particular an active rental market) has been recognised as playing a large role in giving access to land to the more productive farmers in developing countries (Deininger 2003). In theory, an optimal farm size exists for each household, and factors such as family size, capital liquidity and technology will affect both the amount of land rented-in or rented-out and the optimal farm size (Sadoulet et al 2001). In the remainder of this chapter research investigating the type and extent of land transfers in four provinces in Vietnam, and the characteristics of the households participating in these land transfers, is presented and discussed.

## Method

During 2001 a household survey was conducted in four provinces in Vietnam: Ha Tay and Yen Bai in the north, and Binh Duong and Can Tho in the south. Four hundred person-to-person interviews were conducted in 16 communes (two districts in each province). The survey was repeated in 2002 but only data from the first survey is reported in this chapter. A wide range of mostly quantitative data were collected relating to land holdings and land use, assets, production (overall and on an individual plot basis), income sources, prices paid and received, use of credit, and perceptions of yield and price risk. Details were sought about the sources of land farmed by households and the involvement of households in the LUR market. Additionally, a number of qualitative questions were asked about changes in land holdings, land use and household 'wellbeing'. More details of the survey methodology are provided in Appendix I.

## Survey results

### Land holdings

To give an idea of the variability in farm size and plot numbers, general information on land holdings in four sample communes is shown in Table 1. For each of Ha Tay and Can Tho provinces, data are shown for the communes with larger than average farm size (Thach Hoa and Truong Thanh) in the district with larger than average farm size, and for the communes with smaller than average farm size (Song Phuong and Dong Thanh) in the district with smaller than average farm size. Farm size in the southern province (Can Tho) is generally larger and less fragmented (fewer plots) than farms in the northern province (Ha Tay). However, these averages hide a great deal of variability in farm size within individual communes, as indicated by the standard deviations shown in Table 1. Very few households (two in Thach Hoa and one in Truong Thanh) reported land holdings above the land limit.

### Evidence of the extent of market-based LUR transfers

Households were asked how they had acquired each plot of land they currently farmed, and also about plots of land they had previously farmed. Land farmed by the households has been acquired in various ways (see Marsh & MacAulay 2003). The data on land sources can be assessed to provide an estimate of the percentage of households that have been involved in LUR transaction activities, such as buying/selling and leasing/renting, since 1992. It is generally accepted that under-reporting of rental and sale transactions occurs as households often bypass official procedures (Do & Iyer 2003; Humphries 1999; Kerkvliet 2000), but there is no way of knowing whether the survey data on land sources (from rental and purchases) are similarly affected. However, many households reported having land (rented land in particular) for which they didn't have the Red Book, so it is reasonable to assume that the survey captured many 'unofficial' land transfers.

Data for the four provinces are shown in Table 2. Note that these data do not necessarily show the percentage of households with net land gains or losses, but simply reflect the percentage that have engaged in these types of transactions in any year since 1992. Similarly, these data do not indicate the number of transactions that have occurred, as households may have been involved in multiple transactions for a specific transaction activity. LUR bought or sold are often recorded as having been 'bought/sold for *x* years'. This is in effect a rent but the rental money is paid up front as a lump sum. If the household reports they have either rented-in or rented-out land then the rental is paid either per season or per year. In this analysis land recorded as having been bought or sold for a specified time is treated as a sale or purchase because this is how farmers talk about these transactions.

Of all provinces a higher percentage of households in Ha Tay have been engaged in LUR transactions (see Marsh & MacAulay 2003). Aside from Ha Tay, the percentage of households reporting that they have been involved in LUR transactions is quite low. Renting and auctioning of land is more common in the northern provinces and buying/selling more common in the southern provinces. This has been noted by other researchers (eg Kerkvliet 2000). Far fewer households report having rented-out or sold LUR than those who have rented-in or bought LUR. In Ha Tay many households

**Table 1.** Description of land holdings in four communes in Ha Tay and Can Tho provinces

| **Province** | **Ha Tay** | | **Can Tho** | |
|---|---|---|---|---|
| District | Thach That (*L*)[a] | Dan Phuong (*S*) | O Mon (*L*) | Chau Thanh (*S*) |
| Commune | Thach Hoa (l) (*n* = 20) | Song Phuong (*s*) (n = 26) | Truong Thanh (*l*) (n = 24) | Dong Thanh (*s*) (n = 22) |
| Land farmed in 2000 (m²) | | | | |
| Average total area farmed/hh | 9,412 (9,772)[b] | 5,310 (4,191) | 15,943 (8,718) | 9,082 (4,111) |
| Average number of plots/hh | 7 | 5 | 2.2 | 2.4 |
| Average plot size (commune) | 1,263 (3,683) | 1,096 (2,144) | 7,358 (5,925) | 3,770 (2,972) |
| Median plot size (commune) | 360 | 480 | 6,500 | 3,000 |
| Avg size of smallest plot/hh | 206 | 324 | 5,192 | 3,223 |
| Avg size of largest plot/hh | 5,475 | 3,064 | 10,148 | 5,905 |

a The letters *S* and *L* and *s* and *l* indicate districts and communes with smaller or larger than average farm size

b Standard deviations are in *italics*

report losing land by exchange (although few reported obtaining land by exchange) and returning land to the Cooperative (*hop tac xa*). The low reported LUR activity in Binh Duong province is surprising given its close proximity to Ho Chi Minh City, and by comparison to Ha Tay province which is in close proximity to Hanoi.

The data for LUR transfer activities shown in Table 2 underestimates the amount of market-oriented activity, as some households rent-in/rent-out, buy/lease or bid for LUR many times over. The number of reported LUR transactions by surveyed households is shown in Table 3 by province. Ha Tay has by far the highest rent-in/rent-out activity, with a recorded 42 transactions compared to 5 or less in other provinces. The number of rent-in/rent-out transactions in Ha Tay has increased since 1997. Ha Tay, Binh Duong and Can Tho all record considerable buy/sell activities (ranging from 16 to 28) but there is a distinct difference between Ha Tay and the southern provinces. More buy/sell transactions took place prior to 1997 in Can Tho and Binh Duong, whereas in Ha Tay more transactions have taken place from 1997 onwards. Most auction transactions take place in Ha Tay (53) and Yen Bai (14), and in Ha Tay the number of these transactions has also increased from 1997.

**Table 2.** Percentage of surveyed households involved in LUR transaction activities since 1992: data from Ha Tay, Yen Bai, Binh Duong and Can Tho provinces

| Province | Ha Tay (n = 97) | Yen Bai (n = 91) | Binh Duong (n = 88) | Can Tho (n = 90) |
|---|---|---|---|---|
| Percentage (%) of h/holds engaged in: | | | | |
| Borrowing land | 11 | 4 | 3 | 0 |
| Renting-in land | 19 | 5 | 3 | 0 |
| Auctioning-in land | 37 | 12 | 2 | 0 |
| Exchanging-in land | 4 | 0 | 0 | 0 |
| Buying land[a] | 8 | 0 | 10 | 14 |
| Lending land | 2 | 1 | 1 | 0 |
| Renting-out land | 5 | 0 | 0 | 1 |
| Selling land[a] | 2 | 0 | 3 | 4 |
| Losing land by exchange | 18 | 0 | 0 | 0 |
| Giving land back to the HTX[b] | 22 | 0 | 0 | 0 |
| Giving land to offspring/relatives | 3 | 4 | 0 | 1 |

a Note that these figures could be underestimates because some purchases or sales may be included in 'land acquired or lost by other means' (percentages not shown)

b HTX = *hop tac xa* (cooperative)

## Market-oriented land-use-rights transactions in Ha Tay province

Given the extent of LUR transaction activity reported by surveyed households in Ha Tay province, this section investigates these transactions in more detail, looking at activity over time and the characteristics of households involved in market-based LUR activity (ie renting-in/renting-out, buying/selling, auctioning).

**Table 3.** Number of reported LUR transactions by category of transaction and province

| | Number of reported LUR transactions | | | |
|---|---|---|---|---|
| | Ha Tay (n = 97) | Yen Bai (n = 91) | Binh Duong (n = 88) | Can Tho (n = 90) |
| Rent-in | | | | |
| Prior to 1997 | 7 | 2 | 1 | 0 |
| 1997 and after | 20 | 2 | 2 | 0 |
| Year unknown | 3 | 1 | 0 | 0 |
| Rent-out | | | | |
| Prior to 1997 | 3 | 0 | 0 | 0 |
| 1997 and after | 9 | 0 | 0 | 1 |
| Year unknown | 0 | 0 | 0 | 0 |
| Buy | | | | |
| Prior to 1997 | 4 | 0 | 5 | 12 |
| 1997 and after | 13 | 0 | 1 | 2 |
| Year unknown | 0 | 0 | 2 | 8 |
| Sell | | | | |
| Prior to 1997 | 0 | 0 | 5 | 2 |
| 1997 and after | 3 | 0 | 3 | 2 |
| Year unknown | 0 | 0 | 0 | 2 |
| Auction | | | | |
| Prior to 1997 | 16 | 3 | 0 | 0 |
| 1997 and after | 32 | 5 | 0 | 0 |
| Year unknown | 5 | 6 | 2 | 0 |
| Total transactions | 115 | 19 | 21 | 29 |

### Land use rights transactions – renting-in, buying and auctioning

Land use rights reported by the surveyed households in 2000 in Ha Tay province as being acquired by either renting, buying or auction since 1992 are shown in Table 4 and in Figure 1. In these four communes the majority of LUR transactions were land acquired by bidding at auction rather than by renting-in or purchase. Many households in these communes reported returning land to the cooperative (see Table 2); large areas were made available for auction in both 1995 and 1997, possibly after land had been returned to cooperatives. Another factor affecting the availability of auction land is that one of these communes (Song Phuong) had extensive areas of riverbank land adjacent to the Red River that were made available for auction.

Over the years 1993–2000, 51% of households reported no LUR transactions, 39% reported a transaction in one year only (which may or may not have involved multiple plots) and 10% reported transactions in more than one year, usually two. Only two households reported transactions in each of three years. These multiple year transactions provide some indication of land accumulation by households, as all the LUR acquired in these transactions were still held at the time of the survey, even if the rental or auction arrangement commenced in 1994.

Trends in the 'real' LUR market (ie LUR acquired by either renting or buying) since 1992 are shown in Figure 2. There was an initial small steady increase in area rented or bought from 1995 to 1998, and then a rapid increase in LUR traded in 1999 and 2000. The number of households involved in buying and renting has also increased, with the majority of these transactions being rental arrangements (as can be seen in Table 4). While many households have acquired LUR by both renting and auction, a small number have acquired them by renting and/or auction and buying.

In Table 5 data are compared between households based on the commune's classification of each household as being in the 'above average', 'average' or 'poor' socio-economic group. The actual classification of households produced by village assemblies, under the leadership of elected village chiefs and with assistance from local authorities, is recognised as being remarkably accurate. At the village level people know who is poor without having to compute income and expenditure measures (ADB et al 2004). Average estimates for net value of production (NVP) are very variable, particularly in the above average and poor groups. In each case this variability is caused by one household that reports a NVP far in excess of other households. The median estimates for both NVP and land area present a more realistic picture of the relative income and land situation in each of these socio-economic groups.

Around 50% of households in all socio-economic groups have rented-in or obtained land by auction since 1992. However, it is clear that although involvement in the rent-in and auction markets is consistent across socioeconomic groups, the above average group has transacted the majority of the land area, both in terms of area per transaction and total area involved in renting and auction transactions.

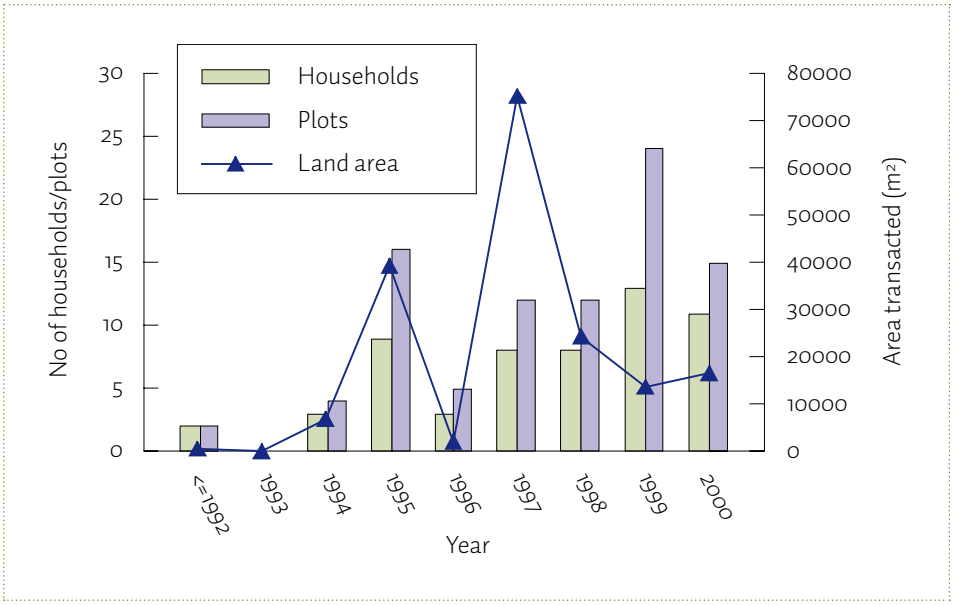


**Figure 1** LUR transactions reported by surveyed households (n = 97) in Ha Tay province – LUR bought, rented-in or acquired by bidding/auction since 1992

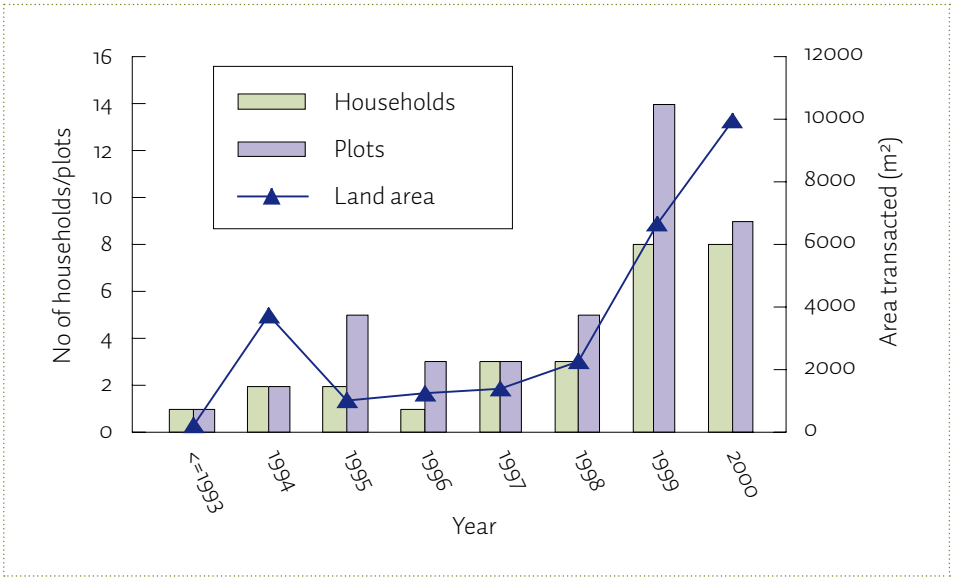


**Figure 2.** LUR transactions reported by surveyed households (n = 97) in Ha Tay province – land use rights bought and rented-in since 1992

This in itself is not really surprising, given their superior ability to pay. The above average group, representing 29% of the surveyed households, holds 58% of the total land area acquired by renting and auction; the average group, representing 54%, holds 34%; and the poor group, representing 18% of the sample, holds 8% of this land area.

LUR indicated as being bought present a slightly different picture. Only eight households (note that this figure is less than reported in Table 4 as some households bought land in more than one year) reported they had 'bought' LUR since 1992, and most of these are reported as 'bought for *x* years', with *x* ranging from 5 to 11 years. As noted earlier, what distinguishes these transactions from LUR rental is that a single amount has been paid for the LUR, rather than an amount per year. The households report the transaction as buying rather than renting. Categorised by socioeconomic group, 14% of households in the above average group reported buying LUR, compared with 6% of households in both the average and poor groups. Given that large sums of money are required to buy LUR, it is not surprising that the majority of transactions occurred in the higher socioeconomic group. While most

**Table 4.** LUR farmed by the surveyed households in Ha Tay province (n = 97) in 2000 reported as being acquired by either renting, buying or auction since 1992

| Year | LUR rent-in transactions | | | LUR buy transactions | | | LUR bid-in transactions | | |
|---|---|---|---|---|---|---|---|---|---|
| | H/holds | Plots | Area ($m^2$) | H/holds | Plots | Area ($m^2$) | H/holds | Plots | Area ($m^2$) |
| <=1992 | | | | 1 | 1 | 204 | 1 | 1 | 192 |
| 1993 | | | | | | | | | |
| 1994 | | | | 2 | 2 | 3,720 | 2 | 2 | 3,240 |
| 1995 | 1 | 4 | 696 | 1 | 1 | 360 | 7 | 11 | 38,100 |
| 1996 | 1 | 4 | 1,224 | | | | 2 | 2 | 504 |
| 1997 | 3 | 3 | 14,16 | | | | 6 | 9 | 74,014 |
| 1998 | 2 | 3 | 1,680 | 1 | 2 | 552 | 7 | 7 | 22,200 |
| 1999 | 4 | 6 | 4,260 | 4 | 8 | 2,416 | 7 | 10 | 6,760 |
| 2000 | 6 | 7 | 9,216 | 2 | 2 | 744 | 3 | 6 | 6,480 |
| 2001a | 1 | 1 | 456 | 1 | 1 | 408 | | | |
| Unknown | 3 | 3 | 4,416 | | | | 5 | 8 | 2,491 |
| Total | 21 | 31 | 23,364 | 12 | 17 | 8,404 | 40 | 56 | 153,981 |

[a] Survey was conducted in March–April 2001

of the LUR reported as bought (17 plots) are for small areas of cultivated land, LUR for one perennial plot and two settlement plots were also bought.

### Land use rights transactions – renting-out and selling

The surveyed households reported far less renting-out and selling than renting-in, buying and auctioning of LUR transactions, as shown in Table 6. Twelve plots (4,908 $m^2$) are reported as rented-out since 1992, and although nine households have been involved on a yearly basis, only five households in total have rented-out land (ie some households have rented-out land in more than one year). LUR areas being rented-out do not show the same increasing trend over time as those rented-in. Only two households report selling LUR.

All LUR sold have been from households in the poor economic status group. One of these households has either sold or rented-out land in 3 years since 1992. LUR have been rented-out by 18% of households from the poor group, 2% of the average group and 4% of the above average group.

**Table 5.** Comparison of households in Ha Tay province classified by commune-based socio-economic status – production value, area farmed, and rent-in and auction LUR transactions between 1993 and 2000

| | Commune classification of h/hold status | | | |
|---|---|---|---|---|
| | **Above average (n = 28)** | **Average (n = 52)** | **Poor (n = 17)** | **Overall (n = 97)** |
| NVP[a] in 2000 (mill. VND) – average | 110.5 (301.6) | 18.8 (19.6) | 24.9 (60.0) | 46.5 (166.1) |
| NVP in 2000 (mill. VND) – median | 16.2 | 9.8 | 4.0 | 8.6 |
| Land area in 2000 ($m^2$) – average | 10,137 (10,333) | 4,980 (2,415) | 3,834 (2,084) | 6,293 (6,298) |
| Land area in 2000 ($m^2$) – median | 6,166 | 4,150 | 3,363 | 4,393 |
| % households rent-in or auction | 50 | 50 | 47 | 49 |
| Avg area per transaction ($m^2$) | 5,457 (9,769) | 1,104 (1,180) | 631 (741) | 2,062 (4,982) |
| Median area per transaction ($m^2$) | 1,800 | 720 | 395 | 538 |
| Total area transacted ($m^2$) | 103,687 | 59,608 | 14,050 | 177,345 |
| % of total area | 58 | 34 | 8 | |

a NVP = net value of production includes production sold and consumed by the household minus variable cash costs of production

b Standard deviations are shown in (parenthesis)

However, some of these households have also rented-in or auctioned-in land. For example, the household in the above average group has rented-out cultivated land and acquired perennial land by auction. Similarly, two households in the poor group who have rented-out land have also rented-in or acquired land by auction. Renting-out may not necessarily reflect economic hardship or inability to farm, but rather an exchange of land types by households.

## Reported interest in the land rental market

Households were asked if they wanted to rent more land and, if so, what prevented them from doing so (Tables 7 and 8). Most households had a firm opinion on this question, with only a few in most communes answering 'maybe'. The desire to rent more land is markedly different in the southern and northern communes. Only 20% of surveyed households in Can Tho and 13% in Binh Duong said that they wanted to rent more land, compared to 42% in Yen Bai and 57% in Ha Tay provinces.

'Lack of available land', 'lack of funds' and 'not having enough labour' were reasons given for not being able to rent more land, but generally 'lack of available land' appears to be a greater issue in the northern than the southern communes, and 'lack of funds' more an issue in the southern than the northern communes (Table 8). Procedures for renting land were only perceived as a problem by two households, and the land limit was not perceived as a problem by any of the surveyed households.

**Table 6.** LUR previously held by the surveyed households in Ha Tay province (n = 97) reported as being either rented-out or sold since 1992

| Year | LUR rent-out transactions | | | LUR sell transactions | | |
|---|---|---|---|---|---|---|
| | H/holds | Plots | Area (m²) | H/holds | Plots | Area (m²) |
| <=1992 | 1 | 1 | 720 | | | |
| 1993 | 1 | 1 | 156 | | | |
| 1994 | | | | | | |
| 1995 | | | | | | |
| 1996 | 1 | 1 | 216 | | | |
| 1997 | 2 | 4 | 2,340 | 2 | 3 | 532 |
| 1998 | 1 | 1 | 360 | | | |
| 1999 | 2 | 2 | 432 | | | |
| 2000 | 1 | 2 | 684 | | | |
| Total | 9 | 12 | 4,908 | 2 | 3 | 532 |

In the survey overall, few households said they were interested in 'selling' (*chuyen nhuong*) their LUR. Of those who were interested, the most common reason given for not selling was 'high risks'. Other reasons given include 'complicated procedure', 'don't have another job', and 'unable to leave'.

## Prices paid and received for LUR transactions

Of the reported LUR transactions, only households in Ha Tay province reported a price for a significant number of the transactions. Generally, fewer prices were recorded for land acquired by auction. In the southern provinces, if a price was given for land bought or sold it was usually stated in gold, whereas in the northern provinces prices were always reported in VND (Vietnamese

**Table 7.** Percentage of households reporting that they would like to rent more land

| Province | Percentage of households (%)[a] | | |
|---|---|---|---|
| | Yes | No | Maybe |
| Ha Tay (n = 99) | 57 | 41 | 1 |
| Yen Bai (n = 92) | 42 | 46 | 10 |
| Binh Duong (n = 88) | 13 | 81 | 5 |
| Can Tho (n = 90) | 20 | 68 | 11 |

[a] Percentages may not add to 100% because some households did not answer the question

**Table 8.** Reasons given by farm households for not being able to rent more land

| Province | As percentage of households wanting to rent more land[a] | | | | | |
|---|---|---|---|---|---|---|
| | No land available | Not enough funds | Not enough labour | Procedure too complicated | Already have land limit | Other reason |
| Ha Tay (n = 57) | 91 | 14 | 7 | 2 | 0 | 5 |
| Yen Bai ( n = 48) | 75 | 19 | 8 | 0 | 0 | 6 |
| Binh Duong (n = 15) | 67 | 60 | 27 | 7 | 0 | 13 |
| Can Tho (n = 28) | 39 | 82 | 11 | 0 | 0 | 11 |

[a] Percentages may add to more than 100% because some households nominated more than one reason

*dong*). Many prices for renting-in and renting-out were given in kilograms of rice per year or season. Average prices for various LUR transactions in Ha Tay, as shown in Table 9, assume a price for paddy rice (*thoc*) of VND1200/kg.

There are insufficient data to comment on price differentials over time for many of the transactions, but it appears that for cultivated land there has been a significant price increase for both land rented-in and land obtained by auction since 1997. Standard deviations are large in many cases but this probably reflects different land classes within the broad overall classification of cultivated land. In fact, the data show that this land is used to grow a range of crops, from low-value cassava and rice to higher value vegetables and flowers. The prices paid for rented-in and auctioned land appear to be similar, given the limitations of the data. Statistical tests for differences were not conducted because of the limited data and the likelihood that land class differences confound the data.

**Table 9.** Average prices for LUR transactions in Ha Tay province by land type

| LUR transaction | Cultivated land | | Perennial land | | Pond | |
|---|---|---|---|---|---|---|
| | No | Price (VND/m²) | No | Price (VND/m²) | No | Price (VND/m²) |
| Rent-in | | | | | | |
| Prior to 1997 | 7 | 219 (24.5)[a] | 1 | 673 | | |
| 1997 and after | 19 | 584 (311) | | | | |
| Rent-out | | | | | | |
| Prior to 1997 | 2 | 500 (236) | | | | |
| 1997 and after | 10 | 509 (118) | | | | |
| Buy | | | | | | |
| Prior to 1997 | 1 | 4,167 | | | | |
| 1997 and after | 13 | 5,092 (2,376) | | | | |
| Sell | | | | | | |
| Prior to 1997 | - | - | | | | |
| 1997 and after | 3 | 8,222 (10,200) | | | | |
| Auction | | | | | | |
| Prior to 1997 | 2 | 221 (65) | 4 | 606 (128) | 3 | 315 (210) |
| 1997 and after | 4 | 476 (318) | 1 | 667 | 6 | 278 (61) |

[a] Standard deviations are shown in parenthesis

Note: To obtain these prices paid and received the price of paddy rice (thoc) has been valued at VND1200/kg

Similarly, the price received for rented-out land appears to be consistent with the price paid for rented-in land. The auction price paid for a pond does not appear to have increased since 1997 and is now considerably below that for cultivated land, which is surprising given the potential profitability of aquaculture enterprises. The price for perennial land is higher than for cultivated land, reflecting its potentially higher earning capacity. The prices reported for buying land after 1997 appear to reflect a capitalisation of the rental rate over about 10 years, and suggest that there is a very rational market for LUR in operation.

## Evidence of land consolidation and land loss

Surveyed households were asked how the amount of land farmed by the household had changed in the last 5 years (Table 10). In all but Ha Tay province, over 70% of surveyed households reported that the land area they farmed had stayed 'about the same'. However, many households, especially so in Ha Tay, reported an increase in farmed area. Only in two communes in Can Tho province, Dong Thuan and Dong Hiep, did a greater percentage of households report decreased rather than increased farmed area (Marsh & MacAulay 2003).

Households were asked the reason for any land area change. Some households who had increased their land area said that the reason was 'to increase income' or 'use available labour more efficiently', while others said that they had 'rented, borrowed and/or bought land', 'been allocated more land' or 'inherited land'. In Ha Tay the majority of households reporting less land gave the reason as having to return land to the cooperative or army, or as the result of 'adjustment by the commune' or land exchange. In Yen Bai the majority of households reporting less land said that it was the result of distributing land to family members. In Binh Duong households with less land reported the main reasons as 'unprofitable production' and 'insufficient labour'. A variety of reasons were given for having less land by households in Can Tho, including having to sell land to cover bank debts and distributing land to family members. A small number of households in all provinces

**Table 10.** Percentage of surveyed households reporting increases or decreases in land area farmed in the last 5 years

| Province | Percentage of households (%) [a] | | | | |
|---|---|---|---|---|---|
| | Increased a lot | Increased a little | About the same | Decreased a little | Decreased a lot |
| Ha Tay (n = 99) | 21 | 28 | 32 | 15 | 2 |
| Yen Bai (n = 92) | 7 | 13 | 73 | 8 | 0 |
| Binh Duong (n = 88) | 3 | 13 | 74 | 3 | 6 |
| Can Tho (n = 90) | 4 | 8 | 74 | 10 | 3 |

[a] Percentages may not add to 100% because some households did not answer the question

reported having less land because of renting-out or selling land, and sometimes stated that this was to meet other expenses, most usually production, education and medical expenses. Although no landless households were interviewed in the survey, 12 households in total reported having less than 1000 $m^2$ of land, making them effectively landless. Of these households, eight had not lost land in the last 5 years.

Land loss is an issue of concern in Vietnam as landlessness or near landlessness is often associated with poverty (ADB et al 2004; Lan 2001; World Bank 2000). The data on changes in land holdings were related to self-assessment of change in household living standards, as shown in Tables 11 and 12 for Can Tho and Ha Tay, the two surveyed provinces with the greatest percentage of households reporting land loss. Land gain is always associated with an increase or stability in living standards over the last 5 years, whereas land loss can be associated with either a decrease or increase in wellbeing. In Ha Tay more households reported being 'better off' than 'worse off' after land farmed had 'decreased a little' and the living standard was consistently reported as being 'better off' if the land holdings were unchanged, but in Can Tho the replies were divided between being 'better off' and 'worse off'.

## Discussion

### Land holdings and land sources

In both the north and the south, farm size varies greatly between households and there is more variability in farm size within communes with larger than average

Urbanisation and the growth of industrial parks are influencing the land market in provinces such as Ha Tay and Binh Duong which are close to major cities: this photo shows housing developments encroaching on rice fields in Gia Lam district close to Ha Noi.

farm size. In the northern provinces a high percentage of both the land area and the plots are reported as having been allocated. However, in the southern provinces more land has been inherited or been in the family for a long time. These data are consistent with reported research into differences in the land allocation process in the north and the south (Luong & Unger 1999; Marsh & MacAulay 2002; Ravallion & van de Walle 2001).

There is considerable evidence of land having been rented, either from private sources or the commune, and bought. The reported percentage of land having been bought is highest (at more than 10%) in the southern provinces, particularly in all four communes in Can Tho. By far the largest percentage of land and plots obtained by rent was found in Ha Tay province, where up to 10% of the land area in surveyed communes was rented from the private market, and up to 55%

**Table 11.** Relationship between land gain/loss and living standard change in Ha Tay province (percentage of households (%), n = 95)

| Change in living standard in last 5 yrs | Reported gain/loss of land in the last 5 years | | | | |
|---|---|---|---|---|---|
| | Increased a lot | Increased a little | About the same | Decreased a little | Decreased a lot |
| A lot worse off | 0 | 0 | 0 | 1 | 1 |
| Worse off | 0 | 0 | 0 | 0 | 0 |
| About the same | 1 | 3 | 0 | 1 | 0 |
| Better off | 8 | 22 | 20 | 5 | 1 |
| A lot better off | 13 | 4 | 14 | 5 | 0 |

**Table 12.** Relationship between land gain/loss and living standard change in Can Tho province (percentage of households (%), n = 89)

| Change in living standard in last 5 yrs | Reported gain/loss of land in the last 5 years | | | | |
|---|---|---|---|---|---|
| | Increased a lot | Increased a little | About the same | Decreased a little | Decreased a lot |
| A lot worse off | 0 | 0 | 3 | 0 | 0 |
| Worse off | 0 | 0 | 25 | 6 | 1 |
| About the same | 2 | 2 | 19 | 0 | 1 |
| Better off | 2 | 4 | 26 | 4 | 0 |
| A lot better off | 0 | 1 | 2 | 0 | 0 |

obtained through auction for land controlled by the communes or the army. These figures are in excess of those quoted by Ravallion and van de Walle (2003), who give figures based on the 1997–98 VLSS of 5.1% for the private market and 2.2% for the 'auction market'. Their figures, however, are for annual crop land only, whereas the survey data reported in this study are for all land classifications. In other provinces the percentage of land obtained by renting is generally low and virtually zero in the southern provinces.

There was also evidence of high individual percentages of land rented, obtained by auction or bought by some households. In Ha Tay some individual households had obtained up to 65% of their land by private rental and up to 100% by auction. These figures are much larger than those reported by Chung (1994), whose 1993 survey work in the Red River Delta found that leased-in areas were small, less than 3% of total holdings. In Can Tho and Binh Duong some households have bought LUR for all of the land they farm. Generally, with a few exceptions, households in Yen Bai province do not have similar large percentages of rented or auctioned land.

From these data it is reasonable to suggest that there is probably a considerable and active market for LUR in some regions, and the evidence for this is discussed further in the next section.

## The extent of market-based LUR transfers

The data summarised in Tables 2 to 6 and Figures 1 and 2 give an indication of the extent of involvement of households in market-based LUR transactions. These data generally reflect an active market for LUR and support other reports of increases in LUR transactions since 1993 (eg Chung 2000; Deininger & Jin 2003; Do & Iyer 2003). In Ha Tay province the number of recorded LUR transactions has increased since 1997; however, this is not apparent in the southern communes, possibly reflecting the more developed market economy that existed in the southern areas before the 1993 land reforms (Ravallion & van de Walle 2003).

In Ha Tay province the figures for involvement in the rental (19% of surveyed households) and auction (37% of surveyed households) markets are high, and certainly don't portray the 'thin' rental markets described by Ravallion and van de Walle (2003). They are more in line with figures taken from ADB et al (2004), who reported that 15% of rural households had some land leased-in or leased-out in 2002 compared to 10% in 1998 and 5% in 1993. From the survey data it is clear that LUR transactions in Ha Tay have increased sharply since the 1997–98 VLSS, on which the conclusions drawn by Ravallion and van de Walle (2003) are based. Even in Yen Bai province, where the land area involved in transactions is reportedly low, the percentage of households involved in renting land and obtaining land by auction is sometimes more than 10% among those surveyed in each commune.

In Binh Duong province the level of involvement by households in LUR transactions is generally low, except for two communes. This is surprising given the location of this province adjacent to Ho Chi Minh City, and the consequent off-farm employment opportunities that might be expected to provide an incentive for some households to rent-out or sell land. This lack of LUR activity in Binh Duong is likely to be because much of the land use is under perennial crops, such as established fruit tree orchards and industrial trees, and hence more difficult to both lease and sell.

Many households in Ha Tay reported returning land to the cooperative. This is indicative of some land allocation adjustment processes carried out by local authorities in these districts, and also may provide an explanation for why there appears to be such a large amount of land available for auction. There is some concern that land for auction might bypass the market system and be made available to households through a commune controlled preferential system, and whether this 'continuing exercise of communal control over land (is) synergistic with market forces or opposed to them' (Ravallion & van de Walle 2003, p 1). However, data from the survey show that many households have successfully obtained land through the auction process, and that the prices paid for this land are comparable to prices paid on the private rental market. This supports conclusions drawn by Ravallion and van de Walle (2003) that non-market forces affecting LUR transactions are tending to work in cooperation with market forces.

There is a clear demand for rental land, particularly so in the communes surveyed in the north. There is also a clear indication of constraints on the rental market but these are not procedural constraints. It is not unexpected that lack of available land is a serious constraint, and overcoming this will eventually be dependent on off-farm opportunities and the freedom of rural people to move freely and without substantial risk into other regions and occupations. Finance is perceived as a significant constraint, particularly in the south, and this raises concerns about credit availability for farm households. Credit constraints affect the productivity of farm households (Ray 1998), and research reported by Duong and Izumida (2002) has shown that credit-constrained farm households in Vietnam cannot optimise their production. Despite economists having written much about constraints on the land market and the need for further reform (eg AusAID 2001; United Nations 1999; World Bank in Vietnam 1998), farmers do not perceive procedures and the land limit as constraints. In practice, for the rental market at least, these seem to be secondary issues to land availability and finance.

Ha Tay province shows the greatest amount of LUR transaction activity and also the greatest amount of reported land use change (Marsh & MacAulay 2003). This province is close to Hanoi and there are opportunities to provide products such as fish, meat, vegetables, flowers and fruit for the increasingly affluent Hanoi population. A sharp rise in LUR transactions in Ha Tay since 1997 and an increase in the rental price being paid for land suggests that profitable land use change is driving LUR transaction activity. Ensuring that land or LUR are tradeable is necessary

but not sufficient for a land market to develop; there needs to be actual or perceived profitable production opportunities as well. Ravallion and van de Walle (2003, p 6) note that, given the complexities of the initial land allocation and the multiple market imperfections in those sectors (eg labour markets, credit and information) affecting agricultural production, '…it would be naïve to think that simply legislating the pre-requisites for a competitive land market in this setting would make it happen'.

### Involvement of households in the LUR market

Analysis of the data from Ha Tay province shows that a similar percentage of households from all socioeconomic groups are involved in the LUR rental market. However, the above average group holds the majority of the land area transacted, both in terms of area per transaction and total area involved in rental and auction transactions. The majority of LUR bought have also been acquired by households in the above average socioeconomic group. Conversely, the majority of LUR rented-out or sold have been by households in the poor socioeconomic group. Nevertheless, renting-out transactions may not necessarily reflect economic hardship, as some households rent-out one land type and rent-in a different land type, and renting-out can also provide an income and free up labour for off-farm work.

The incidence of households involved in multiple LUR transactions over time suggest that some households are steadily accumulating land. Dieninger and Jin (2003) suggest that a functioning LUR market should result in land being transferred to small but efficient producers as well as households with larger endowments. Data from the survey for this study illustrate that this is indeed occurring but the effect is only minimal, and larger more wealthy households are obtaining the most land from the LUR rental market. This is possibly a desirable result in terms of allocative efficiency and the development of a commercial agriculture, but raises poverty and equity concerns when few off-farm opportunities are available in rural areas. In Ha Tay, however, where this trend has been reported, off-farm opportunities could be expected to be higher than in other provinces further from major cities. The World Bank (2003, p 44) also notes that further land reforms will not result in changes that can be expected to bias benefits towards the poor, but rather land ownership 'could become gradually more concentrated in the hands of wealthier households'.

## Evidence of land consolidation and land loss

More of the surveyed households said they had gained land in the last 5 years than lost land, which may indicate a sample bias towards wealthier or more efficient farmers. Many households said they had more land because they had leased or bought land in the last 5 years. Some reported land loss is a result of distribution of land to family members, which, in the long run, has the potential to further fragment land holdings. There is also some evidence of households leasing-out or selling land as a result of making a choice to move out of farming. In the survey three instances

were recorded of households having to sell land to cover hospital expenses (two in Can Tho province), and two instances of land being sold after banks foreclosed on mortgages (again both in Can Tho). Other research has shown that a high percentage of households in the Mekong region are losing land (Lan 2001), and that some of the most common reasons are health expenses and indebtedness.

Analysis of reported land losses/gains related to household wellbeing (Tables 11 and 12) show that not all households report a loss in living standard after losing land. Lan (2001) made a similar observation about some households in the Mekong Delta after survey work in 2000. This may indicate that some households are indeed moving successfully out of farming activity into other pursuits, but it should be noted that replies could be simply reflecting the immediate financial gains that result from sale of LUR.

Ravallion and van de Walle (2003) report from their analysis of 1998 compared to 1993 VLSS data that there is some evidence that a gradual concentration of land ownership is occurring, tending to favour households with long-term roots in their communities, male heads and better education. The ADB et al (2004) also report that a tendency towards the concentration of land is clearly visible in the data from the 2002 VLSS. Overall, 18.9% of rural households were landless in 2002 compared to 9.2% in 1998 and 8.2% in 1993, with a consistent tendency across regions. Part of the increased landlessness is due to the fact that the better-off do not rely on land as a source of income: landlessness is more prevalent among the rich than the poor, except in the Mekong Delta. In this region, which has the second highest level of landlessness (and a very rapid increase in landlessness among the rural poor), it is those in the poorest fifth of the rural population who lack access to land.

## Conclusions

Research and observation support the fact that an active LUR market for agricultural land exists in Vietnam but that it is more developed in some regions than others. There are distinct differences between the northern and southern provinces surveyed, with both the private and communal rental markets being more active in the north than in the south. In the south LUR tend to be sold rather than rented, with some individual households in all provinces acquiring a large percentage of their land holdings either by buying LUR or renting though the private or communal market. This suggests that a reallocation of land is occurring following the initial land allocation and the introduction of the 1993 Land Law that enabled LUR to be traded.

The research results from these data suggest the following policy implications:

- Credit availability is affecting the ability of households to rent and buy land, especially in the south. Households need access to adequate credit to enable them to take advantage of market opportunities and expand their production.

- Land availability affects the ability of households to rent and buy land. Households will not lease-out or sell their LUR unless there are opportunities for them to move freely, and without overwhelming financial risk, to other regions and employment.
- There is a need for increased research and extension activities to foster and encourage profitable land use change. Such change, combined with increased off-farm opportunities, will drive the development of the market for LUR and result in allocative efficiency gains.
- The results of this research indicate that an active LUR market, as appears to exist in Ha Tay province, will tend to concentrate land in the hands of the more wealthy farmers. This will assist with the commercialisation of Vietnamese agriculture but will inevitably raise poverty and equity concerns as long as off-farm employment opportunities in rural areas remain low.

The process of land reform in Vietnam is ongoing, with a new Land Law being passed in November 2003. Considerable pressure is being exerted on the government in relation to: the completion of allocation and registration of LUR, issues related to compensation, difficulties associated with using LUR as collateral for loans, problems of land fragmentation, the desirability of stable and long-term tenure, and the need for a better regulatory framework. There is also continuing debate about the appropriate length of tenure, ceiling levels for land holdings, restrictions on the transfer and use of land, and the extent of land property rights that should be held by individuals. Although there is a need to address these issues, development of the agricultural land market in Vietnam is possibly now more dependent on adequate credit availability, off-farm employment opportunities, improved market information and rural infrastructure than on further land reform.

CHAPTER FIVE

# TAX POLICIES AND AGRICULTURAL LAND USE

LE HUU ANH

Tax policy is an important supportive policy for agricultural production. Farm households involved in production face taxes which affect the decision-making processes of the household. In this chapter tax policies relevant to agricultural production in Vietnam are outlined and discussed in this context. Three general types of taxes may be distinguished: (a) sales or output taxes, (b) input taxes and (c) value-added taxes, each having a different impact on the household. The impact of the agricultural land use tax prior to 2003 at the farm household level is investigated using survey data. The data show that the amount of tax was low compared to production value but it could be a significant proportion of the cash costs. Recent changes to the policy on agricultural land use tax are outlined, and advantages and disadvantages of the new policy are discussed, along with issues emerging from these changes.

## Tax policies and the farm household

Tax policy is an important supportive policy for agricultural production, and can be used by governments as an intervention aiming to reallocate benefits at the macro level. In agricultural production tax policy is directly related to the amount of tax contributions made by farmers, as well as the investment and consumption of farmers and the agricultural sector as a whole. For farm households tax affects not only the price paid for production inputs but also the price received for outputs.

Farm households involved in agricultural production face taxes which affect the decision-making processes of the household. Three general types of taxes may be distinguished: (a) sales or output taxes, (b) input taxes and (c) value-added taxes, each having a different impact on the household. Sales taxes and value-added taxes have an impact on consumption and marketing decisions through changes in the effective output price. Input taxes such as land tax or tax on the use of inputs directly affect input use through changes in the returns to land or the input price. For example, an increase in the rate of taxation on an input such as fertiliser will cause a reduction in its use. Thus tax policy can have a bearing on the effective use of resources by the household.

## Tax policies in Vietnam

### Tax policy related to agriculture

Current taxes related to agriculture in Vietnam include a tax on agricultural land use, a tax on land use rights transfer, an additional tax on land over the land limit, a value-added tax (VAT), and import and export taxes.

#### Tax on agricultural land use

This tax, which is related to land resource management, is a mixed tax combining the characteristics of assets, income and value-added (VAT) taxes. The amount of tax is calculated based on areas and land class, and is dependent on five factors (land fertility, location, topography, climate and irrigation conditions). The tax is calculated in quantity of rice per unit area for each land class (see Table 1), and is collected in cash by using a rice price regulated by the provincial government which is equivalent to market price (National Assembly 1993). Hence, land use tax paid per unit area can vary between provinces. In 2003 the Government of Vietnam passed legislation exempting most farmers from paying agricultural land use tax until 2010. This policy development is discussed later in this paper.

#### Tax on land use rights transfer

The exchange and transfer of land use rights to other land users is taxed. This tax aims to improve land management. The amount of tax is calculated based on areas, the land price for tax calculation, and the tax rate.

The land price for tax calculation is regulated by the provincial government based on the price framework determined by the central government. The tax rate varies within the range 0–40% and is dependent on the land type and the specific transfer. For example, for agricultural and forestry land the transfer tax rate is 10% (and 5% for the second transfer), for housing land 20%, for a transfer from agricultural to non-agricultural land 40%, and for a transfer from non-agricultural to agricultural land 0%.

### Additional tax on land over the land limit

This tax aims to dissuade accumulation of land over the land use limit specified by the Land Law. The land limits are dependent on the type of crops and on specific regions. The amount of additional tax on land held over the land limit is 20% of the tax on agricultural land use (National Assembly 1994a).

### Value-added tax (VAT)

The VAT mainly affects the price of materials and inputs for production and processing of agricultural products.

### Import and export taxes

Import taxes affecting agriculture are those on imported materials needed for agricultural production such as gasoline, petrol, fertiliser and machines. Export taxes affecting agriculture are those imposed on the export of agricultural products. Current policy encourages the export of agricultural products, so the export tax rate is 0%.

## Tax policy purposes

The current tax policy is designed for different purposes but the main effects are:

### The policy does not encourage the accumulation of land over the land limit

In Vietnam land per capita is small, and maintenance of the agricultural land limit is therefore an issue debated by economists and policy makers. For farmers land is considered to be a major 'production material' and the source of their main income, because the off-farm income of farmers is still modest. Moreover, land for farmers is also a political issue in agrarian countries such as Vietnam. This tax aims to limit income disparity and avoid social problems in rural areas.

### The policy encourages intensification and land protection (land class is fixed for 10 years)

Although land class may change during a period of cultivation, the land class for tax calculation purposes is fixed for 10 years. This encourages farmers to confidently invest in and protect their land, and avoid a situation of land exhaustion (land is considered to be a renewable resource). The tax rates on annual and perennial crops are presented in Table 1. In the process of intensification, the level of land fertility may increase. Therefore, land class may actually change but the tax rate is fixed.

### The policy encourages an increase in production outputs (fixed tax rate)

In Vietnam the tax on agricultural land use has a fixed rate, which means that the tax is independent of both production output and the value of production from a unit area. This may be an important factor in encouraging farmers to use land so as to increase its productivity.

### This policy helps to improve land resource management for maintenance of agricultural land

Land is the most important 'production instrument' of farmers. The tax policy focuses on the improvement of land management and the efficient use of the land resource, with the aim of increasing agricultural production and ensuring food security. In addition, it also limits mass urbanisation, which would result in less area being available for agriculture.

### The policy guarantees stable and long-term use but allows transfer

The tax policy is designed to guarantee the stable and long-term use of land as well as the investment in land regulated by the Land Law, but it does allow the transfer of land assets. The tax rate on the transfer of land use rights is dependent on the change of purpose of land use. When the purpose of land use change is from farm land to non-farm land, the tax rate is at least 40%; when the purpose is the reverse (ie from non-farm to farm land), the tax rate is 0% (National Assembly 1994b).

### The current tax policy is a clear combination of both economic and social aspects

Tax policy in Vietnam combines economic policy and supportive social policy because all tax policies give priority to rural people who have difficulties or are in a specific situation. Poor households, regional areas, areas with special difficulties and minority groups are allowed tax exemption and/or tax reductions.

**Table 1** The tax rate for agricultural land use

| Land class | Land for annual crops and aquaculture (kg of rice/ha/year) | Land class | Land for perennial crops (kg of rice/ha/year) |
|---|---|---|---|
| 1 | 550 | 1 | 650 |
| 2 | 460 | 2 | 550 |
| 3 | 370 | 3 | 400 |
| 4 | 280 | 4 | 200 |
| 5 | 180 | 5 | 80 |
| 6 | 50 | | |

Source: National Assembly (1993)

## Impacts of tax policy

The tax on agricultural land use in Vietnam is fixed and is not dependent on outputs produced on that land. Therefore, the ratios of tax to production outputs, costs related to intensification, yields and income are different between regions. By using indicators such as gross revenue, gross margin and cash costs (expenses) the impact of tax on household production can be assessed. Gross revenue is calculated as output multiplied by its price. Gross margin is the production value made by the household minus cash costs used for buying materials, hiring machines and paying land rental (effectively equivalent to household income from production).

The tax ratio calculated as a percentage of total cash costs is higher if the cash costs of the household are low. That is, if the tax ratio is high then the tax is a relatively high percentage of costs. The tax ratio calculated as a percentage of gross revenue is higher as gross revenue is lower, and similarly the tax ratio calculated as a percentage of gross margin is higher for lower gross margins.

### Data from household surveys

In 2001 a household survey was conducted in four provinces in Vietnam: Ha Tay and Yen Bai in the north, and Binh Duong and Can Tho in the south (see Appendix I). Data collected from the approximately 400 surveyed households included questions about land holdings and the level of, and costs and revenue associated with, production activities. The survey was repeated in 2002 using a smaller sample of the same farmers in the four provinces.

Data relating tax rates to cash costs, gross revenues and gross margins obtained from the household surveys are shown in Table 2. In Ha Tay annual crop land was mainly used for rice cultivation. Thus, the value of output produced and cash costs were small. Some communes with diversified crops and a higher level of agricultural commercialisation (eg Song Phuong and Tho Xuan) had high cash costs and gross revenues as well as high gross margins, and their tax ratio was lower.

In Yen Bai the high tax ratio for cash costs reflected lower cash expenses and low intensification. The low tax ratios for gross revenues and gross margins also suggest that the actual tax amount was very small. This means that high-value crops could be cultivated in mountainous areas but the tax rate was low because the land is less fertile (low land class).

A similar picture was observed in the south. In Can Tho cash costs and gross revenues were high (high intensification) but the gross margins were not high. In Binh Duong different annual crops cultivated by farmers were also reflected in the differing tax ratios. In An Son commune the amount of rice grown was small, and most of the commercial crops led to high gross revenues and gross margins. In An Tay commune gross margins were low because farmers had off-farm jobs (An Tay is located close to industrial zones), and the amount of land left fallow by farmers was increasing.

**Table 2** Tax rates on agricultural land use (annual crop land) as a percentage of cash costs, gross revenue and gross margin

| Commune | Tax rates as a percentage of | | |
|---|---|---|---|
| | Cash costs | Gross revenue | Gross margin |
| Ha Tay | | | |
| Dai Dong (n = 154) | 7.4 | 2.5 | 3.7 |
| Thach Hoa (n = 58) | 6.4 | 1.7 | 2.3 |
| Song Phuong (n = 105) | 3.3 | 1.1 | 1.7 |
| Tho Xuan (n = 130) | 2.8 | 0.9 | 1.3 |
| Yen Bai | | | |
| Dai Dong (n = 49) | 9.3 | 1.6 | 2.0 |
| Bao Ai (n = 61) | 9.9 | 2.1 | 2.4 |
| Mau Dong (n = 76) | 5.7 | 1.3 | 1.7 |
| Dong Cuong (n = 65) | 4.6 | 1.5 | 2.2 |
| Binh Duong | | | |
| Vinh Phu (n = 27) | 5.9 | 2.5 | 4.3 |
| An Son (n = 13) | 5.8 | 0.5 | 0.5 |
| Lai Uyen (n = 7) | 6.1 | 3.0 | 6.0 |
| An Tay (n = 22) | 3.9 | 3.4 | 25.9[a] |
| Can Tho | | | |
| Dong Thanh (n = 15) | 3.5 | 1.8 | 3.6 |
| Dong Phuoc (n = 48) | 6.2 | 3.4 | 7.4 |
| Truong Thanh (n = 58) | 3.6 | 1.8 | 3.7 |
| Dong Hiep (n = 59) | 3.1 | 1.4 | 2.6 |

Note: n is the number of plots surveyed of annual crop land

[a] Data includes annual crops only, whereas the major source of income in An Tay commune is from perennial crops

The tax rate data for plots used for cultivating only rice are shown in Table 3. In Ha Tay cash costs invested in rice cropping were low. Although rice yield was stable, the income from cultivating rice crops was not high. In Dai Dong and Song Phuong communes, where the level of intensification was high, the tax ratios of all three indicators were higher than in Thach Hoa and Tho Xuan. This means that rice production may not be attractive for farmers in these communes and they may not consider rice production as a main income source, preferring to cultivate other more profitable cash crops.

In mountainous communes in Yen Bai the tax ratio to cash costs also shows that cash expenses were low and the tax levels lower than for flat field areas (less fertile land). Thus, cash costs invested in these areas were not significant. The tax ratios to cash costs, gross revenues and gross margins in Dai Dong and Bao Ai (Yen Binh district) were higher than in Mau Dong and Dong Cuong (Van Yen district). This means that cash costs, yields and gross margins in Yen Binh were lower than in Van Yen. Because farm households in Van Yen had more suitable

**Table 3** Tax rates on rice land as a percentage of cash costs, gross revenue and gross margin

| Commune | Tax rates as a percentage of | | |
|---|---|---|---|
| | Cash costs | Gross revenue | Gross margin |
| Ha Tay | | | |
| Dai Dong (n = 108) | 9.4 | 3.1 | 4.6 |
| Thach Hoa (n =4 8) | 6.7 | 2.3 | 3.4 |
| Song Phuong (n = 64) | 11.4 | 4.4 | 7.2 |
| Tho Xuan (n = 42) | 8.1 | 2.5 | 3.6 |
| Yen Bai | | | |
| Dai Dong (n = 43) | 11.6 | 2.6 | 3.4 |
| Bao Ai (n = 48) | 11.7 | 2.2 | 2.7 |
| Mau Dong (n = 55) | 6.1 | 1.4 | 1.8 |
| Dong Cuong (n = 55) | 6.6 | 1.9 | 2.6 |
| Can Tho | | | |
| Dong Thanh (n = 9) | 3.2 | 1.6 | 3.2 |
| Dong Phuoc (n = 30) | 6.2 | 3.4 | 7.4 |
| Truong Thanh (n = 36) | 3.6 | 1.9 | 3.8 |
| Dong Hiep (n = 30) | 3.1 | 1.4 | 2.6 |

Note: n is the number of plots surveyed classified as rice land

conditions for rice production, they had higher gross revenues as well as gross margins but they also invested more in rice crops.

In Can Tho the tax ratio to cash costs was lower than in the north. This means that expenses for rice production (eg costs of buying materials, hiring machines and labour) were higher in Can Tho. Although the gross revenues from rice production were higher than in the north, the gross margins were not high. At current costs and production levels, rice production in the Mekong Delta is less efficient in comparison with that in the north. This conclusion is consistent with results reported by Hung & MacAulay (2005), who found that farmers in the south had lower technical efficiency than those in the north and that, in terms of outputs, economies of size existed in the south.

The survey data show that the amount of tax was low compared to production value but it was a significant proportion of the cash costs. This means that if the tax is removed, farmers may have more money to invest in their production. Humphries (1999) also concluded that '… there is a merit in abolishing the agricultural land use tax', although his reason for saying this was more related to cadastral problems associated with calculating tax liabilities for individual households. Because farmers are amongst the poorest in Vietnamese society and their incomes come mainly from land use, tax reduction and exemption for agricultural land use may increase equity by providing incentives for farmers to increase their consumption and investment.

## Tax policy changes

### Recent changes to the agricultural land use tax

The agricultural land use tax in Vietnam was based on Decree 031/SL (1951) and was designed as a tax on the benefits arising from land use. This has changed to be a tax on both land and land use benefits (ie a tax on 'property' and 'income') since the Ordinance on Agricultural Tax (1983) and the Tax on Agricultural Land Use Law (1993) were issued. The agricultural land use tax was recognised as a complex mixed tax effectively replacing taxes on profits, revenues, natural resource use and assets. There has been extensive debate in recent years about the agricultural land use tax and its effects on land use and land consolidation. Its contribution to government revenue was argued to be low (see Table 4).

In order to encourage agricultural production and support farmers, exemptions and reductions to the agricultural land use tax were announced in June and November 2003 under Resolution 15/2003/QH11 (National Assembly, 17 June 2003) and Ordinance 129/2003/ND-CP (Government of Vietnam, 3 November 2003). This policy change will affect 12 million tax payers in rural areas, and will result in most farm households and organisations either being exempt from paying agricultural land use tax or having the amount they pay reduced.

Tax exemptions under the new policy include:

- agricultural land under the land limits for both farm households and individuals
- agro-forestry land under the land limits allocated to households from state-owned enterprises
- agricultural land, both under and above the land limits, for 'poor' households and households located in areas classified as having 'special difficulties'. 'Poor' households are determined on criteria set by the Ministry of Labour, Invalids and Social Affairs. Areas with 'special difficulties' are based on the Government's Poverty Alleviation Program 135.

Reductions of 50% in the agricultural land use tax apply to:

- economic, political, sociopolitical, socioprofessional, armed forces and administrative organisations which manage and use agricultural land
- land holdings in excess of the land limits which are used for agriculture and forestry by households and individuals, including land allocated by state-owned enterprises.

These exemptions and reductions will apply from 2003 to 2010. However, there is considerable debate on this issue, including opinions both supporting and contesting removal of and reductions in the agricultural land use tax.

### Opinions supporting land use tax exemption

- The policy will affect 12 million farm households who are land users throughout the whole country, and effectively is seen as state support for farmers to develop their production activities. The tax exemption is considered as being an investment now available to farmers for intensification, savings and consumption.
- The policy will improve the balance between taxation and income for all land users, most of whom are farmers. Farmers are the poorest class in society, and the majority of ethnic minority people in remote areas are farmers.
- The policy reduces the difficulties and inequities associated with a tax based on a standard rice quantity and where payments in cash are determined by the rice price. In poor-yield years or when the rice price is high, the tax collection is high relative to those years with a good harvest or a lower rice price. In some poor regions the rice price may be higher, and therefore the tax amount will be higher, than in richer regions for the same land class.
- Generally, the removal or reduction of the agricultural land use tax had been welcomed by farmers.
- Researchers believe that because this tax only occupies a small part of the annual national budget (see Table 4), its removal does not significantly affect the budget. Moreover, the expenses associated with collecting the tax are considerable.

In summary, those supporting the new policy believe that the tax exemption will not affect the national budget, and that it has significant and wide positive sociopolitical effects and will result in farmers having confidence in the state.

### Opinions against land tax exemption

- The budget revenue of local governments (commune, district and provincial levels) will be reduced as all of the agricultural land use tax was collected and used by local governments. The tax is the income source for the salaries of many local government staff.
- Some commentators believe that the tax on agricultural land use is related to the principle of good management of the land resource. The existence of an agricultural land use tax reinforces the responsibility of land users to improve the land resource, protect unused land and use land for the correct purpose.
- There are still equity issues associated with the policy change. In areas where land is less fertile, and in mountainous areas, farms tend to be larger and farmers are more likely to have to pay the reduced tax rate. In flat fields and deltas land productivity tends to be high and land areas are generally under the land limits, so the tax is exempted. Thus, there continues to be an inequity where users of less fertile land may pay tax while users of more fertile land may not.
- Furthermore, there is now a big gap in the amount of land use tax paid between urban and agricultural land users because the value of urban land is much higher in comparison with the value of agricultural land.

In summary, those raising concerns about the new policy believe that the tax exemption will lead to a relaxed approach to land management and to negative impacts on land use, whereas land is a valuable resource of the country that should be protected by policy.

## Issues emerging from changes to the agricultural land tax

A number of issues are emerging for consideration by policy makers in response to the policy which exempts and reduces farmers' liability to pay agricultural land use tax. Compensation of local governments in agricultural areas may be appropriate for the loss of agricultural land use tax revenues;

**Table 4** The tax on agricultural land use as a percentage of GDP and the national budget

| Year | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002[a] | 2003[a] |
|---|---|---|---|---|---|---|---|---|
| Percentage of GDP (%) | 0.7 | 0.5 | 0.5 | 0.5 | 0.4 | 0.3 | – | – |
| Percentage of national budget (%) | 3.0 | 2.6 | 2.7 | 2.5 | 2.0 | 0.8a | 0.5 | 0.05 |

Sources:

www.vietnamtourism.com/\/pages/business_eco/sltk/nam2002/n_thunstyle.htm;

[a] www.mof.gov.vn/Default.aspx?tabid=271&ItemID=2606

otherwise, in order to cover their budgets, local governments may need to ask farmers to pay additional fees or face a reduction in service provision. Farm communities may wish to pay for community services which relate to the value of land and which cannot be provided without the collection of taxes.

Although the land use tax exemption provides some relief for poor farmers, the actual amounts of production income saved are only small and this policy should not be viewed as a substitute for more substantive poverty alleviation strategies.

The new policy could also affect land transfer and land accumulation. There are three ways of considering the effects of the tax exemption policy, none of which encourage land accumulation. First, it could be argued that the tax exemption is a form of direct assistance to farmers, and will encourage them to keep their land rather than transfer land. Second, as the tax exemption is calculated only on land under the land limit, this discourages land accumulation over the land limit. Finally, land prices tend to rise in the absence of a property tax (Keith 1999).

## Impacts of tax policies on poor people

### Land tax

More than 90% of poor people in Vietnam live in rural areas and their main income comes from land use. Poor farming households tend to exhaust and exploit land, and there are conflicting opinions on the effect of land use tax exemption on this tendency. It is argued that exemption will assist poor farmers to invest in production. Because the ratio of tax to income for poor people is high, and their costs low, the tax exemption will result in them having more income and they may increase their investment in agriculture. A contrary argument suggests that the tax exemption may encourage poor farmers to think that land is not valued, and they may exhaust the land or use it for wrong purposes.

Keith (1999) notes that property tax tends to make access to land easier for the less wealthy because the ultimate burden of the tax falls on the owner. Theoretically, a property tax has the effect of reducing the market value of land and thus making it easier to purchase – however, in practice this effect is usually not very noticeable. The converse is more apparent – where there is no tax on property there seems to be a tendency for land ownership to become more concentrated in the hands of the wealthy.

### Value added tax (VAT)

VAT is a tax which increases the costs of inputs of agricultural production such as materials, electricity, gasoline or petrol. Although VAT is an important revenue source for both the state and national budgets, it increases the costs of agricultural production, thus decreasing the ability of poorer households to invest in production.

### Import and export taxes

Import and export taxes are also related to agriculture and rural development. The government encourages the export of agricultural products, which are then exempted from VAT. This benefits larger commercial farmers more than smaller subsistence-oriented households. Import

taxes are applied to imported commodities for the purpose of supporting and protecting domestic production. Import taxes apply to many inputs imported for agricultural production, such as fertiliser. Like the VAT, import taxes increase agricultural production costs, and thus decrease the ability of poor households to invest in production.

## Conclusion

Tax and credit policy have significant impacts on the whole economy in general, and on agricultural land use in particular. Vietnam is still a poor country, and is in the process of transforming from a central planning to a market-oriented economy under management of the government. Tax policies are part of the active reform process leading to economic development and encouraging appropriate and efficient land use. Tax reforms are needed to make Vietnam more competitive as it integrates into regional and international markets.

Flat tax rates mean that farmers effectively pay different rates, with the poorest carrying a comparatively larger tax burden. The survey data show that the amount of agricultural land use tax was low compared to production value but it was a significant proportion of cash costs in some regions. Policy changes in 2003 have resulted in most farmers being exempt from agricultural land use tax, and the advantages and disadvantages of this policy change are being actively debated in Vietnam.

In the longer term a new policy on taxing of agriculture land will be needed after 2010. The use of rice quantities and payments dependent on the rice price is inequitable in relation to either income or the value of the land used. In the years between 2003 and 2010 there is a window of opportunity for the government to give consideration to policy regarding market-based land valuation.

CHAPTER SIX

# CREDIT USE IN FARM HOUSEHOLDS IN VIETNAM: IMPLICATIONS FOR RURAL CREDIT POLICY

SALLY P. MARSH, LE HUU ANH AND T. GORDON MACAULAY

Despite a number of recent policy changes designed to improve their access to credit, small household farms, and the rural sector in general, in Vietnam are recognised as facing severe credit restrictions. Limited access to working capital credit for farm households with seasonal production expenses and returns is known to result from market failure in the credit markets. In this chapter results from a household survey are reported. As part of this survey, conducted in four provinces in northern and southern Vietnam in 2000 and 2001, credit use in 400 farm households was investigated. These data are described and analysed with regard to implications for rural credit policy in Vietnam. Generally, there is widespread use of credit in households with both above and below average incomes and farm size, but amounts borrowed are small, usually less than VND10 million (approximately AUD$1000), and often less than the amount requested from the lender. This suggests that substantial credit constraints exist, although the data from 2001 indicated that credit constraints might be lessening. Significant regional differences were observed in the use of credit from formal and informal sources, with more households in the northern provinces accessing credit through informal and semi-formal sources. The use of informal credit sources was less in 2001 than in 2000, particularly in the northern provinces.

## Introduction

As pointed out by Sadoulet and de Janvry (1995, p 150) a frequent cause of market failure is limited access to working capital credit. Problems faced by the agricultural household include a seasonal pattern of production in which expenses must be incurred before income can be earned, and a requirement to balance the budget over a seasonal or yearly cycle. Thus, because credit is an essential input, its limited availability becomes an effective constraint to activity in that expenditures must be limited to the available cash rather than to the productive potential. In effect, the prices for goods a household purchases or sells (ie both inputs and outputs) are increased by the effective value of the credit constraint (Sadoulet & de Janvry 1995). This value is the worth of one unit of credit to the household in terms of income. Thus, the value of earning wage income, as well as the effective cost of fertiliser or other inputs, is increased by the restricted availability of credit. This restriction limits the ability of the household to make the best use possible of its available resources.

The lag between expenses and income means that agricultural credit is used to finance production and, in poorer countries particularly, to smooth consumption in the period before the harvest (Bardhan & Udry 1999). Additionally, Krause et al (1990, p 913) report that small farmers 'primarily view credit as a form of insurance in times of distress where production risks are severe', making them reluctant to default on loans in order to avoid the loss of future access to credit. Bardhan and Udry (1999, p 76) note that 'seasonal credit transactions are common in virtually all poor agricultural economies' and that 'the institutional arrangements through which these transactions are effected are varied and often complex'. Furthermore, in many of these economies the degree of information asymmetry that exists between borrower and lender is substantial, which makes the liberalisation of credit markets particularly difficult.

Vietnam is in the process of implementing reforms to the banking system and undertaking a gradual liberalisation of credit markets (World Bank 2003). However, small household farms, and in the rural sector in general, in Vietnam are recognised as facing credit constraints (Duong & Izumida 2002; Wolz 1997; World Bank 1998). Historically, the credit market in Vietnam has been seriously distorted by government intervention including priority credit given to state owned enterprises and various commodity production programs (World Bank 1998). Additionally, agricultural credit policy in Vietnam is often used as an instrument of social welfare policy, targeting finance to poorer regions and households, through the activities of the Bank for Social Policy (previously known as the Vietnamese Bank for the Poor).

Commercial credit availability for farm households commenced in 1993. Decree No 14/CP (1993) gave farm households access to credit, whereas previously loans had only been available to households through institutions. Following this reform, credit could be provided direct to households by commercial banks and financial organisations. The 1993 Land Law allocated land use rights (LUR) to households and gave them the right to use

these as collateral for bank loans. However, there are continuing issues with the use of LUR as collateral, and these will be discussed later in this chapter.

The objectives of this chapter are to review credit use at the farm household level in Vietnam using data from household surveys conducted in 2001 and 2002 and relate this to ongoing changes in credit policy. The survey data are disaggregated by region, loan source and socioeconomic group in order to investigate the effects of current credit policy, identify problems and suggest policy needs.

A brief overview of agricultural credit sources and credit policy in Vietnam is given, followed by description of the survey method and survey results. The results are discussed under the headings: use of credit sources, size of loans and credit constraints, loan terms and interest rates, use of collateral, savings, and households accessing credit. Conclusions are drawn and policy implications listed in the final section of the chapter.

## Agricultural credit in Vietnam

The banking sector in Vietnam was one of the first areas of the economy to be deregulated and opened up to the private sector. Changes were made to the structure, regulations and operations of the Vietnamese banking sector from the late 1980s (World Bank 2003), such that Wolz (1997, p 5) comments that 'in 1997 the institutional set-up looks quite heterogeneous'. Despite these changes, the Government of Vietnam has controlled credit availability and interest rates in all sectors of the financial market through the activities and regulation of the State Bank, and through regulations controlling subject access to credit (Duong & Izumida 2002; Wolz 1997; World Bank 2003).

### Agricultural credit providers

Formal, semi-formal and informal credit providers operate together in the rural credit market in Vietnam, as is typical in many developing countries. However, in Vietnam the formal banking sector, and particularly the Vietnam Bank for Agriculture and Rural Development (VBARD), is now responsible for the bulk of the loans made to rural households (Anh 2002; Duong & Izumida 2002). This was not always the case, with data from the 1993–94 Vietnam Living Standards Survey (VLSS) showing that 40% of loans in rural areas were from private individuals, 33% from private moneylenders and 25% from banks or other sources (Wolz 1997). Entities operating in the formal, semi-formal and informal credit markets are as follows.

### The formal credit sector

In Vietnam commercial financial sources include commercial banks, branches of foreign banks, joint-stock banks and joint venture banks. The four state-owned commercial banks (the Vietnamese Bank for Agriculture and Rural Development, the Vietnamese Bank for Foreign Trade, the Vietnamese Bank for Industrial Trade and the Vietnamese Bank for Investment and Development) play a key role, with the VBARD being the major commercial source of credit for rural households.

The Bank for Social Policy (BSP) is a government-owned non-profit bank established in 1995 with objectives 'to contribute to hunger eradication and poverty alleviation' (Wolz 1997, p 9). Loan eligibility is strictly controlled, and this bank is a major credit source for households who are in poverty, are members of minority ethnic groups or are eligible for special social policies (eg those households with family members wounded or killed during the wars, and households recognised as having rendered services to the country). As poverty is concentrated in rural areas, the BSP is the commercial credit source available to many rural households. Loans from the BSP are subsidised with low interest rates (around 0.8% per month) and are generally for small amounts.

## The semi-formal credit sector

The semi-formal sector provides loans through sociopolitical unions in rural areas, and the level of activity of this sector in a region is related to priority programs of the government, consignment services of the banks and the activity of unions. The interest rate charged by these groups is often lower than that of the commercial banks.

Since 1997 the People's Credit Funds (PCF) have been established by the State Bank of Vietnam. These are commune-level savings and credit cooperatives, established with the aim of promoting 'self help and mutual assistance', which are under the jurisdiction of the Cooperative Law (Wolz 1997, p 11). Initially they expanded rapidly, with the World Bank (1998) reporting that over 900 were operating at the commune level in 51 of Vietnam's 61 provinces. Interest rates reflect commercial lending rates and loans are generally for the short term.

Credit associated with some government and foreign country programs is entrusted to the banks to implement projects such as the National Program for Hunger Eradication and Poverty Reduction, and the National Project for Jobs and Employment. These programs provide credit to groups of farmers through sociopolitical groups (eg the Women's Union or Farmers' Association) or local governments, which are considered as semi-formal sources. This credit comes from the national budget or from overseas development aid of foreign countries and international financial organisations. Such group-based or mediated finance is recognised as helping overcome problems of information asymmetry in that loan applications for individuals are vetted through credible organisations (Duong & Izumida 2002).

Since the early 1990s the mass organisations (eg the Women's Union or Farmers' Association), supported by foreign NGOs, have also encouraged micro-finance schemes based on non-profit principles. This credit is mainly available for community development, gender equality, hunger eradication and poverty reduction, and households or individuals with special circumstances (eg minorities, people in mountainous and remote areas, poor households and women). Although these micro-finance schemes can be important in specific areas and have been the subject of considerable research, they are not a focus of the work presented in this chapter.

## Informal credit sources

Informal sources have been traditional providers of credit in rural areas and are the result of an underdeveloped formal credit market. Wolz (1997) identifies four forms of informal credit sources as:

- mutual lending among friends and neighbours
- rotating savings and credit associations promoting periodic savings which are rotated as a fund among a limited group of people who trust each other (generally from the same hamlet)
- specialised moneylenders including pawnbrokers
- traders giving advances in cash or in kind (for the rights to buy the harvest).

Interest rates associated with informal finance can vary from being very high to none at all, and loan amounts are also highly variable. Informal finance has played a major role in providing credit to rural households in the past, as demonstrated by the 1993–94 VLSS statistics mentioned earlier.

## Developments in credit policy

In Vietnam there is a positive trend in credit policy liberalisation to be more in line with market economic principles.

### Interest rates and loan limits

Until comparatively recently commercial credit sources were virtually completely controlled by the interest rate policies of the Central Bank and this had an effect on the competitiveness of commercial credit sources in rural areas. Bank interest rates are now gradually being liberalised. Changes in interest rate policy were implemented in May 2002 as a result of Decision No 546/2002/QD-NHNN of the Governor of the State Bank of Vietnam (State Bank 2002). This decision has allowed new arrangements for the direct negotiation of interest rates with borrowers for commercial credit contracts in Vietnamese *dong*. When lending the bank can determine interest rates based on the supply of and demand for capital in the market, and take into account the level of trust or confidence they have in the customer or customer group. Effectively, this means that interest rates are no longer controlled by direct regulation of the government, thus allowing the development of more liberalised credit markets.

Transaction costs of agricultural credit are high because loans in agriculture and rural areas are generally small and for the short term. The VBARD has regulated a higher interest rate for loans in rural areas than in urban areas, and higher rates for small loans than for large loans (eg, it has set differential interest rates for loans as of August 2002 as follows: less than VND10 million, 1%/month; less than VND50 million, 0.9%/month; greater than VND50 million, 0.85%/month). Investment in rural areas is not as attractive to banks as investment in urban or industrial areas.

For current interest rates there is discrimination between small and large, and short-term and long-term, loans as well as between different customers. Loan limits for farmers are dependent on the individual customer and are related to the amount and type of assets available for mortgage. The loan is also dependent on the type of household (poor

or rich household, and family or commercial farm). Because the mortgagable assets of farm households are generally of a low value, loans to farm households are usually small.

## Collateral and risk

Assets available to be mortgaged in rural areas are mainly the house and land and other productive assets, particularly livestock. In Vietnam farmers do not actually own land but they can mortgage their land use rights. The collateral value of the Red Book (*so do*) (the name given to a household's record of their land use rights entitlement) is around 50–70% of the land value, with the value of land set in accordance with a government framework that is specific to regions (World Bank 1998). House values, however, are determined directly by bank officials. In the past the government-set land value has been well below the market value, making the collateral value of agricultural land in particular very low. Revisions to the Land Law made in 2003 have made provision for the government land value to be set closer to the real market value (Vietnam News 2003).

Another type of LUR mortgage called 'trustable mortgage' (*tin chap*) can be used by households who have been allocated land and have the Red Book. In this case banks consider the LUR as the trust or guarantee for a loan that has the support of local government and sociopolitical groups in rural areas. The value of LUR is the same for each Red Book, and is independent of the land area or the value of land in the Red Book or the productive assets (eg tree crops) on the land. Using LUR as a 'trustable mortgage', a household can borrow a fixed amount. Based on current regulations, the amount that can be borrowed from the VBARD is not larger than VND10 million for household farms and VND20 million for family or commercial farms. The advantages of this arrangement are that households can access credit easily, and households with lower production levels and less capital can be supported. Larger loans require collateral.

Risk caused by bankruptcy is a significant factor for credit organisations. The lender needs to be 'assured that the borrower-operator has indeed the right to dispose of the land by sale or transfer or the right to transfer use rights' (Feder & Feeny 1991, p 141). Difficulties associated with using LUR as collateral are well documented (Duong & Izumida 2002; Humphries 1999; Vietnam Economic Times 2001; Wolz 1997). Although LUR are accepted as collateral, in many ways this is more a formality, since in reality if foreclosure occurs the bank cannot easily rent or sell the land. As noted by Duong and Izumida (2002 p 321), 'There are few cases where land has been liquidated in the event of a farmer's collapse'. In the case of non-payment the VBARD tries to recover the loan with the help of the local People's Committee (Wolz 1997).

The use of LUR as the mortgage asset results in a high incidence of small and short-term loans, which constrain the development of the farm household economy. In addition, there is no discrimination between farm households who use loans effectively and those who use them ineffectively. Banks cannot provide incentives or encourage good customers because if customers have the same mortgage asset they are eligible for the same loan amount, and generally this amount is very small.

## Method

During 2001 a farm household survey was conducted in four provinces in Vietnam: Ha Tay and Yen Bai in the north, and Binh Duong and Can Tho in the south (see Appendix I for more details). Approximately 400 households were surveyed in 16 communes (two districts in each province). The same households were surveyed again in 2002 except in the southern communes, where only half the number of households was surveyed. Data from both surveys are reported in this chapter. A wide range of mostly quantitative data were collected relating to land holdings and land use, assets, production overall and on an individual plot basis, income sources, prices paid and received, use of credit, and perceptions of yield and price risk. The focus of this chapter is the data related to credit use, but the collection of other data allows credit use to be related to other variables such as farm size, income level and household structure.

As the survey was conducted for the years 2000 and 2001, the credit data do not reflect the recent government decision (discussed in the previous section) in 2003 that has allowed for a liberalisation of interest rates.

To establish perennial crops, such as this mixed fruit tree orchard in Ha Tay province, farmers need access to long-term credit, but long-term loans are often difficult for farmers to obtain.

## Results from the survey data

### Characteristics of loans from different sources

The number of loans from different sources in 2000, and the average amounts and interest rates for these loans, for the surveyed households are shown in Table 1.

Overall, 55% of the 346 surveyed households had a loan in 2000. Formal loan sources accounted for the bulk of loans to these households in four provinces, with 30% of the households having a loan from the VBARD. Loans from the formal sector accounted for 70% of the total number of loans whereas loans from the semi-formal and informal sectors accounted for 9% and 14% of the total respectively (Figure 1). Of loans made from the formal sector, those from the VBARD accounted for 72% of the total. Loan amounts from the

**Table 1** Number of loans, loan amounts and interest rates from different loan sources in 2000 for surveyed households in four provinces (number of households = 346)

| Loan source | No of loans in 2000[a] | Avg loan amount (mill VND) | Avg interest rate (%/mth) |
|---|---|---|---|
| Formal sources | | | |
| VBARD | 109 | 9.3 (9.0)[b] | 1.04 (0.23) |
| VBP | 26 | 2.5 (1.4) | 0.79 (0.27) |
| Other banks | 14 | 8.2 (5.3) | 1.11 (0.19) |
| Semi-formal sources | | | |
| Farmers' Association | 6 | 2.6 (0.6) | 0.79 (0.14) |
| Women's Association | 13 | 2.7 (1.6) | 0.79 (0.15) |
| People's Credit Funds | 3 | 2.7 (2.1) | 1.18 (0.18) |
| Informal sources | | | |
| Relatives | 10 | 11.4 (15.9) | 0.35 (0.75) |
| Friends | 7 | 6.4 (7.1) | 0.13 (0.34) |
| Local moneylenders | 13 | 10.6 (14.0) | 3.47 (3.14) |
| Unknown loan source | | | |
| Loan source not given | 26 | 7.1 (10.9) | 1.00 (0.88) |
| Total loans | 227 | | |

[a] Some households had more than one loan

[b] Standard deviations are shown in parentheses

semi-formal sector are on average small (around VND2.5 million), as are loans from the Vietnam Bank for the Poor (VBP) and People's Credit Funds. Interest rates, however, are much lower for loans from semi-formal sources and the VBP. Loan amounts from informal sources can be either comparatively high or low (as indicated by the standard deviations for loan amounts), but interest rates charged by local money-lenders are considerably higher than those charged by other lenders.

## Credit use, loan sources and loan characteristics by province

### Credit use and loan amounts

A summary of some credit details for the four provinces is shown in Table 2. Most households were aware of a wide range of credit sources and over 50% of surveyed households in all provinces except Yen Bai had borrowed money in the last 5 years (1995–99). The percentage of households having loans (either new or existing) in 2000 was also high, ranging from 47% in Yen Bai to 61% in Ha Tay. The percentages of households taking out loans in 2001 is still quite high, considering that some loans taken out earlier would still have been current.

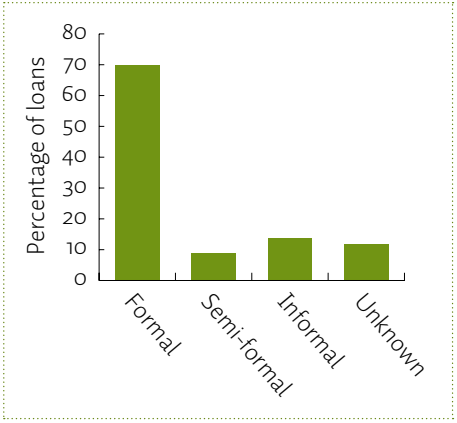


**Figure 1.** The distribution of loans held by surveyed households in 2000 between formal, semi-formal and informal sources (number of loans = 217)

Average loan amounts (from all sources) for loans held in 2000 appear to be similar across provinces, except for Yen Bai where the average loan amount is much lower. Median loan amounts are lower than average amounts in all provinces, particularly so in Ha Tay and Binh Duong. Generally, median loan amounts are higher in the two southern provinces than the two northern provinces for loans held in 2000. For loans taken out in 2001 both the average and median loan amounts appear to be higher in the southern provinces and lower in the northern provinces (Figure 2). One interpretation of this difference is that the naturally larger farm size in the southern communes is being reflected in the higher average loan amounts in 2001. Another interpretation is that higher average loan amounts reflect the higher percentage of loans that come from the formal sector in the southern provinces (see Table 3).

Generally, the average difference in the size of the loan asked for and the size of the loan granted is not large and is fairly consistent across districts, with the exception of Ha Tay province. In this province a small number of farmers requested large loans (VND50 million or more) that were not granted in full. The percentages of loans requested that were not granted in full, as shown in Figure 3, are one measure

of the degree of credit constraint facing households in the different provinces. Some households were able to access extra credit through second and even third loans from other sources, so were not effectively credit constrained, but the extra credit was often obtained at higher interest rates than their first loans. Generally, credit constraints seem to be highest in Ha Tay and Binh Duong, with more than 20% of households not receiving their requested credit amounts, and consistently low in Can Tho. Credit constraints, as assessed by the difference between the amount asked for and the amount loaned, appear to be less for loans taken out in 2001 in all provinces except Binh Duong, and particularly so in Yen Bai.

## Loans by credit source

The percentage of loans from different loan sources and average loan amounts for loans held in 2000 are shown in Table 3. The major lender in all provinces was the Bank for Agriculture and Rural Development (VBARD), particularly in Can Tho province where over 80% of the loans were made from the VBARD. Loans from other commercial

**Table 2** Summary of some credit details for districts in the four surveyed provinces – loans from all sources

| Province | Ha Tay (n = 93) | Yen Bai (n = 85) | Binh Duong (n = 86) | Can Tho (n = 82) |
|---|---|---|---|---|
| Percentage of households taking loans - last 5 yrs (1995–99) (%) | 67 | 44 | 56 | 68 |
| Loans held in 2000 | | | | |
| Percentage of households having loan in 2000 (%) | 61 | 47 | 51 | 59 |
| Average loan amount in 2000 (mill VND) | 7.7 | 3.9 | 10.1 | 8.6 |
| Median loan amount in 2000 (mill VND) | 4.5 | 2.5 | 6.5 | 7.5 |
| Average difference between loan request & actual loan (mill VND) | 4.1 | 1.0 | 1.7 | 1.5 |
| Loans taken in 2001 | (n = 109) | (n = 102) | (n = 48) | (n = 49) |
| Percentage of households taking loan in 2001 (%) | 38 | 46[a] | 35 | 39 |
| Average loan amount in 2001 (mill VND) | 5.6 | 2.7 | 16.7 | 11.8 |
| Median loan amount in 2001 (mill VND) | 3.0 | 2.5 | 10.0 | 10.0 |
| Average difference between loan request & actual loan (mill VND) | 2.7 | 0.4 | 2.7 | 0.3 |

a 'Date of loan' data is missing, so these data may include loans taken out before 2001 but still current in 2001

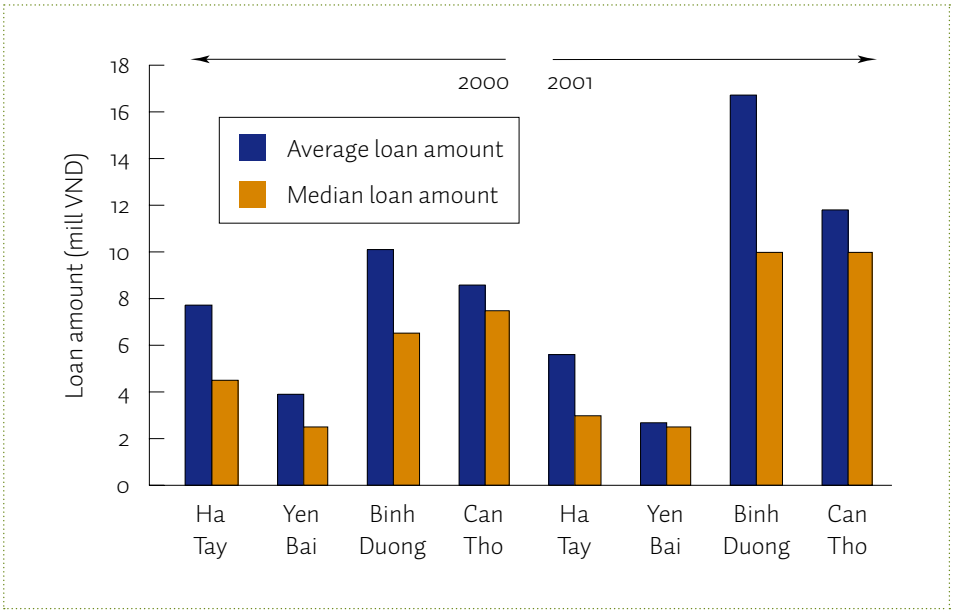


**Figure 2** Average and median loan amounts for loans held in 2000, and new loans accessed in 2001, from all sources for surveyed households in Ha Tay, Yen Bai, Binh Duong and Can Tho provinces

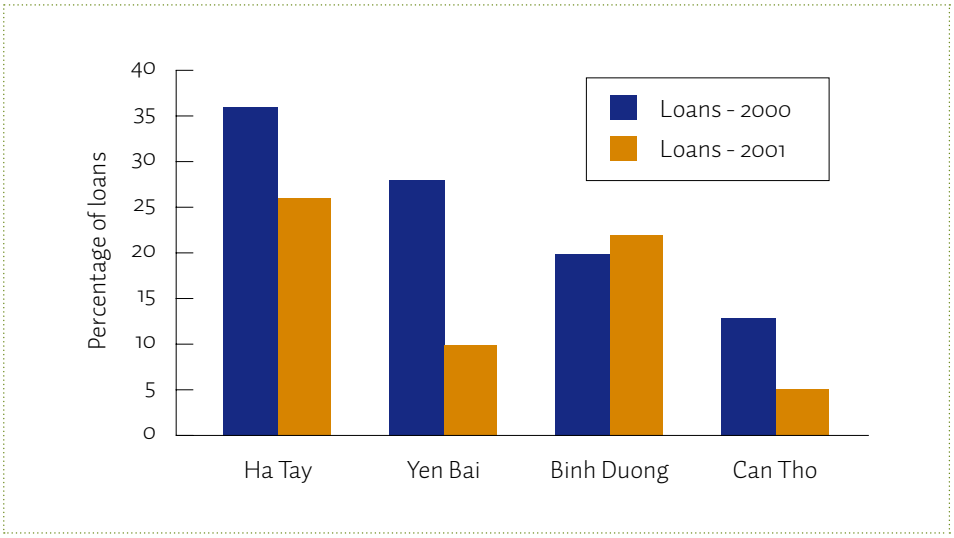


**Figure 3** Percentage of loans held in the year 2000 and taken out in the year 2001 that were not met in full by credit providers

banks were also common in the southern provinces but virtually absent from the northern provinces. The percentage of loans from the Bank for the Poor (VBP) was highest in Yen Bai and no loans from this source are recorded in Can Tho.

The surveyed households in both Binh Duong and Can Tho provinces had over 80% of loans in 2000 made from the formal banking sector. This is strikingly different from the two northern communes where a considerable percentage of loans were made from the semi-formal and informal sectors. The semi-formal sector was almost completely absent from the southern communes, whereas households in the northern communes used a diverse range of semi-formal and informal credit sources, including credit funds and local mass organisations (Farmers' and Women's Associations). Agriculture in the south is more commercial than in the north and also traditional family and community ties in the north are stronger. The absence of loans from other commercial banks in Ha Tay is surprising, given its proximity to banking services in Hanoi.

The average amount of money loaned to households from the VBARD was quite similar in Can Tho and Ha Tay (VND9 million), higher in Binh Duong (VND12 million) and lower in Yen Bai (VND5.6 million). However, the median level of loans from the VBARD is lower in the northern provinces (VND5 million in both Ha Tay and Yen Bai) than the southern provinces (VND9 million in Binh Duong and VND8 million in Can Tho). Loans from the VBP, credit funds and mass organisations tended to be much less, generally around VND2.5 million, accounting for the lower median overall loan amount in the northern communes (Table 1). Second and third loans obtained by households are often (but not always) from the informal sector and vary considerably in size. Local moneylenders charge interest rates considerably higher than other lending sources, in these data in the range 2–6% per month.

Similar data were generated for loans taken out in 2001 (not shown). However, a striking difference between 2000 and 2001 is the reduced use of the informal credit sector in Ha Tay (down from 24% to 2%) and Yen Bai (down from 15% to 4%). In Ha Tay this corresponded with an increase in the number of loans from the formal sector (up from 56% to 87%), particularly from the VBARD, and in Yen Bai to an increase in the number of loans from the semi-formal sector (up from 19% to 31%), particularly the Women's Union. A comparison of loan amounts made by the VBARD in these 2 years is shown in Figure 4. Average loans from the VBARD fell slightly in the northern communes, increased slightly in Can Tho and increased considerably in Binh Duong.

## Loan terms and interest rates by loan source

Average loan terms and interest rates from different loan sources, broken down by province for the years 2000 and 2001, are shown in Table 4. Generally, loans from the formal sector rate as medium term, especially those from the VBARD and VBP. Other banks have slightly higher interest and shorter terms. Some loans from relatives and friends have 'no set term' but these data are not included in the averages.

**Table 3** Percentage of loans held in the year 2000 obtained from various credit sources and average loan amount from each source

| Province | Ha Tay (n = 93) | | Yen Bai (n = 85) | | Binh Duong (n = 86) | | Can Tho (n = 82) | |
|---|---|---|---|---|---|---|---|---|
| No of loans held in 2000 | 78 | | 47 | | 50 | | 50 | |
| **Loan source** | **% of loans** | **Amt (mill VND)** | **% of loans** | **Amt (mill VND)** | **% of loans** | **Amt (mill VND)** | **% of loans** | **Amt (mill VND)** |
| Formal sources | | | | | | | | |
| VBARD | 40 | 8.9 | 25 | 5.6 | 50 | 12.0 | 82 | 9.1 |
| VBP | 12 | 2.8 | 23 | 2.4 | 12 | 2.2 | 0 | - |
| Other banks | 0 | - | 2 | 20.0 | 20 | 10.0 | 12 | 4.6 |
| Total formal sources | 52 | | 50 | | 82 | | 94 | |
| Semi-formal sources | | | | | | | | |
| Farmers' Association | 4 | 2.3 | 4 | 3.0 | 2 | 2.5 | 0 | - |
| Women's Association | 6 | 2.8 | 15 | 2.3 | 2 | 5.0 | 0 | - |
| People's Credit Funds | 4 | 2.7 | 0 | - | 0 | - | 0 | - |
| Total semi-formal sources | 14 | | 19 | | 4 | | 0 | |
| Informal sources | | | | | | | | |
| Relatives | 9 | 13.2 | 4 | 2.8 | 0 | - | 2 | 16.0 |
| Friends | 6 | 8.3 | 2 | 0.5 | 2 | 3.0 | 0 | - |
| Local moneylenders | 9 | 13.5 | 9 | 2.9 | 2 | 5.0 | 2 | 10.0 |
| Total informal sources | 24 | | 15 | | 4 | | 4 | |
| Unknown loan source | | | | | | | | |
| Unspecified | 10 | 5.1 | 15 | 2.1 | 10 | 15.1 | 2 | 3.0 |

In the loan data for 2001 there is a surprising variation between provinces. Semi-formal credit sources in Ha Tay appear comparatively expensive and short term compared to both the data reported for 2000 and the data for Yen Bai. Loan terms in the south generally seem much shorter than in the north. The high interest rates incurred when borrowing from moneylenders are clearly illustrated. Both loans from moneylenders reported here were for production, and one was taken out after failure to access formal sector credit.

## Use of land use rights as collateral

Households were asked what they used as collateral for loans. For loans held in 2000 the Red Book was recorded as the collateral used to obtain loans by 49% of households in Ha Tay, 45% in Yen Bai, 73% in Binh Duong and 81% in Can Tho. Many of these loans were for amounts below VND5 million, which was the limit at this time that could be borrowed with 'trustable mortgage' if households had the Red Book. For loans taken out in 2001 many households in Yen Bai province recorded that they used a 'trustable mortgage' to obtain loans. This is likely to be linked to the relatively high level of activity of the semi-formal credit sector in this area.

## Reported problems accessing and using credit

A number of households had complaints about, or problems with, loans in three basic areas:

- loan procedures
- loan amounts and the conditions of the loans
- difficulties in meeting repayments.

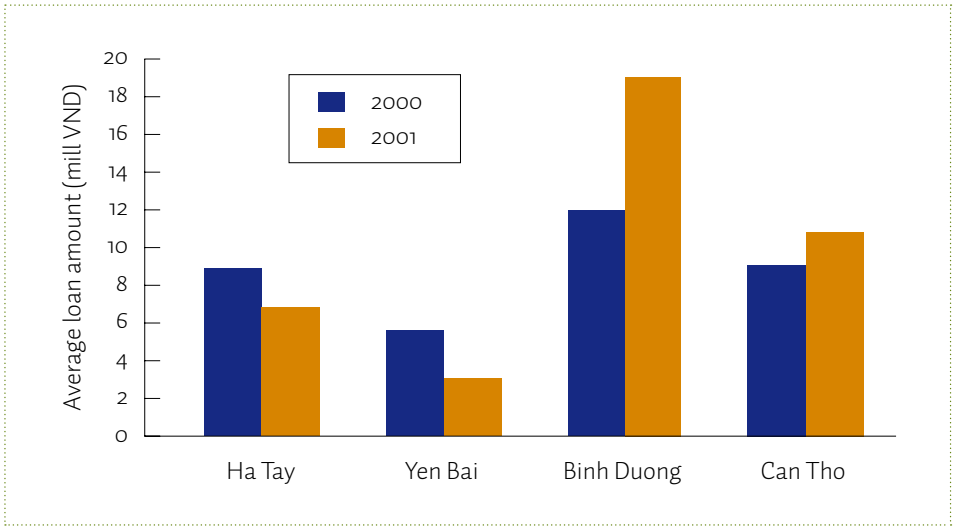


**Figure 4** Average loan amounts from the VBARD to surveyed households for loans held in 2000 and loans taken out in 2001

**Table 4** Loans held by surveyed households in 2000, and new loans in 2001, showing average term and interest rate by loan source

| Loan source | Ha Tay | | Yen Bai | | Binh Duong | | Can Tho | |
|---|---|---|---|---|---|---|---|---|
| | Term (mths) | IR (%/mth) | Term (mths) | IR (%/mth) | Term (mths) | IR (%/mth) | Term (mths) | IR (%/mth) |
| **2000 data** | **(h/hs = 93)** | | **(h/hs = 85)** | | **(h/hs = 86)** | | **(h/hs = 82)** | |
| Formal | | | | | | | | |
| VBARD | 21 | 1.1 | 27 | 1.0 | 16 | 1.0 | 22 | 1.0 |
| VBP | 23 | 0.7 | 24 | 0.7 | 12 | 0.8 | - | - |
| Other banks | - | - | 12 | 1.1 | 17 | 1.1 | 8 | 1.6 |
| Semi-formal | | | | | | | | |
| Farmers' Assoc | 28 | 0.7 | 18 | 0.8 | 36 | 1.1 | - | - |
| Women's Assoc | 20 | 0.9 | 33 | 0.7 | 24 | 0.6 | - | - |
| Credit Funds | 9 | 1.2 | - | - | - | - | - | - |
| Informal | | | | | | | | |
| Relatives | 6 | 0.2 | 15 | 0.0 | na | 0.0 | 36 | 2.0 |
| Friends | 7 | 0.0 | 5 | 0.0 | na | 0.9 | - | - |
| Moneylenders | 11 | 2.0 | 5 | 4.3 | 6 | 2.1 | na | 12.0 |
| **2001 data** | **(h/hs = 109)** | | **(h/hs = 102)** | | **(h/hs = 48)** | | **(h/hs = 49)** | |
| Formal | | | | | | | | |
| VBARD | 22 | 1.2 | 28 | 0.8 | 16 | 0.9 | 18 | 1.0 |
| VBP | 23 | 0.6 | 25 | 0.9 | 12 | 0.6 | - | - |
| Other banks | - | - | - | - | 12 | 1.0 | 12 | 1.2 |
| Semi-formal | | | | | | | | |
| Farmers' Assoc | 12 | 1.2 | 27 | 0.8 | - | - | - | - |
| Women's Assoc | 9 | 1.2 | 36 | 0.7 | - | - | - | - |
| Credit Funds | 24 | 1.1 | 11 | 1.2 | na | 1.2 | - | - |
| Other organisations | 8 | 1.3 | - | - | - | - | - | - |
| Informal | | | | | | | | |
| Relatives | 10 | 1.2 | na | na | - | - | - | - |
| Moneylenders | - | - | - | - | 2 | 8.0 | 4 | 6.0 |

Generally, the number of complaints recorded compared to the number of loans is small. Some farmers reported that they had 'no difficulties' with their loans.

In the year 2000, most complaints about loans from the VBARD (16% of loans) were concerned with loan procedures, including: complicated and/or laborious procedures, loans taking a long time to be approved, intensive and repeated checks being made, and approval being needed from local authorities. One farmer commented that 'a lot of time was wasted'. There were also complaints (5%) about the loan amount being too small or the interest rate too high.

Complaints about loans from the VBP (19% of loans) were also concerned with procedures, but more farmers had complaints about the amount and conditions of the loan, with 38% of households stating that either the loan amount was too small or the loan term was too short. With the average loan amount being only VND2.5 million, this would seem to be a likely problem with loans from this source. There was only one complaint made about loans from other banks operating in the formal sector.

There were only six loans recorded from the Farmers' Association but the complaint level about loan procedures was high (50%). Complaints about loans from the Women's Association were more likely to be about the loan amount being too small (23%) than about the loan procedures (7%). Problems with loans obtained in the informal sector are clearly identified. Loans from relatives tend to be small and short term and loans from moneylenders have high interest rates. Loans from friends received few complaints but some farmers recognised that when borrowing from friends 'you have to be reliable about repayments'. A small percentage of farmers had problems meeting the monthly repayments needed for loans, and this was generally the case with loans from all sources.

In the years 2000 and 2001 combined, 34 households gave reasons why they were not able to access credit. Replies can be categorised into the following reasons:

- difficult and cumbersome procedures (29%)
- unable to get the necessary approval from the commune authorities (18%)
- still in debt from previous loans so not allowed more credit (18%)
- not having any or sufficient collateral (15%)
- loan terms/amounts/interest rates offered not suitable (12%)
- afraid of being unable to meet repayments (6%)
- not knowing how to access credit (3%).

## Savings

Households were asked if they had any savings. It was expected that many households would not answer this question or, alternatively, say that they had no savings. With that caveat, Table 5 shows the percentage of households reporting savings in the year 2000 and the average amount of those savings, if reported. Not all households nominated the extent of their savings.

The percentage of households reporting that they had savings was low, except for Ha Tay. In the northern communes and Binh Duong, most savings were reported to be in cash, whereas in Can Tho savings were reported as being in both gold and cash. Savings were most commonly kept at home, with only four households saying that they kept savings in the bank. Three households in the northern communes said they had their savings in a savings group (*gop ho, choi ho, hui*), and one household in Binh Duong had their savings available on the short-term money market (*cho vay nong*).

## Households accessing credit

Surveyed households in the two northern communes were classified by commune leaders into socioeconomic groups of 'above average' (*ho giau*), 'average' (*ho trung binh*) or 'below average' (*ho ngheo*). Not all households in the southern communes were classified by the commune leaders but reasonable data exist for Can Tho. In Table 6 data on the net value of production (NVP), farm size and other household variables from the households in Ha Tay, Yen Bai and Can Tho are shown disaggregated by this classification at the commune level.

The data show that NVP, value of assets and farm size measures generally decrease, as might be expected, for the lower socioeconomic groups in all three provinces. Average NVP values for Can Tho for the above average group are noticeably lower than in Ha Tay. Median values, however, are similar and even a little higher for the above average group. The variation in average farm size in socioeconomic groups is not so pronounced in Can Tho as in the northern communes, but the median farm size for the poor group is half that of the above average and average groups. In all provinces and particularly in Ha Tay, the poor group has a lower percentage of male household heads. In Can Tho the education level of the household head for the poor group is also noticeably less than for the above average and average groups.

The percentage of households accessing loans is actually lower in the above average group than both the average and poor groups in all provinces. For example, in Yen Bai 67% of the poor households had accessed credit in 2000, compared to 41% of the average group and 34% of the above average group. Average loan amounts, however, reflected the socioeconomic rankings, being higher in the

**Table 5** Percentage of households reporting savings and average amount of savings

| | Percentage of households | Average savings (mill VND) |
|---|---|---|
| Ha Tay (n = 93) | 22 | 4.2 (5.3)[a] |
| Yen Bai (n = 85) | 1 | n/a |
| Binh Duong (n = 86) | 9 | 26.1 (34.1) |
| Can Tho (n = 82) | 7 | 2.5 (0.5) |

[a] Standard deviations are shown in parentheses

above average group, particularly in Ha Tay. Compared to Ha Tay average loan amounts were considerably lower for the above average group but considerably higher for the poor group in Can Tho.

Calculated for households with loans, the total loan amount as a percentage of the total NVP is generally high, and much higher in Can Tho than in Ha Tay. The ratio for above average and average households in Ha Tay is comparatively low compared to the other provinces, and households in Ha Tay are the most likely to complain about credit restrictions. By comparison, total lending to poor households in Ha Tay seems very high in relation to the total farm income of this group. However, net value of farm production does not take into account the off-farm income of households, and off-farm opportunities are relatively high in Ha Tay because of its location close to Hanoi.

## Discussion

### Use of credit sources

Credit use by the surveyed households appears to be generally fairly high. The VBARD is a major lender for farm households in all four provinces and particularly in the two southern provinces. This research confirms results reported by Duong and Izumida (2002), who used household survey data to investigate credit provision and use and concluded that the bulk of rural credit was supplied to their surveyed households by the formal sector, particularly the VBARD. The use of both informal and semi-formal credit sources appears to be decreasing in all the surveyed provinces except Yen Bai. In this province the use of semi-formal credit accessed with 'trustable mortgages' through the mass organisations was evident.

The VBP seems to be virtually absent from the southern provinces, and this might be thought surprising given the reported increase in poorer households in the Mekong Delta area (World Bank 2000). Along with the virtual absence of the semi-formal credit sector, this means that there are few credit sources available for poorer households to access small amounts of credit at low interest rates, and there would seem to be a role for a more diverse range of credit sources in the south. The mass organisations are better developed in the north than the south because traditionally they have been more active in northern communities. The ability of households to obtain credit from these semi-formal sources is dependent on the role played by unions and associations in their region.

At the time of the survey commercial banks, with the exception of the VBARD, didn't seem to be operating extensively in the rural credit market in the northern communes, even in a province close to Hanoi. If the data from Ha Tay is representative, there would seem to be a clear role for more finance to be offered to the rural sector in the north by other commercial banks operating in the formal banking sector.

From the 2000 data, borrowing from the informal sector was high in both Ha Tay and Yen Bai. Many of these loans were for production purposes, sometimes after credit requests had not been met in full from

**Table 6** Average characteristics of farm households (h/hs) in Ha Tay, Yen Bai and Can Tho provinces in the year 2000 compared by commune classification of socioeconomic group as 'above average', 'average' or 'poor'

| Province | Ha Tay | | | Yen Bai | | | Can Tho | | |
|---|---|---|---|---|---|---|---|---|---|
| | Avg + (n = 28) | Avg (n = 52) | Poor (n = 17) | Avg + (n = 29) | Avg (n = 44) | Poor (n = 15) | Avg + (n = 24) | Avg (n = 28) | Poor (n = 13) |
| **Income/wealth measures** | | | | | | | | | |
| Average NVP[b] (mill VND) | 63.2 (214.8) | 14.0 (15.6)[a] | 13.6 (41.2) | 11.2 (10.2) | 7.5 (4.5) | 3.8 (2.9) | 21.4 (32.0)[a] | 11.0 (12.1) | 6.8 (9.3) |
| Median NVP (mill VND) | 9.9 | 8.2 | 3.3 | 8.4 | 6.6 | 2.6 | 12.6 | 7.9 | 2.9 |
| Production assets (mill VND) | 28.4 (53.1) | 13.8 (27.4) | 3.3 (4.2) | 9.3 (8.3) | 11.7 (30.7) | 1.9 (2.9) | 8.6 (9.4) | 7.1 (7.6) | 6.6 (11.0) |
| **Farm size measures** | | | | | | | | | |
| Average farm size ($m^2$) | 8,251 (8,807) | 4,319 (3,006) | 3,179 1,808) | 34,754 (52,372) | 24,328 (34,320) | 7,337 (11,070) | 18,273 (10,304) | 12,265 6,477) | 13,468 (13,570) |
| Median farm size ($m^2$) | 5,160 | 3,678 | 2,916 | 17,640 | 14,345 | 2,490 | 15,275 | 12,250 | 7,200 |
| **H/h characteristics** | | | | | | | | | |
| Labour units (16–55 yrs) | 3.3 | 3.3 | 2.8 | 3.9 | 3.3 | 2.6 | 3.5 | 4.1 | 3.8 |
| Education level – h/h head | 8 | 7 | 7 | 7 | 7 | 6 | 6 | 7 | 4 |
| Age – h/h head (yrs) | 46 | 49 | 41 | 49 | 48 | 41 | 55 | 54 | 57 |
| Percentage of male h/h heads (%) | 89 | 77 | 53 | 90 | 100 | 87 | 96 | 100 | 92 |
| **Credit** | | | | | | | | | |
| Percentage h/hs with loans in 2000 (%) | 46 | 65 | 59 | 34 | 41 | 67 | 46 | 64 | 62 |
| Average loan in 2000 (mill VND)[c] | 25.5 (28.9) | 6.8 (6.8) | 3.6 (2.7) | 7.6 (11.8) | 4.7 (3.4) | 2.0 (1.4) | 10.9 (6.0) | 11.9 (8.5) | 7.5 (6.9) |
| Total loans as percentage of total NVP (%) | 24 | 42 | 140 | 67 | 47 | 45 | 68 | 99 | 76 |

[a] Standard deviations are shown in parentheses

[b] Net value of production (NVP) is the total value of production (including production consumed by the households) minus cash costs

[c] Average of households with loans

formal sources. The use of informal credit to meet shortfalls in credit from other sources is also reported by Duong and Izumida (2002). The use of informal credit sources dropped dramatically in both Ha Tay and Yen Bai for loans taken out in 2001.

## Size of loans and credit constraints

Generally, loans from the formal sector, excluding the VBP and People's Credit Funds, are higher than loans from the semi-formal sector, and loans from the informal sector can be extremely variable in amount. Taken overall, average loans are small, at around VND5–10 million, in all districts for all loans held in 2000. In 2000 more than 25% of households in the northern provinces reported that they had not received all the credit they had requested. This is commensurate with the figure of 30% for credit-constrained households reported by Duong and Izumida (2002). Estimates of credit constraints were lower in the southern provinces, with around 20% of households in Binh Duong and 15% in Can Tho saying they had failed to obtain the credit they requested.

These data would suggest that many farmers face credit constraints, a view that is reinforced by farmer complaints that loans are too small or they are unable to borrow enough money, especially from the semi-formal sector. A number of other households reported that they were unable to access credit or additional credit, which adds to the number of effectively credit-constrained households. In answers to other sections of the survey households identified lack of finance as a constraint to both land leasing and land use change (Marsh & MacAulay 2003).

For loans taken out in 2001 average loan amounts were generally higher in the southern communes and slightly lower in the northern communes (Figure 2). However, the percentage of households reporting that they had not obtained all the credit they had requested fell from 2000 to 2001 in all provinces except Binh Duong, despite average loan amounts increasing substantially in this province. Despite generally fewer reports of credit restrictions, credit-constrained households remained high at above 20% in Ha Tay and Binh Duong, and around 10% in Yen Bai and Can Tho. The data for 2001 loans for Yen Binh district in Yen Bai show that a high percentage of loans (50%) were taken out using a 'trustable mortgage', which may account for the reduction in credit constraints. However, loan amounts in Yen Bai province are much lower than in the other surveyed provinces (Figure 2), and this could have a bearing on the degree of credit restriction reported relative to other provinces.

## Loan terms and interest rates

Agricultural loans have often been reported as mainly short term and this has been identified as a constraint to agricultural development. The data from this survey show that there are a large percentage of medium-term loans (12–36 months) for credit from the formal and semi-formal sectors, particularly in the northern communes. In the southern communes, because the loan term is generally shorter (12–20 months), the credit can really only be used for immediate production

expenses. The short- to medium-term nature of credit is likely to be related to the problems associated with collateral, which make long-term lending risky for lenders.

Interest rates from the formal credit sector seem reasonably consistent across the provinces, although there were some differences. Interest rate liberalisation has resulted in higher interest rates; for example, the interest rate for short-term loans before 31 May 2002 was 0.9% per month but it was increased to 1% per month from July 2002. Some commentators have argued that the recent liberalisation of interest rates will result in higher interest rates and that 'the interest rate race coupled with rapid credit growth threatens the fragile banking system' (Tran 2003, p 30).

Although the use of credit obtained from the informal sector at high interest rates appears to be decreasing, it is still a concern. Of the 13 loans taken out from local moneylenders (see Table 1), seven were for investment in production (eg buying a thresher, investment in livestock), four to pay expenses related to illness, and one each to pay back a debt, pay for education and build a house. Duong and Izumida (2002) also found that 74% of loans from informal sources were used for production. Loans at high interest rates are inappropriate for most of the above-mentioned activities, pointing to deficiencies in both available lending for production purposes and 'safety net' finance for households in difficulties. Anecdotal evidence suggests it is possible that some loans for production from moneylenders may be 'bridging finance' needed while waiting for approval for loans from formal lending sources.

The dual nature of rural credit in Vietnam is also illustrated by the data: commercial lending for production through the VBARD and other commercial banks, and subsidised lending at interest rates roughly 60–70% of commercial rates through the VBP and the semi-formal credit sector. It is argued by some researchers (eg World Bank 1998) that credit subsidisation is an inefficient form of addressing welfare issues in that it directs scarce capital into inefficient sectors of the economy, and by others that it is at times unhelpful for the recipients. For example, Krause et al (1990) note that poor and small farmers in developing countries have limited means to insure against crop failure, especially when production risk will probably affect everyone in the same location.

In Vietnam poor and small farmers have a reputation for meeting loan repayments. However, it is noticeable that subsidised credit provided in the northern provinces to low income farmers through the VBP and the semi-formal sector is for much smaller amounts than commercial credit provided in Can Tho province to farmers with similar income levels (but a larger farm size). A common complaint made by households about credit from subsidised sources is that the loan amount is too small. Larger loans bring the risk of repayment difficulties, and some cases were noted in the southern communes where households had sold land because of production failures and repayment commitments (Marsh & MacAulay 2003).

## Use of land as collateral

Many households report using the Red Book as collateral for loans, either directly or by using 'trustable mortgage'. Loans using LUR as collateral are generally low and seemingly unrelated to farm size (Anh 2004). The data presented in Table 6 could lead to the conclusion that loan size is more related to the household net value of production (NVP) than farm size. Despite farm size being much larger in Can Tho than Ha Tay, average loan amounts to the above average socioeconomic group are lower than in Ha Tay. The average NVP for above average households in Ha Tay, however, is much higher than for similar households in Can Tho.

This would be a rational response by banks when making loans given the difficulties in using LUR as collateral. When taking LUR as collateral, the lender is mainly interested in the efficient transfer of property rights as this is the means by which the lender can foreclose if necessary. Therefore, the cadastral system has to be reliable and the LUR transfer possible, but because both these issues are problematic in Vietnam (Humphries 1999), there could be expected to be a link between low loan amounts and the unsatisfactory collateral arrangements using LUR from the lender's point of view. Lenders then make the rational move to base loan amounts on other criteria, eg production level, which is related to ability to repay in the short term. Long-term loans are not possible because the collateral is not reliable.

Recent changes to the Land Law in 2003 will address some of the issues facing credit providers with regard to using LUR as collateral (Vietnam Economic Times 2003). But some commentators have argued that it is hard to imagine that Western concepts of land ownership, that would give lenders rights to dispose freely of property in the event of foreclosure, will sit easily with Vietnamese traditional and cultural attitudes that take account of the communal nature of land ownership (Fforde 1995).

## Savings

Few households reported having any savings although there is no way of knowing if this is an accurate reflection of reality. What does seem certain is that few savings are kept in banks. Most are kept at home and it is likely that some of these savings are used for lending to others, presumably at high interest rates. As noted by Adams (1988, cited in Krause et al 1990) policies or institutions that increase the accumulation of capital, such as providing savings deposits in rural areas, would increase technological adoption through capital accumulation. In Vietnam the shortage of commercial credit in rural areas is exacerbated by the common practice of keeping savings out of the commercial financial sector.

## Households accessing credit

A higher percentage of poorer farmers access credit than do wealthier farmers, although the credit amounts obtained by poorer farmers are lower. This somewhat surprising finding is consistent across all provinces. It may indicate that there is a lack of commercial credit, or that wealthier farmers do not need credit as they see no way of increasing their production. Lack of available land for expansion could be one significant constraint.

Loans as a percentage of gross farm returns are generally high, and higher in Can Tho than in the northern provinces. It is likely that off-farm income plays a role in loan repayment. This bears further investigation as off-farm wages could also be significant in the ability to access credit. In relation to their production levels, farmers in Ha Tay are more credit constrained than farmers in other provinces, and this is consistent with the higher incidence of credit rationing to farmers in this province.

## Conclusions

Based on the analysis of the survey data several conclusions can be drawn with regard to rural credit use in these four provinces. Many results are consistent with the results of Duong and Izumida (2002), who surveyed farmers in three different provinces located in the northern, central and southern regions of Vietnam.

Most rural credit is supplied by the formal sector, particularly the VBARD. Semi-formal sources are significant credit providers, as is the VBP, in the northern communes but not in the southern communes. This effectively means that poor farmers in northern provinces have greater access to subsidised credit than poor farmers in southern provinces. Households also used informal credit sources but less so for loans taken out in 2001 than for loans held in 2000, which may indicate a lessening of credit constraints as a result of policy change. Informal credit is often used for production, and this is a concern as interest rates for informal credit are often high.

Credit use is widespread across all socio-economic groups. In fact, wealthier farmers access credit less than poorer farmers, which may indicate credit constraints in the commercial sector or lack of production opportunities for wealthier farmers. Anecdotal evidence suggests that farmers are reluctant to borrow as agricultural returns are low. It also illustrates the high priority placed on enabling poorer farmers to have access to credit. It would appear that this policy has been successful but it is a concern that this may be at the expense of commercial agricultural development. Balancing poverty concerns with the development of commercial agriculture is a complex issue.

The high ratio of loan value to net value of production indicates that off-farm income may be critical in both accessing credit and making loan repayments. In comparison to other provinces wealthier farmers in Ha Tay have low credit:production ratios, and farmers in this province are also more likely to be credit rationed by credit providers. Commercial banks other than the VBARD would seem to be missing an opportunity by not investing in this region.

Encouraging investment of savings in the commercial financial sector should be a priority for government. The existence of large savings outside the banking system adds to the shortage of development and investment funds, and potentially promotes the informal credit sector.

Uncertainty regarding the value and effectiveness of agricultural LUR as collateral is probably restricting loan amounts and the availability of long-term loans suitable for development projects. Currently LUR as collateral don't allow lenders to feel confident about lending against the risks associated with long-term loans to agriculture. Given the complex nature of land ownership, management and use in Vietnam, this will not be an easy problem to solve.

There is a need for further investigation of the rural credit situation at the household level as interest rate liberalisation policies take effect. There are concerns that less money will be made available to the rural sector in favour of investment in the more profitable and less risky services and industrial sectors. If this were the case it would further constrain household production.

CHAPTER SEVEN

# INPUT AND OUTPUT PRICE POLICY AND ITS IMPACTS ON AGRICULTURAL PRODUCTION

NGUYEN HUY CUONG

In a market economy price is considered an important and efficient signal for resource allocation. The price of agricultural products is significant not only in economic terms, but also from a political aspect because it affects the income of farm households, the prices paid by consumers, and export earnings. In this chapter price policy in Vietnam is reviewed and discussed in the context of Vietnam's domestic, regional and international markets, and price trends for major commodities are presented. Household survey data are used to comment on input sources and price levels, and the possible response of farm households to changes in input prices.

## Introduction

In a market economy price is considered an important and efficient signal for social resource allocation. It is also a major factor in assessing the opportunity cost of commodities and services. Under the market mechanism, price is the engine which stimulates not only production but also other economic relations in order to meet consumer demands. Based on the price, the scarce resources of a society will be used in whichever industry would be more profitable.

The price of agricultural products is significant not only in economic terms, but also from a political aspect because it affects the income of farm households, the prices paid by consumers, and export earnings. The income of almost half the world's population is dependent on agricultural production, which is affected by the prices of agricultural products. A small decline in the price of agricultural products may have serious impacts on the economic and political situation in a country: for example, decreases in the prices of sugar, coffee and cocoa in the world market have led to problems in Mauritius, Colombia and Ghana, respectively. Although agriculture generates a very small proportion of gross national product in the US, the price of agricultural products as well as other inputs is also a sensitive political issue in that country.

In a market-driven economy price is considered to be a major mechanism of resource allocation, helping to answer questions such as:

- What commodity and services should be produced?
- How should they be produced?
- How should benefits be distributed between production factor owners?

When a relative price reflects the economic scarcity of inputs and outputs, resource allocation resulting from producer and consumer behaviour will be efficient and suitable for sustainable growth. For commodities that are non-tradeable in international markets (eg land – an immobile commodity, labour – due to international migration constraints, easily broken commodities, and commodities with high transportation costs), 'scarcity value' is determined by domestic supply and demand. For commodities tradable in international markets in which a country is a price taker, 'scarcity value' (or opportunity cost) is determined by the border price of that commodity.

However, the price mechanism does not always operate well, especially in developing countries. In the presence of market failure the market price does not guarantee that targets of both efficiency and equity will be obtained. Therefore, government intervention on price can be used to: i) increase the output of agricultural production, ii) stabilise the price of agricultural products, iii) guarantee national food security and iv) provide food and other raw materials for an industry.

The Vietnamese Government wants price policy to be an engine for agricultural production, and to result in relative prices which are beneficial for producers of food and other crops. Since the *doi moi* policy was introduced in 1986, the government has oriented price policy in this direction and Vietnamese agriculture has generally reached higher production levels. The price of agricultural products has increased (or

decreased) to the level of international prices, and the price of production inputs has also moved to more closely reflect world market prices. The price policy of the government has provided more equitable prices for consumers and reduced the impact of crises that have occurred in the world market, especially for sensitive commodities such as food. The government has controlled prices by applying measures such as quotas and regulating the number of exporters.

## Overview of price policy in Vietnam

### General policy on prices

A number of government regulations set out controls on prices.

1. Ordinance 33/HDBT of the Committee of Ministers (now known as the government) dated 17/2/1984 on 'the regulation on price management'. Under this policy, violations of state pricing policy have been stipulated, eg:
   - price determination by authorities without the jurisdiction and regulatory authority to set prices
   - changes made to price levels, commodity quality and the delivery of goods that have not been determined by the correct authority
   - dishonest reports of production and transportation costs that lead to a loss for the state and consumers because of inaccurate cost and price determination
   - provision of incomplete, inaccurate, untimely data and materials for the determination, control and inspection of prices
   - delaying the process of price determination and the implementation of price policy
   - failure to implement a price registry and post a price, or selling with unposted prices
   - corruption in the calculation and determination of prices, and failing to provide price information
   - revealing a secret document on prices set by the state/government.
2. Ordinance 09/HDBT of the Committee of Ministers dated 04/8/1986 on 'the regulation of price implementation and control, and dealing with violations of price policy' (price policy violations are as outlined in the above mentioned Ordinance 33/HDBT).
3. Decision 137/HDBT of the Committee of Ministers dated 27/4/1992 on 'price management', making changes to the way price management was implemented by the government. The number of commodities for which prices were to be determined by the government decreased. Price was to be determined by the government only for commodities that had large effects on the whole economy, and the government should issue the price frame, floor and ceiling prices only. However, options for price management by the government in the market-oriented economy were still held to include:

- regulation of the price management mechanism by the state/government
- the right of the state/government to implement economic measures to stabilise prices in the economy, and to introduce specific price policies if necessary (eg price subsidies, support transportation costs, and additional fees based on the balance of export and domestic prices)
- the assessment of price determination
- regulation of the price registry and posted prices.

With implementation of this decision, prices of most commodities and services were free to be determined by enterprises. The government intervened only by using price policy and macromanagement mechanisms to stabilise market prices. The government determined the prices of monopoly commodities and services, and of the most important commodities for production and maintenance of living standards (such as petrol, gasoline, iron and steel, fertiliser, paper for newspapers), and a minimum price for rice.

4. Instruction 09/1998/TT-BVGCP of the Price Committee of the Government dated 31/12/1998 on 'the guidance of price management and stabilisation'. This policy included the following points:
    - For commodities and services where prices are determined by enterprises, prices should remain at the level occurring in the market at the end of 1998.

Children enjoying the rice harvest in Bac Ninh province, Red River Delta. Policies affecting the price, purchase, storage and export of rice are an important part of the Government's price policies.

- The government must control the costs and prices of commodities and services provided by monopoly enterprises, the state-owned enterprises, and enterprises with foreign direct investment producing significant commodities and services. These commodities and services, which could affect both the prices of other goods and the national budget, included electricity, telecommunications, sea ports, rice, sugar, fertiliser, cement, iron and steel, petrol, paper, beer and tobacco; and factories assembling motorcycles, cars and electronics.
- Management should include strengthening of price control, posted prices, and selling of posted and registered prices.

These government price policies are summarised in Table 1.

## Policy for domestic markets and integration

### Domestic markets

The major policy focus has been on the provision of subsidies for material transportation, as well as on tax reduction and exemption, to encourage the development of trade in the mountainous areas in order to reduce the price gap between regions. Other policies concentrated on determination of the floor price for rice, encouragement of exports, establishment of a fund for price stabilisation, and support for farmers to sell agricultural products.

The main policies affecting prices on the domestic market include the following:

- Decision 752/TTg of the Prime Minister dated 10/12/1994 on 'cash aid for minority groups for commodities determined by the government'
- Ordinances 46/CP and 47/CP of the government dated 17/7/1995 on 'the establishment of the North and South General Food Corporations (VINAFOOD I and II, respectively) for the purposes of setting up food businesses, buying farmers' produce, regional food balance, and contribution to the stabilisation of food prices'
- Decision 151/TTg of the Prime Minister dated 12/4/1996 on 'the use of the price stabilisation fund to support enterprises having seasonal characteristics and in cases of sudden price changes'
- Decision 140/TTg of the Prime Minister dated 7/3/1997 on 'the announcement of the price of raw rice purchases as from the beginning of crop seasons, the expansion of export markets and food storage'
- Introduction 112/BTC of the Ministry of Finance dated 4/8/1998 on 'tax reduction and exemption for development of trade in the mountainous areas'
- Decision 35/TTg of the Prime Minister dated 21/3/2000 on '100% interest rate support for enterprises to buy rice at the market price for temporary storage, the encouragement of enterprises exporting rice, and the provision of loans to enterprises to buy all commercial rice produced by farmers'.

**Table 1** Summary of government price policy

| Year | Document number | Decision maker | Main contents | Notes |
|---|---|---|---|---|
| 1984 | Ordinance 33/HDBT | Ministers' Committee (Govt.) | ■ Regulation on price management<br>■ Regulation on cases in violation of price management | Prices of most goods and services determined by the state/government |
| 1986 | Ordinance 09/HDBT | Ministers' Committee (Govt.) | ■ Regulation on the implementation, control and treatment of cases in violation of price management<br>■ Cases of price violation as determined by Ordinance 33 | Prices of most goods and services determined by the state/government |
| 1992 | Decision 137/HDBT | Ministers' Committee (Govt.) | ■ Decision on price management<br>■ The government determines price level, price frame, standard price or price limits for major goods and services<br>■ New regulation on price management based on using economic measures | Prices of most goods and services determined by enterprises; the state determines the price of key goods only |
| 1998 | Circular 09/BVGCP | Price Committee of the Government | ■ Introduction of price management for price stabilisation<br>■ Price of goods and services determined by the state kept stable as at the levels in 1998<br>■ Price of goods and services determined by enterprises kept at the levels as at the end of 1998<br>■ The state controls the price of monopoly enterprises, state-owned enterprises, and enterprises with foreign capital which have the capacity to affect prices of main goods and services | To stabilise prices in the market |

### Gradual integration into regional and international markets

Vietnam established financial relationships with a number of international financial organisations, such as the International Monetary Fund, World Bank and the Asian Development Bank, at the end of 1993. It also entered the Association of South East Asian Nations (ASEAN) in July 1995. Since 1 January 1996 Vietnam has implemented the Import and Export Tax Incentive Agreement as required for ASEAN members, and will enter the Asia Free Trade Association (AFTA) in 2006. Vietnam was a founder member of the Asia–Europe Cooperation Forum in March 1996, has officially attended OPEC since November 1998, and applied for membership of the WTO in December 1994.

On 13 July 2000 Vietnam and the United States signed a bilateral trade agreement which was implemented in December 2001. This was a significant step for the integration of the Vietnamese economy into the world economy. However, enterprises and domestic producers face challenges in obtaining a level of competitiveness that will enable them to compete effectively in global markets.

## Import and export taxes

The export tax on most agricultural commodities is generally low, and there is no export tax on some commodities such as rice, coffee, natural rubber, tea and pepper. However, the import tax on processed goods is high, eg milled rice (15%), roasted coffee (75%), tea (5%) and fruits and vegetables (45%). The government has set high import tax rates on processed goods to protect domestic processing industries. However, Vietnam is a member of AFTA and the schedule for removing import taxes under the Common Effective Preferential Tariff (CEPT) Scheme is close; therefore, domestic processing industries will face significant challenges in order to compete successfully with those in other ASEAN countries. Under CEPT the import tax on most commodities will be in the range 0–5% by 2006.

In order to protect domestic production, Vietnam has increased the import tax on some products: for example, the tax on meat increased from 10% in 1992 to 30% in 1999, and for sugar from 10% in 1992 to 45% in 1999. The reasons for the increases included targeting the creation of new jobs, poverty reduction and protection of the domestic sugar industry. However, this policy seems to be inefficient because there is now a big gap between international and domestic prices which has led to smuggling of sugar from countries neighbouring Vietnam. Although sugar is included in the sensitive list of CEPT, the removal or lowering of the import tax for sugar in 2004 may lead to difficulties for the domestic sugar industry.

The import tax is 0% for most imported materials and inputs associated with agricultural production, such as fertilisers and corn and rice seeds. The tax rate for imported machines such as combine harvesters and tractors is 7.5%. The government has implemented these low import taxes for agricultural inputs with the purpose of supporting farmers in agricultural production. The imported volume of fertilisers increased each year from 1.3 million tonnes (mt) in 1995 to 2.74mt in 1998.

A summary of some import and export taxes is given in Table 2.

## Non-tariff barriers

Besides import and export taxes, non-tariff barriers also have a significant effect on prices in domestic markets, and most developing countries use non-tariff barriers as a means of intervention in import and export activity. These measures include quotas, control on the number of exporters/importers, requirements for import and export permission, and export and import subsidies. This intervention can create an invisible tax on agricultural products exported and may reduce the competitiveness of agriculture.

In order to integrate into AFTA, and in line with the application for WTO entry, Vietnam is required to remove non-tariff barriers. Under AFTA the volume constraints on products included in the list for tax exemption will be removed immediately after the permitted time delay for conforming to AFTA requirements for these products has expired. Other non-tariff barriers, such as custom fees and technical constraints, must be removed 5 years after the time delay for these products has expired.

**Table 2** Import and export tax of some commodities

| Commodity | Tax rate (%) | Commodity | Tax rate (%) |
|---|---|---|---|
| Export tax | | Import tax | |
| 1. Rice | 0 | 1. Processed rice | 15 |
| 2. Maize | 0 | 2. Wheat | 30 |
| 3. Natural rubber | 0 | 3. Roasted coffee | 75 |
| 4. Coffee | 0 | 4. Tea | 75 |
| 5. Tea | 0 | 5. Sugar | 45 |
| 6. Pepper | 0 | 6. Meat | 30 |
| 7. Wood[a] | 20 | 7. Fruits and vegetables | 45 |
| | | 8. Salt | 22.5 |
| | | 9. Cotton | 0 |
| | | 10. Fertilisers | 0 |
| | | 11. Machines for agricultural production | 7.5 |

[a] The export of whole wood is prohibited; the tax rate is applied on the export of wood which is used as material for handicrafts.

Source: Customs Department: Import, export and value-added taxes, 1999

Since 1989 the Vietnamese Government has implemented significant steps to liberalise trade, and the monopoly previously held by state-owned enterprises in export and import activities has been terminated. As a result, in recent years enterprises managed by provincial or district authorities and private companies have entered into export and import activities. For example, the regulation on the number of exporters of coffee and rubber has been removed. A company that wants to export coffee needs only to have permission from the Department of Trade and Industry. For rubber, regulation on the number of exporters was applied to exporters to China only, but this regulation was also removed in 1998. In 1999 the government allowed companies to directly export/import all products listed in their business licence without the company having an export/import licence as previously required. Today, most agricultural products are generally not affected by non-tariff barriers, with the exceptions of rice, sugar and fertilisers.

Rice is the most important staple crop in Vietnam. During the 1990s rice exports from the country increased continuously and now Vietnam is the second largest exporter of rice in the world behind Thailand. The volume of rice exports increased from 1.7m t in 1990 to 2.8m t in 1993 and 4.5m t in 1999. The price of rice in the world market decreased in 2000 and 2001, and as a result the volume of rice exports decreased. For example, these volumes in 2001 and 2003 were 3.7 m t and 3.8m t, respectively. In order to guarantee food security in the past the government intervened strongly in rice export activities, including a monopoly held on rice exports by the state-owned enterprises (VINAFOOD I in the north and VINAFOOD II in the south) and the use of export quotas. This caused inefficiencies in the state-owned enterprises, such as low prices, high marketing costs and corruption. As a result the domestic price of rice was lower than the international price by 25–30% and farmers' incomes decreased at that time. In recent years the government has implemented a trade liberalisation policy for rice exports, with the result that in 1997 the number of rice exporters was 23 companies, increasing to 33 in 1998 and 47 in 1999. Rice export quotas also increased year by year and were able to be adjusted (3.5m t in 1997, increasing to 4.0m t in 1998 and 5.2m t in 1999).

In 1994 the national sugar program was set up in order that domestic production should meet domestic demand, with the result that 42 factories were established to produce sugar. However, the international price of sugar has declined in recent years; therefore, increased government intervention has been granted to protect domestic production. The importing of sugar is controlled by a quota system and the government determines the number of importers. In Vietnam there is a limited regional area which has international competitiveness in sugar production, whereas most areas have no comparative advantage due to low yields of sugarcane and small and inefficient factories/companies. The removal of sugar quotas and other non-tariff barriers in the next 10 years will be a challenge not only for sugar companies but also for farmers who produce sugarcane.

## Prices over time and space

Before the reform period the government intervened strongly in the agricultural sector with the aim of providing cheap inputs for the industrial sector. This led to a 'two price system': the free market price and the price determined by the government. Relative prices gave benefits for industry but not for agriculture, and as a result resources were transferred from the rural to the industrial sector. In Vietnam the sustainable development of the whole economy depends on the agricultural sector because it generates a quarter of total GDP and employs about 70% of the labour force.

Since the introduction of the *doi moi* policies (1986), and especially since Resolution 10 (1988), prices have generally been advantageous for agriculture. In the period 1990–99 the prices of agricultural products generally increased faster than average prices in the whole economy, but not faster than the prices of foods. The average prices received for the whole economy increased by 318%; 376% for the foodstuff sector (foods such as meats, eggs and tofu, as distinct from staple foods such as rice and corn), 269% for the food sector and 273% for other goods and services. This meant that the competitiveness of rice producers decreased in comparison with other products such as the foodstuffs.

Details of price changes over time for a number of agricultural commodities are given in Table 3. In general, prices of most agricultural products decreased, especially for sugar and coffee. The price of coffee in 2000 was only 37% of that in 1995. Since 1998 the price of rice has also followed a decreasing trend, while the prices of peanuts, cashew nuts and beef have shown an increasing trend.

Fluctuations in the price of raw rice in the period 1991–2000 are shown in Figure 1. Prices generally increased in the 1990s but fell substantially in 2000. The changes in rice prices between regions were similar to those of the whole country (Table 4), leading to the conclusion that the rice market was reasonably integrated and consistent across the whole country.

The relative prices of industrial and agricultural products (eg the price ratio of nitrogen fertiliser to rice) were high during the 1980s – this ratio was 3.0 in 1982 and 2.24 in 1985 (Table 5). Since the agricultural reforms introduced in 1988, the change from a pricing system based on central planning to one driven by a market-oriented economy has given benefits to farmers, and the relative price of industrial and agricultural products has better reflected the actual opportunity cost of their use in the economy. Although the government still controls the import of nitrogen fertiliser, the new regulations are more flexible. As a result the domestic price of nitrogen fertiliser is closer to the international price. In addition, liberalisation of rice exports has also contributed to a decrease in the relative price ratio of nitrogen fertiliser to rice, and farmers have benefited from this trend – the ratio decreased from 1.02 in 1996 to only 0.50 in 1999. The trade liberalisation policy led to a decrease in the gap between not only domestic and international prices but also export and international prices

**Table 3** Prices of agricultural products in free markets 1995–2000 in VND/kg

| Products | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|
| Raw rice | 1,883 | 1,841 | 1,655 | 2,090 | 1,944 | 1,640 |
| Maize | – | – | 2,110 | 2,281 | 2,231 | 2,079 |
| Sugar | 6,887 | 6,502 | 7,067 | 7,209 | 6,753 | 5,098 |
| Peanuts | – | 8,423 | 8,737 | 9,063 | 9,037 | 9,257 |
| Cashew nuts | 8,834 | 9,382 | 9,286 | 10,787 | 11,589 | – |
| Tea | – | – | 39,457 | 39,678 | 41,623 | 38,785 |
| Coffee | 24,000 | 15,500 | 14,500 | 17,500 | 15,600 | 8,958[a] |
| Live-weight pigs | 12,125 | 12,112 | 10,832 | 10,820 | 12,671 | 10,646 |
| Beef | – | 32,617 | 33,322 | 33,312 | 34,271 | 36,226 |

[a] Robusta coffee

Source: Price Committee of the Government: Various reports on market prices

**Table 4** Price of raw rice by regions in VND/kg

| Year | Whole country | Region[a] | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| 1995 | 1,883 | 2,290 | 2,120 | 1,880 | 1,890 | 1,860 | 1,720 |
| 1996 | 1,841 | 2,280 | 2,220 | 2,040 | 1,830 | 1,770 | 1,590 |
| 1997 | 1,655 | 1,895 | 1,787 | 1,676 | 1,667 | 1,714 | 1,552 |
| 1998 | 2,090 | 2,233 | 2,208 | 2,235 | 2,221 | 2,101 | 1,974 |
| 1999 | 1,944 | 2,428 | 2,187 | 2,069 | 1,933 | 1,961 | 1,741 |
| 2000 | 1,640 | 1,960 | 1,794 | 1,719 | 1,772 | 1,684 | 1,492 |

[a] 1 = northern mountainous region, 2 = Red River Delta, 3 = north central region, 4 = south central region, 5 = southeast region and 6 = Mekong Delta

Source: Price Committee of the Government

**Table 5** The price ratio of nitrogen fertiliser to rice 1982–99

| Year | 1982 | 1985 | 1987 | 1990 | 1996 | 1999 |
|---|---|---|---|---|---|---|
| Price ratio (N fertiliser/rice) | 3.00 | 2.24 | 2.00 | 1.51 | 1.02 | 0.50 |

Sources: Cristina C. David and the Price Committee of the Government

(Table 6). As a result this has given impetus to agricultural production and agricultural output has increased continuously.

Government intervention using rice quotas and control over the number of rice exporters has resulted in the domestic market and export prices being lower than world market prices. For example, in 1995 the price of rice on the domestic market and the export price were US$250 and US$280 per tonne respectively, while the price for Thai rice exports was US$300 per tonne. In 1998 policy changes such as the increase in quotas and allowing more companies, including private companies, to export resulted in an increase in both the domestic market and export prices. In 1999 the domestic market price and rice export price were US$226 and US$228 per tonne respectively, while the price of rice exports from Thailand was US$239 per tonne (Table 6).

Government intervention in sugar production still remains, resulting in a gap between the domestic and international prices (Table 7). In order to protect the domestic production of sugar, a high tax rate and quota on the import of sugar remains in place, which results in the domestic price of sugar being much higher than the international price. For example, the domestic and international prices of sugar were US$624 and US$425 per tonne respectively in 1995, but US$484 and US$202 per tonne respectively in 1999; therefore, the gap has increased from US$199 to US$282 per tonne.

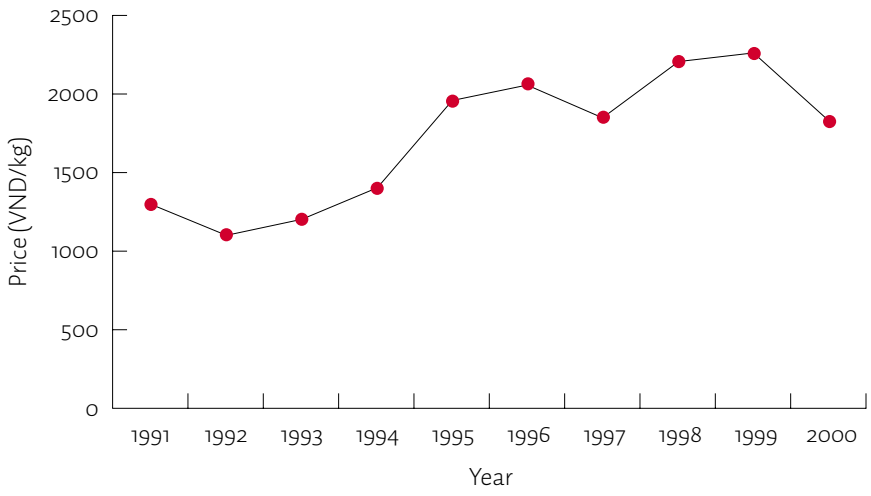


**Figure 1** Price of paddy rice, 1991–2000 (Source: Statistical Year Book, various issues (General Statistical Office 1991–2000))

## Advantages and disadvantages of marketing Vietnamese agricultural products in a global context

The process of tariff reduction and removal of non-tariff barriers is being implemented under a strict schedule in accordance with agreements between Vietnam and other countries, particularly other ASEAN countries under the framework of AFTA and CEPT. Thus, in the near future agricultural production in Vietnam will have to compete not only in the international market but also in the domestic market. In order to survive and grow, Vietnamese agriculture should focus on and increase its comparative advantages, and limits and constraints should be removed. In the development process the relative advantages and/or disadvantages of marketing Vietnamese agricultural products may change, ie a product may have a market today but not tomorrow and vice versa.

The advantages include the following:

- In general, input costs in Vietnam are low.
- Agriculture is a labour intensive industry (eg the cultivation of one hectare of pineapple or mulberry requires the work of 20 labourers a year). In Vietnam about 1.4 million people enter the labour force each year. In addition, the wage rate in Vietnam is generally low, at about US$1–2 per working day, and cheaper than in many other countries in the region (in Thailand this figure is 2–3 times higher (Vu Trong Khai 2001)).

**Table 6** The domestic, export and international price of rice 1995–2000 in US$/tonne

| Year | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|
| Domestic price of rice | 250 | 253 | 227 | 253 | 226 | 191 |
| Export price (5% broken) | 280 | 300 | 260 | 284 | 228 | 184 |
| Export price of Thailand (5% broken) | 320 | 364 | 329 | 302 | 239 | 201 |

Source: Price Committee of the Government

**Table 7** Trends in sugar price in domestic and international markets (US$/tonne)

| Year | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 |
|---|---|---|---|---|---|---|
| Domestic price | 624 | 589 | 594 | 535 | 484 | 357 |
| International price | 397 | 367 | 316 | 255 | 202 | 222 |

Source: FAO (1999) and the Price Committee of the Government

- Vietnam has good climatic conditions suited to the production of a wide range of agricultural products, and Vietnamese agricultural labour is very diligent.

The disadvantages include the following:

- In general, most crop and animal production activities have both low productivity and quality in comparison with that of competitors in the world and region. For example, the yield of tomato cultivated by farmers in the Red River Delta is equivalent to 65% of the world average, and the productivity of rubber is 1.1 tonnes per hectare compared to world figures of 1.5–1.8 tonnes per hectare (Vu Trong Khai 2001). A reliable system of good seed suppliers is not yet established; therefore, most farmers use seeds they produce themselves or buy in the market.
- Concentrated zones of commercial production are not yet well established, and processing technology is underdeveloped. As a result the quality of export products is not high enough for markets with high quality standard requirements. For example, Vietnam is a large rice exporter but the quality of consignments is not consistent. Therefore, Vietnamese rice and other products are generally unbranded and sold as bulk commodities, and hence the price of exported Vietnamese products is often lower than that of other countries.
- Management and economic relationships between production, processing, export and input supply have not been established in a stable and consistent way.

A woman dries paddy rice in Bac Ninh province in the Red River Delta. The low cost of labour contributes to Vietnam's comparative advantage in agricultural production, but the poor standard of post-harvest and processing technology in many industries results in products with low quality.

## Supply sources and prices of main agricultural inputs

In 2001 a household survey was conducted in four provinces in Vietnam: Ha Tay and Yen Bai in the north, and Binh Duong and Can Tho in the south (see Appendix I). Data collected from the approximately 400 surveyed households included questions about actual prices paid to and received from different sources, and perceptions about the level of input and output prices. The survey was repeated in 2002 using a smaller sample of the same farmers in the four provinces. In addition, the perceptions of farm households about the supply of services from agricultural cooperatives are also reported in this section.

This system of services, which provides input supplies for agricultural production and helps farmers to sell their products, includes state-owned and private companies and the commune-based agricultural cooperatives. Since the reforms of the *doi moi* period, the agricultural cooperatives now focus on supplying services. Under the Cooperative Law (1996), the existing agricultural cooperatives were to be 'transformed' to independent economic entities from which the members were to receive joint benefits, and voluntarily contribute their capital and labour. The agricultural cooperative was established by the legal system to strengthen collective power and for individual members to help each other; to implement more efficient production, business and service activities; to improve living standards; and to contribute to the socioeconomic development of the country.

A summary of the opinions of farm households on the 'transformed agricultural cooperatives' and the services and quality of services provided by them is given in Table 8. Overall, more than 80% of households rated the results of the 'transformed' cooperative as 'good'. More than 60% of farm households classified four services (irrigation, electricity supply, seed supply and pest forecasting) as good. On the other hand, services such as selling products, handicrafts, credit and veterinary services were generally given 'poor' ratings, and all farm households rated processing as poor. These results suggest that services which have been traditionally performed by agricultural cooperatives, such as irrigation and seed supply, are still the dominant activities of cooperatives and are rated as good by farmers. For services not traditionally performed by cooperatives and where the private sector can be involved, such as veterinary services and sale of produce, it is likely that there will be competition between cooperatives and private sector organisations, and agricultural cooperatives may not be efficient enough to compete effectively.

Supply sources and the prices of the main agricultural inputs bought by farm households in the research sites are shown in Tables 9 and 10. In general, inputs and materials supplied to farmers came from different sources (state-owned and private companies, cooperatives, traders, and exchange between farmers). Supply to households from the agricultural cooperatives increased between 2000 and 2001. The agricultural cooperatives sold inputs to farmers at lower prices in comparison with other sources (traders and private companies), even when taking account of the interest rate levied for late payment.

In the survey, farmers were asked whether prices of agricultural inputs were 'too high', 'high', 'average', 'low' or 'very low'. Few farmers answered that prices were low or very low. The percentage of farm households who answered that prices were high or very high is shown in Table 11. Judging by cases of non-reply, fertiliser and pesticides are inputs used by most farmers, while the use of seed, labour and machinery hire was more commune- and district-specific.

Generally, more farmers in the north assessed the price of seeds as high compared to southern farmers. Most farmers believed that the prices of fertiliser and pesticides were high except for some households in Binh Duong. This may reflect an actual price paid by farmers, but it is more likely that fertilisers and pesticides are not such important inputs for these farmers who tend to grow fruit trees or industrial crops.

Generally, farmers assessed that wages were at an average level, but in absolute value terms wage rates in the south were higher than in the north, and more households in the south said that wage rates were high or very high. Farmers in Ha Tay often hired machines for land preparation and threshing, so they were interested in the price of hiring machines, and more than 40% of surveyed farm households in this province answered that the price was high.

**Table 8** Opinion of households on the services provided by agricultural cooperatives

| Items | Good | Average/ Normal | Poor |
|---|---|---|---|
| | Percentage of households | | |
| 1. Opinion of the new 'transformed' cooperative | 82.8 | 17.2 | |
| 2. Assessment of each service | | | |
| Irrigation | 60.0 | 34.0 | 6.0 |
| Electricity | 63.3 | 24.3 | 12.5 |
| Seed supply | 61.3 | 29.3 | 9.5 |
| Materials/inputs | 37.5 | 33.5 | 29.0 |
| Pest forecasting | 64.8 | 25.8 | 9.4 |
| Veterinary | 28.7 | 33.6 | 37.7 |
| Land preparation | 23.5 | 2.6 | 4.9 |
| Credit | 33.3 | 22.3 | 44.5 |
| Processing | | | 100.0 |
| Selling products | 11.0 | 16.5 | 75.5 |
| Handicrafts | 10.8 | 18.3 | 70.9 |

Source: Nguyen Thai Van (1999)

**Table 9** Supply sources for main materials/inputs of farm households (% of households)

| Input | 2000 | | | | 2001 | | | |
|---|---|---|---|---|---|---|---|---|
| | State company | Co-operatives | Private | Others | State company | Co-operatives | Private | Others |
| Rice seed | 4.0 | 11.4 | 16.8 | 67.6 | 3.9 | 18.4 | 47.4 | 30.3 |
| Nitrogen | 29.8 | 15.4 | 31.5 | 23.4 | 11.1 | 40.9 | 48.0 | – |
| Phosphorus | 41.0 | 14.6 | 43.8 | 0.6 | 7.7 | 29.4 | 63.0 | – |
| Potassium | 35.7 | 25.0 | 39.3 | – | 10.1 | 31.5 | 58.4 | – |

Source: Household survey data 2000 and 2001, ACIAR Project ADP 1/97/092

**Table 10** Prices of main materials/inputs bought by farm households ('000 VND/kg)

| Input | 2000 | | | | 2001 | | | |
|---|---|---|---|---|---|---|---|---|
| | State company | Co-operatives | Private | Others | State company | Co-operatives | Private | Others |
| Rice seed | 13.0 | 6.4 | 9.4 | 2.6 | 22.4 | 10.7 | 13.9 | 3.1 |
| Nitrogen | 2.3 | 2.3 | 2.4 | 2.2 | 2.0 | 2.6 | 2.5 | – |
| Phosphorus | 1.2 | 1.0 | 1.1 | 1.0 | 1.4 | 1.3 | 1.2 | – |
| Potassium | 2.3 | 2.1 | 2.4 | – | 2.5 | 2.3 | 2.5 | – |

Source: Household survey data 2000 and 2001, ACIAR Project ADP 1/97/092

**Table 11** Percentage of farm households nominating input prices as 'high' or 'very high' in the year 2000

| Province | % of households nominating input prices as 'high' or 'very high' | | | | |
|---|---|---|---|---|---|
| | Seed | Fertilisers | Pesticides | Labour | Machine rent |
| Ha Tay (n = 99) | 45 | 72 | 76 | 6 | 41 |
| Yen Bai (n = 97) | 59 | 75 | 55 | 4 | 9 |
| Binh Duong (n = 88) | 9 | 40 | 32 | 17 | 8 |
| Can Tho (n = 90) | 20 | 79 | 68 | 12 | 20 |

Source: Household survey data 2000, ACIAR Project ADP 1/97/092

In addition to the question about input prices, farmers were asked whether they would use more inputs if the price of inputs decreased. The percentage of farmers answering 'yes' is presented in Table 12. Many farmers believed they would invest more on inputs if the price of inputs decreased, suggesting that a financial constraint is one of the barriers to increased agricultural production on small household farms in Vietnam.

There was a difference in the response to a hypothetical decrease in the price of seed between farmers in the north and south – more farmers in the northern provinces said they would increase the level of seed used if the price decreased. The data from Table 11 also show that more farmers in the north assessed the price of seed inputs as high or very high. The price of fertiliser may also be a constraint for agricultural production in both the north and south – more than 40% of households in all provinces believed they would apply more fertiliser if the price decreased. The data from Table 11 also show that many farmers believed the price of fertilisers was high or very high.

The level of pesticide use may not be dependent on the price – less than 20% of farmers said they would use more pesticides if the price decreased, while others said they were 'unsure'. For hired labour the percentage of farmers answering 'yes' or 'no' was similar, but more farmers in the north said they would use more labour if the wage rate decreased. However, it is unlikely that wage rates will decrease as rural wage rates in the north are already very low and the opportunity for off-farm jobs should increase in the future; therefore, the wage rate will be more likely to increase. There were very few households interested in the price of machine rental, except for farmers in Ha Tay and some in Yen Bai. This may indicate that many households cannot perceive themselves moving to a more industrialised agriculture. Alternatively, particularly in the south, farmers may perceive that they are already mechanised as much as practically possible (ie they don't imagine using mechanical planting and harvesting).

**Table 12** Percentage of farm households who would increase the level of inputs if input prices decreased

| | Percentage of households answering 'yes' | | | | |
|---|---|---|---|---|---|
| | **Seed** | **Fertilisers** | **Pesticides** | **Labour** | **Machine rent** |
| Ha Tay (n = 99) | 31 | 47 | 10 | 30 | 35 |
| Yen Bai (n = 97) | 32 | 60 | 11 | 15 | 16 |
| Binh Duong (n = 88) | 9 | 52 | 10 | 25 | 10 |
| Can Tho (n = 90) | 9 | 43 | 20 | 18 | 4 |

## Conclusions

In the last 10 years price policies of the Vietnamese Government have changed towards providing more benefits for agricultural production and farmers, especially in relation to food production. The prices of both agricultural products and production inputs have been trending closer to international prices. Under the trade liberalisation policy the price gap between regions has steadily decreased, and therefore agricultural production has been more stable than before.

In the context of global integration Vietnamese agricultural products have advantages and also many disadvantages in the marketplace which need to be studied seriously. It is likely that conformity with both AFTA and WTO requirements will put pressure on some agricultural sectors. The removal of protection in a number of areas, albeit gradually, will increase the pressure for more efficient production, particularly in the commodities in which there is a comparative advantage.

Input supply sources for farmers are now diversified, and the purchase of inputs by farmers is also easier because the prices are more or less in line with what farmers can afford to pay. Although the agricultural cooperatives are now playing a significant role in providing an increasing number of services for farmers, farmers mainly sell their agricultural products to private traders. There would seem to be a role for the agricultural cooperatives to be more actively involved in the marketing of products grown or produced in the commune.

Machinery, such as this thresher being used by farmers in Bac Ninh province, Red River Delta, is commonly hired. Farmers who were surveyed didn't consider the cost of machinery hire to be as high as other production inputs such as fertiliser and pesticides.

Based on the analysis of input and output price policy, some recommendations are as follows:

- As information is important for household decision-making, there is an opportunity for the government to focus on market research as well as price forecasting, and provide farmers with sufficient information on the demand for, supply of and prices of agricultural products not only in the domestic market but also for international markets. This might include information on the risks faced by farmers so that choices of more stable products can be made and the risk of major price changes (eg recent decreases in the prices of coffee, plum and litchi) can be minimised. Helpful information about where and what to produce (eg products with high quality, low production cost and high comparative advantage) could also be provided.
- Where advantageous, the government may find ways to change policies to strengthen cooperatives so that they can serve farmers not only in the supply of production inputs but also by selling their outputs. Raising the efficiency and effectiveness of cooperatives may mean that they can have a more effective role in the sale of products, and use their marketing skills to achieve better and timelier sales, possibly through a wider use of contracts.
- As price subsidies and other forms of support distort the real expression of comparative advantage and lead to inefficient use of resources, such mechanisms should be gradually reduced and removed in a way which allows for the necessary resource adjustment to take place. A focus on providing for macroeconomic stability and a stable set of international trading relationships will greatly enhance the domestic stability of prices and allow necessary adjustments to take place.

CHAPTER EIGHT

# THE RURAL LAND RESOURCE AND POVERTY IN VIETNAM

DO KIM CHUNG

Vietnam is still predominantly a rural country, and the rural economy will play an important role in the future industrialisation and modernisation of the national economy. During recent years poverty has been reduced at an impressive rate, from 58% in 1993 to 37% in 1998 (World Bank 1999). However, the poverty incidence still stood at 17% in 2001 by the national poverty standard. Land resources are one of the key determinants of poverty. Land is a primary means for generating a livelihood, and a main vehicle for investment, accumulating wealth and transferring wealth between generations. Over the last two decades, the Government of Vietnam has reviewed land policies to move from a collectivised agricultural production to one based on individual farm households in the market place. New land policies have granted land use rights to individual farmers and, given the property rights attached to land use rights, this is effectively land ownership. Land policies can affect: i) the household's ability to produce for their subsistence and generate a marketable surplus; ii) farmers' socioeconomic status; and iii) farmers' incentives to invest in using land in a sustainable manner. In this chapter information is provided on rural land resources and poverty, and land policy issues for sustainable poverty reduction and rural development are discussed.

## The rural land resource

Rural livelihoods consist of six types of capital: natural, human, financial, social, physical infrastructure and fiscal (Chung 2002a, 2002b), and the rural land resource is one of the key elements of rural livelihoods. From 1930 to 1995 the annual rural population growth rate of Vietnam was 1.6%, while that of China was 0.4%, Thailand was 1.0%, Indonesia 0.4% and all of South-East Asia had a growth rate of 1.6% (World Bank 2002). As the rural population has increased over time, the arable land per capita has declined, and at present arable land per capita in Vietnam is about one-quarter of that in 1930 (Table 1).

Vietnam has one of the highest rural population densities in the world (Table 2). High population density in the rural sector creates significant pressure on the land resource and has caused serious degradation of forestlands and water resources. Forest cover declined from 43% in 1943 to 27.8% in 1990 and 33.2% in 1999 (Table 3). Water availability in cubic metres per capita declined from 12,800 in 1990 to 10,900 in 2000, and is predicted to be 8500 by 2020 (Institute of Water Resources Research 2002). However, water availability per capita in Vietnam is still high at about 2.7 and 1.4 times that of Asia and the world average, respectively. The scarcity of land and water resources also causes serious degradation of biodiversity and other natural resources.

## Rural poverty

In recent years Vietnam's poverty rate has been significantly reduced (Figure 1). The rural poverty rate decreased from 66% in 1993 to 45% in 1998 and 19.7% in 2000, and the food poverty rate in rural areas improved from 29% in 1993 to 14.5% in 2000. However, the rural poverty rate as measured by the food poverty line in 2000 was three times higher than that of the urban areas.

**Table 1** Rural population and arable land per capita in Vietnam, 1930–2000

| Year | Rural population (million persons) | Rural population share (%) | Arable land per capita ($m^2$ per person) |
|---|---|---|---|
| 1930 | 16,375 | 93.1 | 2,542 |
| 1960 | 25,615 | 84.8 | 1,671 |
| 1990 | 45,143 | 80.5 | 829 |
| 2000 | 59,065 | 76.5 | 680 |

Source: Government of Vietnam 'Statistical Year Books', various years

**Table 2** Countries with highest and lowest rural population density

| Countries with highest rural population density (persons/km²) | | Countries with lowest rural population density (persons/km²) | |
|---|---|---|---|
| Puerto Rico | 2,798 | US | 36 |
| Oman | 2,595 | Belgium | 35 |
| Sri Lanka | 1,600 | Demark | 35 |
| Egypt | 1,217 | New Zealand | 33 |
| Bangladesh | 1,209 | Russia | 31 |
| Vietnam | 1,031 | Uruguay | 23 |
| Haiti | 905 | Kazakstan | 22 |
| Rwanda | 901 | Argentina | 16 |
| Liberia | 892 | Canada | 15 |
| Yemen | 833 | Australia | 6 |

Source: World Bank 2002

**Table 3** Forest areas and forest cover in Vietnam, 1943–1999

| Year | Natural forest (million ha) | Afforestation (million ha) | Total forest (million ha) | Forest cover (%) |
|---|---|---|---|---|
| 1943 | 14,300 | 0 | 14,300 | 43.0 |
| 1976 | 11,077 | 92 | 11,169 | 33.8 |
| 1980 | 10,860 | 422 | 10,908 | 32.1 |
| 1985 | 9,308 | 584 | 9,892 | 30.1 |
| 1990 | 8,430 | 745 | 9,175 | 27.8 |
| 1995 | 8,252 | 1,050 | 9,305 | 28.2 |
| 1999 | 9,444 | 1,471 | 10,915 | 33.2 |

Source: Chung 2002b

The population density in Vietnam is such that, even in remote areas, intensive agricultural production puts pressure on land and water resources. Here, ethnic Thai people transplant rice along a terraced river valley in Tan Uyen, Lao Cai province in the northwest mountainous region.

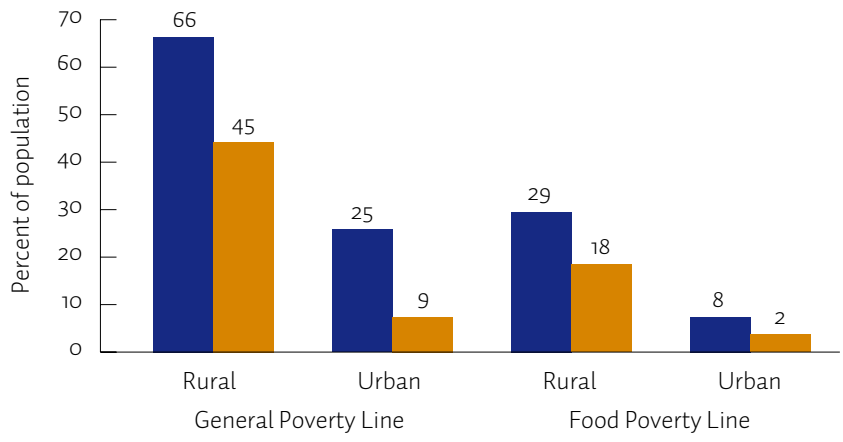


**Figure 1** Poverty rates in Vietnam in 1993 and 1998 (%). Source: Government of Vietnam 2002

A large proportion (80%) of the poor are farmers who lack skills and technical know-how, and have low accessibility to development efforts (Government of Vietnam 2002). Less than 10% of the poor are landless farmers, mainly concentrated in the Mekong Delta. The main reasons for landlessness are debt, illness and lack of skills (Chung 2003; National Center for Social Sciences and Humanities 2001).

In 2001 there were about 2.8 million poor households, of which 90.5% lived in rural areas, 28% in the mountainous regions and 62.5% in the delta regions (Table 4). The distribution of the incidence of poverty among regions was uneven, with poverty concentrated mostly in the northwestern and northeastern regions, northern central and coastal central regions, and western central highlands (Table 5).

**Table 4** Number of poor households in 2001 as assessed against Vietnam's 2000 poverty line

| | Total poor households ('000) | Share of total poor and non-poor households in the region (%) | Share of total poor households in the country (%) |
|---|---|---|---|
| Rural: | 2,535 | 19.7 | 90.5 |
| mountainous region | 785 | 31.3 | 28.0 |
| deltas | 1,750 | 16.9 | 62.5 |
| Urban | 265 | 7.8 | 9.5 |
| All | 2,800 | 17.2 | 100 |

Source: Government of Vietnam 2002

**Table 5** Number of poor households by region in 2001

| Region | Number of poor households ('000) | Share of total poor and non-poor households in the region (%) | Share of total poor households in the country (%) |
|---|---|---|---|
| Northwestern region | 146 | 33.9 | 5.2 |
| Northeastern region | 511 | 22.3 | 18.2 |
| Red River Delta | 537 | 9.8 | 12.0 |
| Northern central region | 554 | 25.6 | 19.8 |
| Central coastal region | 389 | 22.4 | 13.9 |
| Western highlands | 190 | 24.9 | 6.8 |
| Southeastern region | 183 | 8.9 | 6.6 |
| Mekong Delta | 490 | 14.4 | 17.5 |

Source: Government of Vietnam 2002

Of the poor, 64% live in the remote areas and/or areas recognised by the government as having special difficulties. There are 2720 poor communes, of which 30% have no roads suitable for automobiles into the commune centres, 40% have inadequate schools, 55% have no access to safe water, 50% have inadequate irrigation systems and 20% have inadequate access to markets (Government of Vietnam 2002). Many poor households belong to ethnic minority groups, which make up about 14% of the total population but 29% of the total poor of the country (Government of Vietnam 2002). Although much effort has been devoted to hunger eradication in mountainous regions, the rate of poverty reduction in the minority groups has been slower than that in the majority Kinh group (Table 6).

## Land policies and poverty reduction

### The role of land use property rights in poverty reduction

One of the key elements of *doi moi* (renovation) was a reform in land policies that was initiated in 1981, and extensively implemented in 1988 and through enactment of the Land Law in 1993 and renewals of the Land Laws in 1998 and 2003. The basic features of the renovation of land policies were:

- establishment of land use property rights for farm households and individual land users
- creation of freedom of choice for crop decisions
- allowing land transfer among land users (via inheritance, mortgage, collateral, lease-in, lease-out).

At present lands have been allocated to 12.6 million farm households, with an average farm size ranging from 0.4 to 1.2 ha. As outcomes of the land transfer policies, the poverty rate has been reduced sharply, as indicated in Figure 1, and the agriculture sector has developed at an impressive growth rate of about 4.0–4.2% per annum during the 1990s.

Land property rights have the following important influences on economic growth. Secure land rights increase incentives for households and individuals to invest. At present 69% of Vietnam's 55,882 large-scale commercial farms have invested in land improvements for horticulture, aquaculture and livestock production (MARD 2002).

**Table 6** Vietnam's poverty rates in 1993 and 1998 by ethnic groups (percentage of households)

| Ethnic group | 1993 | 1998 | Reduction |
|---|---|---|---|
| Kinh group | 54 | 31 | −23 |
| Ethnic minority groups | 86 | 75 | −6 |

Source: Government of Vietnam 2002

Land use property rights often also provide households with better access to credit and an insurance substitute in the case of shocks such as death or illness. The World Bank noted that 65% of surveyed poor households in the Mekong Delta and 23% in the Red River Delta reported that the Red Book (the land use certificate) helped them obtain credit for their households more easily (World Bank 2001b).

Security of land tenure facilitates the transfer of land at low cost through rentals and sales, improving allocation of land while at the same time supporting development of financial markets. This result is visible in the Mekong Delta.

Secure land property rights have an important role in poverty reduction. In rural areas land is the primary means for generating a livelihood and the main vehicle for investing, accumulating wealth and transferring wealth between generations. Land is a key element of household wealth, with 91% of surveyed farmers in the Red River Delta and 70% in the Mekong Delta listing land as the most important family asset (Chung 2000a). Land accounted for 55–65% of household asset endowment in the Mekong Delta and the southeastern and mountainous regions. Wealthy households often have larger and better lands compared to the poor, although criteria for good land differed from region to region (Table 7).

**Table 7** Land characteristics determining wealth of households in some selected provinces

| Province / region | Land characteristics determining household wealth |
|---|---|
| Lao Cai (highland) | ■ Fertile agricultural land<br>■ Distance of fields from house<br>■ Slope |
| Phu Tho, Ha Tay (midland, lowland) | ■ Total cultivated area<br>■ Irrigation accessibility<br>■ Market accessibility |
| Ha Tinh (northern central region) | ■ Irrigation accessibility<br>■ Total garden area<br>■ Less saline land |
| Tra Vinh (Mekong Delta) | ■ Irrigated area<br>■ Area suitable for shrimp farming<br>■ Total owned land |
| Ho Chi Minh City (southeastern region) | ■ Distance to roads<br>■ Environment problems of land<br>■ Less polluted |

Source: World Bank 1999

Given the property rights now associated with land, households can obtain ownership and conflicts pertaining to such ownership can be resolved. Evidence from surveys conducted in March and April 2003 showed that with land property rights, farm households were able to produce for their subsistence and generate a marketable surplus (Chung 2003). Their socioeconomic status has improved directly from having property land use rights. The ability of women to have control over land resources has also improved as an outcome of the new Land Laws enacted in 2003, which stipulated that the names of the wife and husband must both be on the certificate of land use rights (Red Book). In Bac Giang, Can Tho and Dong Thap provinces 40% of women reported that land certificates bearing their names enabled them to have better access to credit from formal credit providers (World Bank 2001b). Furthermore, land use rights have supplied farmers with more incentives to invest and use land in a sustainable manner, and enabled them to self-insure and get access to financial resources.

## Agricultural land markets

Agricultural land markets appeared even before the enactment of the 1993 Land Law (Chung 2000a), with rural land markets occurring in all regions. In the less populated areas such as the mountainous, midland, Mekong Delta and central highlands, rural land market transactions were less developed than in the densely populated regions including the Red River Delta and the

The rate of poverty reduction has been slower among the ethnic groups than for the majority Kinh group. These ethnic H'mong women are from Can Cau, Lao Cai province in the north-west mountainous area where poverty is still widespread.

northern central region. This differentiation is due to variations in the land:person ratio and also job opportunities in different regions of the country. Land market transactions were in different forms: leasing-in or leasing-out, borrowing, selling or buying, bidding for and exchanging land.

Market transactions are important as the existence of the land market helps farmers overcome problems of land fragmentation and maximise the farm operation. By the early 1990s the whole country had about 7 million ha of arable land and about 75 million plots, and the average farm household cultivated about five to ten plots (Ministry of Natural Resources and Environment 2002). However, future growth in agriculture cannot be sustained with such fragmentation of arable land. The land market helps farmers transfer land, consolidate land into larger plots and farm more efficiently. There is a tendency for households who are only engaged in farming to try to have more land so as to make full use of their labour endowment; and for households engaged in rural industries or handicrafts to transfer their lands to farmers who are only engaged in farming. The medium-income farmers are able to obtain more land than the low-income farmers because of differences in their respective behaviours. The poor households often have lower land productivity, and hence lower rental fees or selling prices for land. As a result, 60% of transferred land has come into the medium-income farmer group and 25% into the wealthy farmer group (Chung 2000a). This has contributed to the establishment and operation of 55,882 large-scale commercial farms throughout the country by early 2001 (MARD 2002).

## Land transfer, landless farmers and poverty

Land transfer, of course, may create landless farmers in rural areas. During 1999–2000 there were 80,000 landless farmers in the Mekong Delta. A number of landless farmers have also recently appeared in the north, especially in areas with high industrialisation and urbanisation growth. There are five main reasons why farmers become landless:

- Farmers may transfer land because they move to non-farm jobs due to illness or because of heavy debt and failure to meet mortgage requirements.
- Farmers may lose land because of high population growth rates and increasing numbers of households in rural areas, combined with a decreasing land resource because of urbanisation and industrialisation.
- Farmers can lose land because of the collapse of cooperatives and production teams, requiring them to return land to its former owners.
- Farmers who left their hamlets to build a new economic zone may be forced to return to their hamlet because of poor livelihoods in the new living areas (Chung 2000a)
- Farmers may lose their land for establishment of an industrialised zone and receive compensation for their land, but fail to find a sustainable job alternative.

Is landlessness closely correlated with poverty incidence in households? An econometric estimation using data from 6000 households throughout Vietnam (Minot et al 2003)

showed that the percentage of arable land is positively related to the incidence of poverty (Table 8). It would be expected that in a largely agriculture-based economy, availability of arable land would positively influence human welfare. Their findings also indicate that not all landless farmers are poor. About 20% of landless farmers in the Mekong Delta had left their farms to become wage-workers or be engaged in other non-farming activities. This is a new employment development and reflects the fact that non-farming income generating activities have enabled farmers to obtain higher incomes than if they were engaged only in farming. However, less than 15% of the poor, especially in the Mekong Delta, were landless farmers. The main reasons for the poor becoming landless were debt, illness and poor farming skills (Chung 2003). Thus, more effort should be made to help the poor improve their farming skills, and to provide credit to help them use their available land and labour resources.

## Some policy issues

Although the new land policies create a favourable environment for growth of the rural economy, some policy bottlenecks still exist.

**Table 8** Estimation of determinants of poverty in Vietnam

| Parameter | Coefficient | T-value |
|---|---|---|
| Intercept | 124.456 | 2.914 *** |
| Population density | 0.000597 | 4.180 *** |
| Percentage natural forest | −0.127 | −5.369 *** |
| Percentage arable land | 7.0342 | 3.399 *** |
| Percentage bare land | 0.0718 | 1.743 *** |
| Market per commune | −2.674 | −3.844 ** |
| Market payment to state | −7.7E-07 | −0.786 *** |
| Percentage flat land | −0.332 | −15.704 * |
| Average distance to district town | 0.000665 | 6.507 * |
| Main road density | −0.0115 | −4.437 *** |
| Minor road density | −0.00324 | −2.696 *** |
| Average rainfall | −0.000103 | 0.0905 *** |
| Average temperature | −1.107 | −2.701 *** |
| Annual sunshine duration | −0.00253 | −1.141 *** |
| Average humidity | −0.620 | −1.234 *** |

*** significant at 1%, ** significant at 5%, * significant at 10% levels.

Source: Minot et al 2003

1. The term of land use rights is still short (20 years for cultivated land), and that may create a degree of land insecurity and inhibit investment in land improvement. In Thai Binh, Ha Nam, Nam Dinh, Ninh Binh, Ha Tinh, Yen Bai, Tra Vinh and Dong Nai 75% of farmers who operate large-scale commercial farms reported that they were allocated land in 1988 and now there are only 4–5 years left on the land use certificate. This time is too short for a sustainable long-term investment in land. Most of them are trying to exploit natural soil fertility in the remaining years of the land use rights duration. Thus, the term of land use should be extended for a longer period, eg 30–40 years for cultivated lands (MARD 2002).

2. The farm size of about 65% of the large-scale farms exceeds the ceiling level on land holdings. Many farm operators are very concerned about the land ceiling policies which, in some places, seem ineffective and may inhibit farmers from consolidation and investment in their land. The ceiling policy should be reviewed in accordance with crop choice, technology and the socioeconomic situation of each region. The government has issued an inter-ministerial circular on issuing certificates to large commercial farms to enable farmers to obtain credit and market access. However, the process of issuing land certificates in general and to large-scale commercial farms in particular is still slow, and this acts as a disincentive for farmers to operate farms in the changing market environment.

Steep slopes contribute to both production difficulties and poor market access in mountainous regions such as Lao Cai province. This picture is of a busy weekly local market in Can Cau, Lao Cai province.

3. In some provinces in the Red River Delta, where traditional cooperatives exist, crop choices in land use are still controlled by the cooperatives or district authorities to achieve production targets set at a higher government level (eg VND50 million/ha). This inhibits incentives for and efforts of farmers to optimise their objectives in accordance with their needs, their resource endowment and market demands. Some crop choices set by outsiders can face a market risk that may have farmers fall below the poverty line again. Thus, individual farmers should make crop choices based on their own objectives and resource availability, with support from the public sector in the form of information on crop choice, technology availability, price and market demands which are relevant to local conditions. There is a need to continue the shift from a top-down planning approach to market-oriented planning, which creates a favourable environment for all business operators to be effectively and efficiently involved in input and output markets.

4. Market transactions exist in many different forms, but information about market transactions is still limited and this sometimes causes land markets to be inefficient. Thus, preparation of an institutional framework to facilitate transferability and security of land use rights is necessary. This framework should recognise the reality of the land market and provide an efficient mechanism for it to operate, and specify the rights and obligations of people involved. This would help farmers to find a suitable party to deal with and enable transfer of land use rights to be made not only on a one-to-one basis between neighbours or kin, but also within an appropriate framework for the sake of better land allocation.

5. In some northern provinces, especially in the Red River Delta, land exchanges have been administratively directed under the close supervision of local authorities to address problems of land fragmentation. This can create greater risks for farmers: for example, after land redistribution some farmers may be left with all their land holdings being infertile or prone to flooding. Land exchange to address land fragmentation would be better left to the market mechanism within a recommended institutional framework, so that people involved in land exchange can benefit from their transactions based on agreed market prices.

6. A considerable number of farmers who are only engaged in rural cottage industries still keep land for farming. All farming activities in these cases are carried out by hired labour. Of these farmers, 75% reported that, although making a loss (estimated at 25–30%) from their farming activities, they still want to keep land due to the uncertainty associated with their rural off-farm industries. Thus, there is a need to help farmers who have left their land for other non-farming businesses to have access to both markets and suitable available information so that they are able to adjust their production response and improve their technology.

7. With the high rate of urbanisation and industrialisation taking place, more agricultural land resources will be converted into industrial lands and leave many more farmers landless. For example, land funds in Bac Ninh and Hung Yen provinces provided for industry zoning up to the year 2020 had been fully allocated by 2002. Farmers with money from land compensation often cannot run their non-farming activities in a sustainable manner since they lack the technical know-how needed to run the businesses or to be employed by entrepreneurs. This creates high pressure on both agricultural land and rural unemployment. Thus, more training is needed to help farmers in the urbanised and industrialised areas obtain better skills to be engaged in non-farming activities when in the process of leaving their land.

8. Landless farmers who have lost land because of inevitable reasons (eg zoning) and are interested in farming should be reallocated land from new land funds or public land, or be provided with credit to help them purchase or lease land.

9. Land is not the single determinant of poverty. More effort should be made to help the poor improve their farming skills and access credit and markets, so that they can effectively use their land and labour resources. Credit provision should be closely linked with extension services to ensure that credit is efficiently used to help farmers generate income in a sustainable manner. Participatory approaches to extension should be adopted to involve all farmers and farming communities in identifying their own problems and solutions, which should then be implemented using local resources with considerable support from the public sector.

CHAPTER NINE

# FARM INCOME AND INCOME DIVERSITY ON VIETNAM'S SMALL HOUSEHOLD FARMS

SALLY P. MARSH, PHAM VAN HUNG, NGUYEN QUOC CHINH AND T. GORDON MACAULAY

Vietnam has approximately 11 million small household farms, many of which consist of fragmented land holdings that total less than one hectare. Rural poverty is a significant problem, and the income gap between rural and urban areas is increasing. In this chapter data obtained via a household survey of income from both on-farm and off-farm sources are reported. A substantial component of household income is provided by off-farm activities for many households in all provinces. However, many other households are almost totally dependent on income from on-farm work, including a diverse range of crop and livestock activities in many households. Both diversity of income sources and diversity of farm production can be viewed as risk aversion strategies used by small landholders. Not unsurprisingly, total net value of production from agricultural activities is related to farm size and land type, but other factors such as assets, education, family labour and measures of land fragmentation have a significant influence in some provinces. These data and results from regression analyses are discussed with reference to rural development and land policy in Vietnam.

## Introduction

In December 1986 at the Sixth National Congress, the Government of Vietnam introduced a wide-ranging set of reforms known as *doi moi* which recognised a number of the failures of central planning and were designed to gradually deregulate and liberalise the economy. Associated with these reforms, the 1993 Land Law (which followed the 1988 'Resolution 10') formalised the farm household as the main unit of agricultural production. It provided for the allocation of land use rights (LUR) such that individuals, households and organisations could hold and transfer rights to use land. The 1993 Land Law also gave security of tenure over allocated land, with LUR granted for 20 years for annual crop land and aquaculture land, and 50 years for perennial crop land. Land ceilings were imposed of 2–3 ha for annual crop land and 10 ha for perennial crop land in delta communes and 30 ha in midland and mountainous communes.

The process of land allocation in Vietnam that began in 1981 and was formalised in the 1993 Land Law is still on-going, although it is largely complete for agricultural land. The land allocation process varied between districts, although equity between households was of primary consequence. Consideration was given both to land quality and the number of people, or more specifically labour equivalents, in a household. Consequently, the amount of land allocated varied between households, and in the north and central regions of Vietnam this land was typically split into a number of plots of varying land quality. There was less concern with equitable distribution in the south, and land allocation to households was also more likely to be based on land held prior to reunification in 1975 (Do & Iyer 2003; Luong & Unger 1999; Ravallion & van de Walle 2001, 2003).

Approximately 80% of the population of around 80 million people lives in rural areas, and there are over 11 million household farms in Vietnam (World Bank 2003). Farm sizes vary throughout the country but are typically small, around 0.2 ha per capita (World Bank 2001). The average size of farms in the Mekong Delta is 1.2 ha, considerably larger than average farm sizes in the Red River Delta. The need to increase agricultural productivity (and hence farm income) is central to the debate on rural development in Vietnam. Agricultural productivity can be thought of in terms of both land and labour productivity. The combination of small farm sizes and the high proportion of the population involved in agriculture means that labour productivity is low, indicating a potential for productivity growth as labour moves out of agriculture or, alternatively, combines agriculture with off-farm work.

In recent years Vietnam has seen a steady overall reduction in poverty but a widening of rural–urban income gaps (UNDP 2000). Poverty is concentrated in rural areas, with an estimated four-fifths of the poor working mainly in agriculture (World Bank 2000). Poor households generally have smaller landholdings and landlessness is becoming more widespread, particularly in the Mekong Delta. The World Bank (2000) has reported that households who are unable to make a living from the land find few opportunities

for stable income generation off the farm, and that there is an urgent need for reforms to stimulate greater off-farm employment. Earning off-farm income is perceived as one way that small households can escape the small farm poverty trap.

In this chapter farm size and household income in four provinces in Vietnam are investigated. The purpose is to examine differences in farm size between households, differences in the value of household production and the diversity of production sources between regions, and factors that influence the total production value of farm-based activities. Issues related to both farm and off-farm income are discussed, and the method used to collect the farm household data is briefly outlined. The results of the research work are presented and discussed under headings of:

- farm size distributions
- net value of production from farm activities
- income diversity
- perceptions of opportunities for off-farm work.

The link between farm size and the value of farm production is explored and the effect of off-farm income evaluated. Finally, conclusions and policy implications are drawn.

# Farm income and off-farm income on Vietnam's small household farms

## Factors limiting income from farm production

Vietnam has a large rural population and limited land, and many small farm households are engaged in subsistence-oriented production. The Government of Vietnam is still concerned that land should be available for households who wish to engage in farming (Vasavakul 2003). In Vietnam farm size is limited officially by land holding ceilings. Land holdings over the land limit are subject to a land tax whereas land holdings under the land ceiling are now exempt (for further details see Anh 2006 this volume). Despite the existence of land holding ceilings and a degree of restriction on the land rental market, a market for land use rights is active in some areas and there is evidence that land accumulation is occurring through land leasing and transfer (Do & Iyer 2003; Deininger & Jin 2003; Marsh et al 2005). Although land accumulation is not actively encouraged by the government, fragmented land holdings in the north and central areas of Vietnam are seen as an impediment to production and the government is encouraging land consolidation through 'voluntary' plot exchange (Hung et al 2004).

Whether larger farm size will increase land productivity on a per area basis is not clear. There is a considerable literature that indicates that productivity is higher on small farms than larger ones (eg Berry & Cline 1979, cited in Binswanger & Elgin 1998), although some of this work has been critiqued for not taking account of differences in land quality. This paper does not explore this issue, focusing rather on total household income and its relationship with farm size. The relationship between farm size and productivity in Vietnam is explored comprehensively by Hung and MacAulay (2005), who suggest that in terms of farm area, economies of farm size are likely to be present in the north of Vietnam.

Improvements in rural living standards during 1993–98 were driven predominantly by a diversification in on-farm activities (World Bank 2000). Average household incomes grew by 60% in the 5 years to 1998. However, restrictions on land use are still an issue, particularly with regards to paddy land (wet rice land). Both land and labour productivity are hindered by lack of land use flexibility. The government's position on rice policy and other commodity production programs (eg sugar, cotton) will continue to affect the flexibility of land use, and hence the potential of farmers to diversify their agricultural enterprises in response to market signals. Government expenditure on infrastructure such as roads and irrigation also affects land use flexibility (United Nations 1999). Additionally, empirical evidence shows that cash crop orientation in developing countries depends on farm size, with larger farms tending to devote more area to cash crops (Fafchamps 1992).

Risk also plays a role in restricting the land use choice of poor households, whose livelihoods are extremely vulnerable to both household-specific (eg illness) and community-wide shocks. The risk of failure associated with on-farm investments or new enterprises can deter subsistence farmers from expanding their economic base or changing their farming activities. Furthermore, when marketing institutions and infrastructure such as transport are not well developed, a shift to non-food crops can make small farmers particularly vulnerable. Khiem et al (1999) showed that both land and labour productivity were higher in areas with better market access.

Luong and Unger (1999, pp 121–122) comment on the outcomes of land being returned to the pre-collectivisation owners in the south of Vietnam. They claim that differentiation is greater between households, and the 'main basis for socio-economic differentiation today lies in the initial property owned by each family, in particular the amount and quality of farm acreage'. These authors also state that, in contrast, in northern Vietnam 'the success of some households as opposed to their local neighbours appears to be due to a combination of individual drive, skills, and favourable connections with the authorities' (p 143). They also note that having an education or specific technical skills seems to make a difference to the household's performance.

## Factors limiting off-farm income

Small farm size and decreasing returns for agricultural products as Vietnam enters the global market place have put considerable income pressure on Vietnamese farmers. To some degree small farms can be viewed

as poverty traps. Off–farm opportunities, however, are limited, and the generally low level of education in rural areas provides a further constraint. Unlike the situation in China, the rural industrial sector that would supply off-farm jobs is underdeveloped (Luong & Unger 1999).

The Vietnamese rural non-farm sector grew much more slowly than the agricultural sector during the 5 years from 1993 to 1998, but incomes from non-farm self-employment still increased by 30% (World Bank in Vietnam 2000). Employment and income growth in agriculture, off-farm enterprises and services in rural areas are seen as being critical for rapid poverty reduction in the future. Luong and Unger (1999) have commented that off-farm income is one of the major reasons for differentiation between households in Vietnam. Similarly, Van de Walle and Cratty (2002, cited in World Bank 2003, pp 41–42) suggest that 'a strong association is observed between poverty and lack of diversification into wage and self-employment activities'.

## Collection of farm household data

During 2001 a farm household survey was conducted in four provinces in Vietnam: Ha Tay and Yen Bai in the north, and Binh Duong and Can Tho in the south. Approximately 400 households were surveyed in 16 communes (two districts in each province). The survey provinces are representative of four of Vietnam's agro-ecological zones, namely the northern and southern delta areas, and the northwestern mountainous and southeastern regions. Two of the provinces are located adjacent to the major cities of Hanoi and Ho Chi Minh City.

Ha Tay province is located in the Red River Delta adjacent to the capital Hanoi. The main farming activities are rice, livestock and vegetables, although aquaculture, flower and fruit production are increasing as farmers have good access to markets in Hanoi. Yen Bai is a mountainous province in the northwestern region, the poorest and most remote of the four surveyed provinces, with many households producing at subsistence level only. The main farming activities are rice (in river valleys), upland annual crops such as corn and cassava, industrial trees (for paper), mixed gardens and livestock. Can Tho province is located in the heart of the Mekong Delta and is a major rice growing region. Fruit production in this province is also important and increasing. Binh Duong province is located adjacent to Ho Chi Minh City and has a very diverse agriculture, including rice, industrial trees (rubber), fruit trees and pepper. Its location close to Ho Chi Minh City means that some districts have substantial industrial and service provision sectors.

A wide range of mostly quantitative data were collected relating to household structure and resources and farm production. Detailed information concerned land holdings and land use, assets, production overall and on an individual plot basis, income sources, prices paid and received, use of credit, and perceptions of yield and price risk. Additionally, a number of qualitative questions were asked about changes in land holdings and land use, and perceptions of household wellbeing and opportunities. More detail on the survey is given in Appendix I.

## Results and discussion

### Farm size distribution

Farm size data were collected for all households, and the results indicate considerable variation in farm size. Selected descriptive statistics are given in Table 1 for communes with comparatively large farm size, located within districts with comparatively large farm size, for each province. The data give some idea of the variation in farm size between the northern and southern delta provinces, namely Ha Tay and Can Tho; and between delta provinces and provinces with upland areas, namely Yen Bai and Binh Duong. In the delta provinces farm size is smaller in the north and plot number is higher. For the upland provinces farm size and plot size are both much larger, although Yen Bai has a much higher plot number than Binh Duong and this affects average plot size.

These average data obscure a great deal of farm size variation between households within communes. Some idea of this variation is given by the standard deviations shown in Table 1. The inequality in land holding per household can be seen clearly if land distribution is graphed. The farm size distribution for surveyed households in the northern delta province of Ha Tay is shown in Figure 1, where farm size distribution amongst households is very variable and farm size is generally very small. In Ha Tay province more than 60% of surveyed households in all communes except Thach Hoa were farming less than 5000 $m^2$ (0.5 ha) of land in 2000. Note that these households may not have land use rights for all this land – this area includes land leased-in and borrowed and excludes land leased-out. The land limit in the Red River Delta is 2 ha and only two of the surveyed households in Ha Tay were farming more than this area in 2000.

Farm size distribution for households in the southern delta province of Can Tho was also variable, with the majority of households farming an area of between 0.5 and 1.5 ha. The land limit in the Mekong Delta is 3 ha and five of the surveyed households in Can Tho were farming more than this area in 2000. In Yen Bai province more than 40%

**Table 1** Average farm size and household size data for selected surveyed communes in four provinces

| Province | Ha Tay | Yen Bai | Binh Duong | Can Tho |
|---|---|---|---|---|
| **Commune** | **Thach Hoa (n = 25)** | **Dong Cuong (n = 25)** | **Lai Uyen (n = 21)** | **Truong Thanh (n = 24)** |
| Avg farm size ($m^2$) | 9,412 (9,772) | 18,760 (31,459) | 35,266 (35,492) | 15,943 (8,718) |
| Avg plot numbers | 7.5 (2.7) | 6.5 (3.6) | 2.5 (1.2) | 2.2 (1.1) |
| Avg plot size ($m^2$) | 1,263 (3,683) | 2,877 (11,064) | 13,973 (19,229) | 7,358 (5,925) |

Standard deviations are in parentheses

of surveyed households in all communes except one were farming less than 0.5 ha of land in 2000, and only four were farming more than 10 ha of land (including forestry land). In Binh Duong province the majority of farmers in all communes also had farms of between 0.5 and 1.5 ha, and some households had less than 0.1 ha. Only two of the surveyed households in Binh Duong were farming more than 10 ha of land in 2000.

Land distribution is more variable in some communes than others. In Ha Tay the variability in land holdings is greatest in the commune with the largest average farm size (Thach Hoa), and least in the commune with the smallest average farm size (Dai Dong) (Figure 1). In Yen Bai province the land distribution in all communes appears truncated, with a considerable percentage of households having less than 0.5 ha and the majority of the remainder having more than 1 ha. All communes have households with both small and large farm sizes but the range is less in Bao Ai, the commune with the smallest average farm size. In Can Tho the variability in land holdings is again greatest in the commune with the largest average farm size (Truong Thanh) and least in the commune with the smallest average farm size (Dong Thanh). In Binh Duong there is farm size variability in all communes except Vinh Phu, which again is the commune with the smallest average farm size where over 80% of households farm less than 1 ha. In Lai Uyen, the commune with the largest average farm size, more than 50% of households farm more than 2 ha.

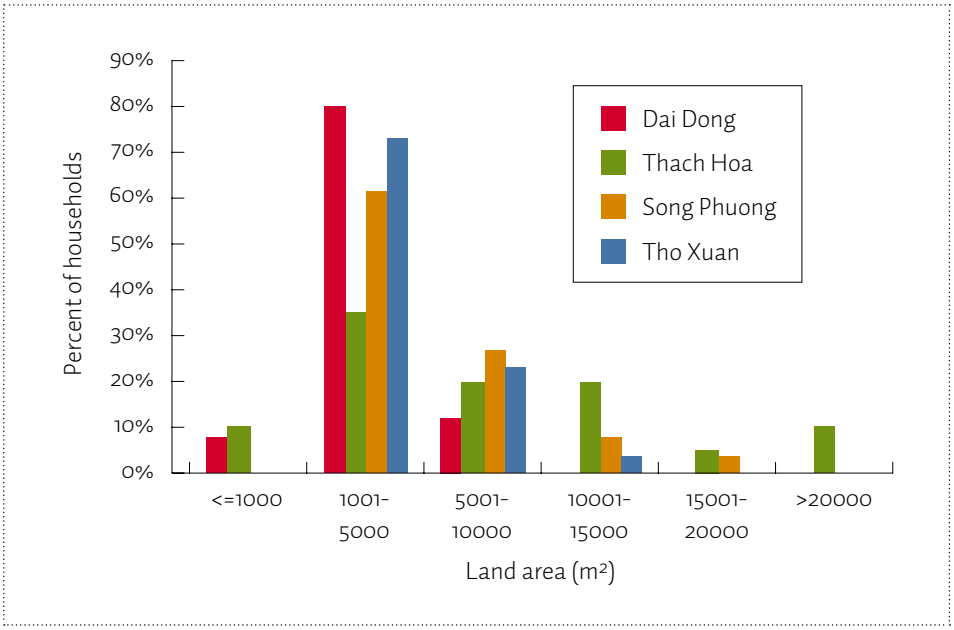


**Figure 1** Land area distribution for surveyed households in four communes in Ha Tay province (Dai Dong, n = 25; Thach Hoa, n = 20; Song Phuong, n = 26; Tho Xuan, n = 26)

Farm size can be expected to be related, respectively, to areas of perennial and cultivated land, as land zoned for perennial trees or forestry is generally in larger plot areas than cultivated land. This is illustrated in Table 1 in the comparative farm sizes of households in delta and upland provinces. These differences can also be seen at the commune level. For example, in Ha Tay province communes that have households with smaller average farm size have higher percentages of cultivated land (Table 2). Percentages of land type are not averages per household but were calculated from the total land area farmed by all the surveyed households. Surveyed households in Dai Dong and Tho Xuan communes, which record the two lowest average farm sizes and average plot sizes, record no perennial or forestry land.

In Yen Bai province the areas of cultivated land are much smaller (Table 3). The commune with the largest average farm and plot size (Dai Dong) has the lowest percentage of cultivated land and the highest percentage of forestry land. The commune with the smallest average farm and plot sizes (Bao Ai) has the largest percentage of cultivated land and a comparatively low percentage of forestry land. However, the percentages of different land types in Bao Ai are quite similar to those in Dong Cuong, which has larger average farm and plot sizes. Land type is one factor influencing farm size but other factors also play a role.

Total net value of production (NVP) from cropping, livestock and aquaculture activities is also not clearly related to farm size. The commune with the smallest farm size in Ha

**Table 2** Farm size, net value of farm production[a] and land type for surveyed households in four communes in Ha Tay province

| District | Thach That (L)[b] | | Dan Phuong (S) | |
|---|---|---|---|---|
| **Commune** | **Thach Hoa (l) (n = 25)** | **Dai Dong (s) (n = 20)** | **Tho Xuan (l) (n = 26)** | **Song Phuong (s) (n = 26)** |
| Avg NVP (mill VND) | 12.6 (14.1) | 7.3 (5.6) | 20.4 (25.9) | 68.3 (223.9) |
| Avg farm size ($m^2$) | 9,412 (9,772) | 3,268 (1,292) | 3,910 (2,779) | 5,310 (4,191) |
| Avg plot size ($m^2$) | 1,263 (3,683) | 395 (392) | 861 (1190) | 1,096 (2,144) |
| % cultivated land | 48 | 90 | 60 | 41 |
| % perennial land | 26 | 0 | 0 | 42 |
| % forestry land | 7 | 0 | 0 | 0 |
| % ponds | 4 | 1 | 31 | 9 |

a Includes production from crops and perennial trees, livestock, aquaculture and forestry

b Letters *L* and *S* indicate relative large or small farm size at district level, *l* and *s* at commune level

Standard deviations are in parentheses

Tay (Dai Dong) clearly has the lowest total NVP. However, communes in Dan Phuong district have higher NVPs than Thach Hoa commune, which has the largest farm size. In Yen Bai average NVPs are remarkably similar between communes despite large differences in farm size.

The unequal distribution of farmland between population and households can be shown as Lorenz curves. For the surveyed households in Ha Tay and Yen Bai the data generate curves that are very similar whether constructed on a per capita or per household basis; Figure 2 shows the data on a population basis. These curves would seem to indicate substantial inequalities in distribution, but land type and land quality confound the data because land is not a homogeneous entity. There is more inequity in land area distribution in Yen Bai than in Ha Tay, partly because there is a higher percentage of perennial and forestry land in Yen Bai. Regression analyses discussed in a later section of this chapter suggest that in Yen Bai the area of cultivated land is positively correlated with net income and, conversely, the area of forestry land is negatively correlated with net farm income. Smaller farm sizes as a result of having less forestry land may therefore not lead to inequity in income.

However, the data suggest a substantial inequity of land distribution both on a household and per capita basis. Further land fragmentation because of inheritance may only just be beginning to appear, resulting in a more inequitable land distribution following the reallocation of land in 1988–93. There is no way of knowing from these data whether

**Table 3** Farm size, net value of farm production[a] and land type for surveyed households in four communes in Yen Bai province

| District | Van Yen (L)[b] | | Yen Binh (S) | |
|---|---|---|---|---|
| **Commune** | **Dong Cuong (l) (n = 25)** | **Mau Dong (s) (n = 24)** | **Dai Dong (l) (n = 20)** | **Bao Ai (s) (n = 22)** |
| Avg NVP (mill VND) | 7.1 (3.9) | 9.8 (7.8) | 8.1 (7.9) | 7.3 (8.2) |
| Avg farm size ($m^2$) | 18,760 (31,459) | 22,291 (38,081) | 46,931 (58,080) | 11,661 (9,532) |
| Avg plot size ($m^2$) | 2,877 (11,064) | 2,836 (11,560) | 5,364 (19,333) | 1,644 (3,649) |
| % cultivated land | 14 | 8 | 4 | 17 |
| % perennial land | 11 | 8 | 1 | 10 |
| % forestry land | 68 | 81 | 94 | 69 |
| % ponds | 1 | 1 | 0.3 | 0.4 |

a Includes production from crops and perennial trees, livestock, aquaculture and forestry

b Letters *L* and *S* indicate relative large or small farm size at district level, *l* and *s* at commune level

Standard deviations are in parentheses

this is the cause of some of the observed inequity, but among the surveyed households 80% of the population/households farmed only 50% of the land in Ha Tay and 34% of the land in Yen Bai. Regression analyses reported in a later section of this chapter suggest that farm size is a consistently significant variable affecting income from farming activities. The significance of the small farm problem is discussed further in following sections.

## Net value of production from farm activities

The net value of farm production (NVP) for the surveyed households in the four provinces is shown in Figure 3. This value includes net production from annual cropping and perennial trees, livestock, aquaculture and forestry. The NVP, rather than sales from farming activities, has been used as the measure of production from the farmland so as to take account of production that is consumed by the household. Because this analysis is concerned with measuring the performance of the household farm, the consumed production, which includes both household and animal consumption, is costed at market prices (Dillon & Hardaker 1980).

Average NVPs vary immensely between provinces and are noticeably larger in the two provinces closest to the major urban centres of Hanoi and Ho Chi Minh City. Average NVPs range from VND8.1 million in Yen Bai, VND13.0 million in Can Tho,

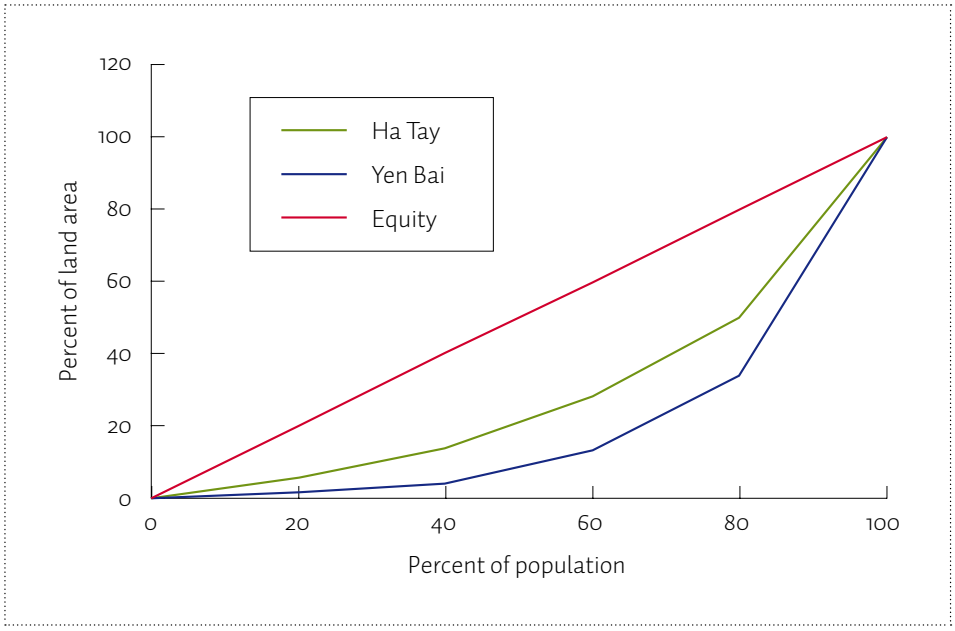


**Figure 2** Lorenz curve showing percentage of land area versus percentage of population for the surveyed households in Ha Tay (n = 97) and Yen Bai (n = 91) provinces

and VND28.3 million in Ha Tay to VND33.8 million in Binh Duong. The standard deviation of NVP is very large for both Ha Tay (VND117.9 million) and Binh Duong (VND92.6 million). Median NVPs are surprisingly consistent between provinces, ranging from VND6.1 million in Yen Bai to VND9.7 million in Binh Duong. An NVP from farm activities of less than VND10 million was reported by 50% of the surveyed households in all provinces.

## Income diversity

Household income also includes income from off-farm activities, which can include handicrafts, the provision of services, and waged and casual labour. The average percentages of total NPV from different income sources are shown in Figure 4 for the four provinces. These averaged data hide a great deal of income diversity among communes and individual households in each province. More detailed commune-based data are shown in Marsh et al (2004a). Ha Tay province has the highest percentage of NPV from farm-based activities, with 88% of NPV from cropping, livestock and aquaculture activities, and only 10% from off-farm activities. More than 70% of the NPV comes from farm-based activities in all four communes. This is surprising given the proximity of this province to Hanoi.

Yen Bai province also has a high percentage of average NPV from farm-based activities (72%) and a surprisingly high 28% from off-farm activities. One commune in

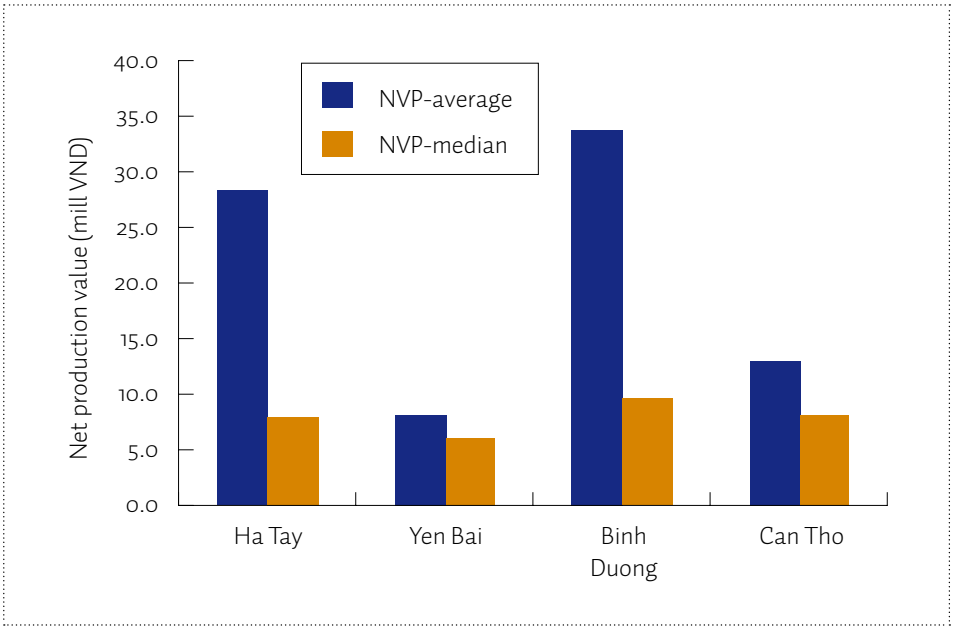


**Figure 3** Average and median net value of farm production for surveyed households in Ha Tay (n = 97), Yen Bai (n = 89), Binh Duong (n = 84) and Can Tho (n = 89)

particular, Dong Cuong, has a very high percentage of NPV from off-farm activities (42%). As in Ha Tay, the average figures disguise a lot of diversity among individual households. For example, in all communes there are households who obtain more than 90% of their NPV from cropping activities. In Bing Duong province overall, 74% of NPV comes from farm-based activities despite its location close to Ho Chi Minh City. However, in communes located close to industrial areas on the outskirts of the city (eg An Son) more than 50% of NPV comes from off-farm activities. Can Tho province has the lowest percentage of NPV from farm-based activities (64%), with 35% from off-farm activities. In this province there is noticeably less diversification of production, with most NPV coming from either cropping activities or off-farm work, whereas in all other provinces livestock is much more important.

It is clear from these data that production from farming activities is a key component of NPV for these small farm households. Aquaculture and forestry generally provide only a small proportion of production value (although it is high for some individual households), and handicraft production value is generally very small.

An illustration of how the net income from off-farm activity affects the total value of household production is shown in Figure 5. In all provinces both average and median values of household production are increased, often by a considerable amount. The smallest increase is in Ha Tay (which is

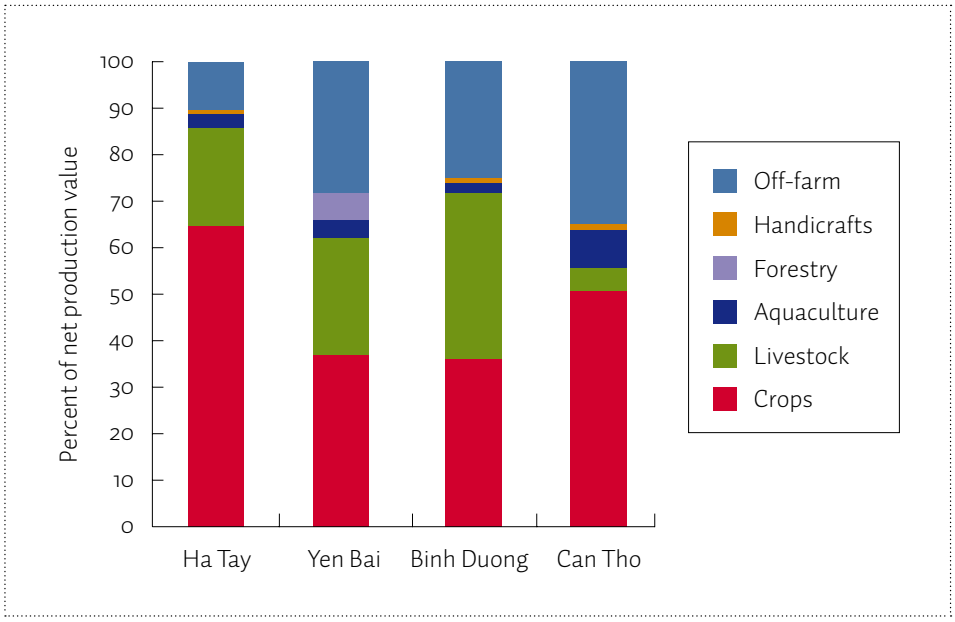


**Figure 4** Percentage of total net production value from different sources for surveyed households in Ha Tay (n = 97), Yen Bai (n = 89), Binh Duong (n = 84) and Can Tho (n = 89)

somewhat surprising given its location close to Hanoi), where the average NVP increase is 12% and the median NVP is 32%. In Yen Bai province, where overall average NVPs are low and off-farm work could be expected to be generally poorly paid (eg workers in a tea factory), the addition of off-farm earnings to the value of household production increases average NVP by 40% and median NVP by 62%. In Binh Duong province the average NVP increase is only 36% but the median NVP increase is 106%. In Can Tho the average and median NVP increases are similar, 56% and 58% respectively.

The relatively small increases in Ha Tay are most likely a result of the high dependence in the surveyed households on farm production (see Figure 4). Land in Ha Tay is fertile and many households are producing high-value crops such as flowers, meat, fish and vegetables for the increasingly affluent Hanoi market.

## Perceptions of opportunities for off-farm work

Households were asked about their perception of opportunities for off-farm employment with the question 'Compared to 5 years ago, what opportunities do you think there are now for off-farm work for members of your household?' Replies are shown in Table 4. Generally, there is a perception that there are more opportunities for off-farm work. Ha Tay and Binh Duong provinces (those closest to Hanoi and Ho Chi Minh City respectively) have

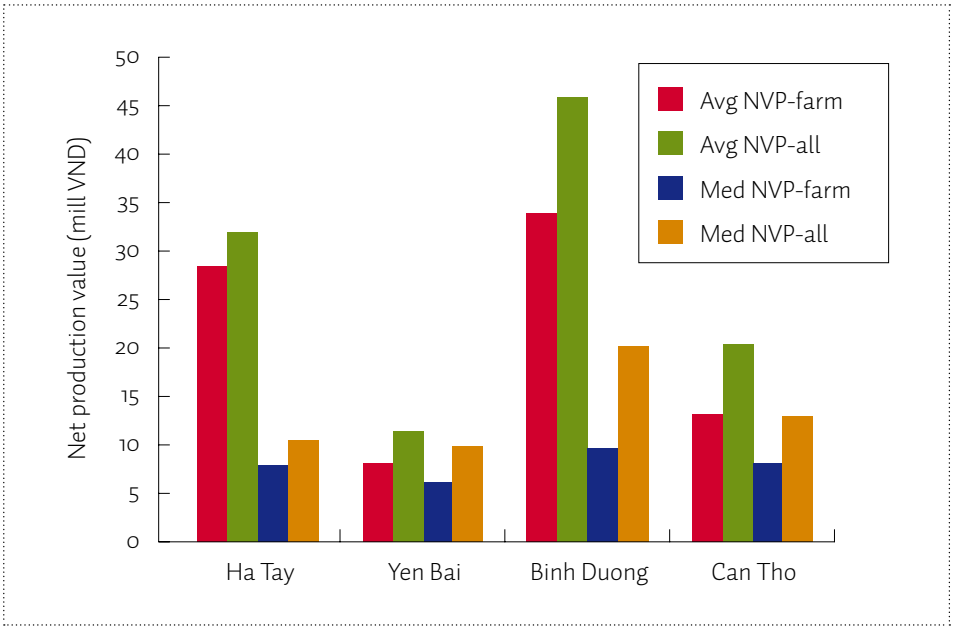


**Figure 5** Average and median net value of farm and total production for surveyed households in Ha Tay (n = 97), Yen Bai (n = 89), Binh Duong (n = 84) and Can Tho (n = 89)

the highest percentages of households nominating that there is 'a lot more opportunity'. Percentages of households in Yen Bai nominating that there is 'more opportunity' are surprisingly high but are consistent with the percentage of NPV from off-farm activities shown in Figure 4. With the exception of Binh Duong, the percentage of households who nominated that opportunities are 'about the same' is similar at around 30%. The percentage of households who perceive that there is 'less opportunity' is low.

## The relationship between farm income and farm size

The major portion of household NPV in all the surveyed provinces comes from farming activities. Total income from farming activities can be expected to be influenced by many factors, including variables related to:

- land holdings, eg farm size, land quality and type, land fragmentation, region and crops grown
- financial resources of the household, eg level of investment, access to credit, wealth and production assets
- the household itself, eg labour units, education and other socioeconomic characteristics.

While it is confidently considered that farm size will be an important factor, it is of interest to investigate what other factors are significant, as this may indicate useful policy directions.

## Analysis of descriptive statistics

Prior to surveying, households had been classified by commune authorities into socioeconomic groupings classified as 'above average' (*ho giau*), 'average' (*ho trung binh*) and 'below average' (*ho ngheo*). Various data from the Ha Tay and Yen Bai households on NVP, farm size and household characteristics are shown in Table 5, classified according to the ranking made by commune authorities.

**Table 4** Percentage of households nominating their perception of off-farm work opportunities as either 'more', 'the same' or 'less'

| Province | Percentage of households[a] | | | | |
|---|---|---|---|---|---|
| | A lot more opportunity | A little more opportunity | About the same | A little less opportunity | A lot less opportunity |
| Ha Tay (n = 99) | 26 | 33 | 31 | 7 | 1 |
| Yen Bai (n = 92) | 5 | 38 | 29 | 5 | 0 |
| Binh Duong (n = 88) | 31 | 41 | 17 | 2 | 0 |
| Can Tho (n = 89) | 8 | 38 | 36 | 12 | 0 |

[a] Percentages may not add to 100% because some households did not answer the question

**Table 5** Selected data for farm households in Ha Tay and Yen Bai based on the commune classification of socioeconomic group as 'above average', 'average' or 'poor'

| Province | Ha Tay | | | Yen Bai | | |
|---|---|---|---|---|---|---|
| **Living standard** | **Avg +** | **Avg** | **Poor** | **Avg +** | **Avg** | **Poor** |
| Number in sample | 28 | 52 | 17 | 29 | 44 | 15 |
| Farm size measures: | | | | | | |
| Average farm size ($m^2$) | 8,251 (8,807) | 4,319 (3,006) | 3,179 (1,808) | 34,754 (52,372) | 24,328 (34,320) | 7,337 (11,070) |
| Median farm size ($m^2$) | 5,160 | 3,678 | 2,916 | 17,640 | 14,345 | 2,490 |
| Number of plots | 6 | 6 | 6 | 8 | 8 | 6 |
| Average plot size ($m^2$) | 2,152 | 748 | 609 | 4,555 | 2,923 | 948 |
| Median plot size ($m^2$) | 1,427 | 546 | 410 | 1,365 | 438 | 401 |
| Farm income measures: | | | | | | |
| Average NVP (mill VND) | 63.2 (214.8) | 14.0 (15.6) | 13.6 (41.2) | 11.2 (10.2) | 7.5 (4.5) | 3.8 (2.9) |
| Median NVP (mill VND) | 9.9 | 8.2 | 3.3 | 8.4 | 6.6 | 2.6 |
| Average NVP/ha (mill VND) | 62.5 (110.6) | 35.1 (36.0) | 30.0 (57.4) | 10.4 (10.2) | 15.6 (29.6) | 11.7 (11.4) |
| Median NVP/ha (mill VND) | 32.0 | 23.8 | 13.6 | 4.6 | 4.5 | 10.3 |
| Household characteristics: | | | | | | |
| Labour units (16–55 yrs) | 3.3 | 3.3 | 2.8 | 3.9 | 3.3 | 2.6 |
| Education level – h/h head | 8 | 7 | 7 | 7 | 7 | 6 |
| Age – h/h head (yrs) | 46 | 49 | 41 | 49 | 48 | 41 |
| % male h/h heads | 89 | 77 | 53 | 90 | 100 | 87 |
| % h/hs with loans in 2000 | 46 | 65 | 59 | 34 | 41 | 67 |
| Avg loan in 2000 ('000 VND)[a] | 25.5 | 6.8 | 3.6 | 7.6 | 4.7 | 2.0 |
| Avg value of production assets ('000 VND) | 28,397 | 13,795 | 3,322 | 9,343 | 11,696 | 1,872 |

[a] Average of households with loans

Standard deviations are in parentheses

Larger farm size is associated with higher socioeconomic group (average and above average) in both Ha Tay and Yen Bai. Poor households have on average in Ha Tay approximately half, and in Yen Bai approximately one-fifth, the land area of households classified as above average. These data are of concern and give some insight into the challenge of Vietnam's small farm problem. This trend in relationship of farm size to socioeconomic group is also seen in figures for median farm size, and average and median plot sizes. There does not appear to be a distinct difference in plot numbers between classifications, but as the farm size area is larger for above average and average households, the measurement of land fragmentation[1] could be expected to be higher for households classified as poor.

Average NVP for farm households, as calculated from the survey data, is also shown according to the commune classification. Higher NVP corresponds with the above average socioeconomic group, particularly so in Ha Tay. Some wealthy households in Ha Tay reported very large NVPs, one over VND1 billion. However, one household classified as poor reported a very large net income from livestock production, which affected the average for this group. Median values for NVP in Ha Tay and Yen Bai show the large difference between households classified as average and above average and those classified as poor. In contrast to the average values, median values for NVP are not dissimilar between the provinces.

Net values of production per hectare also decrease with smaller farm size (or wealth ranking) in Ha Tay. This could be expected to be a function of level of investment and management skill, but could also be affected by land type and land quality and perhaps fragmentation. This effect is not seen in Yen Bai, where NVPs/ha are similar between the household classifications, and in fact the poorer ranked households have the highest median NVP/ha.

Households classified as poor appear to have a smaller number of labour units, particularly so in Yen Bai, a slightly lower average education level for the household head, household heads who have a lower average age, and more female household heads. Dai Dong commune (Ha Tay), a commune with small average farm size, has an unusually high proportion of female household heads. Most of these households are not single-parent households.

The percentage of households with loans in 2000 was less, rather than more, for the households classified as above average (for a discussion of this see Marsh et al 2006, chapter 6 this volume). In Yen Bai the percentage of households with loans was considerably higher for the poor group. However, in both provinces loan amounts were higher for the above average group.

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[1] Fragmentation indices often combine measures of farm size, plot number and plot size. For example, Simpson's index is defined below, where $a_i$ is the area of the ith plot, $A$ is the farm size and $A = \sum a_i$. This index has a value between zero and one. A value of zero means that the farm household has only one parcel or plot of land, which indicates complete land consolidation, while a value close to one means that the household has numerous plots and the farm is 'very fragmented'.

Simpson's index: $\left(1-\frac{\sum_i ai^2}{A^2}\right)$

In Ha Tay province the value of production assets is highest for households classified as above average, lower for those classified as average and lower again for those classified as below average. In Yen Bai province households classified as below average have the lowest value of production assets, but those classified as above average and average have similar average values for production assets.

The relationship between farm income and a range of variables, including those discussed above, was further investigated using regression analysis.

## Results from regression analysis

Regression analysis (using Stata) was used to further investigate factors affecting the total net value of farm production. Dependent and independent variables used are defined in Table 6. Note that the dependent variables used in the analysis are not measures of household income, as they include the value of production consumed by the household and do not include income from off-farm sources (eg provision of services, waged and casual labour, pensions and income from handicrafts).

Independent variables attempted to account for the effect on the value of production of:

- farm size and land fragmentation, with variables that quantified farm size and various indications of plot numbers and sizes
- land type and quality, with variables that quantified the percentage of different land types and land qualities
- socioeconomic characteristics of the household, such as age, sex and education level of the household head, and labour availability
- financial resources of the household, with variables to capture value of production assets, credit use and activity in the rental market.

### Factors affecting the net value of farm production in Ha Tay

Regressions were done using the household survey data for the year 2000. In Ha Tay significant and stable variables that affected total NVP for households in 2000 were *farm size* (positive), *farm size squared* (negative), *SFI* (negative), *class 1* (positive), *perennial land* (negative), *perennial land squared* (positive) and *education* (positive). A number of variables are consistently not significant, including *assets*, *credit*, *rent*, *sex*, *age*, *class 3*, *cultivated land* and *diversity*. A number of variables can substitute for other variables to some extent: eg, a dummy variable for Thach Hoa commune can replace the *perennial land* variable; and *plot number* can replace *SFI*. Generally, signs were as expected and stable for different regressions. Exceptions to this were the variables *plot average* and *plot median*, which tended to be negative. A regression result with higher R2 and lower F values for diagnostic tests is shown in Table 7.

Adjusted R2 for this regression is 0.48. Diagnostic tests for both functional form (using Ramsey's RESET test) and heteroskedasticity are not satisfied, but the estimated regression gives an F value for Ramsey's RESET test of 4.5, one of the lowest obtained. Robust standard error

**Table 6** Definitions of dependent and independent variables used in the regression analyses

| Variable name | Description | Expected sign |
|---|---|---|
| Dependent variable: | | |
| Net value of production (NVP) | Total value of household production from agriculture, aquaculture and forestry, including produce consumed by the household and minus the cash costs of production (ie the cost of family labour is not deducted) | |
| Independent variables: | | |
| Farm size | Area farmed by the household in $m^2$ | Positive |
| Plot number | Number of plots farmed by the household | Negative or ? |
| SFI | Land fragmentation as measured by Simpson's Fragmentation Index | Negative or ? |
| Plot average | Average size of the plots farmed in $m^2$ | Positive or ? |
| Plot median | Median size of the plots farmed in $m^2$ | Positive or ? |
| Cultivated land | Percentage of area classified as cultivated land | ? |
| Perennial land | Percentage of area classified as perennial land | ? |
| Pond | Percentage of area farmed classified as pond | ? |
| Forest | Percentage of area classified as forest (for Yen Bai only) | ? |
| Diversity | Number of different crops grown by the household | ? |
| Class 1 | Percentage of cultivated land classified as Class 1 (for Ha Tay only) | Positive |
| Class 2 | Percentage of cultivated land classified as either Class 1 or Class 2 (for Yen Bai only) | Positive |
| Class 3 | Percentage of cultivated land classified as Class 3 or higher (for Ha Tay only) | Negative |
| Class 5 | Percentage of cultivated land classified as Class 5 or higher (for Yen Bai only) | Negative |
| Age | Age of the person nominated as the h/h head | ? |
| Sex | A dummy variable to account for female-headed households | Negative |
| Education | Education level attained by the h/h head | Positive |
| Labour | Number of people in the household aged between 16 and 55 years | Positive |

**Table 6** (continued)

| Variable name | Description | Expected sign |
|---|---|---|
| Commune | Various dummy variables to capture variation attributable to specific communes | ? |
| Assets | Value of production assets owned by the household, excluding the value of orchards and other perennial trees[a] | Positive |
| Credit | Amount of credit extended to the household from all sources in the year 2000 | Positive |
| Rent | A dummy variable to capture households that had rented-in land in the year 2000 | Positive |

[a] Most households were unable to put a value on orchards and other perennial trees.

estimation (using White's robust standard errors) did not alter the significance of any of the variables; in fact, *perennial land* became significant at 10%. Standard errors for coefficients fell for all variables except *SFI, class 1* and *perennial land squared*. The correlation matrix indicated there was likely to be no serious problems with collinearity.

In Ha Tay household NVP is positively influenced by farm size but the relationship is non-linear. As discussed earlier, households with more perennial land generally have a larger farm size, but the percentage of perennial land held by the household is, somewhat surprisingly, a negative factor on NVP. The fact that this variable can be substituted to some extent by a dummy variable for Thach Hoa commune indicates that the perennial land variable is reflecting the effect of upland areas in Thach Hoa commune that mainly grow low-value crops such as tea and cassava. It is also possible that high-value orchards on perennial land in Ha Tay were not yet in full production, as many fruit tree orchards are comparatively recently planted. Another factor affecting the negative influence of perennial land in Ha Tay could be that much of the cultivated land in this province is being used very profitably to grow high-value crops such as vegetables, soybean and flowers. Cultivated land class is a positive variable affecting NVP, reflecting the profitable crop choices that can be made on good quality land. Land fragmentation is a negative influence on NVP, suggesting that land consolidation in this region would be beneficial for households. This result supports the results of analyses on the same data made by Hung and MacAulay (2005) using frontier regression methods with panel data. Finally, education level of the household head is a positive factor affecting NVP.

## Factors affecting the net value of farm production in Yen Bai

In Yen Bai significant and stable variables that affected total NVP for households in 2000 were *farm size* (positive), *farm size squared* (negative), *plot number* (positive), *plot median* (positive), *forest* (negative), *labour* (positive) and *assets* (positive). A number

of variables are consistently not significant, including *SFI*, *plot average*, *credit*, *sex*, *age*, *education*, *class 2*, *class 3*, *class 5*, *pond* and *diversity*. Dummy variables for Mau Dong and Dong Cuong communes were significant and interchangeable. *Cultivated land* and *perennial land* variables could be used instead of the *forest* variable but better results were obtained using the latter. Signs were as expected and stable for different regressions. A regression result with higher R2 and lower F values for diagnostic tests is shown in Table 8.

Adjusted R2 for this regression is 0.47. Diagnostic tests for both functional form and heteroskedasticity are again not satisfied, but the estimated regression gives a relatively low F value of 3.32 for Ramsey's RESET test. Using robust standard error estimation, standard errors for coefficients rose for all variables except *farm squared* and *plot median*. Variable significance was not changed, with the exception of *plot median* which became significant. The correlation matrix indicated correlation greater than 0.5 between *farm size* and *forest*, and also between *plot number* and *plot median*.

Again, farm size is a significant factor affecting NVP but its influence is not as great as in Ha Tay (the coefficient is considerably lower). Although households with more forest land have a larger farm size, higher percentages of forest land have a negative effect on NVP. Natural forest land has low production value and, again, it is possible that much of the planted forest in this region has not yet reached its productive capacity. Ideally, a harvest value should be estimated for forest yet to be harvested. In Yen Bai plot number has a positive effect on NVP; the fragmentation variable was negative but not significant. This is possibly a result of the nature of agriculture in mountainous regions, where a larger number

**Table 7** Regression results showing factors affecting the net value of farm production in Ha Tay province (n = 95). Regression with robust standard errors; $R^2 = 0.5202$

| Regressors | Coefficient | Std error | t | P > :t: |
|---|---|---|---|---|
| Farm size | 3.467778 | 0.7035778 | 4.93*** | 0.000 |
| (Farm size)$^2$ | -0.0001085 | 0.000018 | -6.04*** | 0.000 |
| SFI | -55213.9 | 18153.27 | -3.04*** | 0.003 |
| Education | 1733.11 | 673.9896 | 2.57** | 0.012 |
| Class 1 | 16643 | 7213.788 | 2.31** | 0.023 |
| Perennial land | -52683.77 | 29127.34 | -1.81* | 0.074 |
| (Perennial land)$^2$ | 96992.16 | 52353.33 | 1.85** | 0.067 |
| Constant | 25922.76 | 12603.86 | 2.06** | 0.043 |

*** = significant at 1%, ** = significant at 5%, * = significant at 10%

of plots will reflect many different land types and crop choices. Labour becomes a variable that is positive and significant at 13%, possibly reflecting the agricultural realities of farming mountainous country and many plots. Plot median is positive and significant. In Yen Bai it is generally very low compared to plot average, because households have many small plots of cultivated land that they use to grow rice, along with a generally smaller number of larger plots of perennial and forest land. Although this result would support consolidation of rice growing land, in this region it may not be possible as plot sizes are often related to contours in small river valleys. Assets were also a positive factor affecting NVP. Production assets in Yen Bai are mostly in the form of draught and reproducing animals, which would contribute directly to production. Finally, a dummy variable for Mau Dong commune was significant and positive.

## Conclusions

Based on this analysis of the survey data, the following conclusions can be drawn with regard to the relationship between farm size and the value of farm production, and the importance of off-farm income for Vietnam's small household farms.

Farm size is extremely variable within communes and between regions. Variability tends to be greater in areas with comparatively larger farm size and is also associated with land type. Few farmers reported that they were farming land holdings over the land limits.

The value of production from farms is also extremely variable. Some farmers in all provinces, but particularly in Binh Duong and Ha Tay, reported large values for farm

**Table 8** Regression results showing factors affecting the net value of farm production in Yen Bai province (n = 87). Regression with robust standard errors; $R^2 = 0.5170$

| Regressors | Coefficient | Std error | t | P > :t: |
|---|---|---|---|---|
| Farm size | 0.1380112 | 0.0624088 | 2.21** | 0.030 |
| (Farm size)$^2$ | -3.62e-07 | 2.35e-07 | -1.54 | 0.128 |
| Plot number | 459.6831 | 219.9403 | 2.09** | 0.040 |
| Plot median | 0.478544 | 0.1555758 | 3.08*** | 0.003 |
| Forest | -4614.58 | 2354.887 | -1.96* | 0.054 |
| Labour | 764.9346 | 492.9871 | 1.55 | 0.125 |
| Assets | 0.3818101 | 0.1050362 | 3.64*** | 0.000 |
| Commune 3 | 2880.909 | 1355.812 | 2.12** | 0.037 |
| Constant | -2485.57 | 2028.709 | -1.23 | 0.224 |

*** = significant at 1%, ** = significant at 5%, * = significant at 10%

production that affect the average NVP value. However, half of the surveyed farmers had a value of farm production of less than VND10 million, giving a median NVP which is low and remarkably similar across the provinces. That some households have a very large value for farm production indicates a substantial inequality existing between rural households in these provinces on the basis of farm production alone.

Production activities are diverse. Households in all regions are engaged in a wide range of production activities, but more so in the northern provinces where the percentage of production from livestock and aquaculture activities is generally higher. Production from off-farm activities made a substantial increase to both average and median total household NVP in all provinces, indicating that off-farm employment is important in raising the incomes of the poorer 50% of households. A substantial number of households perceived that the opportunities for off-farm employment were now greater than 5 years ago, especially in Binh Duong and Ha Tay.

Small farm size and low asset value are clearly linked to those households classified as being in the poor socioeconomic group. Poor households have on average in Ha Tay approximately half, and in Yen Bai approximately one-fifth, the land area of households classified as above average. These data are of concern and give some insight into the challenge of Vietnam's small farm problem.

For the Ha Tay data, regression analysis indicated that NVP is positively but non-linearly related to farm size, and positively influenced by a higher percentage of better quality cultivated land and a higher education level of the household head. NVP in this province is negatively related to the degree of fragmentation and non-linearly influenced by the percentage of perennial land. This regression analysis, based on whole farm production figures, suggests that in the Red River Delta area fragmentation may affect household NVP adversely.

For the Yen Bai data also, regression analysis indicated that NVP is positively but non-linearly related to farm size. In this province other positive and significant variables include the value of household assets, the number of plots, the median size of plots and the number of labour units. The area of forest land was negatively but non-linearly related to NVP. In this province land fragmentation is not a disadvantage, possibly reflecting the nature of agriculture in mountainous regions, where a larger number of plots will reflect many different land types and crop choices. The results of these analyses suggest that care should be taken with policy to encourage the consolidation of land holdings.

CHAPTER TEN

# MODELLING VIETNAMESE HOUSEHOLDS: AN ECONOMIC MODEL OF LAND TRANSACTIONS IN A VILLAGE CONTEXT

PHAM VAN HUNG, T. GORDON MACAULAY AND SALLY P. MARSH

Following the reforms of *doi moi*, household farms in Vietnam are being affected by policies which involve land, financial and trade reforms. The nature of agriculture in Vietnam is such that household farms operate and are constrained by their location within a village. Modelling household farms so as to analyse the effects of changing policies needs to account for the spatial links between farms in relation to land, labour, inputs and produce when considered in a village context. In this chapter a 'mixed' model of Vietnamese farms at the village level, incorporating aspects of the knapsack problem approach, and of spatial equilibrium and household models, is proposed and developed to examine land transactions. Diary data from three households over a 12-month period were used in the model. Simulations were carried out to illustrate the effect of changes on land transactions and household incomes. Changes were explored in wage rates, output prices and land market transaction costs. It was found that higher wage rates and output prices, and lower transaction costs, increased activity in the land market. Households with a higher relative efficiency in farm production tend to rent-in land from households with a lower relative production efficiency, who in turn tend to move to off-farm work. However, total profits for both types of farms can increase.

## Introduction

According to current land law in Vietnam, all land belongs to the Vietnamese people as a whole and is administered on their behalf by the State. Thus, there is no ownership of agricultural land but the rights to use the land are allocated to households. Associated with the land use right is the possibility of lending the right to others, and mortgaging, exchanging and bequeathing the land use. The life of the land use right is limited in time – 20 years for cropping land and 50 years for perennial crops – and there are area limits per household. Thus, the structure of land distribution and land use in Vietnam has resulted from a highly regulated and controlled allocation of land. This raises the question as to what would happen to the structure of agriculture if controls on land use and land transfer were to be relaxed.

The nature of agriculture in Vietnam is such that household farms operate and are constrained by their location within a village. Modelling household farms to analyse the effects of changing policies needs to account for the spatial links between farms in relation to land, labour, inputs and produce in this village context. In this chapter a 'mixed' model of Vietnamese farms at the village level, incorporating aspects of the knapsack problem approach, and of spatial equilibrium and household models, is proposed and developed to examine land transactions.

In the first section of this chapter a brief outline is given of the structure and organisation of agricultural households in Vietnam. A section on the economic conceptualisation of the village is followed by proposal of a modelling approach to examine land transactions within a village context. The model is developed and used to examine the effects of changes in wage rates, output prices and land market transaction costs on land transactions and household incomes.

## Structure and organisation of agricultural households within the village context

In order to explore the issues involved in modelling a village, some of the characteristics of Vietnamese villages are considered in this section.

### Land allocation to households within a village

Villages are a common organisational structure within Vietnam. The basic structure of a village is a set of households located together within or adjacent to an area of land that is farmed by members of the village who have the land use rights (LUR) to the land. A village may be made up of several hamlets. Following *doi moi* and the recognition of the household as the basic unit of production, LUR have been allocated to individual households. This has been done differently in different villages, but generally land has been allocated based on family size and an equitable allocation of parcels of land of different quality, especially in the north.

This allocation policy has resulted in fragmentation of land. Typically, each household in the Red River Delta will have LUR for three to ten small plots scattered in different locations (Chung 1994). In mountainous areas, where land quality is more variable, plot numbers per household tend to be higher and the distance between plots greater. Throughout Vietnam there are now around 75 million parcels or plots of land, on average eight to ten per household (Vy, pers comm). The government is encouraging the consolidation of plots at the village level and there is some indication that this is occurring (Hung et al 2004).

There are limits on the size of holdings of between 2 and 3 ha per household for annually cropped land depending on the region, and land-use-right titles specify that the land is to be used for either annual or perennial crops (or housing). Land use rights include the ability to transfer, lease, exchange, mortgage or inherit land use. There is anecdotal evidence that this is occurring informally (Kerkvliet 2000), and limited data to support the idea that low-income farmers are transferring LUR to high- and medium-income farmers (Marsh et al 2006, chapter 4 this volume). Kirsch (1997) suggests that in any village there will be a proportion of people with land (ie they have title to the land with use rights) and a proportion of landless labourers.

Modelling at the village level is one way to conceptually capture land transfers within a village that may result in either land consolidation (of plots into larger plots) or land accumulation (ie increasing overall farm size), and a resultant increase in labour available for off-farm work. The impact on land use efficiency can be assessed by using such models.

## Management of the village

Communes are the smallest official administrative unit of government, and may consist of a hamlet, a village or several villages, depending on the size. Each level of administration (province, district, commune) has a party committee headed by a secretary, and (on the 'state' side) a popularly elected people's council which selects a people's committee to take charge of day-to-day administration. These party and state administrative bodies operate in parallel but with considerable overlap of personnel and responsibilities (East Asia Analytical Unit 1997). In practice the people's committee in a village serves as an administrative as well as a political body (Kirsch 1997). Each person is a commune member, and the people's committee is the elected body of household representatives over 16 years of age (Kirsch 1997).

The official levels of administration are the province, district and commune. However, because communes are large (4–11 villages with total populations of 4000–15,000), much of the practical management of farm households takes place at the village level. Each village has a leader who takes responsibility for all activities, including social and economic ones, in the village. For example, if a farm household wants to borrow money from a bank, they need a letter from a village leader saying that their household is located in the village and that the project is feasible. Commune officials just certify the signature of the village leader by stamping a seal on the documents. Village leaders receive a salary from the government.

Other mass organisations (eg the Women's Union, Youth Union and Farmers' Association) have similar hierarchical structures at province, district and village levels. These organisations can be active in extension activities and off-farm enterprises such as handicrafts, and can facilitate credit for households through micro-finance schemes and bank loans. Additionally, some districts have agricultural cooperatives, which are organisations of producers from one or more villages. They are usually concerned with the supply of services but in some cases they also manage the organisation of production and the sale of outputs. Not all households in a village need be members of the cooperative. The structures and inter-relationships between villages, communes and cooperatives can be quite complex. For example, Kirsch (1997) reported that the Nam Son cooperative (Vu Ban District, Nam Ha Province – Red River Delta) comprised 1050 households cultivating 281 ha and involved farmers from half of Tam Hane commune's four villages.

Prior to 2003 all farmers paid agricultural land-use taxes at the commune level and a share was delivered sequentially to the commune, district, province and national levels of government. The land-use tax was charged on the basis of cultivated area according to location and cultivation conditions (six categories for annual crop land and five categories for perennial crop land). In 2003 land holdings below the land limit were exempted from agricultural land taxes until 2010 (see Anh 2006 this volume). In addition, dues are paid to the people's committee (and to cooperatives if they exist in the village) for special services such as irrigation, electricity, extension services etc.

In many cases there appears to be organisation of production within a village, either from necessity (eg irrigation of wet rice land) or tradition. Production can be organised by the cooperative to the extent that it may plan the timetables for the cultivation of plots so as to optimise irrigation and cultivation. In some districts control over production is still exerted by the State, particularly with regard to rice production (The World Bank in Vietnam 1998; Vasavakul 2006 this volume). Production targets are set at a local level in response to government directives, and individual households may have to grow crops as directed. About 4 million ha of land in Vietnam is still 'required' to grow rice.

## The economic conceptualisation of a village

In the village context, transaction costs would appear to be a significant element in determining the transactions and exchanges that take place between the households in a village. For a collectivised agricultural system the basic structure is a sharing of both the resources and the product of the use of those resources. When households become the basic functional units and have command over resources, trade and exchange of the resources and products will be significant components of the economic structure of a village. Of course, there will be exchange of outputs and inputs beyond the boundaries of the village, but in terms of simplification it is useful to think of a village as a self-sufficient entity. In many respects a collection of villages becomes a regional economy.

Although there are clearly many factors which make up the relationship between households in a village, it is proposed in this chapter that the central economic relationships are those of exchange and the associated transaction costs involved in the various aspects of the production and exchange processes.

Consider the issue of labour within the context of a village. Sadoulet et al (1998, p. 85) point out that farm households with different asset positions often relate differently to labour markets, which are typically characterised by large transaction costs that '… make effective wages received when selling labor and effective wages paid when hiring labor diverge …'. Thus, some households sell labour, others hire labour and some are self-sufficient in labour. This situation is analogous to the relationship between trading nations which may import, export or have no trade between them. Labour also has a characteristic of not generally being storable.

Another major aspect of a household within the context of a village is that it is subject to a budget constraint. The budget constraint is specific to the household yet it is possible for exchanges to take place between households in relation to working capital. Such exchange will also be subject to transaction costs.

Land is also a major resource for households within a village, and LUR or land ownership allow for the transfer of land and land use between households. These transfers will also be subject to transaction costs.

When considering production from the agricultural household, the marketable surplus may be traded with other village households or outside the village. Whether or not a household imports or exports production will depend on many factors but the flows will also be subject to transaction costs. The size of the transaction costs and the excess demand or supply (as reflected by the individual household) will determine the nature of the trade.

## Modelling land transactions in a village context

One of the approaches used to assess the possible benefits and costs of a system of agriculture where a large number of small plots are held and managed by each household is to model the possibilities that may arise through reorganisation and exchange of the plots. Exchanging plots has become possible with the introduction of a more flexible land rights system in Vietnam. However, in general there seems to be a very limited level of exchange (Hung 2006), possibly because there is surplus agricultural labour in Vietnam, especially in the north and the Red River Delta, and a low level of application of existing agricultural technology. There are also low opportunity costs for rural labour and difficulties in the transfer of labour from farm to non-farm employment. Developing a model which includes land transactions will allow the significance of these factors to be considered.

## A 'mixed-model' approach to modelling land transactions

Modelling a land market poses a number of difficulties in model formulation and mathematical representation. One approach to the problem of analysing the transfer and adjustment of land parcels is to recognise the parallels with the transfer of goods in a spatial equilibrium model, eg that of filling a knapsack (Hung & MacAulay 2002). The classical knapsack problem involves filling a knapsack of given volume so that the weight carried is maximised given the known weights of the individual items (Moore et al 1993). In terms of plots this is similar to filling a given requirement for land area with a number of plots of known area. The knapsack problem uses integer programming, which allows for the variables to have a value of one when the item is included in the knapsack and zero when it is not. In the case of land plots a value of one implies that the plot is included in the household's parcel of plots (overall area) while a value of zero implies that it is not. This is combined with the possibility of transferring plots between households using the ideas of spatial equilibrium. The objective in relation to the plots is to exchange them (if required) at a minimum transaction cost.

For the knapsack problem let *wi* be the weight of each item *i* (transaction costs in the case of plots), *xi* be the choice of including the item in the knapsack (a decision to include the plot or not), *ai* the volume of the item (area of the plot), *V* the volume available in the knapsack (total land area), and *m* the number of possible items (plots). The problem is then to maximise (ie minimise the transaction costs) the objective function value *Z*:

(10.1) Max (or Min) $Z = w_1 x_1 + w_2 x_2 + \ldots + w_m x_m$

subject to

$a_1 x_1 + a_2 x_2 + \ldots + a_m x_m \leq V$

$x_1, x_2, \ldots, x_n$ is $\{0, 1\}$

This problem can be modified so that it is structured to have the available plot area or the plot supply meet the demand for plots. It is also possible to formulate this as a more standard household model (for a summary of the standard household model see Ellis (1993)), and this is outlined below as the discussion progresses.

Spatial equilibrium models are based on the concept of the transfer of goods between regions, with each region having both a supply of and demand for goods. There are transfer or transportation costs between the regions. The parallel in the case of the transfer of plots between households is that each household will have a supply of land in the form of a number of plots (or area of land) and a demand for that land based on using plots of land for production. If the transfer of plots between households is possible, it can be modelled in a similar way to the transfer of goods between regions. However, in the case of plots given areas will be either transferred or not transferred (zero or one), rather than having a variable number of goods. This can be represented as the following programming problem:

(10.2) Max $Z = - T'X + p_q q - p_d d$

subject to

$A_x X \leq a_x$

$- A_y X \leq -a_y$

$q = f(a_y, d)$

$X$ is $\{0, 1\}$ and $q, d \geq 0$

where: $T$ is a vector of transaction costs for the transfer of land

X is a vector of zero–one variables indicating the transfer of plots

$p_q$ is the price of output

$q$ is the level of output

$p_d$ is a vector of the prices of inputs

$d$ is a vector of the level of inputs used

$a_x$ is the total supply of land of each of $m$ households (area)

$a_y$ is the total demand for land of each household (area)

$A_x$ and $A_y$ are matrices of $m$ x $m$ order representing the area of plots.

The level of output can be a function of the resulting land area $a_y$ (after any transfers have taken place) and other inputs. It is assumed that each farm household has a plot with a given area ($a_i$) and there are $m$ households. A plot with size $a_i$ can be supplied to household $i$ or another household. The structure of plot area can be represented in the following form:

$$A_x = \begin{bmatrix} a_1\, a_1 \,\mathrm{L}\, a_1 & & \\ & a_2\, a_2 \,\mathrm{L}\, a_2 & \\ & & \mathrm{O} \\ & & a_m\, a_m \,\mathrm{L}\, a_m \end{bmatrix} (mxm)$$

$$A_y = \begin{bmatrix} a_1 & a_2 & a_m \\ a_1 & a_2 \;\mathrm{L}\; a_m & \\ \mathrm{O} & \mathrm{O} & \mathrm{O} \\ a_1 & a_2 & a_m \end{bmatrix} (mxm)$$

where matrices $A_x$ and $A_y$ represent a supply of and demand for land. If a household has $n$ plots the matrices $A_x$ and $A_y$ are of $m$ x $(m$ x $n)$ order.

Once the combined knapsack and spatial equilibrium model has been established (problem 10.2), other elements of the farming systems for households may be added. For example, crops may be produced using inputs of labour and land. Households that have less land may rent-in land while households who have large amounts of land may rent-out. Moreover, households can hire-in labour or employ their labour off-farm. Another element in the model can be the incorporation of some of the costs of land fragmentation. If the distances between the plots are known, the labour time for working each plot and the travel time between plots can be included. As a result, households can choose a combination of plots which can reduce labour and transportation costs. Therefore, in a 'mixed' model land and other resources can be transferred to or from households, and will tend to move to those that use them more efficiently. This can be represented as another programming problem:

(10.3) $\mathrm{Max}\, Z = -T'X + P'Q - P_d D - C_t X$

subject to

$A_x X \leq a_x$

$-A_y X \leq -a_y$

$Q = f(a_y, D)$

$p_d d - p_q q \leq 0$

$C_t X \leq c_t$

$X$ is $\{0, 1\}$ and $Q, D \geq 0$

where: $Z$ is the total profit obtained from all households in a village

$P$ is a vector of the output prices

$Q$ is a vector of outputs of households

$P_d$ is a vector of the input prices

$D$ is a vector of the level of inputs used by all households

$C_t$ is a vector of transfer costs from farmers' houses to plots

$c_t$ is the total transfer costs of each household before land transactions take place

other variables are as noted previously.

The problem in (10.3) is to maximise the total profit of all households in a village or region subject to: the supply of and demand for land, production functions associated with agricultural production, transportation costs and non-negative profits of each household; and to meeting the income requirements of the households.

## Formulation of the empirical model

### Assumptions of the model

Since the empirical model is solved within a programming framework, a large volume of information is required on the physical relationships between different activities and resources. In other words it requires much technical knowledge about the nature of different crops and the input requirements for their production. This is because the coefficients in the programming model are specific, and the level of relative accuracy of these coefficients will determine the robustness of the results.

When modelling the possible exchange of land parcels there are a number of issues involved. Essentially, land transfer between households requires an effective market in land or, in the case of Vietnam, the ability to transfer LUR. To establish a modelling framework designed to allow the assessment of the broad parameters under which parcels of land might be transferred, it needs to be assumed that such a market exists and that there are known transaction costs. As well, the effects of changes in the use of technology as land parcels are combined need to be considered. Such changes may be from the use of animal power to tractors, or from the use of manual labour for many common tasks to a variety of forms of mechanisation. In setting up a land transaction model at the household and village levels, the existence of a labour market is also assumed, indicating that farmers can hire-in labour for farm activities and/or be employed off-farm. Moreover, funds for crop production may be borrowed and/or obtained as a result of the sale of outputs and renting-out of land.

### Structure of the model

The model is constructed at a plot level to explain micro-level land use decisions, an approach that is also used by Antle and Capalbo (2001). The objective of the model is to maximise the total profit of all households in a village, where total profit is defined as the value obtained from the sale of crop outputs less the total variable costs. These costs include expenditure for inputs used and renting of land, transaction costs in the rental market and as a result of fragmentation, tax and other fees, and expenditure spent by households. The activities of the model are the land area of each household,

the planted area of each crop, the sale and consumption of crop outputs, family and off-farm labour used, variable costs, rents in and out, transaction costs in the land rental market and those caused by land fragmentation, and transportation costs.

Land transaction activities form a major set of variables in the model. To demonstrate the nature of the model, the case of two farms operated by two households A and B is considered (Figure 1). The households both have a supply of land broken into plots and a demand for land to use for cropping. Household A may keep its land (as in the existing situation) or exchange plots with household B to have plots in a certain location, eg in region 1 or 2, thereby reducing costs. By exchanging plots each household may consolidate all their plots in the same region, resulting in considerable savings in labour and transfer costs. It is assumed that the problem of considering land as an appreciating (or depreciating) asset can be avoided, at least initially, and that there is no change in the value of the land or even an expectation that the value will change in the future. However, the fertility of land can be considered and reflected in the rental rate.

A household may have a number of plots that are scattered in different regions or land areas (eg irrigated fields, upland areas). To illustrate plot exchange in the model the case of a household with ten plots located in three locations (I, II, and III) is considered (Figure 2). Distances from the house to these plots are different and plot sizes also vary. For example, plot 1 is 500 m from the house and has an area of 800 $m^2$ while plot 2 is 1000 m from the house and has an area of 650 $m^2$ (Figure 2). In order to reduce the level of fragmentation the household can exchange plots with others to have all plots in one of the three locations or in a combination of two locations. If the household has plots in only one or two locations, travel time between plots may

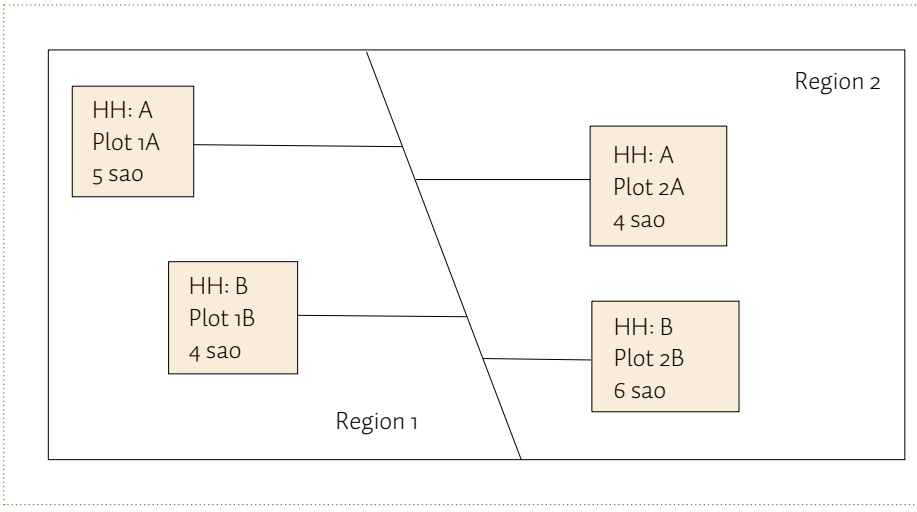


**Figure 1** Hypothetical plot layout for two households A and B

be less. The model has been formulated so the household can not exchange or rent-in land from areas outside locations I, II and III where they do not already have plots (defined in the model as 'other' locations) because transportation costs and travel time will be high. In the model it is assumed that each household has one 'basic' and a set of 'non-basic' locations. The definition of the locations is based on transaction costs and the number of plots the household has in a location. A 'basic' location is where the household has their largest number of plots while the 'non-basic' locations are where they have fewer plots. In Figure 2 location I is classified as 'basic' for the household while locations II and III are 'non-basic'. In this context the household should exchange or rent-in more plots in the 'basic' location, and will have a lower preference for plots in 'non-basic' locations.

The major constraints on land use in the model include the supply of land and demand for land in each of the *m* households, and the planted area of crops for each household that are possible in each season. To account for self-sufficient production and quotas on rice fields, rice production of a household must at least meet the household's consumption requirements. The remaining amount of rice can be sold. Thus, rice output is used for two purposes: home-consumption and sale. It is assumed that there is no storage of rice and other crop outputs, and that the output of other crops is produced for the market. In addition, the total costs of a household in each season are the total variable costs of all crops cultivated in the season, the costs of renting-in land, transaction costs in the rental market, and transportation costs including the transaction costs associated with land fragmentation.

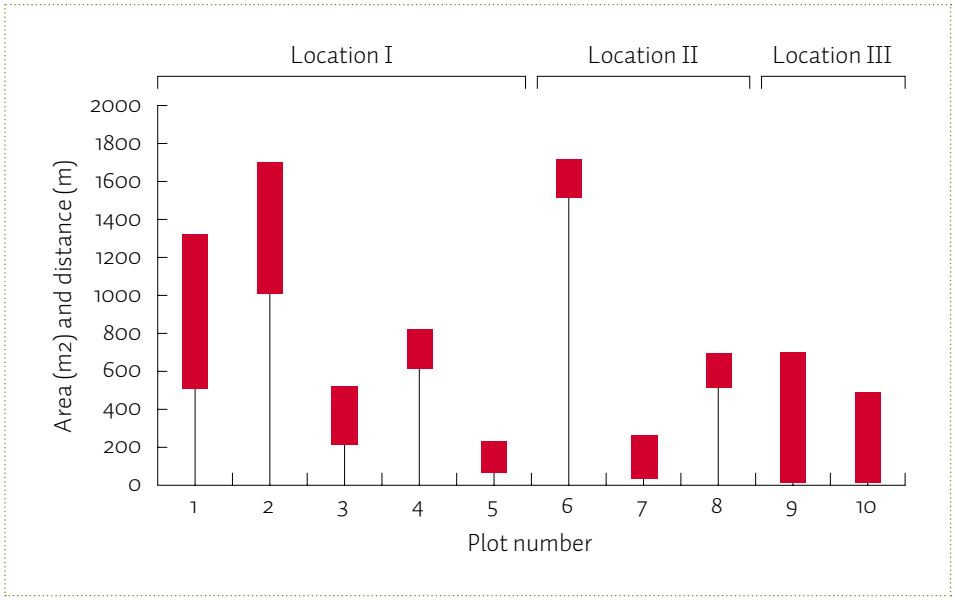


**Figure 2** Example of a plot area and distance diagram for a household

## Data and inputs for the model

It is assumed that land transactions in general and plot exchanges in particular occur within a village. This means that a farm household can exchange land plots with and rent land to or from other farmers living in the same village. As discussed earlier, in practice this is generally the case because the structure of communes in Vietnam makes it difficult for households from one commune to cultivate land in another commune. Data from three farm households in Luon Ngoai village, Dai Dong commune, in Ha Tay province were used for the construction of the empirical model. These households had completed a diary survey of time use, consumption and production activities over a period of 12 months. The first household (H/H A) had ten plots in three locations: five in Dong Khanh, three in Dong Hoi and two in Dong Bau. The second (H/H B) had eight plots: two in Dong Khanh, four in Dong Hoi and two in Dong Gia. The third (H/H C) had nine plots: two in Dong Khanh, three in Dong Hoi and four in Dong Bau. Thus, there were four locations in the village and each household had plots in three of these locations. Each household also had one area where their largest number of plots were located (Dong Khanh for H/H A, Dong Hoi for H/H B and Dong Bau for H/H C). Thus, they had a 'basic' and two 'non-basic' locations, and the fourth location for each household was known as 'other'. It was also assumed that land fertility was the same within each location so that the rental rate varied only among the different locations but not within a location.

There were four crops cultivated by these households: first and second rice crops, corn and soybean. Corn and soybean can be cultivated in three seasons, namely the first, second and winter seasons, while the first rice crop was assumed to be grown in the first season and the second rice crop in the second season. The output of rice was used for sale and consumption by the household and was represented by a production function. In the model, variables in the production function included farm size, family labour and the number of plots, while seeds, fertilisers and other cash costs were assumed at an average level of input used by each household. Corn and soybean were produced for sale. The total profit was calculated as the sum of the sale of crop outputs from all plots of the households plus any income from off-farm work and renting-out of land, less the total costs which included variable costs, costs of land rented-in, and transportation and transaction costs.

Food consumption requirements were estimated from the diary data for each household. The output of the first rice crop was consumed from June to October while the second rice crop output was consumed from November to May. The maximum farm working time for a household was calculated as the time that the household head and his/her spouse were able to work, plus any time supplied by their children who were under working age but above 12 years old. The total time assumed to be available annually for a household was 540 man-days working 8 hours/day.

A detailed mathematical formulation of the model is given in Hung (2006). The method used in solving the problem was branch and bound, an algorithmic technique used to find an optimal solution to integer programming

problems by keeping the best solution so far. In this method the basic variables are bounded with integer values and solved as subsets of the problem (Moore et al 1993; Winston 1994). The software used was *What's Best version 7.0* (LINDO Systems Inc. 2003).

## Results and discussion

### Results for the base case

To be able to analyse alternative scenarios it is important to set a base case against which the alternatives can be evaluated. Results for the base case are given in Table 1. In the specified base case a household can produce rice or corn and soybean in two seasons (the first and second seasons), while in the winter period only corn or soybean can be grown. The total profit made by these farms under this base case scenario was VND26,698,000: of this, household B contributed the highest amount of VND10,198,000; household A VND8,904,000; and household C VND7,596,000. Household A kept its existing farm area, while household C rented out a large amount of land (5.3 *sao* – a sao is a unit of land area equal to 360 $m^2$ in the north of Vietnam – or 51% of the initial farm size) to household B. Household B cultivated only two rice crops in the first and second seasons. Besides rice, soybean was grown in the winter season by household A and in all three seasons by household C. In this model no households chose to cultivate corn. The outputs of two crops were sold by two of the three households: rice for households A and B and soybean for households A and C.

In order to measure the impact of land transactions, each household can be restricted to cultivate only their own land. This can be modelled by including a constraint on land transactions for the base case. Alternatively, if the restriction on land transactions is removed there could be significant change within a village. Results are given in Table 2 for the comparison of base case scenarios with and without land transaction restrictions. Without restrictions the total land areas demanded by households A, B and C decreased by about 3.7%, but the total profits increased by 3.1% because households B and C changed their activities to increase their profits. Household B concentrated on crop production while household C increased off-farm work and decreased farming activities. Household B was more efficient in crop production and so rented-in a large amount of land (84.7% of the farm area). Farming activities for household C were relatively less efficient and therefore they rented-out half of their land and produced outputs to meet self-consumption requirements only. However, their profit increased by 11.3%. In contrast, household A did not participate in the rental market but decreased its planted area by about 4%. These results show that if land transactions were not restricted and farmers were free to exchange or rent-in or rent-out land, they may be better off.

### Results for different scenarios

The model can be used to examine many factors which could be expected to influence land transactions between households. In this section experiments with changes in wage rates, transaction costs in the rental market, and paddy prices are examined.

**Table 1** Results for the base case (with unrestricted land transactions)

| Model inputs | | Value | Major variables | | Solution |
|---|---|---|---|---|---|
| Prices (VND '000) | | | Total profits (VND '000) | | 26,698 |
| first rice crop | | 1.9 | of which: | H/H A | 8,904 |
| second rice crop | | 2.0 | | H/H B | 10,198 |
| corn | | 2.5 | | H/H C | 7,596 |
| soybean | | 4.5 | Farm size (sao) | H/H A | 9.1 |
| Rental rate (VND '000) | | 200 | | H/H B | 10.6 |
| Wage rate (VND '000) | | 20 | | H/H C | 5.5 |
| Transaction costs in the rental market (%) | | 10 | Number of plots | H/H A | 10 |
| | | | | H/H B | 10 |
| Increase in transportation (%) | | 10 | | H/H C | 6 |
| | | | Land rented-out (sao) | H/H A | 0 |
| Time available for a household (man-days) | | 540 | | H/H B | 0.5 |
| | | | | H/H C | 5.3 |
| Initial farm size (sao) | | 26.1 | Land rented-in (sao) | H/H A | 0 |
| of which: | H/H A | 9.5 | | H/H B | 5.3 |
| | H/H B | 6.3 | | H/H C | 0.5 |
| | H/H C | 10.3 | Family labour used (man-days) | H/H A | 272.0 |
| Total number of plots | | 27 | | H/H B | 228.1 |
| of which: | H/H A | 10 | | H/H C | 160.2 |
| | H/H B | 8 | Off-farm work (man-days) | H/H A | 268.0 |
| | H/H C | 9 | | H/H B | 311.9 |
| | | | | H/H C | 379.8 |
| | | | Crop sale (kg) | | |
| | | | rice | H/H A | 2,787.7 |
| | | | soybean | H/H A | 409.5 |
| | | | rice | H/H B | 4,569.5 |
| | | | soybean | H/H C | 274.0 |
| | | | Total costs (VND '000) | H/H A | 3,712.4 |
| | | | | H/H B | 4,940.9 |
| | | | | H/H C | 1,233.1 |

## Results for simulation of changes in wage rates

In the base case the wage rate for off-farm work was estimated to be an average of VND20,000 per working day. It was assumed that the wage rate increased from this level to a maximum of VND80,000, which was equivalent to the daily wage rate of higher educated people (university level). A daily wage rate of VND35,000 to VND40,000 is equivalent to that which currently exists in the south of Vietnam. Results for the simulation are presented in Figure 3.

In order to compare these results with the base case, the total land rented-out by households was represented by a line in Figure 3 and referenced to the secondary Y-axis, while on-farm and off-farm labour were represented as percentages by bars and referenced to the primary Y-axis. The area of land rented-out seems to be directly proportional to the wage rate, initially increasing rapidly when wage rates are in the range of VND20,000 to VND40,000 and then increasing at slower rates up to the level of VND80,000. The simulation results

**Table 2** Effects of land transactions versus no transactions[a]

| | Total (%) | Of which | | |
|---|---|---|---|---|
| | | Household A | Household B | Household C |
| Profits | 3.1 | −0.8 | 1.0 | 11.3 |
| Farm size | −3.7 | −3.9 | 67.7 | −47.1 |
| Land transactions[b]: | | | | |
| renting-out | 25.9 | 3.9 | 16.9 | 51.6 |
| renting-in | 22.2 | 0 | 84.7 | 4.5 |
| Number of plots[c] | −1 | 0 | +2 | −3 |
| Planted areas | 1.1 | −3.9 | 67.7 | −42.6 |
| Sale of rice | 41.7 | −6.1 | 105.7 | 0 |
| Sale of soybean | −28.4 | −3.9 | −48.1 | 0 |
| Farm labour | 6.9 | −3.9 | 67.7 | −19.4 |
| Off-farm labour | −4.3 | 4.3 | −22.8 | 11.3 |
| Total costs | 15.8 | −3.5 | 113.6 | −48.1 |
| transportation costs | −0.4 | 0 | 48.7 | −23.8 |

Notes:

a Percentage changes compared to the case of no land transactions (positive signs are percentage increases and negative signs are decreases)

b Land rented-out and rented-in as compared to the farm area.

c Expressed in relevant units, not percentages.

imply that an increase in wage rates leads farmers to rent-out more land because crop production becomes relatively less profitable in comparison with working off-farm. If wage rates and opportunities for off-farm work increase, some farmers in a village may rent-out land and/or leave farming.

With regard to the total labour used, the amount of on-farm/off-farm labour decreases /increases as the wage rate increases from VND20,000 to VND35,000. Above this rate the levels of labour used for on-farm and off-farm activities seem to be relatively stable (Figure 3). One explanation for this result is that the total labour available for a household is assumed to be constant, but it may also be that in the model the output from rice production must meet the requirements for food consumption of each household and labour is required to achieve this. This scenario may be an accurate representation for the north and the Red River Delta of Vietnam, where farmers are still aware of food crises that occurred in the 1980s and tend to produce (rather than buy) rice needed for home consumption. This leads to the conclusion that at some wage rate levels on-farm labour use is likely to become a constraining factor to off-farm work.

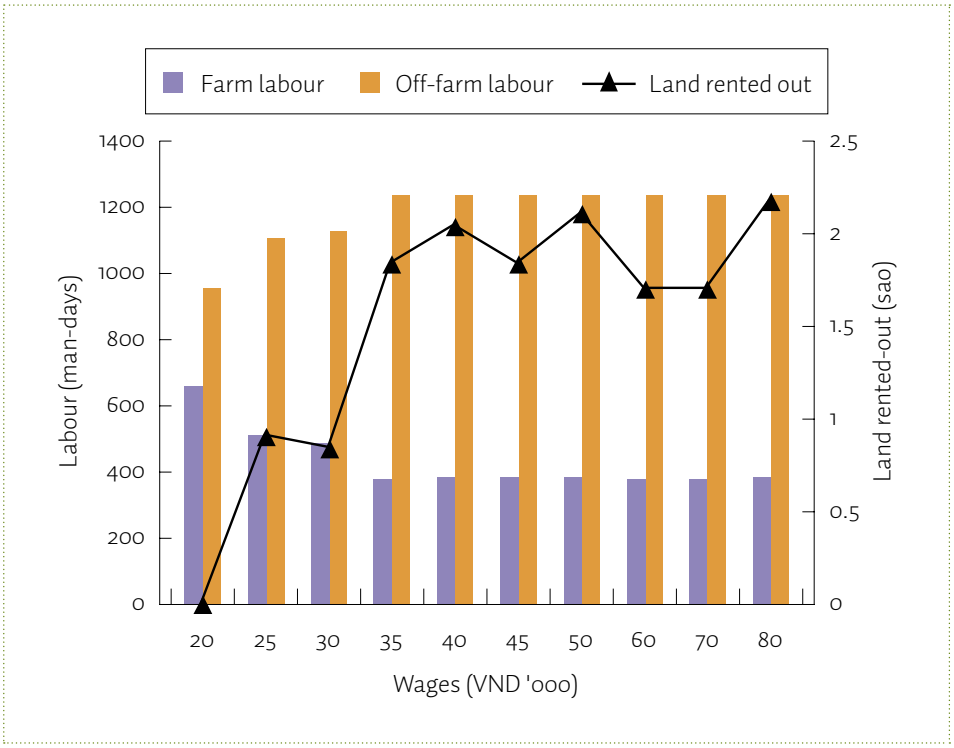


**Figure 3** Impacts of wage rates on labour and land rented-out (starting point is the base case with wage rate of VND20,000 /day)

From the simulation results it was also observed that profits from crop production decrease and may reach zero as wage rates increase. Some farmers may then decide to rent-out more land and reduce their farm size. In this scenario the total farm area of the three households decreased by 8.6% from 25.1 to 22.3 sao. The farm size of households A and B decreased but that of household C increased. The total planted area also decreased substantially from 58.9 to 32.2 sao (45%). The planted areas of some crops decreased even more sharply, eg the first rice crop by 69.2% and soybean by 56.7%. The sale of rice output was equivalent to about 30%, and of soybean 44.6%, of that in the base case. Moreover, the total number of plots of all households and of each household also decreased as the wage rate increased.

## Results for simulation of changes in transaction costs in the rental market

Transaction costs in the rental market were assumed to be 10% of the 'basic' rental rate for the base case. In order to examine the impacts of changes in transaction costs in the land market, changes in 5% steps in these costs were simulated. Results are presented in Figure 4. It is apparent that as transaction costs increase the area of land rented-out by households decreases. If transaction costs increase from 5% to 30%, land rented-out decreases from 6.3 to 4.7 sao. Within a village the total amount of land rented-in by households should be equal to the total amount of land rented-out. Therefore, an increase in transaction costs leads to a decrease in the total area of land transacted in the market. It is also observed that the area of land rented-in by households A and C decreased, while for household B the level varied with no clear trend (Figure 4). This leads to the conclusion that when transaction costs in the rental market are high households who rent-in land will rent-in less land and those who rent-out will also rent-out less land.

In addition, in the two scenarios with rental market transaction costs of 10% and 30%, household profits decreased by a total of 3.4%, while farm profits decreased by 22%. This implies that a decrease in transaction costs in the rental market will lead to farmers being better off. An increase in transaction costs of 20% (from 10% to 30%) leads to a decrease in the average farm size by 4.4% and in total planted area by about 10%. In the case of this simplified model for three households, this land becomes unused (in a more detailed system this land would be used in an alternative way).

## Results for simulation of decreases in paddy prices

In Vietnam rice, maize/corn, cassava and sweet potato are classified as paddy crops and they are the dominant production activities. A change in the output prices of these crops has a significant effect on both farmer well-being and the whole economy. Changes in the output prices of rice and corn are examined to analyse the effect on land transactions and crop production. Decreases in 5% steps in the price of these crops were simulated and the results are presented in Figure 5.

Percentage changes in the total land transactions as a proportion of the total amount of land rented-in (including land exchanged) and the total farm areas are represented by a solid line in the figure and referenced to the secondary Y-axis. Land rented-out is calculated as a percentage change in farm size and also

referenced to the secondary Y-axis. Total land transactions include those between the three households but land rented-out does not. The total profits and farm profits are bars in the figure and are referenced to the primary Y-axis.

From Figure 5 it is apparent that a progression of 5% decreases in the output prices of paddy crops leads to a decrease in total land transactions. In contrast, it leads to an increase in the percentage change of the total areas of land rented-out. If the output prices of crops decrease, crop production becomes less profitable and farmers have less incentive to produce. As a result, they want to rent-out more land and leave farming. On the other hand, many farmers do not want to participate in the rental market because they want to reduce farm production due to decreases in profit. The effects are that the total farm areas of households decrease by 18% while planted areas decrease by more than 30%.

In Figure 5 it is apparent that farm profits decrease sharply as the output prices of paddy crops decrease, but total profits including income obtained from off-farm activities do not decrease by much. This is the case because farmers transfer their labour from farm to off-farm employment: eg, the total on-farm labour used decreased by 28% but off-farm labour increased by about 20%. They may also cultivate other crops such as soybean to replace paddy crops: eg, the planted areas of soybean increased by 113% and the sale of outputs by 115%.

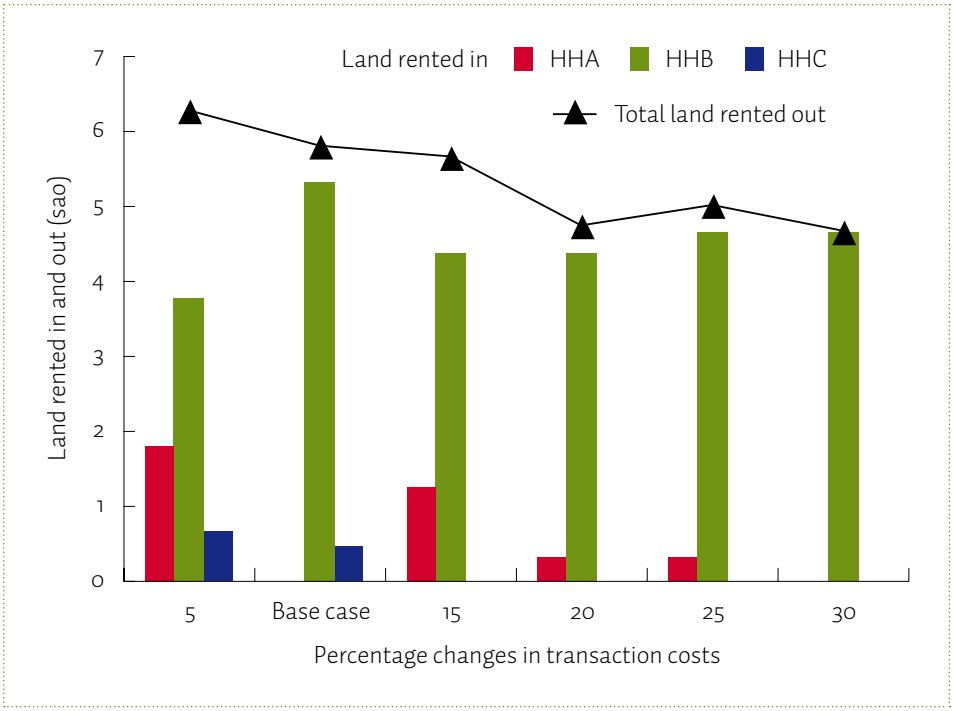


**Figure 4** Impacts of changes in land market transaction costs on the rental market

## Concluding comments

In this chapter a land transaction model for households within a village context is proposed. The idea of a 'mixed' model using aspects of the knapsack problem approach, and of spatial equilibrium and household models, is developed. The transfer of land plots is compared to the transfer of goods in a spatial equilibrium model. It is also assumed that each household has a supply of land in a number of parcels and a demand for that land derived from crop production. The objective of the model is to maximise the total profits (incomes) from three sources: crop production outputs from all plots, off-farm work, and land rented-out by all households in a village. It is assumed that markets exist for labour and land rental, and that the land rental market is imperfect and has associated transaction costs. Land fragmentation, as measured by the number of plots, is also included and is assumed to affect production costs. The total labour available for a household can be used both for farm production and off-farm employment.

Data from three households in Ha Tay province are used in analysis of the model. Simulations based on changes in off-farm wage rates, transaction costs in the rental market and output prices of paddy crops were examined. From the results of the analyses, total profits increased if restrictions

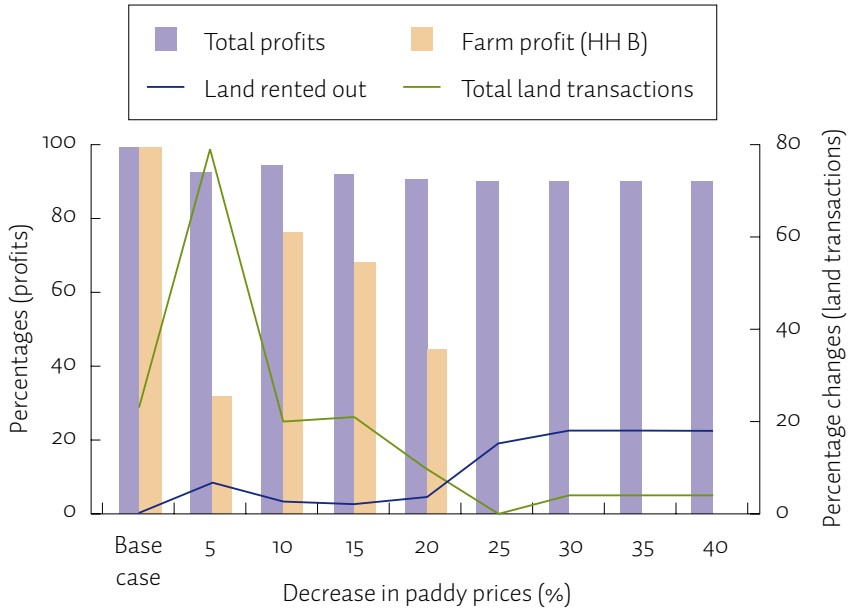


**Figure 5** Simulation of changes in paddy prices

on land transactions were removed. Land tends to be concentrated in households who use this factor of production more efficiently. Households who used land relatively less efficiently rented-out more land and transferred labour from farm to off-farm activities.

In simulation of changes in wage rates, it is apparent that as the wage rate increases farmers will rent-out more land. However, some households who produce relatively more efficiently increase their farm size. This leads to the conclusion that as Vietnam appears to have surplus agricultural labour, at least for much of the production year, the real benefits to farm households from land consolidation may not be apparent until the real opportunity cost of farm labour begins to rise. This opportunity cost will clearly be affected by a number of factors such as the availability of employment opportunities for farm family members and the wage rate associated with these opportunities. Thus, an increase in opportunities for off-farm work is a key policy now and in the future to increase the incomes of the rural population.

The simulation of changes in transaction costs in the rental market also produced significant changes. Households who rent-in land will rent-in less land and those who rent-out land will also rent-out less land as these costs increase. This implies that the total area of land transacted in the market decreases and farmers have less incentive to participate in the rental market. Although the impacts of changes in transaction costs on individual households are different, in general an increase in these costs leads to decreases in farm size, the total planted area and the total profits, especially farm profits. Therefore, policy reforms leading to a reduction in transaction costs may encourage not only the process of land accumulation and a more active rental market, but also a more active involvement in farming and an increase in household income.

Decreases in the output prices of paddy crops have also been simulated. As a result, farm profits decrease significantly and farmers want to leave farming. As the prices of rice and corn decrease, farmers tend to rent-out more land but the total area of land transacted decreases because land exchanges decrease. This result illustrates the problem facing agricultural development in the north of Vietnam where farmers depend heavily on the cultivation of paddy crops. Agricultural policy allowing farmers the freedom to cultivate other crops, especially cash crops, rather than rice is desirable.

CHAPTER ELEVEN

# AGRICULTURAL LAND MANAGEMENT UNDER *DOI MOI*: POLICY MAKERS' VIEWS

THAVEEPORN VASAVAKUL

In this chapter the views of Vietnamese policy makers on land policy change in Vietnam are explored and discussed, based on information gathered during interviews conducted in November 2003 with party and government officials, researchers and university professors. Three areas connected with land policy change are explored: the first examines specific problems in agricultural land management and potential solutions, the second focuses on land policy change with respect to rural development and poverty alleviation, and the third presents policy makers' views on the overall impact of land policy change in the era of *doi moi* and considers future policy directions.

## Introduction

In this chapter the views of Vietnamese policy makers on agricultural land management problems under *doi moi* and their potential solutions are presented. The views are based on information gathered during interviews conducted in November 2003 with party and government officials, researchers and university professors. Fourteen informants were contacted and ten were available to be interviewed. The informants are from the following party and government agencies: the Vietnamese Communist Party's Central Party Commission for Economic Affairs (Ban Kinh Te Trung Uong); the Office of the Government (OOG); the Ministry of Agriculture and Rural Development (MARD); the Ministry of Natural Resources and Environment (MNRE); the Ministry of Labour, War Invalids, and Social Affairs (MOLISA); the Ministry of Finance (MOF); the Institute of Agricultural Economics (IAE); the Central Institute for Economic Management (CIEM); the Hanoi Agricultural University I (HAU); and the District People's Committee of Soc Son under the Hanoi Municipality. The interviews were conducted as face-to-face discussions in Vietnamese, and each interview lasted between two and three and a-half hours.

In the interviews opinions were sought in five main sections. The first section was concerned with land policy-making networks and the policy-making process, while the second focused on the views of policy makers on the pace of reform, factors precipitating reform and implementation problems. The third section examined specific problems in agricultural land management and potential solutions, and the fourth dealt with the links between land management and other rural development policies. The last section of the interview focused on the overall impact of land policy change in the era of *doi moi*, and addressed future policy directions.

In this chapter information and opinions expressed in sections three, four and five of the interviews are presented, with the aim of exploring the views of policy makers on current land policy issues and needed future directions for land policy in Vietnam.

## Agricultural land management problems and potential solutions

### Land fragmentation and plot consolidation (*don dien doi thua*)

Land fragmentation is a problem of northern and central Vietnam. Following decollectivisation in 1988, land was allocated to farmers on the basis of both land quality and the number of people in each household. This process led to the problem of land fragmentation, where each farm household received several small and non-contiguous plots of land of various sizes and quality. Land fragmentation has hampered the development of commodity production and made it difficult for households to mechanise agricultural work because the average plot size is small and the plots themselves are often scattered.

The government has since supported plot consolidation in the hope that it would help reduce production costs in the long run and intensify cultivation. Under MARD as the key implementing agency, certain areas were targeted: the Red River Delta, the Old Inter Zone IV (Thanh Hoa, Nghe An and Ha Tinh) and the central coastal provinces. Towards the second half of the 1990s the IAE, in collaboration with other research agencies, carried out research work on the subject. Party resolutions focusing on plot consolidation include 'the Resolution on the promotion of rural industrialization and modernization' and 'the Resolution on the reorganization of the collective economy'. The target is to solve the situation of land fragmentation by the year 2005.

Land consolidation may take place through the exchange of plots among households. This process, however, must not change the total original amount of land area allocated to each household. The process has to be voluntary, although the local government may intervene to expedite plot exchange by designing a local land use plan that necessitates plot consolidation. Local authorities are also instructed to propagate the positive results of plot consolidation while setting up incentives for farmers. For example, the local government might invest in irrigation work and infrastructure in the area where plot consolidation takes place; it could be responsible for all the expenses incurred by plot exchanges; or it could issue new certificates free of charge to households who exchange plots.

A number of provinces such as Thai Binh, Ha Nam and Bac Ninh have been successful in plot consolidation, with the average number of plots per farm household decreasing to between three and five.

## Land accumulation (*tich tu dat dai*)

The 1993 Land Law stipulated ceilings on areas of land for annual crops and forest land. The maximum area of land per farm household for annual crops in the Red River Delta is 2 ha, and in the Mekong Delta it is 3 ha.

Most policy makers agree that in theory land accumulation is acceptable because it helps raise the effective use of land and promotes commodity production. However, a fully-fledged policy that supports unlimited land accumulation cannot be implemented in Vietnam at this time because progress needs to be step by step. Land accumulation may lead to landlessness, which in turn may be a source of economic and social instability. At the policy level there are not sufficient non-agricultural jobs in Vietnam to absorb excess agricultural labour if land is allowed to be accumulated in the hands of a few. Equally importantly, land accumulation requires the ability to manage larger-scale enterprises, for which very few farmers are equipped. As a result, the level of land accumulation has to be 'reasonable'.

When discussing land accumulation, a number of policy makers also caution that there may not be a clear and direct correlation between the size of a land plot and its effective use. Greater size does not necessarily lead to an increase in productivity. A study conducted in southern Vietnam shows that 2.5 ha seems to be the appropriate size to generate efficiency. More than

3 ha requires quite sophisticated production knowledge and management experience, as well as more favourable production conditions and market access. In addition, the notion of commercial farms (*trang trai*) tends to promote and endorse the idea of land accumulation. However, many commercial farms cannot or do not carry out intensive cultivation; they cultivate a large area of land (*quang canh*) but do not practise multiple cropping (*tham canh*).

Current policy directions include the following:

1. The government hopes to create suitable conditions for land accumulation in the long run through rural industrialisation and the expansion of the service sectors. It has set a target of reducing the percentage of the agricultural workforce from 67% to 50% by the year 2010. This will involve a transfer of agricultural labour to other economic sectors. The government will expedite the process by providing the rural workforce with vocational training, promoting the growth of the industrial and service sectors in rural areas, expanding handicraft villages and increasing the scale of labour exports. An increase in job opportunities in rural areas will motivate some farmers to transfer their land use rights (LUR) and move out of agriculture altogether.
2. Currently, land accumulation may take place in mountainous and midland areas where the population density is low. Land accumulation is difficult in the Red River Delta area, although it could be expedited by increased growth in the industrial and service sectors. The transfer of agricultural labour to newly-built industrial zones and handicraft villages (focusing on carving, paper and ceramics) has already been quite successful in the Hai Duong, Ha Nam and Bac Ninh provinces of the delta.
3. A number of policy makers comment that the 2003 Land Law allows land accumulation by permitting farmers to transfer their LUR, whereas the previous laws clearly stated ceilings for agricultural land. For example, the 1993 law stipulated that the maximum level of land consisted of a combination of land allocated by the state, land purchased or acquired through transfers, and land inherited or given as a gift. The 2003 law does not stipulate *overall* ceiling levels, but states only the maximum amount of land allocated by the state. While the government will have to determine later how much transferred land a household may have, the amount of inherited land will probably have no limit. The 2003 law is therefore more favourable to land accumulation and the development of commodity production.
4. There is an opinion that land accumulation may become a 'collective' process, in which the new style of cooperative may play an important promotion role. Inexperienced and poor families who join the cooperative may 'rent' their land to the cooperative for a fee and at the same time contribute labour when the cooperative works on management issues.

## Informal land transactions

The government has not yet been able to manage all land use and land transactions in rural areas. There are cases in which farmers do not till the land themselves but rent it out, eg in trading villages, villages on the outskirts of big cities including Hanoi, and handicraft villages. In addition, buyers and sellers agree on transactions between themselves without proper official paperwork.

One of the key reasons for the problem is administrative problems: burdensome administrative procedures, lack of efficiency among different management units, and high fees and taxes. Another reason is that most farmers do not feel that they need legal documents (including LUR certificates). Only farmers working on large commercial farms and those owning land in urbanising areas feel the need of certificates and proper legal documents.

To minimise informal land transactions, policy makers list a number of solutions:

1. The government needs to raise legal awareness among the population so that they understand their rights and responsibilities. To facilitate this, land laws have to be translated into minority languages.
2. By making sure that all land users have LUR certificates, the government will be able to establish administrative order and determine what to do when transactions occur. The 2003 Land Law compels each local government to determine the deadline by which all LUR certificates will be issued. In the interim, under the land law land users without LUR certificates are allowed to use other types of documents in land transactions.
3. The government has tried to reform the administrative procedure through the use of the one-stop shop model and the decentralisation of the land registration process. There is also a need to review land-related financial matters. For example, the government should be more flexible when collecting the fee required before granting LUR certificates, allowing those who cannot pay up-front to pay later.
4. There is a need to computerise land records.

## Development of commercial farms (*trang trai*)

In 2000 there were approximately 113,000 commercial farms nationwide, with an average land area of 5 ha. Government support for the development of commercial farms is indicated by resolution no. 03 of the Prime Minister (dated 2/2/2000), which states detailed policy directions in the areas of land management, taxation, investment, credit, labour policy, technology transfer, environment and marketing.

One of the current problems is that a large number of commercial farms still do not have LUR certificates. One reason cited by Vietnamese officials is that some of the farms without certificates do not have concrete production proposals, a requirement by law before certificates can be issued. No survey has as yet been carried out to verify whether land allocated to some commercial farms is from reserved areas, a process required before certificates can be issued. In addition, MARD has only recently clarified the criteria for commercial farms.

Areas yet to develop commercial farms are the midland and uplands. Provinces where commercial farms have been doing well are Yen Bai, Bac Giang and Ha Giang. Most of the owners of these farms come from Hanoi and hire local labour to grow tea and fruit trees, and raise livestock. There are also farms in the Central Highlands, growing coffee and rubber; and in the Mekong Delta, growing rice and raising shrimp. Land used by these farms includes both allocated and transferred land.

## The use of land as collateral (*tin chap* and *the chap*)

Decision 67 issued in 2000 states that borrowing of any amount of money under VND10 million does not need collateral. Farmers merely need mass organisations to guarantee that they are engaged in production. Farmers wanting to borrow more than VND10 million need collateral to arrange loans from banks, and LUR certificates can be used as collateral.

The amount of agricultural borrowing allowed for household farmers is relatively small at VND5 million for 1 ha of agricultural land. Commercial family farms with 5–10 ha and larger commercial private farms can borrow more than individual households. The time period of the loan depends on need, but in general it is 12 months for annual crops and longer for long-term crops.

Problems in using land as collateral include the following:

1. The interest rate for agricultural loans is high. The agricultural sector only grows by about 4% annually, while the interest rate for agricultural credit is as high as 10% annually (0.9–1.1% monthly). However, because farmers are in need of credit, they will borrow even if the interest rate is 2–3% a month, particularly the farmers in the Mekong Delta.
2. Banks do not keep the original copy of LUR certificates, so technically the same certificates may be used several times.
3. Borrowers are loaned around 70% of the value of the collateral, but the values used are not yet based on market prices.
4. Vietnamese policy makers observe that Vietnamese farmers are generally very good at settling their debts. While those in difficulty may try to transfer their land to obtain money to pay the bank, they tend to get very low prices. Currently, banks cannot do anything with the LUR certificates they collect after foreclosure, but in the future the law will be revised so that banks can transfer the certificates.

In the past only state enterprises were allowed to use LUR as investment capital, but the 2003 Land Law now allows households this right too.

## Land use planning for rice land

Resolution no. 10 (1988) and the 1993 Land Law granted farmers decision-making rights to grow whatever crops they wanted. However, during implementation of the law, the question arose as to whether farmers in those areas specifically allocated for growing rice could change and plant something else. The 1998 and 2001 revised laws clarified that the change in the land use purpose is only allowed within the existing physical planning framework adopted by the central and local governments. If the physical planning framework is liberal, households are free to choose which crops they grow.

Physical planning is a process that in theory begins at the commune level. It is about making decisions on how to use land according to geographical location (upland, midland or lowland). Local production and investment plans will be formulated based on this physical planning framework. From the commune, the process then moves up to the district and the provincial levels. Although the methods and process of physical planning (*quy hoach*) are not yet 'scientific' (*chua khoa hoc may*), they help to serve as a foundation for local socioeconomic plans.

Within the Vietnamese physical planning framework, rules and regulations governing rice land seem the most rigid. The central government insists on the need to maintain a certain amount of rice growing area for food security purposes, and each province has local plans for rice growing. Currently, the adopted plan is to retain a total of about 4.2 million ha of rice land until the year 2010.

Farmers living in rice growing areas will not be allowed to grow other crops. Reasons given include the fact that local violations may environmentally damage the areas developed for rice growing; that in some areas farmers are not equipped to grow anything other than rice; and that the state has already invested heavily in irrigating rice land, at a cost of around US$10,000/ha in the Red River Delta.

Conflict over the use of land has taken place in some provinces. For example, there were cases of farmers in some rice growing provinces in the south wanting to switch to shrimp raising, especially when prices were high. Local and central authorities objected to the move on the grounds that salt water brought in for shrimp raising ruined rice land, and that shrimp raising introduced diseases that the locality was not equipped to deal with. There were some provinces (eg Hai Duong) in the Red River Delta that wanted to switch from rice growing to fruit growing. The outcome was that the province, with assistance from agricultural technicians and NGOs, experimented with a model of growing rice combined with fruit trees (longan) instead of abandoning rice growing altogether.

Should the state intervene in the land use planning process? Some informants think that the state should intervene but at the same time it should be responsible when the plans it sets up do not work well. For example, when prices are low for planned crops, the state should provide subsidies. For the rice growing areas there is an opinion that the key should be productivity. Areas with high efficiency and productivity should continue to grow rice, while areas with low productivity should switch to other crops. Ascertaining productivity, however, will require better research and survey methodology. The current information-gathering system on productivity is still inadequate.

The government will present a national physical plan for land use to the National Assembly in the near future. To prepare the new plan, provinces have been asked to recalculate their land use needs for agriculture and industry, and around 40 provinces have already reportedly completed their physical plans.

## Agricultural land use rights after 2013

The 1993 Land Law granted users of annual crop land the right to use land for 20 years, a term which will expire in 2013. There are two conflicting opinions as to how to proceed after 2013, one favouring the redistribution of land while the other does not. A majority of policy makers favour the latter.

Those favouring redistribution cite demographic change (deaths and births necessitate the restructuring of LUR) and the needs of those returning to rural areas from cities as key reasons. In 2003 the National Assembly reportedly discussed these issues and decided against land redistribution. Most policy makers comment that there should be no redistribution of land, and that Vietnam needs the land distribution system to be stable for the sake of long-term development. Each individual household and society as a whole will have to handle problems resulting from demographic changes at their own level. Those who pass away may give land to their children or transfer land to those in need. A number of policy makers also argue that the policy of maintaining agriculture as the key occupation in rural Vietnam does not promote development and growth in the long run. The government should not tie rural inhabitants to land, but should promote industrialisation and the development of services.

The policy after 2013, then, is to allow land users to continue using land providing that they have a need to do so and that, during their first tenure, they did not violate the stated land use purposes. It is not clear, however, how long the post-2013 land use period will be.

A small number of government officials interviewed feel that land redistribution should be allowed to occur at the local level if necessary. For example, if a sick person has no heir to inherit their land, it can be redistributed within the community at the village level. Also, in practice, each local community may have its own preference depending on local discussion and needs.

## The role of the government in price control over land

To what extent should the government have control over the price of LUR for agricultural land in rural areas? Following the 1993 Land Law, the Ministry of Finance constructed a price framework (*khung gia dat*) (ND 87 of 1994) which provinces used as the basis to set prices. The 2003 Land Law states that the government will still intervene to determine land prices on an annual basis but these prices have to be close to the market level. According to the law, LUR prices will also be determined through the process of bidding and auction as well as through negotiations between seller and buyers (Clause 55). Following Taiwan's model, the law states that there will be an agency assisting the government in determining prices (*tu van gia dat*). Currently, a Government Committee for the Preparation of Land Prices, which includes different state agencies and is presided over by the Ministry of Finance, is working on price issues.

Vietnamese policy makers diverge in their opinions over the role of the government. Some feel that the government should not intervene in price setting because the government price system has not been followed. There is a need to eliminate the

two-price system in land in order to avoid establishment of an underground market (*thi truong ngam*). A one-price system will also eliminate the practice of 'asking for and giving' (*xin-cho*) land. Others believe that the government should still provide a guideline (*dinh huong*) but that provinces should try to set prices as close to the market as possible. A third group feels that there is a need to find a balance between state prices which are too low and popular prices which are too high. Land prices in Vietnam are currently experiencing inflation.

## Development of an unrestricted LUR market

Most of the policy makers think that an unrestricted LUR market will develop. In reality a land market has already emerged, especially for residential land. It appeared when people began to sell houses because the land price is included in the transaction price for a house.

Various factors are identified as either stimulating or hampering the growth of the land market. First, if agricultural production costs are high, farmers will want to leave the agricultural sector; conversely, if costs are low, farmers will want to acquire more land. Second, although many farmers want to keep land, the poor have a tendency to transfer their LUR more easily. Third, the development of the non-agricultural sector and urbanisation will serve as an incentive to the sale of land. Finally, failure in agricultural production (owing to lack of capital, high interest rates for formal and informal borrowing, and high production costs or losses) will encourage farmers to sell their LUR.

Vietnamese policy makers comment that the Vietnamese Communist Party (VCP) has endorsed the development of the real estate market, as is indicated in the Resolution of the Fourth Plenum of the Central Committee (CC) (VIII Congress) in 1998, the political report of the Ninth Congress of the VCP that met in 2001, and the Resolution of the Seventh Plenum of the CC (IX Congress). In 2000 there was an experiment on land markets for housing in Ha Noi and Ho Chi Minh City, and in 2003 the Land Law institutionalised the development of a market for LUR.

The key question is what the government has to do to make that market work. How can the government ensure that entrepreneurs register, pay taxes, follow the laws etc? When promoting the LUR market, it is also necessary to take into account how it will affect those poor households who will be forced to sell their LUR. This is an important factor in why the government still tries to limit the sale of agricultural land. Vietnam needs growth-oriented policies and protective social policies for the poor at the same time.

## Ownership of agricultural land

Will agricultural land be privately owned in the same way that settlement land is owned in Vietnam? Opinions on this subject can be summarised as follows:

1. When discussing ownership in Vietnam, the land laws from 1993 to 2001 use the term 'people's ownership through the management of the state' (*so huu toan dan thong qua nha nuoc quan ly*). The 2003 Land Law somewhat modifies the phrase to: the government is the 'representative of the people's ownership'.

2. Legal documents do not include the term 'private ownership' of agricultural land in Vietnam. However, the state allocates LUR to people, and these rights have been expanded over the years. In 1993 the question of transferring LUR was controversial, but many concessions have been made during the past 10 years with the aim of increasing production capability.
3. The term 'private' is not suitable for characterising the possession of LUR because although farmers have rights, the state still limits (restricts) the buying and selling of agricultural land.
4. In other countries also, the term 'private ownership' does not necessarily imply that land owners can do whatever they want.
5. Private ownership may lead to the pauperisation of rural life if land is not used to grow food. To guarantee food security, farmers must continue to till the land.
6. The concept of private land ownership is not necessary. Instead, what is needed is the reallocation of rural labour so as to use land more effectively. If farmers wanted to move out of production, they could transfer their land after deciding how else to earn a living.

## Land policy, rural development and poverty alleviation

### Land policy and rural development

Land policy change in Vietnam has promoted rural development and growth, as was the objective of those who supported policy change in 1988. It is clear that land policy change has increased production capability; Vietnam has become one of the top three rice exporters in the world. The current land policy includes initiatives such as plot consolidation and the development of commercial farms, which are both designed to promote growth in commodity production.

Land policy change in itself is not sufficient to bring about rural industrialisation and urbanisation. A separate yet simultaneous policy is needed to promote the growth of the industrial and service sectors in rural areas. This will help transfer labour from agriculture to other rural economic sectors, which in turn creates suitable conditions for land accumulation.

### Land policy and poverty alleviation

Land policy has been designed to contribute to poverty alleviation in rural areas. The policy benefits both rural inhabitants in general and the poor in particular.

First, some rural households are exempt from land tax. From 2003 to 2010, the government will not impose taxes on those

having land under the maximum area limit (the National Assembly passed this law in May 2003). Those having land over the maximum limit will have to pay tax, but in Zone III communes (ie communes faced with difficulties) even households having land over the limit will be exempt from tax. The 2001 revised law also exempts families classified as poor from paying land taxes.

Second, the government guarantees that landless farmers wanting to farm will be given land. The 2003 Land Law includes a clause guaranteeing that farmers engaged in farming work will keep their land. Surveys carried out in 1997 and 1998 in the Mekong Delta showed that landlessness was an acute problem. Since then, the government has developed a number of policies: loans are available for landless farmers who want to start farming their land again; barren land in any locality will be allocated to local landless farmers; and farmers volunteering to go to a new economic zone will be provided with basic necessities and moving costs. Some of these policies have already been implemented. In An Giang the local government redeemed land for landless Khmer farmers, and those not wanting land received money instead. In Ben Tre land belonging to the army was allocated to landless farmers. In the Central Highlands the government purchased land from local people and state farms and distributed it to landless farmers on condition that they would not transfer the land for 10 years. (Decision 132 dated 8/10/2003).

Third, the new marriage law requires that both the husband's and wife's names be on land titles. This policy change is beneficial to women.

Fourth, the current land policy helps farmers keep land by limiting the development of the land market, but farmers may transfer land if they want to. The government will create non-agricultural jobs and provide those in need with vocational training so that they can move out of the agricultural sector.

Fifth, a number of research agencies are working to design a long-term security framework for poor farmers who do not have the knowledge and skills to use land effectively. Many poor farmers who became landless and received land from the government ended up losing the land again and again. One long-term solution is for them to join a cooperative and to use their land as contributing capital, which would allow them to work for the cooperatives while also receiving some level of land rent. However, although this solution might work for farmers in the north, those in the south do not favour the cooperative sector. Another solution is for agricultural extension work to target mainly poor farmers. Both solutions will help the poor to use land more effectively.

## The impact of land policy and future policy directions

### Key impacts of land policy change

Most policy makers cite the positive impact of land policy change. The change has increased production capability, allowed more effective use and exploitation of land, and better served environmental protection.

The 2003 Land Law has been designed to address some problems generated by the previous laws and will undoubtedly ensure further productive growth.

## Considerations for future policy directions

The Vietnamese policy makers interviewed have highlighted a number of considerations necessary for land policy planning following the promulgation of the 2003 Land Law.

1. There is a need to consider the conceptual relationship between 'land owners' and 'land users' (*chu so huu* and *nguoi su dung dat*) – the former refers to the state and the latter to economic organisations, individuals and households.
2. One key focus for the period from 2004 to 2010 is how to exploit land effectively, and how the 2003 Land Law could generate enthusiasm among land users. The development of real estate and LUR markets is one significant policy outcome of the law.
3. There is a need for land management by the state to be more effective. State management of land will involve: organisation of the state apparatus in land management; the role of commune cadres; development of the LUR market in conjunction with sound financial policy; land accumulation; and management of landlessness. Without the involvement of the state in land management, 'big fish will eat small fish'.
4. In addition to growth, Vietnam also needs stability, transparency and democracy in land management. Farmers are an important constituency as they form around 70–80% of the population.
5. From the perspective of poverty alleviation, simplification of the land transfer process is needed, so as to benefit those wanting to move out of agriculture. However, land transfer should be carried out as a mechanism to move people from one economic sector to another in rural areas only; it should not encourage farmers to move to urban areas.
6. Vietnamese policy makers need to reflect on how to learn from foreign models, and on which model is most useful for Vietnam. They have looked at models from Australia, China, Taiwan, Singapore, Malaysia, Thailand and France. Foreign experts who have assisted Vietnam have come from Australia, Sweden and New Zealand. Most have suggested that privatisation should proceed more quickly, the land market should develop more rapidly, and the market should play a more decisive role. However, Vietnam has a different history with different domestic conditions, and its pace of change should be neither too fast nor too slow. Vietnam needs a land market but the best way to organise it effectively must be found.

CHAPTER TWELVE

# POLICY BRIEFS

## Agricultural land use flexibility

### Purpose

To outline the importance of flexible agricultural land use in a market-oriented economy, and recommend government policies that will encourage land use flexibility.

### Background

Flexibility in the use of agricultural land indicates how readily land use patterns can change in order to adapt to varying production conditions and opportunities. It includes changes in:

- cropping patterns and livestock raising
- land use from the adoption of appropriate advanced technology
- land use resulting from varying levels of investment in production inputs.

Since 1986 Vietnam has moved from a centrally planned economy where agricultural production was under the control of the State to a socialist-orientated market economy where farm households have more individual control over their production activities. In a market economy land use flexibility is important for a number of reasons:

- Agricultural land use flexibility allows farmers to respond to market signals such as the prices of inputs and outputs. Prices of inputs directly affect investment levels and production costs, while output prices have a direct effect on production results and returns to investment.
- Because prices are always fluctuating, flexibility in land use allows producers to take advantage of market opportunities and reduce disadvantage when price changes occur.

- Agricultural production takes place under variable climatic conditions that increase production risk. In such conditions rigid and inflexible production in response to pre-determined production targets does not allow adaptation to unusual circumstances. Farmers benefit from land use flexibility that allows them to reduce the risk associated with the production process by saving costs and reducing possible losses, and thereby increase their income.

Since farmers have been able to make their own production decisions based on available resources, their management skills and the price signals, crop patterns in some farm households have changed remarkably. Research undertaken for the ACIAR project has documented that diverse land use practices exist (for example, there were 63 distinct land uses from 200 households in the two northern provinces of Ha Tay and Yen Bai). Economic returns from different land uses also varied considerably and were generally higher for perennial crops than annual crops. For annual crops rotations of rice with vegetable (food-stuff) crops generally gave higher returns than rotations of rice with other food crops such as maize and cassava. Highest returns were obtained from niche crops such as flowers and ornamental plants.

## Issues

In practice land use flexibility is affected by several factors, including:

- the rules and regulations governing the use of land
- farmers' awareness of land use opportunities and possibilities
- the ability of farmers to respond to market opportunities
- access to financial and other resources needed to make changes to land use.

Land policies play an important role in determining the degree of land use flexibility that exists in Vietnam, including policies on:

- *the term of agricultural land use*. Longer land use rights increase security of tenure and encourage the investment required to change land use, for example from annual crops to perennial crop options.
- *land use classifications*. Annual and perennial crop land classifications are determined by the government and stated on the land-use-rights certificate, thereby acting as a constraint to land use flexibility. There is also a need for flexibility to be balanced by necessary land use zoning or control (eg protection of forest areas). Many land use changes are required to be officially registered and incur a fee. This is a transaction cost which discourages land use flexibility.

- *the amount of land that can be held by the farm household*. Land ceilings can act to discourage flexible land use through limiting land accumulation by efficient producers, and because of lower security of tenure for land over the limit leased from the State. Land over the land limit is also subject to agricultural land tax.
- *the rights and responsibilities of the agricultural land user*. As land is 'owned by the people as a whole' there are responsibilities associated with its use. It is required that land should be farmed efficiently with appropriate crops and rotations, and that attention be paid to maintaining the fertility of the land. In practice this is determined by restrictions on land use that are specified on the certificate of land use rights.
- *agricultural land prices*. Rental and land transfer values do not reflect true market prices, but rather are determined within a pricing framework set by the central government, with the actual prices fixed by the provincial or municipal authorities. Failure of the land-use-rights market to accurately reflect market values restricts the ability of efficient farmers to take advantage of market opportunities to increase production, and of inefficient farmers to leave the sector.

Other government policies which have an impact on land use include those related to: credit provision to rural households and rural industries, investment in rural areas and infrastructure, markets and prices, goods circulation and trade, education and training, and science and technology. Besides these policies, other factors also affecting land use flexibility are:

- the land use design and planning system of the central government, which is implemented by local government at provincial and district levels
- land use planning at the communal level such as the planning of irrigation systems, transportation networks and land allocation
- the service provision system at the communal level such as input supplies, land preparation, crop protection and the adoption level of new technology by farmers.

## Policy recommendations

The extent to which land use flexibility exists has a direct effect on both farmers' incomes and agricultural development.

### Recommendations for Government

- Through the use of macro policy changes, especially land policy, create favourable conditions for land use flexibility at the household level.
- Through land use planning, with close links to macro-level land use plans, provide for land use flexibility by farmers.
- Provide accurate information (including forecasts) related to markets and production in a timely fashion to farmers to enable them to make production choices.
- Actively pursue supportive activities related to credit provision, introduction of technology, and development of input and output markets as these are critical to land use flexibility.

### Recommendations for local government

- Through land use planning, create a favourable environment for land use flexibility.
- Establish and develop infrastructure and service systems in rural areas that will enhance flexibility in land use.
- Strengthen the extension system for diffusing technology to farmers.

### Recommendations for farmers

- Encourage the enhancement of education levels and knowledge about technology and markets to help farmers take advantage of opportunities to change land use and obtain higher economic returns.
- Seek to enhance farmers' ability to access information and to respond quickly to changes in the market that affect returns from agricultural production.

### More information:


#### Professor To Dung Tien

Faculty of Economics and Rural Development, Hanoi Agricultural University No. 1, Gialam, Hanoi. Email: pvhung@hau1.edu.vn

#### Sally Marsh

School of Agricultural and Resource Economics, The University of Western Australia, Crawley, WA 6009. Email: spmarsh@cyllene.uwa.edu.au


## Land fragmentation in North Vietnam

### Purpose

To inform policy makers about the public and private benefits and costs associated with land fragmentation. These benefits and costs need to be considered when implementing policies that promote land consolidation.

### Background

Land holdings in North Vietnam are highly fragmented as a result of a land allocation policy that distributed land so that there was equitable quantity, but inequitable quality, of land distribution to households. In mountainous areas of North Vietnam land fragmentation is also exacerbated by geographic conditions. Although most households have many plots, land use rights certificates were issued for the total holdings, with the certificates recording multiple rather than individual plots.

### Issues

1. From a theoretical point of view land fragmentation has both private and social benefits and costs. A summary of these is provided in Table 1. Many of these costs and benefits are difficult to assess and quantify (eg equality of land holdings amongst households, possible delays in the application of new technology).

2. Using survey data from 508 plot-based observations from 188 farm households in the north of Vietnam, it was found that an increase in the number of plots per farm had a negative impact on crop productivity (measured in equivalent rice yield) and increased family labour use and other money expenses. However, data analysis also showed that fragmentation was a significant factor for increased crop diversity. In the context of subsistence-oriented agricultural production, diversification may lead to security of not only food but also farmers' incomes. These results suggest that private benefits from consolidation are not certain given existing technology. However, savings may be made, especially in labour use.

3. Econometric analysis of whole-farm survey data (as distinct from plot data) from Yen Bai province suggested that increasing plot number was associated with higher net values of farm production. However, this was not the case for Ha Tay province, which indicates that land fragmentation may in some cases be clearly beneficial, and in other cases not, depending on location.

4. As Vietnam appears to have surplus agricultural labour, at least for much of the production year, the real benefits to farm households from land consolidation may not be apparent until the real opportunity cost of farm labour begins to rise. This opportunity cost will clearly be affected by a number of factors, such as the availability of employment opportunities for farm family members and the wage rates associated with these opportunities, the level of education and age of the rural workforce, the time of year and the season. The transaction costs involved in job searching will be an issue, as will the reliability of the employment.

**Table 1** Costs and benefits associated with land fragmentation

| **Benefits of many plots** | | **Costs of many plots** | |
|---|---|---|---|
| **Private** | **Public** | **Private** | **Public** |
| Risk spreading:<br>flooding<br>disease and pests | Implicit insurance<br>Equality of land amongst households | Cost increases<br>Higher labour use | Less labour releases<br>Mechanisation delays |
| Inheritance flexibility | Increased biodiversity | Border land loss | Application of new technology delays |
| Crop rotation flexibility | | Access difficulties | Planning of commercial production zones difficulties |
| Small parcels for transfer/sale/ mortgage | | Dispute increases<br>Irrigation difficulties | Higher transaction costs when used as collateral |
| Seasonal labour spreading | | Mechanisation difficulties | Management |
| Management | | Application of new technology difficulties | |

5. If the number of plots is a significant factor in labour use, it would seem that appropriate policies to provide motivation and incentives for land restructuring will be those that are designed to allow the full effect of the rising opportunity cost for labour to be reflected in the rural sector. While i) the opportunity cost of labour is low, ii) surplus labour is retained in agriculture, and iii) labour use is subject to peak load periods, the provision of other incentives for restructuring of land ownership and use may have little effect.
6. If the role of technology is seen as one means of shifting the balance of benefits versus costs toward the farmer, then clearly research and development and the extension system and its effectiveness in having new technologies adopted will be important. The nature of the technologies in terms of capital or labour intensity will also be important.

## Policy implications

- Land consolidation may benefit farmers in the short term through higher crop productivity, but may result in cost increases through the loss of risk-spreading strategies and other private benefits of having many plots, especially in subsistence-oriented agriculture.
- Government-directed land consolidation policies need to be implemented with care. In some areas a degree of land fragmentation may be beneficial, especially in the mountainous areas or where risk of drought and floods is higher.
- Government policies to increase off-farm opportunities for farm-based labour, so increasing the opportunity cost of rural labour, should provide incentives to consolidate land holdings.

## More information


### Dr Pham Van Hung

Faculty of Economics and Rural Development, Hanoi Agricultural University No. 1, Gialam, Hanoi. Email: pvhung@hau1.edu.vn


# The value of agricultural land and land use rights in Vietnam

## Purpose

To provide a simple explanation of the factors affecting the value of long-term assets, particularly agricultural land.

## Background

At present agricultural land in Vietnam is considered to be owned by the people as a whole and 'the State is the representative of the people's ownership of land'. Land use rights are generally defined for a particular parcel of land and period of time, and define a person's use of land. These are recorded in the 'Red Book'. Transactions in land use rights form a 'parallel market' system for land, incorporating the rights of inheritance, exchanging, mortgaging, collateral, renting in and out, and selling and buying, plus the more recent addition of use for joint ventures. There

are ceilings on land holdings (eg 2 ha for annual crops in the Red River Delta and 3 ha in the Mekong Delta), and agricultural land tax must generally be paid on land held over the land limit.

## Issues

1. The value of land to the landholder, Vh, in principle, is the net present value of the future stream of earnings from the land including any changes in the value of the asset. This calculation will include deductions for taxes and any other costs of holding the land.

   The value of land to a potential purchaser, Vp, will be the net present value of the stream of earnings that are expected if the asset were purchased. For the exchange to take place the purchaser's valuation must be greater than the landholder's valuation by at least any transaction costs (fixed, t, or *ad valorem*, a). Thus, $V_p \geq V_h + a\,V_h + t$

   Transaction costs can be an important limitation on an active market in land or land use rights being developed.

2. The term of a land use right or lease affects the value of the asset, and expectations about the renewal of the right or lease will also affect the value. The value of a VND100,000 stream of earnings from an asset, assuming a 5% discount rate for an infinite period, is 100/0.05 or VND2 million; truncated to 20 years the value is VND1.246 million. Any transaction costs involved with renewal will also reduce the value of the asset.

3. To purchase long-term assets requires credit when liquid assets such as cash are not available, and access to credit requires collateral and an adequate future income stream to make repayments. Truncated ownership periods reduce the value of an asset for purposes of collateral. The value of a land use right for '*tin chap*' or 'trusted mortgage' collateral is limited to VND10 million. If 23% of a VND10 million annual income stream were used at the rate of VND2.3 million per year for loan repayments at an interest rate of 10% over a 13-year period, then a loan of VND16.3 million could be supported; if the period were extended to 20 years a loan of VND19.6 million could be supported. The length of life of an asset affects its collateral value.

4. Investment in the long term in infrastructure such as buildings, irrigation works and equipment requires long payback periods. Uncertainty about the title of the land on which these assets are located or used reduces the incentives to invest in them.

5. Future capital gains in the value of land provide a major reason for seeking to hold such an asset because gains, which are free of taxation, will clearly be preferred to income or production that is taxed. It could be argued that it is in the interest of society to tax both income and capital gains; however, any government policy intentions in this direction should be transparent to avoid being a disincentive to investment.

6. Survey work in Ha Tay province conducted in 2001 showed that the average rental price for cultivated land was VND500/m2, and the average buying price was VND5000/m2. The net present value of a stream of rental flows of VND500/m2 over 13 years at a 5% interest rate is VND4932/m2. Therefore, the buying price in Ha Tay appears to be a rational capitalisation of the rental rate over the approximate time remaining to 2013 of the 20-year land use rights (granted in 1993) on annual cropping land.

## Policy implications

For a strong and growing agricultural industry, exchange of land among alternative users and uses will raise the efficiency and flexibility to adapt to changes in local and world markets.

Such markets function best with:

- low transactions costs
- long-term certainty of tenure
- ease of exchange
- enhanced certainty of future earnings.

### More information


#### Dr Pham Van Hung

Faculty of Economics and Rural Development, Hanoi Agricultural University No. 1, Gialam, Hanoi. Email: pvhung@hau1.edu.vn

#### Professor T.G. MacAulay

Agricultural and Resource Economics, The University of Sydney, NSW, 2006. Email: g.macaulay@usyd.edu.au


# Taxes and agricultural land use

## Purpose

To inform policy makers and others about some of the implications of the new policy of tax exemptions and reductions on agricultural land use from 2003 to 2010, and to present recommendations on planning for the reintroduction of an agricultural land tax after 2010.

## Background

Exemptions and reductions to the agricultural land use tax were announced under Resolution 15/2003/QH11 (17 June 2003) and Ordinance 129/2003/ND-CP (3 November 2003).

The agricultural land use tax in Vietnam was based on Decree 031/SL (1951) and was designed as a tax on the benefits arising from land use. This has changed to be a tax on both land and land use benefits (ie a tax on 'property' and 'income') since the Ordinance on Agricultural Tax (1983) and the Tax on Agricultural Land Use Law (1993) were issued.

Under the existing law the tax is calculated as an amount of rice for a land class, but farmers pay an amount in cash dependent on the rice price determined each year.

The total amount of agricultural land use tax forms only a small part of the country's GDP and the total national budget (Table 1). The cost of collection of the tax has been large in relation to the revenue derived.

The World Trade Organisation (WTO) requires its 145 members to reduce agricultural taxes by 45% overall in the next 5 years (see WTO available at: <www.nhandan.org.vn/vietnamese.taday/kinhte/17kinhtethegioi_wto.htm>). At the end of 2003 China will reform agricultural taxes to help support farmers, and in line with Vietnam's application to enter the WTO, overall agricultural taxes must be reduced in the medium term. This is a worldwide trend resulting from globalisation and integration with the WTO.

The implementation of Resolution 15/2003/QH11 and Ordinance 129/2003/ND-CP will result in most farm households and organisations either being exempt from paying agricultural land use tax, or having the amount they must pay reduced.

## The new policy

The tax exemptions include:

- agricultural land under the land limits for both farm households and individuals
- agro-forestry land under the land limits allocated to households from state-owned enterprises
- agricultural land, both under and above the land limits, for 'poor' households and households located in areas classified as having 'special difficulties'. Poor households are determined on criteria set by the Ministry of Labour, Invalids and Social Affairs. 'Difficult' areas are based on the Government's Poverty Alleviation Program 135.

Subject to 50% tax reduction are:

- economic, political, sociopolitical, socioprofessional, armed forces and administrative organisations which manage and use agricultural land
- land holdings in excess of the land limits which are used for agriculture and forestry by households and individuals, including land allocated by state-owned enterprises.

Implementation of the policy is from 2003 to 2010.

## Issues

### Advantages of the 2003 reforms:

- Improve the balance between taxation and income for all land users, most of whom are farmers. Farmers are the poorest class in Vietnamese society, and the majority of ethnic minority people and people in remote areas are farmers.

**Table 1** Agricultural land use tax as a percentage of the GDP and national budget

| Year | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|---|---|
| Percentage of GDP (%) | 0.7 | 0.5 | 0.5 | 0.5 | 0.4 | 0.3 |
| Percentage of national budget (%) | 3.0 | 2.6 | 2.7 | 2.5 | 2.0 | 1.7 |

Source: <www.vietnamtourism.com/\/pages/business_eco/sltk/nam2002/n_thunstyle.htm>

- Reduce the difficulties and inequities associated with a tax based on a standard rice quantity and where payments in cash are determined by the rice price. In poor-yield years or when the rice price is high, the tax collection is high relative to those years with a good harvest or a lower price. In some poor regions the rice price may be higher, and therefore the tax amount will be higher, than in richer regions for the same land class.
- The tax exemption is considered to be assistance to farming and an incentive for reinvestment in production, or to be used for savings and consumption by farmers.
- Generally, farmers have welcomed the removal or reduction of the agricultural land use tax. The reforms have been politically popular.

### Disadvantages of the 2003 reforms:

- Budget revenue of local governments will be reduced as all of the agricultural land use tax was collected and used by local governments.
- Tax exemptions may not help in natural resource management. There are anecdotal reports that some farmers are not using their land since they are no longer required to pay tax, and local authorities have no incentive to enforce productive land use practices.
- In areas of less fertile land and in the mountainous areas, farms tend to be bigger and farmers are more likely to have to pay the reduced rate of tax. In flat fields and deltas land productivity tends to be high and land areas are generally under the land limits, so the tax is exempted. Thus, there continues to be an inequity where users of less fertile land may pay tax while users of more fertile land may not.
- There is now a big gap in the amount of land use tax paid between urban and agricultural land users because the value of urban land is much higher in comparison with the value of agricultural land.

## Issues requiring consideration

- Compensation of local governments (in agricultural areas) may be appropriate for the loss of agricultural land use tax revenues; otherwise, in order to cover their budgets, local governments may ask farmers to pay additional fees.
- A policy may be needed in relation to the management of land resources so as to avoid situations where farmers let land lie fallow.
- Agricultural land use tax reductions and elimination provide very limited income relief so poverty alleviation should still be considered under other agricultural and rural development policies.
- If poor farmers have sold, leased or transferred their land already without recording changes in the Red Book (a common practice), this policy does not help them, and the people who farm their land may be richer but not officially recorded as the land users.

- In the longer term a new policy on taxing of agricultural land use will be needed after 2010. The use of rice quantities and payments dependent on the rice price is inequitable in relation to either income or the value of the land used.
- Farm communities may wish to pay for community services which relate to the value of land but which cannot be provided without the collection of taxes.
- In the years between 2003 and 2010 there is a window of opportunity for the government to give consideration to policy regarding market-based land valuation.

## Recommendation

In order to reduce the inequity in tax collection between urban and agricultural land, tax should be calculated on a fixed percentage of the land value rather than land class. In this way the tax becomes a 'property' tax rather than a tax on the benefits of land use (an 'income' tax).

To implement such a recommendation there is a need for new regulations on the value of land. If land value is based on the market price, there needs to be an active and unrestricted land market so that the market price can be used to determine land values. If the land value is to be determined by the government, it should change based on changes in the market price of land. In addition, the tax rate will need to be adjusted to the new set of land values. There is likely to be a significant administrative cost in implementing a system of valuing land.

### More information

Dr Le Huu Anh

Faculty of Economics and Rural Development, Hanoi Agricultural University No. 1, Gialam, Hanoi. Email: lehuuanh97@yahoo.com

# Interest rate policy changes

## Purpose

To inform policy makers and others about some of the possible consequences of the major changes made to interest rate policy on 30 May 2002.

## Background

Changes in interest rate policy were implemented on 30 May 2002 as a result of Decision 546/2002/QD-NHNN of the Governor of the Central State Bank of Vietnam. This Decision has allowed new arrangements for the direct negotiation of interest rates with borrowers for commercial credit contracts in Vietnamese *dong*. While this will result in freer interest rate markets, the rural economy may suffer some disadvantages from this new policy.

## The previous situation

- The banking system in Vietnam has operated at both state and commercial levels, with commercial banks being business organisations operating in the monetary sector.

- Since 1988 the State Bank has regulated interest rates charged by commercial banks. In reality, commercial banks are state-owned banks and therefore have been required to sponsor and support government programs.
- Many sectors/programs receive government support by way of favourable interest rates. This has meant that commercial banks have been unable to operate as market-oriented businesses.
- These policies have meant that the credit markets are underdeveloped.
- Loans for agricultural households are generally small and usually for short to medium terms, and are for production purposes and usually not for investment reasons (see Table 1 below).

### Main content of the policy (Decision 546)

- Commercial banks can negotiate directly with customers when setting interest rates for commercial credit contracts in Vietnamese *dong*.
- The bank can determine interest rates based on the supply of and demand for capital in the market, and take into account the level of trust or confidence they have in the customer or customer group.
- Customers can include Vietnamese legal entities and individuals, and foreign legal entities and individuals operating businesses in Vietnam.
- The interest rates set by the Central State Bank are to be considered as a reference and indicator of current market interest rates. Commercial banks are allowed to set varying interest rates, loan types (eg short-, medium- or long-term) and loan amounts for each individual customer.
- The requirement for mortgaged property has been reduced, especially for farmers.

## Issues

The new policy has a number of possible advantages and disadvantages, especially for the rural economy.

### Advantages include:

- The markets determine the interest rates, which are therefore no longer controlled by direct regulation of the government.
- This liberalisation of interest rates will lead to the development of credit markets that are appropriate in a market economy.

**Table 1** Amount of the last three loans borrowed by households prior to 2000 (VND million)

| | Ha Tay | Yen Bai | Binh Duong | Can Tho | The north[a] | The south[a] | Whole country[a] |
|---|---|---|---|---|---|---|---|
| Per household | 9.86 | 4.60 | 11.47 | 9.28 | 7.69 | 10.33 | 8.97 |
| VBARD loans | 7.49 | 4.25 | 10.58 | 8.56 | 6.37 | 9.50 | 7.82 |

a Calculated as the average for the two provinces in the north and south and for the whole country

Source: ACIAR Project ADP 1997/092 survey of 400 households in 2001

- As constraints on loan amounts have been removed, farmers can now borrow larger amounts without the need for mortgaging assets, as long as they can prove credit solvency and their project is accepted by the bank.
- The new policy should result in better conditions for farm households and commercial farms to be able to borrow the capital they need to expand their production, according to their individual financial resources.

### Possible disadvantages of the new policy are:

- Agricultural production is risky. Commercial banks will therefore tend to lend to customers who present less risk to the bank, and this has the potential to affect lending to farmers and restrict their financial resources and projects.
- Rural sector banks will have the opportunity to transfer capital to non-rural sectors where profits may be higher. Larger loans generally have lower interest rates; for example, the Vietnam Bank for Agriculture and Rural Development (VBARD) set different interest rates as of 8 August 2002 as follows:
  - for loans less than VND10 million the interest rate is 1% per month
  - for loans less than VND50 million the interest rate is 0.9% per month
  - for loans greater than VND50 million the interest rate reduces to 0.85% per month.

Generally, larger loans are found in the non-agricultural and non-rural sectors.

- Following liberalisation the interest rate has tended to increase and reach a consistent level for the whole economy. Therefore, the agricultural and rural sectors, with generally smaller profits, face disadvantages compared with other sectors; for example, the interest rate for short-term loans before 31 May 31 2002 was 0.9% per month, but was increased to 1% per month from July 2002.

The Decision is a major policy change for the State in the management of capital resources. The direct negotiation of interest rates with individual customers represents a substantial change in the way banks do business. Commercial banks will change to operate more like true market-oriented business organisations.

## Recommendations

The effects of the new policy on the rural economy should be carefully monitored to see that the requirements for credit in the rural sector are met so that its growth and development is not restricted through limited availability of credit.

Monitoring could include:

- tracking of the distribution of bank loans into the rural and non-rural sectors and comparison with distribution prior to the Decision
- monitoring of loan amounts and interest rates made by VBARD and other commercial banks to both household farms and larger commercial farms.

Facilitation could be provided to farmers when making loan applications to banks through the agricultural extension system.

## More information


### Dr Le Huu Anh

Faculty of Economics and Rural Development, Hanoi Agricultural University No. 1, Gialam, Hanoi. Email: lehuuanh97@yahoo.com

### Sally Marsh

School of Agricultural and Resource Economics, The University of Western Australia, Crawley, WA 6009. Email: spmarsh@cyllene.uwa.edu.au


# Agricultural price policies

## Purpose

To outline the importance of price policies in a market economy, and discuss trends in the Vietnamese Government's application of agricultural price policies.

## Background

In a market economy price is considered an important and efficient signal for resource allocation. It is also a major factor in assessing the opportunity cost of commodities and services. Under the market mechanism price is the engine which stimulates not only production but also other economic relations in order to meet consumer demands. Based on the price, scarce resources of a society will be used in whichever industry is the most profitable.

The price of agricultural products is significant not only in economic terms, but also from a political aspect because it affects the income of farm households, the prices paid by consumers and export earnings. The income of almost half the world's population is dependent on agricultural production, which is affected by the prices of agricultural products.

In a market-driven economy price is considered to be a major mechanism of resource allocation, helping to answer questions such as:

- What commodity and services should be produced?
- How should they be produced?
- How should benefits be distributed between production factor owners?

## Issues

In developing countries where multiple market failures are common, the price mechanism does not always operate well. In the presence of market failure the market price does not guarantee that targets of both efficiency and equity will be obtained. In Vietnam government intervention on price has been used to: i) increase the output of agricultural production; ii) stabilise the price of agricultural products; iii) guarantee national food security; and iv) provide food and other raw materials for an industry.

The risks associated with intervention in market price mechanisms include distortion of market prices and misallocation of resources.

The requirements of AFTA and entry to the WTO will result in the lowering or removal of many price and non-tariff interventions to agricultural input and output prices. Enterprises and domestic producers will face challenges in obtaining a level of competitiveness that will enable them to compete effectively in global markets.

## Research findings

### Liberalising policy trends

Since the *doi moi* policy was introduced in 1986 Vietnamese agriculture has generally reached higher production levels. The price of agricultural products has increased (or decreased) to the level of international prices, and the price of production inputs has also moved to more closely reflect world market prices. The price policy of the government has provided more equitable prices for consumers and reduced the impact of crises that have occurred in the world market, especially for sensitive commodities such as food. In the rice market, for example, the government has applied measures to control price such as quotas and regulation of the number of exporters.

Domestic policy has focused on the provision of subsidies for material transportation, as well as on tax reduction and exemption, to encourage the development of trade in the mountainous areas in order to reduce the price gap between regions. Other policies have been related to determination of the floor price for rice, encouragement of exports, establishment of a fund for price stabilisation, and support for farmers to sell agricultural products.

Since 1989 the Vietnamese Government has implemented significant steps to liberalise trade. The monopoly previously held by state-owned enterprises in export and import activities has been terminated. As a result, in recent years enterprises managed by provincial or district authorities and private companies have entered into export and import activities. Today, most agricultural products are generally not affected by non-tariff barriers, with the notable exceptions of rice, sugar and fertilisers.

The government has implemented a trade liberalisation policy for rice exports. As a result, in 1997 the number of rice exporters was 23 companies, increasing to 33 in 1998 and 47 in 1999. Rice export quotas also increased year by year and were able to be adjusted. For the sugar industry, imports are controlled by a quota system and the government determines the number of importers. In Vietnam there is a limited regional area which has international competitiveness in sugar production. The removal of sugar quotas and other non-tariff barriers in the next 10 years presents a challenge not only for sugar companies but also for farmers who produce sugarcane.

### Farmer perceptions of price policies from survey data

- Services which have been traditionally performed by agricultural cooperatives, such as irrigation and seed supply, are still the dominant activities of cooperatives and were rated as 'good' by farmers. For services not traditionally performed by cooperatives and where the private sector can be involved, such as veterinary services and sale of produce, it is likely that there will be competition between cooperatives and private sector organisations.

- Inputs and materials supplied to farmers came from different sources (state-owned and private companies, cooperatives, traders and exchange between farmers). Supply to households from the agricultural cooperatives increased between 2000 and 2001. The agricultural cooperatives sold inputs to farmers at lower prices in comparison with other sources (traders and private companies), even when taking account of the interest rate levied for late payment.
- More farmers in the northern surveyed provinces (Ha Tay and Yen Bai) assessed the price of seeds as 'high' in comparison with southern farmers (in Can Tho and Binh Duong). Most farmers believed that the prices of fertiliser and pesticides were high. Generally, farmers assessed that wages were at an 'average' level, but more households in the south said that wage rates were 'high' or 'very high'.
- Many farmers believed that they would invest more on inputs such as seed and fertilisers if the prices of inputs decreased. This suggests that a financial constraint is one of the barriers to increased agricultural production on small household farms in Vietnam.

## Policy recommendations

- As information is important for household decision-making in a price-responsive economy, there is an opportunity for government to focus on market research as well as price forecasting, and provide farmers with sufficient information on demand, supply and prices of agricultural products in both the domestic and international markets. Helpful information about where and what to produce (eg products with high quality, low production cost and high comparative advantage) could also be provided.
- Where advantageous, the government may find ways to change policies to strengthen cooperatives so that they can serve farmers not only in the supply of production inputs but also by selling their outputs. Raising the efficiency and effectiveness of cooperatives may mean that they can have a more effective role in the sale of products and use their marketing skills to achieve better and timelier sales, possibly through a wider use of contracts.
- As price subsidies and other forms of support distort the real expression of comparative advantage and lead to inefficient use of resources, such mechanisms should be gradually reduced and removed in a way which allows for the necessary resource adjustment to take place. A focus on providing for macroeconomic stability and a stable set of international trading relationships will greatly enhance the domestic stability of prices and allow necessary adjustments to take place.

## More information


### Nguyen Huy Cuong

Faculty of Economics and Rural Development, Hanoi Agricultural University No. 1, Gialam, Hanoi.
Email: nh_cuong@yahoo.com

### Professor Gordon MacAulay

Agricultural and Resource Economics, The University of Sydney, NSW 2006.
Email: g.macaulay@usyd.edu.au

# Agricultural land policies and poverty

## Purpose

To outline land policy changes that will further encourage the development of the rural sector and contribute to the alleviation of poverty.

## Background

Land resources are one of the key determinants of poverty. Land is a primary means of generating a livelihood, and a main vehicle for investment, accumulating wealth and transferring wealth between generations. Over the last two decades the Vietnamese Government has adopted land policies to move from a collectivised state-controlled agricultural production system to one based on individual farm households in the market place. New land policies have granted land use rights to individual farmers, which, given the property rights attached to land use rights, approximates land ownership. Land policies can affect: i) the household's ability to produce for their subsistence and generate a marketable surplus; ii) farmers' socioeconomic status; and iii) farmers' incentives to invest in using land in a sustainable manner.

Vietnam is still predominantly a rural country, and the rural economy will play an important role in the future industrialisation and modernisation of the national economy. During recent years poverty has been reduced at an impressive rate, from 58% of the population in 1993 to 29% in 2002 (Asian Development Bank et al 2004).

However, poverty is concentrated in rural areas, with urban households spending 78% more than equivalent rural households (Asian Development Bank et al 2004). A large proportion (80%) of the poor are farmers who lack skills and technical know-how, and have low accessibility to credit and other production resources. Land policy that enables and encourages development of the rural economy is crucial.

## Land policies affecting development of the rural economy

Although the new land policies create a favourable environment for growth of the rural economy, some policy bottlenecks still exist:

- Of farmers who operate large-scale commercial farms in Thai Binh, Ha Nam, Nam Dinh, Ninh Binh, Ha Tinh, Yen Bai, Tra Vinh and Dong Nai provinces, 75% reported that they were allocated land in 1988 and now there are only 4–5 years left on their land use certificates. This time is too short for a sustainable long-term investment in land.
- Of large-scale farms, 65% exceed the ceiling level on land holdings. The government has issued an inter-ministerial circular on issuing certificates to large commercial farms to enable farmers to obtain credit and market access. However, the process of issuing land certificates in general, and to large-scale commercial farms in particular, is still slow, and this acts as a disincentive for farmers to operate farms in the changing market environment.

- Although on-farm decision-making has generally been liberalised, in some provinces where strong traditional cooperatives exist, crop choices in land use are still controlled by the cooperatives or district authorities to achieve production targets set at a higher government level (eg VND50 million/ha). This inhibits farmers from optimising their objectives in accordance with their needs, their resource endowment and market demands. Some crop choices set by outsiders can face a market risk that may have farmers fall below the poverty line again.
- Information about market transactions is still limited and this sometimes causes land markets to be inefficient. An inefficient land market will hinder reallocation of land resources in accordance with adjustments in the rural and urban economies.
- In some northern provinces, especially in the Red River Delta, land exchanges have been administratively directed under the close supervision of local authorities to address problems of land fragmentation. This can create greater risks for farmers; for example, after land redistribution some farmers may be left with all their land holdings being infertile or prone to flooding.
- A considerable number of farmers who are only engaged in rural cottage industries still keep land for farming. All farming activities in these cases are carried out by hired labour. Of these farmers, 75% reported that, although making a loss (estimated at 25–30%) from their farming activities, they still wanted to keep land due to the uncertainty associated with their rural off-farm industries.
- With the high rate of urbanisation and industrialisation taking place, more agricultural land resources will be converted into industrial land, leaving many more farmers as landless farmers. For example, land funds in Bac Ninh and Hung Yen provinces that were provided for industry zoning up to the year 2020 were fully allocated by 2002. Farmers with money from land compensation often cannot run their non-farming activities in a sustainable manner since they lack the technical know-how needed to run the businesses or to be employed by entrepreneurs.
- Land is not the single determinant of poverty. More effort should be made to help the poor improve their farming skills and access credit and markets, so that they can effectively use their land and labour resources.

## Policy recommendations

1. The term of land use rights is still short (20 years for cultivated land), and that can create a degree of land insecurity and inhibit investment in land improvement. There is a need to critically look at the term of land use rights with a view to lengthening it.
2. The policy on land ceilings inhibits productive farmers from consolidating and investing in land. The ceiling policy should be reviewed, taking into account crop choice, technology and the socioeconomic situation of each region.

3. Further policies to encourage and permit land use flexibility are needed. Individual farmers should be able to make crop choices based on their own objectives and resource availability.
4. An institutional framework to facilitate transferability and security of land use rights is necessary. This framework should recognise the reality of the land market and provide an efficient mechanism for the land market to operate. It should also specify the rights and obligations of people involved.
5. Land exchange to address land fragmentation would operate better in the market mechanism within a recommended institutional framework, so that people involved in land exchange can benefit from their transactions based on agreed market prices.
6. There is a need to help farmers who have left their land for other non-farming businesses to have access to markets, and to provide information on markets and technologies for their new businesses.
7. More training is needed to help farmers in the expanding urban and industrial areas obtain better skills to enable them to be engaged in non-farming activities if they leave their land because of urbanisation and industrialisation.
8. Access to credit and market information is essential. Credit provision should be closely linked with extension services to ensure that credit is efficiently used to help farmers generate income in a sustainable manner. Participatory approaches to extension should be adopted to involve all farmers and farming communities in identifying their own problems and solutions. The solutions should then be implemented using local resources with considerable support from the public sector.

## Reference

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### More information

Dr Do Kim Chung

Faculty of Economics and Rural Development, Hanoi Agricultural University No. 1, Gialam, Hanoi. Email: dokimchung@fpt.vn

# Household incomes and income diversity

## Purpose

To comment on the relationship between farm size and the value of farm production, and the diversity of sources from which Vietnamese rural households' incomes are derived. The importance of off-farm income in raising overall agricultural household income is highlighted.

## Background

Vietnam has approximately 11 million small household farms, many of which consist of fragmented land holdings that total less than one hectare. There is a diverse range of on-farm activities in many households, including multiple crops, livestock and aquaculture. Off-farm activities also provide a substantial component of household income for many households. However, many other households are almost totally dependent on income from crop and livestock activities. Improvements in rural living standards during 1993–98 were driven predominantly by a diversification in on-farm activities (World Bank 2000).

## Issues

The need to increase agricultural productivity (and hence farm income) is central to the debate on rural development in Vietnam. Agricultural productivity involves both land and labour productivity. The combination of small farm sizes and a high proportion of the population involved in agriculture means that labour productivity is low, indicating a potential for productivity growth as labour moves out of agriculture or, alternatively, combines agriculture with off-farm work.

Rural poverty is a significant problem and the income gap between rural and urban areas is increasing. Poverty is concentrated in rural areas, with an estimated four-fifths of the poor working mainly in agriculture. Earning off-farm income is perceived as one way that small households can escape the small farm poverty trap, and is one of the major reasons for differentiation between farm households in Vietnam (Luong and Unger 1999; World Bank 2003). However, households who are unable to make a living from the land find few opportunities for stable income generation off the farm. There is an urgent need for reforms to stimulate greater off-farm employment.

Both diversity of farm production and diversity of income sources can be viewed as risk reducing strategies used by small landholders. However, risk plays a role in restricting the land use choice of poor households, whose livelihoods are extremely vulnerable to both household-specific (eg illness) and community-wide shocks. The risk of failure associated with on-farm investments or new enterprises can deter subsistence farmers from expanding their economic base or changing their farming activities. Furthermore, when marketing institutions and infrastructure such as transport are not well developed, a shift to non-food crops can make small farmers particularly vulnerable.

## Research findings

The results reported were calculated from survey data of 400 farm households in Ha Tay, Yen Bai, Binh Duong and Can Tho provinces in 2001. Estimates were made of the percentage of household net value of production (NVP)[1] from a range of sources. Off-farm income was also estimated.

[1] NVP is the total value of household production from agriculture, aquaculture and forestry, including produce consumed by the household, *minus* the cash costs of production (ie the cost of family labour is not deducted).

- There was a substantial inequality in land area farmed both on a household and per capita basis. For example, among the households surveyed, 80% of the population/households farmed only 50% of the land in Ha Tay and 34% in Yen Bai.
- Small farm size and low asset value were linked to households classified as being in the 'poor' socioeconomic group[2]. For example, poor households in Ha Tay had on average approximately half the land area of households classified as 'above average', and in Yen Bai poor households had only approximately one-fifth the land area of above average households.
- Total NVP from agricultural activities was related to farm size and land type, but other factors such as assets, education, family labour and measures of land fragmentation significantly affected the NVP in some provinces.
- Households were engaged in a wide range of farm production activities in all regions, but more so in the northern provinces where the percentage of production from livestock and aquaculture activities was generally higher. However, it is clear that farming activities are a key component of production for these small farm

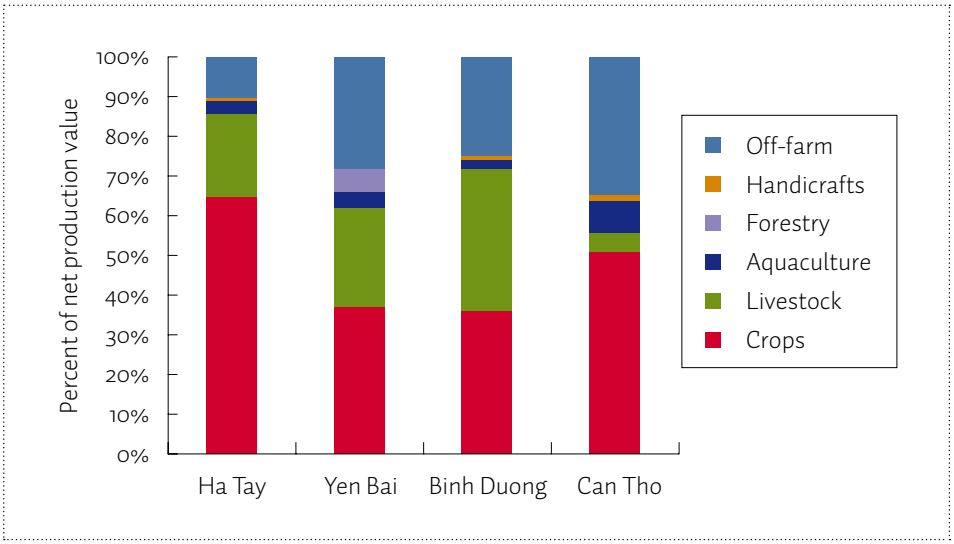


**Figure 1** Percentage of total net production value from different sources for surveyed households in four provinces in Vietnam: Ha Tay (n = 97), Yen Bai (n = 89), Binh Duong (n = 84), Can Tho (n = 89)

[2] Prior to surveying, households were classified by commune authorities into socioeconomic groupings: 'above average' (ho giau), 'average' (ho trung binh) or 'below average' (ho ngheo).

households (Figure 1). Aquaculture and forestry generally provide only a small proportion of production value (although it is high for some individual households).

- Income from off-farm activities included income from handicrafts, the provision of services, and wage and casual labour. Handicraft production value was generally very small. In all provinces off-farm earnings made a substantial difference to both average and median net values of household production (Figure 2). The increase in median values indicates that off-farm employment was important in raising the incomes of the poorer 50% of households.
- Generally, there was a perception among households that there were more opportunities for off-farm work than 5 years previously.

## Policy implications

The research work undertaken in the project was not sufficiently broad in scale to make policy recommendations, but a number of policy implications are given below.

Off-farm income is important for rural households. Policies that foster opportunities for rural people to access off-farm work will be important in reducing rural poverty. Such policies will include those that:

- improve education levels of rural people

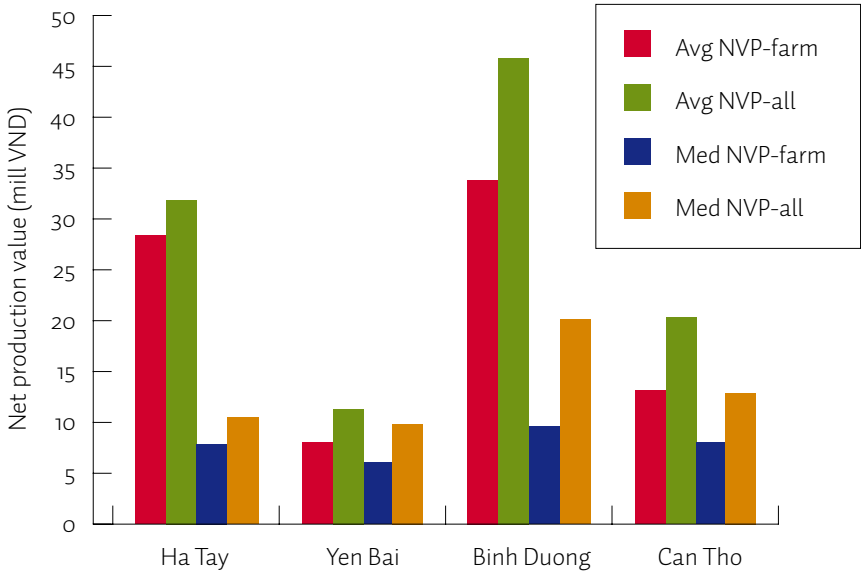


**Figure 2** Average and median net value of farm and total production for surveyed households in Ha Tay (n = 97), Yen Bai (n = 89), Binh Duong (n = 84) and Can Tho (n = 89)

- relax restrictions on labour movement for people seeking off-farm work
- encourage the establishment of small to medium rural enterprises in rural areas.

Small farm size and low asset value were clearly linked to households classified as being in the poor socioeconomic group. These data are concerning, and give some insight into the challenge of Vietnam's small farm problem. Policies that encourage adjustment in the rural sector and the movement of people into sectors other than agriculture are necessary.

Land fragmentation was positively related to the NVP of households in Yen Bai province. In this province land fragmentation is not a disadvantage, possibly because of the nature of agriculture in mountainous regions, where a larger number of plots will reflect many different land types and crop choices. The results of these analyses suggest that care needs to be taken in some areas with policies that encourage the consolidation of land holdings.

## More information


### Dr Pham Van Hung

Faculty of Economics and Rural Development, Hanoi Agricultural University No. 1, Gialam, Hanoi.
Email: pvhung@hau1.edu.vn

### Sally Marsh

School of Agricultural and Resource Economics, The University of Western Australia, Crawley, WA 6009.
Email: spmarsh@cyllene.uwa.edu.au


# Land markets and agricultural development

## Purpose

To provide an outline of what may happen to land markets as the process of economic development occurs in Vietnam. Such development includes rising wages, changes in output prices and reduced transaction costs in the land market.

## Background

The 1993 Land Law built the foundation for development of a market for land use rights (LUR) in Vietnam by providing increased security of tenure over land, facilitating access to credit and making LUR tradeable.

Considerable official restrictions still exist for LUR transfers for agricultural land. Official decrees restrict the circumstances under which, and to whom, LUR can be transferred. However, following the 1993 Land Law many researchers have reported that transfers of agricultural LUR are occurring. It has also been reported, both before and after 1993, that many land transfers occur illegally. The reasons given for these illegal transactions include the costs associated with registering LUR transfers, time-consuming and cumbersome procedures, unclear regulations, and opportunistic rent-seeking behaviour in near-urban districts and along newly constructed inter-regional roads.

During 2001, 400 farm households were surveyed in four provinces in Vietnam. Details were sought about the involvement of households in the LUR market, as well as evidence of land accumulation and consolidation.

## Issues

Land rental markets, with typically lower transaction costs and requiring little capital outlay, operate more freely than land sale markets in many developing countries.

Various authors argue that, as there is little empirical support for the notion that large farms are more efficient than smaller farms in areas of unmechanised agriculture, land should, theoretically, pass from large to smaller family-operated farms, although they note that this seldom occurs. Deininger and Jin (2003) also argue that land transactions should favour the small producer with good agricultural ability.

Many countries undergoing transition, and facing situations of multiple market imperfections, place restrictions on the free operation of the land market because of the risk of land becoming concentrated in the hands of larger, wealthier farmers, and concerns about potential negative effects on both productivity and equity (Deininger and Jin 2003).

However, the land market, and an active rental market in particular, has been recognised as playing a large role in giving access to land to the more productive farmers in developing countries (Deininger 2003).

## Research findings

In the research undertaken for the ACIAR project land markets were investigated in two ways:

1. By analysing land transactions that had taken place since 1993 in the surveyed households.
2. By modelling household farms in a village context and investigating the effects of various external factors (eg wage rates) on land transactions.

Results from the analysis of land transactions since 1993 were that:

- There was an active market for agricultural LUR, especially in Ha Tay province, where the number of transactions had increased markedly since 1997.
- Land transaction activity varied substantially between regions.
- There was a clear demand for rental land, particularly so in the north of Vietnam.
- In Ha Tay province a similar percentage of households from all socioeconomic groups were involved in the LUR market, but wealthier households held a higher percentage of the total land area transacted.

Results from the modelling work were that:

- An increase in wage rates leads farmers to rent-out more land because crop production becomes relatively less profitable in comparison with working off-farm. If wage rates and opportunities for off-farm work increase significantly, some farmers in a village may rent-out land and/or leave farming.

- Farm profits decrease significantly with decreases in the output prices of paddy crops, encouraging farmers to want to leave farming. As the prices of rice and corn decrease farmers tend to rent-out more land, but the total area of land transacted decreases because land exchanges decrease. This result illustrates the problem facing agricultural development in the north of Vietnam where farmers depend heavily on the cultivation of paddy crops.
- The amount of land rented-in and -out decreases with increasing transaction costs in the land rental market, leading to a reduction in the number of households who participate in the rental markets.

## Policy implications

- Encouraging development of off-farm work opportunities, together with a level of education that allows participation in the off-farm workforce, is a key method of raising farm family income levels.
- Land availability affects the ability of households to rent and buy land. Households will not rent-out or sell their LUR unless there are opportunities for them to move freely, and without overwhelming financial risk, to other regions and employment.
- An active LUR market, as appears to exist in Ha Tay, will tend to concentrate land in the hands of the more wealthy farmers. This will assist with the commercialisation of Vietnamese agriculture, but will inevitably raise poverty and equity concerns while off-farm employment opportunities in rural areas remain low.
- As the prices of paddy products fall, land transactions will decrease if profitable alternatives are not available. Agricultural policy allowing farmers the freedom to cultivate alternative crops, especially cash crops other than rice, is desirable.
- Reducing the costs of land transactions (such as those associated with the sale and purchase of LUR) would enhance the land market and encourage adjustment in the agriculture sector.

## More information


### Dr Pham Van Hung

Faculty of Economics and Rural Development, Hanoi Agricultural University, Gialam, Hanoi.
Email: pvhung@hau1.edu.vn

### Sally Marsh

School of Agricultural and Resource Economics, The University of Western Australia, Crawley, WA 6009.
Email: spmarsh@cyllene.uwa.edu.au

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APPENDIX I

# FARM HOUSEHOLD SURVEY CONDUCTED IN 2001 AND 2002 IN FOUR PROVINCES: DESIGN AND METHODOLOGY

## Introduction

ACIAR Project ADP 1/1997/092 'Impacts of alternative polices on the agricultural sector in Vietnam' was designed to allow an examination of a set of policy changes and their effect on land use at the farm household level. This required careful data collection and analysis of the production system of farm households in a limited number of agricultural areas, and consideration of the consequences of various policy changes. In this appendix the design and methodology associated with the collection of primary farm household data for the project are outlined. Data from the household surveys are used in the research work reported in this ACIAR Proceedings.

## Overview of household survey design and methodology

For the purposes of this research a 'farm household' was defined with reference to three criteria:

- Household members shared the same fund or budget.
- Household members ate meals together.
- Household members were related by blood or marriage.

### Survey design and pre-testing

During the first year of the project (2000) a detailed household questionnaire was prepared, tested and revised prior to implementation from March 2001. In addition

to the household survey, a survey at district and commune levels was also prepared. Development of the survey followed desktop research in four policy areas: land use, land accumulation and consolidation, tax and credit, and agricultural input and output prices. This research provided direction and context for the survey questions. Both sampling strategy and survey design were extensively discussed by the project partners at project team meetings held at Hanoi Agricultural University (HAU) in October and November–December 2000.

In the survey, questions were asked of each farm household to obtain quantitative data in the following areas:

- general information about the household and household members
- land and land use
- household and production assets
- production costs and productivity of a number of selected plots
- total production, and distribution of this production (eg consumption, sales)
- credit use
- consumption
- perceptions of yield and price risk.

Additionally, qualitative questions were asked about:

- landholdings and changes to these in the last 5 years
- land use and changes to this in the last 5 years
- perceptions of the levels of input and output prices
- new technologies introduced in the last 5 years
- perceptions of household welfare and opportunities.

These data were collected for the years 2000 (survey conducted in 2001) and 2001 (survey conducted in 2002).

The survey was pre-tested in Can Kiem commune, Thach That district, in Ha Tay province. Following the pre-test, changes were made to the survey in a number of areas. It was decided to collect input price data from secondary sources at the commune level as well as the household level. Following the initial survey period in Thach That district, a number of further changes were made to the survey, especially in relation to the collection of data on household wealth, input prices, household consumption, storage and attitudes to risk. The University of Sydney's Human Ethics Committee approved the final version of the survey.

## Sampling design

Households were surveyed in four provinces. The aim was to gather information from varied regions where a range of responses to land policy changes might be observed. The four provinces chosen are representative of four of Vietnam's agro-ecological zones, namely the northern and southern delta areas, the northwestern mountainous region and the southeastern region (Figure 1). Two of the provinces are located adjacent to the major cities of Hanoi and Ho Chi Minh City. The provinces were also chosen because they were areas where land use change was known to be occurring and more active land use markets were thought to be likely.

Ha Tay province is located in the Red River Delta adjacent to the capital Hanoi. The main farming activities are rice, livestock and vegetables, although aquaculture, flower and fruit production are increasing, as farmers have good access to markets in Hanoi.
Yen Bai is a mountainous province in the northwestern region, the poorest and most remote of the four surveyed provinces, with many households producing at subsistence level only. The main farming activities are rice (in river valleys), upland annual and perennial crops such as tea, corn and cassava, industrial trees (for paper), mixed gardens and livestock. Can Tho province is located in the heart of the Mekong Delta and is a major rice growing region. Fruit production in this province is also important and increasing.


**Figure 1.** Map of Vietnam showing the household survey areas marked in red

Binh Duong province is located adjacent to Ho Chi Minh City and has a very diverse agriculture, including rice, industrial trees (rubber), fruit trees and pepper. Its location close to Ho Chi Minh City means that some districts have substantial industrial and service provision sectors.

As the survey was particularly concerned with land use and farm size changes, a stratified, rather than random, sampling strategy was used. Two districts were chosen within each province, and two communes were selected within each district. The districts and communes were chosen on the basis of comparative average area per household. This sampling strategy gives a stratified sample at district level based on comparative farm size.

Discussions were held with provincial leaders in the four provinces to decide which districts would be appropriate to survey. Further discussions were then held with district leaders and people from district offices of the Department of Agriculture to choose two communes within each district. The communes selected are listed in Table 1. During these discussions the nature of the research and the data to be collected were outlined. Information was also collected from officials at district level via a written survey.

Commune/village leaders and the people responsible for agriculture and land use were consulted about the composition of the sample, and their advice was critical in sample selection of approximately 25 households. Two or three hamlets or villages were chosen (in consultation with district leaders) in each commune. A purposefully stratified sample was chosen, based on the main criterion of achieving a range of farm

incomes that reflected the approximate percentages of low, average and above average incomes that occurred in the commune.

Other criteria that influenced sample selection were:

- Commune leaders were asked to identify which production 'models' were thought to be successful in the region, and examples of these were included in the sample. The main production activities in the communes are shown in Table 2.
- Some social issues were considered in deciding which households should be part of the sample, eg ethnic minorities, war invalids.
- Commune leaders were asked about households selling or leasing land, and examples of these were included in the sample.
- Commune leaders were asked to indicate households with high and low credit levels.

The capacity of the farmer to give information was also considered. The sampling strategy used at the commune level gives a stratified sample based on income and farm size, with care taken to include main production activities in the sample. For example, if 10% of the commune is officially classified as 'poor', then 10% of the sample was composed of households classified as poor. Although these household classifications

**Table 1** Districts and communes surveyed showing comparative farm size

| Province | District | Farm size | Commune | Farm size |
|---|---|---|---|---|
| Ha Tay | Thach That | Large | Thach Hoa | Large |
| | | | Dai Dong | Small |
| | Dan Phuong | Small | Tho Xuan | Large |
| | | | Song Phuong | Small |
| Yen Bai | Van Yen | Large | Dong Cuong | Large |
| | | | Mau Dong | Small |
| | Yen Binh | Small | Dai Dong | Large |
| | | | Bao Ai | Small |
| Binh Duong | Ben Cat | Large | Lai Uyen | Large |
| | | | An Tay | Small |
| | Thuan An | Small | An Son | Large |
| | | | Vinh Phu | Small |
| Can Tho | O Mon | Large | Truong Thanh | Large |
| | | | Dong Hiep | Small |
| | Chau Thanh | Small | Dong Phuoc | Large |
| | | | Dong Thanh | Small |

are made by village and commune leaders, they are recognised as being an accurate reflection of farm households' income groups (ADB et al 2004).

The farm household survey did not include many farm households from Vietnam's ethnic minority groups. District officials indicated that they thought ethnic farmers would have great difficulty answering the questionnaire as concepts of changing land use (including land use rights) and commercial production orientation were in conflict with traditional practices and land use. For this reason it was decided to concentrate the survey in communes with mainly Kinh (Vietnamese majority) people.

## Survey implementation

The first household survey commenced in 2001 in Ha Tay province in March–April, followed by Yen Bai in June, Bing Duong in July and finally Can Tho in August.

The village leader accompanied and introduced the survey team to each household, and explained the purpose of the survey to them. Within each commune 25–28 households were surveyed. Reimbursement for participants, which is standard practice when conducting household surveys in Vietnam, was determined after discussion with commune leaders. It was either in the form of money (VND15,000–20,000 = AUD$1–2),

**Table 2** Main production activities in the surveyed communes

| Province | Commune | Main production activities |
|---|---|---|
| Ha Tay | Thach Hoa | Fruit tree garden, rice fields, raising livestock |
| | Dai Dong | Rice fields, raising livestock, vegetables |
| | Tho Xuan | Rice fields, raising livestock, vegetables, flowers |
| | Song Phuong | Rice fields, raising livestock, vegetables |
| Yen Bai | Dong Cuong | Tea, industrial trees (paper), rice fields, vegetables |
| | Mau Dong | Rice fields, cassava, industrial trees (paper), aquaculture |
| | Dai Dong | Rice fields, corn, tea, industrial trees (paper) |
| | Bac Ai | Rice fields, tea, industrial trees (paper), raising livestock |
| Binh Duong | Lai Uyen | Industrial trees (rubber), fruit trees, raising livestock |
| | An Tay | Industrial trees (rubber), rice fields, mixed garden plus livestock |
| | An Son | Fruit tree gardens |
| | Vinh Phu | Very diversified – livestock, industry, services (including tourism) |
| Can Tho | Truong Thanh | Rice fields |
| | Dong Hiep | Rice fields |
| | Dong Phuoc | Rice fields, fruit tree gardens (mixed), aquaculture |
| | Dong Thanh | Fruit tree gardens, rice fields |

a 454-g packet of monosodium glutamate, candy or cigarettes, and was appropriate for rural areas in Vietnam.

The survey team also spent at least one day with the village leader, who was often able to provide information about the surveyed households on topics where answers to questions had been avoided or were unreliable for cultural reasons, eg the receipt of pensions for poverty or war service, and the area of land allocated. The village leader was also able to provide general background information about the commune (a formal survey was also completed at commune level), and help in situations where information provided by the farmer was unclear or appeared contradictory.

Some examples include:

- information about the results (effects) of credit loans – whether or not there had been a 'good' result from a loan designated for a particular purpose
- reasons not apparent from the interview why some families are classified as poor but appear to have a high income, eg death or sickness of family members in the past 12 months, poor management of funds, or inability to 'bargain' good prices for inputs.

In the northern provinces of Ha Tay and Yen Bai, members of the project team and staff of the Faculty of Economics and Rural Development (Ha Tay only) at HAU conducted the survey. In the southern provinces of Binh Duong and Can Tho, 20 staff and recent graduates from the Faculty of Economics at the University of Agriculture and Forestry in Ho Chi Minh City, and the Faculty of Economics and Business Administration at Can Tho University, were recruited and trained to help with the survey work. Care was taken to ensure that all interviewers had a background in agricultural economics and understood the purpose of the data collection. Project team members interviewed households with each different 'production model' in these provinces, to ensure that they had experience of the type of farming activities that were being surveyed.

In February–May 2002 the household survey was implemented again in the two northern provinces, Ha Tay and Yen Bai, using the same questionnaire as in 2001. This time the survey was conducted by Masters and 4th year undergraduate students in the Faculty of Economics and Rural Development at HAU. Because the surveying was done by students who would use the data for their Masters and Honours theses, more households (30–40 in each commune) were surveyed, even though it was originally planned to only resurvey half the number of households.

The second survey in Binh Duong and Can Tho provinces (100 households) was conducted in July–August 2002. Prior to this, the questionnaire was revised after discussions held in team meetings in July. The project team from HAU conducted the survey. Half the number of households in each commune were resurveyed, and more detailed data at both commune and village levels were collected. In choosing which households to resurvey, the team targeted those households that could give good information (based on the previous year's survey).