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**The state, demographic change, and the family in northern Vietnam,
1945-1995**

**John Robert Bryant
August 1996**

**A thesis submitted for the degree of Doctor of Philosophy of The Australian
National University**

Except where indicated otherwise, this thesis is entirely my own work.

A handwritten signature in cursive script that reads "John Bryant". The letters are fluid and connected, with a prominent loop at the end of the word "Bryant".

John Bryant

Acknowledgements

Before implicating any of the people or institutions named below, I would like to emphasize that all opinions and all errors of fact and interpretation in the thesis are my responsibility alone.

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Finally, I would like to dedicate the thesis to my mother and brothers, in memory of my father.

Abstract

The thesis attempts to isolate ways in which the political and economic changes wrought by the northern Vietnamese state between 1945 and 1995 have influenced trends in northern Vietnamese mortality and fertility over the same period. The thesis also attempts to show how the demographic trends, and political and economic changes, have influenced the demography of northern Vietnamese families—in particular the demography of succession and of co-residence.

Between 1945 and the early 1980s the northern Vietnamese state pursued a communist development strategy while fighting major wars. The economic institutions introduced by the government were subverted on a large scale and were highly inefficient. Nevertheless, from about the 1950s, mass campaigns and a system of locally-funded rural health centres brought about a rapid decline in mortality. Fertility began to decline slowly in the 1960s. Reasons for the decline included reduced infant mortality, wartime disruption, rising education costs, and, in the cities, the introduction of old-age support schemes. War deaths only partly undid the effects of the mortality decline and sustained high fertility, so that the population continued to grow rapidly, and the mean number of surviving children per woman reached historically unprecedented levels.

During the 1980s, the Vietnamese state began to abandon its communist development strategy, in response to successive economic crises and to spontaneous grass roots innovations. Economic reform disrupted the health system, which had already been weakened through lack of investment; mortality nevertheless declined slightly through the 1980s. The fertility decline continued, hastened by economic expansion and the government's birth control program.

Northern Vietnam's demographic trends have meant that unprecedentedly high proportions of families have been able to conform to northern Vietnam's patrilineal succession rules. Demographic change has thus undermined the government's attempt to propagate new succession rules less biased against women. In contrast, and despite perceptions to the contrary, household size and structure have not changed markedly between 1945 and 1995. The relative stability in co-residence patterns has been a result of offsetting effects between mortality decline, fertility decline, and government policy.

Table of Contents

Acknowledgements	i
Abstract	ii
Table of Contents	iii
List of Tables	v
List of Figures	viii
Chapter 1 Introduction	1
1.1. Aims and scope of the thesis.....	1
1.2. Chapter outline	2
1.3. Sources and data.....	3
1.4. A note on usages.....	4
Chapter 2. The state and socio-economic development 1945-1995.....	8
2.1. Introduction.....	8
2.2. The August Revolution and the Resistance War 1945-1954.....	8
2.3. Socialism 1954-1979	12
2.4. Market Leninism 1979-1995.....	31
Chapter 3. Mortality, fertility, and numbers of surviving children, 1900-2000.....	37
3.1 Introduction.....	37
3.2 Mortality.....	38
3.3 Fertility	53
3.4 Regional data on demographic rates.....	58
3.5 Net fertility	61
3.6 Surviving children.....	63
Chapter 4 Fertility decline	72
4.1. Introduction.....	72
4.2. Transition to Socialism 1958-1979	72
4.3. Transition to Market Leninism 1979-1996.....	84
Chapter 5 Northern Vietnamese succession rules and the demographic transition	96
5.1. Introduction.....	96
5.2. The demographic lottery in stationary populations.....	99
5.3. Implications of the demographic lottery for the development of northern Vietnam's succession rules.....	105

5.4. Recent demographic changes and the demographic lottery.....	107
5.5. Conclusions.....	115
Chapter 6 The co-residential household.....	117
6.1. The northern Vietnamese household formation system.....	117
6.2. Marriage.....	118
6.3. The social significance of co-residence in northern Vietnam	125
6.4. Are the statistics on household type consistent with the conventional account of northern Vietnam's household formation rules?	126
6.5. Government policy and household structure.....	129
6.6. Household size.....	131
6.7. Alternative measures of household size and structure.....	134
6.8. North-South differences.....	137
Chapter 7 Conclusion.....	139
7.1. Warfare	139
7.2. Communism and reform	140
7.3. One country, two socialisms.....	141
7.4. Effects on the demography of northern Vietnamese families.....	143
Appendix to Chapter 3.....	145
References.....	150

List of Tables

TABLE 2.1 Official statistics on northern Vietnamese agricultural cooperatives.....	23
TABLE 2.2 Working-age population and employment by economic sector (millions). Northern Vietnam 1960-1975.....	27
TABLE 2.3 Employment and working age population in China (millions).....	27
TABLE 2.4 Percentage of total positions occupied by women in northern Vietnam 1961-1975, various employment sectors, Party and government bodies.....	30
TABLE 3.1 Estimates of mortality in India, Sri Lanka, and rural China.....	40
TABLE 3.2 Mortality estimates for Vietnam 1945-1965.....	42
TABLE 3.3 Mortality estimates for Southeast Asia, Sri Lanka, and China, 1950-1965.....	43
TABLE 3.4 Mortality estimates for Vietnam 1965-1993.....	44
TABLE 3.5 Mortality estimates for Southeast Asia, Sri Lanka, and China, 1965-1995.....	45
TABLE 3.6 Values chosen for male life expectancy at birth to represent mortality levels in northern Vietnam, 1900-2000.....	48
TABLE 3.7 Estimates of excess annual death rates (per thousand) during famine and war.....	51
TABLE 3.8 Estimates of fertility levels in India and rural China.....	54
TABLE 3.9 Estimates of the infant mortality rate (per thousand) and life expectancy at birth. Urban and rural areas, all Vietnam. 1989 Census.....	59
TABLE 3.10 Estimates of total fertility rates. Urban and rural areas, all Vietnam. 1988 Demographic and Health Survey, 1989 Census.....	60
TABLE 3.11 Population in lowland and midland provinces, and in upland provinces (millions). Northern Vietnam. 1979 Census, 1989 Census.....	60
TABLE 3.12 The infant mortality rate (per thousand) and life expectancy at birth in lowland and midland provinces, and in upland provinces. Northern Vietnam. 1989 Census.....	60
TABLE 3.13 Estimates of total fertility rates in the lowland and midland provinces, and in upland provinces. Northern Vietnam. 1979 Census, 1989 Census.....	61
TABLE 3.14 Regional variation in mean numbers of children surviving, by age of women. 1989 Census.....	71
TABLE 4.1 Percentages of northern Vietnamese population who ever attended school and who completed primary school. 1989 Census.....	76

TABLE 5.1 Distribution of children ever born per marriage in three stationary populations with different probabilities of surviving to death of father.....	101
TABLE 5.2 The proportions of families with the indicated combinations of surviving sons and daughters at the time of the husband's death. Three stationary populations.....	103
TABLE 5.3 The proportions of families with the indicated combinations of surviving sons and daughters at the time of the husband's death. 'Test Population' ($p=2/3$).....	104
TABLE 5.4 Calculation of the probability that a son is alive at the death of his father. Northern Vietnam.....	109
TABLE 5.5 Hypothetical distributions of children ever born to adult men.....	112
TABLE 5.6 The probabilities of various combinations of surviving sons and daughters at the time of adult males' deaths, under two distributions of children ever born, and two sets of probabilities of male and female children surviving from birth to the time of their fathers' deaths.....	113
TABLE 5.7 Mean number of surviving children at death of adult males. (Results identical for Distribution 1 and Distribution 2.).....	114
TABLE 5.8 Numbers of surviving children to Vietnamese men and women aged 60 and over, as reported in United Nations survey and Institute of Sociology Hanoi Survey. Numbers of surviving children to northern Vietnamese men in the 1990s at the time of their deaths, as estimated by the method described in the text.....	114
Table 6.1 Disruptions to the northern Vietnamese marriage market, 1945-1989.....	119
TABLE 6.2 Per cent distribution of the northern Vietnamese population aged 15 to 49, by marital status, age, and sex, according to the 1989 Census.....	120
TABLE 6.3 Percentages never married among females aged 30 to 49 in Vietnam and other countries in East and Southeast Asia.....	121
TABLE 6.4 Mean age at marriage in Red River Delta, 1946-1980.....	122
TABLE 6.5 Median age at marriage for women in northern Vietnam, by age. 1988 Demographic and Health Survey.....	123
TABLE 6.6 Singulate mean age at marriage in northern Vietnam (years). 1988 Demographic and Health Survey and 1989 Census.....	123
TABLE 6.7 Per cent of northern Vietnamese population currently widowed according to the 1989 Census by age and sex, and estimates of per cent ever-widowed.....	124
TABLE 6.8 Statistics on household structure in northern and southern Vietnam, with international comparisons.....	127

TABLE 6.9 Household size in Vietnam, with international comparisons.....	132
TABLE 6.10 Per cent of respondents who had spent at least six months living with paternal or maternal relatives at some time before their fifteenth birthday. Vietnam Life History Survey.....	135
TABLE 6.11 Per cent of households of each size, and per cent of population living in households of each size. Northern Vietnam 1989.....	136
TABLE 6.12 Mean household size as conventionally calculated, and mean household size as experienced by household members. Northern and southern Vietnam. Using data from 1989 Census.	137
APPENDIX TABLE 3.1 Survival functions and life expectancies at birth for selected years, before adjustment for crisis mortality.....	145
APPENDIX TABLE 3.2 Survival functions and life expectancies at birth for selected years, after adjustment for crisis mortality	146
APPENDIX TABLE 3.3 Fertility estimates for Vietnam 1900-1993.....	147
APPENDIX TABLE 3.4 Comparison of values for children ever born, children surviving, and proportion of children dead from the 1989 Census, the 1994 Intercensal Demographic Survey, and the reconstruction	149
APPENDIX TABLE 3.5 Age-specific fertility rates used to approximate parity-independent fertility in northern Vietnam	149

List of Figures

FIGURE 3.1 The age-pattern of mortality from the 1979 Census life table, and from a model life table based on the 1989 Census life table, using $b=1$	49
FIGURE 3.2 Mortality levels from model life tables, 1900-2000, prior to adjustments for crisis mortality.....	50
FIGURE 3.3 Mortality levels from model life tables, 1900-2000, after adjustments for crisis mortality.	52
FIGURE 3.4 Estimates of crude birth rate (per thousand), northern Vietnam 1920-1990.....	54
FIGURE 3.5 Estimates of total fertility rates, northern Vietnam, 1965-1995.....	55
FIGURE 3.6 Estimates of total fertility rate, northern Vietnam, southern Vietnam, China, Southeast Asia, 1950-1995	56
FIGURE 3.7 Assumed fertility levels, northern Vietnam 1900-2000, before and after adjustments for famine and war.....	57
FIGURE 3.8 The net reproduction rate in northern Vietnam, 1900-2000, before and after adjustments for famine and war.	62
FIGURE 3.9 The effects of alternative assumptions concerning mortality and fertility on estimates of the net reproduction rate.	63
FIGURE 3.10 Mean number of surviving children for women aged 30 years and 50 years, northern Vietnam	65
FIGURE 3.11 Comparison of mean numbers of children ever born, children surviving, and children dead per woman from the 1989 Census, and the 1994 Intercensal Demographic Survey with figures from the reconstruction.....	68
FIGURE 3.12 The effects of alternative assumptions concerning mortality and fertility on estimates of surviving children to women attaining age 30 and women attaining age 50.....	70
FIGURE 6.1 Mean household size in 1989 by total fertility rate in 1984-9. Northern Vietnamese provinces with at least 75 per cent Kinh, and provinces with less than 75 per cent Kinh.....	133

Chapter 1 Introduction

1.1. Aims and scope of the thesis

The year 1945 began in northern Vietnam with a great famine and ended with a revolution. The following year the French returned to Vietnam, precipitating an eight-year colonial war. While fighting the war, the Vietnamese resistance government carried out huge and effective health and education campaigns, as well as land reforms. Victory against the French came in 1954, but increasingly violent land reform campaigns caused further bloodshed and disruption until 1956. Only two years later, the government embarked on a strategy of rapid industrialization and collectivization of agriculture. Hostilities against southern Vietnamese and American forces escalated through the early 1960s, until by 1965 Vietnam was at war. Reunification in 1975 was followed by the near collapse of the economy, and the disintegration of the country's economic institutions. Over the 1980s the government abandoned its socialist development strategy, piece by piece. By the mid-1990s both northern and southern Vietnam appeared to be set to experience a period of rapid growth similar to that which had already been transforming most of East and Southeast Asia.

Research into how northern Vietnam's dramatic, and often tragic, post-1945 political and economic history influenced northern Vietnamese families has barely begun. This thesis attempts to contribute towards the demographic part of the story by investigating ways in which the development of the modern northern Vietnamese state and political economy influenced demographic rates and the demography of northern Vietnamese families.

Two pioneers of the explanation of demographic processes in terms of the historical development of large-scale political and economic structures have been Greenhalgh (1989, 1990) and McNicoll (1980, 1995). Both writers accept that the causal links between decisions made by national leaders and demographic events within families can be weak and indirect. Both argue, however, that by examining large-scale structures, it is possible to explain and give coherence to many of the features of local environments which demographers use in their arguments but normally treat as givens—features such as landholding patterns or the character of family planning programs. Neither Greenhalgh nor McNicoll argues that a top-down political economy approach is the only legitimate

way of examining demographic phenomena; they argue only that this approach has been neglected.

Greenhalgh and McNicoll have mainly been concerned with explaining fertility trends. However, their approach can also be applied to explaining mortality and nuptiality trends, and the demography of families, as this thesis does. The methodological approach to family demography adopted in the thesis is macro-simulation, partly because this was the most practical method with the resources at hand, and partly because for the potential of macro-simulation methods to combine some of the transparency of analytic methods with some of the realism of micro-simulation methods (Ryder 1987: 348-9).

1.2. Chapter outline

Chapter 2 provides an overview of political and institutional developments between 1945 and 1995. Later chapters refer back to the account given in this chapter. If Chapter 2 contains one recurring idea, it is that official policy in northern Vietnam has been significantly modified, and sometimes even led by, spontaneous innovations at the local level.

Chapter 3 is more conventionally demographic, giving an overview of changes to mortality and fertility. Brief comments are made on links between institutional change and mortality decline, but explanation of fertility decline is postponed to Chapter 4. By estimating levels and age-distributions of mortality and fertility between 1900 and 2000, a 'reconstruction' of the net reproduction rate and mean numbers of surviving children is carried out. The likely demographic effects of the famine and wars are examined in detail.

Drawing on Chapters 2 and 3, Chapter 4 examines the effects on fertility in northern Vietnam of explicit government policies such as the birth control program, and of implicit policies, such as the subsidies for childrearing. A comparison is made with China, which has had similar institutions to northern Vietnam, but very different fertility trends.

Having explored the influence of political and economic change on mortality and fertility trends, the thesis examines the influence of these changes and trends on the demography of northern Vietnamese families. Chapter 5 discusses a neglected topic within family demography: the effect of the demographic transition on succession. Using

a simple model first developed by Wrigley (1978) the chapter illustrates how northern Vietnam's demographic transition allowed an unprecedented number of families to conform to traditional succession rules at a time when the government was attempting to propagate new ones.

Chapter 6 discusses a more prominent topic within family demography: co-residential households. Like Chapter 4, it examines the effects of political and demographic change on families' ability to conform to existing conventions. These effects appear to be smaller than might be expected.

In the concluding chapter, material from earlier chapters is summarised, but from new perspectives. The influence of the northern Vietnamese state on mortality and fertility is discussed under the headings of warfare, urban versus rural socialism, and the planned economy. A comparison is then made between changes in the demography of succession and changes in the demography of co-residence.

1.3. Sources and data

The principal source of ideas and information for the thesis has been secondary literature. International literature on the state and on state-society relations has been useful for providing comparisons with Vietnam. Particularly useful has been literature on China, as represented by Parish and Whyte (1978), Stacey (1983), Whyte and Parish (1984), Shue (1988), Selden (1988), Greenhalgh (1988, 1989, 1993, 1994) or Kelliher (1992). Kornai's (1992) magnum opus on communist economies has been invaluable.

Although most of the Vietnamese research on Vietnamese politics and economics published in English is shallow and propagandist, the research published in Vietnamese sometimes contains useful details, and can be surprisingly critical of past mistakes. Good examples are Nguyen Luc et al. (1990), and Cao Van Luong (1995).

I have used a small proportion of the large foreign literature on Vietnam's wars, and a large proportion of the smaller foreign literature on its politics and economics. Work by the economist Adam Fforde and the political scientist Benedict Kerkvliet has been particularly valuable (Fforde and Paine 1987; Fforde 1989; Fforde and de Vylder 1996; Kerkvliet 1995, 1995a; Kerkvliet and Selden 1995). Fforde, and more recently Kerkvliet, have been the leading exponents of the bottom-up model of economic and political change adopted in this thesis.

An important limitation of existing Vietnamese or foreign research on Vietnam is the scarcity of descriptions of the day-to-day operation of public institutions such as agricultural co-operatives, schools, and clinics, whether past or present. Ongoing research is slowly overcoming this problem, but it has meant that a great deal of the time spent on this thesis has been devoted to answering mundane questions which for most countries are easily answered, such as whether schools have always charged fees.

Vietnamese economic or administrative statistics present their own difficulties. Basic statistics on topics such as government expenditures during the 1960s and 1970s are simply not available. Many statistics, such as those on urbanization, lack definitions and are therefore uninterpretable. Many statistics, such as production data, are also likely to have been doctored by the people providing them. Soviet planners are reputed to have developed 'lie coefficients' for the production statistics of different regions. The solution usually adopted by researchers studying Vietnam is to include a passage in the introduction pointing out the unreliability of the official statistics, and then in the remainder of the work to quote the statistics to several significant figures and construct explanations for reported levels and trends without further comment. I have tried as far as possible to construct arguments from the small amounts of non-statistical information available, and when citing economic or administrative statistics to affix appropriate disclaimers.

Perhaps the most serious limitation of existing research on northern Vietnam, for the purposes of this thesis, is the lack of good sociological or ethnographic studies of Vietnamese families. The discipline of sociology was banned under the communist academic system and has only recently been re-introduced. Most of the empirical sociological research which has so far been carried out by Vietnamese researchers has consisted of surveys modelled on a very mediocre study conducted by two visiting French sociologists in 1979 (Houtart and Lemercinier 1984). Vietnamese sociology is, however, rapidly improving. Vietnamese ethnographers have confined their research to ethnic minorities.

As of mid-1996, and with the exception of Hy Van Luong (1989), there are to my knowledge no good published sociological or ethnographic studies of northern Vietnamese families by foreign-based authors. A handful of ethnographic studies have been carried out in southern Vietnam, but as will be seen in later chapters, the family system of the South is different in important ways from that of the North, making it

difficult to generalize from the southern studies. The few published colonial or post-colonial studies either limit themselves to kinship terminology or rely on highly speculative interpretations of dynastic laws or folk stories. The occasional unpublished item such as Hirschman and Vu (1994) circulates around the Vietnamese studies community, however, and it appears that more will be published in the next few years.

In contrast, there is already a reasonable amount of high quality demographic data available, thanks to the 1989 Census and the 1994 Intercensal Demographic Survey. Early in the thesis research I decided to use only published data, rather than to acquire the original data sets. This was to be way of keeping the research within manageable limits. The reliance on published data led, however, to a number of problems. Separate measures for northern and southern Vietnam were rarely given in published tables. In most cases the appropriate measures could be calculated by taking population-weighted means, but sometimes it was necessary to make do with figures referring to all of Vietnam. Once I had begun the family demography component of the research it became apparent that many of the necessary measures, such as complete parity distributions, have not been published—although they ought to have been.

Aside from the census in 1989, censuses were also conducted in northern Vietnam during the years 1979, 1974, and 1960. The Australian National University has a copy of the 1979 Census report; I found a report from the 1960 Census in Hanoi, but could not find one from the 1974 Census. Northern Vietnam's vital registration system was established in the late 1950s. Results obtained through this system are corrected through annual surveys of up to 20 per cent of the population. Vietnamese statisticians have told me that data from this system is some of the least unreliable data available on any subject in Vietnam. I have only used vital registration data published in secondary sources, but it is likely that future work on the historical demography of northern Vietnam would greatly benefit from the use of unpublished provincial data.

My ability to interpret the secondary material was enhanced by a five-month visit to Vietnam between April and September 1994, and a one-month visit in September 1995. I studied Vietnamese for a year before going to Vietnam the first time, and my skills improved while I was there, but I did not become fluent. During both visits I lived with a Vietnamese family in Hanoi, which, thanks to much patient explaining on their part, was easily the most enlightening aspect of my time in Vietnam. I was affiliated with the Institute of Sociology in Hanoi, and had instructive conversations with staff there, as well

as with staff at the Centre for Women's Studies; the National Committee for Population and Family Planning; the Centre for Gender, Family and Environment in Development; and the General Statistical Office.

Despite initial assurances, it was not, however, possible for me to organize visits to the countryside of more than one day through the Institute of Sociology. I made private arrangements to visit a few villages near Hanoi, but nevertheless my exposure to rural Vietnam was very limited. In the company of members of my host family in Hanoi, I spent about six weeks in total travelling around much of northern and southern Vietnam. In most cases we had no choice but to stay in the provincial capitals. Other foreign graduate students who did not have close relationships with non-governmental organizations or with large ongoing projects had the same difficulties gaining access to rural areas as me.

1.4. A note on usages

In this chapter, and throughout the rest of the thesis, the term 'northern Vietnam' refers to the territory above the 17th parallel, occupied, between 1954 and 1975, by the Democratic Republic of Vietnam. After 1975 a province called Binh Tri Thien was created, straddling the 17th parallel. During the 1980s, Binh Tri Thien was split into three provinces called Quang Binh, Quang Tri, and Thua Thien Hue, with the border between Quang Binh and Quang Tri lying close to the 17th parallel. When calculating statistics for post-1975 northern Vietnam, I have defined northern Vietnam as Quang Binh and provinces to the north. When using tabulations referring to Binh Tri Thien province, I have obtained an estimate for the area which became Quang Binh province by multiplying the Binh Tri Thien figure by the ratio of the 1989 population of Quang Binh to the 1989 population of Quang Binh, Quang Tri, and Thua Thien Hue. A similar procedure was used for data referring to 'North Central Vietnam', a region comprised of Thanh Hoa, Nghe Tinh, Quang Binh, Quang Tri, and Thua Thien Hue provinces.

When citing Vietnamese authors in the text I have used full names—for example 'Nguyen Khac Vien'—because some authors are commonly referred to by their family names (the first name) and some by their personal names (the last name), creating potential for confusion. The only exception to this practice is when there are several authors and the first author is a Western author.

Finally, I have referred to what the Western media call the 'Vietnam War', and the Vietnamese media call the 'American War' as the '1965-75 war'. The term 'Vietnam War' reflects the American rather than the Vietnamese perspective, while the term 'American War' concedes too much to the official northern Vietnamese version of history, in which the many southern Vietnamese who were genuinely opposed to the northern regime are dismissed as 'puppet troops'.

Chapter 2. The state and socio-economic development 1945-1995

2.1. Introduction

Between 1945 and 1995 the northern Vietnamese population experienced socialism, market reform, and two major wars. The country won its wars, at great cost. The successes of socialism and market reform have been far more mixed: socialist institutions proved incapable of delivering sustained rapid growth, and were progressively undermined by their members; meanwhile the same institutions mobilized scarce resources relatively efficiently to deliver rapid progress in education and health. Market reform has had the opposite effect, delivering rapid economic growth at the expense, in the short term, of further improvements in social services. Throughout the period the government launched initiatives to alter gender relations, the family, and the distribution and growth rate of the population, with mixed success.

2.2. The August Revolution and the Resistance War 1945-1954

2.2.1. Events

In March 1945 the Japanese ceased their collaboration with the French, and installed a government run nominally by Vietnamese. The new government was too weak, however, to deal with the economic crises besetting the country, including a famine in the North which ultimately killed at least one million people from a population of 13 million. The Viet Minh in early 1945 was not notably stronger than several other anti-colonial groups, and had only a few thousand members. It was the best organized group, however, and its leaders reacted fastest and most decisively to the new conditions. They issued calls to oppose the Japanese-sponsored government only days after it had been established, and organized their own anti-famine measures. These actions greatly increased their popularity. In August, great numbers responded to Ho Chi Minh's announcement of a general insurrection, and on 25 August, the government resigned. On 2 September 1945 Ho Chi Minh read a Declaration of Independence and established the Democratic Republic of Vietnam.

There followed a year of uneasy co-existence between the new government and the French. Shortly after the Declaration of Independence, Guomindang, British, and then French troops arrived to re-occupy northern Vietnam. The Vietnamese government entered into negotiations with the French over the future of the country; at the same time it administered the country, held elections, assembled a united front government, and, in November 1946, promulgated a new constitution.

In December 1946, however, open warfare broke out, and the Vietnamese leaders retreated to prepared bases in the mountains. For the next seven years, the Vietnamese resistance government held most of the mountainous areas, while the French held much of the Red River Delta; although the resistance government managed to establish 'liberation committees' in many Delta villages. The war was extremely fierce, and, including both soldiers and civilians, up to half a million Vietnamese died in the fighting (Hirschman, Preston, and Vu 1995: 783).

2.2.2. The resistance government

In 1954 the communist-controlled government led the population to defeat the French, having, in the meantime, laid the foundations for the post-1954 northern Vietnamese state. Just as remarkable as the defeat of the French military was the ascent of the communists from a small opposition group to masters of a modern state. They achieved the impossible through co-operation from members of all indigenous organizations and social classes, who responded to the government's promises, whether for national independence or for a new society. Upper class Vietnamese were generally more enthusiastic about independence than about redistribution, so the communists operated a united front policy, postponing redistributive measures as long as possible.

The government apparatus consisted of administrative committees at the province, district, and village levels, elected under universal suffrage. These committees were supervised by the Party's People's Committees of equivalent level. All males over the age of 16 were subject to conscription into the army, in which females were also encouraged to participate (Vu Van Hoan 1974: 68; Post 1989, Vol. 1: 152).

2.2.3. *Economic and social policies*

The war effort and government administration were funded by a tax system which took in both liberated and French-held areas, though people in French-held areas paid a lower rate since they were already taxed by the French. Until 1951 taxes only covered one quarter of expenditures, and the government was forced to make up the difference by printing money, generating massive inflation. A reformed tax system, plus aid from the socialist countries, allowed the government to rectify government finances so completely that, in 1953, it achieved a 16 per cent budget surplus (Post 1989 Vol 1: 181-2).

In line with its united front policy, the government sought little direct control over the economy. Its most far-reaching measure was land reform. Land holdings under the French had become increasingly unequal, with, in rough terms, the poorest 60 per cent of the population controlling only 15 per cent of privately held land, although most of this 60 per cent did have access to the village communal land, which made up about one quarter of all arable land (Moise 1983: 151). Shortly after the August Revolution, the government called for rent reductions, but did not mobilize peasants to enforce the reductions, so little happened. Through the course of the war, however, the government took a progressively harder line, to maintain the loyalty of the poor. Cadres were instructed to expropriate only communal land and land belonging to the French and French collaborators. Arable land was so scarce in northern Vietnam, however, that these sources were exhausted well before all poor peasants had received land, and tension between the united front policy and the desire for redistribution grew progressively stronger. The government held off from establishing independent land reform committees and launching the 'official' land reform until 1953 (Moise 1983).

Education and health campaigns were far less socially divisive than land reform, so the government was able to commit itself to them whole-heartedly. There was a great deal to be done, as popular education and public health had been sorely neglected under the French. The government launched huge literacy and health education drives, implemented largely by volunteers. Millions of Vietnamese of all ages were exposed to the rudiments of reading, writing, and hygiene, and basic schools and health centres were established in many villages.

Among the ten basic promises made by the Indochinese Communist Party at its founding in 1930 was the promise to create 'equality between man and woman' (Ho Chi

Minh 1977 [1930]: 41). The communists had also committed themselves to making the Vietnamese family more egalitarian. These concerns had three principal sources. First was a broad concern with equality shared by some non-communist sections of the Vietnamese anti-colonialist movement. Second was the Marxist analysis of gender and family, which saw inequality as manifestations of feudalism and capitalism. Third was the pragmatic need to mobilize women in the resistance struggle (Ginsburgs 1975: 613; Marr 1981: ch. 5).

The northern Vietnamese government, like all socialist governments, introduced legislation attempting to alter gender relations and the family. The 1946 Constitution established the equality of men and women before the law. This was followed by labour laws which established the principle of equal pay for equal work and set up guidelines for maternity leave and the provision of creches. Two edicts passed in 1950 declared that all members of the family were equal, and made it legal for children to marry without permission from their parents and to own property separately from their parents. These edicts also legalized divorce, and set a minimum marriage age of 18 years for women and 21 years for men. The land reform legislation specified that women had the same rights to redistributed land as men (Vu Quy Vy 1974: 168-70; Ginsburgs 1975: 621-9).

With the important exception of the strictures in the land reform legislation, little of this legislation appears to have been implemented. War made promises of maternity leave or creches impossible to fulfill, and Vietnamese communists, like their Chinese counterparts, appear to have been reluctant to enforce regulations involving the internal affairs of the family in the midst of the resistance struggle. Land reform jeopardized the support of landlords; family reform jeopardized the support of male household heads, a much larger group (Ginsburgs 1975: 18; Stacey 1983: 165).

The goal of widening women's occupational opportunities, in contrast, dovetailed with the goal of mobilizing the population to fight the French. Cadres encouraged women to take over jobs vacated by men or to join the army themselves. These roles were not unprecedented, since Vietnamese women had always been active in agriculture and marketing, and, in a few celebrated cases, had even fought in wars against foreign invaders. Nor were the roles necessarily permanent, as many women lost their new jobs when the men returned from the war. Nevertheless, the expansion of women's responsibilities was sufficiently great and sufficiently novel for Women's Union

representatives to claim that it led to women acquiring substantially greater influence over village and family affairs (Ginsburgs 1975: 621-2).

2.3. Socialism 1954-1979

2.3.1. Events

Victory at Dien Bien Phu provided the Vietnamese delegation at the 1954 Geneva Conference with sufficient bargaining strength to secure an independent state; *realpolitik* from Vietnam's erstwhile allies led to the partitioning of the country into North and South. In 1956, the Diem government in the South announced that it would not participate in the nationwide elections agreed to under the Geneva Accords, and the reunification of Vietnam was deferred for the immediate future. Meanwhile, the government in the North had abandoned its united front stance, and announced to the world that it was, or was in the process of becoming, a socialist state.

In the first few years following the Geneva Conference, the top leadership in the North was split over the relative merits of supporting the communist guerrillas in the South and concentrating on socialist construction in the North. By 1959, however, Diem's increasingly harsh repression of opposition groups in the South had persuaded the entire northern leadership to support armed struggle. Through the early 1960s both the North and the United States sent progressively more supplies and troops to support their allies in southern Vietnam, until by 1965 the hostilities developed into full-scale war. The last American soldiers left Vietnam eight years later, and the war ended in 1975 (Sagar 1991: xvi-xx). With ordinary soldiers, guerrillas, and cadres combined, there were several hundred thousand northerners in the South at any one time between 1965 and 1975 (Kolko 1985: 186-7). Recent estimates of military deaths made by Hirschman, Preston, and Vu (1995: Table 7) imply that all Vietnam suffered approximately a million deaths. The population of Vietnam was about 35 million in 1965 and 48 million in 1975 (Vietnam 1991a: Table 1.1).

American bombing campaigns against northern Vietnam began in 1965 and continued until 1973. Although the bombs were aimed at infrastructure, military installations, and industries, many hit suburbs or villages. According to one Vietnamese report, 4 000 of northern Vietnam's 5 800 villages were hit during the war (Beresford 1988: 38).

North and South Vietnam were formally reunified in 1976, and the northern development strategy was applied to the entire country. In 1978, Vietnam sent troops into Cambodia. China had become increasingly irritated at Vietnam's close relationship to the Soviet Union, and responded to the ousting of Pol Pot by cutting off aid and then, in 1979, invading—only to be repelled promptly by the Vietnamese.

2.3.2. *The state*

The Geneva settlement gave Northern Vietnam's leaders an opportunity to attempt to construct a Marxist-Leninist state, of which the foremost contemporary prototype was the Soviet Union. To do so, however, they were forced to make some concessions to the economic backwardness of the country.

The political institutions of socialist northern Vietnam which were constructed during the 1940s and 1950s, and which saw little modification until the mid-1980s, were made up of government apparatus proper plus the Party apparatus. The Party played the 'leading role': it was responsible for setting policy and for ensuring that policy was implemented correctly by government institutions. Each level of the Party hierarchy monitored the corresponding level of the government hierarchy. Party cadres had the right to intervene in government affairs when necessary, and the right to oversee appointments, which ensured that ambitious officials tried to at least appear to be enthusiastically implementing Party directives. Lower levels of the Party and government elected the higher levels, with the National Assembly being elected by universal suffrage. These elections had little practical significance, however, since the Party selected all candidates, and ensured that the number of candidates was little higher than the number of posts. The main ways in which the leadership ascertained the opinions of ordinary citizens or low-level officials was through authorized channels in the Party and mass organizations, as well as through periodic surveys or appeals for public comment. Party and government were effectively only partly distinct, since individuals could belong to both the Party and the government, and officials would often move between Party and government positions at different times in their careers (Beresford 1988: 79-85; Kornai 1992: 36-8).

Within the state there were four main levels able to make budgets, and, to varying extents, raise their own revenue. These levels were, one, the central authorities in Hanoi; two, provinces and municipalities; three, districts, precincts, and townships; and four,

communes and urban wards. At the time of the 1960 Census Northern Vietnam had 32 provincial-level units, each with about five to ten district-level units (Vietnam 1962: Table 9B). Rural districts contained 20 to 40 communes of about 5000 people, which usually consisted of villages of 1000 to 2000 people, which themselves often consisted of several hamlets. Urban townships were divided up in a similar way, the smallest units being neighbourhood solidarity cells, consisting of 12 to 20 households (Thrift and Forbes 1986: 60).

The northern Vietnamese state during this period can also be seen as containing two tiers of socialism, or two sub-systems within the national system. The first sub-system followed the classic communist model as developed by the Soviet Union. Activities within this sub-system were supervised by a centralized bureaucracy and paid for out of the state budget. The sub-system was made up of the state-owned enterprises, the army, hospitals, universities, most urban service and welfare institutions, and the upper levels of administration. Although state farms and some rural cadres belonged within this sub-system, most of its activities were carried out in urban areas, and most urban dwellers belonged to it, so it can be called, for convenience, urban socialism.

According to administrative statistics, the urban population of northern Vietnam was 1.4 million, or 9 per cent of the total population, in 1960, and 2.7 million, or 11 per cent of the total population, in 1975 (Fforde and Paine 1987: Table 8). Because these statistics, like most published statistics in Vietnam, do not explain what definitions are used, they are not particularly useful. The 1960, 1979, and 1989 Census tabulations are more instructive.

According to the 1960 Census, the urban population of northern Vietnam was about 900 000, or six per cent of the total population (Vietnam 1962: Table 9A). The definition of urban used to calculate this figure includes small towns (*thi xa*) down to the size of about 4000 people, but excludes the rural areas of Hanoi and Haiphong 'municipalities' (*thanh pho*) and of so-called 'towns' (*thi xa* and *thi tran*). In statistical publications, the terms 'municipality' and 'town' usually refer not to the urban areas themselves but to the administrative units to which they belong. The 'suburbs' outside the urban concentrations but inside the 'municipalities' or 'towns' consist of villages and paddy fields indistinguishable from those of the rest of the countryside. The same classifications, and the same potential for confusion, exists within Chinese urban statistics, particularly after 1980.

All statistics on Vietnamese urban areas must be scrutinized to see what definition is being used. For instance, the chart in Thrift and Forbes (1986: Figure 6.1) on urban growth in northern Vietnam is based on a definition of urban which includes the populations of the so-called 'suburbs', although Thrift and Forbes elsewhere (for instance, Table 6.1) draw attention to the definitional complexities. Using the figure of six per cent, northern Vietnam's proportion urban in 1960 was about the same as that of Bangladesh and one-third that of China¹ (World Bank 1991: Table 31). Using what appears to be a definition which includes the 'suburbs', Thrift and Forbes put the urban population of southern Vietnam in 1960 at 2.8 million, or 20 per cent of the total population.

Information on urban areas in the 1979 Census Report (Vietnam 1983: Table 3) consists of a table showing municipalities and townships with populations over 20 000, the figure of 20 000 including the populations of 'suburbs'. For each of these municipalities and towns the urban population and the 'suburban' population are given. Adding up the urban populations gives a total of 2.4 million urban dwellers in northern Vietnam, or eight per cent of the population. This figure understates the actual proportion urban, probably by about two per cent, because it does not include the populations of urban areas in 'towns' with populations of less than 20 000. It appears, then, that the proportion of the northern Vietnamese population living in urban areas increased by 50 per cent or more during the 1960s and 1970s, though from a very low base. The northern Vietnamese pattern was very different from that of China during the same period, where the proportion urban remained relatively constant at about 20 per cent (Banister 1987: Table 9.6). In southern Vietnam, the cities may have held about half the population by 1975, after which the proportion fell sharply.

The tabulations given in the 1989 Census report are more helpful than those in the 1979 report. They indicate that in 1989 the urban population of northern Vietnam, excluding the 'suburbs', was about 4.1 million, or 13 per cent of the total population. The equivalent figures for southern Vietnam were 8.1 million and 25 per cent (Vietnam 1991: Tables 1.1A, 1.1B).

In spite of the low level of urbanization in northern Vietnam, its leaders greatly preferred urban socialism. Urban socialism resembled the dominant style of organization

¹The Chinese figure does not include 'suburbs'.

in the most advanced socialist nations, and was associated with centralism, heavy industry, and science and technology. State enterprises were the highest property form, belonging, according to the 1959 Constitution (Article 12), to 'the whole people.' Urban socialism had top priority for state resources: industry, until 1970, received several times the investment of agriculture. The system required a large bureaucracy, however, and northern Vietnam did not have the resources or trained staff to extend the system to all production and services, or the whole population.

As a temporary expedient, while the country developed its material and cultural base, a second socialist sub-system was used for organizing agricultural production and rural services. Rural socialism consisted of thousands of cells formed by communes and the co-operatives they controlled. Although communes and co-operatives were subject to commands from the central bureaucracy, they also had a great deal of *de jure* and *de facto* autonomy, because each commune drew most of its funds from agricultural co-operatives under its jurisdiction, and was responsible for organizing its own social services. Co-operatives, which the Constitution defined as belonging to their members (Article 13), were a lower property form than ownership by the whole people, but an improvement on family production. Agricultural production would eventually be carried out entirely by state farms, which were organized like standard state enterprises. Progress towards this goal was, however, slow: by 1975 the percentage of the agricultural labour force working on state farms was still less than two (Fforde and Paine 1987: Appendix Table 72). For most of the 90 per cent of northern Vietnam's population living in rural areas, rural socialism was the form of socialism with which they had most contact.

Northern Vietnam's urban socialism was in many ways simply a stronger version of the statist development model practised in most developing countries at that time. Rural socialism was found in all communist countries: in the Soviet Union in 1975, 15.5 million households belonged to agricultural co-operatives (Kerblay 1980: 78); in China, the proportion of the population which experienced rural socialism was approximately similar to that of northern Vietnam. Compared with the rural institutions existing in non-communist countries, however, rural socialism was highly unusual. No other non-communist institutions involved such substantial state penetration of economic and social life, combined with substantial scope for self-government and relative autonomy from the central authorities.

The substantial degree of penetration that existed indicated that the northern Vietnamese state was strong, which was what Marxist-Leninist doctrine suggested it should be. According to Marx's original theory of history, socialist revolutions would occur spontaneously in nations where the forces of production were sufficiently developed. Marxist-Leninism added the possibility that revolution and socialist transformation might also occur in economically backward countries—not spontaneously, but through the leadership of a revolutionary elite. This had been the lesson of the Russian Revolution. Vietnam's forces of production were among the least developed in the world, so that, according to the theory, the Vietnamese people were particularly in need of guidance by the revolutionary elite. The elite proposed to educate the masses to the point where they would be competent to take control of society, but envisaged that this would take some time. In the interim, a centralized Leninist state would be needed to protect and continue the revolution, as Ho Chi Minh (1977 [1959]: 224) makes clear in the third sentence of his explanation of the concept of 'democratic centralism':

Our State ensures the fullest development of democracy, because it is a people's State. Only through the fullest development of democracy can all forces of the people be mobilized to take the revolution forward. At the same time the highest centralism must be ensured to lead the people in building socialism.

Once installed in power, the northern Vietnamese elite set about ensuring that there would be no internal organized opposition to their rule. Rival anti-colonial groups were broken up, and their leaders executed or imprisoned. With the partial exception of religious groups, no organization of any kind was permitted to exist outside the jurisdiction of the state (Marr 1987). Politically ambitious individuals could choose between joining the Party, the government, or the various state-controlled mass organizations. The state controlled the media, and education and research institutions, and had no compunction about using any of these as propaganda instruments, since Marxist doctrine held that a free press or freedom of expression were bourgeois illusions.¹ Land

¹Which did not, however, stop the law makers from guaranteeing freedom of expression in the 1959 Constitution (Article 25).

reform had broken the power of the rural elite, unlike in countries such as India or the Philippines, where the elite were able to capture and subvert rural development programs. To pre-empt any new sources of opposition from forming within Vietnamese society, the state maintained an extensive surveillance network, drawing on the household registration system, the police, and the Party.

The problem remained, however, of applying the vast state apparatus to implement official policy. In northern Vietnam between 1954 and 1979, the centre had a relatively high degree of control over the provincial and district levels of government. For most of this period, no level of government was able to raise much revenue internally, because of the small size of the surpluses generated by the northern Vietnamese economy. The central government, meanwhile, had at its disposal revenue from Chinese and Soviet aid. Government revenue flowed downward from the centre, making lower levels dependent on higher levels.

The structure of the urban socialist system facilitated central control.¹ Because the central bureaucracy was involved in every aspect of urban life from housing to employment to rations, it had many opportunities for monitoring and exerting pressure on the urban population. Within the confines of a city, lower-level cadres who failed to implement official policy were likely to attract scrutiny from their superiors. These pressures were sufficient to compel most cadres to comply with the regulations for most activities, such as education and security. With economic production, however, the personal profits to be made from manipulating accounts and from illicit trading were so great that the state was unable to deter cadres from participating. Such practices occurred on a very large scale, to the point where they became thoroughly institutionalized (Fforde and Paine 1987).

In rural areas, the state's reach was generally much shorter. Partly this was a product of geography and history. Although northern Vietnam is a small place, and the Red River Delta is only about 100 kilometres wide and 150 kilometres long, communications were very bad, making surveillance difficult. Northern Vietnamese villages, moreover, had had a long experience of relative autonomy from the state. The French, and before them the various Vietnamese and Chinese dynasties, all maintained an implicit agreement with northern villages whereby the villages would supply taxes and

¹This paragraph draws on Whyte's and Parish's (1984) analysis of state control in Chinese cities.

corvée labour to the state in return for the freedom to manage their own affairs. Socialist Vietnam thus inherited villages which had a taste for self-government, and a long familiarity with the falsification of records and other techniques for resisting extraction by the state. Moreover, the debacle of the later land reform excesses and subsequent Correction of Errors sapped the loyalty of rural cadres during the mid-1950s, so that the state's basic rural institutions were constructed by people who were no longer fully committed to the cause (Fforde and Paine 1987: 22, 35-7).

At the same time, the structure of rural socialism itself reduced the central authorities' hold over commune-level cadres. The large degree of self-government and self-funding insulated communes and co-operatives from bureaucratic pressure from above. The bureaucracy did have some mechanisms for controlling local cadres: for instance, obedient cadres could be rewarded with promotions, or could have the supply of fertilizer or textbooks increased, making their jobs easier. These means appear to have been sufficient to enable the implementation of policies in areas such as education and health, which were popular and which presented few opportunities for personal aggrandizement. Economic production, in contrast, involved sharply diverging interests and large stakes. Fulfilling state grain quotas implied depriving local people of food; enforcing regulations limiting household production created opposition from local people and usually lowered the standard of living; meanwhile, administration of co-operatives gave cadres frequent opportunities for corruption. With cadres throughout the countryside facing similar pressures, the central authorities simply did not have the resources to apply meaningful rewards or penalties, or even to find out what was actually happening in every commune. Economic policy was faithfully implemented in only a small proportion of co-operatives, and corruption was endemic (Fforde 1989; Nguyen Luc et al. 1990; Kerkvliet 1995b). A recent study comparing Vietnamese co-operatives and Chinese communes (Kerkvliet and Selden 1995) concluded that these phenomena were far more prevalent in the Vietnamese case than in the Chinese case.

Was the northern Vietnamese state a strong state? In his influential book, Migdal (1988: 4) proposes judging the strength of a state by its 'capacities to *penetrate* society, *regulate* social relationships, *extract* resources, and *appropriate* or use resources in determined ways'. The northern Vietnamese state managed to penetrate society to an extraordinary degree. It also transformed class relations, and had some influence on gender relations, so it can be said to have regulated social relationships to a significant

extent. The state did control a large proportion of the country's resources, although here it is important to note that the resources controlled by communes were not necessarily available to the leadership in Hanoi. Finally, its ability to use resources in determined ways was somewhat limited, in that it was unable to control the behaviour of its own economic institutions. Migdal (1988: xiv), presumably having made a similar assessment, placed Vietnam in the small club of developing nations with strong states.

Fforde (1993), perhaps the leading non-Vietnamese expert on Vietnamese political economy, has insisted on the contrary that Vietnam has had a weak state. Fforde's target in making this claim may be authors such as Porter (1993), who tend to emphasize the Vietnamese state's *de jure* monopoly over power at the expense of the substantial *de facto* limits on this power. Fforde's characterization of the Vietnamese state is a necessary corrective to such views. But because the term 'weak state' comes from an international literature on the reach of the state, Fforde's usage is potentially misleading, as it suggests northern Vietnam resembles Sierra Leone or Bangladesh, when it resembles more closely China or Indonesia.

Continuing government restrictions have prevented scholars from researching the legitimacy of the northern Vietnamese state in the eyes of its citizens. The state acted on behalf of ideals widely shared by its citizens, such as equality and national independence: during times such as the American war it received massive public support. Vietnamese people also appear to have judged the state on its economic record, however, and by the late 1970s the economy was lurching towards a crisis (Chaliand 1969; Fforde and Paine 1987: 36-7; Kerkvliet 1995b).

2.3.3. *Economic policies and their implementation*

The resounding successes in the construction of socialism in the Soviet Union, the advance of China in every sphere, particularly in agriculture, and the massive successes of the other socialist movements in 1958 have greatly encouraged us (Vietnamese Workers' Party Central Committee,¹ 1959, cited in Van Tao 1995: 75).

During the 1950s and 1960s, communist governments were at their high point of confidence and optimism. Eastern Europe, China, North Korea, and North Vietnam had

¹The Vietnamese Workers' Party' was the official name of the communist party in Vietnam.

all recently joined the communist bloc, ending the isolation of the Soviet Union. Throughout the period, the economies of most communist countries grew strongly, and the micro-economic distortions and macro-economic imbalances which were later to undermine this growth had in general only just become apparent. Many Western anti-communists were worried at the apparent ability of command economies to generate rapid economic growth (Szreter 1993: 682). In this atmosphere the northern Vietnamese leadership embarked enthusiastically on a classic communist development strategy.

This strategy had been developed in the Soviet Union during the 1920s, notably by Preobrazhensky and Stalin. Preobrazhensky had argued that the fastest way for the Soviet Union to catch up and surpass the industrialized capitalist countries would be to invest as much of the economy's resources as possible into heavy industry, which had the greatest growth potential, albeit with a long gestation period. The necessary funds would be extracted from the agricultural sector, which had a relatively low growth potential. Preobrazhensky was always somewhat ambivalent about how these funds would be extracted. Stalin, however, was not: his solution was forced collectivization (Nove 1989: 109-25; Kornai 1992:197-9). At the heart of the strategy was the principle of leadership by the state, both as a means and an end.¹ The state, and through it the People, would own and control almost all property and means of production. This would allow the state to plan economic development, rather than abandoning it to the anarchy of the market. As northern Vietnamese leader and Party theoretician Le Duan (1977: 248) put it, 'socialist production relations make it possible...to carry out at a faster pace a concentration of capital and a redivision of labour.'

China and the Soviet Union had promised to provide northern Vietnam with most of its initial investment capital, until Vietnam's growth became self-sustaining (Fforde and Paine 1987: 39-41; Dinh Thu Cuc and Tran Huu Dinh 1995: 228). During the 1920s Preobrazhensky had hoped that an advanced Western country would undergo a communist revolution and then provide aid to fund the Soviet industrialization program (Nove 1989: 118). Vietnamese planners sought to extract resources for investment out of the domestic economy by holding down consumption. Ho Chi Minh (1977), in numerous speeches, called this 'practising thrift' *thuc hanh tiet kiem*. Like most communist leaders, Vietnamese leaders promised to compensate their people for these

¹Kornai (1992: ch.3, ch.15) emphasizes this point for communist systems in general, and Porter (1993) emphasizes it for Vietnam in particular.

short-term sacrifices by guaranteeing necessities such as housing, employment, food, education, and health care (Kornai 1992: 53-4; Dinh Thu Cuc and Tran Huu Dinh 1995: 263-4).

The leaders intended that the state should control the distribution of goods and set prices administratively. The resistance government had introduced rationing and price-setting during the resistance struggle, and the post-1954 government progressively enlarged the system. The state subsidized both domestic and imported inputs for heavy industry as well as goods and services for industrial workers, which allowed workers' wages to be kept low. Such subsidies absorbed about one third of the state budget (Dang Duc Dam 1995: 36). Meanwhile the state endeavoured to force co-operatives to sell prescribed volumes of agricultural products at low prices. Because of the huge differences which soon emerged between goods' official prices and their relative scarcities, illicit trading became widespread. Vietnamese policy makers sometimes grudgingly accorded these markets a semi-legal status, as in the case of the market for food.

Northern Vietnam's rural transformation had entered a second phase in 1953, when the government began to endorse large-scale confiscation of rich and middle peasant land. The policies aimed at political change as much as economic change, and land reform cadres were ordered to educate poor peasants about exploitation under the former system, and to encourage them to take a more active part in village government. Spurred on by hard-line speeches from above, many local cadres took the campaign to irrational extremes, so that large numbers of middle peasants and former resistance fighters were expelled from the Party, had their land expropriated, or were imprisoned or killed.¹ In 1956 the top level of the Party launched a Correction of Errors campaign. Much land was returned and many purge victims were rehabilitated (Moise 1983). Amidst this turmoil, however, Vietnamese farmers managed to repair the effects of the resistance war, and to increase production. According to official figures, paddy production rose by 15 per cent a year between 1954 and 1957 (Vickerman 1986: Appendix Table 4). While it may be doubted that such production gains were possible in the environment created by the land reform, there is little doubt that production did increase rapidly.

¹Some foreign commentators claimed that tens of thousands of landlords were killed between 1953 and 1956. A more reasonable estimate would be less than 15 000, and probably closer to 5 000 (Moise 1983: 222).

In 1958, the government announced the beginning of a major campaign to collectivize agriculture. By 1960, 86 per cent of all peasant households had reportedly been organized into agricultural co-operatives. Vietnamese leaders admitted this result had been achieved through disregarding the official policy of voluntarism (Van Tao 1995: 81), although like the Chinese collectivization and unlike the Soviet collectivization, bloodshed appears to have been entirely avoided. Over the following 20 years, co-operatives grew as shown in Table 2.1. 'Low level' co-operatives paid rent to members who had contributed land or other means of production to the co-operatives; 'high level' co-operatives did not.

TABLE 2.1 Official statistics on northern Vietnamese agricultural cooperatives.

Year	Per cent of peasant households belonging to co-operatives			Mean per co-operative		
	Total	Of which		Households	Cultivated area (ha)	Members of working age
		Low level	High level			
1958	5	100	0	26	<20	-
1959	45	95	5	40	-	-
1960		86	14	68	33	125
1965	90	28	72	85	49	170
1970	96	15	85	-	-	-
1975	96	3	97	199	115	337
1980	-	-	-	369	202	-

Dashes indicate no data available.

Sources: 1958, 1959. Vickerman (1986: 143-5, Appendix Table 3). 1960-75. Fforde and Paine (1987: Appendix Tables 69, 70, 71). As Fforde and Paine point out, the official figures contain numerous inconsistencies. Calculating the mean number of households per co-operative from Appendix Table 70 in Fforde and Paine gives results which are different from those in Appendix Table 71 by up to 15 per cent. The results from Appendix Table 71 are shown here. 1980. Kerkvliet and Selden (1995: 16)

Co-operatives were divided into smaller units called brigades, which, in larger co-operatives, were also divided into still smaller units called teams. In the early 1960s, brigades typically embraced 15 to 30 households. Data on brigades are scarce. It seems that, like co-operatives, they became larger on average over time, with, by the end of the 1970s, some brigades embracing 200 or more households, or an entire hamlet (Houtart and Lemercinier 1984: 26; Vickerman 1986: 161). Given, however, that the average size of co-operatives was still less than 400 households in 1980, the average size of brigades is likely to have been much less than 200.

Fforde (1989: 80-1) estimates that in the late 1970s roughly three-quarters of all co-operatives disobeyed official regulations and left most of the organization of production and distribution to brigades. In most cases brigades were based on pre-existing

geographical units such as neighbourhoods. They effectively owned their own land, which consisted of the plots brigade members had owned after the land reform. Brigades organized their own work points systems, and sometimes traded amongst themselves. They turned varying amounts of their production over to the co-operative, depending on the local balance of power. It appears that brigades were able to exclude outsiders, as land per person and the values of workpoints within brigades often varied (Fforde 1989: 53, 55, 81, 99, 103, 123-4).

There appear to have been fascinating parallels between northern Vietnamese brigades and Chinese work teams, which were approximately the same size, had de facto control over their own resources, had the ability to exclude outsiders, and were the 'basic unit for accounting'. One important difference between the two institutions is that the devolution to teams was legalized in China, as part of the pragmatic reform of agricultural institutions after the Great Leap Forward, whereas in northern Vietnam it was officially prohibited (McNicoll 1980: 444-5; Perkins and Yusuf 1984: 79; Fforde 1989).

Vietnamese co-operatives were seldom efficient or popular. They did make it easier to organize social services, and some public goods, such as irrigation, which brought one-off productivity gains. However, they were clumsy to administer, remuneration rarely reflected individual contributions, and workers' discipline was generally poor, so that productivity was low. According to official figures, total paddy output for northern Vietnam was only about 10 per cent higher in 1975-80 than it had been in 1960-65, while the population had grown by almost 50 per cent (Vickerman 1986: Appendix Table 4; Vietnam 1990: Table 39). Given the incentives for co-operatives to hide production levels in order to reduce procurement, the official production figures need to be treated sceptically. However, the general impression of stagnation or decline in production and consumption is borne out by interviews with villagers concerning productivity and living standards (Hy Van Luong 1992: 204; Kerkvliet 1995b: 402-7). Rural people began to express dissatisfaction with co-operatives almost as soon as collectivization had occurred. According to official reports, 17 per cent of all households belonging to co-operatives asked to leave during the year 1963 alone (Dinh Thu Cuc and Tran Huu Dinh 1995: 235). By the late 1970s, shirking, foot dragging, and other ways of avoiding collective labour appear to become politicized—a form of passive resistance (Kerkvliet 1995b: 402, 413-15).

At the end of the 1946-54 war, industry was given three years to recover before large-scale nationalization. In 1957 the government converted all industrial and handicraft production to state enterprises or co-operatives, and launched its program of rapid industrial growth. Between 1954 and 1970 the state invested two to four times as much in industry as it did in agriculture, and from 1971 to 1979 it invested about 1.5 times as much (Beresford 1988: Table 9.3). Domestic savings during this period were negligible, so the government funded almost all this investment out of loans and foreign aid, principally from the Soviet Union and China.¹

Initially, the policy seemed to be paying off, with official figures showing a rise in industrial production of 15 per cent a year between 1959 and 1964 (Beresford 1988: 132). Almost all socialist states manage to achieve an initial rapid expansion of industrial production, only to find that the distortions created during the rush for growth eventually cause a slow down (Kornai 1992). The symptoms appeared remarkably early in northern Vietnam: by the early 1960s, Vietnamese economists were already complaining that shortages of spare parts and raw materials limited the country's expensive new factories to running at half capacity (Beresford 1988: 143). According to official figures, industrial output grew by an average of six per cent per year between 1965 and 1975 (Fforde and Paine 1987: Appendix Table 30). Published statistics do not give separate figures for the North after reunification, but industrial output in all Vietnam reportedly grew by an average of 0.5 per cent per year between 1976 and 1980 (Vietnam 1990: Table 57). Whether the reports of strong growth during the war were more than propoganda is unclear. The fact that growth was slow or non-existent after the war is less in doubt, since the reforms beginning in 1979 were largely a reaction to postwar difficulties.

The years 1965 to 1975 were the peak years of the war against the American-backed South. Although north Vietnam's economic performance was, of course, affected by the war, fewer of its economic problems can be blamed on the war than might be thought. Early American bombing destroyed much of northern Vietnam's fledgling industrial sector, and the country was forced to divert much of its manpower and resources to the war effort. However, the Vietnamese were surprisingly successful at

¹The exact amounts of foreign aid are not known, but Western scholars estimate that the Soviet Union and China between them gave or lent northern Vietnam about 80 million US dollars per annum between 1955 and 1965, and about 330 million dollars per annum between 1965 and 1975. China cut off all aid in 1978, while the Soviet Union increased its lending and aid to about 500 million dollars per annum (Beresford 1988: Table 9.4).

rebuilding and decentralizing their industries; wartime patriotism plus outrage at American bombing inspired people to longer work hours; and China and the Soviet Union were willing to replace through aid all that the Americans destroyed. Given, first, that agriculture and industry appeared to have experienced the classic problems of communist development even before the start of the war, and, second, that growth in both agricultural production and industrial production remained slow after the war, it seems likely that the early rapid growth would have been difficult to maintain even without the war. The worst economic consequence of the war may not have been its effect on aggregate output, but its effect on economic structures. The war made Vietnamese industry even more import-dependent, and even less integrated with the national economy than before. In addition, it disguised the need for reform for a decade or more (Fforde and Paine 1987).

Table 2.2, which uses official statistics collected by Fforde and Paine (1987), and is loosely based on a table assembled by them, gives an indication of changes in employment patterns between 1960 and 1975. Separate figures for northern Vietnam after reunification are difficult to obtain. As with most official Vietnamese statistics, the tabulation lacks definitions of terms and contains occasional minor numerical inconsistencies.

The greatest proportional and absolute increases in employment appear to have occurred within the state sector. The state sector included state factories or farms, and as well administration, education, health, or other services. Most of the increase in employment was probably paid for out of aid from fraternal socialist countries (Fforde and Paine 1987: 39). The working-age population is defined as all males aged 16 to 65 and all females aged 16 to 60. The official figures imply that state-sector employees represented 6 per cent of the working-age population in 1960, and 16 per cent in 1975.¹ As shown in Table 2.3 the rapid expansion of the state sector in northern Vietnam in the 1960s and 1970s stands in contrast to the situation in China, where state-sector employees represented around 12 per cent of the working age population in both 1958-60 and 1976-80. This meant that the size of the increase in the total number of state-sector jobs was almost 40 per cent of the size of the increase in the working-age population in northern Vietnam, compared with only about 12 per cent in China.

¹This and subsequent calculations were based on the figures shown in the original tabulation, rather than the rounded-off figures shown in Table 2.2.

TABLE 2.2 Working-age population and employment by economic sector

	1960	1975	Increase
Working-age population*			
Urban	0.9	1.7	0.8
Rural	6.6	9.3	2.7
Total	7.5	11.0	3.5
Employees			
State sector	0.5	1.8	1.3
Industrial and artisanal co-operatives	0.4	0.6	0.2
Agricultural co-operatives	4.9	5.3	0.4
Individual sector agriculture	0.8	0.3	-0.5
Petty trade, services, individual sector handicrafts	0.3	0.3	0.0
Armed forces	0.3	0.7	0.4
Total	7.2	9.0	1.8

*All males aged 16 to 65 years and all females aged 16 to 60 years.

This table is loosely based on Fforde and Paine (1987: Table 4.1).

The figures for the armed forces are based on US Army estimates, collected by Pike (1986: 2), who puts the size of the People's Army of Vietnam at 200 000 in 1955, 400 000 in 1965, and 650 000 in 1975. The figures shown here were derived by linear interpolation.

All other figures come from Fforde and Paine (1987), who give a translation of a Vietnamese compendium of official statistics. The sources of the individual figures are as follows. State sector: Table 12; Industrial and artisanal co-operatives: Table 37; Agricultural co-operatives, Individual sector agriculture: Table 72; Petty trade, services, handicrafts: Tables 37, 96.

Employment figures from outside the state sector are likely to be more unreliable than employment figures from within it. The figures on the armed forces shown in Table 2.2 derive from informed speculation by US Intelligence. According to Table 2.2, employment within the armed forces and within artisanal and industrial co-operatives expanded, while employment within agriculture contracted slightly. The figures on agricultural employment are at least consistent with other evidence of stagnation within agriculture.

TABLE 2.3 Employment and working age population in China (millions).

	1958-60	1976-80	Increase
State-sector employees	47	74	27
Employees in all sectors	262	401	139
Working-age population*	340	570	230

*The working-age population is defined here, as for northern Vietnam, as all males aged 16 to 65 and all females aged 16 to 60

Sources:

State-sector employees, employees in all sectors. Selden (1988: Table 6.2).

Working-age population. Estimated from United Nations (1995: 588).

As Fforde and Paine (1987: 76-8) emphasize, the official statistics do not measure employment in the 'outside economy'. Although the statistics shown in Table 2.2 imply that the proportion of the working-age population which was employed fell from about 95 per cent in 1960 to about 80 per cent in 1975, this may only mean that the size of the 'outside economy' increased—or that the army may have been larger than previously thought. Most descriptions of wartime northern Vietnam stress the existence of labour shortages and long work hours.

After 1975, the shift to a peacetime economy appears to have left co-operatives and state enterprises with far greater labour forces than they could use. Workers in many state factories and members of agricultural co-operatives worked only 150 to 180 days a year (Werner 1984: 51).

When Chaliand (1969), Houtart and Lemercinier (1984), and Luong (1992) talked to northern Vietnamese villagers, they were told many stories about the improvements in living standards brought about by the Revolution. In my own limited conversations with elderly Vietnamese I have been told similar stories. The Revolution did indeed mark the end of two decades or more of crises and immiseration, and marked the beginning of a few years of rapid growth—the achievements of which were at least sustained, even if they were not enlarged.

2.3.4. Social policies and their implementation

Between 1954 and 1979, Northern Vietnam had more success with its social policies than with its economic policies. The Vietnamese leadership exhibited a developmentalist concern with improving health, literacy, and living standards, but with a utopian edge. Socialist transformation, according to Vietnamese ideologues, would lead to three revolutions: one in the relations of production; one in culture and ideology; and one in science and technology. The revolution in science and technology would be the most important of the three (Vo Nguyen Giap 1977: 10).

Northern Vietnam's achievements in the fields of education and health are justifiably famous. By 1980, despite chronic poverty and the legacy of war, roughly 90 per cent of six year olds in northern Vietnam were attending school (Woodside 1983: 401); in the same year the joint life expectancy at birth was probably above 60 years (see Section 3.2). These results had been made possible by the establishment of thousands of

village schools and clinics catering to the rural majority. The schools and clinics were organized and paid for through the institutions of rural socialism, which, by the standards of similar institutions in other countries or economic institutions in northern Vietnam, proved to be highly effective at mobilizing local resources and attracting local participation.

Similarly impressive was northern Vietnam's system of social welfare. The system provided support, albeit at varying levels, for vulnerable groups such as the elderly, children, the disabled, and families of war victims, as well as groups who had made special contributions to society such as resistance fighters and war veterans. In general, the central government organized transfer payments to urban people through the urban socialist system. The government instructed rural communes and co-operatives to organize and fund their own programs (Nguyen Xuan Lai 1977: 35), although various ministries and mass organizations also provided money or rice to special groups such as veterans in both urban and rural areas. The massive subsidization and rationing of basic goods was an important part of the welfare system, protecting the purchasing power of vulnerable groups. Most subsidies went to urban people, who bought all their own food and usually lived in government housing, unlike rural people, who grew much of what they ate and lived in private houses. As Selden (1993: 225) notes, many individuals may have been persuaded to join the war effort by the knowledge that the community would look after their families in their absence.

After 1954, the government was able to fulfil some of the promises to women made during the resistance war. Legislators continued to enact equal rights legislation; co-operatives and state enterprises offered maternity leave and creches to female workers; and the new schools enrolled almost as many female students as males. In most communist countries, the female labour force participation rates rose when forced growth pushed up the economy's demand for labour. In northern Vietnam, the rise in female labour force participation occurred instead during the mobilization for the American war. Figures are scarce, but Table 2.4 gives a few examples. Few countries had such a large proportion of political posts occupied by women as Vietnam had in the early 1970s, although the ratio of women to men steadily decreased further up the hierarchy. Women were not displaced by men returning from the army until a few years after 1975, because almost as soon as the men were demobilized they were remobilized for the conflicts in Cambodia and on the Chinese border (Werner 1981: 188).

TABLE 2.4 Percentage of total positions occupied by women in northern Vietnam 1961-1975, various employment sectors, Party and government bodies

	1961	1964-5	1971-2	1975
Light industry	43	45	66	65
Heavy industry	-	23	-	-
Agriculture	57	-	61	-
Education	12	-	-	58
Provincial People's Committees	-	17	36*	-
Village and Township People's Councils	17	21	41	-

Dashes indicate no data available.

Source: Werner (1981: Tables 1, 2, 3)

*1969-70

The centrepiece of government efforts to reform families was the 1960 Marriage and Family Law.¹ During the drafting of the Law, officials conducted surveys, consulted the implementing bodies, and published preliminary versions in newspapers, with invitations for readers to write in with their comments. After the Law had been passed, the government charged the Vietnamese Lawyers' Association with monitoring its implementation (Ginsburgs 1975: 629-30, 39). The Law built on the two decrees on marriage and the family issued in 1950. Women and adult children were given legal rights to household property (Articles 15, 20). Polygamy and forced marriage were forbidden, and a minimum marriage age was set at 18 for women and 20 for men (Articles 4, 6). Divorce was legalized, and provisions were made for equitable division of property and care of the children (Articles 25-33). Contemporary Vietnamese reports claim that the law was energetically enforced. Many couples do seem to have taken advantage of the provisions for a divorce, as there were reportedly about 20 000 cases a year during the early 1960s, after which the number tapered off (Phan Thi Dac 1987: 161).

The northern Vietnamese government first declared an interest in family planning in 1961, and by 1963 a family planning program had been established. However, despite occasional rhetoric about the danger population growth posed to development, few resources were devoted to family planning programs during the 1960s and 1970s (Nguyen Huyen Chau 1988).

The government poured far more resources into its migration schemes. Vietnamese governments since the fifteenth century Le dynasty have organized mass migration to

¹An English translation of the Law is given in Kim (1973).

relieve population pressure in the Red River Delta (Nguyen The Hue 1995: 32-4). In the first Five Year Plan (1961-5), the northern Vietnamese government proposed a policy of moving sufficient people from the delta to the highlands to absorb the entire natural increase of the delta. By 1975 something like one million people had migrated—a large number, but seven million short of the natural increase in the Delta. After reunification, the government proposed to send over 700 000 northerners to destinations in the South before 1980. Only a fraction of this number actually moved and many of these eventually returned to their old homes (Desbarats 1987: 44, 60-1).

2.4. Market Leninism 1979-1995

2.4.1. Economic reform

By 1979 Vietnam's economic problems had reached crisis proportions. Both agricultural and industrial production were stagnant, food shortages were increasing, and the state's economic institutions were being undermined by large-scale non-compliance. Vietnam was also forced to bear the costs of national reunification, plus military action in Cambodia and on the Chinese border. To make matters worse, in 1978 and 1979 China and the West cut off all aid. The Vietnamese leadership responded with some initially modest Dengist reforms.

Between 1979 and 1986, Vietnamese policy makers introduced a series of measures seeking to boost production while leaving the country's basic economic institutions intact. They reduced rationing and price controls, and permitted some growth in private trading and retailing, although private traders continued to suffer from harassment from the authorities. In 1981, the government passed legislation permitting agricultural co-operatives to contract certain agricultural tasks to households. State-owned enterprises were progressively given more autonomy from the central plan. The process of liberalization was not unidirectional, but consisted of successive concessions and retreats in different policy areas. The macro-economic results were generally encouraging: although, according to official figures, growth in agricultural output declined from a peak to about five per cent per annum by the mid-1980s, growth in industrial output continued at over ten per cent. Progress was held up mainly by a bungled wage and price reform in 1985-6 which sent inflation up to nearly 500 per cent per annum (Beresford 1988: 160-71; Fforde 1995).

At the Sixth Party Conference in 1986, the Party announced the start of a new, more radical, strategy for reform under the title of 'Renovation', *Doi Moi*. Perkins (1993: 4) suggests that Vietnamese policy makers were impressed by the success of China's reforms, and looked to the hyper-growth economies of ASEAN. Policy makers were probably also worried about the possibility of high inflation stirring up mass discontent. Over the following years, the government progressively dismantled the apparatus of price control, phasing out rationing and set prices, and floating the exchange rate. A decree in 1988 devolved organization of agriculture from co-operatives to households, stripping co-operatives of most of their responsibilities. Successive policies ceded state-owned enterprises increasing autonomy, and hardened their budget constraints. Legislation was passed to facilitate foreign trade and investment, both of which increased dramatically. By 1993, the private sector was expanding rapidly, and the economy was growing by about eight per cent a year.

2.4.2. *Reform and the state*

Economic reform may not have been matched by comparable political reform, but the new economic situation has had a dramatic effect on most state institutions. With the demise of most agricultural co-operatives, communes lost their main source of revenue. Though they do levy fees and taxes on residents, the sums are far smaller than in the days when they had direct access to the budgets of co-operatives, and they now appear to receive most of their income from higher levels of government. With the disappearance of rural socialism and of the socialist components of urban socialism, the Vietnamese state has lost much of its distinctiveness. This is far less true of China, where Village and Township Enterprises appear to have taken over many of the structures and functions of rural communes.

In both Vietnam and China, however, 'economic reforms have shifted revenue from the center to the provinces, leaving the provinces in a much better bargaining position' (McCormick 1995). With the decline in foreign aid to Vietnam and the growth in the domestic economy, aid by 1993 accounted for only three per cent of government revenues (Vietnam 1995a: Table 4.8). Figures are not available, but revenue generated in the provinces is now a 'significant' proportion of overall revenue (World Bank 1995: 35). Tax collection officials are responsible to their provincial People's Committees as well as

to the Ministry of Finance. Despite the World Bank (1995: 35) claim that their 'effective role in exercising expenditure decisions is very limited', the current situation appears to give a great deal of bargaining power to provinces, or at least the wealthier ones. Wealthy provinces spend about twice as much per capita as poor provinces, and different provinces give priority to different sectors (Allen 1993: Table 2.1; World Bank 1995: Table 2.6), which suggests that the central government's ability to redistribute revenue and to set provinces' agendas is strictly limited.

The growth of the private sector, particularly of labour markets, has reduced state power at the grassroots. People employed in the private sector can more easily escape the notice of the household registration system, and are not subject to the system of penalties and bonuses used by the state to encourage its employees to follow official policies such as the family planning policy. Moreover, the private sector offers prestigious career paths which are more financially rewarding than those of the state sector, so that the state can no longer count on enlisting the services of its most talented citizens. In recent years, for instance, the government has made a concerted effort to attract people back into the mass organizations, only to be met by overwhelming public indifference (Marr 1993: 352).

Since 1945, the northern Vietnamese state has promised its population that it would secure national independence and bring about rapid development. It succeeded in its first objective but only partly succeeded in its second, as it has tacitly admitted by introducing economic reforms. The success of the reforms in stimulating rapid economic growth appears to have protected the government from major challenges to its legitimacy. Vietnamese from all social classes, however, have made public complaints about particular corrupt officials. While speech is freer now than at any time since 1946, the government does not permit organized opposition groups, and there are periodic crackdowns on dissenters (Marr 1993; Kerkvliet 1995; McCormick 1995).

2.4.3. Social services

The provision of social services in northern Vietnam was profoundly affected by economic reform. Northern Vietnam's social services had in fact been deteriorating since 1975, because of the steady decline in government resources, combined with the costs of building up social services in the South. Once devolution of agricultural production began to take effect, and rural socialism began to unravel, crisis set in. By the mid-1980s, many

benefits had been eroded into insignificance; schools and clinics were unable to purchase equipment or supplies; training and retraining had been suspended; and teachers' and health workers' salaries had fallen below subsistence levels. Many teachers and health workers had begun covert fee-charging.

The situation began to change in the late 1980s. As its finances improved, the state was able to embark on institutional reconstruction, although the emerging system bore a closer resemblance to that of neighbouring capitalist countries than it did to the former two-tier socialist model. The state took over responsibility for paying the salaries of local teachers and health workers, leaving communities to pay most other expenses. Although some of these expenses were paid out of commune resources, the main source was user fees, which by 1990 were legal and entrenched. According to a World Bank survey, private expenditure now accounts for 60 to 70 per cent of all health expenditure in Vietnam, which is one of the highest proportions in Asia (World Bank 1993: Table 7.3). The Vietnamese government has recently reformed its sickness and old age insurance scheme, but only employees of the state or of private firms with ten or more people are covered (Nha Xuat Ban Chinh Tri Quoc Gia 1995). A few rural communities have developed their own small insurance schemes.

Many northern Vietnamese claim that social services now are of a lower quality than during the 1970s. Basic literacy rates and mortality rates appear, nevertheless, to be slightly better now than during the 1970s. Presumably the effect of the deterioration in services has been offset by the effect of rising incomes.

The government has undertaken no new significant initiatives to advance the causes of women's liberation or egalitarian families. The 1986 Marriage and Family Law contains no important changes from the 1959 Law, except, perhaps, for the injunction that 'husband and wife shall have the obligation to implement family planning' (The Gioi Publishers 1993: 297). Many of the recent institutional changes have militated against the provision of social services directed at women. Co-operatives and state enterprises used to provide creches; only state enterprises have survived renovation, and they have acquired hard budget constraints and so are no longer willing or able to provide the same level of support to their workers. Some commentators argue that the return to family farming represents a return to patriarchy for rural women. This simplistic account assumes that family farms are necessarily patriarchal and overlooks the fact that in matters such as work points for traditional female tasks, or in the distribution of

leadership positions, co-operatives also discriminated against women. In any case, family farming never disappeared.

The government's most energetic foray into social engineering during the reform period has been its family planning program. Starting in the mid-1980s, the government reorganized the family planning bureaucracy and increased its funding, as well as introducing new family planning legislation and a system of targets, incentives and penalties (Hull and Le Bach Duong 1992). Implementation of these policies appears to have been highly uneven, depending on the way the state apparatus evolved in different provinces, or even villages. Goodkind (1995) found evidence in the northern province of Hai Hung of local officials levying large fines against couples who exceeded family planning targets. Hai Hung is the province where the Party's hold is probably strongest, however, so these findings cannot safely be generalized to the rest of the North.

2.4.4. The Socialist Republic of Vietnam?

The State promotes a multi-component commodity economy functioning in accordance with market mechanisms under the management of the State and following a socialist orientation (1992 Constitution. Article 15).

The writers of the 1992 Constitution managed to accurately convey the ambiguity surrounding Vietnam's socialist status. Some elements of the political system and ideology of the 1960s and 1970s have been retained, while others have been abandoned or modified. Vietnamese leaders have chosen to retain most of the institutions and ideas of democratic centralism. They have preserved the state's monopoly over political organization and the media, and the police routinely harass perceived opponents. State agents have also maintained a high degree of involvement in economic production. According to official figures (Vietnam 1995a: Table 4.5), the proportion of Gross Domestic Product accounted for by state enterprises increased from 33 per cent in 1990 to 40 per cent in 1994. Fforde (1995) tentatively suggests that Vietnam may nevertheless have a 'purer' market economy than China, since the Vietnamese government had less revenue at its disposal at crucial stages of the reforms to grant special privileges to state-owned enterprises.

Vietnam's leaders might have been expected to seek development strategies which minimized the growth in economic differentiation, in order to give themselves greater

grounds for claiming continuity with the past. Billboards in northern Vietnam do in fact display slogans such as 'Rich, Civilized, and Equal Vietnam'. The principle of equality has, however, been spectacularly overridden by some major policies aimed at promoting economic efficiency. During decollectivization, for instance, policy makers instructed rural communities to distribute most land on an egalitarian basis, but to set aside some land to be auctioned off to the highest bidders, in order to boost productivity. Most communities have objected to the idea of distributing land on the basis of ability to pay and have progressively increased the proportion of equally-shared land at the expense of auctioned land (Luong and Unger 1995: 3-4). Another example of the government betting on the strong has been the policy of concentrating infrastructural investment and joint ventures within the three regions of Vietnam which are already most developed: Hanoi-Haiphong, Danang, and Ho Chi Minh City. Moscow no longer excites the imagination of Vietnamese policy makers: the inspiration for this last policy is reputed to be Bangkok.

Chapter 3. Mortality, fertility, and numbers of surviving children, 1900-2000

3.1 Introduction

Mortality began declining rapidly in northern Vietnam some time after 1945; fertility began to decline slowly in the 1960s. This rough account of northern Vietnam's demographic transition can be inferred fairly safely from the small amount of demographic data available. Some information about magnitudes and timing must be added to the story, however, before anything of interest can be said about the demography of northern Vietnamese families. Moreover, the smooth playing out of northern Vietnam's demographic transition has been disrupted by the effects of two of the most devastating wars of the twentieth century, and a famine which probably killed as many people as the two wars combined.

This chapter attempts to use available information to construct a rough but serviceable model of the main trends in northern Vietnamese mortality and fertility, and of the effects of the famine and wars. It incorporates elements of a backward projection and of a macro-simulation of population dynamics. The reconstructed values for mortality and fertility are used in this chapter to estimate trends in mean numbers of children surviving, and will be used in subsequent chapters to investigate other aspects of the demographic structure of northern Vietnamese families.

The statistical sources on which the reconstruction is based consist of vital registration statistics, recent censuses and surveys, and a few older small scale studies. Evidence becomes progressively more scarce further back in time, and for the period prior to the 1950s there are virtually no statistical data at all. To make the most of the existing data, their likely biases are discussed and their consistency is examined. Information on conditions during each period within northern Vietnam and on demographic rates in comparable countries is also incorporated into the reconstruction. The initial data and the assumptions are presented in detail, so that readers are able to assess the plausibility of the results. Reconstructed values for numbers of surviving children for recent years are compared with reported values from censuses and surveys to assess the reliability of the reconstruction methods. The reconstructed values for children

surviving are also tested for their sensitivity to alternative assumptions about mortality and fertility.

The reconstruction of both mortality and fertility rates is carried out in two stages: first, the estimation of trends, and second, the adjustment for famine and war. The first stage is broken down further into the estimation of levels, and then the estimation of age-patterns. All estimated rates, except for infant and child mortality, pertain to five-year age groups. Estimates are made for each year of the twentieth century. Cohort mortality and fertility rates and estimates of numbers of children surviving are calculated and discussed in the final two sections of the chapter. Regional differences are shamelessly ignored until the end of the chapter, when urban-rural differentials are discussed.

Trend levels are defined as the levels which were likely to have occurred if northern Vietnamese institutions had developed as they actually did, but if there had been no famine, military or bombing deaths, and if fertility had not been reduced by the crises or increased by post-crisis baby booms. The trend levels exclude the excess deaths and averted births which were directly attributable to the famine and wars, but include the births and deaths which were indirectly attributable to the famines and wars, through their influence on northern Vietnam's pattern of development. This method does not allow a full accounting of the effects of the famine and wars to be made, but a method which incorporated the indirect effects would require the construction of elaborate alternative histories. Crude as the methods used are, they do at least allow some notion to be gained of the role played by famine and war in northern Vietnam's demographic development.

3.2 Mortality

3.2.1 Reconstruction of mortality trends

Mortality levels are represented in the reconstruction by the life expectancy at birth of males. The century will be dealt with in four periods: 1900-1945, 1945-1965, 1965-1989, and 1989-2000.

1900-1945

Gourou (1936: 187-9), summarising mortality conditions in the 1930s, claimed that 'it is certain that mortality has fallen greatly since the establishment of the French

protectorate'. He argued that mortality had been reduced through inoculation campaigns against smallpox, cholera, and other epidemic diseases, through the improvement of dykes and irrigation systems in the Red River Delta, and through the suppression of internal wars and disorder. Gourou's account receives indirect support from Kunitz (1986: 280-1), who proposed a similar list of factors to explain the decline of mortality in Europe during the seventeenth and eighteenth centuries. Kunitz argued that mortality in Europe had been reduced through the stricter enforcement of quarantines by nation states, through the improvement of agricultural production and distribution systems, and through an improvement in military discipline.

Statistics on colonial mortality levels are scarce. The most reliable data which Gourou (1936: 196-7) was able to find came from a selection of villages with moderately good vital registration systems, and from registers maintained by Catholic parishes. Using these sources, Gourou calculated a crude death rate for the 1920s and 1930s of 20 per thousand. He immediately warned the reader, however, that his sources missed many infant deaths, so that his estimate was too low. He gave little indication of how far the estimate should be revised upwards. The only longitudinal data which Gourou could find came from a district near the coast with 237 000 people in 1909 and 367 000 people in 1934. The death rate in this district fluctuated sharply year by year but showed no trend over time. According to a Vietnamese Ministry of Health source cited by Jones (1982: Table 3), the northern Vietnamese crude death rate in 1936 was 26 per thousand, while the infant mortality rate was 300 to 400 per thousand, and the life expectancy at birth was 34 years. The reported figures for the infant mortality rate and life expectancy appear to be consistent, judging by the life tables generated later in this chapter. If these figures give any indication of true levels, then, as shown in Table 3.1, mortality levels in colonial northern Vietnam were significantly lower than in rural China during the same period, slightly lower than in India, and significantly higher than in Sri Lanka.

Mortality levels in colonial northern Vietnam are represented in this chapter by setting the male life expectancy at birth equal to 30 years in 1900 and 35 years in 1945, with a constant increase between the two dates. Any inferences made from the limited available evidence are necessarily arbitrary, as the choice of round numbers and of a constant increase is meant to suggest. The effect on numbers of surviving children of alternative assumptions will be examined in Section 3.5.4. The assumption of declining mortality despite the lack of a trend in Gourou's data is based on the belief that French

public health campaigns and dyke-building must have had some ongoing effect on mortality. It also seems likely that the significant improvement in life expectancy evident in colonial India and Sri Lanka was at least partly duplicated in colonial Vietnam.

TABLE 3.1 Estimates of mortality in India, Sri Lanka, and rural China

<u>India</u>						
Mukherjee (1976: Table 9.1)						
	1901	1911	1921	1931	1941	1951
Crude death rate, per thousand	47-49	42-44	48-50	36-38	32-34	30-32
Joint life expectancy at birth, years	21	24	21	27	33	35
Mari Bhat (1989: Table 5)						
	1901-11	1911-21	1921-31	1931-41	1941-51	
Male life expectancy at birth, years	25	22	30	30	31	
<u>Sri Lanka</u>						
Caldwell (1986: Table 4)						
	1900	1946				
Joint life expectancy at birth, years	35	46				
<u>Rural China</u>						
Barclay, Coale, Stoto, and Trussel (1976: Table 13)						
	1929-31					
Crude death rate	42					
Male life expectancy at birth, years	24					

1945-1965

Between 1945 and 1965 mortality levels fell dramatically. Following the 1945 Revolution, the new government began constructing a health system far more ambitious than anything left behind by the French. Schools were set up to provide basic training to hundreds of health cadres, inoculation campaigns were launched, and mass organizations such as the Women's Union were instructed to participate. After the French re-occupation in 1946, the government continued its campaign from its bases in the mountains (Worth 1985: 191-3). Health cadres were desperately short of Western medicines, but this period was the high point of support for the regime and popular enthusiasm for change—essential conditions for a successful public health campaign. Following the war, in 1956

alone 13 million people reportedly attended classes on hygiene and preventative medicine (Van Tao 1995: 54). Similarly impressive figures were reported for well-digging, latrine-building, and the establishment of maternity facilities. With collectivization in 1959-60, the organization and funding of village health centres became fully institutionalized, so that by 1965 all lowland villages and 80 per cent of upland villages reportedly had health centres with two to four trained staff (Dinh Thu Cuc 1995: 261). Vietnamese authors argue, plausibly, that because most of these centres' funding and staff came from the local community, the centres tended to be accessible and responsive to local needs (Hoang Dinh Cau 1965).

The improvement in living standards was potentially as important to lowering mortality as the expansion of the health system. Consumption levels have an important effect on mortality levels in a population like that of northern Vietnam during the 1950s and 1960s where endemic infectious diseases are the major cause of mortality, since people who are adequately nourished are more likely to survive episodes of these diseases (Kunitz 1986: 279). Between 1954 and 1960 agriculture in northern Vietnam recovered from the effects of the liberation war and expanded rapidly: according to official figures, production doubled during the period (Vickerman 1986: Appendix Table 4). Land reform had ensured that productive assets and therefore consumption was broadly distributed. Collectivization brought the period of rapid productivity growth to an end: production apparently fell by 20 per cent between 1959 and 1960, and remained at roughly the same level until 1965 (Vickerman 1986: Appendix Table 4). Collectivization may, however, have improved the food intake of vulnerable members of the community, since co-operatives generally tried to guarantee minimum subsistence levels for all.

Caldwell (1986) notes that, in addition to accessible health systems and nutritional floors, poor countries with exceptionally low mortality tend to have mass schooling. As discussed in Chapter 2, the early development of northern Vietnam's mass schooling system closely paralleled the development of its public health system. Caldwell also argues that rapid improvements in health tend to be achieved with least difficulty in countries where women have autonomy and influence. The social science literature on Vietnam is replete with observations that Vietnamese women have much higher status than Chinese women, and that Vietnamese women control household spending (Nguyen 1944: 50; Jamieson 1986: 112-13).

TABLE 3.2 Mortality estimates for Vietnam 1945-1965

	Crude death rate, per thousand		Infant mortality rate, per thousand		Joint life expectancy at birth, years	
	Northern Vietnam	All Vietnam	Northern Vietnam	All Vietnam	Northern Vietnam	All Vietnam
Jones (1982: Table 3)						
1957	12	-	-	-	-	-
1960	12	-	-	-	-	-
1965	7	-	-	-	-	-
Savitz, Nguyen, Swenson, and Stone (1993: Tables 1, 3)						
1953-65	-	-	45	57	-	-
Hirschman, Preston, and Vu (1995: Table 4)						
Before 1955	-	-	-	-	-	incl: 50 excl: 55
1955-64	-	-	-	-	-	incl: 63 excl: 66

Jones (1982). Official estimates from vital registration system.

Savitz et al. (1993). Calculated from birth history data from 1988 Demographic and Health Survey.

Hirschman et al. (1995). Calculated from reports of births and deaths of kin from a survey of four localities. Hirschman et al. present their results as probabilities of survival between various adult ages, and as West model life table levels; the corresponding life expectancies at birth are shown here. The figures marked 'incl' are the life expectancies including war deaths, and the figures marked 'excl' are the life expectancies excluding war deaths.

Available statistics, cited in Table 3.2, confirm the idea that northern Vietnam became a superior health achiever (Caldwell 1986) not long after the Revolution. Although the accuracy of the vital registration statistics reported in Table 3.2 should not be overstated—for instance, Vietnamese statisticians told Jones (1982: 790) that the vital registration system has under-enumerated deaths—their accuracy should also not be understated. Vietnamese statisticians generally consider population data to be the least unreliable of all statistical data available in Vietnam. The unusual extent of state penetration to the local level in northern Vietnam made a vital registration system more feasible than in most developing countries of comparable poverty. Annual surveys of 20 per cent of the population were carried out to assess the reliability of the system, and official estimates were adjusted on the basis of the survey findings, in the manner of the sample vital registration system in India (Jones 1982: 805-6).

Using retrospective data from the 1988 Demographic and Health Survey, Savitz, Nguyen, Swenson, and Stone (1993: Table 3) derive an estimate of the infant mortality rate for 1953-63 of 45 per thousand. This figure is far lower than the United Nations estimates for most of the rest of Asia at the time (see Table 3.3), and is one point lower than the rate estimated for all Vietnam in 1989-93 from the 1994 Intercensal

Demographic Survey (Vietnam 1995: Table 6.1). It therefore is almost certainly an underestimate. Hirschman, Preston, and Vu (1995: Table 4) use retrospective data from a survey conducted in four localities across Vietnam to estimate past mortality levels. They report their results as probabilities of survival between various ages and as West model life table levels. Table 3.2 summarizes their results, and shows the life expectancies which their results imply. The survey distinguished between military and non-military deaths, enabling Hirschman, Preston, and Vu to make separate estimates including and excluding the effects of the war. This information will be used later in the chapter to adjust trend mortality rates. The estimates made by Hirschman, Preston, and Vu imply that in 1955-64 mortality levels in all Vietnam were equal to or lower than those in Sri Lanka. This may have been possible, but given the much harsher economic conditions in northern Vietnam, it is perhaps safer to assume that their estimates are somewhat too low. What the vital registration statistics and the estimates constructed by Savitz et al. and Hirschman et al. do show, however, is that by the late 1950s and early 1960s mortality had already declined sharply from colonial levels.

TABLE 3.3 Mortality estimates for Southeast Asia, Sri Lanka, and China, 1950-1965

	1950-1955	1955-1960	1960-1965
Infant mortality rate (per thousand)			
Southeast Asia	154	135	119
Sri Lanka	91	76	65
China	195	179	121
Joint life expectancy at birth (years)			
Southeast Asia	41	44	46
Sri Lanka	57	61	64
China	41	45	50

Note. The figures for China in 1955-65 include mortality from the Great Leap Forward famine. During the period 1965-70, which was not affected by the famine, the infant mortality rate was 81 per thousand and life expectancy at birth was 60 years.

Source: United Nations (1995: Tables A.26, A.27)

The downward trend in non-military mortality between 1945 and 1965 is represented in the reconstruction by setting the male life expectancy at birth at 58 years for 1965, compared with 35 years for 1945. This gives an average annual gain in life expectancy of 1.15 years. In Sri Lanka between 1946 and 1953, which was the fastest period of mortality decline there, the average annual gain in joint life expectancy was 1.7 years. The corresponding figure for Kerala between 1956 and 1971 was 0.8 years (Caldwell 1986: Table 4).

The vital registration data for 1957, and the accounts of the wartime public health campaigns both give reason to believe that non-combat mortality in Vietnam began declining substantially during the 1946-54 war. The rate of decline was presumably lower during the war than afterwards, so that it would be more realistic to divide the period 1945 to 1965 into two, and to assume a faster decline between 1955 and 1965 than between 1945 and 1955. The difference this adjustment would make to the overall results is small, however, so a constant decline has been used instead.

1965-1989

Northern Vietnam's rural health system appears to have survived the 1965-75 war intact (Worth 1985: 254-740). Between 1975 and 1981, however, foreign aid receipts fell sharply, medical supplies were diverted to the South, and economic growth was virtually nil, so that neither co-operatives nor the central government were able to support the health system at previous levels (Allen 1993: 44; Fforde 1995: Figure 3.2). After reforms in 1981, the economy grew at between five and ten per cent a year, but the health sector remained starved of funds (Quinn-Judge 1986; Allen 1993: 44; Fforde 1995: Figure 3.2). Health workers increasingly relied on fee-charging to make ends meet, which, since rural incomes probably grew slower than the rest of the economy between 1982 and 1989 (Fforde 1995: 3), meant that many people were unable to pay individually for services which previously had been paid for by the community or the central government (Pham Bich San 1991: 48).

The first section of Table 3.4 shows official Vietnamese estimates collected by Banister. The 1979 life expectancy estimates were derived from the 1979 Census, and the rest appear to be derived from vital registration data. The vital registration data should be treated with suspicion, given the difficulty of maintaining an accurate vital registration system during a war. The estimates made by Savitz et al. again appear implausibly low: northern Vietnam during the 1965-75 war almost certainly did not have an infant mortality rate 40 per cent lower than that of Sri Lanka. The estimates made by Hirschman et al. also imply low mortality, though not lower than that of Sri Lanka or of China (see Table 3.5). Both sets of estimates suggest that mortality was lower after 1965 than before; Savitz et al.'s estimates suggest little change after 1965, while Hirschman et al.'s estimates suggest a downward trend.

TABLE 3.4 Mortality estimates for Vietnam 1965-1993

	Crude death rate, per thousand		Infant mortality rate, per thousand		Life expectancy at birth, years	
	Northern Vietnam	All Vietnam	Northern Vietnam	All Vietnam	Northern Vietnam	All Vietnam
Banister (1985: Table 5)						
1965	6.7	-	-	-	-	-
1969	6.6	-	-	-	-	49
1970	6.6	-	31	-	50	-
1971	6.7	-	-	-	-	-
1972	8.0	-	-	-	-	-
1975	-	-	33	-	58	58
1976	5.5	7.5	-	-	-	-
1977	-	7.0	-	30	-	-
1978	-	7.1	-	36	-	60
1979	6.2, 6.4	6.3, 7.1	-	-	-	m=64, f=68
1980	-	7.0	35	-	-	-
1981	-	7.0	-	-	-	-
Savitz, Nguyen, Swenson, and Stone (1993: Tables 1, 3)						
	-	-	34	38	-	-
1976-88	-	-	34	37	-	-
Hirschman, Preston, and Vu (1995: Table 4)						
1965-75	-	-	-	-	-	incl: 60 excl: 70
1976-90	-	-	-	-	-	incl: 69 excl: 70
Vietnam (1983: Table 9)						
1978-79						m=64, f=68
Vietnam (1991a: Table 10.6)						
1988-89	-	-	-	m=45, f=44	-	m=63, f=68
Vietnam (1994b: Table 2.1)						
1988-89	8	7	41	42	m=65, f=69	m=64, f=68
Vietnam (1995: Table 6.2)						
1979-83	-	-	-	55	-	-
1984-88	-	-	-	46	-	-
1989-93	-	-	-	44	-	-
1984-93	-	-	45	45	-	-

Notes

Banister (1985). Official estimates, collected by Banister from numerous sources.

Savitz et al. (1993), *Hirschman et al. (1995)*. See sources for Table 3.2.

Vietnam (1983). The official report from the 1979 Census.

(1991a). Calculated from 1989 Census data.

Vietnam (1994b). Calculated from 1989 Census data. The figures for the North are population-weighted means of provincial figures.

Vietnam (1995). Calculated from birth history data from the 1994 Intercensal Demographic Survey. The figure for the North is a population-weighted mean of regional figures.

Although potentially more reliable than estimates based on vital registration or survey data, the 1979 Census estimates reported in Vietnam (1983: Table 9) have been questioned by Banister (1993: 14-15). The official life table rates may be too low because they rely on the vital registration system for data on the number of deaths, even though the vital registration system was known to under-enumerate deaths. The official report on the 1989 Census (Vietnam 1991a: Table 10.6) used data on household deaths to estimate the joint life expectancy at birth in 1988-9 to have been 65 years. The census statisticians tested this estimate against estimates derived from data on children ever born and surviving, against estimates from analysis of cohort survival ratios between the 1979 and 1989 Censuses, and against estimates derived from the North model life table. The results were found to be consistent.

TABLE 3.5 Mortality estimates for Southeast Asia, Sri Lanka, and China, 1965-1995

	1965-70	1970-75	1975-80	1980-85	1985-90	1990-95
Infant mortality rate (per thousand)						
Southeast Asia	110	101	91	78	66	55
Sri Lanka	61	56	44	35	24	18
China	81	61	52	52	50	44
Joint life expectancy at birth (years)						
Southeast Asia	49	52	55	58	61	64
Sri Lanka	64	65	67	69	71	72
China	60	63	65	67	67	69

Source: United Nations (1995: Tables A.26, A.27, A.28, A.29)

None of the Census estimates apply to northern Vietnam alone, so to obtain an estimate of life expectancy in northern Vietnam, I took a population-weighted mean of the provincial-level estimates presented in one of the Census reports (Vietnam 1994b: Table 2.1). This gives figures for the North which are one point higher than the national average.

For the purposes of the reconstruction, the male life expectancy for northern Vietnam in 1989 has been set at 64 years, this figure being one year below the Chinese male life expectancy for 1985-90 (United Nations 1995: Table A.26), and one higher than the Vietnamese Census estimate for all Vietnam for 1988-9, in accordance with the finding that life expectancies were slightly higher in northern Vietnam. The value chosen for 1965 was 58 years, so the 1989 value implies that on average 0.25 years of life expectancy was gained each year between 1965 and 1989.

1989-2000

Between 1989 and the mid-1990s the Vietnamese health sector has been subject to dramatic changes. The central government has legalized private practice, the charging of user fees by public facilities, and the selling of pharmaceuticals on the private market; it has given provincial or district governments responsibility for paying the salaries of commune health centre staff; and it has increased its budget allocation to health by over four times (World Bank 1993: 164-5; Vietnam 1995a: Table 4.15). Meanwhile, surveys have found that for about 50 per cent of households, the first response to illness is now to purchase drugs on the open market and to treat themselves (Allen 1993: 46-8). The World Bank (1995: 99-100) estimates that in the mid-1990s, 'less than 20 per cent of all medical consultations involve any private sector provider' and that 'the state budget paid for 16 per cent of all health expenditures in 1993'. On top of the health sector changes has come a transformation of the rural economy through the introduction in 1989 of household contracts legislation, dismantling the last vestiges of collectivized agriculture.

Some observers are pessimistic about the long-term consequences for health standards of the health sector and economic reforms (Kaufman and Sen 1993: 256-7). Aside from the report from the 1995 Intercensal Demographic Survey, which estimated that the national infant mortality rate fell from 46 per thousand in 1984-88 to 44 per thousand in 1989-93 (Vietnam 1995: Table 6.1), there is little statistical evidence on these effects. When constructing population projections for the years 1995 to 2005, officials at the Vietnamese General Statistical Office chose to assume no reduction in mortality rates. If, however, the 1979 Census estimates of mortality were too low and the 1989 Census estimates about right, so that mortality has been falling during the 1980s despite the disruption of reforms, then it appears likely that mortality would have continued falling during the 1990s when the economy has been growing strongly. For the reconstruction, the male life expectancy at birth in the year 2000 has been set at 66 years. This implies an annual gain in life expectancy of 0.18 years, or slightly less than the annual gains achieved during 1965-89.

The assumptions made about mortality levels for the entire period 1900 to 2000 are summarized in Table 3.6

TABLE 3.6 Values chosen for male life expectancy at birth to represent mortality levels in northern Vietnam, 1900-2000

	1900	1945	1965	1989	2000
Male life expectancy, years	30	35	58	64	66
	1900-45	1945-65	1965-1989	1989-2000	
Mean annual gain	0.11	1.15	0.25	0.18	

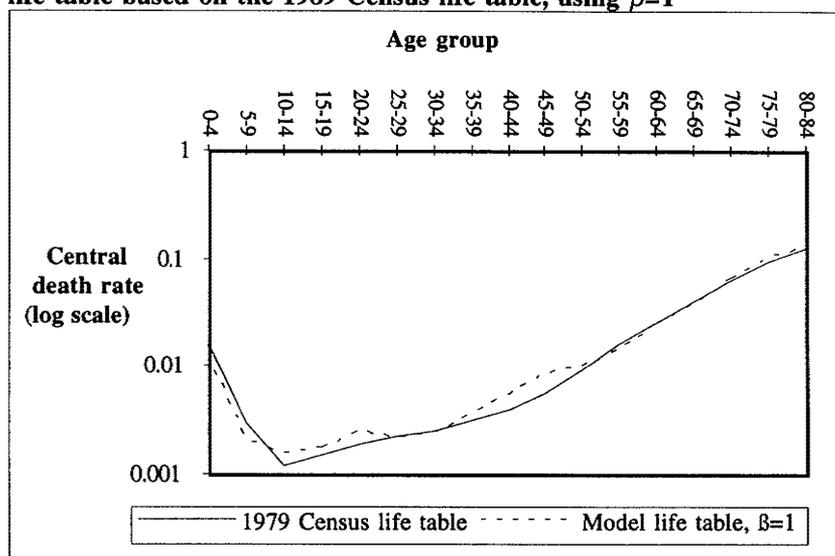
To generate age-patterns of mortality appropriate to the estimated levels of mortality, I have used the logit life table system. Brass (1971) found that families of realistic model life tables can be derived from a standard life table using the expression $Y_x = \alpha + \beta Y_x^s$, where Y_x is the logit transform, defined as $Y_x = \frac{1}{2} \ln[(1 - l_x)/l_x]$. Here the superscript s denotes the standard life table, and l_x is the life table probability of surviving from birth to age x . The level of mortality in the resulting life tables is governed mainly by the parameter α , while the ratio of mortality at older ages to mortality at younger ages is governed mainly by the parameter β . This relationship is not linear, allowing infant mortality to be reduced at a much faster rate than adult mortality (Brass 1975: 88-9; Basia Zaba 1988: 131).

The 1989 Census life table for males is used here as the standard for males, and the Census life table for females is used as the standard for females (Vietnam 1991a: Table 10.6). Although these life tables refer to all Vietnam rather than to northern Vietnam, separate life tables for the North have not been published, and available evidence suggests that in 1989 mortality conditions in northern Vietnam differed only marginally from the national average (see Table 3.4).

For the entire period 1900-2000, β has been set equal to one, implying that the different levels of mortality were distributed according to an identical age-pattern, equal to that found by the 1989 Census. There is some empirical justification for this assumption: Brass (1971: 96-106) found that β varied around a central value in over one hundred years of mortality data for Sweden and for England and Wales, and proposed a tentative argument for why age-patterns of mortality might remain roughly constant over time in all populations. The only data suitable for testing the assumption of a constant age-pattern of mortality are the life tables reported by Banister (1993: Table D-2) based on 1979 Census data. Figure 3.1 below compares the central death rates from the 1979 Census life table with the central death rates from a model life table with same life expectancy at birth derived from the 1989 Census life tables using $\beta=1$. The curves are sufficiently similar to

vindicate the choice of $\beta=1$. Perhaps the most compelling reason to assume a constant age-pattern of mortality, however, is the lack of evidence on which to base an alternative assumption.

FIGURE 3.1 The age-pattern of mortality from the 1979 Census life table, and from a model life table based on the 1989 Census life table, using $\beta=1$

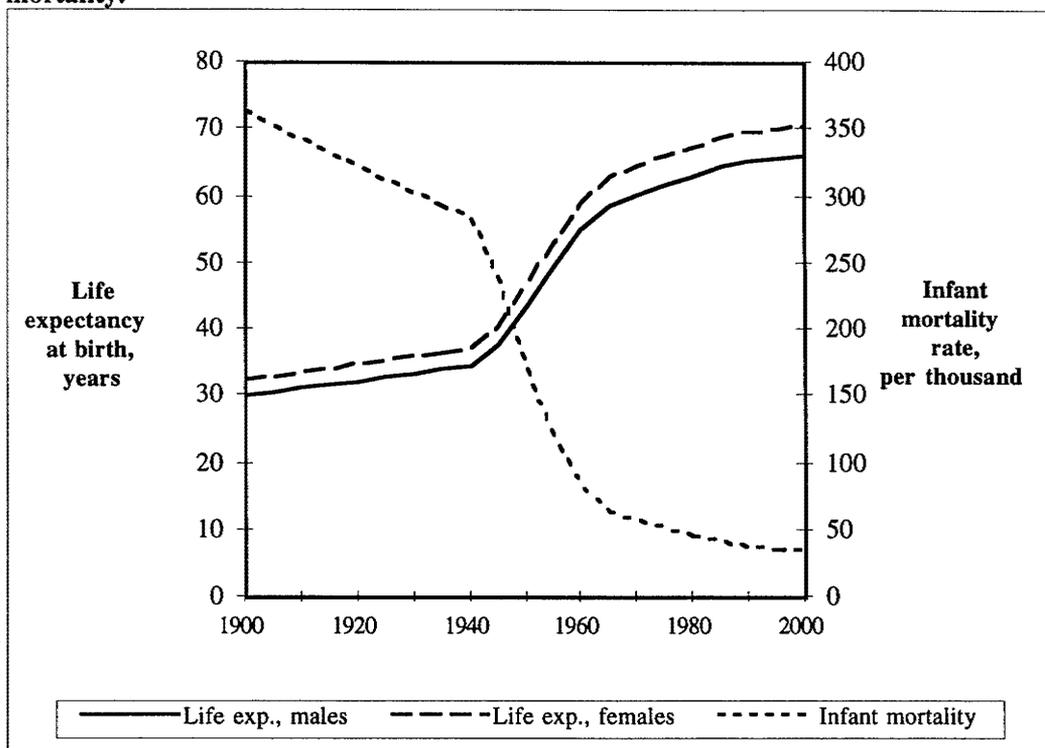


Both life tables are the life tables for males. The model life table is derived from the 1989 Census life table, setting α so that the life expectancy at birth from the model life table equals the life expectancy at birth from the 1979 Census life table.

The last step is to work out values for α which generate model life tables with the appropriate life expectancies for each period. The life expectancies are a function of the model life table l_x -values, which are a function of the α -values. Finding the α -value associated with each life expectancy would require putting the α -values in terms of the l_x -values, and the l_x -values in terms of the life expectancies, which is prohibitively difficult. The method used instead was to start with the life expectancies attached to the years at the beginning and end of each period. For the period 1900-1945, for instance, the life expectancies 30 and 35 are used. Values of α which produced life tables with the correct life expectancies were then found through trial and error. To generate life expectancies for the intervening years, α was assumed to change at a constant annual rate. The relationship between the values of α and the life expectancies is non-linear, which means that the annual change in life expectancy within each interval is affected in an arbitrary way by the properties of the relationship between the life expectancies, the l_x -values, and the α -values. These effects were sufficiently small, however, that they did not greatly influence the overall shape of the curve, as can be seen in Figure 3.2.

Survival functions for selected years are shown in the appendix to this chapter. In Figure 3.2, the values for life expectancy for males were part of the assumptions, but the life expectancies for females and the infant mortality rate were derived from the calculations. The infant mortality rate for males and the infant mortality rate for females were virtually the same, so a combined rate is shown.

FIGURE 3.2 Mortality levels from model life tables, 1900-2000, prior to adjustments for crisis mortality.



3.2.2 Adjustments for famine and military deaths

To incorporate the deaths from the 1944-45 famine and the 1946-54 and 1965-75 wars, estimates of the excess death rates have been added to the death rates from the original life tables, and the combined death rates used to calculate adjusted life tables.

The estimates of the 1965-75 military death rates for ages 15 and above shown in Table 3.7 come from Hirschman, Preston, and Vu (1995: Table 7). Hirschman et al. based their calculations on data on deaths of kin from their small, nationally representative survey. These death rates imply that the number of people killed from bombing and combat in North and South Vietnam combined was about one million. As no rigorous count of Vietnamese killed was ever made, most published estimates are essentially speculation. So, despite the small size of the survey, and the fact that they refer to North

and South together, the estimates from Hirschman et al. are the most suitable available for the reconstruction. Both Hirschman et al. (1995: 802-4) and Savitz et al. (1993) found that their data suggested the war had surprisingly little effect on infant and child mortality. Children may have been relatively protected from the effects of the bombing, since they were evacuated from the cities during the worst periods. A figure of one per thousand for excess mortality among children has been chosen in the reconstruction as a round number of similar magnitude to figures for the other non-combatant age groups.

TABLE 3.7 Estimates of excess annual death rates (per thousand) during famine and war

Age	1944-5 famine		1946-54 war		1965-75 war	
	Male	Female	Male	Female	Male	Female
0-1	68	68	1.0	1.0	1.0	1.0
1-4	137	137	1.0	1.0	1.0	1.0
5-14	68	68	1.0	1.0	1.0	1.0
15-29	68	68	9.4	0.3	9.4	0.3
30-44	68	68	4.3	1.1	4.3	1.1
45-59	68	68	1.1	2.0	1.1	2.0
60+	137	137	0.0	1.5	0.0	1.5

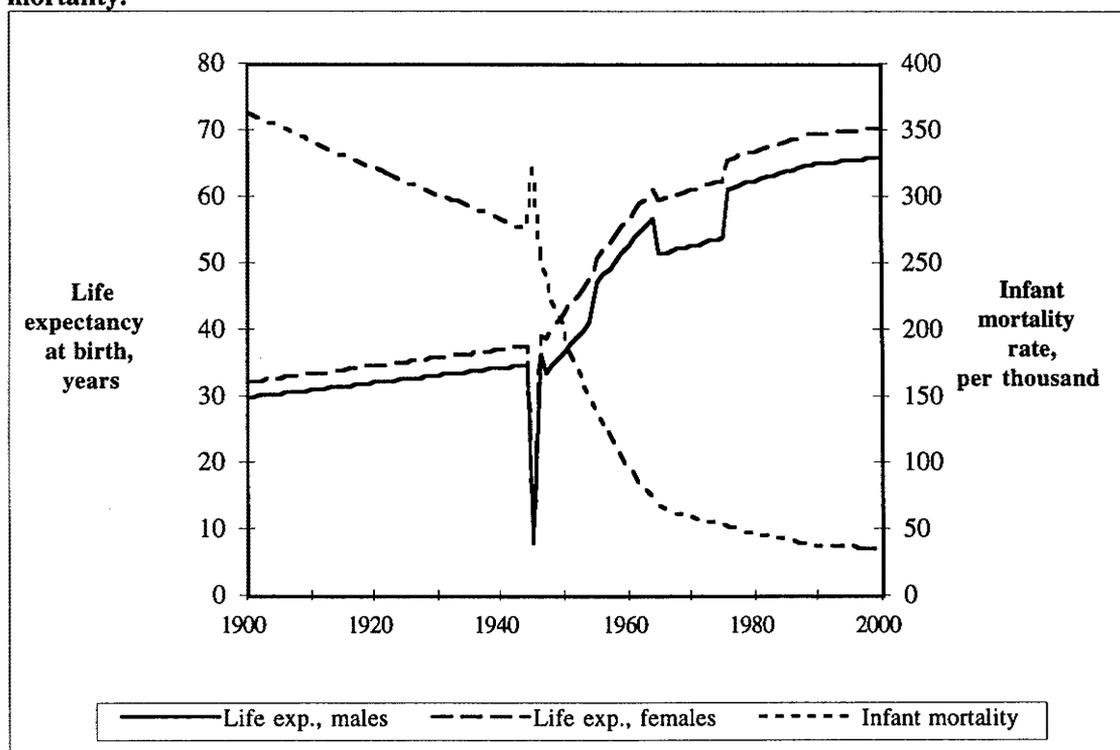
Figures for 1965-75 war based on Hirschman et al. (1995: Table 7). See text for explanation.

Hirschman et al. do not present estimates of military death rates from the 1946-54 Liberation War. They do make broad estimates of survival probabilities for this time, including and excluding military deaths, but the potential for recall errors regarding deaths 40 years prior to the survey was great. Historians have speculated that military deaths in this war may have been up to half a million (Hirschman et al. 1995: 783), which suggests that mortality rates could have been of the same magnitude as those in the 1965-75 war. I have used the same mortality rates for the 1946-54 war as for the 1965-75 war.

The head of the colonial French administration claimed that one million people were killed by the 1944-5 famine in northern Vietnam. Ho Chi Minh used a figure of two million in his 1945 Declaration of Independence, which is the number usually used by Vietnamese historians (Moise 1983: 154; Marr 1995: 227). It is hard to imagine what evidence these claims could be based on. Given that the population of northern Vietnam in 1943 was about 12.5 million, the estimate of one million famine deaths implies an excess death rate of about 80 per thousand. This would have been around three times the normal death rate for colonial Vietnam. The increases in the death rate caused by the 1932-3 collectivization famine in the Soviet Union and the 1959-62 Great Leap Forward famine in China (Livi Bacci 1993: Table 4) were of about the same magnitude, so I have

decided to use the French figure, though the excess death rates implied by the Vietnamese figure are within historical experience (Bongaarts and Cain 1982: 45). In Section 3.5.4 the effects on numbers of children surviving of using the two million figure will be assessed. Mortality among children aged one to four, and among the elderly usually increases more sharply during a famine than that among other age groups. The excess mortality rates for children and for people aged 60 years or more during the 1944-5 famine were assumed in the reconstruction to be twice as high as for the other age groups. To calculate the age-specific mortality rates associated with the overall mortality of one million deaths, I needed to make some assumptions about the age structure of the population. In the absence of anything better, I used the age structure that would be observed in a stable population with the life table which I calculated for northern Vietnam in 1945, before adjustments. This life table is shown in the appendix to the chapter.

FIGURE 3.3 Mortality levels from model life tables, 1900-2000, after adjustments for crisis mortality.



Adjustments for famine mortality were applied to the year 1945. This involves misstating the timing of the famine by six months. To get the timing right would have implied spreading the mortality over two years, which would have led to the rates being

halved, a worse distortion for present purposes. Adjustments for the liberation war were made for the years 1947 to 1954: the war did not begin until late November 1946, so no adjustment is made for this year. Adjustments for the American war were made for the years 1965 to 1975.

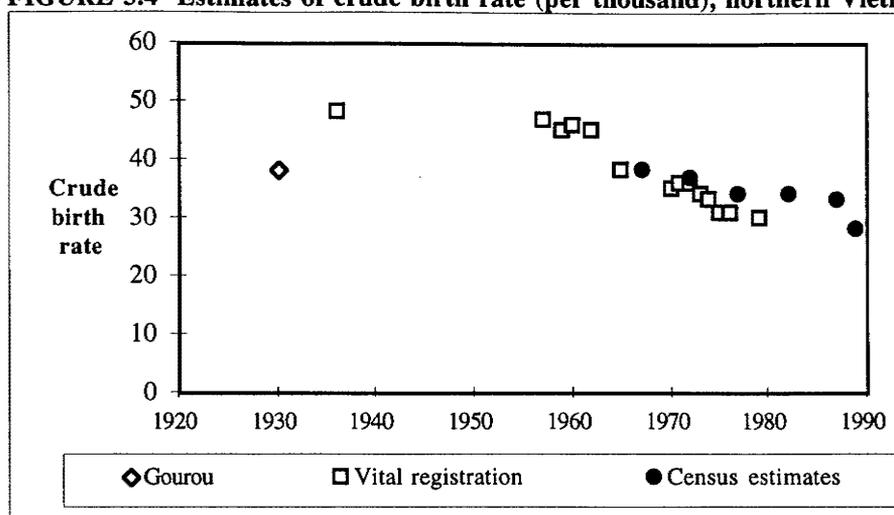
As is apparent from Figure 3.3, the reconstructed rates lack the random variations which characterize real data, even after the reconstructed rates have been adjusted for crisis mortality. This is true of all the rates generated in this chapter.

3.3 Fertility

3.3.1 Reconstruction of fertility trends

Fertility in northern Vietnam appears to have begun a slow decline from a high level some time during the 1950s or 1960s. The statistics plotted in Figure 3.4, and other statistics on fertility in northern Vietnam are presented in Appendix Table 3.3. Gourou's (1936: 196-7) crude birth rate of 38 per thousand is the reported rate from the sample of villages mentioned in Section 3.2.1. As with his figure for the death rate, Gourou warns that the birth rate is an underestimate, because of the under-reporting of infant deaths. The estimate for 1936 of 48 per thousand comes from unpublished Ministry of Health data cited by Banister (1985: Table 5). The estimates in the mid to high 40s for the 1950s and early 1960s come from the vital registration system. A broad idea of plausible levels for northern Vietnam can be gained by comparing the northern Vietnamese figures with those from other countries, presented in Table 3.8 and Figure 3.6.

Between 1900 and the mid-century, the crude birth rate in northern Vietnam probably fluctuated somewhere between 40 and 50 per thousand, and the total fertility rate probably fluctuated somewhere between five and seven births per woman. Pre-decline fertility in northern Vietnam has been represented here by setting the total fertility rate equal to six for the period. Both the round number and the assumption of no change are intended to draw attention to the tentativeness of the representation. The effect of alternative assumptions on numbers of children surviving will be tested in Section 3.6.4.

FIGURE 3.4 Estimates of crude birth rate (per thousand), northern Vietnam 1920-1990

Gourou (1936: 196-7). The figure refers to selected villages in the Red River Delta described in Section 3.2.1 above. Gourou suggests that the figure is an under-estimate.

Vital registration data. Banister (1985: Table 5). Banister cites vital registration data from a number of sources, notably unpublished data from the Vietnamese Ministry of Health.

Census estimates. Vietnam (1994c: Tables 1.1, 1.2). Estimates from the General Statistical Office monograph on population projections, obtained by applying the reverse survival method to age distribution data from the 1979 and 1989 Censuses. The estimates were presented for provinces and regions; I obtained the figures for northern Vietnam by taking a population-weighted mean of these.

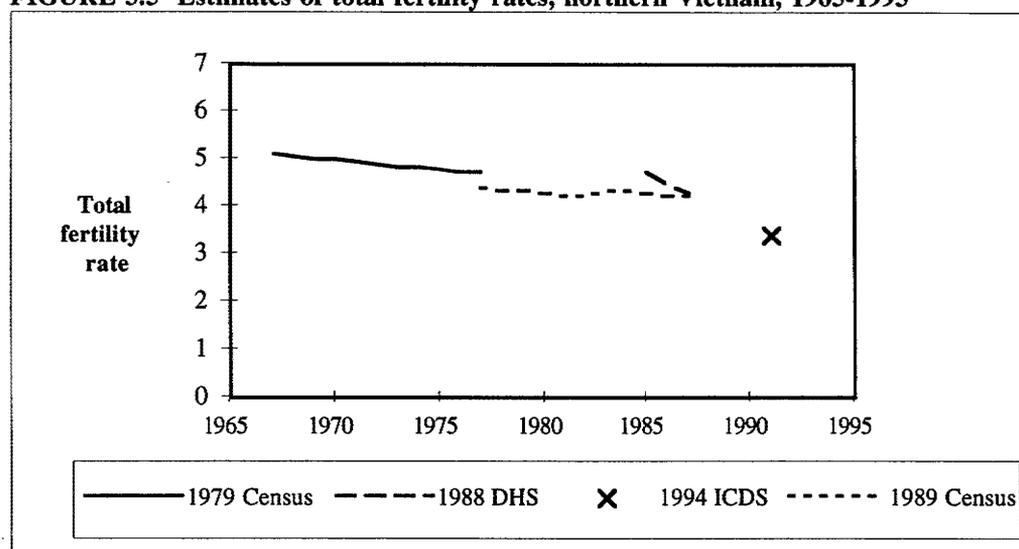
In the absence of any decisive statistical evidence, the reconstruction will assume that the downward trend began in 1960. Figure 3.4 indicates that the crude birth rate, as reported by the vital registration system, began declining in the late 1950s; this is treated as part of the post-war baby boom discussed below. Discussion of the reasons why fertility began to decline will be postponed until Chapter 4.

TABLE 3.8 Estimates of fertility levels in India and rural China

<u>India</u>						
Mukherjee (1976: Table 9.1)						
	1901	1911	1921	1931	1941	1951
Crude birth rate, per thousand	47-49	48-50	48-50	46-48	44-46	42-44
Mari Bhat (1989: Tables 4, 13)						
	1891-1911		1911-21	1921-31	1931-41	1941-51
Crude birth rate, per thousand	47		46	46	46	45
Total fertility rate	5.8					
<u>Rural China</u>						
Barclay, Coale, Stoto, and Trussel (1976: Tables 5, 6)						
	1929-31					
Crude birth rate	42					
Total fertility rate	5.5					

According to the report on the five per cent sample from the 1989 Census (Vietnam 1991a: Table 9.3), the total fertility rate in all Vietnam in 1988-9 was 3.8 births per woman. Separate results for North and South have not been given in any of the official reports on the Census, but taking a population-weighted mean of the provincial results for 1985-9 presented in Vietnam (1994c: Table 1.2) gives a figure of 4.16 for the North, 3.91 for the South, and 4.04 for all Vietnam. As indicated by Figure 3.6, other provincial-level data also suggest that fertility is now lower in the South than in the North.

FIGURE 3.5 Estimates of total fertility rates, northern Vietnam, 1965-1995



1979 Census, 1989 Census. Vietnam (1994c: Table 1.2). Estimates from the General Statistical Office monograph on population projections. All estimates were obtained by applying the reverse survival method to age distribution data from the 1979 and 1989 Censuses. GSO statisticians calculated the estimates of the crude birth rate first, and derived the estimates of the total fertility rate from these, using the relationship between total fertility rates and crude birth rates found in the provincial results from the 1989 Census. The estimates were presented for provinces and regions; I obtained the figures for northern Vietnam by calculating a population-weighted mean of these.

1988 Demographic and Health Survey. Vietnam (1990a). Estimates from 1988 DHS report, calculated from birth history data.

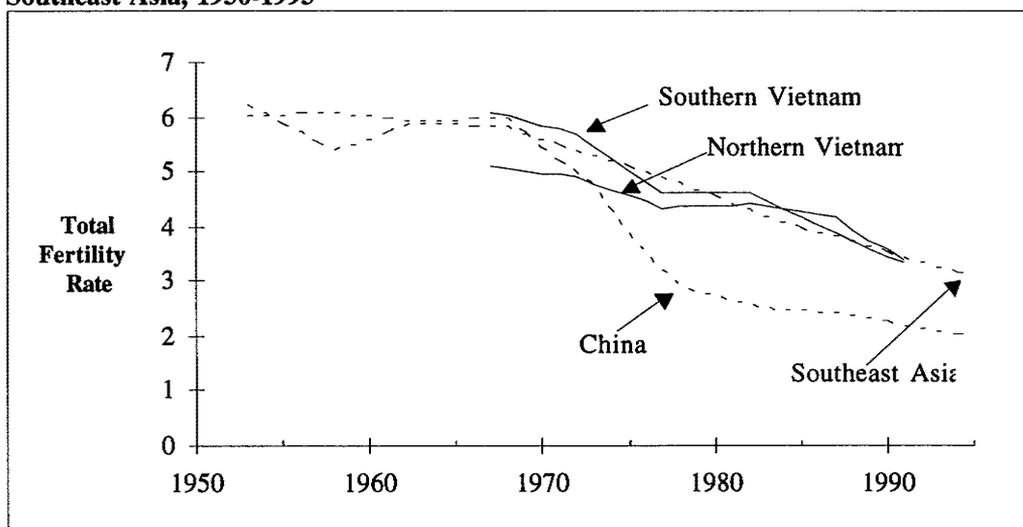
1994 Intercensal Demographic Survey. Vietnam (1995: Tables 3.2, 3.4). Estimates from 1994 ICDS report. The regional results were presented in the form of total duration-specific marital fertility rates (TDMFRs). To obtain the TFR of 3.4 for northern Vietnam I first multiplied all the regional TDMFRs by the ratio of the national TFR to the national TDMFR, which provided estimates of the regional TFRs. I then took a population-weighted mean of the regional TFRs. This procedure is not particularly satisfactory, so that the figure of 3.4 can only be considered a rough estimate.

The 1994 Intercensal Demographic Survey (Vietnam 1995: Table 3.2) reported a national TFR of 3.3 for the period 1989-93 and of 3.1 for the year 1993. There is only one table in the report showing survey estimates of total fertility rates, one figure but no tables showing survey estimates of the change in total fertility prior to 1989, and one table showing total duration-specific marital fertility rates (TDMFRs), but not total fertility rates, by region. As a back-of-an-envelope calculation, I multiplied the regional TDMFRs

by the ratio of the national TFR to the national TDMFR, which gave a rough approximation of the regional TFRs. I then took a population-weighted mean of these, to obtain a TFR of 3.4 for northern Vietnam and 3.3 for southern Vietnam. A figure of 3.4 for the North would imply a marked increase in the rate of fertility decline since the late 1980s. There are a number of reasons why such an increase is plausible, ranging from the boom in the rural economy to stricter enforcement of birth limitation policies. It would be unwise, however, to attempt detailed explanations of recent trends until the nature of the trends is known with greater precision.

A TFR of 3.9 in 1989 has been chosen to represent the decline in fertility in northern Vietnam between 1960 and 1989. In the absence of more detailed evidence, a constant decline has been assumed. This implies a rate of decline for this period of 0.72 births per woman per decade. For the period 1989-2000, a rate of decline of one birth per woman per decade has been assumed, implying a TFR in the year 2000 of 2.8 births per woman. Figure 3.7 shows the assumed fertility levels for the whole century. The adjustments made for famine and war will be explained in Section 3.3.2.

FIGURE 3.6 Estimates of total fertility rate, northern Vietnam, southern Vietnam, China, Southeast Asia, 1950-1995

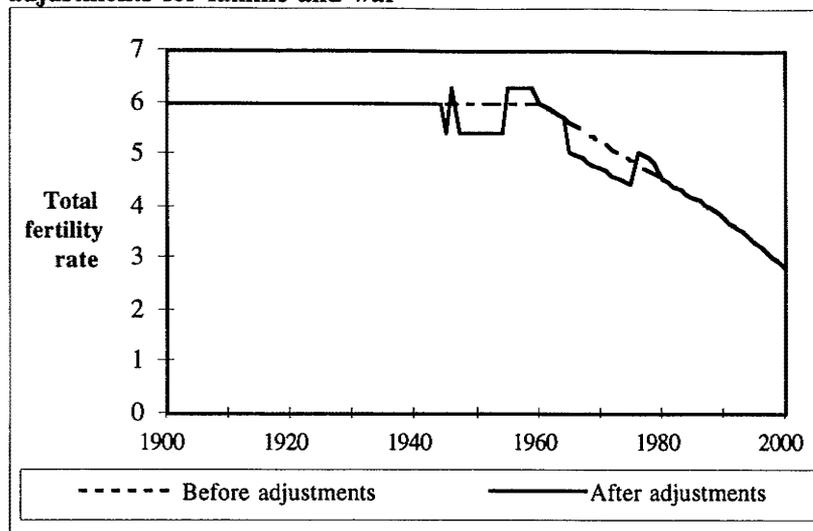


Sources

Northern and southern Vietnam. Calculated from Vietnam (1994c: Table 1.2) and Vietnam (1995: Table 3.4). See sources for Appendix Table 3.3 for details.

China and Southeast Asia. United Nations (1993: Tables A.18, A.19); United Nations (1995)

FIGURE 3.7 Assumed fertility levels, northern Vietnam 1900-2000, before and after adjustments for famine and war



If a population has a crude birth rate of over 40 per thousand and a total fertility rate of around six, as the northern Vietnamese population had prior to about 1960, then few couples in the population are likely to be taking deliberate action to limit their number of births (Bongaarts 1975: 292). Under a 'natural' or 'parity-independent' fertility regime of this type, the age-pattern of fertility usually conforms fairly closely to a standard pattern. Robinson (1987: Appendix Table B) gives the mean age-pattern of fertility for ten countries in South and Southeast Asia for periods when their total fertility was close to or above six. This age-pattern has been adopted here for northern Vietnam prior to 1960. Appendix Table 3.5 presents this age-pattern.

Vietnam (1991a: Table 4) gives a table of age-specific fertility rates for regions in Vietnam for the period 1988-9. I took a population-weighted mean of the regional figures to obtain age-specific fertility rates for northern Vietnam in 1989. To obtain age-specific fertility rates for the years between 1960 and 1989, each age-specific rate was assumed, like the total fertility rate, to have changed by a constant amount each year. For instance, the age-specific fertility rate for women aged 20 to 24 in 1989 was 227 per thousand, and in 1960 it was 263. This rate was assumed to have declined by 1.24 per thousand each year between 1960 and 1989. The age-specific fertility rates for the period 1989-2000 were calculated in a similar way.

An alternative method for generating age-distributions for fertility would have been to have used the 1988-9 age-distribution as a standard, and transformed it using the Coale-Trussel or Gompertz fertility models, much as the 1989 life table was used as a

standard and transformed using the logit function. In the case of fertility, however, it was possible to make a plausible estimate of the age-pattern of fertility during earlier periods by taking advantage of the relative consistency of the age-pattern of natural fertility between countries. Using an assumption of linearity makes subsequent calculations much simpler. No such strategy was possible in the case of mortality, because the age-pattern of mortality varies significantly more among countries.

3.3.2 Adjustments for famine and war

Although the 1989 Census report (Vietnam 1991a: 2) makes a casual reference to a post-war baby boom in 1954-60, few data exist and little has been written on the effects of the 1945 famine, the 1946-54 war, and the 1965-75 war on fertility. The adjustments which have been made are therefore little more than educated guesses. Fertility usually falls nine months after the onset of famine, and then, after an interval equal to the length of the famine, usually rises to a level somewhat above the trend for a short time (Bongaarts and Cain 1982: 47-9). A similar pattern usually occurs during and after wars. Judging by the age-sex structure of the Vietnamese population in 1979 and the official estimate of the size of the northern Vietnamese population in 1970, the average number of men between the ages 18 and 50 during the 1965-75 war was probably about four million. Pike (1986: 2) reports that the northern army had about 400 000 members in 1965 and 650 000 in 1975. Kolko (1985: 186-7, 444-5) reports that the North had several hundred thousand soldiers or cadres in the South at any one time during the war. The proportion of husbands separated from their wives because of military duties in 1965-75 was probably on the order of 10 to 20 per cent. War also presumably depressed fertility levels by causing couples to intentionally delay or reduce childbearing. Without claiming to any sort of precision, I have lowered fertility at all ages by ten per cent below trend levels for the years 1945, 1947 to 1954, and 1965 to 1975, and raised fertility by five per cent for the years 1946, 1955 to 1959 and 1975 to 1979. The adjusted fertility rates are shown in Figure 3.7 above.

3.4 Regional data on demographic rates

This chapter, and to a large extent the entire thesis, is concerned with trends and processes across northern Vietnam as a whole, with only a little attention being paid to

regional differences. The thesis relies on published data, which is usually presented at a high level of aggregation. The published data presented here permits a few impressions of regional differences to be gained, but, as will be seen, contain limitations.

This is not, however, to deny the strong case for investigating regional differences, which would allow a more nuanced account of northern Vietnamese demographic history. The necessary data do exist. Provincial governments maintain their own statistical collections: time series of birth rates and death rates have in fact been published for the provinces of Thai Binh and Hanoi (Xenos, Tran, Luu and Vu 1991: Table 3.1; Vietnam 1992: Table 11). Communes too are supposed to have maintained records, as are colonial villages and parishes. Collecting this type of data, and assessing the reliability of each source would be a time-consuming but valuable exercise.

3.4.1 *Urban-rural differences*

Vietnam (1994b: Table 2.5) gives estimates of urban and rural mortality rates, obtained from 1989 Census data. Unfortunately the estimates are for all of Vietnam, rather than the North and South separately. Estimates for earlier periods are not available. Table 3.9 presents estimates which suggest, as would be expected, that mortality is lower in urban areas than in rural areas.

TABLE 3.9 Estimates of the infant mortality rate (per thousand) and life expectancy at birth. Urban and rural areas, all Vietnam. 1989 Census

	IMR	Life expectancy at birth	
		Males	Females
Urban	32	68	72
Rural	45	64	68

Source: Vietnam (1994b: Table 2.5).

The 1988 DHS report and the 1989 Census report provide estimates of urban and rural fertility for all of Vietnam, but not for northern and southern Vietnam on their own; the 1994 Intercensal Demographic Survey report provides no estimates of urban and rural fertility (Vietnam 1990a: Table 3.2; Vietnam 1991a: Table 9.3; Vietnam 1995). The DHS and Census estimates for all Vietnam are shown in Table 3.10. According to vital registration statistics, the crude birth rate in the urban part of Hanoi Municipality in 1980 was 21 per thousand, while in the rural part of Hanoi Municipality and in the Red River Delta as a whole it was 31 per thousand (People's Committee of Hanoi 1989: 15;

Nguyen The Hue 1995: Appendix Table 7). Unfortunately, estimates of rural and urban fertility prior to the 1980s are not available.

TABLE 3.10 Estimates of total fertility rates. Urban and rural areas, all Vietnam. 1988 Demographic and Health Survey, 1989 Census.

	1988 DHS		1989 Census
	1983-7	1986-7	1988-9
Urban	2.7	2.2	2.2
Rural	5.2	4.6	4.3

Sources: Vietnam (1990a: Table 3.2), Vietnam (1991a: Table 9.3)

3.4.2 Lowlands, midlands, and uplands

In Vietnamese, land is divided into lowlands (*dong bang*), midlands (*mien trung*) and uplands (*mien nui*). The 1979 Census report (Vietnam 1983: Table 4) shows the amount of each type of land in each province. The six provinces which contain 100 per cent uplands, Ha Tuyen, Cao Bang, Lang Son, Lai Chau, Hoang Lien Son and Son La, are provinces where the majority of northern Vietnam's ethnic minorities live, where fertility and mortality are highest, and where the social and economic infrastructure is weakest. These provinces contain about 15 per cent of the population of northern Vietnam, as shown in Table 3.11. Fertility and mortality rates for the six purely upland provinces and for the rest of northern Vietnam are shown in Tables 3.12 and 3.13. No explanation for the apparent rise in fertility in the upland provinces during the late 1980s is given in the Census report. The rise may be due to an error in the data or the calculations.

TABLE 3.11 Population in lowland and midland provinces, and in upland provinces (millions). Northern Vietnam. 1979 Census, 1989 Census.

	1979 Census	1989 Census
Lowlands and midlands	21.2 (86)	26.5 (87)
Uplands	3.3 (14)	4.4 (13)
Total	24.5 (100)	30.9 (100)

The figures in brackets are percentages of the total population.

Source: Calculated from Vietnam (1991: Table 1.2).

TABLE 3.12 The infant mortality rate (per thousand) and life expectancy at birth in lowland and midland provinces, and in upland provinces. Northern Vietnam. 1989 Census

	IMR	Life expectancy at birth	
		Males	Females
Lowlands and midlands	38	66	70
Uplands	62	60	64

Source: Calculated from Vietnam (1991: Table 1.1) and Vietnam (1994b: Table 2.5).

TABLE 3.13 Estimates of total fertility rates in the lowland and midland provinces, and in upland provinces. Northern Vietnam. 1979 Census, 1989 Census.

	1979 Census			1989 Census		
	1965-9	1970-4	1975-9	1975-9	1980-4	1985-9
Lowlands and midlands	4.5	4.4	3.8	4.2	4.3	3.9
Uplands	6.1	5.6	5.1	5.2	5.2	5.5

Source: Calculated from Vietnam (1991: Table 1.1) and Vietnam (1994c: Table 1.2).

3.5 Net fertility

When mortality levels fall, the 'efficiency' of any given level of fertility increases: more children survive to adulthood out of the same number of children ever born. Measurement of the extent to which declining mortality increases the efficiency of fertility is obviously important to explaining overall population growth. It is also important to explaining the behaviour of parents and families, because what is normally referred to as the 'demand for children' is usually a demand for *surviving* adult children, rather than a demand for children ever born.

The concept of 'net fertility'—fertility adjusted for the effects of mortality—is a useful one. Just as there are many possible measures of fertility, each appropriate for different purposes, so there are many possible measures of net fertility. The measure of net fertility which will be used in Chapter 4 is the net reproduction rate (NRR). The NRR is the average number of daughters a woman would give birth to over her lifetime if she were to experience the current age-specific mortality and fertility rates. It is calculated from data pertaining to five-year age-groups by using the expression $\frac{1}{1+SR} \sum_{i=15}^{45} {}_5f_i {}_5L_i$ where i is confined to multiples of 5, SR is the sex ratio at birth, ${}_5f_x$ is the age-specific fertility rate, and ${}_5L_x$ is the standard life table function for females. The NRR is useful because of its similarity to the total fertility rate, the average number of children a woman would give birth to over her lifetime if she were to experience the current age-specific fertility rates.¹ An example of a cohort measure of net fertility is the number of surviving children to a woman of a given age. The corresponding cohort measure of gross fertility is the number of children ever born to a woman of a given age.

¹And, implicitly, if she lived until the end of her reproductive period.

Figure 3.8 shows the net reproduction rate implied by the reconstructed values for mortality and fertility. In Figure 3.8 and in all subsequent graphs showing results 'before adjustments' and 'after adjustments', the 'before adjustments' results were obtained by performing the calculations on age-specific mortality and fertility rates which had not been adjusted for famine and war, while the 'after adjustments' results were obtained using age-specific rates which had been adjusted, as described in Sections 3.2.2 and 3.3.2. The NRR is calculated from female mortality rates alone, and the dips during the 1946-54 and 1965-75 wars are not as great as they would be with a measure of net fertility which incorporated both male and female mortality.

FIGURE 3.8 The net reproduction rate in northern Vietnam, 1900-2000, before and after adjustments for famine and war.

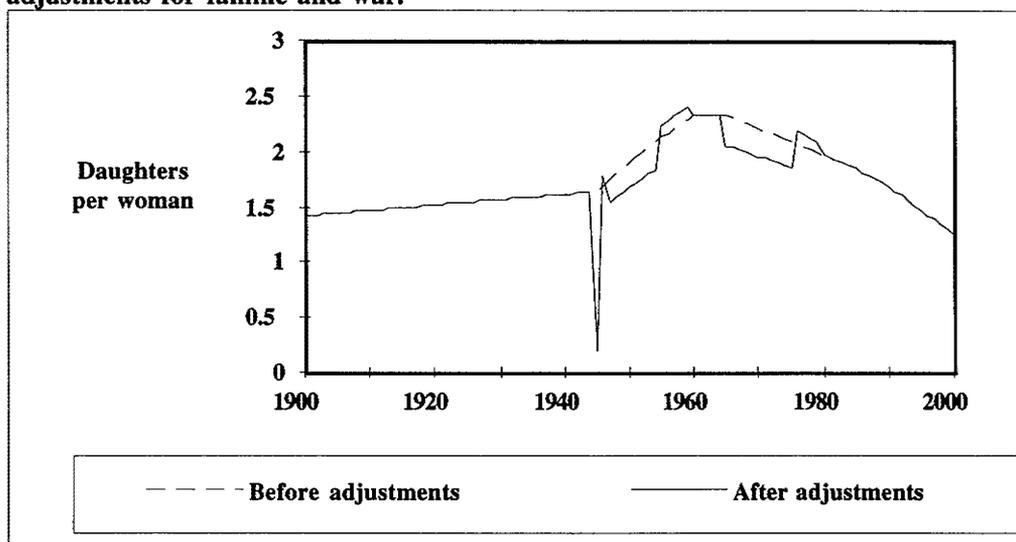
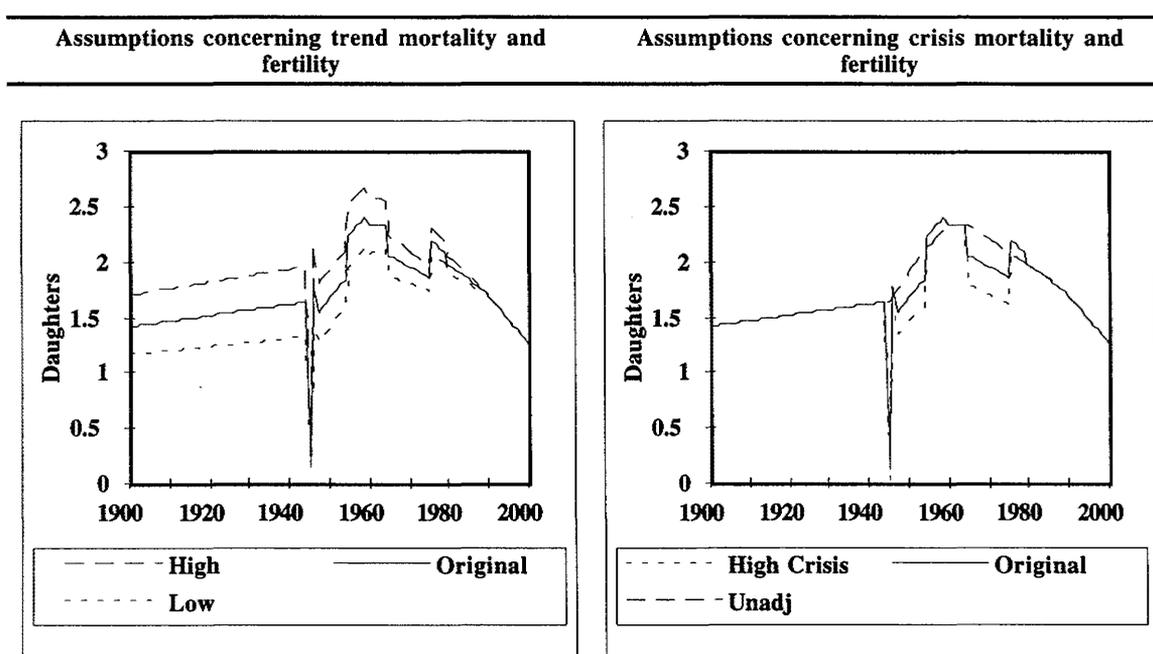


Figure 3.9 shows how alternative assumptions about mortality and fertility rates affect estimates of the NRR. The 'high' estimates start with a total fertility rate of 6.6 between 1900 and 1960, rather than 6.0 as in the original assumptions. They also start with a male life expectancy at birth of 33 years rather than 30 years for 1900, and of 38.5 years rather than 35 years for 1945. The gap between the high assumptions and the original assumptions then decreases until, by 1989 in the case of fertility, and 1965 in the case of mortality, the rates are identical. The 'low' estimates represent the opposite case to the 'high' estimates: fertility is 10 per cent lower than originally assumed for 1900-1960, and life expectancies are 10 per cent lower than originally assumed for 1900-1945, after which the gaps decrease. The 'high crisis' estimates use adjustments for famine and war mortality twice as high as originally used, assume fertility is reduced by 20 per cent rather

than 10 per cent during a famine or war, and leave the post-crisis fertility rate unchanged at 5 per cent above trend levels.

Both sets of alternative assumptions still imply that net fertility rises quickly and then slowly falls. Under the 'high' assumptions, the 1960s peak is significantly higher than the late 1970s peak, whereas under the 'low' assumptions, the 1960s peak is about the same height as the 1970s peak. With the 'high crisis' assumptions, the 1946-54 and 1965-75 wars are sufficient to reduce net fertility to, or below, late-colonial levels.

FIGURE 3.9 The effects of alternative assumptions concerning mortality and fertility on estimates of the net reproduction rate.



3.6 Surviving children

3.6.1 Derivation of values

Goodman, Keyfitz, and Pullman (1974: Equation 1.2a) derive the following expression for calculating the expected number of surviving children to a woman aged a when mortality and fertility levels are constant:

$$\int_{\alpha}^a l_{a-x} f_x dx$$

In this expression α is the youngest age of reproduction, l_x is the probability of survival from birth to age x , and $f_x dx$ is the number of births a woman is expected to have between the ages x and $x+dx$. The entire integral represents a weighted mean of the

expected number of births during each interval $x, x+dx$, with the weighting equal to the probability that a child born when the mother is aged x will still be alive when the mother reaches age a . The expression above applies only to living women if a is less than the highest age of reproduction, and applies to living or dead women if a is greater than the highest age of reproduction.

Goodman et al. (1974: 25-6) indicate how integrals of this type can be converted into expressions which can be evaluated using data for five-year age intervals. Their method yields the expression:

$$\sum_{i=15}^{a-5} {}_5f_i {}_5L_{a-i-5}$$

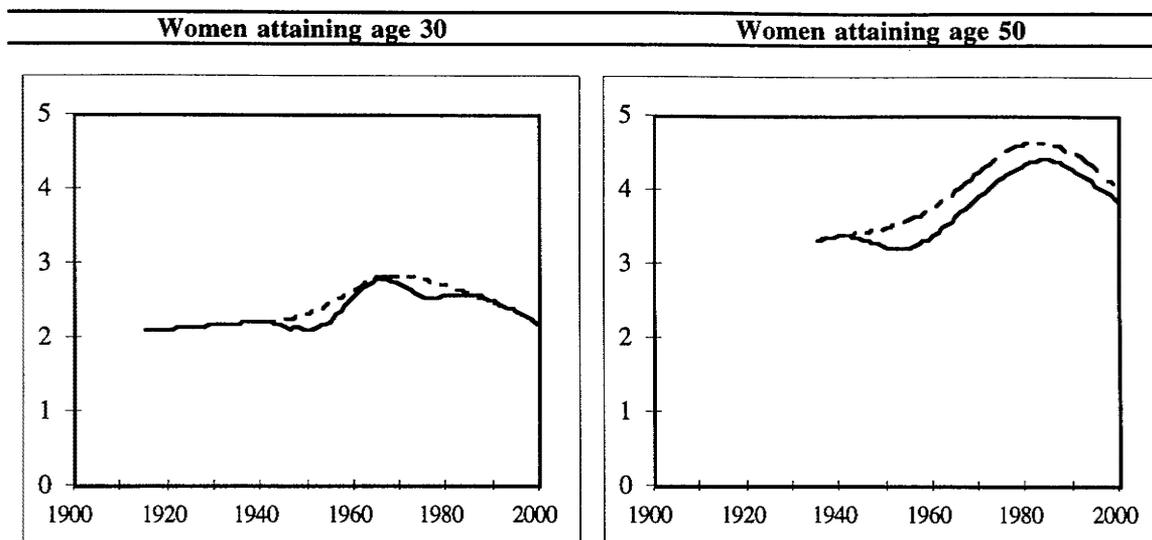
where a and i are restricted to multiples of five, ${}_5f_x$ is the age-specific fertility rate for the age group x to $x+4$, and ${}_5L_x$ is the life table function, which, when l_0 equals one, can be interpreted as five times the probability that a person born during the years t to $t+4$ will still be alive at the beginning of year $t+x$.

The first step in extending Goodman et al.'s calculations to the case where mortality and fertility are changing is to define ${}_5f'_x$ as the age-specific fertility rate during year t , and ${}_5L'_{x(male)}$ and ${}_5L'_{x(female)}$ as the male and female life table quantities. Women born at the exact beginning of year t experience the fertility rate ${}_5\hat{f}'_x$ between exact ages x and $x+5$, where ${}_5\hat{f}'_x = \frac{1}{5} \sum_{i=0}^4 {}_5f'^{t+x+i}$. The use of exact years and ages allows the calculations to be kept relatively simple. The averaging is necessary because, in the reconstruction, fertility and mortality rates pertain to five-year age-groups and single calendar years. Analogous equations are used to calculate survival functions for people born at the exact beginning of year t . The number of surviving children to a woman of exact age a , who was born at the beginning of year t , can then be approximated by

$$\frac{SR}{1-SR} \sum_{i=15}^{a-5} {}_5\hat{f}'_i \left(\frac{1}{5} \sum_{j=0}^4 {}_5\hat{L}'^{t+i+j(male)} \right) + \frac{1}{1-SR} \sum_{i=15}^{a-5} {}_5\hat{f}'_i \left(\frac{1}{5} \sum_{j=0}^4 {}_5\hat{L}'^{t+i+j(female)} \right)$$

This expression was used to derive the estimates shown in Figure 3.10. The numbers on the horizontal axis in Figure 3.10 and in all subsequent figures refer to the beginning of calendar years, unlike in all previous figures, where they referred to the mid-points of calendar years.

FIGURE 3.10 Mean number of surviving children for women aged 30 years and 50 years, northern Vietnam



Note. The unbroken lines show the estimates of surviving children based on data which have been adjusted for famine and war; the broken lines show the estimates based on data which have not been adjusted.

Much of the smoothness of the curves in Figure 3.10 is due to the fact that numbers of surviving children are a function of mortality and fertility rates over a long period—for women aged 50 the period is 35 years. Some of the smoothness is misleading, however, and is due to the equation averaging over cohorts in place of using data for single years and ages. This disguises the timing of the effects of crisis mortality slightly by, for instance, shifting some of the effects of the famine from 1945 to 1941-1944. I recalculated numbers of children surviving using a formula based on single-year age groups. This stretched the capacities of my computer to the limit, but had only a small effect on the shape of the curves, so I carried out the rest of the analysis using five-year age groups.

The results shown in Figure 3.10 will be discussed once some of the underlying assumptions have been investigated.

3.6.2 *The independence assumption*

Goodman et al. (1974: 2) note that they are assuming each person's survival probabilities to be independent of everyone else's survival probabilities. This assumption implies that whether or not the mother is still alive has no bearing on the survival probabilities of her children. In practice, the mortality rates of children with living mothers are likely to be lower than the mortality rates of children whose mothers have

died, and a set of survival probabilities based on all children in a population will understate the survival probabilities of children with living mothers. Goodman et al.'s equation will therefore underestimate the number of surviving children to a living mother or a mother who lived until the end of her reproductive period.

To gain some idea of the extent of underenumeration, I have experimented with the following formula:

$$l_x = l_x^{ma} p_x + l_x^{md} (1 - p_x)$$

In this formula l_x is the standard survival probability, covering both children whose mothers are alive and children whose mothers are dead; l_x^{ma} is the probability of a child surviving to age x , given that the child's mother is still alive when the child reaches age x ; l_x^{md} is the probability of a child surviving to age x , given that the child's mother has died by the time the child reaches age x ; and p_x is the probability that the child's mother is still alive when the child reaches age x . I substituted into this formula a number of the mortality estimates derived above and a range of guesses at mortality among orphans to obtain some idea of the degree of underestimation. The survival probabilities for all children understate the survival probabilities for children with surviving mothers to the extent that maternal death is common and that maternal death lowers the survival probabilities of children. The degree of underestimation is therefore greatest in the earliest periods, and appears to be around five per cent. In later periods, the degree of underestimation appears to be two per cent or less. This means that the increase in the mean number of children surviving up to the 1980s is slightly overstated in Figure 3.10.

3.6.3 *A comparison with the 1989 Census and the 1994 Intercensal Demographic Survey results*

Values for children ever born and children surviving derived from the reconstruction can be checked against values for the corresponding years from the Census and ICDS (Vietnam 1994b: Appendix Table 2.1; Vietnam 1995: Table 3.8).¹ The Census

¹Vietnam (1991a: Table 9.1) also gives data on children ever born from the 1989 Census. The value for average children ever born for the age group 25-29 appears to be incorrect, as the result obtained by dividing the total number of children ever born by the total number of woman is 1.731, while the number reported is 1.173. This mistake may have been carried through into the mortality calculations presented in the report. One of the methods used to estimate mortality in the report is the Trussel method based on data on children ever born and children surviving. The report writers (Vietnam 1991a: 104) note that the estimated value for the age group 25-29 is anomalous.

I have also checked the reconstructed values against the 1988 Demographic and Health Survey values for children ever born. The values are consistent except at the age groups 40-44 and 45-49,

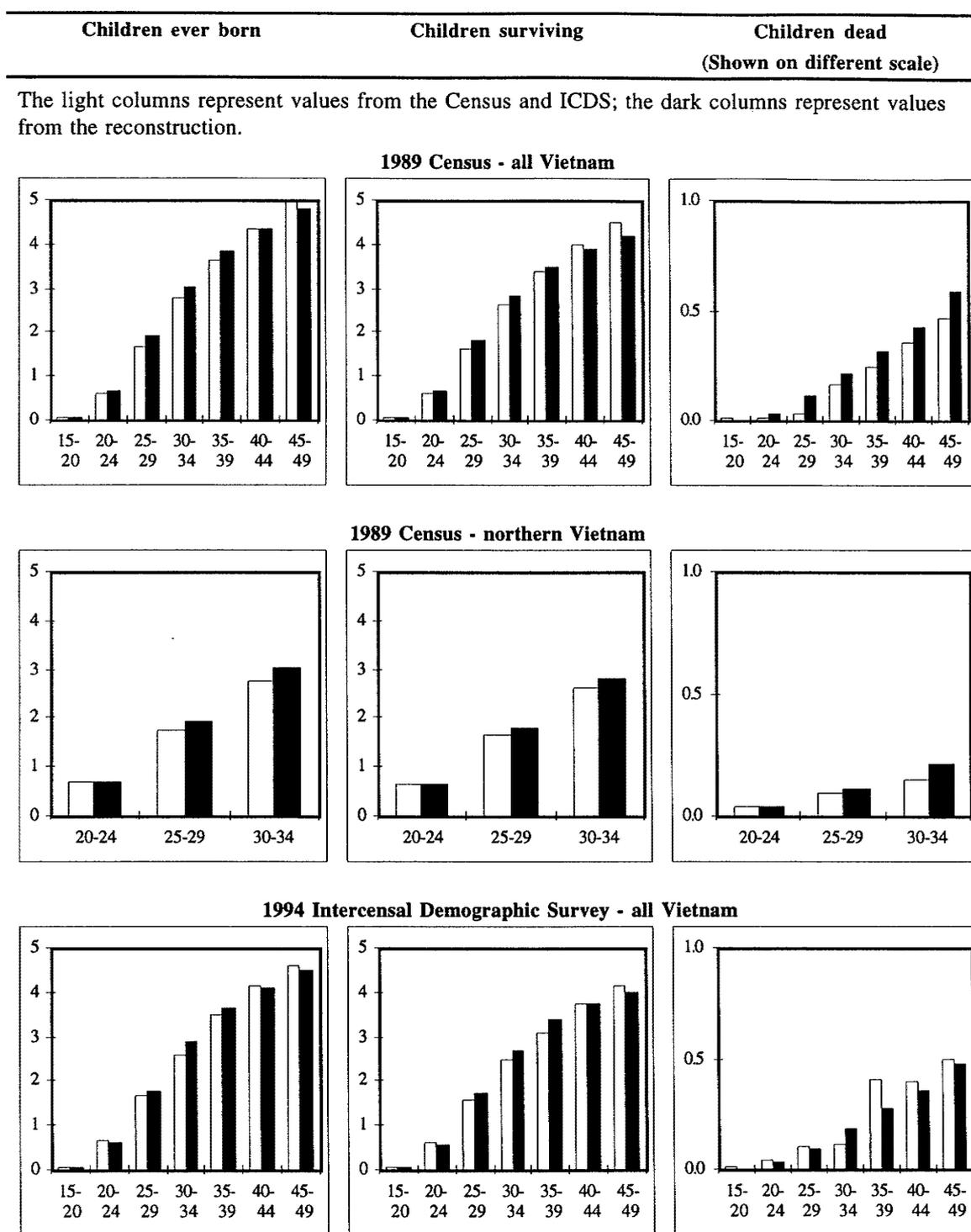
and the ICDS results were important sources of data for the reconstruction, and so do not constitute totally independent checks; however, sufficient additional data and assumptions were used in the reconstruction for the comparisons to have some significance. The Census and ICDS results are reported as mean values for five-year age groups, and the reconstructed data had to be put in the same form. To do this the number of children surviving and children ever born were assumed to increase linearly within each age group and then weighted averages were calculated, using the single-year age distributions from the 1989 Census (Vietnam 1991: Table 1.2).

Unfortunately, separate tabulations of children ever born and children surviving for North and South Vietnam have not been published. Vietnam (1994b Appendix Table 2.1) gives provincial-level results which can be used to calculate North-South figures by taking population-weighted means. This source only gives results, however, for ages 20 to 34. When using results for all Vietnam to check results for northern Vietnam, it is necessary to allow for the fact that fertility began declining earlier in the North than the South, so that average parities for older women in northern Vietnam can be expected to be lower than average parities for older women in all Vietnam. Available evidence mainly suggests that mortality levels have been similar in the two halves of the country in recent decades (Table 3.4), so the ratios of surviving children to children ever born for all Vietnam should provide a reasonable indication of the ratios for northern Vietnam.

Respondents, particularly older respondents, often understate the true number of children ever born, particularly with regard to children who have died. Comparison of fertility and mortality estimates from data on children ever born and children surviving with estimates from other data suggests that substantial under-reporting of deceased children occurred in the Vietnamese Census (Vietnam 1991a: 111). The higher values for mean numbers dead from the reconstruction are therefore perhaps closer to the true values than the unadjusted values from the Census. The higher values for all age groups except women aged 30-34 reported in the ICDS are difficult to explain, although the absolute differences between the ICDS results and the reconstruction results are small.

where the reconstructed values are about 20 per cent lower. As Feeny and Xenos (1992: 62) have noted, however, the DHS fertility results are at odds with the results from all other sources and may contain a reporting or calculation error.

FIGURE 3.11 Comparison of mean numbers of children ever born, children surviving, and children dead per woman from the 1989 Census, and the 1994 Intercensal Demographic Survey with figures from the reconstruction



Sources: Census and ICDS values based on Vietnam (1994b: Appendix Table 2.1) and Vietnam (1995: Table 3.8).

Respondents tend to under-report children surviving to a lesser extent than they under-report children who have died. The reconstructed values for children surviving are close to the Census and ICDS values except for the older age groups, where they are slightly lower. Allowing for slight understatement in the Census and ICDS results, the pattern shown in Figure 3.11 is the one which would be expected if the reconstructed values were correct, with reconstructed and reported values similar except at higher ages.

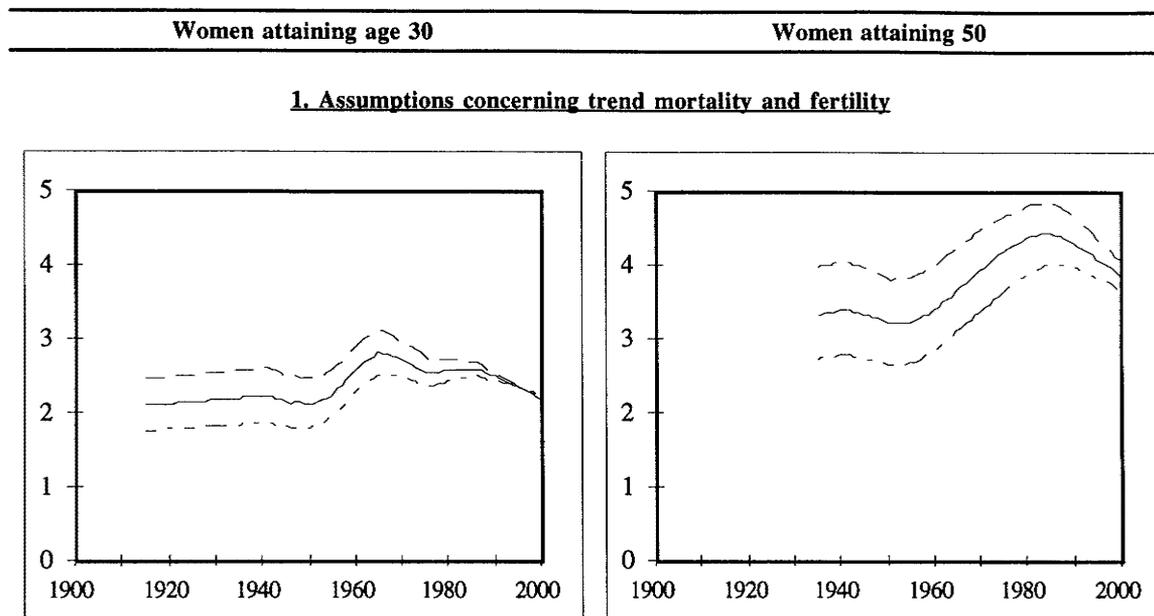
The Census and ICDS results for children ever born were obtained by adding together reported numbers of children surviving and deceased. The Census and ICDS results therefore understate the true number of children ever born by an amount equal to the relatively substantial understatement of children deceased plus the less substantial understatement of children surviving. Once this problem is taken into account, the pattern shown again suggests that the reconstructed values are approximately correct.

It appears that the reconstruction gives sensible results for the recent past. This is the easiest test to which the reconstruction could be subjected, since the mortality and fertility estimates used in the reconstruction are more accurate for the recent past. No data are available for testing the results of the reconstruction in the more distant past. The earlier results can, however, be tested for their sensitivity to alternative assumptions about mortality and fertility levels.

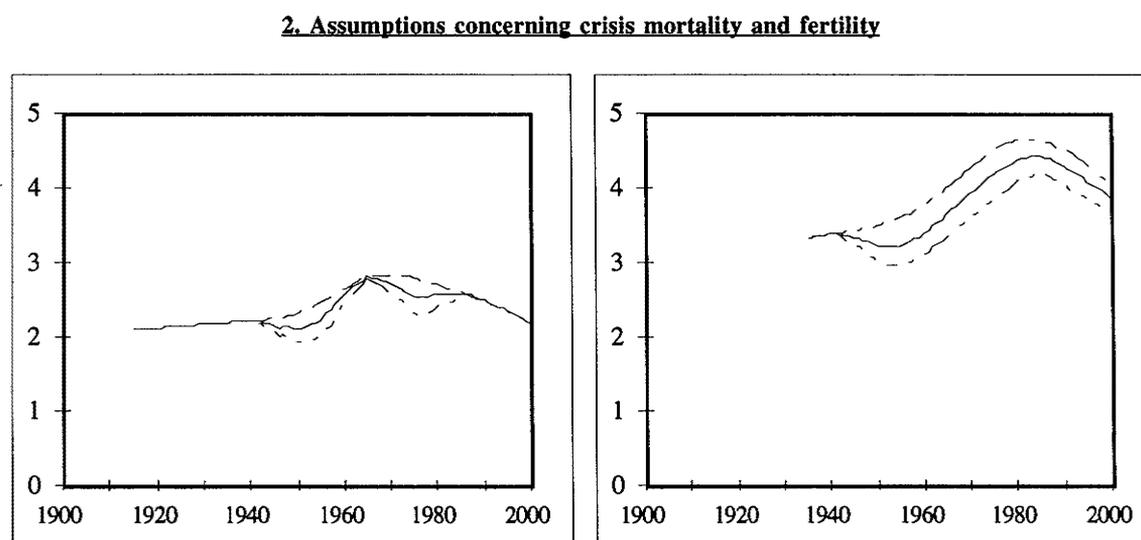
3.6.4 Sensitivity testing

The alternative assumptions used to calculate the estimates in Figure 3.12 were explained in Section 3.5. Neither the higher early fertility rates and life expectancies of the 'high' assumptions nor the lower early fertility rates and life expectancies of the 'low' assumptions dramatically change the overall shapes of the curves. The numbers of surviving children still fall in response to the 1944-45 famine and 1946-54 war, then rise to a peak significantly above colonial levels, before falling again. The notion that average numbers of children to women at the end of their reproductive periods has recently been falling is, incidentally, supported by the 1989 Census and 1994 ICDS, since, as shown in Figure 3.11, the ICDS reported a lower number of surviving children to women aged 45-49 in 1994 than the Census did in 1989. As the use of the 'high crisis' assumptions indicates, higher famine and war mortality rates and lower famine and war fertility rates imply larger dips in numbers of surviving children during the 1940s and 1950s. However, the numbers of surviving children still rise after then.

FIGURE 3.12 The effects of alternative assumptions concerning mortality and fertility on estimates of surviving children to women attaining age 30 and women attaining age 50.



Key. The unbroken lines were calculated from the the original adjusted mortality and fertility rates, the upper broken lines from the 'high' rates, and the lower broken lines from the 'low' rates. See text for explanation.



Key. The unbroken lines were calculated from the original adjusted mortality and fertility rates, the upper broken lines from the original unadjusted mortality and fertility rates, and the lower broken lines from the 'high crisis' rates. See text for explanation.

No sensitivity testing has been performed for the timing of the mortality and fertility declines. However, different assumptions would imply shifting the height and the placement of the peaks and troughs shown in Figure 3.12. For instance, assuming a later start to the fertility decline would raise the height of the peaks currently shown as

lying in the 1960s (in the case of 30-year-old women) and the 1980s (in the case of 50-year old women), and would shift the peaks to the right.

3.6.5 Regional variation in numbers of children surviving

Because separate mortality and fertility rates for urban areas and rural areas or lowland areas and upland areas have not been estimated in this chapter, it is not possible to plot the likely course of numbers of surviving children in the different regions. Table 3.14, however, provides an indication of recent levels as reported by the 1989 Census. Separate urban-rural results for northern Vietnam alone were not available.

TABLE 3.14 Regional variation in mean numbers of children surviving, by age of women. 1989 Census.

Age	All Vietnam			Northern Vietnam		
	Total	Urban	Rural	Total	Lowlands and midlands	Uplands
15-19	0.0	0.0	0.0	-	-	-
20-24	0.6	0.4	0.7	0.6	0.6	0.8
25-29	1.6	1.1	1.8	1.7	1.6	2.0
30-34	2.6	1.9	2.8	2.2	2.2	2.7
35-39	3.4	2.6	3.7	-	-	-
40-44	4.0	3.3	4.2	-	-	-
45-49	4.5	4.0	4.6	-	-	-

Dashes indicate no data available.

Calculated from Vietnam (1991a: Tables 9.1, 10.1) and Vietnam (1994:b Table 2.1).

3.6.6 The recent rise in numbers of surviving children

The reconstruction results clearly show that the large average numbers of surviving children to women at the end of the reproductive lives reported in recent surveys and censuses are not long-standing or 'traditional'. The average has probably only been above four for women reaching the end of their reproductive lives since some time in the 1970s. Even the numbers calculated for colonial times were probably higher than in previous centuries, given that colonial mortality levels were probably lower than they had previously been.

What perhaps makes this finding surprising is northern Vietnam's long wars. It appears, however, that despite their destructiveness, the wars did not undo the effects of the dramatic declines in mortality achieved during the 1950s and 1960s.

Chapter 4 Fertility decline

4.1. Introduction

The northern Vietnamese state has shaped the course of northern Vietnamese fertility indirectly, by influencing the demand for children, and directly, through its birth control programs. The nature and relative importance of these factors differed during the transition to Socialism in the 1960s and 1970s, and the transition to Market Leninism in the 1980s and 1990s.

In this chapter, the demand for children is treated as an outcome of their costs and benefits. The analysis of the benefits draws on a framework developed by Greenhalgh (1988, 1989), which examines the place of children within familial strategies for increasing or preserving social, economic, or political status. Greenhalgh developed her framework to explain Chinese fertility decline. It is useful for looking at northern Vietnam, because so much of the institutional landscape of northern Vietnam between 1945 and 1995 has resembled that of China. At the same time, however, there are some interesting differences between the institutions and fertility declines of northern Vietnam and China, which the chapter will discuss.

A summary of some of the political and institutional history presented in Chapter 2 and the fertility and mortality data presented in Chapter 3 is used to set the stage for subsequent explanations. Net fertility, as well as gross fertility, is given attention, since the demand for children is implicitly a demand for surviving children.

4.2. Transition to Socialism 1958-1979

4.2.1. *Overview of institutional and demographic change*

In the late 1950s, northern Vietnam embarked on a program of rapid industrialization which was to be financed by foreign aid and the extraction of surpluses from a collectivized rural economy. Despite the initially rapid increase in industrial capacity, chronic inefficiencies and distortions in both industry and agriculture led to economic stagnation. In contradiction to official policy, production in most co-operatives was organized at the level of the brigades. The semi-illegal free market or 'outside

economy' grew steadily, at the official economy's expense. Education, health, and rudimentary social security programs were constructed for the urban and most of the rural population, the financing of the rural services being possible through the contributions made by agricultural co-operatives. War against the American-backed South caused huge disruption and loss, though the economic costs were alleviated through extensive foreign aid.

According to vital registration data, the crude birth rate in northern Vietnam during the late 1950s was between 40 and 50 per thousand, or about the same as during colonial times. By the mid 1970s, the birth rate had reportedly fallen to somewhere in the low 30s; in Hanoi¹ in 1980 it was officially 21 per thousand. No wartime baby bust or postwar baby boom is visible in the vital registration data, though this does not rule out the possibility of small swings having occurred (as was assumed in the reconstruction in Chapter 3). Data from the 1979 and 1989 Censuses suggest that by the late 1970s the average total fertility rate in the upland provinces was about 5 and in the rest of northern Vietnam was about 4 (Section 3.3).

Net fertility, measured here by the net reproduction rate, followed a different course. Rapid mortality decline during the 1950s and 1960s, combined with much smaller declines in (gross) fertility, increased the net reproduction rate to what were probably historically unprecedented levels. The net reproduction rate would have been reduced for the duration of the 1965-75 war, but it is likely that the level it reached during the late 1970s was only slightly lower than during the early 1960s, with the fall in fertility between these two periods only having partly undone the effects of mortality decline (Section 3.5).

Available statistics on marriage suggest that marriage patterns remained relatively stable through the 1960s and 1970s, and on into the 1980s and 1990s, with only a slight rise in the average age at first marriage (see Section 6.2). The bulk of the decline in fertility in both periods was therefore due to a decline in marital fertility.

There is perhaps a danger of over-explaining fertility decline in northern Vietnam during the 1960s and 1970s. Several hundred thousand men, or 10 to 20 per cent of all males between ages 15 and 49, were killed or were separated from their wives for extended periods during the 1965-75 war. Some of the reduction of the birth rate during

¹This figures excludes the 'suburbs' (see Section 2.3.2).

the 1960s and 1970s must have been due to spousal separation or death, requiring no analysis in terms of social structures or individual choices. Large gaps in present knowledge of the proximate determinants of fertility, such as marriage, spousal separations, casualties, and contraceptive practices, make it difficult to quantify the effects of spousal separation or death during this period. However, the fact that fertility did not return to pre-war levels during the demobilization of the late 1970s suggests that northern Vietnam's fertility decline in the 1960s and 1970s cannot solely be attributed to spousal separation or death. The war's indirect effects on fertility, through its influence on family strategies and opportunities, are discussed below.

4.2.2. *The demand for children*

Cain (1986: 300), in a discussion of childrearing costs in Bangladesh, notes that these costs are tiny relative to the costs of children in wealthy countries, but huge in comparison to Bangladeshi incomes. Most Bangladeshi parents are too poor even to feed their children adequately. The same point can be made for northern Vietnam. Discussion with northern Vietnamese people about conditions during the 1960s and 1970s confirms that providing for young children was difficult. In northern Vietnam, as in Bangladesh, simply providing food could be a challenge. Surveys in the 1960s also reported that half of all households were short of food for at least two months of the year, and that droughts could cause widespread hunger (Dinh Thu Cuc and Tran Huu Dinh 1995: 235, 265). According to official figures, the increase in food availability only just kept up with the increase in population during the 1960s and 1970s (Nguyen Luc et al. 1990: 49-53).

Bad as conditions were, however, they were better than during colonial times, which ended with the great 1944-5 famine. Northern Vietnamese villagers told this to visiting foreigners (Houtart and Lemercinier 1984: 26-8; Luong 1992: Ch.5), and cadres referred to it when drumming up support for government policy (Chaliand 1969: 98-9). Whether or not the increase in average incomes matched the increase in net fertility is impossible to tell.

Not only did average incomes rise, however, but the northern Vietnamese state erected a system of transfer payments to channel income towards those bearing children, and to reduce the costs they faced. The object of these policies was to improve the welfare of children and their families, and not to encourage childbearing— though this

was probably one of their effects. The individual schemes varied in importance, but their cumulative effect may have been significant.

State sector work units gave special supplementary payments to employees with many children. During the 1960s and 1970s, however, all supplementary payments together made up somewhat less than 10 per cent of household income for state sector workers, while basic salaries equalled 70 to 80 per cent (Fforde and Paine 1987: 94, Table 133). Given that supplementary payments were made not only for high dependency ratios, but also for reasons such as extra work responsibilities or service in remote areas, it appears that few state workers received large childrearing subsidies through the supplementary payment system. Urban families received other childrearing subsidies through the rationing system, but it is difficult to measure their importance.

Agricultural co-operatives tried to ensure that all member households, including those with high dependency ratios, were able to meet their basic subsistence needs. Fforde (1989: 124) describes one co-operative in which households with ill members or many children received special allowances. In another co-operative, children received about 20 per cent of the work points of adults (Nguyen Xuan Lai 1977: 199). Childrearing subsidies are likely, however, to have represented an even smaller proportion of total household income than in state sector households, due to the importance of household plots. Even in model co-operatives like the one described by Houtart and Lemercinier (1984: 40), total income or food received from the co-operative, whether in the form of regular work points, or as supplementary payments, was roughly equal to the income or food received from the household plot.¹ In less exemplary co-operatives the income and food received from the co-operative made up only 25 to 40 per cent of the total (Kerkvliet 1995b: 405).

Because virtually all lowland and midland children attended school for at least some time, education costs were an important part of the costs of children. All lowland and most upland villages are reported to have had their own schools by the mid-1960s (Le Thanh Khoi 1987: 133-4). The 1989 Census statistics on school attendance by cohort shown in Table 4.1 give some indication of past school attendance patterns. The school attendance figures include any type of school, including the extensive adult education

¹Although the meaning of 'household expenditure' is not explained in the Vietnamese surveys, Chinese tables based on similar government surveys to the Vietnamese ones refer to 'self-purchased goods'. 'Household expenditure' in northern Vietnam almost certainly includes fictive 'purchases' like this.

schools. This may explain why virtually all lowland and midland respondents who were in their early twenties during the mid-1960s claimed to have attended school at some time during their lives, but makes it more difficult to infer at what years or ages people attended school. Primary school involved a minimum of seven years education until 1979, when the minimum was increased to nine years (Woodside 1991: 175). Repetition of school years has been common, however, so that many students who completed primary school would have spent longer than the minimum time doing so (Fraser 1991: 196). Table 4.1 indicates that females have had more or less the same opportunities of attending school as males in lowland and upland areas. Unfortunately the provincial results from which Table 4.1 were calculated were not disaggregated between urban and rural areas.

TABLE 4.1 Percentages of northern Vietnamese population who ever attended school and who completed primary school. 1989 Census.

Age	Ever attended school				Completed primary school			
	Lowland and midland provinces*		Upland provinces*		Lowland and midland provinces*		Upland provinces*	
	Males	Females	Males	Females	Males	Females	Males	Females
5-9	64	64	41	38	0	0	0	0
10-14	98	98	73	64	10	11	3	5
15-19	98	98	76	66	49	50	23	24
20-24	98	98	78	70	58	61	32	29
25-29	99	98	82	72	64	61	39	32
30-34	99	98	83	74	64	61	39	31
35-39	99	97	82	71	58	49	34	24
40-44	98	95	81	66	49	33	27	16
45-49	98	90	77	54	39	17	20	7

*'Upland' provinces are defined here as those provinces in which the entire population was living in upland areas at the 1979 Census (Vietnam 1983: Table 4). Of the remaining northern provinces only Quang Ninh, with 58 per cent, had more than a third of the population living in upland areas. The upland provinces are Ha Tuyen, Cao Bang, Lang Son, Lai Chau, Hoang Lien Son, and Son La.
Source: Calculated from Vietnam (1991: Tables 4.5, 4.5).

Communities partly absorbed the costs of children's schooling. From the 1960s, the salaries of school teachers were supported out of commune or central government budgets, so that parents were generally not required to pay school fees for their children. Attendance at primary school was, nevertheless, not free. Parents were required to contribute money or labour towards school construction and maintenance. Special charges were levied for examinations, and for supplementary payments to teachers. Textbooks and writing materials were provided by parents. Post-primary education was more expensive than primary education, with the biggest cost being the living costs of

students attending schools in towns or cities. According to government surveys, education costs accounted for two to three per cent of average household expenditure in rural areas between 1965 and 1975 (Fforde and Paine 1987: 138). In China, schools did charge fees, but the overall cost of schooling appears to have been about the same as in northern Vietnam (Parish and Whyte 1978: 80; Perkins and Yusuf 1984: 143). In both northern Vietnam and China, the stagnation of collective farming and the limits on family farming reduced the opportunity cost of sending children to school.

Similarly, medical consultations were generally free, but patients were required to pay for medicines. Health care appears to have accounted for about the same proportion of household spending as education (Fforde and Paine 1987: Table 138).

The central government and local communities attempted to improve the welfare of women by relieving some of the direct costs and opportunity costs of children. Women in the state sector received four months maternity leave, regardless of the birth order of the child (Jones 1982: 797). Some co-operatives offered similar benefits (Chaliand 1969: 201). Formal institutions appear to have relieved only a small proportion of families from childcare duties. According to official figures, creches catering for children aged two months to three years offered a total of 132 000 places in 1965, and 350 000 places in 1972 (Foreign Languages Publishing House 1979: 14). These figures imply that about 10 per cent of children in the eligible age group were enrolled in creches in 1965, and about 20 per cent were enrolled in 1972. Parents appear to have continued relying on grandmothers for child minding (Houtart and Lemercinier 1984: 91; Fraser 1991: 189).

Although urban workers with several children were entitled to extra government housing allocations, overall housing shortages and long queues meant that large urban families still faced serious crowding (see Section 6.5). Rural families appear to have received extra land for family plots for each extra child, regardless of birth order (Jones 1982: 802).

Government policy dramatically reduced the costs to parents of their sons' marriages. In the cities and in most rural areas, elaborate wedding ceremonies and banquets were banned, in exchange for the local communities paying some of the wedding expenses. Parents in northern Vietnam are usually expected to provide land or housing to sons establishing separate households. In the cities the availability of subsidized government housing, and in the countryside the provision by the co-operatives of small plots of residential land, reduced this burden (see Section 6.5).

Although the evidence on the costs of children gathered together here is far from conclusive, it does suggest that on balance the ability of parents to support large families was enhanced by the institutional and economic changes of the 1960s and 1970s. Income levels were higher than previously, and the systems of transfer payments and subsidies helped pass the costs of childrearing away from parents onto the rest of society. The only obvious ways in which the burden of childrearing increased was through mass schooling, particularly at higher levels, and through housing shortages in the cities.

A convenient way to analyse the benefits of children in northern Vietnam is to draw on the mobility-security framework developed by Greenhalgh (1988: 658-66, 1989: 101-3) to analyse the fertility consequences of socialist transition in China. Greenhalgh looks at the benefits families derive from children under familial strategies to enhance or protect their social, political, and economic status. In China these strategies have been centred on sons, as daughters traditionally joined their husbands' families at marriage. The political limits on wealth accumulation and entrepreneurship in China left occupational advancement as the main method of upward mobility. The preferred occupations were within the urban state sector. For most of the 1960s and 1970s such jobs were difficult enough for urban school leavers to obtain, and virtually inaccessible for rural school leavers. Sons therefore lost much of their value as means of upward mobility. In urban areas the provision of adequate old-age support to state workers undercut much of the security value of sons. In rural areas, the communes' 'five guarantees' system of old age support usually provided only tiny amounts and was generally considered demeaning, so that the security value of sons was retained. The overall effect of institutional change was therefore to dramatically reduce the benefits of children in urban areas, and only partly to reduce them in rural areas.

Northern Vietnam had been engaged in wars almost continuously since the 1940s, and as far as anyone knew, might have been fighting new wars in the 1980s or 1990s. Parents had to face the possibility that any sons they reared would have a strong chance of being conscripted into the army, and of being absent for long periods or killed on duty. This possibility may have weakened the value of sons within mobility or security strategies.

Northern Vietnamese daughters, like Chinese daughters, become members of their husbands' families at marriage. Northern Vietnamese adages refer to daughters as 'wild ducks' (who will eventually leave); in colonial Vietnam, parents would not teach secret

handicrafts to daughters, but would teach them to daughters-in-law. Researchers have noted, however, that strong contacts do remain between women and their natal families after marriage, particularly since village endogamy rates of 50 per cent or more are common (Hy Van Luong 1989; Diep Dinh Hoa, Gillogly, Le Thi Van Hue et al 1991: 58-9), suggesting that sons may be the main focus of familial strategies, but not exclusively so.

The size of the 'outside economy' may have permitted families to circumvent some of the official restrictions of wealth accumulation and entrepreneurship, but the main route to mobility in northern Vietnam, as in China, appears to have been through the acquisition of an urban state sector job. Vietnamese educators repeatedly complained about students, with the encouragement of their parents, chasing diplomas in order to escape (*thoat ly*) the countryside and secure such jobs (Nguyen Canh Toan 1977). This may have been a more achievable goal in Vietnam than in China. As discussed in Section 2.3.2, the official figures imply that average annual increases in the size of the state sector work force between 1960 and 1975 were equal to almost 40 per cent of the average annual increases in the working-age population. The equivalent figure for China during the 1960s and 1970s was 10 to 15 per cent. The gains to those who made it into the urban state sector may not, however, have been as great in northern Vietnam as they were in China. Chinese state employees enjoyed not only greater security than peasants or urban non-state workers, but also much higher incomes. In Vietnam, with the end of the 1965-75 war and the loss to the central government of much foreign aid, the incomes of state workers fell, until they may have been as low as those of rural people (Fforde and Paine 1987: 108). The value of children within family mobility strategies in northern Vietnam, as in China, appears to have been relatively low.

Northern Vietnamese children, at least in rural areas, do appear to have retained much of their value within security strategies. Earlier in this chapter it was noted that income from household plots contributed on average half to three-quarters of household income for northern Vietnamese peasants. Government surveys in China during 1978, when the shift towards to family farming had already begun, reported that income from household plots and sideline activities accounted for only one-quarter of peasant household incomes (China 1990: Table T15.27). The economic security of the rural household in northern Vietnam depended to a much greater degree than in China on the availability of children. As Cain (1982: 165) has pointed out, however, household

economies in poor, densely-populated agrarian societies are unlikely to need indefinite numbers of children, but only one or two sons to permit a domestic division of labour.

The Vietnamese Resistance Government first introduced pensions for state-sector workers in 1947 (World Bank 1995: 109), and by the 1960s and 1970s fulltime state-sector workers who had spent most of their working lives within the state system received pensions and rations close to what they had received when working. The imperative to rear children for old age support was consequently reduced.

During the 1960s and 1970s the central government in northern Vietnam provided some allowances to rural war veterans and families of war dead, but, like the Chinese government it left most of the responsibility for setting up old-age support schemes to rural collectives. According to Nguyen The Hue (1995: 63), government surveys conducted in the Red River Delta during the late 1970s found that 95 per cent of old people were able to buy rice from their co-operatives at subsidized prices, 30 per cent were allocated appropriate work by their co-operatives, and 30 per cent were given allowances 'of various sizes'. Descriptions of individual villages mention pig-rearing, growing lentils, and tending fruit trees as examples of 'appropriate work' (Houtart and Lemercinier 1984: 28-9; To Duy Hop et al. 1993: 110). Many co-operatives appear to have paid for members' funerals, just as various village associations had done in pre-revolutionary times (Nguyen Van Huyen 1944: 92-3; Chaliand 1969: 201; To Duy Hop et al. 1993: 105; Bui The Cuong 1994: 49). The arrangements made in rural northern Vietnam seem unlikely to have done more than the 'five guarantees' system to reduce the importance of children for providing old-age support.

Some tentative conclusions about the overall mobility and security benefits of children, and about the balance between these benefits and the costs of their upbringing, are possible here. The usefulness of sons within familial strategies was reduced by the real possibility that as adults they might be absent with the army or killed in battle. On the other hand, experiences from the rapid expansion of the state sector during the 1960s and 1970s probably led to optimism in families that children might be able to secure coveted state-sector jobs. The introduction of generous pensions for state sector workers made it less imperative to have children for old-age support in the cities, while the rudimentary systems operated by agricultural co-operatives probably had little effect. Given that the individual changes had conflicting effects on the expected benefits from children, it

appears unlikely that the overall influence was strongly in one direction or another, except possibly that the benefits from children was reduced somewhat in the cities.

Combined with the observation that childrearing became less burdensome during the 1960s and 1970s, it appears likely that the demand for children was high during this period, though somewhat less so in the cities than in the countryside.

4.2.3. *Population policy*

Work units in urban areas and co-operatives or brigades in rural areas paid some of their members' childrearing costs. How likely is it that work units, co-operatives or brigades launched their own initiatives to contain the increases in such costs by inducing members to reduce their fertility? Given the relative ease with which work units were able to cover cost increases through equal increases in subsidies or payments from elsewhere within the state sector, they had little incentive to contain members' fertility. In contrast, co-operatives or brigades could expect little help from higher levels of government. Moreover, local population growth not only increased the amounts to be paid out in subsidies for dependants, but also further increased the local ratio of people to land. Possibilities for relieving these pressures through out migration did exist. During the 1960s and 1970s the number of northern Vietnamese people living in urban areas increased from about 0.9 million, or about 6 per cent of the population to 2.5-3.0 million, or about 10 per cent (Section 2.3.2). In addition, one million or more people migrated to New Economic Zones in sparsely populated areas (Desbarats 1987: 44, 60-1). Migration flows were nevertheless small compared to population growth between 1960 and 1979 of about eleven million (Vietnam 1991a: Table 1.1).

McNicoll (1975) has suggested two other preconditions, besides limits on the possibilities for transferring costs onto others, which communities must fulfil before they are likely to take action to lower members' fertility. Communities must be able to protect whatever advantages they obtain from reducing fertility: they must, for instance, be able to exclude outsiders. Communities must also possess effective formal or informal mechanisms for social control and must recognize shared interests. McNicoll (1975: 10-15, 1995: 3) argues that villages in Tokugawa Japan and production brigades or teams in communist China may have fulfilled the preconditions and acted spontaneously to limit

members' fertility—although he notes that any spontaneous initiatives in China were overtaken in the early 1970s by the later-longer-fewer campaign.

The similarity between Chinese production brigades and teams and northern Vietnamese co-operatives and brigades was noted in Section 2.3.3. Close examination of the workings of Vietnamese co-operatives and brigades might turn up evidence of local birth control initiatives. It appears likely, however, that only a minority of brigades or teams possesses effective formal mechanisms for social control. Researchers have suggested that some of the main reasons for the low productivity of collectivized agriculture in northern Vietnam included corruption or favouritism among local cadres, slack enforcement of work norms, and a distaste for having to co-operate across kinship networks (Kerkvliet 1995b: 402-7). While it is true that an inability to act collectively to carry out agricultural production carries its own special monitoring problems—the difficulty of measuring individual workers' productivity¹—collective action against population growth faces special problems because of its unavoidable intrusiveness. Whether some brigades or teams had effective informal mechanisms for restraining fertility, such as gossip about people who diluted common land resources through excessive fertility, is impossible to tell, given the information currently available.

The upper reaches of the northern Vietnamese government launched Vietnam's first family planning program in 1963. The stated aims of the program were to improve the productivity and welfare of women, and to reduce population growth. The section on population growth stated, with some ambiguity over timing, that 'in all of North Vietnam, the population growth rate must be brought down from 3.5 per cent to 2.5 per cent, then 2 per cent, and each family will only have two to three children with five to six years' birth spacing' (Vu Quy Nhan 1993: 1). The Ministry of Health, the State Planning Committee, the National Committee for the Protection of Mothers and Children, and mass organizations such as the Women's Union and Youth Union all participated in the campaign. Virtually the only contraceptive method offered by the program was the IUD. There are reports that the reach of the program was limited by wartime shortages (Banister 1985: 5).

China went beyond family planning in 1971, with the launch of the later-longer-fewer campaign. Reproductive targets were set from the level of the nation down to the

¹See Lin (1988) for a discussion of monitoring difficulties faced by Chinese collectives.

individual woman, and the full weight of the Chinese state was applied to enforce them. Much of the decline in the Chinese total fertility rate from 5.8 in 1971 to 2.8 in 1979 (the year the one-child policy was launched) appears to be due to the effects of the campaign (Wolf 1986; Greenhalgh 1988: 660-2, 664-5, Appendix).

There are many reasons why northern Vietnam might have been expected to have followed the same strategy. Northern Vietnam had much the same political and economic institutions as China. The leadership's pursuit of agricultural collectivization and surplus extraction from the countryside suggests that it had no greater moral qualms about imposing unpopular policies than did the Chinese leadership. The problems of rapid population growth and high population densities were at least as severe in northern Vietnam as they were in China. Concern about population problems appears not to have gone in and out of political fashion in northern Vietnam as it did in China. In fact, northern Vietnam's population policy did have many of the trappings of the Chinese policy. By the time of Vietnam's second Five Year Plan in 1976-81, national birth rate targets were being converted into targets for provinces, districts, and communes (Jones 1982: 802; Vu Quy Nhan 1993: 5). Official pronouncements on birth rate targets often condoned the use of compulsion, although they often also condemned it (Banister 1985: 20-1).

There is no evidence that Chinese-style compulsion was applied to population policies in northern Vietnam during the 1960s and 1970s, and some weak evidence that compulsion was not applied. Western visitors reported that family planning did not appear to involve coercion (Gough 1977: 44; Houtart and Lemercinier 1984: 92; Banister 1985: 20). Provinces appear to have been free to repeatedly violate plan targets without facing any penalties. Maternity leave, monetary supplements, or housing allowances continued to be given to parents with three or more children (Jones 1982: 802; Werner 1984: 53).

The crucial difference between the Chinese and northern Vietnamese situations was probably the differing abilities of the two governments to implement unpopular policies. As long as northern Vietnam was at war, it was unable to spare the administrative resources required by a coercive birth control program, and was in no position to risk jeopardizing its public support. Even when the war was over, the Vietnamese government lacked the control over local-level institutions enjoyed by the Chinese

government, where collective agriculture was far more successfully implemented (Kerkvliet and Selden 1995: 37-8).

Population policy appears, then, to have played only a minor part in determining the course of fertility in northern Vietnam during the 1960s and 1970s. Government programs began to supply limited numbers of IUDs, but there is no evidence of administrative pressure to accept contraceptives, or to limit birth rates. The evidence presented in Section 4.2.2 suggested that the demand for children remained relatively high in the countryside, and declined somewhat in the cities, which is consistent with the pattern of continued high net fertility in the countryside, and declining net fertility in the cities. The decline in (gross) fertility during the 1960s and 1970s is, in other words, interpreted here as an adjustment to lower mortality rates, in the face of a constant, or somewhat reduced, demand for children.

4.3. Transition to Market Leninism 1979-1996

4.3.1. Overview of institutional and demographic change

By the late 1970s and early 1980s, the threat of economic collapse and the progressive undermining of the country's economic institutions pushed the Vietnamese leadership into granting limited reforms. These reforms included the legalization of output contracts between households and co-operatives, and the legalization of limited use of private trading by state-owned enterprises. The reforms appear to have been intended, like Chinese reforms to the one-child policy, to open a small hole to close a large hole. Although the reforms produced a one-off gain in efficiency and output, the growth rate of the 'outside economy' increased, draining resources out of the state sector. The government responded by increasing its funding to the state sector, paid for by printing money. The result, during 1986-8, was hyper-inflation.

In 1986, at the Sixth Party Congress, the government announced a plan to introduce a more comprehensive set of reforms, under the slogan of *Doi Moi* (Renovation). In 1988 land and assets belonging to co-operatives were distributed among their member households. State-owned enterprises were forced to accept harder budget constraints; rationing and state-fixing of prices were done away with; and free markets continued to expand, so that from 1989 'the Vietnamese economy is most usefully considered as a

market economy' (Fforde and de Vylder 1996: 178). Since the late 1980s, the economy has been growing at about 8 per cent a year.

The northern Vietnamese total fertility rate continued its slow decline from somewhere between 4 and 4.5 in 1980 to somewhere between 3 and 3.5 in the early 1990s (Appendix Table 3.4). As discussed in Section 3.4, available fertility data indicate that the differentials between lowland regions and upland regions, and between cities and the countryside were maintained, though the data contain limitations which make it impossible to measure these differentials properly. The decline in fertility appears to have more than compensated for the decline in mortality, producing a decline in net fertility.

4.3.2. *The demand for children*

Increases in real household income imply increases in parents' ability to pay childrearing costs. Measurement of real household income during the 1980s and 1990s is difficult, because of the complications introduced by the dismantling of the rations system and the hyper-inflation. A reasonably proxy for rural household income is per capita staples production, which appears to have stagnated during the mid-1980s, and to have begun increasing rapidly in 1988, after the agricultural reforms. Food as a proportion of the total expenditure of rural and urban households also began falling sharply from about 1988 (Fforde and de Vylder 1996: Figures 3.1, 3.12). Residents of Hanoi I have spoken to suggested that living standards began improving quickly from the late 1980s.

Although the transition to Market Leninism eventually increased incomes in general, it also undermined the system of transfer payments by which income was channelled towards those with children. With the rapid growth of the 'outside economy' at the expense of the state and collective sectors during the early 1980s, 'other incomes' as a proportion of the household income of state sector workers increased from less than one-fifth in 1979 to about one-half in the mid-1980s (Fforde and de Vylder 1996: Figure 3.10). The payment or non-payment of child allowances began to become irrelevant to household income. In 1988 the 'household contracts' legislation did away with work points, formerly the principal mechanism through which co-operatives redistributed income towards large families.

In the northern Vietnamese countryside, local provision of social welfare appears to have taken the form of guaranteed access to small plots of agricultural land. Since 1988 use rights to most agricultural land have been distributed among households according to household size, with redistributions scheduled to occur at intervals of fifteen to twenty years. Although there has been a great deal of variation in land allocation practices, there are many reports of districts only allocating land to the first two children in a family, in line with the national birth control policy of limiting couples to two births (Xenos et al. 1991: 49; Goodkind 1995: 105; Nguyen The Hue 1995: 124). The effects of economic reform on parents' ability to bear childrearing costs have thus been contradictory: on the one hand, average incomes have been rising; on the other hand, the magnitude of transfers to parents have been falling.

Meanwhile economic developments unambiguously raised the direct costs of childrearing. Continuing economic problems, the decline in the revenue-generating capacity of co-operatives, and perhaps a shift in government priorities, led to the education and health sectors being starved of funds in the late 1970s and the 1980s. Teachers' and health workers' salaries fell below subsistence levels. This appears to have led both to a reduction in the quality of services and an increasing reliance on means such as examination fees and pharmaceutical sales to pay staff salaries (UNICEF 1990: 97-8, 143-4; Allen 1993; Marr 1993: 338-42). The charging of fees in education and health was legalized in 1989. Over the late 1980s and early 1990s, primary school attendance rates were maintained, but attendance at secondary school diminished (World Bank 1995: Table 7.6). According to government surveys, the proportion of household income spent on 'education, health, and culture' accounted for 5 per cent of the expenditure of rural households in 1981-5, and 10 per cent in 1986-90 (Nguyen The Hue 1995: 91). The state-run creches have become increasingly expensive, and monthly fees are now approximately equivalent to the monthly salaries of government workers (about 30 US dollars). Private creches are usually more expensive. There are, however, an unknown number of informal or family-run creches, particularly in rural areas (Fraser 1991: 190-1; Tran Thi Van Anh 1992: 34).

Rising incomes and the waning of official limits have led to rapidly increasing expectations concerning socially acceptable wedding celebrations. Stories abound in Hanoi about celebrations costing parents a year or more's worth of income. Similar changes have occurred in China.

The overall effect of the transition to Market Leninism has been to increase the costs of childrearing faster than the ability of parents to bear these costs. Researchers at the Institute of Sociology in Hanoi report that parents throughout urban and rural northern Vietnam have been complaining that children are far more expensive than they used to be.

Meanwhile, economic reform appears to have reduced the attractiveness of having large families. The mobility strategies practised by families during the 1980s and 1990s require money rather than many children. In rural areas, high population density and egalitarian distribution means that most allocations of agricultural land are tiny. Research in rural areas has indicated that people have been keen to retain family plots as subsistence guarantees, but have been pursuing upward mobility through off-farm activities, such as livestock-rearing, trading, handicrafts, and, to a still limited extent, light industry (Le Thi Vinh Thi 1993: 20-1; Kerkvliet and Selden 1995: 33-4). A major 1992 survey found that for the large majority of respondents the greatest obstacle to becoming involved in off-farm activities was a shortage of capital (Ronnas 1992: 66). Vietnamese researchers have reported cases of couples delaying or reducing childbearing in order to devote their resources to entrepreneurship (Nguyen The Hue 1995: 122). Urban entrepreneurs make the same complaints about capital shortages as rural entrepreneurs (Ronnas 1992: 51), and face the same incentive to limit their fertility.

Families now have far greater scope than during the 1960s and 1970s to achieve upward social mobility through conspicuous consumption. With government policy legitimating wealth accumulation, families building elaborate houses or throwing large parties no longer receive enquiries from the local security forces about the source of their money. High quality imported consumer goods began to enter northern Vietnam on a large scale in 1989 (Fforde and de Vylder 1996: 177), enabling the lucky few to purchase new clothes, motorbikes, and stereos.¹

Economic reform has only slightly affected the value of children as sources of security during old age. The pre-reform system of old-age support for urban workers has essentially been maintained. In 1993 the government introduced legislation carrying over most of the former provisions for state workers.² The maximum benefit was set at 75 per cent of employees' average salaries during their last five years of employment.

¹I also saw a survey of a village near Hanoi reporting that 20 out of 800 households owned a karaoke machine.

²The relevant decrees are printed in *Nha Xuat Ban Chinh Tri Quoc Gia* (1995). World Bank (1995: 109-10) gives a brief summary in English.

Private enterprises employing ten or more people were instructed to participate in the scheme. Funding was supposed to come from levies on employees and employers, but in the first year of operation only about one quarter of the planned revenues were collected in this way, and most of the deficit was paid for out of central revenues. Further reforms in 1994 were aimed at reducing contributions from the state budget. As the World Bank (1995: 109-12) has pointed out, the existing system is extremely regressive; it is probably no more regressive than its socialist predecessor, however—the existing system is simply more transparent.

In rural areas, the central government makes small contributions towards the welfare of the aged. Old people who lost children during the wars, for instance, receive allowances which are sufficient to pay for simple meals (Dang Thu 1994: 5). A few communities still subsidize rice for old people (Phi Van Ba 1992: 23; An Dien Research Group 1994: 58). Old people also often receive allocations of agricultural land, and sometimes subsidized fertilizer, pesticides, or other inputs (Phi Van Ba 1992: 22-3; An Dien Research Group 1994: 58; Dang Thu 1994: 5). On a smaller scale, there has reportedly been a proliferation of small-scale old people's organizations, operating schemes to pay for funerals, visit the sick, or exercise in the outdoors (*cau lac bo suc khoe ngoai troi*) (Duong Chi Thien 1994: 87). None of the post-reform rural schemes are particularly generous, but then neither were the pre-reform schemes.

Northern Vietnamese people, particularly in the countryside, can thus expect to need children as sources of old-age support. People's ability to afford investments in children has also been enhanced by rising incomes since the late 1980s. Over the course of the 1980s and 1990s, public subsidies for childrearing have, however, been falling in value, and the direct costs of childbearing have been increasing. At the same time, attractive alternative uses for parents' resources have been appearing. The combined effects of these changes has been to depress the demand for children in both urban and rural areas.

4.3.3. *Population policy*

In 1981 the Council of Ministers stated that family planning should be strongly promoted throughout the country. It proposed that the population growth rate be lowered from 2.1 per cent to 1.7 per cent by the year 1985, and that parents should have no more than two children, with a minimum age at first birth for mothers of 22 years, and five

years' spacing between births. The Council of Ministers proposed that incentives be introduced for couples who practised family planning, and that subsidies with pronatalist effects be altered. Family planning committees were to be established at every administrative level down to the commune, with each family planning committee headed by the chair of the local People's Committee (Vu Quy Nhan 1993: 5).

At the Sixth Party Congress in 1986, population control was declared to be the second most important national objective, behind only food production (World Bank 1993: 178). Article 2 of the 1986 Marriage and Family Law stated that 'husband and wife shall have the obligation to implement family planning', although Article 4 of the 1989 Health Law stated, presumably for the benefit of foreign donors, that 'all acts of preventing or forcing the implementation of family planning are prohibited' (Banister 1993: 25; The Gioi 1993: 297). A statement by the Council of Ministers in 1988 reiterated the message of the 1981 statement. In 1993 the Party Central Committee issued a decree outlining its support for the target of two children per couple and promising to continue expanding the family planning program (NCPFP 1994).

In 1984 the National Committee for Population and Family Planning (NCPFP) was established. It was given responsibility for co-ordinating family planning activities and for establishing birth rate targets down to the local level, although responsibility for the distribution of contraceptives remained with the Ministry of Health. The NCPFP began setting up offices at the provincial, district, and commune levels (Hull and Le 1992: 84-6; Goodkind 1995: 89). The 1993 decree on family planning mentioned above envisaged communes having staff working fulltime on family planning matters, as well as 'collaborators' assigned to hamlets or sub-hamlets (NCPFP 1994: 113).

If international aid is included, funding for family planning appears to have been maintained at approximately the same level between 1985 and 1990, while other areas of social spending were being cut (World Bank 1993: 178). Between 1990 and 1993, spending on the category 'population and family planning' grew from 0.09 per cent of state budget expenditure to 0.35 per cent (Vietnam 1995a: Table 4.16). In 1993, the government announced an intention to provide adequate funds for maintaining the supply of contraceptives, giving material incentives to family planning acceptors and family planning workers, carrying out Information, Education, and Communication work, and collecting reliable statistics (NCPFP 1994: 125).

Vietnam's family planning program appears to have contained substantial inefficiencies and to have been unresponsive to client needs (Knodel, Phan, and Dao 1995). In this it resembles state stores, and all other government-organized distribution systems in Vietnam. It is intuitively plausible that fertility decline in northern Vietnam has been somewhat faster than it might have been because of the availability of relatively efficient means of contraception, and that greater availability might stimulate somewhat faster decline. The extent to which provision of 'modern' contraceptives hastened fertility decline depends on the willingness and ability of Vietnamese to use homemade methods. The only available evidence on contraceptive use comes from large-scale surveys. The 1994 Intercensal Demographic Survey reported that about one-third of all women practising contraception were using periodic abstinence and withdrawal, regardless of education level, occupation, or place of residence (Vietnam 1995: Table 4.5). While the size of this figure and the fact that use of rhythm or withdrawal did not depend on the availability of alternative methods suggests that Vietnamese people could control their fertility without modern contraceptives, it would be useful, in a country where use of family planning is a legal obligation, to have results from more intensive studies.

There is scattered evidence of determined efforts to implement birth rate targets during the early and mid 1980s. Official statements and newspaper articles continued arguing for the use of compulsion to meet family planning targets. Some targets appear to have been expressed in terms of contraceptive acceptors, others in terms of numbers of births (Banister 1985: 18-21). In 1987, the Hanoi Municipality appears to have forcefully implemented the incentives and penalties alluded to by the 1981 Council of Ministers statement, as an official from the Ministry of labour complained that some penalties had been 'unsuitable, and have even violated the rights of citizens. For example, people have not been allowed to study, have had their bonuses cut off, have been dismissed, etc' (Banister 1989: 159). During the mid-1980s, some co-operatives provided women with money, food or leave from work after they had had an IUD fitted or had undergone an abortion. The Women's Union complained that some co-operatives also cut the food rations or work points of women who gave birth outside the co-operatives' plans (Nguyen Huyen Chau 1988: 66-9). Lam Thanh Liem (1987) was told by Vietnamese who had recently emigrated to France that city hospitals were inserting IUDs into women who had had two or more children, and that mobile clinics were doing the same in some country areas.

Many examples of northern villages implementing strong measures against high fertility have been described for the late 1980s and 1990s. Xenos, Tran, Luu, and Vu (1993: 49) describe a village in the most densely populated part of the Red River Delta which in 1989 introduced fines equivalent to 200 kilograms of rice for third or higher order births or for second births occurring less than five years after the first.¹ When Xenos et al. stayed in the village in 1991, the local government was in the process of linking fees for health care and other services to children's birth order. Xenos et al. were not in the village long enough to properly assess enforcement of the fines, although their impression was that local people were taking the fines seriously. Surveys conducted by Goodkind (1995: 93-101) during 1993 in a town and two villages in Hai Hung Province included questions on fines for violating the two-child policy. Over half the respondents in the town and about 90 per cent of respondents in the village reported that they had heard of such fines being imposed, the amounts levied varying from less than 50 kilograms of rice to 240 kilograms. Researchers from the Vietnamese Institute of Sociology described a village in Ha Son Binh Province where in 1991 women with two or more children were required to have IUDs inserted. A woman with two or more children who failed to have an IUD inserted was to be penalized by a fine of 20 kilograms of paddy. Fees for births at the infirmary were about fifty cents (US) for first and second births, five dollars and 100 kilograms of paddy for third births, five dollars and 200 kilograms of paddy for fourth births, and five dollars and 300 kilograms of paddy for fifth or higher order births (Nguyen Thi Huong 1992: 118). The researchers did not say how strictly these fees were enforced. Vuong Xuan Tinh (1994: 27-8), another Vietnamese researcher, describes parents in one village in Thai Binh Province as being willing to pay 800 kilogram fines for third or higher order births if all the previous children were girls. Finally, a Vietnamese family planning worker (Tran Thi Hoai 1994: 99-100) describes a village in Thai Binh Province as imposing fines of up to 750 kilograms of paddy for fifth or higher order births, with payment being spread out over five years.

Great care must be taken in interpreting available evidence on birth control in northern Vietnam. The fact that there is more evidence of forceful birth control programs in the late 1980s and early 1990s does not necessarily mean that the incidence of such

¹Per capita paddy production in the province (Thai Binh) to which the village belonged was just under 450 kilograms in 1989 (Vietnam 1991a: Table 1.2; Vietnam 1994: Table 49)

programs has increased since the late 1980s. Vietnam became slightly more open to foreigners since the late 1980s, so that evidence on virtually every aspect of Vietnamese society is more plentiful for the late 1980s onwards than for previous years. In addition, none of the sources listed above implied that the situations they were describing were typical of all northern villages. It is possible that these programs are very atypical, and that this is why respondents had heard of them, or why social scientists have written about them. The family planning worker noted that next to the village imposing 750 kilogram fines was a village which imposed no fines at all (Tran Thi Hoai 1994: 99-100). Goodkind (1995: 107) explicitly warns against making premature generalizations based on the evidence he presents, arguing that more villages across a wider geographical range must be studied first. Vietnamese researchers have found that birth control measures vary widely between localities (Nguyen The Hue 1995: 123-4). Extensive local variation is what would in fact be expected, based on Vietnamese experiences implementing other national policies. For instance, almost identical observations about local variation have been made in the 1990s regarding land allocation as were made during the 1970s about the management of co-operatives (Pham Cuong 1976: 54-6; Kerkvliet 1995a: fn22).

In China, a significant cause of the geographical variation in birth control programs has been difference in the policies of provincial governments (Greenhalgh 1994: 369-72). In Vietnam, provincial governments have recently increased their influence over many areas of policy (see Section 2.4.2). There is scattered evidence that provincial government may have had a significant role in forming population policy in northern Vietnam. Vietnamese media reports on family planning often describe initiatives taken by provincial governments. The Ha Son Binh village with the infirmity fees mentioned above reportedly first adopted a two-child policy in 1985 after an instruction had been issued by the Ha Son Binh People's Committee (Nguyen Thi Huong 1992: 117). Most of the village examples cited above were from Hai Hung and Thai Binh provinces, where the provincial governments have traditionally been unusually loyal to the Party. Indeed, Hai Hung was already considered a family planning success story in 1981, when 405 of the 422 communes in the province had reportedly fulfilled official family planning targets (Jones 1982: fn 43).

Some government employees in urban areas appear to have been threatened with penalties for having more than two children. Goodkind (1995: 91) describes state-owned enterprise workers receiving tickets from their work units at the time of marriage

specifying when they were allowed to have each of their two children. Penalties for non-compliance varied between organizations. Stories circulate around Hanoi about promotions being withheld or fines levied for giving birth to a third child. It appears, though, that residents of northern Vietnamese cities, like residents of Chinese cities, and most other cities across East and Southeast Asia, would prefer to have only one or two children anyway, so that a legal limit of two children is not a great cause of conflict.

Very little research has been published on family planning in southern Vietnam. When Goodkind (1995: 99) surveyed two villages and a town in south-central Vietnam, he found almost no evidence of fines. Lam Thanh Liem (1987) collected reports that compulsory IUD insertions and other such measures were being carried out in Ho Chi Minh City and elsewhere in the South during the early 1980s. Goodkind (1995: 99) notes, however, that Western fieldworkers had found no recent evidence of fines outside the Red River Delta and adjacent areas, and that the styles of the family planning programs in the two halves of Vietnam appear to be different, with southern programs offering more alternatives to the IUD than northern programs. If there are indeed North-South differences in population policies, one contributing factor may be wariness on the part of the central government of imposing unpopular policies in the South. Other unpopular policies such as collectivization and conscription have met with far less compliance on the part of local officials or the citizenry in the South than in the North (Kerkvliet and Selden 1995: 23; Pike 1986: 292).

The birth control program in northern Vietnam has been operating simultaneously with the transition towards Market Leninism. Greenhalgh, Zhu and Li (1994: 366) summarize the scholarly consensus when they describe how similar economic reforms in China initially made enforcement of the one-child policy more difficult. The end of team accounting made the application of incentives and disincentives harder. The weakening of collective institutions reduced local fund-raising capacity, depriving the birth control program of resources to pay cadres or to provide incentives to family planning acceptors. Cadres neglected their official duties in favour of more lucrative opportunities for entrepreneurship or farming. The effect of these changes and the tightness of the one-child policy varied markedly between regions. Surveys showed that, nationally, fertility was creeping upwards: according to one set of estimates, for instance, the Chinese total fertility rate climbed from 2.3 in 1985 to 2.5 in 1987.

By 1993, however, the total fertility rate had apparently fallen to 1.9. Chinese officials claimed that the credit for this reduction belonged with the national birth control program. Greenhalgh, Zhu and Li (1994) present evidence from Shaanxi Province suggesting that the officials' diagnosis was correct. When the central government increased pressure on the Shaanxi provincial government, it in turn increased pressure on local birth control cadres, through creating a new, Party-led, Birth Planning Association, and through rewarding effective cadres and punishing ineffective cadres more diligently. At the same time, the Shaanxi government increased funding to birth control, which allowed cadres' wages to be raised, and allowed cadres to increase incentive payments to birth control acceptors, to strengthen the registration system, and to offer higher quality services. The extent of local variation in policy implementation was reduced. Fertility fell, partly because of a reduction in demand for children, but mainly because of the birth control program.

If the arguments in Section 4.2.3 were correct, and the Vietnamese government was unable to introduce birth control programs during the late 1970s because of the crisis in the former economic system, then, in contrast to China, economic reform was a precondition for the birth control programs. A new, more mutually satisfactory, equilibrium in state-society relations does appear to have been reached (Kerkvliet 1995a). The Vietnamese government has room on its agenda for more than just immediate economic survival. At the same time, decollectivization appears to have created identical difficulties for northern Vietnamese birth control cadres as it had for their Chinese colleagues. For instance, the end of the workpoints system in 1981 made it more difficult to impose penalties, programs lack sufficient funds to pay meaningful salaries to cadres or meaningful incentives to acceptors, and villages have ceased registering births (Kaufman and Sen 1993: 243; Goodkind 1995: 91, 102).

The evidence on population policy presented above suggests that, in northern Vietnam at least, the Vietnamese government may be pursuing a Chinese solution to these problems. The Vietnamese central government, like the Chinese central government, appears to have been putting pressure on lower levels of government to enforce birth and contraceptive acceptance targets. The government also appears to have been using some of the increases in government revenue to reward birth control cadres and make their jobs easier. As yet it is too early to tell whether these efforts will result in a similar reduction in local variation and in overall fertility rates as was achieved in China.

Even if the Vietnamese government does not succeed in tightening current birth control policies, it does appear plausible that these policies have had some influence on fertility levels in some areas. Both gross and net fertility could have been expected to fall anyway, in response to a reduction in the demand for children. To what extent the birth control program has hastened fertility decline is, at present, impossible to tell.

Chapter 5 Northern Vietnamese succession rules and the demographic transition

5.1. Introduction

In northern Vietnam, as in most of East Asia, families endeavour to transfer family property and preserve the family line through succession from fathers to sons. Within the patrilineage, males are ranked by age and generation, while females are ranked by their relationship to the males. Ancestor veneration is carried out mainly, though not exclusively, for patrilineal ancestors. A recent study (Nguyen Duc Truyen 1994: 17) in a village near Hanoi found that people believed that family property should not be given to women unless the women were unmarried or recently married, on the grounds that married women became part of their husbands' families. Family property such as land or housing is given to sons at the time they establish a separate household, or, for sons who remain in the parental home, over a longer period. This results in most property being transferred before the deaths of the parents. All sons are supposed to receive approximately equal shares of the estate, with the exception of sons remaining in the parental household, who often receive a greater share in return for looking after the parents (Hickey 1958: 75-6; Luong 1989: 744-7; Pham Thi Nguyet Lang 1990: 92; Do Thai Dong 1991: 84, 91; Nguyen Tu Chi 1991: 66, 69; Nguyen Duc Truyen 1994: 3, 17-18; Vuong Xuan Tinh 1994: 25-6). Yang (1945: 82) noted that in China, the preservation and preferably the expansion of family property and of the patrilineage were inseparable; the same could be said for northern Vietnam.

The northern Vietnamese state has made a number of conspicuous attempts at reshaping its citizens' succession practices. Party theoreticians saw accumulation and inheritance within peasant families as leading inevitably to economic differentiation in the countryside. They hoped that one of the contributions of collectivization during the late 1950s and the 1960s would be to put an end to this process (Vickerman 1986: 134-5). However, the northern Vietnamese state, like the Soviet and Chinese states, was unable to make rural people accept collectivization without compromises. Most families, with the exception of landlord families, were allowed to retain and bequeath their gardens, ponds, and houses. In the cities, families who owned their own houses were generally allowed

to keep them. In both the countryside and the cities, a great deal of movable family property disappeared, often literally underground. Only in the late 1980s did it reappear, to be invested in businesses, or prestige housing. The extent of the collectivization and of its effect on the transmission of family property should therefore not be exaggerated. Decollectivization in northern Vietnam has generally left rice land in the hands of local communities, who are obliged to redistribute it at intervals of about 20 years. However, the main focus for rural investment and accumulation is not rice agriculture, but houses, handicrafts, trading, and small-scale industry, which are owned and controlled by families (Ronnas 1992).

On several occasions, the government passed legislation attempting to propagate new succession rules which were less biased against women. The 1960 and 1986 Marriage and Family Laws stated that sons and daughters had the same rights and responsibilities within the family (Kim 1973: 448; The Gioi 1993: 302). The inheritance law passed in 1990 (The Gioi 1993: 506-19) specified that all children should receive equal amounts of the family estate on the death of their parents. Nguyen Duc Truyen (1994: 16-18) found that few people had even heard of this law, and that those who had heard of it took no notice of it. The Vietnamese state never launched wholesale assaults on ancestor veneration like those launched by the Chinese state during the Cultural Revolution. Vietnamese cadres did place official limits on expenditure on funerals and offerings, but this was a reform which in the past had occasionally been proposed by Confucian scholars.

A less obvious but probably more important influence on Vietnamese succession practices has been demographic change. In order for a family to carry out patrilineal succession, the father must have at least one surviving adult son at the time of his death. Whether a father has a surviving biological son depends on how many children his wife gives birth to, how many of these children are sons, and how many sons survive to the fathers' deaths. All of these conditions are subject to chance, or what Smith (1984: 40, 1988: 113) calls the 'demographic lottery'.

The proportion of fathers in a population who have at least one surviving biological son at the time of their deaths will, for convenience, be referred to in the rest of the chapter as the 'heirship proportions'. In any population, heirship proportions are likely to be related to the population growth rate: the higher the growth rate, the more sons, on average, survive to the time of their fathers' deaths. As will be discussed later in the

chapter, this relationship is mediated by the parity distribution of fertility, but the association between a high population growth rate and high heirship proportions is nevertheless strong enough for a rise and then fall in heirship proportions to be an integral part of the demographic transition.

For mathematical demographers, the association between the growth rate of a population and the proportion of adults with surviving heirs is a truism (Ryder 1975: 279-80; Keyfitz 1985: 332-4). In the literature on population old-age support, the effect of declining fertility on the proportion of childless old people is similarly well known. However, few general discussions of social change or the family make much of the link between changing heirship proportions and the demographic transition. Similarly, few scholars seem to recognize that the high proportion of adults with heirs in populations undergoing a demographic transition is historically unprecedented.

Northern Vietnam's demographic transition was already under way by the 1930s. Mortality had fallen and fertility remained high, producing a population growth rate of between one and two per cent a year (Gourou 1936: 196-7). Mortality declined further after the 1945 Revolution, so that by 1960 the annual population growth rate may have exceeded three per cent, before falling to around two per cent during the 1980s, as fertility declined (Vietnam 1991a: Table 1.1). The net reproduction rate followed a similar course, as was shown in Figure 3.8. It is clear that the proportion of fathers dying with surviving sons has risen over the course of the century. However, it is difficult to guess at the size of the changes, the extent of the lag behind the demographic changes, or the effects of the 1944-5 famine and the 1946-54 and 1965-75 wars. Statistics measuring the proportion of fathers with surviving sons are only available for the 1990s, and even these statistics are somewhat unsatisfactory.

In this chapter two versions of some calculations made by Wrigley (1978) for stationary populations are used to address these issues and to illustrate some aspects of the demography of succession in northern Vietnam. Wrigley (1978) devoted only a few paragraphs to describing his calculations before moving on to explore their general implications, which was the main purpose of his paper. He did not fully explain some of his assumptions, so that his method is left somewhat obscure. Section 5.2 fills in some of the gaps left by Wrigley, and then uses Wrigley's method to estimate heirship proportions in various stationary populations. An extensively modified version of Wrigley's method is used to estimate proportions of men without heirs in northern

Vietnam at successive periods during the twentieth century. These estimates are necessarily rough, but are sufficiently clear on orders of magnitude and directions of change to allow some substantive conclusions to be formed.

The government policies mentioned above, and the demographic changes dealt with in this chapter, are only two of the many forces likely to have been shaping northern Vietnamese succession practices over recent decades. Mass education, migration, and war-time disruption, for instance, all probably had important effects. The purpose of this chapter is not to examine northern Vietnamese succession practices in their entirety, but only to make a case for paying attention to the demographic lottery.

5.2. The demographic lottery in stationary populations

Wrigley (1978) developed an ingenious method for estimating the likelihood of various combinations of heirs for families occurring in stationary populations. The stationary population case is important because most pre-industrial populations were approximately stationary. The definition of a family which Wrigley implicitly adopts is married couples plus their children, if any. Because he assumes that all adult males beyond a certain age marry, his estimates apply to either families or males beyond that marriage age. At the conclusion of this section alternatives to the assumption of universal marriage are discussed; in the meantime, however, Wrigley's method is explained assuming universal marriage.

Wrigley (1978: 138) assumed that males and females were subject to the same survival probabilities, that all fertility was marital, and that the sex ratio at birth was equal to one. The main justification for using these assumptions was to simplify the calculations, which Wrigley carried out by hand. These assumptions also made it possible to ignore the two-sex problem when specifying stationary fertility and mortality rates.¹ Wrigley (1978: 139, fn 2) reported that subsequent investigations had shown that relaxing these assumptions had little effect on the results. When experimenting with different sex ratios and survival probabilities, I came to the same conclusion. Wrigley's original assumptions are used in the explanation and calculations below.

¹The two-sex problem, which is as yet unsolved, concerns the conditions under which a population composed of two sexes with differing mortality and fertility schedules attains a fixed rate of population growth.

Three basic independence assumptions are used: each person's survival probabilities are assumed to be independent of each other person's survival probabilities; people's survival probabilities are assumed to be independent of their birth order; and the sex of a given person is assumed to be independent of the sex of his or her siblings. The first two assumptions are prominent 'embarrassments for family demography' (Keyfitz 1987: 10-11) in that they are likely to be violated in practice but have to be used because without them the calculations are intractable. Making these three assumptions allows the binomial probability distribution to be used in the calculations.

Wrigley shows that in a stationary population conforming to his assumptions, a given probability that sons survive to the deaths of their fathers, denoted p , implies a given mean number of children born per marriage. In a stationary population, the total number of married men in the population must remain constant. For this to be the case, sons who marry must, on average, marry at the time of their fathers' deaths. Since the average age at marriage is also the average age at which the sons' fathers die, the probability of sons surviving from birth until marriage must be equal to p . Since survival probabilities are the same for sons and daughters, the probability of daughters surviving to the deaths of their fathers must also be equal to p . In order that the number of fathers dying equals the number of sons marrying, each married man must produce on average $1/p$ sons. Since the sex ratio at birth is assumed to be equal to one, the average number of children born per marriage must be equal to $2/p$. Wrigley constructed three hypothetical populations, with values for p of two-thirds, one-half, and one-third. The implied mean numbers of children per marriage in these populations were three, four, and six.

Once mean numbers of children per marriage have been calculated, the next step is to construct distributions of children ever born with the corresponding means. Because Wrigley carried out his calculations by hand, and therefore decided to use distributions composed of round numbers, he constructed distributions whose means differed marginally from three, four, and six. These distributions are shown in Table 5.1, along with a modified version of the first distribution which is used to test the sensitivity of Wrigley's findings to alternative distributions. Although the distributions he derived appear rather odd, Wrigley stated that they were tolerably close to those found in real historical societies.

TABLE 5.1 Distribution of children ever born per marriage in three stationary populations with different probabilities of surviving to death of father.

Children ever born	Proportion of families			
	Popn 1 ($p=2/3$)	Popn 2 ($p=1/2$)	Popn 3 ($p=1/3$)	Test Popn ($p=2/3$)
0	0.100	0.085	0.070	0.200
1	0.200	0.125	0.070	0.150
2	0.200	0.125	0.070	0.150
3	0.150	0.125	0.070	0.150
4	0.110	0.125	0.070	0.105
5	0.085	0.125	0.070	0.050
6	0.060	0.090	0.070	0.050
7	0.040	0.075	0.070	0.030
8	0.025	0.060	0.070	0.080
9	0.020	0.040	0.280	0.025
10	0.000	0.000	0.000	0.000
11	0.000	0.000	0.000	0.010
12	0.010	0.025	0.090	0.000
Total	1.000	1.000	1.000	1.000
Mean	3.055	4.080	6.120	3.055

Based on Wrigley (1978: Tables 3.1, 3.2, 3.3)

Associated with each number of children ever born is a distribution of possible numbers of sons ever born. For instance, if a father has two children, he may have zero, one, or two sons. Associated with each number of sons ever born is a distribution of possible surviving sons at the death of the father. For instance, if a father has one son, he may have zero or one surviving sons. Given the independence assumptions discussed above, the probability associated with each element in the distribution can be calculated using the binomial probability distribution, the sex ratio at birth, and the probability of surviving to a father's death. For instance, if the probability of surviving to a father's death is one-third, then the probability of having one male heir, given two sons ever born, is $\binom{2}{1} \left(\frac{1}{3}\right)^1 \left(\frac{2}{3}\right)^{(2-1)} = \frac{4}{9}$.

When using a computer, the easiest way to carry out these calculations is to use matrices. A matrix can be constructed showing the probabilities of having j sons ever born, given i children ever born. A similar matrix can be constructed showing the probabilities of having k surviving sons, given j sons ever born. These matrices can be multiplied to give a matrix showing the probability of having k surviving sons, given i children ever born. Multiplying a row matrix showing the distribution of children ever born in a given population by this matrix yields a row matrix showing the distribution of surviving sons. Probabilities for given combinations of sons and daughters can be

calculated using the fact that having j sons ever born, given i children ever born, implies having $i-j$ daughters ever born. The basic method can be made more efficient by using formulae which take advantage of the fact that the matrix entries to the left of the diagonal are all equal to zero.

Wrigley showed that in all three stationary populations described above, almost exactly 60 per cent of fathers die with at least one surviving son, 20 per cent die with no surviving sons but at least one surviving daughter, and 20 per cent die with no surviving sons or daughters. In order to find out the proportions of families with various other combinations of heirs, such as two or more surviving sons, I have repeated and slightly extended Wrigley's original calculations. (Unlike Wrigley, I have not had to do all the calculations by hand.) The results are shown in Table 5.2.

With the sex ratio equal to one and survival probabilities the same for sons and daughters, the proportion of families with x surviving sons and y surviving daughters is identical to the proportion of families with y surviving sons and x surviving daughters. This allows the relative frequency of various combinations not shown in Table 5.2 to be deduced. For instance, the proportion of families having one or more sons and two or more daughters equals the proportion having one or more daughters and two or more sons.

The mean numbers of surviving sons and daughters at the death of the husband are not shown in Table 5.2, but in principle they should both be equal to one. In practice, because the distributions of children ever born constructed by Wrigley have means slightly higher than they ought to be, the mean numbers of children surviving to the death of their fathers are also slightly higher than they ought to be (by a margin of 0.04).

As Table 5.2 shows, the proportions of families with combinations such as one surviving son and one or more surviving daughters are just as stable across the three populations as the combinations dealt with by Wrigley. Under the parameters chosen by Wrigley, zero growth rates lead to nearly identical heirship proportions. This stability is to some extent a result of Wrigley's choice of distributions: sufficiently large alterations to the shape of the distributions can affect the results significantly. Table 5.3 shows the results of substituting the distribution labelled 'Test Population' in Table 5.1 for the distribution labelled 'Population 1'. The two distributions have the same mean, but the 'Test Population' contains twice as many families with no children ever born. This leads to the Test Population containing 35 per cent more families with no heirs.

TABLE 5.2 The proportions of families with the indicated combinations of surviving sons and daughters at the time of the husband's death. Three stationary populations.

		<u>Population 1 (p=2/3)</u>			
		Sons			
		0	1	2+	Total
Daughters	0	0.20	0.14	0.08	0.41
	1+	0.21	0.19	0.19	0.59
	Total	0.41	0.32	0.27	1.00
		<u>Population 2 (p=1/2)</u>			
		Sons			
		0	1	2+	Total
Daughters	0	0.21	0.12	0.08	0.41
	1+	0.20	0.20	0.20	0.59
	Total	0.41	0.32	0.28	1.00
		<u>Population 3 (p=1/3)</u>			
		Sons			
		0	1	2+	Total
Daughters	0	0.21	0.11	0.08	0.40
	1+	0.19	0.21	0.20	0.60
	Total	0.40	0.31	0.28	1.00

Adapted from Wrigley (1978).

At very low levels of mortality, the sensitivity of the distribution of surviving children to changes in the distribution of children ever born is high. This can be seen intuitively by considering the limiting case when there is no mortality, and the probability of having a surviving child is entirely determined by the distribution of children ever born. A proper investigation of these matters would only be possible by formalizing Wrigley's method and investigating the mathematical properties of the matrices. However, even if the exact magnitudes found by Wrigley are not generalizable across all distributions of children ever born and all levels of mortality, his calculations do give a rough impression of the proportions likely to have been found in many pre-industrial populations.

TABLE 5.3 The proportions of families with the indicated combinations of surviving sons and daughters at the time of the husband's death. 'Test Population' (p=2/3).

		Sons			
		0	1	2+	Total
Daughters	0	0.27	0.11	0.07	0.45
	1+	0.17	0.17	0.21	0.55
	Total	0.45	0.28	0.27	1.00

Wrigley's method and conclusions are not greatly affected by dispensing with the assumption of universal marriage. One approach is to assume that not all males marry, and to calculate numbers of heirs alive to all adult males at their deaths, rather than calculating the number of heirs alive per marriage or per family. In the original method, mean numbers of children ever born per marriage were calculated by using the fact that the total number of marriages in the population must remain constant; in the modified version, the mean number of children ever born per male over a certain age is calculated using the fact that the number of males over this age must remain constant. Distributions of children ever born per adult male must be calculated to reflect the fact that not all males marry. If there is no childbearing outside marriage, then the proportion of men with no children ever born must be at least equal to the proportion of men who do not marry. Sufficiently high rates of non-marriage would lead to proportions of males with no heirs closer to those in the 'Test Population' than in those considered by Wrigley, particularly if mortality rates were low.

Wrigley's method makes reference to the age of children at their fathers' deaths and to the age at marriage, but it does not specify what these ages are. Wrigley (1978: 140-2) shows how these ages can be calculated. The mean age of children at their fathers' deaths is necessarily equal to the life expectancy of males at the mean age of net reproduction. The term 'mean age at net reproduction' refers to the mean age at child bearing, adjusted for parental mortality, with the sex of the parent left unspecified (Pressat and Wilson 1988: 142-3)¹. Wrigley uses the term 'mean age of fathers at birth of child' to mean the

¹The mean age at net reproduction equals $\frac{\sum_{a=\alpha_1}^{\alpha_2} f_a l_a a}{\sum_{a=\alpha_1}^{\alpha_2} f_a l_a}$ where f_a is the age-specific fertility rate, l_a is the standard life table function, α_1 is the lowest age of reproduction, and α_2 is the highest age of reproduction.

same thing, for fathers only. When a value for the mean age of net reproduction and a model life table have been chosen, it is possible to calculate a value for the life expectancy of fathers at birth of child, and hence the mean age of children at the death of fathers, and the mean age at marriage. For Population 2 described above, Wrigley chose a mean age of net reproduction of 31 years, and a West Level 6 model life table. These implied a paternal life expectancy, a mean age of children at deaths of fathers, and a mean age at marriage of 26 years.

These figures imply that in the population described, fathers die on average at age 57 (31+26). The life expectancy at birth of males under a West Level 6 model life table is 30 years. In arithmetic terms, the difference between the mean age at death of fathers and the mean age at death of all males is due to the fact that fathers are assumed to survive to the mean age of net reproduction. Substantively the difference is due to the fact that the mean age at death of fathers takes the point of view of children, while the mean age at death of all males takes the point of view of males.

5.3. Implications of the demographic lottery for the development of northern Vietnam's succession rules

Northern Vietnam appears to have had patrilineal succession rules for several centuries (Haines 1984: 310-14). Like most historical populations, the northern Vietnamese population grew slowly. Over much of their history, then, northern Vietnam's succession rules have been applied in demographic conditions roughly similar to those modelled by Wrigley. Families without male heirs would have had strong incentives to help develop or maintain less-preferred succession models, to which they were able to conform.

Virtually all societies allow families to compensate for demographic misfortune by adopting children. It was accepted in colonial Vietnam that parents without a surviving son would try to adopt one, preferably from within the husband's patrilineage. Adoption was governed by elaborate rules, distinguishing different grades of adoption, and specifying the adopted son's rights if a biological son was subsequently born (Jamieson 1986: 99-100). Since, in a stationary population, the mean number of sons alive at the time of their fathers' deaths is approximately equal to one, adoption on a sufficiently large scale could in principle leave every father with a surviving adopted or biological son at the

time of his death. However, in a stationary population, the demand for adopted sons is likely to be much greater than the supply, particularly if mortality is high. High mortality creates uncertainty over whether a given son will survive to adulthood, so families may be prudent to retain sons who are apparently surplus, in order to insure themselves against the risk of having no adult sons. And, in addition, not all families necessarily want to limit themselves to one surviving adult son. Adoption is therefore likely to have been only a partial solution to succession problems created by the demographic lottery.

In northern Vietnam, an alternative to full adoption has been to designate as successor someone from outside the household, such as a nephew or a daughter's son (Vuong Xuan Tinh 1994: 25-6). This alternative is relatively secure against the demographic lottery, but has the disadvantage that an heir residing in another household may not be as willing to exchange services for the bequest as an heir residing in the same household, particularly if the non-coresident heir will also receive a bequest from a second source.

Colonial northern Vietnamese villages and sub-village institutions such as *giap*, could, in a restricted sense, act as heirs to sonless members. In exchange for payments of land or assets into communal funds, these institutions would perform ancestor veneration once the members had died. This practice was known as *mua hau*, or 'buying posterity'. According to surviving records, *mua hau* land in most villages made up no more than a few per cent of total village land. Nguyen Dong Chi (1977: 49) describes one exceptional village, however, in which families without biological sons were allowed to transfer only token amounts of land to daughters or adoptive sons, and on the death of the father were required to donate all remaining land to the village *mua hau* fund. Land in the village's *mua hau* fund was never sold, but was periodically redistributed among all households. By the 1920s, *mua hau* fund land accounted for two-thirds of all agricultural land in the village. Nguyen Dong Chi does not give any indication of how long these rules had been operating, but the example does illustrate the difficulty of maintaining unbroken patriline indefinitely.

Provisions allowing women to assume some of the duties and privileges of men help insulate families against the effects of the demographic lottery, although this comes nowhere near constituting an explanation for the existence of such provisions. In northern Vietnam, women and their children perform ancestor veneration for both the women's and their husbands' ancestors (Luong 1989: 747). The legal code promulgated by the Le

Dynasty specified that daughters as well as sons were able to inherit family property. The date the code was promulgated is not known with certainty, but was in either the fifteenth or the seventeenth century (Haines 1984: 307-8). Chinese codes, however, never allowed women to inherit. The neo-Confucian Nguyen dynasty in Vietnam promulgated a new code during the nineteenth century prohibiting inheritance by women (Ta Van Tai 1981: 121-2).

5.4. Recent demographic changes and the demographic lottery

In the modified version of Wrigley's method presented here, the sex ratio at birth is assumed to be 1.05 rather than 1.00, and the survival probabilities of males and females are permitted to differ. Wrigley's three fundamental independence assumptions are retained: each person's survival probabilities are assumed to be independent of everyone else's survival probabilities; peoples' survival probabilities are assumed to be independent of their birth orders; and the sex of each person is assumed to be independent of the sex of his or her siblings. All mortality and fertility estimates are derived from Chapter 3.¹ Three sets of life tables are used: one set based on trend mortality rates only; one set based on trend rates plus the assumption that 1.8 million northern Vietnamese people died as result of the 1944-5 famine and 1946-54 and 1965-75 wars; and one set based on trend rates plus the assumption that 3.6 million people died as a result of the famine and wars.

The modified version proceeds in the opposite direction to Wrigley's original method: rather than starting by assuming a value for the probability that a son survives from birth to the death of his father, it derives an estimate of this probability from other estimates and assumptions. The calculations are set out in Table 5.4. First, dates of birth of the sons are chosen. Next, a value for the mean age of net reproduction is assumed. This value is assumed rather than calculated from data on male fertility, because no such data are available for northern Vietnam, even for the 1990s. The choice of numbers was based on estimates made by Wrigley (1978: 140-1). Although the mean age probably changed slightly over time in response to changing mortality and fertility rates, it is assumed here to be constant, for the sake of simplicity.

¹The one exception was the life expectancy at age 29 for fathers born in 1886. Because cohort life tables were not calculated in Chapter 3 for cohorts born before 1900, I used the life expectancy at age 29 from the 1915 period life table.

The average date of birth of the fathers is calculated by subtracting the mean age of net reproduction of the fathers from the date of birth of the sons. Once the date of birth of the fathers is known, the fathers are assigned a cohort life table, which is used to find their life expectancy at the date of birth of the sons. The fathers' life expectancy at the birth of the sons is, necessarily, equal to the interval through which sons must survive if they are to be alive at the time of their fathers' deaths. The average date of the fathers' deaths is calculated by adding the fathers' life expectancy to the sons' date of birth. Finally, the probability that the sons survive to the time of their fathers' deaths is approximated by the probability, read from the sons' cohort life table, that they will survive the interval.

Estimating from means rather than whole distributions generally implies a loss of accuracy. This is not such an issue in the current calculations, since the estimates on which the calculations are based are themselves rather tentative for the earlier periods. In any case, the calculations use cohort measures, which fluctuate much less than period measures, allowing the value for the middle of an interval to represent the entire interval reasonably well.

Table 5.4 implies that a son born in the 1910s had about a 50 per cent chance of surviving until his father's death, while a son born in the 1960s had about an 80 per cent chance; or, to take the fathers' point of view, a father dying in the 1940s had about a 50 per cent chance of a given son of his still being alive at that time, while a father dying in the 1990s has about an 80 per cent chance of a given son still being alive. What happened in the intervening period depends on which set of assumptions concerning crisis mortality is closest to reality. Under the unadjusted trend rates, the probabilities rise smoothly. Under the moderate and extreme assumptions the probabilities fall in response to the famine and wars. As discussed in Section 3.2, the moderate assumptions have a somewhat more evidence in their favour than the extreme assumptions, though neither is well-supported.

TABLE 5.4 Calculation of the probability that a son is alive at the death of his father. Northern Vietnam.

Date of birth of son	Age of father at birth of son (years)	Date of birth of father	Life exp of father at birth of son / Age of son at death of father (years)	Date of death of father	Probability son alive at death of father (p)
Mortality data not adjusted for famine and war					
1915	30	1885	28	1943	0.52
1930	30	1900	31	1961	0.55
1945	30	1915	36	1981	0.62
1960	30	1930	40	2000	0.80
Mortality data adjusted for famine and war - moderate adjustments					
1915	30	1885	28	1943	0.52
1930	30	1900	30	1960	0.48
1945	30	1915	33	1978	0.53
1960	30	1930	39	1999	0.79
Mortality data adjusted for famine and war - large adjustments					
1915	30	1885	28	1943	0.52
1930	30	1900	29	1959	0.42
1945	30	1915	30	1975	0.46
1960	30	1930	38	1998	0.79
Origin of value					
Chosen	Assumed	First column minus second column	e_{30} for males in father's birth cohort	First column plus fourth column	l_x for the son's birth cohort, where x is the value in the fourth column

The first panel of Table 5.4, which was calculated from the unadjusted mortality data, can be used to illustrate the way in which mortality decline normally affects the probability of sons surviving until their fathers' deaths, p . The life expectancy of the fathers increases, which means that the length of the interval through which the sons must survive also increases. The extra years through which the sons must survive are, however, at young or mid-adult ages, when survival probabilities are high. These extra years are of little consequence for the value of p compared with the dramatic improvement produced by mortality decline in the sons' ability to survive through infancy and childhood. For instance, sons born in 1915 must survive only to age 28 while sons born in 1960 must survive to age 40. If sons born in 1960 did not have to survive

these extra 12 years, the value of p would be 0.02 higher than it is; however, their probability of surviving to age 5 is 0.23 higher than that of sons born in 1915, and their probability of surviving to age 28 is 0.30 higher. Changes in the mean age of net reproduction also lengthen or shorten the interval through which sons must survive to their fathers' deaths. The effect of these changes is likely to be small, however, since the years added or subtracted are at the adult ages, and since the mean age of net reproduction tends to be relatively stable.

Famine mortality, although usually heaviest among children and the aged, is shared among all age groups. In the calculations, and probably in reality, the 1944-5 famine reduced both fathers' life expectancies and sons' survival probabilities. If the estimates made by Hirschman, Preston, and Vu Manh Loi (1995: Table 7) are correct, then the 1965-75 war caused excess mortality rates of approximately 9 per thousand for men aged 15 to 29, and 4 per thousand for men aged 30 to 44, while no other male or female age group suffered excess death rates higher than 2 per thousand (see Table 3.7). Among certain cohorts, war lowered the survival probabilities of sons significantly while barely affecting the life expectancies of the fathers, significantly lowering the probability that sons survived until their fathers' deaths. Such was the case for the cohorts of sons born in 1930 and 1945.

The length of the interval through which sons must survive is important to the application of succession rules. As the interval lengthens, sons who remain in the parental household wait a longer time before they inherit from their fathers. Sons who depart from the parental household at the time of their marriages and receive their share of the family estate then are not so greatly affected. The variation in the length of the interval means, incidentally, that graphs of mean numbers of surviving children to 60 year-olds similar to those produced for 50-year-old women in Section 3.6 cannot be used as proxies for the proportions of fathers dying with surviving children.

The next step in the calculations is to choose the group for which heirship will be calculated. As mentioned above, Wrigley chose to make the calculations for all married couples, which, since he was assuming universal marriage, meant that heirship proportions were calculated for everyone over the marriage age. Calculations are made here for adult men. An appropriate definition of 'adult men' is all males who live to 20 years. All that is implied in the following calculations, however, is that the males have survived childhood, and so have a reasonable chance of surviving through their twenties

and thirties, the prime reproductive years. The calculations are made for cohorts of men born in 1885 and 1930, and reaching the mean ages of net reproduction in 1915 and 1960. The men from these cohorts who had sons are represented by the first and fourth rows of each panel in Table 5.4.

Before the proportions of adult men with heirs at the time of their deaths can be calculated, figures are needed on the distributions of numbers of children ever born to these men. Figures are needed on male fertility ten years or so either side of the dates 1915 and 1960. As discussed in Section 3.3, evidence on fertility prior to the 1960s is scarce, but the evidence which does exist suggests that the total fertility rate for women was probably about six until about 1960, when it began to decline, particularly in urban areas. The total fertility rate for men was presumably roughly similar. A total fertility rate does not take account of the probability that the person could die before reaching the end of his or her reproductive years. According to the survival probability estimates in Chapter 3, men born in 1885 and 1930 who reached age 20 had about a 10 per cent chance of dying before age 30 and about a 20 per cent chance of dying before age 40. The number of children ever born to men from these cohorts who reached age 20 was probably somewhat less than six.

Rather than pretend to more precision than is possible here, I have chosen one empirical distribution of children ever born to apply to both cohorts. The distribution is that of women aged 45-49 in the 1989 Demographic and Health Survey (Vietnam 1990a: Table 3.5). It has a mean of 5.8. The distribution is shown in Table 5.5, where it is called 'Distribution 1'. 'Distribution 2' in Table 5.5 is an adjusted version of 'Distribution 1' with the same mean, but has greater weight at either end of the distribution. The two distributions are used to demonstrate the implications of alternative assumptions about the shape of the distribution of numbers of children ever born.

The estimates of proportions of adult men dying with heirs shown in Table 5.6 were calculated using matrices in the way described above. The values of p for daughters were calculated in the same way as the values of p for sons, using the cohort life tables estimated in Chapter 3. Table 5.7 shows the mean numbers of surviving children per adult male at their deaths. Because the means of the two distributions of children ever born are equal, the means of the distributions of surviving children are also equal.

TABLE 5.5 Hypothetical distributions of children ever born to adult men.

Children ever born	Distn 1	Distn 2
0	0.009	0.040
1	0.033	0.040
2	0.059	0.070
3	0.098	0.075
	0.138	0.128
5	0.122	0.122
6	0.131	0.121
7	0.157	0.098
8	0.103	0.098
9	0.052	0.079
10	0.050	0.050
11	0.025	0.050
12	0.023	0.030
Total	1.00	1.00
Mean	5.84	5.84

Although there do not appear to have been any statistics collected on numbers of surviving children to men at their deaths, a rough test of the plausibility of the results calculated for men dying in the 1990s can be made by using results from recent surveys of old people. Table 5.8 shows the distributions of surviving children reported by old people in two 1993 surveys. One of these surveys was carried out in Hanoi by the Institute of Sociology, the other was carried out in nine locations across Vietnam by Vietnamese social scientists on behalf of the United Nations (Institute of Sociology 1993a; Dang Thu 1994). The average age at death for the cohort shown in Table 5.4 as dying in 1999 was 69 years. In the Hanoi survey the mean age of respondents was 68 years; in the Vietnam survey it was 66 years. Neither of these surveys is ideal for present purposes because numbers of children surviving are reported for the total sample, and neither sample is representative of northern Vietnamese males. The Hanoi Survey has 86 male respondents and 110 female respondents, giving a total sample of 196. The 1989 Census found that urban women aged 45-49 had on average 4.0 surviving children, while Vietnamese women in general had on average 4.5 (see Table 3.14). Depending on when rural-urban fertility and mortality differentials first emerged, the Hanoi sample might be expected to understate the number of surviving children per male in northern Vietnam. The Vietnam Survey has 327 male respondents and 174 female respondents, giving a total sample of 501. Of these 190 came from the South, and 311 came from the North.

TABLE 5.6 The probabilities of various combinations of surviving sons and daughters at the time of adult males' deaths, under two distributions of children ever born, and two sets of probabilities of male and female children surviving from birth to the time of their fathers' deaths.

<u>Distribution 1, p(sons)=0.52, p(daughters)=0.53</u>					
		Sons			
		0	1	2+	Total
Daughters	0	0.06	0.08	0.10	0.23
	1+	0.16	0.24	0.36	0.77
	Total	0.22	0.32	0.46	1.00

<u>Distribution 1, p(sons)=0.79, p(daughters)=0.81</u>					
		Sons			
		0	1	2+	Total
Daughters	0	0.02	0.03	0.07	0.11
	1+	0.09	0.19	0.61	0.89
	Total	0.11	0.22	0.67	1.00

<u>Distribution 2, p(sons)=0.52, p(daughters)=0.53</u>					
		Sons			
		0	1	2+	Total
Daughters	0	0.09	0.07	0.09	0.26
	1+	0.15	0.22	0.37	0.74
	Total	0.25	0.30	0.45	1.00

<u>Distribution 2, p(sons)=0.79, p(daughters)=0.81</u>					
		Sons			
		0	1	2+	Total
Daughters	0	0.05	0.03	0.06	0.15
	1+	0.09	0.17	0.59	0.85
	Total	0.14	0.21	0.66	1.00

Southern Vietnamese appear to have had higher fertility than northern Vietnamese during the 1960s, so that the inclusion of southern Vietnamese is likely to lead to an overestimate of numbers of surviving children. Bearing these probable differences in mind, the

agreement between the two surveys and the estimates is close enough to confirm that the proportions reported in Table 5.5 are a reasonable first approximation.

TABLE 5.7 Mean number of surviving children at death of adult males. (Results identical for Distribution 1 and Distribution 2.)

	p(sons)=0.52 p(daughters)=0.53	p(sons)=0.79 p(daughters)=0.81
Sons	1.6	2.4
Daughters	1.5	2.3
Total	3.1	4.7
<i>Sex ratio</i>	1.03	1.02

TABLE 5.8 Numbers of surviving children to Vietnamese men and women aged 60 and over, as reported in United Nations survey and Institute of Sociology Hanoi Survey. Numbers of surviving children to northern Vietnamese men in the 1990s at the times of their deaths, as estimated by the method described in the text.

	Mean	Per cent distribution of old people, or of men at the times of their deaths, by numbers of surviving children						Total
		0	1-2	3-4	5-6	7-8	9+	
Vietnam Survey	5.0	2	14	26	34	18	6	100
Distribution 1	4.7	2	16	31	29	15	6	100
Distribution 2	4.7	5	17	28	25	16	8	100
		0	1-2	3-5	6-9	10+	Total	
Hanoi Survey	4.4	3	16	57	21	3	100	
Distribution 1	4.7	2	16	47	32	2	100	
Distribution 2	4.7	5	17	42	33	3	100	

Vietnam Survey. Dang Thu (1994: Tables 12, 13).

Distribution 1, Distribution 2. See text.

Hanoi Survey. Institute of Sociology (1993a: Question B6)

Tables 5.5, 5.6, and 5.7 can be used to explore the demography of succession. The mean numbers of children alive at the deaths of their fathers shown in Table 5.7 give an indication of the extent of generational replacement. In a stationary population, the mean number of sons and the mean number of daughters would both be approximately equal to one. As Table 5.7 shows, the greater the population growth rate above zero, the greater the heirship proportions. As inspection of Tables 5.5 and 5.6 shows, however, the heirship proportions can also be affected by differences in the distributions of children ever born. In this case the sensitivity seems to be the same whether the survival probabilities are about 0.5 or 0.8. Table 5.7 shows how higher mortality rates for males reduce the sex ratio below the sex ratio at birth of 1.05.

For all the cohorts modelled in Table 5.4, there is a considerable lag between the time when most men have children and the time when they die. The proportion of men dying without heirs is therefore determined by fertility levels several decades before the men's deaths, in conjunction with mortality levels during the intervening period. The average lag between fatherhood and death is equal to the life expectancy of men at the mean age of net reproduction, which for men dying in the 1990s has been about 40 years. So, although fertility has probably been declining in northern Vietnam since the 1960s (Section 3.3), not until early next century is the proportion of men dying without male heirs likely to start rising again.

Because the probability of dying without a male heir is largely determined by fertility and infant mortality rates when fathers are in their twenties and thirties, many of the men who are likely to die next century without male heirs already know that this will happen. Expectations about dying without heirs are likely to change in line with demographic changes, and well before the deaths occur.

5.5. Conclusions

The estimates derived in this chapter probably have large margins of error. However, the findings on directions of change are sufficiently clear to be taken seriously, particularly since they accord with the basic demographic principle that the probability of having a surviving heir is proportional to the population growth rate. At the time of the August Revolution in 1945, the proportion of men dying without surviving sons is already likely to have been unusually low by historical standards. Three decades of war probably delayed the fall in these proportions which would otherwise have followed the dramatic reductions in mortality achieved by the post-revolutionary government. By the 1990s, however, the proportions had fallen to unprecedented levels, giving virtually all northern Vietnamese families the opportunity to follow the preferred patrilineal model of succession. Never before in Vietnamese history have so many families been able to conform to this model. In fact, the majority of families have been faced with an embarrassment of riches: two, three, or more sons with claims on the family estate. Because of the number of families with many sons, the supply constraint on adoption has probably been removed.

Never in Vietnam's history have demographic conditions been less conducive towards families changing away from the patrilineal succession model, partly because so many families have been in a position to follow this model, and partly because so many families have had to share the family estate among two or more sons, making it especially difficult to extend the same privileges to daughters. As the net reproduction rate falls towards one, and perhaps eventually below one, demographic conditions may start to have the opposite effect, for instance by forcing parents to bequeath property to daughters.

At a societal level, the current loosening of the demographic constraints on the patrilineal succession model is not sustainable, since it is contingent on rapid population growth. It appears not to have been sustainable at a family level either, as fertility has been falling faster than has been necessary to compensate for the decline in mortality. Although in the mid-1990s the northern Vietnamese net reproduction rate of about 1.5 is still well above the Hong Kong rate of 0.6, northern Vietnamese families, like their fellow-Confucians in Hong Kong, seem to be demonstrating that conforming to the preferred succession model is not an absolute priority for them.

Chapter 6 The co-residential household

6.1. The northern Vietnamese household formation system

A society's 'household formation system' (Hajnal 1982)—its rules on who should live with whom—can endure for centuries, making it one of the distinguishing features of the society. There is evidence that the household formation system operating in Northwest Europe during the seventeenth and eighteenth centuries may already have been five centuries old by that time (Hajnal 1982: 477). Evidence on the antiquity of northern Vietnam's household formation system is virtually non-existent, although references in the Le Dynasty penal code suggest that a household formation system centred on males already existed in the fifteenth century (Haines 1984: 308, 310-12).

Vietnamese social scientists are more or less unanimous on the household formation rules of ethnic Vietnamese in present day northern Vietnam (Do Thai Dong 1991: 91; Le Thi 1991: 11; Nguyen Tu Chi 1991: 68; Phi Van Ba 1991: 152; An Dien Research Group 1994: 54-5). Casual conversations which I have had with ordinary Vietnamese in Hanoi verified the statements made by the social scientists. Marriage is patrilocal: sons are expected to remain in the household of their parents after marriage, while daughters are expected to go to the household of their husband's parents. If no son is available, the parents try to live with a daughter, usually the youngest. If parents have more than one married son, then usually only one son will remain permanently in the parents' household. The other sons are likely to spend some time in the parental household after their marriage, but within a year or two will try to establish new households. Usually it is the eldest son who remains in the parental household.

These rules would normally yield households no more complex than stem households, formed around the aged parents and their married son. Such households are the preferred type, and are often referred to as 'traditional' Vietnamese households. In Hajnal's (1982) terminology, these rules describe a stem household system.

The ethnic group following these rules, the Kinh or 'ethnic Vietnamese', make up 83 per cent of the population of northern Vietnam, and 96 per cent of the population in the six Red River Delta provinces (Vietnam 1991, vol. 1: Table 1.4). Other ethnic groups in northern Vietnam have different household formation systems. Even among the Kinh,

detailed investigation would probably reveal far more variation across time and place than the preceding summary suggests. For instance, Mai Thi Tu and Le Thi Nham Tuyet (1978: 16) report that in some villages in Ha Tay and Ha Bac provinces, couples live with the wives' parents for a few months or even years after their marriages, and the husbands' families have to organize a special 'return ceremony' before the couples come to live with them. Hy Van Luong (1989: 743-4) describes how a key informant of his lived during the 1920s in a household spanning four generations, with all three surviving sons of the patriarch and sixteen members—a household which only just fell short of the Confucian ideal of five generations under one roof. Luong makes it clear, however, that this household was not typical, even in the history of the informant's relatively wealthy family. The study of long term changes in the northern Vietnamese household system has barely begun, although when Vietnamese authors give an opinion on the age of the current system, they usually state that it has existed since at least colonial times.

Northern Vietnam's current household formation rules appear to be similar to those operating in many places in China (Zeng Yi 1986; Davis 1993). They are different from those operating among the Kinh in southern Vietnam, where the parents tend to live with the youngest child, regardless of the child's sex (Do Thai Dong 1991: 91). The southern Vietnamese rules are similar to those operating in Thailand (Knodel, Chamrathirong, and Debavalya 1987: 48) and much of the rest of Southeast Asia.

6.2. Marriage

Previous chapters have mentioned marriage, but have not made any analysis of patterns or trends. Given the central role of marriage within household formation, it is impossible to continue without at least a summary of available information on these issues.

6.2.1. Proportions marrying

The 1944-5 famine, the 1945 Revolution, and the 1946-54 and 1965-75 wars all made normal courtship and marriage difficult or impossible while they were occurring; moreover, the wars created low sex ratios and a female marriage squeeze which lasted long into peacetime. According to estimates made by Hirschman, Preston and Vu (1995:

Table 7, 806-7), men from northern and southern Vietnam of combat ages during the 1965-75 war may have suffered excess death rates up to ten times those of women in the same age groups, and men from all age groups may have suffered 800 000 of the one million or so excess deaths caused by the war. Presumably male casualties were disproportionately high during the 1946-54 war as well. The low sex ratios at marriage ages were sustained after 1975 by the inclusion of a disproportionately high number of young men among the million or more people emigrating from Vietnam (Goodkind 1994: 3-4). Data on age-sex structure from the 1979 and 1989 Censuses indicate the magnitude of the marriage squeeze. In the 1979 Census, no age group from 20-24 up (except, for no clear reason, the age group 50-54) had a sex ratio of more than 90 men to 100 woman. At the time of the 1989 Census, no age group from 20-24 up had a sex ratio of more than 92 (Vietnam 1991a: Table 2.1). The magnitude of the imbalance was roughly similar across most provinces in northern and southern Vietnam (Vietnam 1991: Vol. 1, Table 1.2). By comparison, at the Thai census of 1980, no age group below 50-54 had a sex ratio of less than 96 (Goodkind 1994: Table 3). The Vietnamese Census figures may exaggerate the imbalance, since men of military conscription age may have been under-enumerated, and many men were out of Vietnam at the time of the Censuses, working in the Eastern Bloc or on military duties in Cambodia (Hirschman et al. 1995: 793). But even allowing for some over-statement, there was probably still a sizeable deficit of males at marriage ages. Table 6.1 gives a rough summary of the major disruptions to the marriage market, including an indication of the effect of the marriage squeeze on cohorts at marriageable ages. To the marriage squeeze created by war and emigration must be added the marriage squeeze created by the expectation that husbands should be older than wives, combined with rapid population growth, implying that younger cohorts are larger than older cohorts.

Table 6.1 Disruptions to the northern Vietnamese marriage market, 1945-1989

Age	1945-49	1950-54	1955-59	1960-64	1965-69	1970-74	1975-79	1980-84	1985-89
20-24	W, SR	W, SR			W, SR	W, SR	SR	SR	SR
25-29	W, SR	W, SR	SR		W, SR	W, SR	SR	SR	SR
30-34	W, SR	W, SR	SR	SR	W, SR	W, SR	SR		SR

'W' indicates that a war (or, in the year 1945, a famine and a revolution) was taking place during most of the period. 'SR' indicates that the sex ratio in the age group was significantly below one, due to war deaths and sex-selective emigration.

Table 6.2 summarizes findings from the 1989 Census on marriage. (The 1979 Census cannot be used because it did not include a question on marriage.) The divergence between proportions of men and women single evident in Table 6.2 would appear larger if absolute numbers rather than proportions of people marrying were shown, since there are ten per cent or more females than males in the age groups 20-24 and above. As the Census report (Vietnam 1991a: 76) notes, 12.5 million women but only 11.9 million men reported themselves as currently married in the Census. The report states that polygamy is too rare to explain the discrepancy and suggests that it was probably due to single women with children reporting themselves as being currently married. Presumably single women could also have reported themselves as being widowed, separated, or divorced. The actual proportions of single women are therefore probably higher than is shown in Table 6.2, and the actual proportions in the various sub-categories of ever-married are probably lower than is shown.

TABLE 6.2 Per cent distribution of the northern Vietnamese population aged 15 to 49, by marital status, age, and sex, according to the 1989 Census.

	Never married	Ever married				(Total)	Total
		Currently married	Widowed	Divorced	Separated		
Males							
15-19	95	4	0	0	0	4	100
20-24	54	45	0	0	0	(46)	100
25-29	18	81	0	0	0	(82)	100
30-34	4	95	0	0	0	(95)	100
35-39	2	97	0	0	0	(98)	100
40-44	1	98	1	0	0	(99)	100
45-49	1	97	1	0	0	(99)	100
Females							
15-19	88	11	0	0	0	(12)	100
20-24	37	62	0	1	0	(63)	100
25-29	14	83	1	1	1	(86)	100
30-34	9	87	2	2	1	(91)	100
35-39	7	87	3	2	1	(93)	100
40-44	5	85	6	2	1	(95)	100
45-49	2	84	11	2	1	(97)	100

Zeros indicate a figure of less than 0.5. Due to rounding, some rows do not tally exactly.
Source: Calculated from Vietnam (1991: Table 3.1).

Has the marriage squeeze resulted in an abnormally low proportion of women marrying? Answering this question requires a standard for what is abnormal. Table 6.3

compares the proportions of women who are never-married northern Vietnam with the proportions in southern Vietnam, and in other places in Southeast and East Asia. The proportions in northern Vietnam are high compared to those in China and Indonesia, but low compared to those in Taiwan, southern Vietnam, Thailand and the Philippines. The case of Taiwan argues against postulating an 'East Asian' pattern of low proportions never-married, while the case of Indonesia argues against postulating a 'Southeast Asian' pattern of high proportions never-married. Given available data, the lack of an obvious standard against which to compare Vietnamese marriage patterns makes it impossible to make a judgement on the role of the marriage squeeze there.

TABLE 6.3 Percentages never married among females aged 30 to 49 in Vietnam and other countries in East and Southeast Asia

	Northern Vietnam 1989	Southern Vietnam 1989	China 1987	Taiwan 1990	Republic of Korea 1990	Indonesia 1990	Thailand 1990	Philippine s 1990
30-34	9	13	1	11	5	5	14	13
35-39	7	10	0	6	2	3	10	9
40-44	5	7	0	4	1	2	7	7
45-49	2	4	0	2	1	2	5	6

Zeros indicate less than 0.5 per cent.

Northern and Southern Vietnam. Calculated from Vietnam (1991 : Table 3.1).

China. United Nations (1990: Table 41).

Remaining countries from Jones (1995: Table 1).

One definite finding that does emerge from Table 6.2 is that divorce and separation has been relatively rare. Table 6.2 may actually overstate the number of cases, because of single women misrepresenting their status as mentioned above, and because Census enumerators were instructed to record as separated women whose husbands were refugees overseas (Vietnam 1991a: 84).

6.2.2. Age at first marriage

The limited evidence available on the average age at first marriage prior to the 1980s suggests that the age has risen slowly over time. A French judicial committee documenting colonial Vietnamese customs stated that 'for males 18 years and for females 16 years is usually considered the normal age of marriage' (Lustéguy 1935: 33). There is reason to doubt these figures, however, because as Lustéguy (1935: 32-3, fn98) argued, they were based on little empirical study and may have been chosen to fit with the French civil code for Vietnam, which specified a minimum marriage age of 18 years for males and of 15 years for females. Northern Vietnamese household formation rules

appear in many respects to resemble those of China, so information on age at marriage in China may give some indication of age at marriage in northern Vietnam. Surveys in southern China during the 1920s and 1930s found an average age at first marriage of 18 or 19 years for females, and 20 or 21 years for males (Parish and Whyte 1978: Table 27).

Nguyen The Hue (1995: Table 13) cites the figures for mean age at marriage within the Red River Delta shown in Table 6.4. He does not name his source, but it was presumably the vital registration system, which collects data on marriage (Jones 1982: 806-7).

TABLE 6.4 Mean age at marriage in Red River Delta, 1946-1980

	1946-59	1960-75	1976-80
Male	21.5	23.0	23.5
Female	19.5	21.5	22.5

Source: Nguyen The Hue (1995: Table 13) Nguyen The Hue does not state the origin of these figures but they presumably come from the vital registration system.

Results from the 1988 Demographic and Health Survey (Vietnam 1990a: Tables 2.7, 2.8) and the 1989 Census shown in Tables 6.5 and 6.6 provide a check on Nguyen The Hue's figures. The disaggregated DHS results for urban and rural women must, however, be treated with caution. Given that the total sample for northern and southern Vietnam was only 4172 women, some of the subsample sizes must be small. In addition, the categories 'urban' and 'rural' refer to the places of residence of the women at the time of the survey rather than at the time of the marriage. The Census results for northern Vietnam shown in Table 6.6 were calculated by me from published provincial figures. These figures were not disaggregated into rural and urban, so separate singulate mean ages at marriage for urban and rural could not be calculated.

The Census and DHS figures agree reasonably closely. Nguyen The Hue's figures are somewhat higher, but refer to the Red River Delta rather than to all of northern Vietnam. According to the 1989 Census, the singulate age at marriage in the Red River Delta was 23.4 years for males and 22.4 years for females, or slightly higher than for all of northern Vietnam. Together the three sources provide strong grounds for believing that average marriage ages were in the low twenties for northern Vietnamese men and women between the 1950s and 1980s, and some grounds to believe that there has been a slight rise over time. It is difficult to know how much significance to accord to the sharp rise in age at marriage reported by urban women aged 35 to 44 in the DHS. These women were

marrying during the 1965-75 war and it is probable that their marriage were delayed; but because the sizes of the subsamples are small the magnitudes shown are not trustworthy.

TABLE 6.5 Median age at marriage for women in northern Vietnam, by age and urban-rural residence. 1988 Demographic and Health Survey.

Age of women	Urban	Rural	Combined
15-19	-	-	-
20-24	-	21	21
25-29	24	21	21
30-34	24	21	21
35-39	27	21	22
40-44	26	21	22
45-49	23	20	20

Dashes indicate that less than half the age group was married, so that the median age at marriage cannot be calculated.

The categories 'urban' and 'rural' refer to the places of residence of the woman at the time of the survey, not the time of marriage.

Source: Vietnam (1990a: Tables 2.7, 2.8).

TABLE 6.6 Singulate mean age at marriage in northern Vietnam (years). 1988 Demographic and Health Survey and 1989 Census.

	1988 DHS			1989 Census
	Total	Urban	Rural	
Males	-	-	-	22.6
Females	21.4	23.9	21.3	21.7

1988 DHS. Calculated from Vietnam (1990a: Tables 2.2, 2.4). *Northern Vietnam, 1989 Census*. Calculated from Vietnam (1991: Table 3.1).

6.2.3. Remarriage

In colonial Vietnam, widows who remarried lost significant social standing and property, according to Nguyen Van Huyen (1944: 51) and Vu Quy Vy (1974: 160). There is some evidence that in pre-revolutionary China widow remarriage was common, particularly if the widows were poor or young, although they would lose any property belonging to the first marriage (Parish and Whyte 1978: 157). Men in pre-revolutionary northern Vietnam and China could remarry without stigma; indeed, among the wealthy, polygynous marriages were common.

There are no statistics available on remarriage in northern Vietnam during recent decades. The 1988 DHS and the 1989 Census questionnaires did not distinguish between first marriages and second or higher-order marriages. As Table 6.2 above and Table 6.7 below show, the age-specific proportions of men reporting themselves as currently

widowed in the 1989 Census were much lower than the corresponding proportions of women. A slightly higher average age at marriage among males, greater male mortality than female mortality during normal times, and much greater male mortality than female mortality during wartime have made it much less likely for men to be widowed than women.

Table 6.7 gives a rough indication of the differences. The estimates of proportions ever-widowed were constructed by assuming that all men and 90 per cent of women married, and that all men married at 22 and all women married at 21. Cohort mortality rates constructed from the mortality estimates from Chapter 3 were then used to calculate the probability that an individual would still be alive in 1989, while his or her original spouse had died. More elaborate methods are not warranted, given the small amounts of information available on past marriage patterns and on mortality during the war. The results from the method used are necessarily imprecise, but they do suggest that there would be appreciable numbers of widowers if men had not been remarrying. Remarriage is presumably easy for men, given the lack of stigma attached to it, as well as the marriage squeeze against women. Table 6.7 suggests that the age-specific proportions of women currently widowed is somewhat smaller than the age-specific proportions ever-widowed. It is impossible to be sure, given the tentativeness of the estimates, but it does appear that some widow remarriage has been occurring, despite any stigma against it, and despite the marriage squeeze against women. Similar arguments apply to divorced and separated individuals.

TABLE 6.7 Per cent of northern Vietnamese population currently widowed according to the 1989 Census by age and sex, and estimates of per cent ever-widowed.

Age	Males		Females	
	Currently widowed	Estimated ever-widowed	Currently widowed	Estimated ever-widowed
20-24	0	0	0	1
25-29	0	1	1	2
30-34	0	2	2	3
35-39	0	3	3	7
40-44	1	4	6	12
45-49	1	6	11	15

Currently widowed. Calculated from Vietnam (1991: Table 3.1).

Estimated ever-widowed. See text.

6.3. The social significance of co-residence in northern Vietnam

The social and economic significance of co-residence depends mainly on the strength of the association between co-residence and practices such as income-pooling and the provision of emotional support. The strength of the association, and hence the social and economic significance of co-residence, varies between societies (Yanagisako 1979: 162-6; McDonald 1992: 17-18). Casual observation in northern Vietnam suggests that households are far from isolated. One of the few sources of detailed statistical data on households and families in northern Vietnam is the Vietnam Life History Survey (Hirschman and Vu 1994), covering 401 households and 921 respondents spread equally across a village and an urban area in northern Vietnam and another village and urban area in southern Vietnam. The survey found that in the northern village and city over 50 per cent of men who were living near their own parents but not in the same household visited their parents every day, while 30 to 40 per cent of women did the same (Hirschman and Vu 1994: 18-19, Table 4).¹ Parents and children who maintained this amount of face-to-face contact would be able to sustain significant social economic relationships, despite not co-residing.

In rural Bangladesh, co-resident households do appear to be the main unit of budgeting and mutual assistance (Cain 1982: 171-3). In China, Vietnam's closest neighbour geographically and culturally, the main unit is the *jia*, which, according to Greenhalgh (1982, 1985, 1989), is defined by kinship and not at all by co-residence. I have heard ordinary Vietnamese people use the term *ho gia dinh* in ways which suggest it denotes a unit similar to the Chinese *jia*. The issue is confused in the Vietnamese social science literature by the fact that Vietnamese social scientists use *ho gia dinh* to translate the English word 'household'. Alongside any future survey research, a detailed ethnographic investigation of households and the household formation system, in the style of Greenhalgh (1982), or Caldwell, Reddy and Caldwell (1984), is badly needed. The present discussion is carried out in the absence of detailed evidence on how co-residence is important. It does assume, however, that co-residence has some importance.

¹The English version of the question given in Hirschman and Vu Manh Loi (1994: 16) does not explicitly refer to the respondents' own parents rather than their parents-in-law. However, the survey code book (Institute of Sociology 1993: 170), gives the original questionnaire in Vietnamese, which clearly indicates that biological or foster parents are meant.

6.4. Are the statistics on household type consistent with the conventional account of northern Vietnam's household formation rules?

A number of researchers are currently using responses to the 'relation to household head' questions from the 1989 Census, the 1993 Vietnam Living Standards Survey, and the 1994 Intercensal Demographic Survey to investigate household structure in Vietnam. At present, however, the only published figures on household structure come from small-scale surveys conducted by Vietnamese and foreign researchers between 1979 and the early 1990s. Table 6.8 presents results from 12 such surveys. I have had access to the original tabulations for the villages of Dong Co, Dong Duong, and Tam Son; the remaining statistics were collected from articles or books. All of the areas surveyed were rural except for Hai Duong and Can Tho, which were the northern and southern cities included in the Vietnam Life History Survey. At the time of the 1989 Census, Hai Duong had a population of 50 000 and Can Tho had a population of 210 000 (Vietnam 1991: Table 1.7).

Of the various sources, only Hirschman and Vu (1994: 5) spell out the definition of household used in their survey. Their definition, 'one or more people who live together in a house or housing unit and who usually share some common expenses and often have meals together', accords with normal social scientific usage. Hirschman and Vu did not require that members be related, but note that in most households all members were in fact related. Other researchers have also found households containing non-relatives to be rare (Dang Nguyen Anh 1989: 28). Most of the remaining surveys were carried out by the Institute of Sociology in Hanoi. The definitions which researchers at the Institute of Sociology told me they had used were essentially the same as the one used by Hirschman and Vu. The category 'complex households' refers to households which were reported as having three or more generations or two or more couples; 'simple households' refers to households with only one or two generations. A typology with only two types is not ideal for analysing a household formation system, but this is as much detail as the data support.

TABLE 6.8 Statistics on household structure in northern and southern Vietnam, with international comparisons

	Per cent of households			Mean household size	Number of households
	'Simple' households	'Complex' households	Total		
Northern Vietnam					
Cat Que, 1990	64	33	97 ^a	6.0	-
Dong Co, 1983	90	10	100	5.4	305
Dong Duong, 1983	93	7	100	4.4	257
Hai Duong, 1991 ^b	78	22	100	4.4	98
Hai Trung, 1990	88	12	100	-	-
Hai Van, 1979	75	25	100	-	99
Lo Giang, 1989	>80	-	-	-	-
	75	25	100	5.6	422
Tien Tien, 1991	87	13	100	4.9	101
Trung Xa, 1990	78	22	100	-	-
Southern Vietnam					
Can Tho, 1991 ^b	52	48	100	6.0	99
Long Hoa, 1991	65	35	100	5.5	103
Other places					
China, 1982	81	19	100		
Thailand	74	25	100	5.2	
Australia, 1991	98	2	100		

^aCategories do not add up to 100 in original.

^bUrban area.

Cat Que. Le Ngoc Van (1991: 66-7). *Dong Co, Dong Duong, Tam Son.* Institute of Sociology Surveys. *Hai Duong, Tien Tien, Can Tho, Long Hoa.* Hirschman and Vu (1994: Table 1). *Hai Trung, Trung Xa.* Luu Thi Kim Oanh (1991: 53). *Hai Van.* Houtart and Lemercinier (1984: 102). *Lo Giang.* Phi Van Ba (1991: 133). *China.* Zeng Yi (1986: Table 2). *Thailand.* Thailand (1990: Table 28). *Australia* Shu et al. (1994: 8).

The distribution of household types varies markedly between the survey sites represented in Table 6.8. Some of this difference may be artefactual, resulting from variation in the implementation of surveys, such as in the treatment of temporary migrants. Some of it may also reflect local variation in household formation rules. However, a great deal of the difference may simply be due to chance. Computer simulation has shown that when sample sizes are small, as is the case in Table 6.8, small differences in fertility and mortality rates can produce large differences in distributions of household types. The standard methods for calculating expected levels of random variation cannot be applied. These methods assume that the observations are statistically independent, whereas in small samples the structure of each household is statistically dependent on the structure of other households (Wachter, Hammel, and Laslett 1978: 54).

Within the limits of the data, is the finding that only a minority of Vietnamese households are complex consistent with the hypothesis that northern Vietnam has a stem household system? China and Thailand, which are well documented as having stem household systems, have roughly the same proportions of complex households as northern Vietnam. There are examples of populations with stem household systems which contain smaller proportions of complex households than most of the northern Vietnamese samples. For instance, one study of an eighteenth century Austrian region with a stem household system found that only about 12 per cent of households were stem households at any one time (Netting 1981: 217). It appears, then, that the reported proportions are consistent with the hypothesis that northern Vietnam has a stem household system.

An important reason why populations which express a preference for complex households often contain mainly simple households is the constraint imposed by demography. The ability of families to assemble their members into the preferred types of households is contingent on the demographic processes of marriage, mortality, fertility, and migration. A stem household requires at least one surviving parent, a surviving married son, and preferably a wife and children, all of whom live in the same locality. At a societal level it is possible, in principle, to calculate an expected distribution of household types, given sufficient information about the society's household formation rules and its demographic conditions. The existence of variation means that the amount of information required, and the complexity of the calculations, are daunting.

If in one population all parents have exactly one son surviving to adulthood, and in a second population all parents have exactly three sons surviving to adulthood, and both populations follow household formation rules like those of northern Vietnam, then the first population would almost certainly contain a greater proportion of stem households than the second, due to the smaller number of surplus sons. If, however, childbearing and mortality in the two populations are subject to variation, so that parents have a range of different numbers of sons surviving to adulthood, with mean numbers of one and three, then the situation is complicated immensely. As discussed in Section 5.2, something like 40 per cent of parents in the first, slow-growing, population are likely to not have a son surviving to adulthood, while only a few per cent of parents in the second, fast-growing population are likely to not have a son surviving to adulthood. The proportion of stem households in the first population then depends crucially on the distribution among

families of surviving sons and the rules governing co-residence for parents without adult sons. The complexity of the calculations and the level of detail needed in the specification of household formation rules and demographic conditions is greatly increased. Complex rules can be dealt with using computer micro-simulation; as Caldwell, Reddy and Caldwell (1984: 217) and McDonald (1992: 19) point out, the challenge of gathering sufficiently detailed information on the household formation system has less often been faced. It certainly has not been faced in northern Vietnam. Long-term data on parity are also lacking. No attempt will be made in this chapter to infer changes in household structure from changes in demographic rates.

Even among families who meet the demographic prerequisites for establishing the preferred types of households, other factors may intervene to prevent their establishment, or to encourage the formation of other types. One such factor is personal disagreements between parents and children. Another is government policy.

6.5. Government policy and household structure

By 1960, about 85 per cent of rural people in northern Vietnam had been organized into agricultural co-operatives (Vickerman 1986: Appendix Table 3). These co-operatives usually provided small plots of residential land to newly-married couples. Co-operatives also set aside some of their agricultural land to divide among households for private production. This land was known as 'five per cent land' because, according to regulations, only five per cent of co-operative land should have been distributed in this way. In many cases, however, far more than five per cent was taken. Private sale of food from the intensively-cultivated 'five per cent' land and from tiny private gardens and ponds brought in over half of most rural households' incomes (Nguyen Luc, Tran Hoang Kim, Nguyen Sinh Cuc, et al. 1990: 30; Kerkvliet and Selden 1995: 18). Many Vietnamese authors state that after collectivization rural families partitioned themselves to maximize the amount of five per cent land they received (Vietnam 1991a: 24; Nguyen Thi Khoa 1992: 67; Phi Van Ba 1992: 6; Tuong Lai 1992: 25).

There are, however, a number of problems with the idea that collectivization induced a widespread family partitioning. The main evidence of partitioning offered by Vietnamese authors is the relatively low proportions of households which are complex

households. As has been discussed above, these proportions are not necessarily low enough to represent any major deviation from a stem household system. Moreover, an incentive to partition only exists if the amount of land received is not dependent on household size. The amounts received do, however, appear to have been dependent on household size, not only during the collective period, but also during colonial times and after decollectivization, when communities have also administered communal land (Jones 1982: 797; Cao Van Bien 1990: 60).

The Vietnamese authors who state that the distribution of five per cent land by agricultural co-operatives induced household partitioning do not specify what size units were being partitioned or created. Stem households can be partitioned into two nuclear households, but nuclear households cannot be partitioned without splitting married couples. For large-scale partitioning to have occurred, there must either have been a large reserve of households containing two or more married sons before collectivization, or aged parents must have lived in separate households from their children after collectivization.

Urban areas suffered from a dire shortage of housing during the collective era. Vietnamese planners, like planners in other communist countries, preferred to invest state resources in urban industries rather than in housing for urban workers (Thrift and Forbes 1985: 289; Kornai 1992: 171-2). American bombing worsened the problem. Researchers have found that in China, severe housing shortages led to more complex households than the members themselves desired (Davis 1993). According to official figures, mean floorspace per person in urban areas of China was 4.4 square metres in 1982 and 6.6 square metres in 1989 (China 1993: Table 8-33).¹ Thrift and Forbes (1986: 126) quote a Vietnamese newspaper as stating in 1982 that mean floorspace in urban Vietnam was 2.5 square metres (Thrift and Forbes 1986: 126). Thrift and Forbes do not say where the newspaper derived this figure. It appears implausibly low, since, according to the 1989 Housing Survey (Vietnam 1990b: Table A.18), the national mean in 1989 was 7.4 square metres. The Housing Survey also reported that mean floorspace in Hanoi was 5.8 square metres and in Haiphong was 5.6 square metres. Whatever the actual housing availability in earlier periods, it is likely that the housing shortages during the collective era prevented

¹I am indebted to to Zhu Yu for providing this reference.

the partitioning of complex households in northern Vietnam, just as they had done in China.

6.6. Household size

6.6.1. Statistics on household size

Statistics on household size from the 1960, 1979, and 1989 Censuses are presented in Table 6.9. All three Censuses distinguished between 'private households' (*ho gia dinh*) and 'collective households' (*ho tap the*) such as army barracks; the results shown in Table 6.9 are for 'private households' only. The 1960 Census was conducted in northern Vietnam alone, or what was then known as the Democratic Republic of Vietnam. In the 1960 census report (Vietnam 1962: Table 9), separate totals for collective and private households and for urban and rural areas are only given at the level of the district (the level below the province), though some districts also have gaps. I derived the results shown in Table 6.9 by extrapolating from the 15 provinces for which the district-level data were complete, and for which calculations could be made (the total number of provinces was 32). The most serious omission in the data was the failure to distinguish between the urban and rural parts of Hai Phong Municipality. I assumed that the proportion of people living in urban areas in Haiphong Municipality in 1960 was the same as the proportion living in urban areas in 1979, or 30 per cent (Vietnam 1983: Table 2). This assumption implies an urban population for Haiphong in 1960 of 130 000. The reports from the 1979 and 1989 Censuses do not give separate results for northern and southern Vietnam. I calculated the results shown in Table 6.9 by taking a mean of provincial results, weighted by the number of households in each province.¹

The definition of a private household given in the 1989 Completed Census Results (Vietnam 1991: 5) is as follows: 'a household in which its [sic] members has marital or

¹The official report on the 1979 Census (Vietnam 1983: Table 2) gives mean household sizes for that year to only one decimal place, whereas the report on the 1989 Census (Vietnam 1991a: Appendix Table 3.1) gives mean household sizes for 1979 to three decimal places. To calculate a mean it is preferable to use the more detailed data from the 1989 Census report, but unfortunately various columns of the relevant table are not consistent, apparently because of typographical errors. In most cases these errors could be corrected by swapping entries so that the columns were consistent with each other and with the 1979 Census report. When this was not possible, I used the 1979 Census report figures. The adjusted values for mean household size in 1979 which I used are as follows: Hai Phong, 4.564; Cao Bang 5.563, Ha Tuyen, 5.8; Lang Son, 5.9; Lai Chau 6.446; Hoang Lien Son, 5.851. I did not use the figure for Ho Chi Minh City in the calculations, but it is likely to be 5.5, rather than 4.523 as reported.

adopted relationship and shared a common budget and facilities'. This accords with conventional social science definitions of the household. The reports from the 1979 and

TABLE 6.9 Household size in Vietnam, with international comparisons.

	Mean hh size	Per cent of households, by number of members					
		1-2	3-4	5-6	7-8	9+	Total
Northern Vietnam							
N. Vietnam 1989	4.5	17	36	32	12	4	100
Urban	4.1	17	46	28	7	1	100
Rural	4.6	17	35	32	13	4	100
N. Vietnam 1979	4.7						
N. Vietnam 1960	4.5						
Urban	4.7						
Rural	4.5						
		1-3	4-6	7-9	10+	Total	
Xom Cho c.1940	5.5	23	52	17	9	100	
O Thon c.1940	4.2	38	51	10	0	100	
Southern Vietnam							
S. Vietnam 1989	5.2	13	31	30	18	9	100
Urban	5.2	13	32	27	16	11	100
Rural		13	30	30	19	8	100
S. Vietnam 1979	5.3						
Other countries							
China 1982	4.4		Thailand 1990	4.4			
China 1964	4.3		Australia 1991	2.7			
Rural China 1929-31	5.3						

N. Vietnam 1989, S. Vietnam 1989. From 1989 Census. Calculated from Vietnam (1991: Tables 1.3A, 1.3B). *N. Vietnam 1979, S. Vietnam 1979.* From 1979 Census. Calculated from Vietnam (1991a: Appendix Table 3.1) and Vietnam (1983: Table 2). *N. Vietnam 1960.* From 1960 Census. Calculated from Vietnam (1962: Table 9.1) *Xom Cho, O Thon.* From two village surveys cited by Hy Van Luong (1989: 748). *China 1982, 1964.* From 1982, 1964 Censuses. Cited by Zeng Yi (1986: Table 1). *Rural China 1929-31.* Survey in over 100 locations in 16 provinces, cited by Hajnal (1982: Table 5). *Thailand 1990.* From 1990 Census. Thailand (1990: Table 2). *Australia 1991.* Shu, Khoo, Struik, and McKenzie (1995: 7).

1960 Censuses do not provide definitions. Table 6.9 also shows survey results for two villages in colonial northern Vietnam. These results are cited by Luong (1989: 748), who states that they are the only surviving statistics on household size or structure from the colonial period.

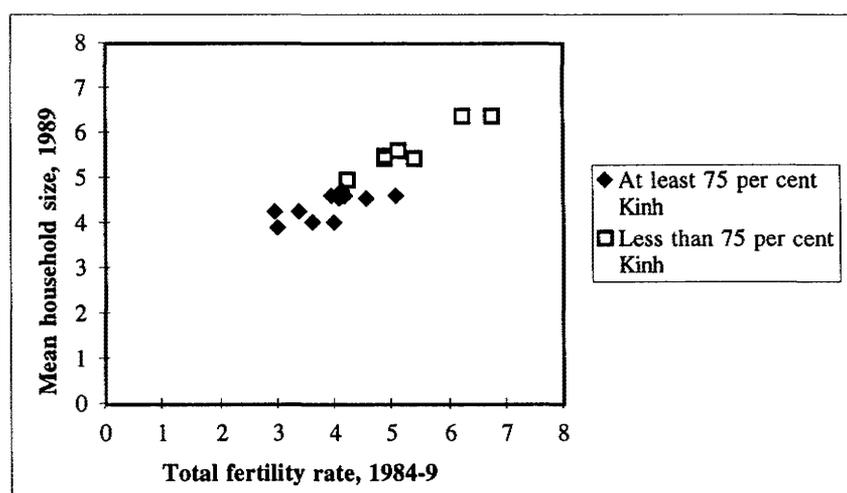
Both the 1979 Census Report (Vietnam 1983: Table 2) and the appendix to the 1989 Census Report (Vietnam 1991a: Appendix Table 3.1) state that the population of Vietnam at the time of the 1979 Census was 52.7 million, while the total number of

households was 9.98 million and mean household size was 5.0. Tables 3.1 and 3.2 of the 1989 Census Report give figures for 1979 of 50.4 million, 9.67 million, and 5.2. Table 6.2 uses the figures presented in the 1979 Census Report.

6.6.2. *The determinants of household size*

Plotting the mean household size of northern Vietnamese provinces against their fertility rates, as is done in Figure 6.1, shows that the two measures are strongly correlated. However, the correlation is most apparent among the provinces not dominated by the Kinh ethnic group. Although the cut-off point in Figure 6.1 is set at 75 per cent, most of the provinces with less than 75 per cent Kinh have much less than 50 per cent Kinh. The non-Kinh have different household formation systems from the Kinh, so some of the difference in household size may be due to differences in the household formation system as well as to differences in fertility. Among the provinces dominated by the Kinh, provincial-level household size appears to have only a weak relationship to provincial-level fertility.

FIGURE 6.1 Mean household size in 1989 by total fertility rate in 1984-9. Northern Vietnamese provinces with at least 75 per cent Kinh, and provinces with less than 75 per cent Kinh.



Sources: Vietnam (1991: Table 1.3); Vietnam (1991a: Appendix Table 9.1).

Across all Vietnam the urban TFR in 1989 of 2.2 was little more than half that of the rural TFR of 4.3, and was lower than any of the provincial TFRs shown in Figure 6.1 (Vietnam 1991a: Table 9.3). This low fertility may explain why in 1989 mean household size in urban areas was less than mean household size in rural areas in northern Vietnam. This explanation is partly supported by the fact that mean household size in urban areas

was greater than mean household size in rural areas in 1960, before substantial differences in fertility had appeared. A problem with this explanation, however, is that low fertility has not led to smaller households in southern Vietnam.

Mean household size appears to have remained roughly the same between the 1960 Census and the 1989 Census. To the extent that anything can be inferred from two village surveys, the surveys conducted around 1940 provide grounds to believe that little change has occurred since the 1940s. The mean household sizes reported from these villages both fall within the range reported from northern Vietnamese villages in the 1980s and 1990s in Table 6.8. According to Table 6.8, mean household size in China fell from just above 5 in 1929-31 to 4.3 in 1964. Zeng Yi (1986: 676) argues that this fall occurred because of a reduction in the number of joint households. It is tempting to conclude that no such fall occurred in northern Vietnam because joint households were not common even in the 1940s. However, the paucity of data makes this interpretation highly speculative.

6.7. Alternative measures of household size and structure

6.7.1. Cross-sectional and longitudinal measures

The statistics on household structure given in Table 6.8 all refer to the distribution of household types in a population at one point in time. A complementary way of depicting households is to show people's or households' transitions between household types over time. For instance, a northern Vietnamese woman might grow up in a two-generation household, then, with her husband, found a new household which contains one generation until the woman bears a child, and which contains two generations until a co-resident son marries and has children.

The Vietnam Life History Survey provides perhaps the only longitudinal statistics on household formation in Vietnam. Because the cross-sectional statistics from this survey appear to be reasonably representative of Vietnam as a whole, the longitudinal statistics may be representative as well. The statistics were derived from the question 'When you were growing up, did any of your grandparents or other relatives live with you (for at least six months before you were age 15)' (Institute of Sociology 1993: 126). The results are summarised in Table 6.10. If analysis is limited to respondents whose paternal or maternal relatives lived in the same village or neighbourhood, the proportions

are much higher than those shown in Table 6.10. In the northern village, 41 per cent of respondents whose paternal relatives came from that village had lived with paternal relatives; the equivalent figure for the northern city was 67 per cent. (These figures include respondents who had lived with paternal relatives alone and respondents who had lived with both paternal and maternal relatives). If demographic constraints such as the availability of surviving grandparents and the probability that a respondent's father was an eldest son were taken into account, these figures would probably be consistent with the hypothesis that northern Vietnam has a stem household system—but with an important qualification. Limiting the analysis to respondents with relatives in the same village or neighbourhood implies that the household formation rules do not have a sufficiently strong hold on people to prevent couples from migrating away from the husbands' parents, or to induce couples to migrate to the husbands' parents.

As Hirschman and Vu (1994: 15) point out, the figures from the Vietnam Life History Survey are inconsistent with the idea that Vietnam has a household system in which the Confucian ideal of several generations under one roof and several married brothers living together are common. Co-residence by married siblings is uncommon in China as well (Zeng Yi 1986: 683).

Aside from their value for studying the northern Vietnamese household formation system, the Vietnam Life History Survey results also provide insights into the life-cycle experience of Vietnamese. It appears that only a small minority of Vietnamese grow up in households containing members of their extended family. The significance of this for the socialization of Vietnamese children should not be overstated, however, given the high levels of contact between non-coresident kin noted above.

TABLE 6.10 Per cent of respondents who had spent at least six months living with paternal or maternal relatives at some time before their fifteenth birthdays. Vietnam Life History Survey.

	Paternal	Maternal	Both	Neither	Total	(Sample)
Northern village	14	4	3	79	100	(220)
Northern city	22	3	6	68	100	(219)
Southern village	37	11	5	47	100	(241)
Southern city	16	13	6	65	100	(238)

Source: Hirschman and Vu (1994: Table 2).

6.7.2. Household size from the household members' point of view

As Table 6.11 shows, the proportion of households containing nine or more members in northern Vietnam in 1989 was only half as large as the proportion of the population living in such households. Conversely, the proportion of households containing one or two members was almost three times as large as the proportion of the population living in such households. These differences illustrate the importance of distinguishing between the attributes of households, as measured in the first row of Table 6.11, and the attributes of members of households, as measured in the second row. The attributes of households are relevant to certain purposes, such as calculating how big new apartments should be, while the attributes of household members are relevant to other purposes, such as calculating how many people the average Vietnamese person co-resides with.

TABLE 6.11 Per cent of households of each size, and per cent of population living in households of each size. Northern Vietnam 1989.

	1-2	3-4	5-6	7-8	9+	Total
Households	17	36	32	12	4	100
Population living in households	6	29	38	19	8	100

Calculated from Vietnam (1991: Table 1.3)

Analogous distinctions must be made when dealing with families and members of families, cities and members of cities, or any other groups of groups (Preston 1976: 106). Statisticians were already aware of this distinction in the late nineteenth century (Langford 1982: 320). Just as it is possible to calculate mean group size to represent the distribution of group sizes, so it is possible to calculate mean experienced group size to represent the distribution of group sizes experienced by group members. If p_i is the proportion of groups with i members, then \bar{p} , mean group size, is equal to $\sum_i ip_i$, and the proportion of the population in a group with i members is equal to $ip_i / \sum_i ip_i$, or ip_i / \bar{p} . Mean experienced group size is therefore equal to $(1/\bar{p}) \sum_i i^2 p_i$.

Preston (1976: 106) has shown that this last expression can be rearranged as $\bar{p} + (1/\bar{p}) \text{var}(p)$, implying that mean experienced group size is equal to mean group size plus a term equal to the variance in group size divided by mean group size. In other words, the extent of the divergence between mean experienced group size and mean

group size is proportional to the variance in group size. When all groups are the same size, there is no difference between the two measures.

Table 6.12 shows the results from applying Preston's formula to the 1989 Census data for northern Vietnam. According to Table 6.12, the average northern Vietnamese person lives in a household containing not 4.5 members but 5.5 members.

TABLE 6.12 Mean household size as conventionally calculated, and mean household size as experienced by household members. Northern and southern Vietnam. Using data from 1989 Census.

	Mean household size	Mean household size as experienced	Difference
Northern Vietnam	4.5	5.5	1.0
Urban	4.1	4.8	0.7
Rural	4.6	5.6	1.0
Southern Vietnam	5.2	6.3	1.1
Urban	5.2	6.5	1.3
Rural	5.2	6.2	1.0

Calculated from Vietnam (1991: Tables 1.3, 1.3A, 1.3B).

Similar considerations apply to household structure. The proportion of a population living in complex households is usually larger than the proportion of all households which are complex households, since complex households tend to be larger than simple households. None of the sources of data on household structure used to construct Table 6.8 gave separate mean sizes for different household types. However, as an illustration, if 20 per cent of households are complex households with a mean size of five, and the remaining 80 per cent of households are simple households with a mean size of four, then 24 per cent of the population live in complex households, and 76 per cent of the population live in simple households.

6.8. North-South differences

None of the ten samples from northern Vietnam in Table 6.8 contained such high proportions of complex households as the two samples from southern Vietnam. Neither of the northern samples from the Vietnam Life History Survey shown in Table 6.10 had proportions of respondents who had lived with maternal or paternal relatives as large as

the southern samples (although the difference between the northern city and the southern city was only three per cent). The 1989 Census figures on household size as shown in Table 6.9 suggest that the North-South differences apparent in Tables 6.8 and 6.10 are more than just statistical flukes. Mean household size as reported in the Census is significantly greater in the South than the North. Part of the reason, and a significant difference in itself, is that rural households are larger than urban households in the North, while in the South urban households are larger than rural households.

Before the 1980s, mortality and fertility rates appear to have been somewhat higher in southern Vietnam than in northern Vietnam. In the 1980s and 1990s, mortality rates appear to have converged, and fertility levels in the South appear to have fallen slightly below those of the North (Table 3.4, Figure 3.6). Neither the differences in demographic conditions nor the differences in household formation rules as they are presently understood seem sufficient to explain the differences in household size.

The larger households in the South do not appear to have been induced by housing shortages. According to the 1989 Housing Survey (Vietnam 1990b: Table A18), the average living space in Ho Chi Minh City was 7.9 square metres per person, while in Hanoi it was 5.8, and in Haiphong it was 5.6. The South has a much less harsh climate than the North, and rural housing there tends to be much less solid and much cheaper than in the North. Land is also more plentiful in the South. The puzzle of the North-South differences remains unsolved. Given the lack of systematic research underpinning the present understanding of northern and southern Vietnamese household formation rules, further investigation of these rules is perhaps the best way to seek a solution.

Chapter 7 Conclusion

In 1995, northern Vietnam was part of an independent, unified nation, and was being praised in the worlds' financial pages; life expectancy at birth was well above 60 years for both males and females; and the total fertility rate was between 3.0 and 3.5 and falling quickly. Twenty-five years earlier, northern Vietnam had been engaged in a devastating war of unification against the most powerful country in the world; joint life expectancy at birth had been between fifty and sixty years; and the total fertility rate had been between four and five. Twenty-five years earlier still, northern Vietnam had been occupied by colonial powers, and was in the midst of one of the worst famines of the twentieth century; the pre-famine joint life expectancy at birth had been around 30 years; and the pre-famine total fertility rate had been around six. This chapter briefly reviews some of the ways in which the political and economic changes influenced the demographic trends, and how these changes and trends together influences the demography of northern Vietnamese families.

7.1. Warfare

Besides the war against the French in 1946-54 and the war against the American-backed South in 1965-75, northern Vietnam fought smaller wars against Pol Pot's Cambodia in 1978 and against China in 1979. The 1965-75 war was itself preceded by several years of escalating hostilities. For the first 35 years of the period 1945-1995 northern Vietnam was almost constantly at war.

The 1946-54 war and the 1965-75 war each killed hundreds of thousands of northern Vietnamese; the Chinese war killed tens of thousands, and the Cambodian war fewer. The death tolls from the wars were not, however, sufficient to undo the effects of the great fall in underlying mortality rates up to the 1960s. With fertility declining only slowly, the population continued to grow, even during the wars: average population growth over the whole period 1945-1995 was around two per cent a year. The mean number of surviving children to a woman at the end of her reproductive period increased by about one-third over the same period.

Some of the decline in fertility during the 1960s and 1970s is probably attributable to the wars, through the extended absences or deaths of reproductive-age men. However,

war also helped prevent the northern Vietnamese state from using Chinese-style birth control programs to hasten fertility decline. War made the state reliant on the support of its citizens, and absorbed too much of its administrative resources.

7.2. Communism and reform

From the 1950s to the 1970s, the northern Vietnamese government promoted an orthodox communist development strategy. The strategy proved to be so inefficient, and so difficult to implement, that by the 1980s the government gave up, and acquiesced to market reforms.

Through bureaucratic administration of the economy between 1950s and the 1970s the northern Vietnamese government was able to direct investment funds towards favoured areas such as industry. The government was unable, however, to prevent the development of a huge 'outside economy' operating in parallel to the regulated economy; the state was also unable to induce rural people to accept the institutions of collectivized agriculture. Northern Vietnam's economy stagnated and became increasingly dependent on foreign aid, with wartime disruption worsening both problems.

The northern Vietnamese health system was to a surprising extent able to overcome the constraints imposed by continuing poverty. By the 1960s the crude death rate had fallen to below 10 per thousand, or about one-third of colonial levels. Poverty did mean, however, that malnutrition remained endemic, and communities lacked resources to construct public health infrastructure such as sanitation systems.

Although the war and the official development strategy prevented northern Vietnam from experiencing the economic boom of its Southeast Asian neighbours, certain elements of northern Vietnam's fertility transition during the 1960s and 1970s resembled theirs. In northern Vietnam, as in Thailand, Malaysia, Indonesia, and Singapore, parents seeking upward mobility for their families invested in education for their children; urban crowding made large families less desirable; and old-age support schemes for urban dwellers reduced the demand for children.

Following the introduction of economic reforms in the 1980s, entrepreneurial activity mushroomed in most urban and rural areas. Between the late 1980s and the mid-1990s, the economy grew at around eight per cent a year.

Economic growth will, in the long run, permit northern Vietnam to reduce mortality below the levels experienced under the pre-reform economy. Vietnamese people will be able to afford more curative care and better diets. More money will potentially be available for infrastructure. In the meantime, however, economic reform has brought its own problems, such as the growth of an unregulated pharmaceuticals market.

With the expansion of entrepreneurial and consumption opportunities in urban and rural areas, the relative attractiveness of investment in children has been reduced. Peace and economic growth has, in addition, removed some of the barriers preventing the government from implementing birth control programs. Northern Vietnamese programs, like Chinese programs, can no longer take advantage of the institutions of a planned economy to enforce compliance. However, the northern Vietnamese government, like the Chinese government, appears to be using greater vigilance and increased funding to make up for the disappearance of the old mechanisms.

7.3. One country, two socialisms

Within the socialist system of the 1950s to the 1970s there were two sub-systems, one based in urban areas, the other in rural areas. 'Urban socialism' was organized on very different principles from 'rural socialism', and received a much larger share of the government's resources. Some elements of the urban-rural divide have persisted through the economic reforms of the 1980s and 1990s.

Urban areas, which contained most industry and most of the state sector, had the top priority for government investment. Urban state-sector workers received guaranteed jobs, relatively generous social welfare benefits, and access to northern Vietnam's best educational and health facilities. In order to conserve as much as possible of its investment funds for the urban socialist system, the northern Vietnamese leadership left rural communities to manage as best they could, raising funds locally through agricultural co-operatives. Although the self-reliant character of rural communities made them less vulnerable to wartime disruption, it also made them less vulnerable to administrative pressure from the central government. Chinese rural communities, too, were relatively self-reliant and independent during the 1950s, 1960s, and 1970s. The fact, however, that official collectivization regulations were implemented more thoroughly in China than in

northern Vietnam suggests that central government control over rural areas was tighter in China than in northern Vietnam.

Large differences in the northern Vietnamese state's treatment of urban and rural areas might have been expected to lead to large differences in urban and rural mortality rates. Rural mortality appears, however, to have fallen almost as quickly as urban mortality. Given the small size of the surpluses generated by rural socialism and available for rural health care, it appears that the rural health system used these resources extremely efficiently. Vietnamese social scientists argue, convincingly, that the effectiveness of rural health centres was due to the responsiveness of health centre staff to the needs of the local communities. This responsiveness appears to be attributable to the fact that health centre workers were generally recruited from the local community and paid by the local community.

Differences in the incentives faced by urban and rural residents do appear to have led to differences in their demand for children. Few rural communities could afford to provide anything more than subsidized rice or funeral rites to old people, leaving rural people much more dependent than urban people on old-age support from their children. The de facto independence of rural communities was probably compounded the government's reluctance to attempt a Chinese-style birth control program.

Although the Vietnamese government reduced the number of state-sector employees by about 25 per cent and shifted some investment to agriculture during the economic reforms of the 1980s and 1990s, the bias towards urban areas remained. Decollectivization reduced the revenue-generating capacity of local communities and led to the virtual disappearance of rural socialism.

Individuals now pay most of the costs of their own medical care, with higher levels of government than the village only partly compensating for the decline in community-level funding. User fees appear to have reduced utilization rates by the poor. The effects on mortality rates are still uncertain.

An urban-rural divide still exists in public provision of social services, helping to maintain urban-rural fertility differentials. The central government has preserved the pre-reform old-age support scheme for state-sector workers and extended it to workers in large enterprises. Rural communities provide even less old-age support than before the reforms, so that rural people continue to be more reliant than urban people on having children to provide for them in old age.

The demise of rural socialism may have increased the central government's ability to force down rural fertility. Because higher levels of government now fund more of communities' social services such as schools or clinics, and contribute more towards the incomes of local cadres, their leverage over communities has increased. Higher levels of government may have become more effective at inducing local leaders to develop birth control programs.

7.4. Effects on the demography of northern Vietnamese families

Succession practices and co-residence patterns—the two aspects of the demography of northern Vietnamese families studied in the thesis—have been altered to differing extents by the political, economic, and demographic trends of post-1945 northern Vietnam. Although discussions of social change usually pay less attention to succession than co-residence, in northern Vietnam succession practices have been altered to a far greater degree than have co-residence patterns.

To conform to northern Vietnamese patrilineal succession rules a family must have at least one surviving son at the time of the father's death. The lag between mortality decline and fertility decline in northern Vietnam has led to a rise in the proportion of families which fulfil this condition. The decline in fertility towards replacement levels means, however, that the proportion of families with at least one surviving son will eventually decline.

The demography of co-residence is more complex. The proportion of families with the necessary members to form the culturally-prescribed stem households has increased, but at the same time, the proportion of families with second and third married sons, or other members who cannot be accommodated within stem households, has also increased. The net effect on the distribution of household sizes and structures is difficult to predict. Available statistics suggest little change has occurred.

As part of its general strategy of expanding the rights of women, the northern Vietnamese state has promoted inheritance by daughters. During the 1960s and 1970s, collectivization and legal limits on wealth accumulation reduced the amount of property parents had available to bequeath, and official disfavour led to ancestor veneration being conducted less ostentatiously in some places. Vietnamese researchers have reported that people pay little attention to the government's inheritance policy, and the other policies

have now been rescinded. None of these policies are likely to have affected succession practices as much, however, as the demographic changes.

Aside, perhaps, from statements requiring children to look after their aged parents, the northern Vietnamese government has never formulated an official policy on family co-residence. In urban areas, housing shortages caused by bombing and low government investment in housing helped prevent households from partitioning themselves. In rural areas, community provision of residential land helped ease a constraint on households partitioning themselves. Differences in housing availability do not, however, appear to have led to significant urban-rural differences in household size or structure.

Succession practices have probably conformed more, rather than less, closely to the old culturally-prescribed model; co-residence patterns have probably not changed much at all. Change in the direction of tradition and the absence of change is not what might be expected of the demography of northern Vietnamese families, given the magnitude of the shifts in political and economic systems, and mortality and fertility rates, between 1945 and 1995. Investigation of other aspects of the demography of northern Vietnamese families might uncover changes commensurate with the political, economic or demographic changes. It is, nevertheless, important to recognize that while much in the daily experience of northern Vietnamese people was utterly transformed after 1945, some things remained almost the same.

Appendix to Chapter 3

APPENDIX TABLE 3.1 Survival functions and life expectancies at birth for selected years, before adjustment for crisis mortality

	1900		1945		1970		2000	
	Male	Female	Male	Female	Male	Female	Male	Female
0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1	0.710	0.713	0.769	0.772	0.942	0.943	0.965	0.966
5	0.622	0.609	0.692	0.679	0.917	0.912	0.949	0.946
10	0.584	0.565	0.657	0.639	0.904	0.897	0.941	0.936
15	0.559	0.541	0.633	0.616	0.894	0.887	0.935	0.930
20	0.532	0.521	0.608	0.597	0.883	0.879	0.928	0.925
25	0.499	0.497	0.575	0.574	0.869	0.868	0.918	0.918
30	0.472	0.480	0.549	0.557	0.856	0.860	0.910	0.912
35	0.444	0.480	0.521	0.557	0.842	0.860	0.900	0.912
40	0.409	0.438	0.485	0.515	0.822	0.839	0.886	0.898
45	0.365	0.406	0.439	0.482	0.793	0.820	0.866	0.885
50	0.311	0.371	0.380	0.446	0.750	0.798	0.835	0.869
55	0.261	0.325	0.324	0.396	0.702	0.762	0.799	0.844
60	0.210	0.272	0.266	0.337	0.639	0.713	0.750	0.808
65	0.152	0.218	0.196	0.275	0.545	0.650	0.669	0.758
70	0.104	0.165	0.137	0.212	0.437	0.568	0.568	0.690
75	0.061	0.108	0.081	0.141	0.301	0.445	0.422	0.576
80	0.030	0.064	0.040	0.085	0.171	0.312	0.258	0.434
85	0.013	0.030	0.018	0.040	0.083	0.171	0.133	0.259
90	0.004	0.009	0.006	0.013	0.027	0.060	0.045	0.097
Life expectancy at birth, years	30.0	32.3	35.0	37.8	59.6	63.9	66.0	70.5

APPENDIX TABLE 3.2 Survival functions and life expectancies at birth for selected years, after adjustment for crisis mortality

	1900		1945		1970		2000	
	Male	Female	Male	Female	Male	Female	Male	Female
0	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
1	0.710	0.713	0.724	0.726	0.941	0.942	0.965	0.966
5	0.622	0.609	0.397	0.390	0.912	0.907	0.949	0.946
10	0.584	0.565	0.269	0.262	0.895	0.888	0.941	0.936
15	0.559	0.541	0.184	0.179	0.881	0.874	0.935	0.930
20	0.532	0.521	0.125	0.123	0.830	0.865	0.928	0.925
25	0.499	0.497	0.084	0.084	0.779	0.853	0.918	0.918
30	0.472	0.480	0.057	0.058	0.733	0.844	0.910	0.912
35	0.444	0.480	0.038	0.041	0.705	0.839	0.900	0.912
40	0.409	0.438	0.025	0.027	0.673	0.814	0.886	0.898
45	0.365	0.406	0.016	0.018	0.636	0.791	0.866	0.885
50	0.311	0.371	0.010	0.012	0.598	0.762	0.835	0.869
55	0.261	0.325	0.006	0.007	0.557	0.721	0.799	0.844
60	0.210	0.272	0.003	0.004	0.504	0.668	0.750	0.808
65	0.152	0.218	0.001	0.002	0.430	0.604	0.669	0.758
70	0.104	0.165	0.000	0.001	0.345	0.524	0.568	0.690
75	0.061	0.108	0.000	0.000	0.238	0.408	0.422	0.576
80	0.030	0.064	0.000	0.000	0.135	0.284	0.258	0.434
85	0.013	0.030	0.000	0.000	0.065	0.154	0.133	0.259
90	0.004	0.009	0.000	0.000	0.021	0.053	0.045	0.097
Life expectancy at birth, years	30.0	32.3	7.8	7.8	52.1	61.6	66.0	70.5

Continued from previous page

Vietnam (1995: Tables 3.2, 3.4)				
1989-93	-	-	3.4	3.3
1993	-	-	-	3.1

Notes

To construct this table, I made extensive use of the collection of fertility estimates for 1955-1989 presented by Feeney and Xenos (1992).

Gourou (1936). The figure refers to selected villages in the Red River Delta described in Section 3.2 above. Gourou suggest that the figure is an underestimate.

Banister (1985). Banister cites vital registration data from a number of sources, notably unpublished data from the Vietnamese Ministry of Health.

Vietnam (1990a). Estimates from 1988 Demographic and Health Survey report, calculated from birth history data.

Vietnam (1991a). Estimates from five per cent sample report from 1989 Census. All but the 1988-9 estimate were obtained by applying the reverse survival method to age distribution data from the 1979 and 1989 Censuses. The 1988-9 estimate was calculated from 1989 Census data on births in the previous 12 months.

Vietnam (1994c). Estimates from the General Statistical Office monograph on population projections. All estimates were obtained by applying the reverse survival method to age distribution data from the 1979 and 1989 Censuses. GSO statisticians calculated the estimates of the crude birth rate first, and derived the estimates of the total fertility rate from these, using the relationship between total fertility rates and crude birth rates found in the provincial results from the 1989 Census. I obtained the figures for northern Vietnam and for all Vietnam shown in Table 3.3 by taking a population-weighted mean of the provincial and regional results presented in Vietnam (1994: Tables 1.1, 1.2).

Vietnam (1995). Estimates from 1994 Intercensal Demographic Survey report. The regional results were presented in the form of total duration-specific marital fertility rates rather than total fertility rates. To obtain the figure of 3.4 for northern Vietnam I first multiplied all the regional TDMFRs by the ratio of the national TFR to the national TDMFR, which provided estimates of the regional TFRs. I then took a population-weighted mean of the regional TFRs. This procedure is not particularly satisfactory, so that the figure of 3.4 can only be considered a rough estimate.

APPENDIX TABLE 3.4 Comparison of values for children ever born, children surviving, and proportion of children dead from the 1989 Census, the 1994 Intercensal Demographic Survey, and the reconstruction

Age	Children ever born		Children surviving		Proportion dead	
1989 Census - all Vietnam						
	Census	Reconstr.	Census	Reconstr.	Census	Reconstr.
15-20	0.05	0.08	0.04	0.07	0.20	0.05
20-24	0.63	0.68	0.62	0.64	0.02	0.06
25-29	1.67	1.91	1.64	1.77	0.02	0.07
30-34	2.77	3.03	2.61	2.77	0.06	0.09
35-39	3.64	3.82	3.40	3.41	0.07	0.11
40-44	4.36	4.34	4.01	3.73	0.08	0.14
45-49	4.94	4.79	4.48	3.83	0.09	0.20
1989 Census - northern Vietnam						
	Census	Reconstr.	Census	Reconstr.	Census	Reconstr.
20-24	0.67	0.68	0.64	0.64	0.05	0.06
25-29	1.75	1.91	1.66	1.77	0.05	
30-34	2.76	3.03	2.61	2.77	0.05	0.09
1994 Intercensal Demographic Survey - all Vietnam						
	Census	Reconstr.	Census	Reconstr.	Census	Reconstr.
15-20	0.04	0.05	0.03	0.05	0.25	0.05
20-24	0.64	0.60	0.60	0.57	0.06	0.05
25-29	1.66	1.79	1.56	1.68	0.06	0.06
30-34	2.57	2.86	2.46	2.64	0.04	0.08
35-39	3.49	3.63	3.09	3.29	0.11	0.09
40-44	4.12	4.12	3.73	3.64	0.09	0.12
45-49	4.62	4.48	4.12	3.80	0.11	0.15

Sources: Calculated from Vietnam (1994c: Appendix Table 2.1). Vietnam (1995: Table 3.8)

APPENDIX TABLE 3.5
Distribution of age-specific fertility rates used to approximate parity-independent fertility in northern Vietnam

Age	ASFR
15-20	0.096
20-24	0.267
25-29	0.301
30-34	0.254
35-39	0.183
40-44	0.090
45-49	0.027
<i>TFR</i>	6.2

Source: Robinson (1987: Appendix Table B).

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