

**GENDER, HEADSHIP AND ASSET HOLDING:
A STUDY OF HOUSEHOLDS IN CONTEMPORARY THAILAND**

MALEE SUNPUWAN

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF DOCTOR OF PHILOSOPHY
(DEMOGRAPHY)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY
2009**

COPYRIGHT OF MAHIDOL UNIVERSITY

Thesis
entitled
**GENDER, HEADSHIP AND ASSET HOLDING:
A STUDY OF HOUSEHOLDS IN CONTEMPORARY THAILAND**

.....
Ms. Malee Sunpuwan
Candidate

.....
Assoc. Prof. Chai Podhisita, Ph.D.
Major-advisor

.....
Assoc. Prof. Philip Guest, Ph.D.
Co-advisor

.....
Assoc. Prof. Supeeporn Punpuing, Ph.D.
Co-advisor

.....
Assist. Prof. Pungpond Rakumnuaykit, Ph.D.
Co-advisor

.....
Prof. Banchong Mahaisavariya, M.D.
Dean
Faculty of Graduate Studies
Mahidol University

.....
Assoc. Prof. Kusol Soonthorndhada, Ph.D.
Program Director
Doctor of Philosophy
Program in Demography
Institute for Population and Social Research
Mahidol University

Thesis
entitled
**GENDER, HEADSHIP AND ASSET HOLDING:
A STUDY OF HOUSEHOLDS IN CONTEMPORARY THAILAND**

was submitted to the Faculty of Graduate Studies, Mahidol University
for the degree of Doctor of Philosophy (Demography)
on
August 21 , 2009

.....
Ms. Malee Sunpuwan
Candidate

.....
Asst. Prof.. Pungpond Rakumnuaykit, Ph.D.
Member

.....
Assoc. Prof. Rosalia Sciortino, Ph.D.
Chair

.....
Assoc. Prof. Sureeporn Punpuing, Ph.D.
Member

.....
Assoc. Prof. Chai Podhisita, Ph.D.
Member

.....
Assoc. Prof. Kathleen Ford, Ph.D.
Member

.....
Assoc. Prof. Philip Guest, Ph.D.
Member

.....
Prof. Banchong Mahaisavariya, M.D.
Dean
Faculty of Graduate Studies
Mahidol University

.....
Assoc. Prof. Sureeporn Punpuing, Ph.D.
Director
Institute for Population and Social Research
Mahidol University

ACKNOWLEDGEMENTS

First of all, I would like to express my sincere and deepest gratitude to IPSR-Wellcome Trust Scholarship for providing me the scholarship which enabled me to undertake this study at the Institute for Population and Social Research (IPSR), Mahidol University. In addition, I would like to thank the Kanchanaburi project and the National Statistical Office that provide valuable data sets for this study.

My heartfelt gratitude also goes to my major advisor Assoc. Prof. Dr. Chai Podhisita and my co-advisors, Assoc. Prof. Dr. Sureeporn Punpuing, Assoc. Prof. Dr. Philip Guest, and Asst. Prof. Dr. Pungpond Rukumnuaykit for their guidance, constructive comments, and valuable advice throughout my thesis preparation. In addition, I would like to express my deepest gratitude to Assoc. Prof. Dr. Rosalia Sciortino and Assoc. Prof. Dr. Cathleen Ford for their valuable advice for my thesis.

I would also like to express my gratitude to all respected teachers for their guidance, excellent teaching, unfailing patience and friendliness throughout my studies here, in particular Ajarn Thomas E. Blaire who is not only the English editor but also a teacher who always teaches and gives comments to his students how to write English. I would also like to thank all the staff of IPSR and all of my friends for their help and kindness in particular Khun Saowapak Suksinchai and Khun Nucharee Srivirojana.

Finally, my special thanks go my parents for their guidance, love and kindness that help me shape my life. I would also like to express my gratitude my siblings and my nephews for their moral support.

Without help and support from all of people and organizations mentioned above, it would not be possible to complete my study successfully.

Malee Sunpuwan

GENDER, HEADSHIP AND ASSET HOLDING: A STUDY OF HOUSEHOLDS IN
CONTEMPORARY THAILAND

MALEE SUNPUWAN 4738640 PRDE/D

Ph.D. (DEMOGRAPHY)

THESIS ADVISORY COMMITTEE: CHAI PODHISITA, Ph.D., PHILIP GUEST, Ph.D.,
SUREEPORN PUNPUING, Ph.D., PUNGPOND RUKUMNUAYKIT, Ph.D.

ABSTRACT

Previous studies have generally found that male-headed households are better off than female-headed households in terms of overall socioeconomic status. However, some studies have revealed the opposite with female-headed households doing better. It remains unclear how widespread this phenomenon is. This study aims to test which conclusion applies to the Thai context.

The study utilizes pooled cross-sectional data from the Household Socioeconomic Survey (SES) which was collected every two years during a period of 1986-2004 and both pooled cross-sectional and panel data from the Kanchanaburi Demographic Surveillance System (KDSS) that was collected in 2000-2004. A dichotomous hierarchical ordered probit (DiHOPIT) technique is used to construct asset index. Pooled multiple regression and random effect regression analysis are used to identify the determinants of household asset holding over a period of time.

Results support the conclusion from previous studies regarding better economic position of the households headed by married persons. However, as far as asset holding is concerned, this analysis shows that female single-headed households are actually better off than male single-headed households, results contradicting previous studies. Findings suggest households headed by single (unmarried) persons should be at the focus of policy and intervention aiming to alleviate household poverty.

KEY WORDS: GENDER//HEADSHIP//ASSET HOLDING// HOUSEHOLD /
CONTEMPORARY THAILAND

154 pages

เพศ หัวหน้าครัวเรือน และการถือครองสินทรัพย์: การศึกษาครัวเรือนร่วมสมัยในประเทศไทย

GENDER, HEADSHIP AND ASSET HOLDING: A STUDY OF HOUSEHOLDS IN CONTEMPORARY THAILAND

มาลี สันถาวรณี 4738640 PRDE/D

ปร.ด. (ประชากรศาสตร์)

คณะกรรมการที่ปรึกษาวิทยานิพนธ์: ชาย โปธิสิตา, Ph.D., PHILIP GUEST, Ph.D., สุริย์พร พันพึ้ง, Ph.D., ปังปอนด์ รักอำนวยกิจ, Ph.D.

บทคัดย่อ

การศึกษาที่ผ่านมาโดยทั่วไปมักได้ข้อสรุปว่าครัวเรือนที่มีผู้ชายเป็นหัวหน้าครัวเรือนมีสถานภาพทางเศรษฐกิจและสังคมดีกว่าครัวเรือนที่มีผู้หญิงเป็นหัวหน้าครัวเรือน อย่างไรก็ตามมีการศึกษาบางส่วนที่สรุปว่าครัวเรือนที่มีหัวหน้าเป็นผู้หญิงนั้นดีกว่า ดังนั้นข้อสรุปที่มีอยู่จึงยังไม่ชัดเจน ดังนั้นการศึกษานี้จึงมีวัตถุประสงค์เพื่อพิสูจน์ว่าข้อสรุปแบบไหนจะเป็นจริงในสังคมของประเทศกำลังพัฒนาอย่างเช่นประเทศไทย

ข้อมูลที่ใช้ในการศึกษานี้มาจากโครงการสำรวจฐานะทางเศรษฐกิจและสังคมของครัวเรือนของสำนักงานสถิติแห่งชาติระหว่างปี 2531-2547 ซึ่งทำการสำรวจทุกๆ 2 ปี และข้อมูลระยะยาวจากโครงการเฝ้าระวังทางประชากรกาญจนบุรี ระหว่างปี 2543-2547 การสร้างดัชนีสินทรัพย์ได้ใช้วิธี Dichotomous Hierarchical Ordered Probit (DiHOPIT) และในการค้นหาปัจจัยที่มีอิทธิพลต่อการถือครองสินทรัพย์ของครัวเรือนในช่วงระยะเวลาที่ศึกษา ได้วิเคราะห์โดยใช้สถิติการถดถอยแบบพหุคูณ

ผลการศึกษาพบว่าผลที่ได้จากการศึกษานี้สนับสนุนข้อค้นพบก่อนหน้านี้เพียงบางส่วนที่พบว่าสถานภาพทางเศรษฐกิจของครัวเรือนที่หัวหน้าครัวเรือนมีคู่สมรสนั้นดีกว่าครัวเรือนที่หัวหน้าครัวเรือนไม่มีคู่สมรส อย่างไรก็ตามเมื่อพิจารณาการถือครองสินทรัพย์แล้วพบว่าครัวเรือนที่มีหัวหน้าครัวเรือนเป็นผู้หญิงและไม่มีคู่สมรสนั้นดีกว่าครัวเรือนที่มีหัวหน้าครัวเรือนเป็นชายและไม่มีคู่สมรส ซึ่งข้อค้นพบอันหลังนี้ไม่สอดคล้องกับข้อค้นพบที่มีมาก่อนหน้านี้ จากข้อค้นพบของการศึกษานี้ได้ให้ข้อเสนอแนะว่าการจัดทำโครงการที่เกี่ยวข้องกับความยากจนนั้นควรให้ความสำคัญกับครัวเรือนที่มีหัวหน้าครัวเรือนไม่มีคู่สมรส

CONTENTS

	Page
ACKNOWLEDGMENTS	iii
ABSTRACT(ENGLISH)	iv
ABSTRACT(THAI)	v
LIST OF TABLES	x
LIST OF FIGURES	xi
CHAPTER I INTRODUCTION	
Rationale and background	1
Research questions	4
Research objectives	4
Organization of the dissertation	5
CHAPTER II LITERATURE REVIEW	
Debates on household headship	7
Level and trends of female headship	9
Theoretical/conceptual background and gaps	10
The feminization of poverty	11
Headship and household economic status	13
Gender, marital status, and household economy	15
Factors associated with household economic status	17
Characteristics of heads	17
Household characteristics	19
What is known about headship and household economic status in the Thai context?	21
Knowledge gap in the Thai context	22
Conceptual framework	23
Hypotheses	25
Study contributions	25

CONTENTS (cont.)

	Page
CHAPTER III RESEARCH METHODOLOGY	
The data and sources	26
Measuring household asset	31
Distribution of asset indices	32
Method of analysis	33
Description of variables	34
Attrition bias and selection bias	36
Research ethics	41
CHAPTER IV HOUSEHOLD HEADSHIP AS A DEMOGRAPHIC VARIABLE	
Introduction	42
Household headship and gender	43
Household headship, gender, and household structure	45
Household headship, gender, and marital status	46
Household headship, gender, and age	48
Household headship, gender, age, and marital status	50
Summary	56
CHAPTER V TRENDS AND PATTERNS OF ASSET HOLDING	
Trends of Asset holding by types of household headship: Evidence from SES	57
Patterns of Asset holding by types of household headship: Evidence from SES	59
Summary	62

CONTENTS (cont.)

	Page
CHAPTER VI HOUSEHOLD HEADSHIP AND ASSET HOLDING:	
 POOLED CROSS-SECTIONAL STUDIES	
Asset holdings across types of household headship	64
Characteristics of the household heads	67
Household characteristics	71
Relationship between selected variables and asset holding: Cross-sectional studies	78
Determinants of asset holding of households: SES 2000-2004	88
Summary	91
CHAPTER VII HOUSEHOLD HEADSHIP AND ASSET HOLDING:	
 A PANEL STUDY	
Characteristics of Sample Households	94
Description of asset holding across household headship: A panel study	99
Relationship between household headship and level of asset holding: A Panel Study	100
Relationship between selected variables and asset holding : A Panel Study	101
Random Effect Regression Estimates of Asset Holding among Household Headship	103
Summary	104

CONTENTS (cont.)

	Page
CHAPTER VIII DISCUSSION, CONCLUSION, AND RECOMMENDATIONS	
Introduction	108
Summary of the Key Findings	109
Discussion	113
Conclusion	116
Recommendations for Policy	117
Suggestions for Further Study	117
BIBLIOGRAPHY	119
APPENDICES	
Appendix A	130
Appendix B	133
Appendix C	150
BIOGRAPHY	154

LIST OF TABLES

Table		Page
3.1	A sample households of SES, 1988 - 2004 by types of household headship	28
3.2	Number of households from the KDSS, 2000-2004, by types of household headship	28
3.3	Description of variables	35
3.5	Characteristics of selected households and non-selected households (KDSS)	38
3.6	Logistic Regression Estimates Attrition bias and Selection bias	40
5.1	The distribution of asset quintile among types of household headship, SES 1988-2004	61
5.2	The distribution of asset quintile among types of household headship, KDSS 2000-2004	62
6.1	Characteristics of sample households, SES 2000 – 2004	74
6.2	Characteristics of sample households, KDSS 2000 – 2004	76
6.3	Relationship between independent variables and asset quintile, pooled SES data	84
6.4	Relationship between independent variables and asset quintile, pooled KDSS data	86
6.5	Multiple regression estimates of asset holding among household types, pooled SES data	90
6.6	Multiple regression estimates of asset holding among household types, pooled SKDSS data	91
7.1	Characteristics of sample households, panel data KDSS 2000 and 2004	97
7.2	Relationship between independent variables and asset quintile	102
7.3	Random Effect Regression Estimates of Asset Holding among	106

LIST OF FIGURES

Figure		Page
2.1	Conceptual Framework	24
3.1	Number of households during a period of 2000-2004, KDSS	30
3.2	Number of sample for panel study by types of household headship	30
4.1	Percentage of household head by gender: Censuses 1970-2000	44
4.2	Percentage of household head by gender: SES 1988-2004	44
4.3	Percentage of household head by gender: KDSS 2000-2004	44
4.4	Household headship by gender and household structure: Censuses 1970-2000	45
4.5	Household headship by gender and household structure: SES 1988-2004	46
4.6	Household headship by gender and household structure: KDSS 2000-2004	46
4.7	Household headship by gender and marital status: Censuses 1970-2000	47
4.8	Household headship by gender and marital status: SES 1988-2004	47
4.9	Household headship by gender and marital status: KDSS 2000-2004	48
4.10	Household headship by gender and age: Censuses 1970-2000	49
4.11	Household headship by gender and age: SES 1988-2004	49
4.12	Household headship by gender and age: KDSS 1970-2000	50
4.13	Never married headship rate by gender and age: Censuses 1970-2000	50
4.14	Never married headship rate by gender and age: SES 1988 – 2004	51
4.15	Never married headship rate by gender and age: KDSS 2000-2004	51
4.16	Currently married headship rate be gender and age: Censuses 1970-2000	52
4.17	Currently married headship rate be gender and age: SES 1988-2004	52
4.18	Currently married headship rate be gender and age: KDSS 2000-2004	53
4.19	Widowed headship rate: Censuses 1970-2000	53
4.20	Widowed headship rate: SES 1988-2004	54

LIST OF FIGURES (cont.)

Figure		Page
4.21	Widowed headship rate: KDSS 2000-2004	54
4.22	Divorced/Separated headship rate: Censuses 1970-2000	55
4.23	Divorced/Separated headship rate: SES 1988-2004	55
4.24	Divorced/Separated headship rate: KDSS 2000-2004	55
5.1	Average score of asset holding by types of household headship: SES 1988 -2004	58
5.2	Average score of asset holding by types of household headship: 2000- 2004 (KDSS	59
6.1	Average asset score by type of household headship and year from pooled SES data	66
6.2	Average asset score by type of household headship and year from pooled KDSS data	66
7.1	Proportion of household headship, KDSS panel data 2000 to 2004	94
7.2	Mean score of assets across household headship types between 2000 and 2004	99
7.3	Difference in Mean Score of Assets, 2000 and 2004	99

CHAPTER I

INTRODUCTION

Rationale and background

This study focuses on female-headed households in Thailand, especially the relationship between household headship and amount of household assets. Gender patterns of household headship have clearly been changing over the past few decades. From 1970 to 2004, the proportion of female household heads doubled, from 15% to approximately 33%. Preliminary analyses of censuses and the largest socioeconomic datasets for Thailand show that the proportion of female-headed households has increased from 15.2% in 1980, to 25.5% in 2000, and to 32.0% in 2004 (Economic Statistics Division 1995; National Statistical Office 1996, 1997; Social Statistics Division 2002). A corresponding change can also be seen in the Kanchanaburi Demographic Surveillance System (KDSS), in which female-headed households accounted for 28.4% of households in 2000 and 32.9% in 2004.

In response to these data, I designed a study to look further into the effects of gender and other characteristics on asset holding in the context of gender along with the marital status of household heads. In this introductory chapter, I would like to describe an importance of household assets in general and pay special attention to households in contemporary Thailand. The study begins with a general statement of the problem, followed by a presentation of the study's objectives and an outline.

Household assets are important indicators of the economic well-being of a household. Such assets are potential sources of income that can be converted to cash in times of economic hardship. In addition, a household is viewed as a basic economic unit that provides a source of financial security for its members (Schmidt & Sevak, 2006; Wolff, 1998). The individual who takes the lead among other household

members in terms of the household economy is referred to as the household head, and he/she is considered to have both economic and authority dominance (Lampietti & Stalker, 2004; Mencher, 1993; National Statistical Office, 1996; Podhisita, 1994).

Several studies find that the household head plays a significant role in the economic well-being of the household and that a large difference exists in terms of economic well-being across household types—those households headed by females being the most disadvantaged (Dreze & Srinivasan, 1997; Panda, 1995; Posel, 2001; Schmidt & Sevak, 2006).

A prevailing discourse on the feminization of poverty has emerged since 1970. Many scholars believe that female-headed households are more "vulnerable" to poverty and disadvantaged in terms of social connectedness and social integration, which may result in relatively fewer opportunities for their members (Arias & Palloni, 2006; Busapathumrong, 2006; Chant, 2003; Joshi, 2004). Previous studies in this area document the fact that woman almost everywhere are underprivileged relative to men in terms of their access to assets, credit, employment, and education. These disadvantages are primarily caused by their relatively lower qualifications in particular education, which results in their being segregated into unskilled and lower paid jobs and hence lower economic status.

Moreover, since female household heads of certain marital statuses, namely, widowed, separated, and divorced, are less able to provide significant economic support for their households, it is more difficult for their households to achieve the same level of welfare attained by most households headed by a male (Busapathumrong, 2006; Joshi, 2004). A study of households in the U.S. found that asset accumulation of households headed by a single person, whether male or female, was significantly less than that of married couple households. In addition, within the class of households headed by a single person, female heads were significantly worse off than were their male counterparts (Schmidt & Sevak, 2006).

While most studies claim that female-headed households are generally disadvantaged, others have argued that this is not always the case. For instance, a study in Vietnam found that female-headed households in general are not worse off economically than male-headed households, as is evident from data on the living conditions index and per capita daily expenditure. Thus, the case of Vietnam seems to suggest that in some contexts households headed by females are not necessarily worse off economically than that of headed by males (Loi, 1996). It is unclear, however, how widespread this phenomenon is. Given that gender is a social construct and is associated with norms in a given social group or system that varies significantly from time to time and from place to place (Chant, 2002; Farid, 1999; Gentry, Commuri, & Jun, 2003; Glenn, 1987), it makes sense to think that where females enjoy higher status, female headship may not be as disadvantaged as in contexts where female status is lower.

Most previous studies have focused on cross-sectional differences in asset holdings while much less attention has been paid to the issue of differences over time. Furthermore, little is known about how asset holding differs in terms of gender and household structure in Thailand. Although there are some studies in Thailand that have focused on assets or wealth, they have focused on household size and the effect of migration (Ford, Jampaklay, & Chamratrithirong, 2007; Havanon, Knodel, & Sittitrai, 1990). This study aims to fill the gap in understanding the linkages between household headship and level of assets held by focusing on the relationship between a the combined effect of gender and marital status of household heads and assets held over a specified period of time. It utilizes both cross-sectional and panel data.

As mentioned above, there is little known about this issue in Thailand., the largest socioeconomic dataset for Thailand along with cross-sectional data from the small area covered by the Kanchanaburi Demographic Surveillance System (KDSS) are used. These two sets of cross-sectional data are used to explore trends and patterns among differences in asset holdings across households with household heads of different genders and marital status. The repeated cross-sectional data can shed light on this topic by providing a snapshot of different asset holdings of the households at

the national level as well as those in a small area. The panel data from the Kanchanaburi Demographic Surveillance System (KDSS) provides longitudinal views that allow for the analysis of causal linkages in the process and changes in asset holdings over time.

Research questions

This study is designed to address linkages between the gender and marital status of the household head and the asset status of the household. In particular the study will try to address the following questions:

1. What are the trends and patterns of asset holdings among households with different forms of headship?
2. How do asset holdings among households differ according to different headship? If differences do exist, what are the factors that affect household asset holdings?

Research objectives

Since the present study concerns the combined effect of gender and marital status of household heads in contemporary Thailand, to answer the research questions, two main objectives must be achieved:

1. To identify trends and patterns of asset holdings among households with different types of headship
2. To examine the extent to which household assets are associated with gender and marital status of the household heads.

Organization of the dissertation

The first chapter explores the importance of studying gender, household headship, and asset holdings in contemporary households in Thailand. Chapter 2 investigates the existing literature on household headship and asset holdings as well as those related to household economic status in order to develop a conceptual framework for exploring the research issue. Chapter 3 explains the data and methodology used for this study. Chapter 4 presents the results of the study, indicating figures of household headship based upon demographic variables of household heads. The findings from this study resulted from an analysis of data from the censuses of 1970-2000, the Household Socioeconomic Survey 1988-2004, and the Kanchanaburi Demographic Surveillance System 2000-2004.

Chapter 5 reveals trends and patterns of asset holdings among households with different types of headship. Household headship is classified into four categories, namely, married male-headed households (MMH), married female-headed households (MFH), single-headed households with male heads (SMH), and single-headed households with female heads (SFH). This chapter employs data from the Household Socioeconomic Survey 1988-2004 and the Kanchanaburi Demographic Surveillance System 2000-2004. Chapter 6 illustrates the relationship between household headship and asset holdings at the national level and small area. It utilizes pooled cross-sectional data from the Household Socioeconomic Surveys (SES) of 2000, 2002, and 2004 as well as data from the Kanchanaburi Demographic Surveillance System at the same period of time. The results from this chapter help in exploring the evidence from the longitudinal study.

Chapter 7 highlights results from longitudinal data and describes the association of household assets with different types of household headship. Pooled panel data from the Kanchanaburi Demographic Surveillance System in 2000 and 2004 is employed to better understand changes in asset holdings when compared with the cross-sectional data that generally provides a figure at a point in time. Chapter 8 discusses the results and how far they agree or disagree with previous research

findings. In addition, recommendations are made with respect to policy implications and topics for further study.

CHAPTER II

LITERATURE REVIEW

This chapter presents the concepts and empirical knowledge that contribute to the understanding of household headship and household assets. It begins with the definition of household headship and the levels and trends of male and female heads over time. Subsequently, a brief overview of concepts that are usually used in the study of this issue is given. The association between household headship and household assets is mainly conceptualized based on a gender perspective.

The aim of this review is to identify existing knowledge as well as theoretical and empirical research gaps that need to be explored. The theoretical review focuses on conceptual understanding of household headship and its links to concepts concerning household assets and related issues. Later in the chapter the conceptual framework is developed by taking into consideration multiple factors associated with household assets. This is followed by research hypotheses based on the literature and the conceptual framework. Finally, contributions from the present study are presented.

Debates on household headship

Discussion of the household head involves two main concepts: the household head's economic role and his or her role in household decision making (Chant, 2003; Fuwa, 2000). Based on these two concepts, three different definitions are proposed. The first takes into account the economic aspect only; therefore, it mostly refers to the household head as the chief economic provider. The second defines the household head as the person who is the chief decision maker and who is acknowledged as such by other household members. The third definition combines both decision making and major economic contributions made by the person who is head of the household.

Evidence of empirical studies from both developed and developing countries supports the definitions mentioned above. For instance, in the U.S., a household head is the person, or one of the people, in whose name the home is owned, being bought, or rented and who is listed as person number 1 on the census questionnaire. If there is no such person in the household, any adult household member 15 years old and over can be designated as the householder (U.S. Census Bureau, 2001). A study in Vietnam employing the 1989 Vietnam census and the 1991 Vietnam Life History Survey defined the household head by using self-reported definitions (Loi, 1996). In addition, a study in the Philippines adopted a definition of household headship given by its National Statistical Office, which defines the household head as the person(s) acknowledged by other household members to be the head (Morada, Llaneta, Pangan, & Pomentil, 2001).

In Thailand, the definition of household headship is mostly dependent on authority. Traditionally, Thai household authority resides with the male head of the household. When there are more than one couple in the household, the oldest man is usually designated as head of the household. However, in the absence of a male head, a woman can be authorized as the head of the household (Podhisita, 1994). In national representative surveys such as the Household Socioeconomic Survey and in studies involving the Kanchanaburi Demographic Surveillance System (KDSS), a household head is defined as a person who is acknowledged to be so by other members of the household and is the person who bears the chief responsibility for the economic maintenance of the household (National Statistical Office, 1996).

However, discussion regarding female-headed households is controversial due to the fact that the definition of female household headship differs from one study to another. In general there are two types of female-headed households, namely, those with temporary and permanent female household heads. Temporary female heads of households refers to those female heads whose husbands or partners are absent, mostly due to migration. Permanent female household headship is defined as those female heads of households who are widowed, single, separated, or divorced (Fuwa, 2000; Morada, et al., 2001).

According to a previous study, single-headed households are more likely to be economically worse off than married couple households (Schmidt & Sevak, 2006). Another study found that in certain contexts permanent female-headed households are economically worse off than male-headed households, while temporary female-headed households are not (Lampietti & Stalker, 2004). Therefore, the definition of household headship should be defined appropriately, based upon the objectives of the study (Fuwa, 2000).

To fill gaps in defining household headship, as noted above, and to fit with the purpose of the present study, "household head" in the present study is defined as the person who is acknowledged as such by other household members. In this analysis, households will be classified in terms of the sex and marital status of the head, some households being headed by married males, others by married females. Similarly, some are headed by single males while others are headed by single females.

Level and trends of female headship

Although traditional households are headed by the oldest male, the number of female-headed households has been growing throughout the world in both developed and developing countries during the past several decades. At the global level, one-third of households are headed by women (Arias & Palloni, 2006).

Evidence from several parts of the world support this finding, for instance, in the U.S., the proportion of single mothers with children under age 18 increased from 12% in 1970 to 22% in 2000 (U.S. Bureau of the Census, 2000). In Brazil, female-headed households increased from 10.7% in 1960 to 22.6% in 1991 (Perpetuo, Ignez Helena, Fonseca, & Carmo, 1997). In Bangladesh, where the patriarchal system is quite strong, the percentage of households headed by females increased from 11.68 in 1974 to 15.2 in 1996 (Joshi, 2004). It is widely documented that the increase of female-headed households is caused mainly by marital dissolution, mortality,

migration, and an increase of female autonomy (Chant, 2003; Hutaserani, 1989; Loi, 1996; Muthwa, 1994; Varley, 1996)

In Thailand, the data on households are typically collected by conducting a census. During the past three decades, the proportion of female-headed households has risen from 16% in 1970 to 26% in 2000 (Social Statistics Division, 2002). This trend can be observed in the evidence from Household Socioeconomic Survey (SES), which shows that the proportion of female-headed household has increased from slightly more than one-fifth in 1988 to almost one-third in 2004. Similar trends are also observed in the KDSS, which shows that the level has increased from 28% to 33% from 2000 to 2004.

Data from Thai censuses also show that female headship increases with women's age, which is primarily an urban phenomenon. In 1990 the proportion of urban households that were female headed was 26.8% while in rural areas it was 17.6%. By 2000 the proportion of female-headed households in urban areas had increased to 30.5% while in rural areas it rose to 23.0% (Social Statistics Division, 2002). Another study, using the data from the 1987 Labor Force Survey, found that females experienced greater increases in the probability of being household heads in single-headed households and one-person households than did their male counterparts. The overall results indicate that socioeconomic development enhances the socioeconomic role of females by increasing their participation in the labor force, causing them to delay marriage, increasing the celibacy rate, and perhaps increasing divorce and separation rates. All of these factors have contributed to an increase of the number of female single-heads and of women living alone (Hutaserani, 1989; Social Statistics Division, 2002).

The increasing prevalence of female-headed households raises concerns regarding household poverty since poverty is believed to be associated with feminization of household headship. This issue needs to be examined in order to provide knowledge that will inform policy makers in their attempts to reduce poverty.

Theoretical/conceptual background and gaps

This section reviews perspectives and arguments that can provide explanations of the relationship between household headship and asset holdings. These explanations are most relevant to gender perspectives which more focus on household and economy. These perspectives are reviewed here for two main reasons. First, gender is constructed through the sociohistorical and cultural conditions that assign men and women certain roles they are expected to play. Secondly, they are most relevant to the objectives of the present study.

The following reviews begin with the concept of the feminization of poverty and then move to arguments related to household headship and household socioeconomic status. Subsequently, the concept of gender vulnerability is taken into account, followed by gender role. Finally, factors related to this topic are presented.

The feminization of poverty

Many studies of female economic status draw upon the concept of the feminization of poverty. The issue has been given considerable attention by many scholars since the late 1970s. The term "feminization of poverty" refers not only to lack of income but also lack of basic needs. In addition, it is also linked ultimately to the loss of hope with regard to be individual and family life due to the absence of choice, lack of opportunity, and the inability to achieve life goals. Thus, the feminization of poverty affects not only women but also those members who reside in female-headed households, in particular, children and the elderly. Researchers have argued that the feminization of poverty is linked to the feminization of household headship (Bianchi, 1999; Chant, 2006; Marcoux, 1998).

However, some scholars note that the concept of feminization of the poverty implies a "victim" perspective, which is a static perspective with limited explanatory value. In addition, the concept is rooted in a Euro-American mindset. On the other

hand, attempts have been made to apply the concept of gender vulnerability to explain the linkages between gender and poverty. It is believed that gender vulnerability is more fluid and dynamic and more suitable for the study of life course and better captures the process of change (Waite, 2000).

Gender vulnerability is a key concept in predicting and understanding the different impacts on gender in a society. It takes into account gender to facilitate analysis of the social situation, affirming that gender's circumstances change and can be changed. Consequently, the concept does not look at the resources available to different social groups in order to describe their current place in society but rather to gauge the prospects for changing the situation. The concept of gender vulnerability focuses on limitations or lack of access to resources, including access to credit, control over property, and income earned through work.

Although the concept of gender vulnerability is useful in terms of capturing changes over time, it is criticized by some scholars who state that the concept of gender and vulnerability implies a passive view because the poor are not necessarily vulnerable (Glewwe & Hall, 1995; Zhang & Wan, 2008).

The present study draws upon the concepts of gender roles and women's status. As many scholars have pointed out, gender is socially constructed and can vary across time and country, or within different areas of a country. It is believed that the gender roles of men and women are influenced by the social and economic environment and can affect the economic status of an entire household (Chant, 2002; Gentry, Commuri, & Jun, 2003; Glenn, 1987).

A gender role is a set of behavioral norms associated with both males and females in a given social group or system. It is shaped and imposed through a variety of social influences which starts from the domestic and extends to the public arena and can influence people throughout their lives. These roles are traditionally divided strictly into feminine and masculine. Females in traditional households are responsible for internal household activities while men perform external activities and act as

breadwinners (Farid, 1999; Glenn, 1987). In short, females are traditionally viewed as economically dependent on males, such as fathers and husbands (Kidd & Shannon, 1996).

However, changes in demographic and socioeconomic processes have brought about changes in household structure and functions as well as changes in gender roles and women's status (Lipman-Blumen & Tickamyer, 1975; Quinn, 1977; Yoddumnern-Attig, 1992). Observations made from patriarchal Western nations reveal that before the 1950s women were economically dependent on men within their immediate families (e.g., father and husband). After World War II, women's situation changed, and a great number of women participated in the workforce outside the home. However, they were still discriminated against outside their families in their workplaces and in politics. Domestic and public patriarchy still operates in contemporary society (Walby, 1997).

In Thailand, historically, women have played a crucial role in the household economy. From the feudal period of Ayutthaya up until early Bangkok, women generally had to do domestic work as well as work in the field when men were required to leave home to serve feudal lords and guard the capital for about 4-6 months per year. Thus, when husbands were away, their wives had to bear the burden of earning a living. They had to do the farming, domestic work, and look for odd jobs to gain some income (Asian Development Bank, 1998; Iewsriwongs, 1992; Kirsch, 1982; Sarutta, 2002). This may have been advantageous in at least one way, giving women experience managing economic activities without their husbands or adult sons. Moreover, they may be able to pursue their personal interests and well-being of their members.

This raises the issue of how cultural variation across countries can influence the form and function of different types of household headship. It also reflects how such variation can significantly affect asset holdings of households. Therefore, it seems reasonable to think that in some certain contexts, female headship may not be a disadvantage.

Headship and household economic status

A large number of empirical studies over recent decades have focused on household headship and household poverty. Results of these studies lead to three different conclusions. First, female-headed households are economically worse off than male-headed households. Second, only female-headed households with certain characteristics are disadvantaged when compared to male-headed households. Third, there is no strong evidence to say that female-headed households are significantly worse off than non-female-headed households (Appleton, 1996; Buvinic & Gupta, 1997; S. Chant, 2006; Muthwa, 1994; Stuart, 1996; Synder & McLaughlin, 2004).

Explanations for the first and second conclusions are simple and straightforward. Female-headed households are disadvantaged mainly because of the lack of adult male breadwinners (Fuwa, 2000; Posel, 2001). In addition, female-headed households generally have more dependents when compared to married-couple households (S. Chant, 2003, 2006). In addition, there are multiple burdens that confront single heads since they must take on several tasks in addition to earning income, such as housekeeping and child care. These multiple responsibilities often force women heads to take on part-time jobs or home-based careers, which tend to generate lower wages and hence lower income (Blau & Kahn, 2003; Morada, et al., 2001). In addition, in settings where women heading single-headed households are discriminated against, those households end up more disadvantaged in terms of social connectedness and social integration, which may also result in reduced well-being of their members (Arias & Palloni, 2006; Busapathumrong, 2006; Chant, 2003; Dreze & Srinivasan, 1997; Joshi, 2004).

With regard to the third conclusion, the argument that female-headed households are not necessarily worse off when compared to male-headed households is based on the definition of headship, the measurement of poverty, and particular social contexts (Buvinic & Gupta, 1997; S. Chant, 2006; Fuwa, 2000; Marcoux, 1998). As noted above, ambiguity in the definition of household headship, especially with regard to the definition of female headship, makes for unclear results. Considering

definition of headship, there are two types of female-headed household that have been identified in the literature, de facto and de jure heads. De jure female heads refers to those females who are single, widowed, divorced, or separated (they have to be heads because there are no adult males in their households). De facto female heads, on the other hand, refers to the females whose husbands are temporarily absent, especially due to migration (Fuwa, 2000; Morada, et al., 2001).

In terms of measurement of poverty and related issues, there are two measures that affect research results, namely, the unit of analysis and the indicators of poverty. While the most common unit of analysis is the household, the use of different indicators of poverty, such as average income, consumption, and/or expenditure and assets, the results may differ (Buvinic & Gupta, 1997; S. Chant, 2006; Fuwa, 2000). The reason that there is no difference between female- and male-headed households lies in the use of per capita terms. Because of the generally smaller size of female-headed households, they may seem better off when measured in terms of per capita income and consumption-expenditure (S. Chant, 2006; Loi, 1996).

Gender, marital status, and household economy

According to the concept of feminization of poverty, there are several causes of poverty. According to Bainchi (1999) feminization of poverty results directly from major shifts in the character of social life, including the increase in non-marriage among women, the advent and acceptability of divorce, and an increase in women's lifespan. Other scholars also point out that causes of feminized poverty include the fact that a lower proportion of women participate in the paid labor force and that women receive lower wages than do men. Although during the past several decades the feminization of poverty has been declining due to more women engaging in paid work as well as increases in relative wages, women still often find themselves mired in poverty (Johnes & Tanaka, 2008; Kidd & Shannon, 1996b; Lazear & Rosen, 1990). In addition, studies continue to confirm the presence of a gendered component to poverty, one that has become more evident and even more pronounced with the

increase in female-headed households and perhaps even more marked among the both the young and elderly female population (Chant, 2006).

Studies cite two primary mechanisms behind feminized poverty, namely, demographic shifts and the economy. The former occur when the character of social life changes dramatically, in particular, the structure and nature of the family. Such demographic shifts include an increasing proportion of children born to unwed mothers and a higher divorce rate, both of which translate into a significantly higher proportion of households headed by single women. At the same time, there has also been an increase in women's average life expectancy. It is important to note that women almost everywhere are consistently outliving their male counterparts, and greater longevity means that more resources are needed for subsistence in later life. But changes in family structure and general demographics can put women and households headed by those women at a considerable disadvantage in terms of financial resources.

The most apparent cause of poverty in single-headed households seems to be the lack of a second income earner. Yet households headed by unmarried females are more likely to be poor than are those headed by males (Schmidt & Sevak, 2006). Moreover, divorce has a greater impact on women than it does on men because women tend to earn less than men and have fewer property rights. Women are also responsible for children, and in the United States at least, the majority of children living at or below the poverty line reside in single-mother households. In addition, women are significantly less likely to remarry after a divorce than are men and thus would be heads of single-income households with fewer resources for sustained periods of time (McManus & DiPrete, 2001; Peterson, 1996; Smock, Manning, & Gupta, 1999; Tiarniyu & Mitchell, 2001).

Along with changing patterns of family structure, as mentioned above, are broader economic phenomena, such as gender segregation and discrimination in the labor market. Both contribute to the feminization of poverty. .Again, those households

headed by females are particularly affected because women must take on dual roles as primary wage earner and primary caregiver (Tiamiyu & Mitchell, 2001).

Factors associated with household economic status

There are several factors that correlate with household economic status. They can be categorized into two groups. One group consists of household head-specific factors such as age, gender, marital status, education, and occupation. The other group includes factors pertaining to household characteristics such as household composition, household dynamics, and access to capital outside the home. These factors will be reviewed in light of how they affect household economic status.

Characteristics of household heads

Apart from the combination of gender and marital status of household heads, this study focuses on selected characteristics of household heads that can be considered human capital variables. Previous studies reveal that male and female heads differ in terms of their human capital, namely, education and occupation (Arias & Palloni, 2006; Laux & Cook, 1994). Therefore, the present study includes age, education, and occupation as selected characteristics of household heads.

Age:

Age is considered to be a variable that corresponds to a particular stage in person's life. The life cycle stages concerning household asset accumulation are also generally associated with differences in household heads. Previous studies have shown that the relationship between age and level of household asset accumulation takes an "inverted U shape," lower at younger age, then rising to a higher level during middle age before dropping down again at older age, in particular after retirement (Blau, 2008; Blua, 2008; Bullard & Feigenbaum, 2007; King & Dicks-Mireaux, 1982; Matteo, 1997). Based on this observation, one could expect households with heads of

both younger and older ages to be relatively worse off compared to those with the heads of middle age. In addition, when taking gender into account, empirical studies have generally found that the economic status of households headed by older females is lower than that of households headed by their male counterparts (Barrientos & Lloyd-Sherlock, 2002; Saunders & Lujun, 2006).

Therefore, while age may be important, it is not sufficient to account for the differences in economic status between male-headed and female-headed households. For better understanding of the issue, one has to take into account other factors, of both heads of households and households in general.

Education:

It is widely noted that there is an inverse correlation between poverty and education. It operates in two directions. First, without an adequate education people are often constrained to a life of poverty, and second, poor people are often unable to obtain access to an adequate education (Ferreira & Litchfield, 1999; Raffo, et al., 2007).

According to United Nations statistics on gender and education, in the past, in almost all regions of the world, the number of female illiterates was higher than that of male illiterates. At present, the gap between male and females in education has narrowed, yet the proportion of female illiterates is still a bit higher than that of male illiterates. In addition, it also reports that the higher the level of education the wider the gap between males and females (United Nations, 2010).

Throughout the world it has been found that earnings are higher for people with higher levels of education and that the probability of finding employment rises with higher levels of education as well. Therefore, a better-educated household is less likely to be poor. A research finding from Chile supports this statement, revealing that the educational level of household heads can explain household income about 25-30 percent (Ferreira & Litchfield, 1999). Additionally, one study in Vietnam points out

that female-headed households are not economically worse off than those households headed by males because the women have a higher education (Loi,1996).

Occupation:

In general, there is an association between occupation and education and income. It is widely known that unemployment and underemployment is related to poverty and associated issues, including assets. Although in the last few decades the proportion of females participating in the labor market has dramatically increased, some economists suggest that this has failed to benefit women (Redman, 2008). As mentioned earlier, in the labor market there is the segregation of women in terms of nature of work, working conditions, and job availability, often based on their reproductive role. Such segregation disadvantages women in terms of economic status compared to their male counterparts.

Household characteristics

In previous studies household characteristics have been found to have substantial effects on household economic status. These factors, which include age-sex composition and its dynamics, affect household consumption demand and production (Sweet, 1977). The present study purposes to look at some selected characteristics that may affect household socioeconomic status. They include household size and proportion of non-workers to workers in the household. These two key variables are used to measure household poverty as well as related issues.

Household size and economic dependents:

A household's size indicates its consumption demand, which may affect its economic status. Previous studies in several settings have found that there is a relationship between household size and household economy. It revealed that the larger household size the lower the ability to accumulate assets which related to

poverty (Espenshade, Kamenske, & Turchi, 1983; Havanon, Knodel, & Sittitrai, 1990; Lanjouw & Ravallion, 1995; Waite, 2000).

Furthermore, age-sex structure of a household also reflects the dependents in households. Evidence from empirical studies indicates that the more economic dependents in a household, the more consumers there are in the household, which may have a negative impact on the ability of the household to maintain economic well-being (Pitayanon, Kongsin, & Janchareon, 1997; Russell, 2003; Wongsith, 1994).

Credit and debt:

Previous research has found that factors other than household characteristics also have an effect on household economic status. Particularly important among these are household access to credit. Access to credit is viewed as a mechanism that provides “protection” and, in some cases, helps alleviate economic hardship. Loans received from these sources are indeed useful in times of need. In addition, household debt is also viewed as credit for a household, especially, formal debts. Previous findings also indicated that access to credit from formal or informal sectors plays an important role in the economic status of households (McKernan†, Pitt, & Moskowitz, 2005; Pitt & Khandker, 1998; Pitt, Khandker, & Cartwright, 2003).

Area of residence:

Residential area is mostly classified by population density and economic development. A setting with certain levels of economic development provides economic (job) opportunities for the household and its members (Leyshon & Thrift, 1995). Previous studies have found that in rural areas, for instance, households are more likely to be “poorer” compared to those in urban areas in terms of jobs and wage rates (Fisher & Weber, 2004). But households in urban areas tend to spend more on consumption, and this can affect asset holdings for some households.

What is known about headship and household economic status in the Thai context?

Although many scholars pay considerable attention to the issue of household headship and economic status, little is known about the Thai context, especially in terms of assets held. Previous studies in Thailand mostly focused on household living conditions that compared male- and female-headed households using data from censuses. One study identifies living conditions, which are classified into three levels, namely, low, average, and high. It is found that a majority of households were in the middle or "average" category. There is not much difference between male-headed households and those of their female counterparts (66.9% versus 65.2%, respectively). Among those in the high level of living condition, there is no difference between male- and female-headed households; both types are at equal proportions (14.2% versus 14.2%). Among those at a low level of living condition the proportion of households with female heads is slightly greater than those with male heads (20.6% versus 18.9%) (National Statistical Office, 1996; Social Statistics Division, 2002). However, the study was not controlled for other confounding factors and places temporary and permanent female-headed households into the same category, so it is not possible to observe the difference in living conditions between male- and female-headed households and married couple households, nor between male- and female-headed households and single-headed households in general.

Another study explores a gendered pattern of asset holdings between husbands and wives, focusing on household income of the poor in Bangkok. It reveals that males were more likely to own vehicles, and women were more likely to own jewelry, an important and relatively frequent form of wealth holding (Floro & Antonopoulos, 2004). However, this study focuses on a small area, limited to 135 couples from 152 households in three poor urban communities in Bangkok.

Knowledge gaps in the Thai context

As noted above, little is known about the association between household headship and household assets in Thailand. The studies that have been done on household headship so far have focused only on household living conditions at the national level and patterns of asset ownership at the individual level from the same households in a small area. There are also some limitations in previous studies in terms of methodology. For example, although one study of household living conditions attempted to compare living condition between households with male and female heads, the definition of household headship did not take into account married couple households or single-headed households. In addition, there is little rigorous statistical testing of findings. Moreover, a comparative study of assets of husbands and wives used small sample sizes and study settings that were too specific for generalization. Furthermore, none of the previous studies explore the issue of differences in assets held over time.

Therefore, the present study seeks to fill in the above research gaps by focusing on the association between household headship and household assets. Nationally representative data have been used to examine the extent to which household headship is associated with household assets. The study includes not only the gender of household head but also marital status, in order to classify household headship into married couple households and single-headed households, according to gender, in the same analysis. Therefore, the study is able to identify which group is better off than other groups and whether household headship is associated with asset holdings. Furthermore, the study uses both cross-sectional design, employing both country representative data and data from small areas, but also panel design from a specific area.

Existing literature clearly indicates that household headship affects household assets through multiple factors. What remains to be seen is how other factors, other characteristics of household heads, household characteristics, access to credit, and residential area, affect asset holdings of households in the Thai setting. All

of these aspects need careful attention in addressing policy implications. The conceptual framework for this study has been developed by incorporating all of these multidimensional aspects (Figure 2.1).

Conceptual framework

Based on the literature review provided above, this study proposes the following conceptual framework to guide the analysis of data. The main factors in the framework are a combination of gender and marital status of household heads. Other factors, including selected characteristics of household heads, household composition, household debts, and geographical areas have been used as control variables. The designation of household head is mostly used as a socioeconomic control. If household heads cannot provide economic well-being to their members, other household members must often seek support from formal and informal institutions as well as other individuals. The ability of the household to support its members depends on the characteristics of household heads as well as household composition, which is mostly affected by demographic events.

Conceptual Framework

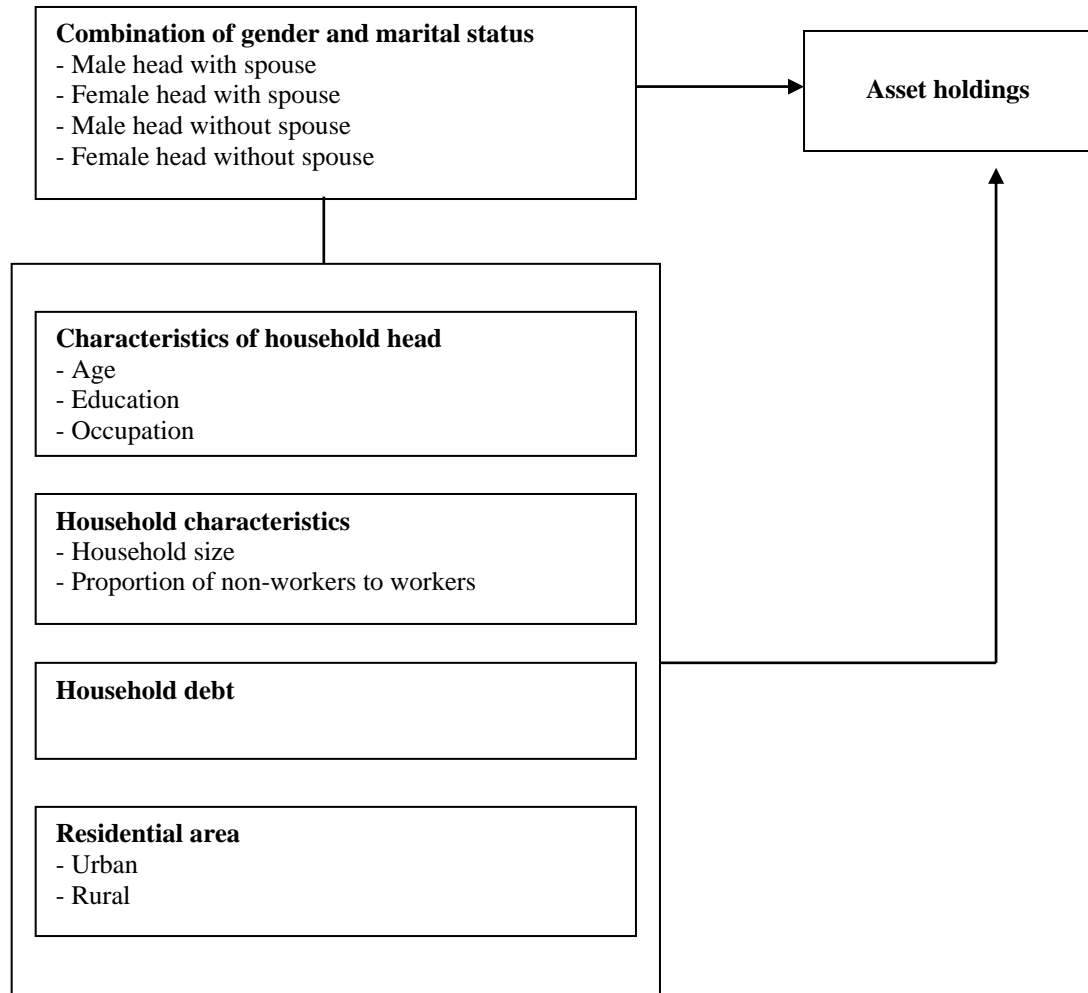


Figure 2.1: Conceptual Framework

Hypotheses

In line with the literature review and research questions, the present study is going to test the following hypotheses in the Thai context.

1. Households with a married head are better off than households with a single head in terms of asset holding.
2. Among married couple households, households with either male or female heads are not different in terms of asset holding.
3. Among single-headed households, households with either male or female heads are not different in terms of asset holding.

Study Contributions

This study contributes to the literature on female household headship as follows:

1. It refines the definition of female headship according to sex and marital status of the household head.
2. As research on female headship has been largely descriptive with little causal modeling linking female headship to outcomes of policy concerns, this study goes beyond a descriptive analysis to model the effects of household headship on asset holding.
3. A new approach using techniques of Dichotomous Hierarchical Order Probit (DIHOPIT) in measuring asset holding is applied in order to capture changes in household asset holding over time.

CHAPTER III

RESEARCH METHODOLOGY

This chapter presents details of the study design. A brief description of the data is first given. This includes information on the sample design, description of the sample population, and methods of data analysis. Ethical issues are described in the final section.

The data and sources

This study utilizes data from two sources: the Household Socioeconomic Survey (SES) and the Kanchanaburi Demographic Surveillance System (KDSS). The former is a series of cross-sectional surveys that have been regularly carried out by Thailand's National Statistical Office (NSO) since 1957. For the purpose of this study, however, SES data from 1988 to 2004 are used. The latter is a series of cross-sectional and panel data collection conducted in Kanchanaburi Province by the Institute for Population and Social Research, Mahidol University, from 2000 to 2004, with the support of the Wellcome Trust Foundation, UK. A series of cross-sectional data is used to explore trends in the differences in asset holdings across households with household heads of different gender and marital status. The panel data is needed to examine the factors that affect asset holdings over time among the sample households. The repeated cross-sectional data can shed light on this topic by providing a snapshot of different asset holdings of the households at both the national level and small areas while the longitudinal data enable analysis of causal linkages of the process and changes in asset holdings.

The first SES was conducted in 1957. During the first two decades (between 1968 and 1986), it was conducted every five years, but subsequently and

until the present time the survey has been conducted every two years. Its objectives are to collect information on the characteristics of household members, household income and expenditures, household consumption, changes in assets and liabilities, ownerships of durable goods, and housing characteristics, including other living conditions of households. The sample design is stratified two-stage sampling. SES data in the present study is used to examine differential trends and patterns of asset holdings of the households with heads of different gender and marital status at the national level. In addition, it is used to examine the determinants of asset holdings.

The Kanchanaburi Demographic Surveillance System (KDSS) conducted a series of surveys annually from 2000-2004 to monitor population change among the 100 field site communities. The KDSS surveys are unique for their panel data of selected households over a five-year period. In terms of the sample design, the sample communities were first selected to reflect ecological diversity as well as socioeconomic and population features of Kanchanaburi. The sample villages were obtained through stratified systematic sampling technique. All households in the sample villages were interviewed. Numbers of households varied from year to year due to attrition as well as the addition of new emerging households. Panel data from this source is used to gain an understanding of the extent to which asset holding is associated with gender and marital status of household heads.

Table 3.1 provides a summary of the sample households from the (1988-2004) surveys selected for this study, showing male and female heads with different marital statuses. As will be observed in all surveys, the large majority of the households have male heads with spouses. Yet it is interesting to note that the proportion of these households has decreased steadily from about 72% to about 60% while the proportion with female heads has been increasing from about 6% to 11% among those women with spouses and from 16% to 21% percent among those without spouses. Note also that this is the trend at the national level.

Table 3.1: A sample households of SES, 1988 - 2004 by types of household headship

Year	Male		Female		Total (N)
	MMH	MSH	FMH	FSH	
1988	71.6	6.5	5.7	16.2	10,413
1990	71.5	6.9	4.9	16.7	12,054
1992	70.1	8.2	5.0	16.7	13,083
1994	68.6	7.0	6.0	18.3	24,738
1996	66.9	7.4	6.9	18.8	24,698
1998	66.4	7.0	7.4	19.1	23,383
2000	64.0	7.7	8.4	20.0	24,704
2002	61.9	7.9	10.0	20.2	24,161
2004	59.7	8.7	10.8	20.8	24,264

At the local level, similar trends are also observed. Data from the Kanchanaburi Demographic Surveillance System (KDSS) show that the majority of households have married male heads. But the proportion decreased over the short period of only five years, from slightly over two-thirds to about three-fifths. The proportion of households with female heads, with and without spouses, has increased slowly but steadily (Table 3. 2).

Table 3.2: Number of households from the KDSS, 2000-2004, by types of household headship

Year	Male head		Female head		Total (N)
	MMH	MSH	FMH	FSH	
2000	67.1	4.6	12.3	15.9	9,017
2001	65.6	5.2	12.7	16.5	9,811
2002	65.0	5.2	13.3	16.5	10,427
2003	62.3	5.9	14.3	17.5	10,951
2004	60.1	6.5	15.5	17.9	12,108

As this study aims to examine the effect of household headship on asset holding, only the households in the KDSS whose heads remain in the same marital status over the period of the surveys (2000-2004) will be included; households whose heads changed marital status during this period will be excluded from the analysis. In other words, eligible households for this part of analysis include only those with the same heads who remained in the same marital status throughout the entire period. The process of selection involves, first, screening for the same households that are included in each subsequent survey. Then, among these households, only those whose heads remained in the same marital status throughout the period were selected. Thus, from a sample size of 11,588 households in 2000, in the subsequent survey of 2001 only 10,330 households (out of 12,629) were found to be the same ones from the earlier survey.

When followed through in this way up to 2004, I found that the number included in the previous surveys since 2000 is 8,282 households. But not all of these are eligible for our analysis since they needed to be screened, not only to make sure they were the same households but also the households whose heads remained in the same marital status throughout the entire period from 2000-2004. From the remaining 8,282 households in 2004, we found that 175 households had missing data on household assets, 2,115 households had changed heads, and 598 households still had the same heads but their marital status had changed. Only 5,397 households had the same heads whose marital status remained unchanged and were thus eligible for our analysis here (Figure 3.1). It is important to note that a majority of those households that were excluded were excluded due to a change in household headship. Reasons for changes in household headship were migration (61.5%) and death (15.3%), but 23.2% experienced changes even though former heads were still residing in the same household.

Most (4,026) of these eligible households were headed by married males (residing with their spouses), 175 had no currently married males as heads, 360 were households with married female heads, and 836 had no currently married female heads (i.e., they were women with no spouses) (Fig. 3.2).

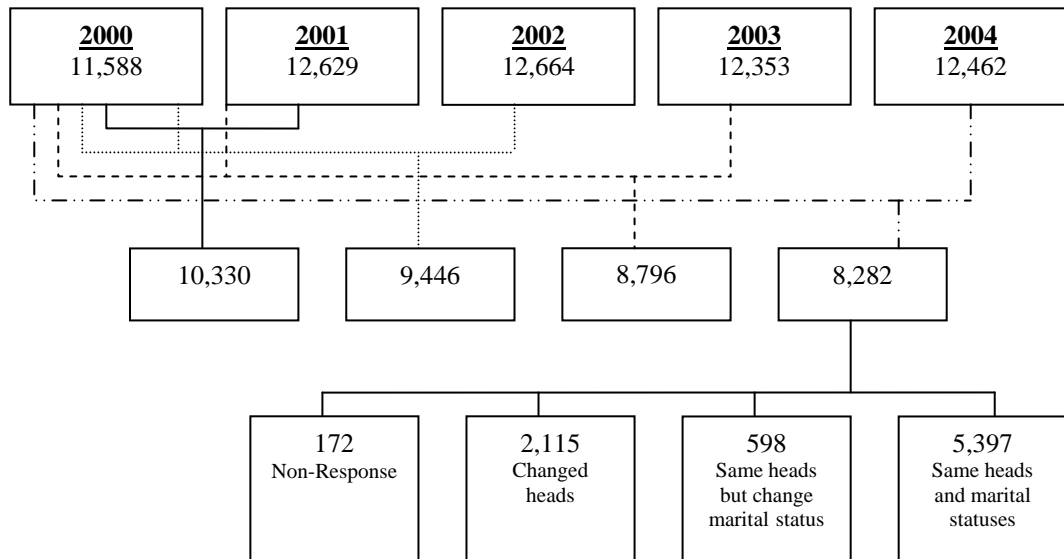


Figure 3.1: Number of households during 2000-2004, KDSS

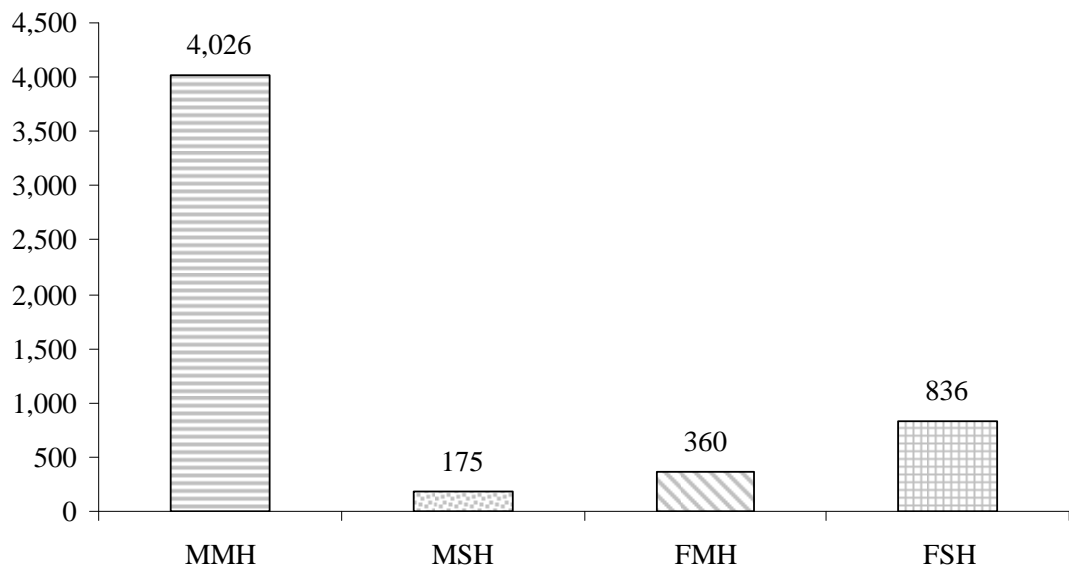


Figure 3.2: Number of samples for panel study by types of household headship

The main independent variable in this analysis is household headship, which is categorized by using a combination of gender and marital status of the individuals who acted as household heads. This results in 4 types of households: 1) households headed by a married male with spouse; 2) households headed by a male without spouse, who may be single, divorced, or widowed; 3) households headed by a married female with spouse; and 4) households headed by a female without spouse, who may be single, divorced, or widowed.

Measuring household assets

Assets are viewed as a source of welfare because they can enhance economic well-being of a household (Antonopoulos & Floro, 2005). There are two approaches to measuring household assets, namely, the money metrics (i.e., income) and the asset-based approach. The money metrics approach has been criticized as problematic due to measurement errors as well as the difficulty of understanding interest rates and inflation rates, which have fluctuated greatly over time. Although some scholars have attempted to solve this problem by using consumer price indices, there is still a problem because consumer price indices are not always available nor are they reliable, especially in developing countries (Prakongsai, 2005; Sahn & Stifel, 2000).

The asset-based metric is applied as an alternative approach for several reasons. First of all, individual assets in developing countries are not copious and it is easy to measure them when compared with a long list of potential consumer goods. Secondly, the accuracy and validity of asset data are better than that of household income and expenditure data. Thirdly, the types of assets are less likely to be subject to reporting bias. Lastly, there is no worry about problems of currency deflation, inflation rate, and interest rate (Filmer & Pritchett, 2001; Sahn & Stifel, 2000). In addition, some scholars point out that wealth and assets can better illustrate how economic inequality accumulates over the life courses of households (Deere & Doss, 2006).

In the present study a technique known as “dichotomous hierarchical ordered probit model” (DiHopit) is used to construct the asset index. All assets variables are ordered dichotomously; they take the value of 0 if a household does not have the asset in that order and 1 if they do have the asset in such order. As this technique is based on an implied weight, the index score is given with a normal distribution with a mean at zero and variance of one (Ferguson et al., 2000; Filmer & Scott, 2008).

Previous studies mostly include housing characteristics and household durable goods to construct the asset index (Ferguson et al., 2000; Filmer & Pritchett, 2001; Filmer & Scott, 2008; Havanon, Knodel, & Sittitrai, 1990; Hosseinpoor et al., 2005; Schmidt & Sevak, 2006; Zhan, 2007). Based on available data, this study uses household durable goods and housing characteristics to construct the asset index. A list of all durables goods and housing characteristics from all sources of data are presented in the Appendix (Table A3.1- A3.4).

The asset index for data from each round of the SES survey and cross-sectional data of the KDSS have been constructed separately. In the panel data from the KDSS 2000 and 2004 surveys, the assets are pooled together for constructing the asset index in order to observe changes in asset holdings between 2000 and 2004. As the cost of housing materials changed little in such a short time period, the panel study assumes that housing materials in 2001 is similar to 2000. The details of asset items used in this study are shown in Appendix A.

Distribution of asset indices

As mentioned above, a normal distribution of asset scores with a mean at zero and standard deviation of one is generated by using the DiHOPIT technique. The following figures are a result of constructing an assets index by applying such a technique. It begins with figures from the SES asset index, followed by the KDSS

asset index pooled cross-sectionally and pooled from panel data, respectively (See Appendix B).

Method of analysis

This study aims to identify trends and patterns of asset holding among households with different headship and to examine the association between household headship and asset holding. Therefore, the unit of analysis for this study is the household.

To achieve the objectives of the study, descriptive statistics are used for the purpose of describing sample data and identifying patterns of asset holding. Bivariate analysis is applied to describe the observed relationship between independent and dependent variables. Then multivariate analysis using a regression model is conducted to study the determinants of household asset holding. The followings steps are involved:

1. Percentages are used for the purpose of describing the characteristics of asset holding for the different types of households. Cross-sectional data from SES and KDSS are used.
2. Chi-square is used to test the observed relationship between independent and dependent variables by employing both cross-sectional and panel data.
3. Sets of statistical models are employed to assess the extent to which household headship is associated with asset holding. Since the outcome variable is continuous, multiple regression analyses are used to assess the determinants of asset holding.
4. With panel data, a random effects regression model is used to control for any unknown variable or variables that cannot be controlled and which affect the dependent variable. This statistical model controls for any unobserved variable that may be constant over time but may vary between cases and others that may be fixed between cases (Wooldrige, 2006).

Description of dependent variables

Asset holding

The dependent variable for this study is asset holding, measured by an asset index, constructed by using a Dichotomous Hierarchical Ordered Probit technique. Household durable goods and housing characteristics, which are listed in Appendix A, are used to construct the asset index.

Description of independent and control variables

Independent variables

A crucial independent variable of this study is household headship, which is divided into male heads of married-couple households (MMH), female heads of married-couple households (FMH), male heads of single-headed households (MSH), and female heads of single-headed households (SMH). MMH denotes male heads of the household who are currently married. FMH are those female heads who are currently married. MSH are those male heads who are single, widowed, divorced, or separated, categories which also define FSH. To test the hypothesis, the omitted category is female-headed household, switched between FMH and SMH.

Control variables

A number of control variables will also be included in the models. Control variables for cross-sectional analysis include selected characteristics of household heads, household characteristics, present debt, and residential area. Details measurement scale of independent and control variables are presented in Tables 3.3

Table 3.3: Description of variables

Variables	Measurement scale
<u>Dependent variable</u>	
Asset holding	Continuous scale
<u>Independent variable</u>	
	Nominal scale
	MMH
Type of household headship	FMH
	MSH
	FSH
<u>Control Variables</u>	
Age of household heads	Continuous scale
Age-squared	Continuous scale
	Ordinal scale
	- Did not enroll in school
Education	- Primary school
	- Secondary school and higher
	Nominal scale:
	- Not work
Occupation	- Agriculture
	- Non-agriculture
Household size	Continuous scale
Household size-squared	Continuous scale
Proportion of non worker to worker	Continuous scale
	Nominal scale:
Household debt	- Have
	- Not have
	Nominal scale:
Residential area	- Urban
	- Rural

Attrition Bias and Selection Bias

Although panel data have advantages compared to cross sectional data in terms of tracing dynamic of behaviors, they have disadvantages in terms of difficulties of use, cost, and study respondents dropping out of the study (attrition). It may be difficult to generalize to the original population when the characteristics of droppers and stayers are much different (Hill, 2004; Miller & Hollist, 2007; Rose, 2000).

Since part of the present analysis uses panel data, it may face both attrition bias and selection bias. Attrition bias can occur when households drop out of the study prematurely while selection bias may happen as a result of the criteria used for selecting households to be part of the analysis. These may cause a reduction in effective sample size as well as affecting the efficiency of the parameter of estimation (Hill, 2004).

In order to address these issues, the differences between households that were dropped and stayer households are examined by using Chi-square and logistic regression. The characteristics of household heads, household characteristics, household debt, and residential area of selected and non-selected households enrollment in the KDSS are examined. Results are presented in Table 3.4

Table 3.4 shows all households at the time of enrollment in the KDSS. Forty percent of households were excluded whereas almost 60% remained in the study throughout the five years. Households with married male heads form the majority in both selected and non-selected households. The proportion of households with married female heads and those with male single heads in the initial year (2000) are both greater than they were at the end of the study period (2004). A possible explanation might be that return migration may have changed household status in terms of headship. When males (especially the husbands) migrate out, a female often becomes the household head, and when the men return, they resume the headship again. In addition, the reduction in the number of households with single male heads (males

without spouse) may be due to the fact that males are more likely to remarry than are females after divorce or death of a spouse.

With regard to other characteristics of household heads, Table 3.4 shows that the non-selected households are more likely to be those with members among the youngest and the oldest age groups. Most selected household heads are middle aged. Although most household heads completed primary school, the proportion not enrolling in school is high among non-selected households. In addition, heads of non-selected households are less likely to be engaged in an occupation.

In terms of household characteristics, household size of non-selected households is greater than that of selected ones. There is not much difference in terms of the proportion of non-workers to workers within a household between those households that are included and those excluded from the study. Demographic events, comprising births, deaths, migration, and number of disabled persons, seem to be more common in non-selected households rather than in selected households.

Those households included in the analysis have a higher percentage of debt than those excluded from the study. In addition, there is not much difference between the percentage of urban and rural dwellers, whether or not they were selected.

A chi-square test shows that almost all characteristics of included and excluded households are significantly different (Table 3.4)

Table 3.4: Characteristics of selected households and non-selected households (KDSS)

Characteristics	Non- selected household	Selected household	Total	χ^2
Number	3673	5397	9070	
Percent	40.5	59.5		
Type of headship				517.5**
Married Male head (with spouse)	56.0	74.6	67.1	
Married Female head (with spouse)	20.7	6.7	12.3	
Single Male heads (no spouse)	6.7	3.2	4.7	
Single Female heads (no spouse)	16.6	15.5	15.9	
Age (Average)				99.2**
Less than 30 years	10.5	6.2	7.9	
30-39 years	23.8	22.6	23.1	
40-49 years	25.0	29.6	27.7	
50-59 years	16.6	20.8	19.1	
60 years and above	24.1	20.8	22.1	
Education				77.5**
Did not enroll in school	24.3	16.8	19.8	
Primary school	62.7	67.8	65.7	
Secondary school and higher	13.0	15.4	14.4	
Occupation				112.4**
Not working	20.0	12.2	15.4	
Agriculture	51.5	59.4	56.2	
Non-agriculture	28.5	28.5	28.5	
Household size (Average)				2838.0**
1-2	12.3	19.7	15.5	
3-4	25.0	50.2	35.9	
5-6	11.2	23.4	16.5	
>=7	51.5	6.7	32.1	

** p<.001, * p<.05

Table 3.4: Characteristics of selected households and non-selected households (KDSS)
(Continued)

Characteristics	Non- selected household	Selected household	Total	χ^2
Proportion of non-worker to worker				26.9**
#Non-workers similar to workers	17.4	15.4	16.2	
# Non-workers exceed workers	6.8	4.7	5.5	
# Workers exceed non-workers	75.9	79.9	78.3	
Household debt				11.2*
No	46.4	42.8	44.3	
Yes	53.6	57.2	55.7	
Geographical areas				4.3*
Urban	20.7	19.2	20.1	
Rural	79.3	80.8	79.9	

** p<.001, * p<.05

Previous studies suggest conducting a logistic regression to detect attrition bias (Miller & Hollist, 2007). Therefore, the differences in characteristics between households that are included and those excluded from the analysis are tested by using logistic regression

The results of logistic regression analysis reveal that there is a significant difference between included and excluded households in relation to some of their characteristics noted at the beginning of this study. Selected and non-selected households are significantly different in terms of household headship, age, education and occupation of the household head. In addition they are also different in terms of the proportion of non-workers to workers as well as household debt. The results are shown in Table 3.5.

In conclusion, statistical techniques that are used to identify attrition bias and selection bias show that there is a difference between those households that are included and those excluded from the analysis. This means that interpretation of findings in this panel study needs to be done with caution, especially in terms of generalization to the original population that was sampled.

Table 3.5: Logistic Regression Estimates attrition bias and selection bias

Variables	B	S.E.	Exp(B)
Type of headship (Female single heads®)			
Male married head	0.7427***	0.0452	2.1017
Female married head	-0.9096***	0.0595	0.4027
Male single heads	-0.7291***	0.0773	0.4824
Age	0.0176***	0.0014	1.0177
Education (Secondary school and higher®)			
Did not enroll in school	-0.3953***	0.0615	0.6735
Primary school	-0.0656	0.0486	0.9365
Occupation (Non-agriculture®)			
Not work	-0.1994*	0.0626	0.8192
Agriculture	0.1078*	0.0413	1.1139
Household size	-0.0232*	0.0082	0.9770
Proportion of non-workers to workers	-0.1193*	0.0368	0.8875
Household debt (No®)			
Yes	-0.0986*	0.0348	0.9061
Residential area (Urban®)			
Rural	-0.0280	0.0446	0.9723
Constant	-0.4578***	0.0909	0.6326
-2 Log likelihood	2026.1840***		
Model Chi-square	22126.3720		

® = reference

*** p<.0001, **p<.001, *p<.05

Ethical Issues

This study follows several steps to address ethical issues. As it employs secondary data that were collected by the National Statistical Office and the Institute for Population and Social Research, Mahidol University, letters requesting data and laying out the research protocol were sent to those two organizations. After receiving their permission, the research protocol and letters of approval were submitted and approved by the Institutional Review Board (IRB) of the Institute for Population and Social Research, Mahidol University.

CHAPTER IV

HOUSEHOLD HEADSHIP AS A DEMOGRAPHIC VARIABLE

This chapter presents findings related to household headship based upon demographic variables of household heads. It begins with an introduction to the chapter, followed by a discussion of household headship as it relates to demographic characteristics. The findings from this study resulted from an analysis of data from the censuses of 1970-2000, the Household Socioeconomic Surveys 1988-2004 and the Kanchanaburi Demographic Surveillance System 2000-2004.

Introduction

Household headship and the age and sex of household heads are of particular interest to sociologists and economists and are thus taken into account as demographic variables. Household headship also reflects changes in household structure related to family life cycles (Kobrin, 1973). Moreover, heads of households are considered to be dominant in socioeconomic terms, since they are the major decision makers and/or the major income earners (Lampietti & Stalker, 2004; Mencher, 1993).

Traditionally, households have been headed by the oldest male although by 1995 female-headed households had increased and accounted for one-third of household heads (Kuijsten, 1995). Just as in other developing countries, household headship in Thailand is associated with the eldest male in the household. A female can assume this role when such a male is absent, for example, due to migration or death (Podhisita, 1994). During the last several decades, Thai households have faced numerous changes in their forms and functions. One such change is the increase in the proportion of female-headed households. Scholars have found that levels and trends in female-headed households are important indicators of changes in a household's

situation and vulnerability because headship implies socioeconomic dominance (Lampietti & Stalker, 2004). Much of the interest in this phenomenon arises due to the assumptions associated with the "feminization of poverty," a concept that emerged in the 1970s. It is also believed that the feminization of poverty is linked to the feminization of household headship (Chant, 2003, 2006).

Therefore, a study of patterns, trends, and changes in household headship has led us to re-examine the purported connection between household poverty and female headship. The results of this chapter are based upon evidence from three sources of data, namely, censuses, a series of Household Socioeconomic Surveys (SES), and the Kanchanaburi Demographic Surveillance System (KDSS).

This study aims to understand the significance of gender in household headship in several aspects. Initially, only the gender of household headship is explored. Then, combinations of gender and marital status, household structure, and age are described.

Household headship and gender

In Thailand, as most in developing countries, a majority of households have male heads. As shown in Figures 4.1-4.3, more than two-thirds of households are headed by males. Although male headship has been dominant over the thirty-year period from 1970 to 2000, the proportion of male-headed households gradually declined, from more than four-fifths in 1970 to slightly more than two-thirds in 2004. In contrast, the proportion of female-headed households has increased, from 15% in 1970 to 26% in 2000 and 32% in 2004. These trends, patterns, and changes can be observed from the three sources of data noted above. It is important to note that the increasing proportion of female-headed households is widely pronounced throughout Thailand.

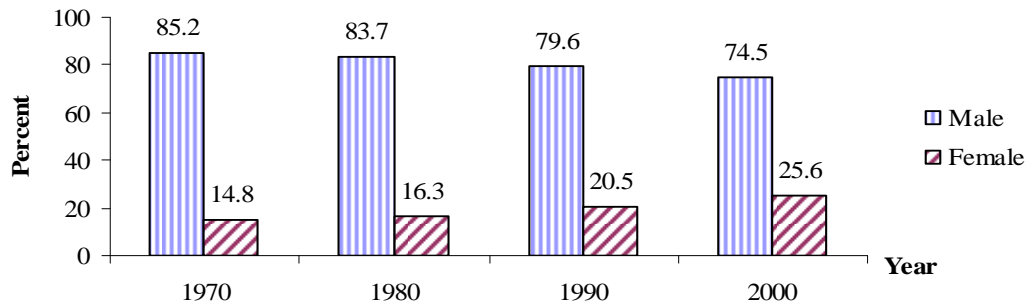


Figure 4.1: Percentage of household heads by gender: Censuses 1970-2000

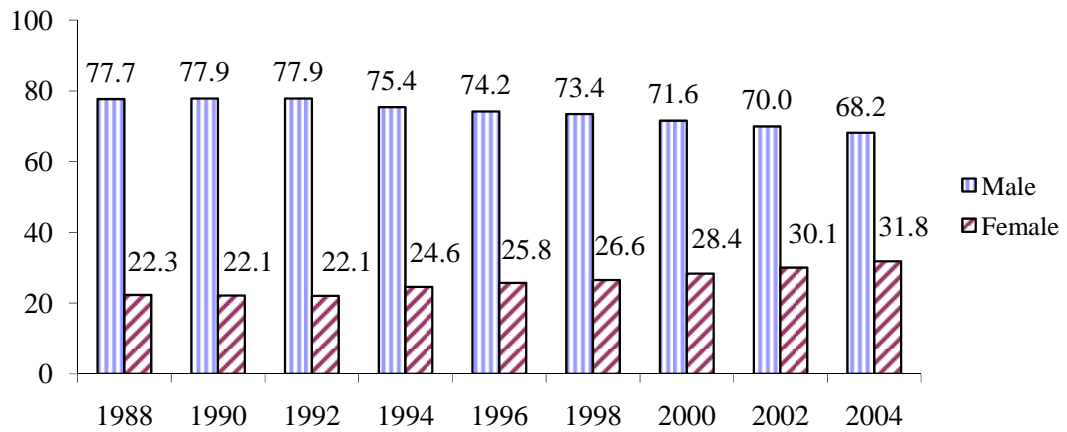


Figure 4.2: Percentage of household heads by gender: SES 1988-2004

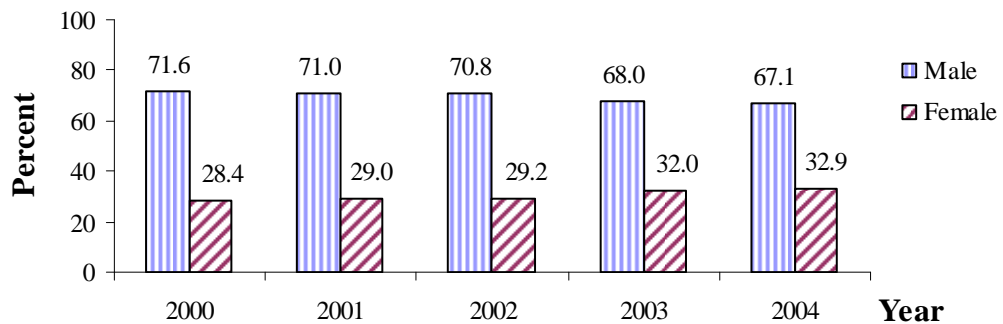


Figure 4.3: Percentage of household head by gender: KDSS 2000-2004

Household headship, gender, and household structure

This study divides household structure into four types, namely, one-person households, non-relative households, nuclear households, and extended households. One-person households refer to households comprised of one person only. Non-relative households are comprised of a household head and non-relative member(s). Nuclear households have one or two parents living with or without children. Other configurations are classified as extended households.

It is known that both nuclear and extended families are common in the Thai context, as indicated in Figures 4.4-4.6. However, evidence of one-person and non-relative households can also be observed over time. Examining gendered patterns of household headship and household structure reveals that among male-headed households, most are nuclear households, followed by extended households, one-person households, and non-relative households. Among one-person households and non-relative households, females were more likely to be heads than were males.

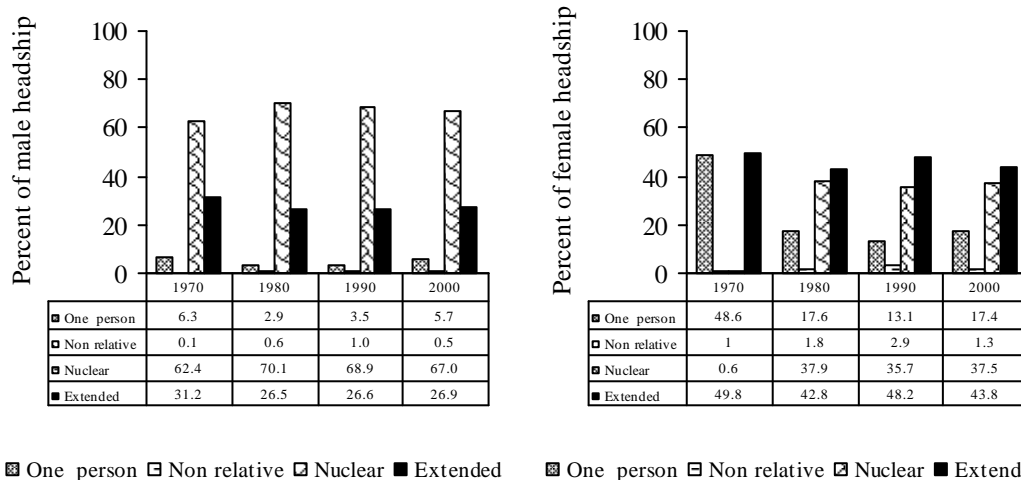


Figure 4.4: Household headship by gender and household structure: Censuses 1970-2000

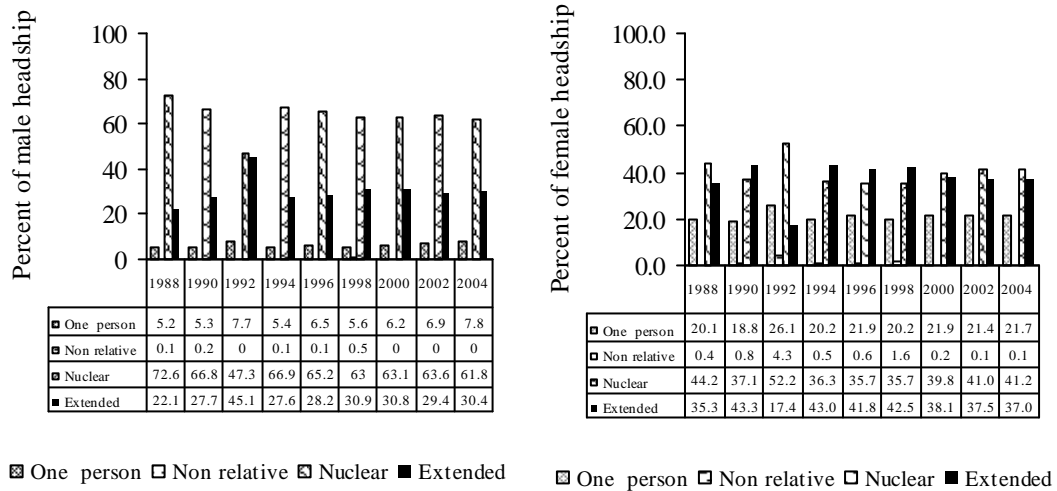


Figure 4.5: Household headship by gender and household structure: SES 1988-2004

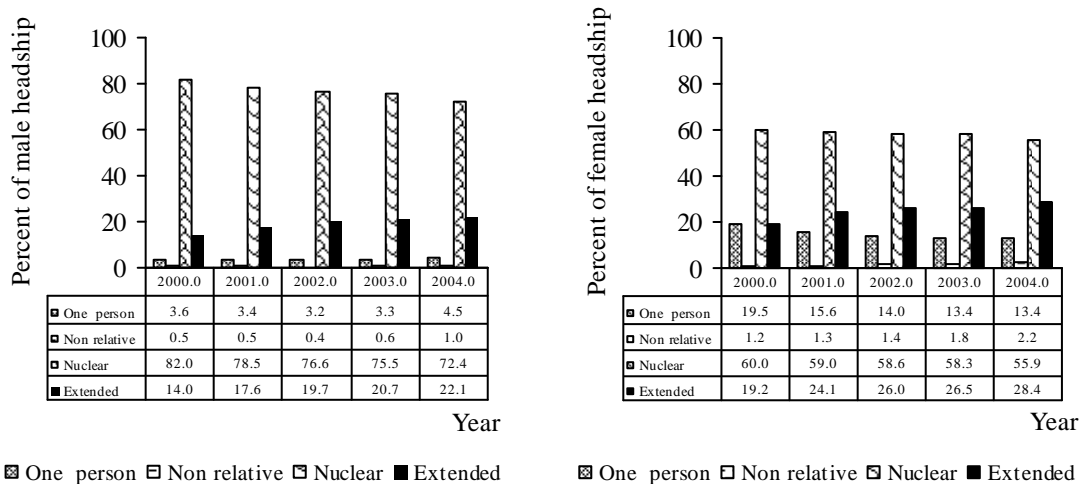


Figure 4.6: Household headship by gender and household structure: KDSS 2000-2004

Household headship, gender, and marital status

Census data reveal that among males, married male heads were a majority, followed by those who never married, those who were widowed, and those who were divorced/separated, respectively (Figure 4.7). This pattern for males was quite stable over a thirty-year period and can also be observed from national representative surveys such as the series of household socioeconomic surveys from 1988-2004 as well as surveys of the specific areas of the Kanchanaburi Demographic Surveillance System.

The pattern of female headship is interesting because it differs from that of the male counterparts. Although households with widowed-female headship were the majority, this proportion gradually declined. Proportions of married-female heads and never-married female heads gradually increased, while the proportion of divorced/separated female heads gradually decreased.

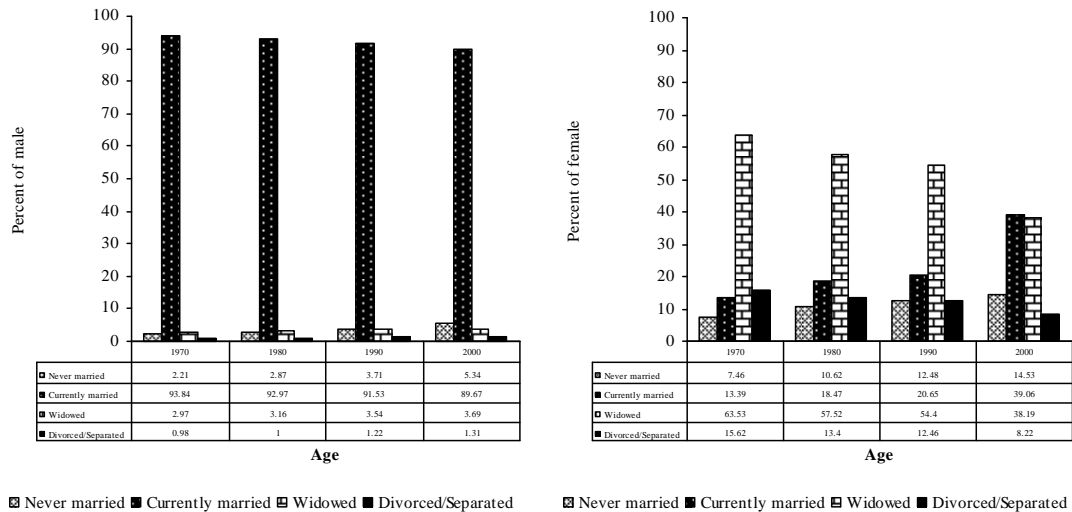


Figure 4.7: Household headship by gender and marital status: Censuses 1970-2000

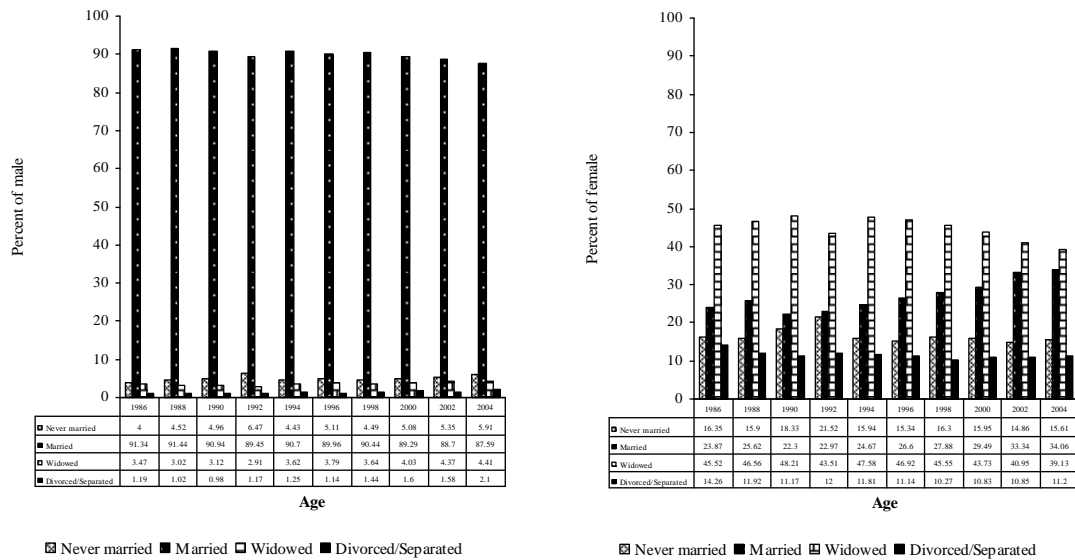


Figure 4.8: Household headship by gender and marital status: SES 1988-2004

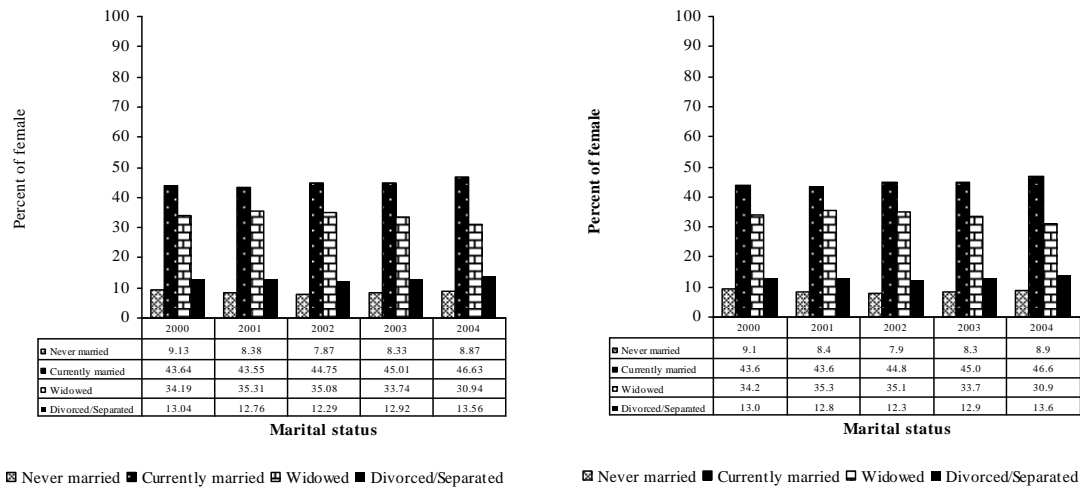


Figure 4.9: Household headship by gender and marital status: KDSS 2000-2004

Household headship, gender, and age

Taking into account sex and age of household heads, it can be seen that most households had males as heads in all age groups. However, there is a difference in the pattern between male and female headship. Male headship sharply increased from age 15-19 to 35-39 and then gradually increased until age 60. Thereafter, it started declining (see Figures 4.10-4.12). The female headship rate gradually increased until age 30-45 and then moved sharply upward until age of 65 and then started decreasing.

From the above observation, it can be seen that males were likely to be household heads during their young adulthood and adulthood. Yet, this trend declines when they get much older. This contrasts with females, who were more likely to be heads when they became elderly. The patterns found from census data are also observed from evidence of household socioeconomic surveys during the period 1988 to 2004. These trends may have resulted from other demographic events such as marital dissolution and an increasing life expectancy, especially for females (McLanahan, 1988). To understand this issue, the marital status of household heads needs to be explored.

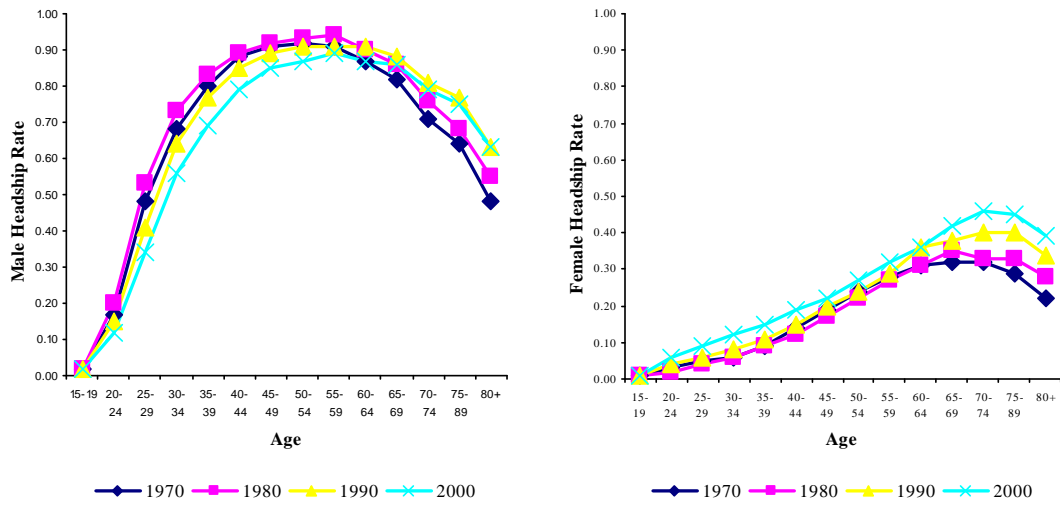


Figure 4.10: Household headship by gender and age: Censuses 1970-2000

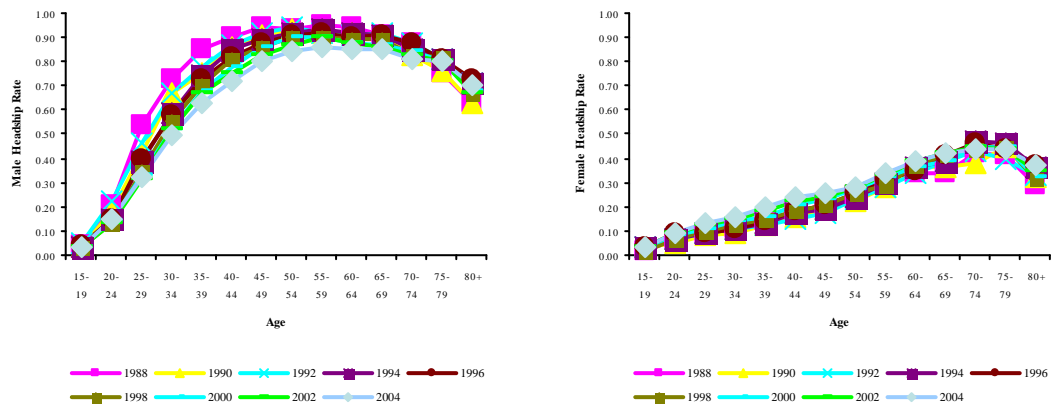


Figure 4.11: Household headship by gender and age: SES 1988-2004

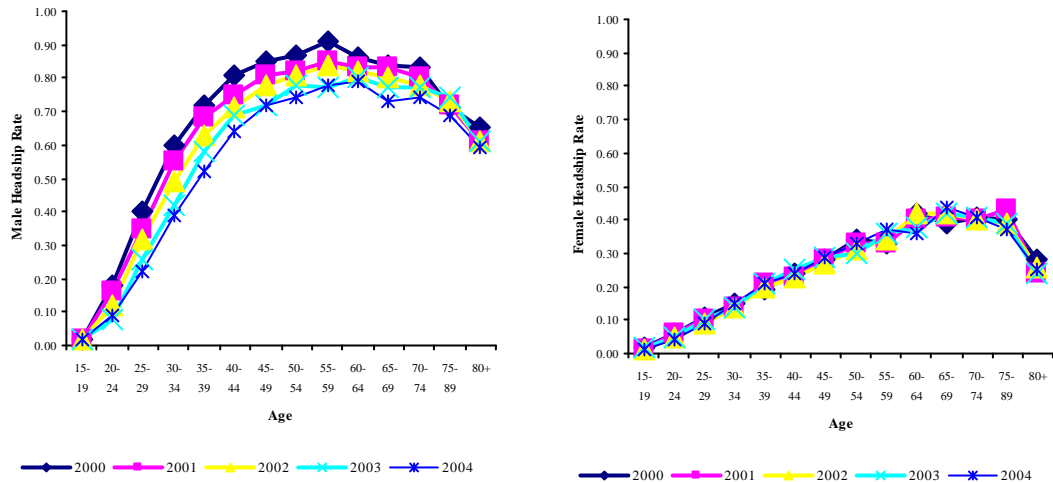


Figure 4.12: Household headship by gender and age: KDSS 2000-2004

Household headship, gender, age, and marital status

In exploring the association between marital dissolution and household headship, marital statuses of household heads are taken into account, beginning with household heads who never married. Age patterns of male and female household heads are similar. However, the proportion of headship between never-married males and females increased over a period of 30 years. This may be consistent with an increasing proportion of never-married individuals in general and an increase in the age of first marriage (Prachuabmoh & Mitranon, 2003).

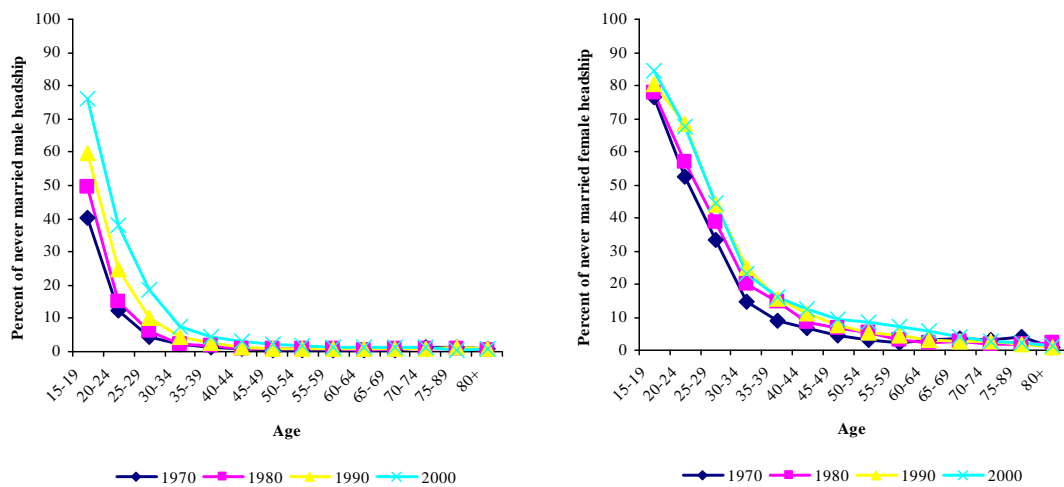


Figure 4.13: Never married headship rate by gender and age: Censuses 1970-2000

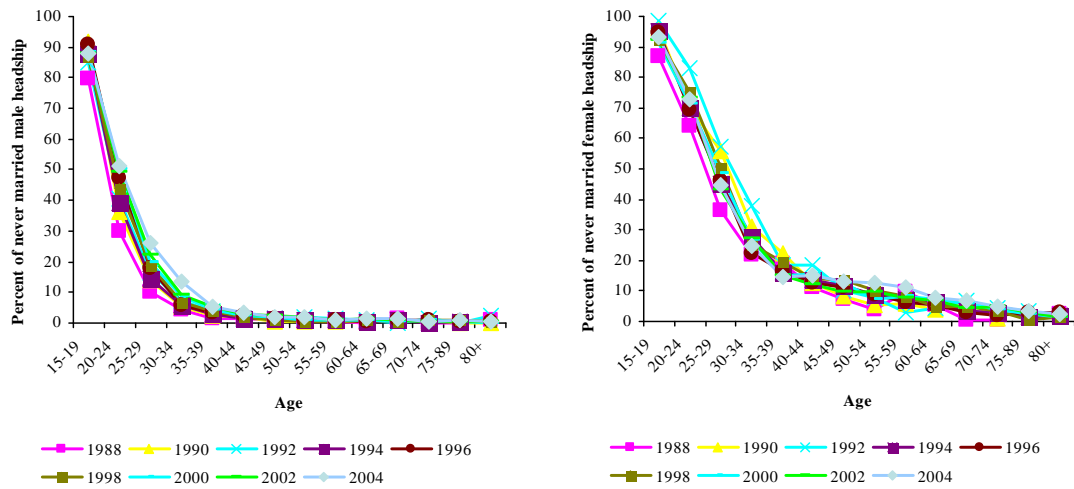


Figure 4.14: Never married headship rate by gender and age: SES 1988 – 2004

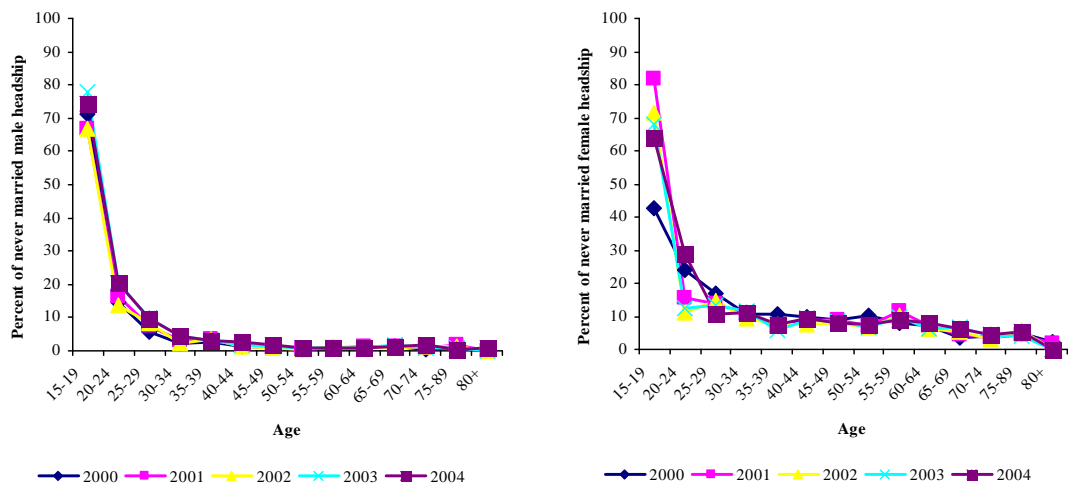


Figure 4.15: Never married headship rate by gender and age: KDSS 2000-2004

As mentioned above, becoming a household head may be related to the demographic events linked with age and family life cycle. Figures 4.16-4.18 show that currently married male heads are the majority. Although males were dominant in terms of headship among currently married people, the proportion of currently married female heads sharply increased in the last census.

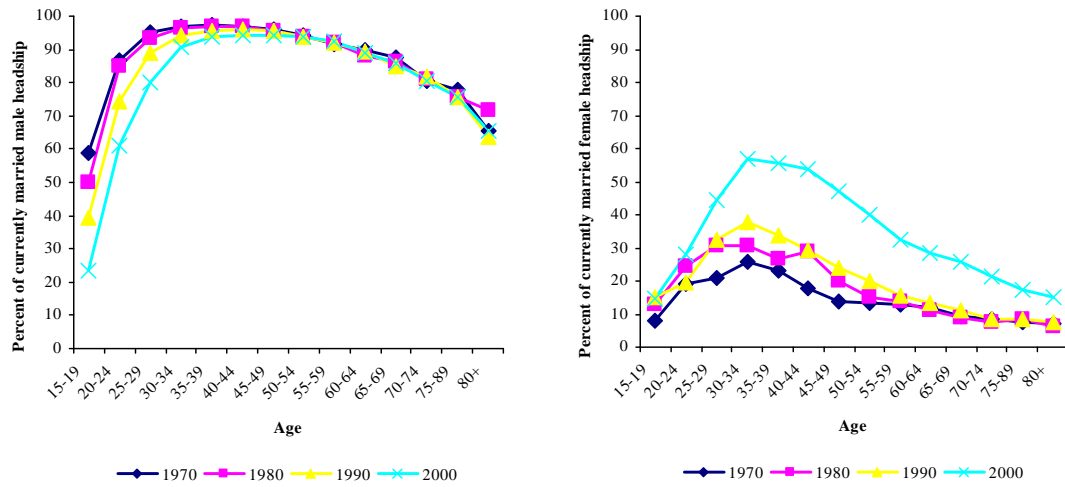


Figure 4.16: Currently married headship rate be gender and age: Censuses 1970-2000

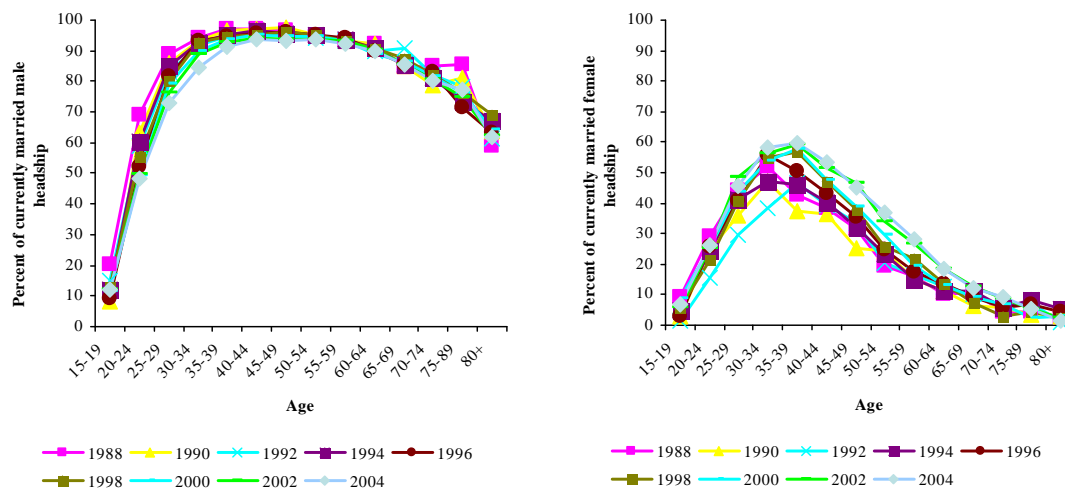


Figure 4.17: Currently married headship rate be gender and age: SES 2000-2004

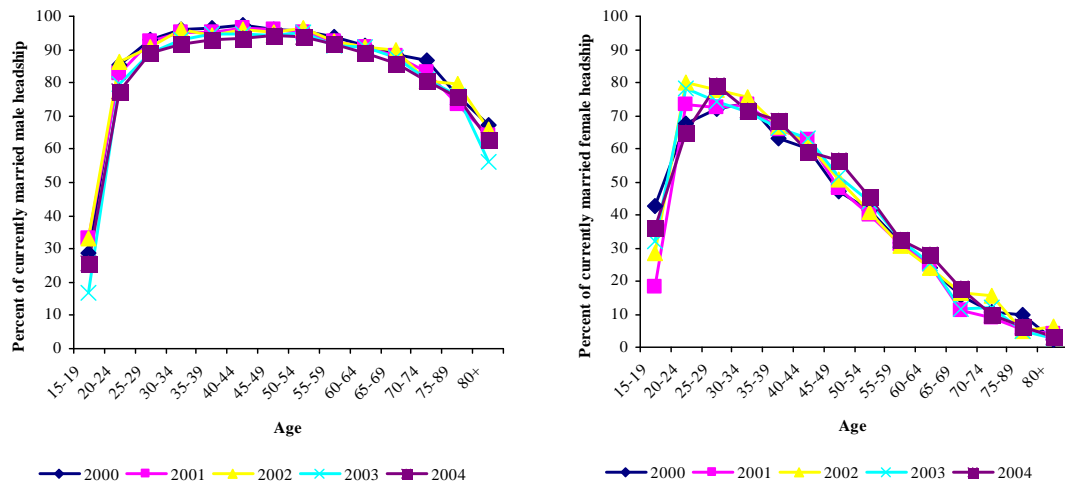


Figure 4.18: Currently married headship rate be gender and age: KDSS 2000-2004

According to Figures 4.19-4.21, it can be assumed that the patterns of marital status of household headship may have resulted from marital dissolution. Thus, widowed, divorced, and separated household heads were examined. The rate of widowed-male headship was very low at younger ages and gradually increased at older ages whereas the widowed-female headship rate sharply increased from age 25. This clearly illustrates that the headship rate among widowed females was higher than that of their male counterparts.

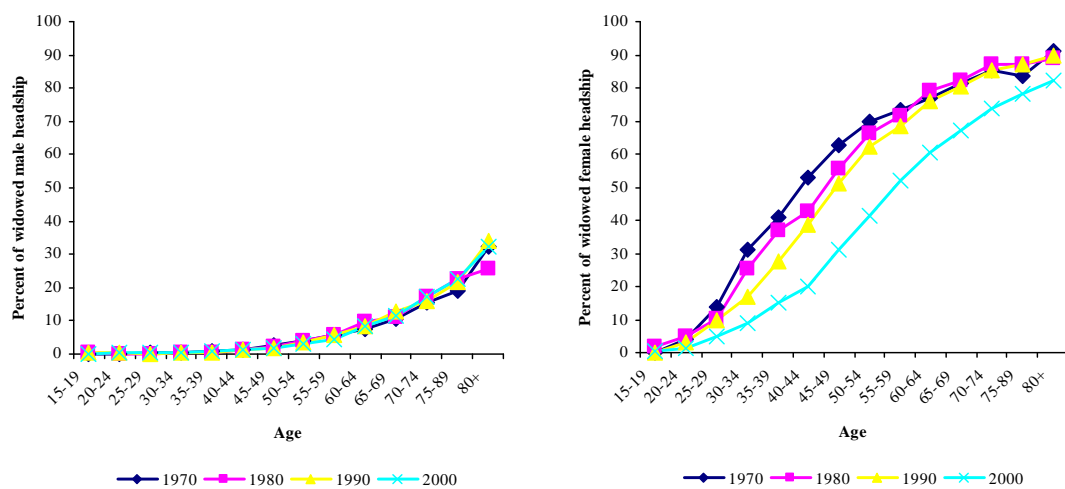


Figure 4.19: Widowed headship rate: Censuses 1970-2000

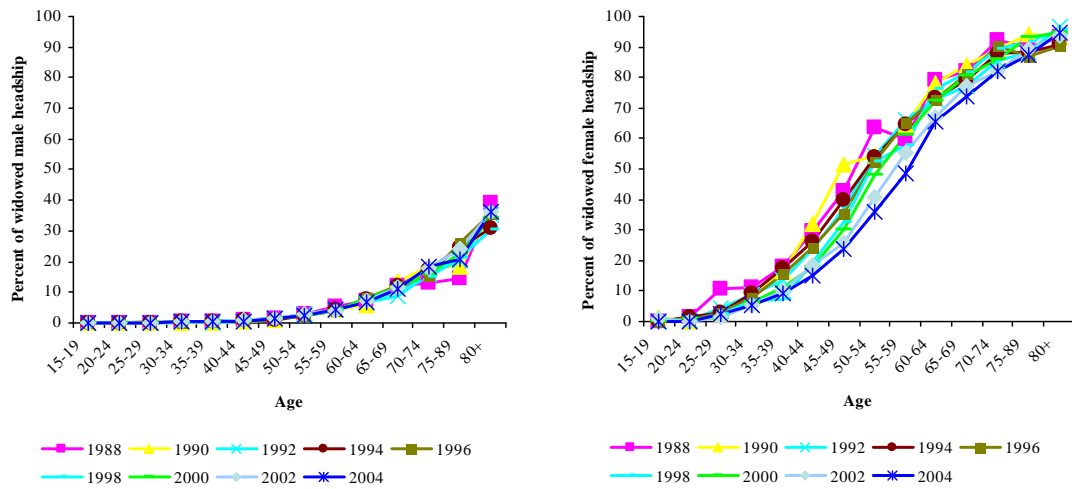


Figure 4.20: Widowed headship rate: SES 1988-2004

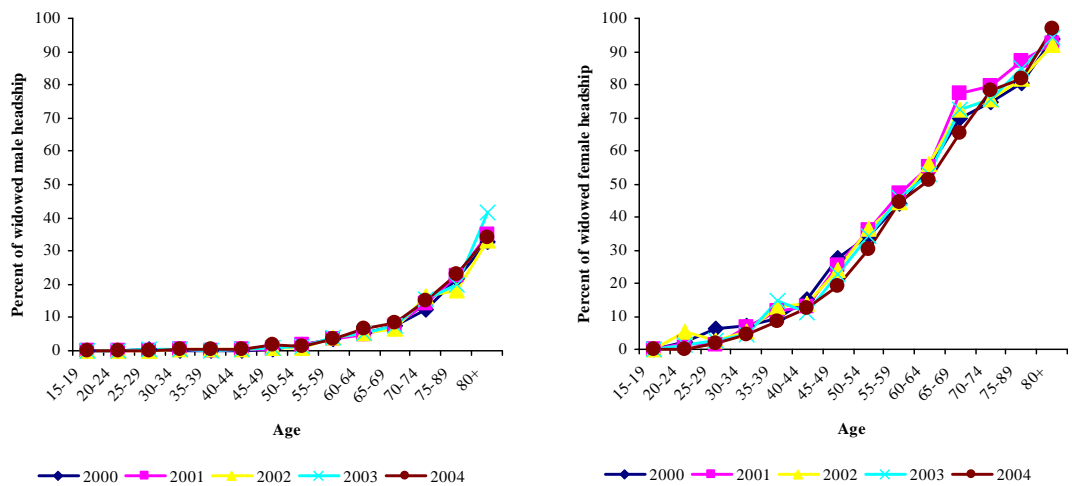


Figure 4.21: Widowed headship rate: KDSS 2000-2004

Patterns of headship rates among divorced/separated heads reveal that rates among males were quite low and that there is little difference among all age groups. While headship rates of separated females sharply increased during the age groups of 20-24 to 35-40, they sharply declined after that until age of 65, resulting in a low headship rate in the older age groups. It is important to note that the headship rate among females who were divorced/separated heads was higher than that of males (Figure 4.22 - 4.24).

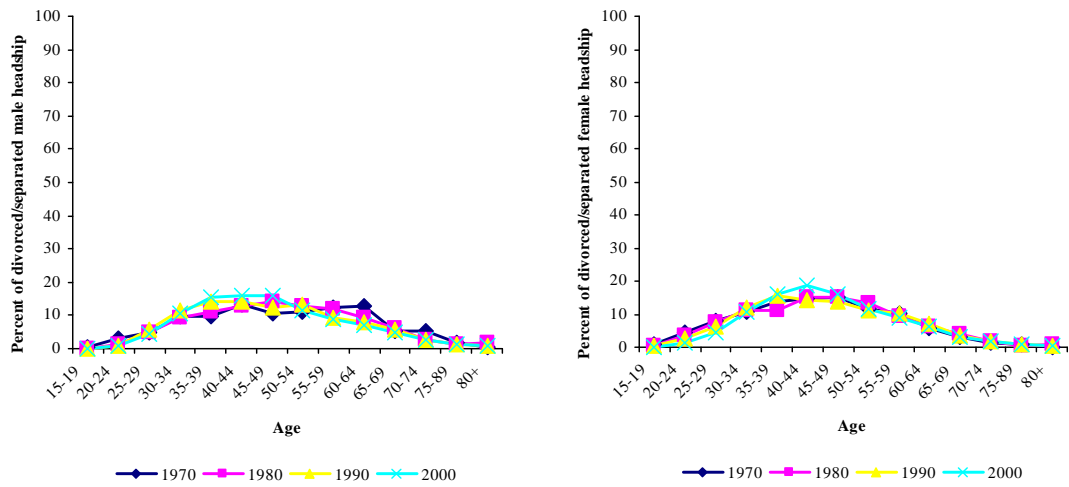


Figure 4.22: Divorced/Separated headship rate: Censuses 1970-2000

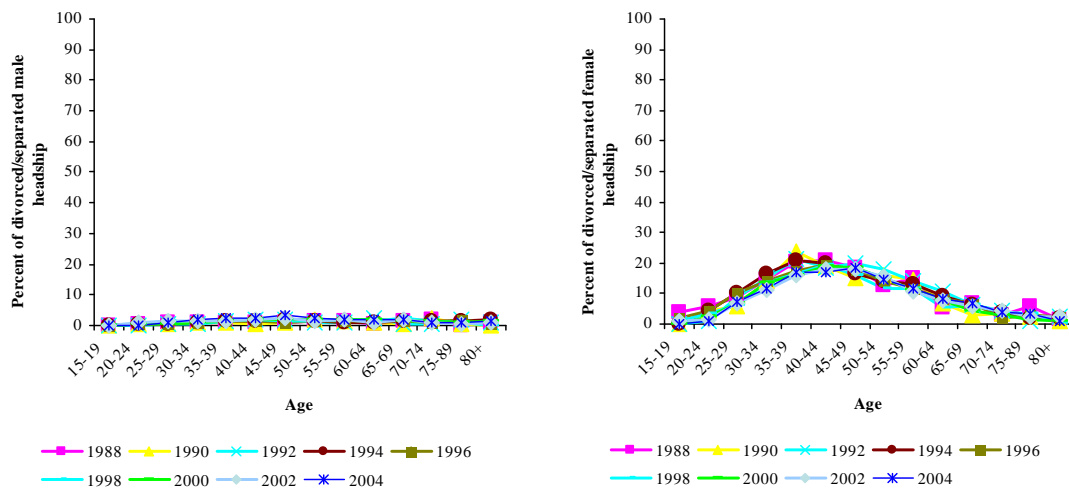


Figure 4.23: Divorced/Separated headship rate: SES 1988-2004

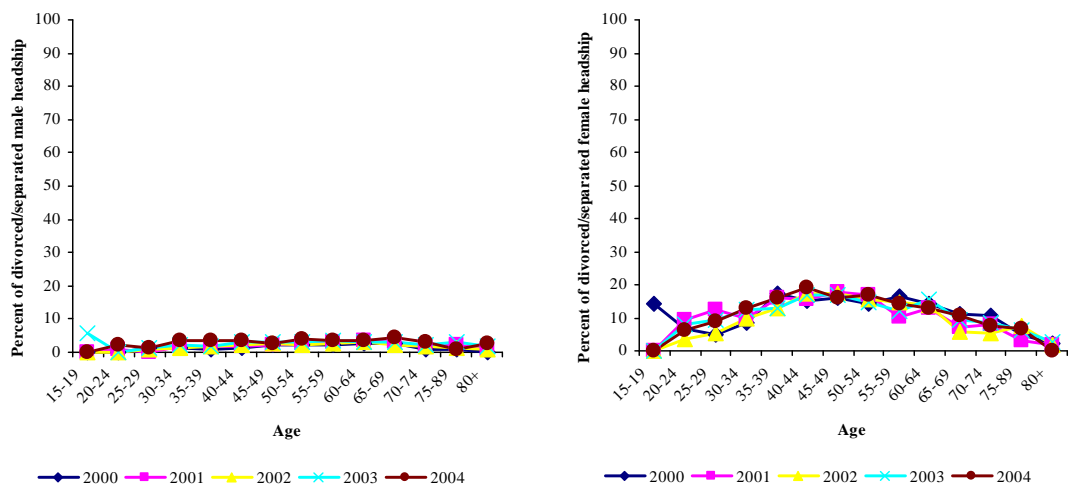


Figure 4.24: Divorced/Separated headship rate: KDSS 2000-2004

Summary

Household headship in Thailand has changed more for females than for males. This reflects the impact of gender and demographic changes. During the past three decades, the public arena for women has expanded, especially in terms of women's empowerment. Evidence shows that indicators of women roles and statuses such as literacy rate, school enrollment rate, and labor force participation rate have improved (Esterik, 2000; Limanonda, 2000; The World Bank, 2004; Yoddumnern-Attig, 1992).

In addition, trends and patterns of household headship may be related to demographic events linked to age and family life cycle. For instance, the difference in patterns of headship between widowed females and males may be due to the fact that women live longer than men. Moreover, culture may be another factor that makes a difference between separated males and separated females because males are more likely to remarry than are their female counterparts (Prachuabmoh & Mitranon, 2003; VanLandingham & Hirschman, 2000).

As discussed in an earlier chapter, the increasing proportion of female-headed households concerns many scholars because they assume that the feminization of poverty is associated with the feminization of household headship. The changes in household headship with regard to gender mentioned above provide the ground from which the present study takes off. The following chapter will focus on trends and patterns of asset holdings across types of household headship.

CHAPTER V

TRENDS AND PATTERNS OF ASSET HOLDING

This chapter aims at answering the research question on trends and patterns of asset holdings among households with different types of headship. Household headship is classified by gender and marital status of household heads. Therefore, there are four types of household headship, namely, married male-headed households (MMH), married female-headed households (MFH), single-headed households with male heads (SMH), and single-headed households with female heads (SFH). "Single-headed household" here refers to households headed by single, widowed, separated, or divorced persons.

This chapter utilizes data from both the Household Socioeconomic Surveys (SES) 1988-2004 and the Kanchanaburi Demographic Surveillance System (KDSS) 2000-2004 in order to present a snapshot of asset holding among the four types of households. Trends of asset holding among types of household headship are presented in terms of asset score over the period of the study. Subsequently, the asset index is divided into quintiles for presenting patterns of asset holding among households with four types of headship.

Trends of asset holdings by types of household headship

Since the present study is concerned primarily with the combination of gender and marital status regarding asset holding, it needs to examine the effect of household headship with regard to how it affects household asset holding. Therefore, a snapshot of trends in asset holding among the four types of households with different headship is explored. Figure 5.1 displays trends in asset holding from SES data, showing that the difference in asset holding among households with different types of headship still exists over the period of the study.

Married female-headed households have the highest average asset score, followed by married male-headed households, single female-headed households, and single male-headed households, respectively. Overall, married couple households are better off than single-headed households in terms of asset holding. Taking into account both gender and marital status of household heads among married-couple households reveals that households headed by females who reside with their spouses are better off than households headed by their male counterparts in terms of average asset score. Among single-headed households, households with female heads have higher asset scores than those with male heads.

Data from the Kanchanaburi Demographic Surveillance System (KDSS) provide similar trends of asset holding across household headship as shown in the national surveys.

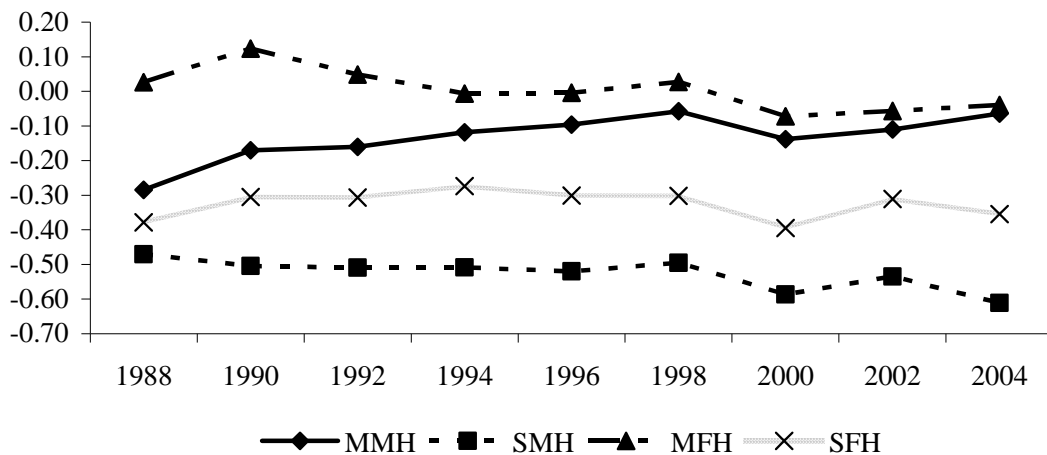


Figure 5.1: Average score of asset holding by type of household headship 1988 -2004

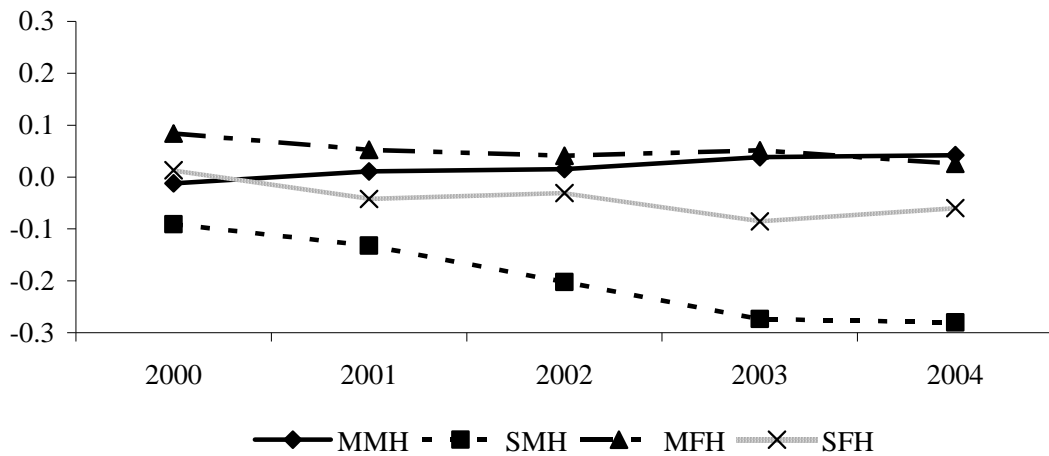


Figure 5.2: Average score of asset holding by type of household headship 2000-2004 (KDSS)

Patterns of asset holding by types of household headship

In order to examine patterns of asset holding among household types, asset indices are divided into quintiles. Table 5.1 shows that household asset inequality remains unchanged over the period from 1988 to 2004. The extreme quintiles of asset holdings (the top and bottom quintiles) are taken into account in order to identify advantages and disadvantages of household asset holdings. The lowest quintile represents the poorest group of households and the highest quintile the richest. Therefore, the study focuses on the two extreme quintiles, including bottom and top quintiles.

The lowest quintiles indicate that single-headed households make up a higher percentage when compared to married-couple households. At the highest quintiles, married-couple households have higher percentages when compared to single-headed households. Corresponding patterns can also be observed in the KDSS for 2000- 2004.

Among households in the lowest quintile, as shown in Table 5.1, male single-headed households comprise the highest proportion, accounting for 33%, and gradually increasing to almost 39% in 2004. About one-fourth of women without a

spouse present and who are heading households are in the bottom quintile and accounted for 24% in 1988, steadily rising to almost 27% in 2004. Married male-headed households and married female-headed households are at lower percentages than those households in the bottom quintile. Around 16% to 20% of male-headed households are in the lowest asset quintile. However, this is still higher than the percentages of married female-headed households, which account for less than 16% over a period of almost 20 years.

Results from the KDSS in Table 5.2 also show that the proportion of male single-headed households in the first quintile is higher than for other types of households. It is clear that male single-headed households comprise a greater proportion when compared to other households, ranging from 23.9% to 31%. This group is followed by households with married male heads (19.4-21.4%), single-headed households with female heads, and married female-headed households (15.9-18.2%), respectively. This suggests that male single-headed households are disadvantaged in terms of asset holdings.

For the top quintile, the SES data reveal that married female-headed households have the highest percentage when compared to other household types, amounting to more than 22.7%, which is higher than the percentage of married male-headed households. While 15-17.5% of single-headed households with female heads are in the highest quintile, less than 15% of single-headed households headed by males are in the highest quintile.

In Table 5.2, the KDSS data show that in the highest quintile the proportion of married-couple households is higher than that of single-headed households. Married-couple households with male heads display the highest proportion of households in the top quintile, accounting for more than 20%, followed by married-couple households headed by females (18.2-21.2%), single-headed households with female heads, and single-headed households headed by males, respectively.

Table 5.1: Distribution among asset quintiles by type of household headship,
SES 1988-2004

Year	1st	2nd	3rd	4th	5th
MMH					
1988	18.4	20.7	19.7	20.1	21.1
1990	18.5	19.7	20.7	20.7	20.5
1992	17.8	19.9	20.9	20.3	21.2
1994	17.6	19.9	20.7	20.8	21.0
1996	17.0	19.8	20.2	21.9	21.1
1998	17.1	19.5	20.8	20.8	21.9
2000	16.6	19.7	20.5	21.0	22.2
2002	16.8	19.6	20.8	21.2	21.7
2004	15.9	19.2	20.7	21.6	22.6
SMH					
1988	32.8	21.4	18.9	14.1	12.8
1990	33.5	23.0	17.6	13.1	12.7
1992	35.4	21.6	16.4	14.5	12.1
1994	35.7	19.9	15.9	13.7	14.9
1996	37.6	21.3	16.7	12.3	12.1
1998	37.6	20.6	16.2	14.9	10.8
2000	37.5	22.2	15.2	13.9	11.2
2002	37.7	22.9	15.6	13.2	10.5
2004	38.6	23.5	14.8	13.2	10.0
MFH					
1988	12.6	16.3	19.9	26.1	25.1
1990	10.2	17.3	18.0	23.4	31.1
1992	13.0	15.0	19.3	24.2	28.5
1994	15.6	17.7	18.1	22.5	26.1
1996	15.9	19.6	20.4	19.1	25.0
1998	15.1	18.6	19.7	22.7	23.9
2000	14.9	18.7	20.8	22.9	22.8
2002	15.9	18.7	19.1	22.0	24.3
2004	14.3	18.3	21.7	22.8	23.0
SFH					
1988	23.9	17.9	22.4	20.5	15.3
1990	23.3	22.6	18.3	18.4	17.3
1992	23.2	21.2	19.3	20.3	16.0
1994	24.4	21.3	19.3	18.6	16.4
1996	25.2	20.8	19.5	17.0	17.5
1998	25.2	22.4	18.5	18.2	15.7
2000	26.1	20.9	20.0	17.8	15.2
2002	24.9	21.0	19.9	18.1	16.1
2004	26.9	21.8	19.3	16.9	15.0

Table 5.2 Distribution among asset quintiles by type of household headship,
KDSS 2000-2004

Year	1st	2nd	3rd	4th	5th
MMH					
2000	21.4	18.7	19.8	19.8	20.2
2001	20.9	18.0	19.2	20.5	21.4
2002	20.5	18.3	19.3	20.4	21.4
2003	19.7	18.2	19.4	21.1	21.6
2004	19.4	18.1	19.7	20.6	22.2
SMH					
2000	23.9	21.6	17.1	17.1	20.4
2001	24.2	24.6	18.3	15.0	17.9
2002	26.1	23.5	20.3	14.8	15.3
2003	29.9	23.6	18.9	14.8	12.8
2004	31.0	24.1	17.9	12.3	14.7
MFH					
2000	15.9	19.9	22.5	20.7	21.0
2001	17.3	20.0	22.1	21.7	18.9
2002	16.9	21.4	21.0	21.5	19.2
2003	17.6	19.2	20.9	21.0	21.2
2004	18.2	20.5	21.4	20.8	19.1
SFH					
2000	15.9	25.1	19.6	21.3	18.1
2001	17.1	26.5	22.1	18.3	16.0
2002	18.7	24.4	21.7	18.7	16.5
2003	19.7	25.8	21.7	17.2	15.7
2004	19.6	24.4	20.7	20.1	15.2

Summary

As shown above, married-couple households are better off than are single-headed households in terms of asset holdings. Among married-couple households, households with female heads are better off than those with male heads. In addition, among single-headed households, female single-headed households are also better off than male single-headed households.

It is also important to note that although trends in household asset holding derived from both the SES and KDSS are similar, figures for the national versus the local level (encompassing a much smaller area) differ. Asset indices from the KDSS are less stable when compared to those of the SES. This may be due to differences in items of assets collected and the time that passed between the KDSS and the SES. In addition, sample households also differ in terms of sampling designs.

First, the difference between items used for constructing the asset index is shown in Appendix A. Furthermore, new items of assets are added and some excluded from the model for constructing asset. Secondly, the twenty-year collection of SES data differs greatly from the five years during which KDSS were collected. This difference can be significant because the longer the collection period, the better the illustration of trends. Finally, the SES is a nationally representative data set using an independent cross-sectional design while the KDSS is a longitudinal design in which 80% of households were revisited and re-interviewed.

In light of these differences, comparisons of SES and KDSS data need to be done with caution. Thus, the next chapter will present the results of asset holdings for the same asset items and for same time periods of the SES and the KDSS.

CHAPTER VI

HOUSEHOLD HEADSHIP AND ASSET HOLDING: POOLED CROSS-SECTIONAL STUDIES

This chapter presents the relationship between household headship and asset holdings at both the national level and at the small study area. The study utilizes pooled cross-sectional data from the Household Socioeconomic Survey (SES) and the Kanchanaburi Demographic Surveillance System (KDSS) that were collected in 2000, 2002, and 2004. Initially, it presents average asset scores by household type and year. Subsequently, the sample characteristics, including type of household headship, selected characteristics of household heads, household composition, and geographical area are explored. Finally, the relationship between household headship and asset holding and the determinants of asset holding are examined.

Asset holdings across types of household headship

The asset scores for this section were constructed by using similar asset items from the SES and KDSS data. Assets included TV, stereo/radio, VDO/VCD, land phone, computer, air conditioner, refrigerator, washing machine, bicycle, motorcycle, pickup (mini-truck), truck, and housing material. These assets were pooled and indices were constructed at the same time in order to compare relative amounts of assets over time.

According to the SES data (see Figure 6.1), married-couple households headed by females had the highest asset score, followed by married-couple households headed by males, single-headed households headed by females, and single-headed households headed by males, respectively. Data from the KDSS, as shown in Figure 6.2, reveals that households were generally able to hold more assets at the end of the

study period. But married-couple households held more assets than did single-headed households. Married-couple households with male heads had the highest asset score. Next came married-couple households with female heads, female single-headed households, and male single-headed households.

Data from the national level and from the small study area present a similar picture. That is, the average asset scores of almost all types of household headship had increased over time, and married-couple households were more likely to have greater asset scores than single-headed households. Among married-couple households, both national data and data from the small study area reveal that there was hardly any difference in asset holding between female- and male-headed households. A further probe revealed that there was no statistically significant difference between married-couple households headed by males and those headed by females, for both national and small-area data.

For single-headed households, there was a significant difference between households headed by males and those headed by females. At the national level, female-headed households had higher scores than did those of males. KDSS data illustrate that among single-headed households headed by males the asset score was highest in 2000, decreased in 2002, and increased in 2004, yet at the end of the study the asset score was lower than it was at the beginning. The asset score for single-headed households headed by females, however, increased over time.

Descriptive results from both the national level and the small study area imply that there is no significant difference among households headed by married persons. However, among single-headed households, households heading by females are likely to hold more assets are those of males. It is important to note the markedly lower level of asset holdings of single-headed households with male heads.

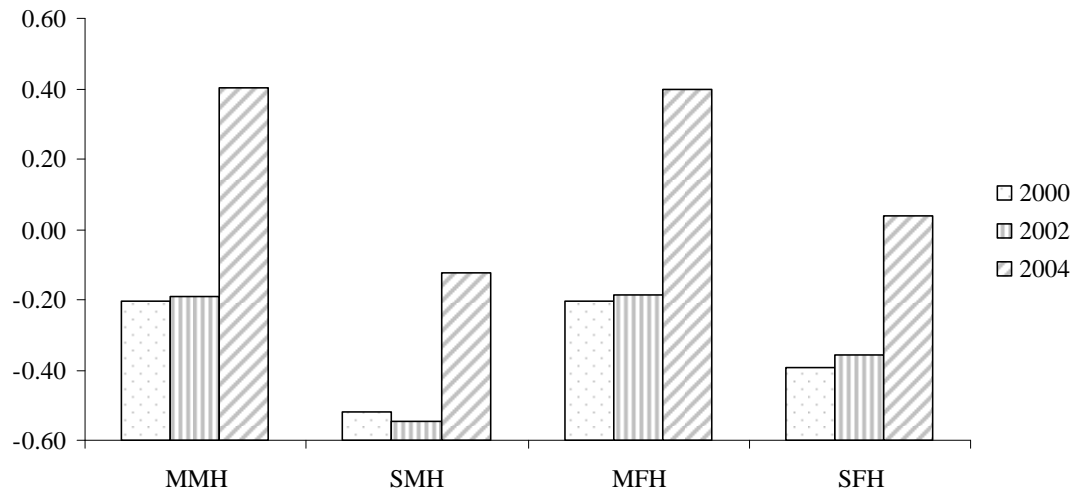


Figure 6.1 Average asset score by type of household headship and year from pooled SES data, 2000-2004

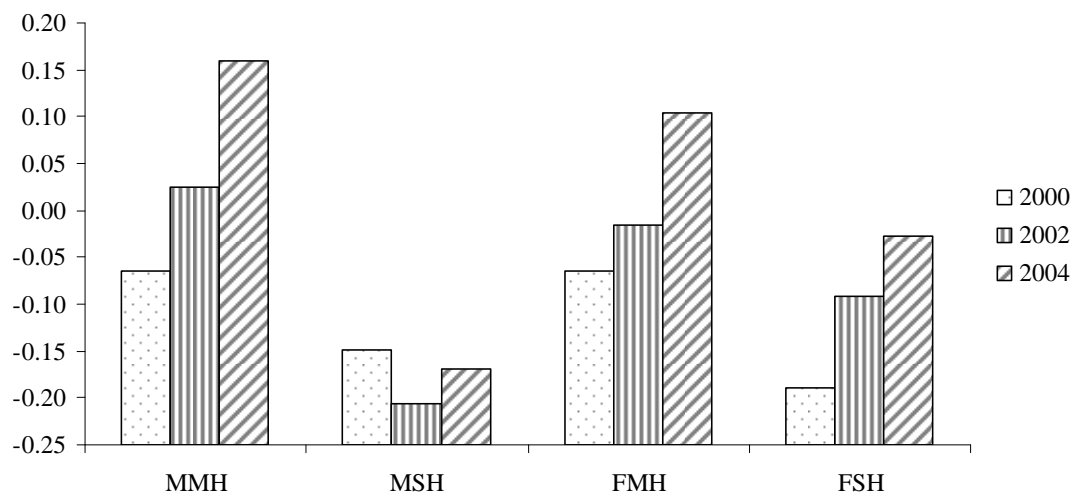


Figure 6.2 Average asset score by type of household headship and year from pooled KDSS data, 2000-2004

Characteristics of the household heads

Table 6.1 summarizes characteristics of household heads, household composition, and geographical area from the SES data, which are presented separately for the four types of household headship. The majority of household heads were married males, followed by female heads without a spouse, male heads without a spouse, and female heads with spouse, respectively. The proportion of married male heads gradually declined, accounting for 67% in 2000 and 62% in 2004, while proportions of other types of headship increased over a period of time. For instance, the proportion of male heads without a spouse was 7.2% in 2000 and steadily increased to 8.1% in 2004. The proportion of female heads with a spouse increased from 7.8 % in 2000 to 9.8 % in 2004. The proportion of female heads without a spouse gradually increased from 18.1 % in 2000 to 20 % in 2004.

Evidence from the KDSS, as shown in Table 6.2, also illustrates that the majority of households were headed by married males (60% to 67%), followed by unmarried females (15.9% to 17.9%), married females (12.3% to 15.5%), and unmarried males (4.6% to 6.6%), respectively. Married male heads were a majority but their numbers gradually decreased over a period of five years, accounting for 67.0% in 2000 and 60.0 % in 2004. On the other hand, other types of headship had steadily increased. It is important to note that the number of female-headed married-couple households seemed to increase faster than did other types of households. The possible explanation is that the migration rate in Kanchanaburi had increased from 10.0 % to 15.0 % over the period of the study (Jampaklay, 2007).

Although, gendered patterns of household headship from both national representative data and data from the small study area are quite similar, there are some differences in details. For instance, the proportion of single-headed households headed by males at the national level is higher than that of similar households in the KDSS, and the proportion of single-headed households with female heads in the KDSS is higher than that observed at the national level.

In terms of marital status of household heads, the SES data show that slightly more than four-tenths (42.6% to 47.4%) of single-headed households had male heads. Among these, widowers made up 40.0% to 42.2%, and those separated or divorced made up 11.9% to 15.1%). Among female heads of single-headed households, the vast majority were widowed (64.3% to 65.6%), followed by single (never married) women (19.4% to 20.6%), and separated or divorced women (14.7% to 15.9 %).

The KDSS data show that widowed heads make up the majority of single-headed households. The proportion of households headed by widowed females is higher than that of widowed male-headed households (58.0% to 63.5% versus 35.1% to 40.9%). Among male heads in single-headed households, a majority were widowed (35.1% to 40.9%), followed by those who were single (31.4% to 33.4%), and then by those separated or divorced (26.2% to 32.5%). The majority of female heads in such households were widowed (58.0% to 63.5%), followed by those who were divorced/separated (22.3% to 25.3%), and then by those who were never married (14.3 to 16.7%).

Findings from both data sources show a different picture in terms of marital status of heads of single-headed households. That is, most male heads of single-headed households in the SES were single while most male heads in single-headed households in the KDSS were widowed. On the other hand, the majority of women heads of single-headed households in both the SES and the KDSS were widowed.

With respect to age of household heads, the SES data show that the average age of household heads gradually increased. It was 48.5 years in 2000 and 49.8 in 2004. Heads of single-headed households were older than were those of married-couple households. The oldest household heads were females in single-headed households (with an average age of 55 to 56) while the youngest were females in married-couple households (with an average age of 42 to 44). It is important to note

that one-fourth of all households were headed by older persons, the highest proportion of which comprised single-headed households with female heads.

The KDSS data also reveal a similar pattern for all household heads, whose average age increased from 47.8 in 2000 to 48.3 in 2004. The heads of female single-headed households had highest average age (53.0 to 56.0), followed by male heads of single-headed households (50.8 to 53.0), male heads of married-couple households (46.7 to 47.3), and female heads of married-couple households (42.7 to 43.2), respectively. Slightly more than two-fifths of households with elderly heads were single-headed with female heads. This proportion is similar to that for elder-headed households from the SES data.

As for the educational level of household heads, results from the SES data show that two-thirds of household heads had completed primary school (69.7% in 2000 and 67.0% in 2004). Fewer heads of households had completed at least secondary school (22.7% in 2000 and 26.0% at the end of the study). Lastly, the proportion of household heads who had not enrolled in school at all had declined over time (7.6% in 2000 and 7.0% in 2004). In addition, the highest proportion of older household heads was among single-headed households with female heads.

Results from the KDSS also reveal that a majority of household heads had completed primary school (65.6% to 67.0%), followed by household heads who had not enrolled in school (17.0% to 17.7%) and those who had completed secondary school (16.0% to 16.7%). The proportion of heads who had not enrolled in school was highest among female single-headed households, amounting to slightly more than one-fourth (27.3% to 30.5%).

Information on the education of household heads from the SES and KDSS data presented above indicates that over a period of time the proportion of household heads who had not enrolled in school at all had declined while the proportion of those who had a higher level of education had increased. However, the proportion of those

who had not enrolled in school was higher for single-headed households, in particular those headed by females.

In terms of occupation of household heads, the SES data indicate that a major occupational shift had occurred, from agriculture to the non-agriculture sector. The proportion of heads who were engaged in agriculture decreased, from about two-fifths (41.1%) in 2000 to one-fourth (26.7%) in 2004. The proportion of heads engaged in non-agriculture increased to more than half (54.9%) in 2004, compared to two-fifths (40.3%) in 2000. It is important to note that the proportion of female heads in single-headed households who did not work was higher than for women in other types of household (39.1% to 43.2% versus 10.0% to 32.0%).

The KDSS data show that, in general, slightly more than half (50.2% to 56.4%) of household heads were engaged in the agricultural sector. Male heads of married-couple households were more likely to be working in agriculture than were men in other types of households (57.6% to 63.0%). Considering those heads who did not work for wages, female heads of single-headed households made up a higher proportion (36.1% to 36.7%) when compared to others (7.8% to 28.7%).

In summary, the proportion of heads who were engaged in agriculture decreased while the proportion of heads engaged in the non-agricultural sector increased. It is important to note that the proportion of women in female single-headed households who were not engaged in an active occupation was higher than it was for other types of household. Furthermore, there is a difference in the proportions of those engaged in agriculture between findings from the SES and the KDSS. That is, proportion of household heads in the KDSS who were engaged in agriculture was greater than it was for household heads in the SES, especially at the end of the study period. This may be because agriculture is the main mode of production in Kanchanaburi.

Household Characteristics

As noted in the literature review, household size and composition of the household are important in shaping household strategies in terms of production and consumption. Thus, the present study considers characteristics of households in terms of household size and proportion of non-workers to workers.

According to SES data, male heads without a spouse had the smallest household size (2.3 to 2.5 persons), followed by female single-headed households (2.9 to 3.0 persons), female married-couple households (3.3 to 3.4 persons), and male married-couple households (3.8 to 4.0 persons). When compared to household size in the KDSS, similar patterns of household size across household headship can be seen. That is, households with male heads without a spouse have the smallest household size (2.9 to 3.5 persons), followed by female single-headed households (3.3 to 4.0 persons), female married-couple households (3.6 to 4.6 persons), and male married-couple households (4.1 to 4.6 persons).

Thus, household size across types of household headship from both national representative data and censuses of the small study area show a similar pattern, namely: a) the household size of married-couple households is greater than it is for single-headed households, b) the size of male-headed married-couple households is a bit greater than it is for their female-headed counterparts, and c) the size of female single-headed households is greater than it is for their male counterparts.

Although the number of workers or earners is important, the proportion of workers to non-workers is more useful for exploring the differences among households in terms of production and consumption. Information derived from both the SES and KDSS data reveal a proportion of non-workers to workers. On average the number of workers exceeded the number of non-workers. However, female married-couple households had a higher proportion of non-workers to workers, while this proportion was lowest among male single-headed households. This implies that the higher the

proportion of non-workers to workers the higher the burden in terms of taking care of dependents.

Household debt

Apart from characteristics of household heads and household characteristics, this study also aims to explore present debt as a control variable. The definition of present debt is the existing debt that a household still had at the end of the previous month. The results of SES data reveal that more than one-third of households had present debt. Trends of households with debt tend to increase. It was 34 percent in 2000 and 37.8 percent in 2004. When considering debt by type of household headship, married couple households had a higher percentage of present debt than did single-headed households. Among married couple households, households with female heads have highest proportion of debt during a period of 2000 and 2002 while in 2004 the highest proportion of households with debt is married couple households with male heads. Turning to single headed households with debt, it is clearly indicated that households with female heads have higher percentage of being in debt when compare to that of males (see Table 6.1).

The KDSS data also shows that the percentage of households with debt increased after the first round of data collection. In 2000 slightly more than half the households had debt; thereafter, it increased to two-thirds. Among households with different headship, it shows that married couple households have higher percentage of being in debt when compare with single headed households which is similar pattern as found in SES data. Comparing between married male and married female headed households, there was not much difference in percentage. However, it was clear among single-headed households that households with female heads had higher percentage of having debt than their male counterparts.

It is important to note that increasing numbers of households that could have debt may be a result of government micro-credit programs. After 2000, the Thai

government launched several projects that induced households to get loans, for instance, the project One Village One Million baht (Community Development Department, 2003)

Area of residence

According to the SES data, residential areas are considered in terms of municipal (urban) and non-municipal (rural) area. Slightly more than two-thirds of households were located in rural areas. While data from the KDSS shows that almost four-fifths of households were located in rural areas.

Considering households with different headship, SES data shows that proportion of single-headed households heading by males is the highest (43.2% to 45.4%) in urban area, followed by single-headed households heading by females (35.3% to 37.8%), married couple households heading by females (32.7% to 37.2%) and married couple household heading by males (28.4% to 29.8%), respectively. The KDSS data shows a difference in pattern of household locating in urban area where the highest percentage is single-headed households with female heads (25.0% to 27.5%), subsequently, married couple households with female heads (19.2% to 24.8%), and single-headed households with male heads (17.3% to 24.5%).

With regard to household in rural area, SES data shows that majority of households are headed by married male (70.2% to 71.6%), followed by married female headed households (65.8% to 67.3%), single-headed households with female heads (62.2% to 64.7%) and single-headed households with male heads (54.6% to 56.8%), respectively. However, the KDSS data shows a different picture that is highest proportion is households headed by married males (81.1% to 83.0%), followed by married female headed households (77.5% to 82.7%), single-headed households with male heads (75.5% to 81.8%) and single-headed households with female heads (72.5% to 77.5%).

Table 6.1: Characteristics of sample households, SES 2000-2004

Characteristics	2000						2002						2004								
	Male			Female			Male			Female			Male			Female					
	MMH	MSH	FMH	FSH	Total	MMH	MSH	FMH	FSH	Total	MMH	MSH	FMH	FSH	Total	MMH	MSH	FMH	FSH	Total	
N	15,803	1,892	2,069	4,940	24,704	14,954	1,906	2,421	4,880	24,161	14,485	2,101	2,630	5,048	24,264						
%	67.0	7.2	7.8	18.1	100.0	64.1	7.6	9.5	18.7	100.0	62.0	8.1	9.8	20.0	100.0						
Marital status																					
Single	-	42.6	-	19.7	6.6	-	47.4	-	20.6	7.5	-	45.3	-	19.4	7.5						
Married	100		100		74.8	100		100		73.7	100		100		71.9						
Widowed	-	42.2	-	65.6	14.9	-	40.7	-	64.3	15.1	-	40.0	-	64.7	16.2						
Separated/Divorced	-	15.1	-	14.7	3.7	-	11.9	-	15.1	3.7	-	14.7	-	15.9	4.4						
Age (Average)	47.5	48.6	42.1	55.0	48.5	47.9	47.5	43.1	54.5	48.6	48.9	48.4	43.7	56.1	49.8						
Less than 30 years	6.5	25.0	13.3	9.7	8.9	5.3	24.8	11.1	9.6	8.2	5.2	23.8	9.1	7.2	7.5						
30-39 years	24.4	15.0	32.5	9.8	21.7	23.8	18.3	32.5	10.9	21.8	21.2	16.8	29.4	9.3	19.2						
40-49 years	29.0	11.6	29.4	15.8	25.4	29.2	11.4	28.9	16.5	25.5	29.2	11.9	33.5	16.8	25.7						
50-59 years	19.6	10.8	15.1	19.7	18.7	21.8	12.1	17.1	19.1	20.1	22.7	14.4	17.2	19.5	20.8						
60 years and above	20.4	37.5	9.7	44.9	25.2	19.9	33.4	10.4	43.9	24.5	21.8	33.1	10.8	47.2	26.7						
Education																					
Never enrolled in school	4.6	7.6	6.5	19.0	7.6	4.3	7.5	7.0	17.1	7.2	4.1	7.6	6.4	16.0	7.0						
Primary school	73.1	55.6	70.1	62.4	69.7	71.3	54.3	68.3	62.5	68.1	69.1	54.1	68.1	65.0	67.0						
Secondary school and higher	22.3	36.8	23.4	18.6	22.7	24.4	38.2	24.7	20.4	24.7	26.8	38.2	25.5	18.9	26.0						
Occupation																					
Agriculture	48.4	26.3	36.6	21.8	41.1	30.6	17.8	26.4	15.2	26.4	31.1	17.1	25.9	17.6	26.7						
Non-agriculture	41.2	41.7	42.8	35.1	40.3	60.1	50.8	51.4	43.1	55.4	58.9	53.0	55.2	43.3	54.9						
Not working	10.4	32.0	20.6	43.2	18.7	9.3	31.4	22.2	41.7	18.2	10.0	29.8	19.0	39.1	18.3						

Table 6.1: Characteristics of sample households, SES 2000-2004 (Continued)

Characteristics	2000						2002						2004								
	Male			Female			Male			Female			Male			Female					
	MMH	MSH	FMH	FSH	Total	MMH	MSH	FMH	FSH	Total	MMH	MSH	FMH	FSH	Total	MMH	MSH	FMH	FSH	Total	
Household size (Average)	4.0	2.5	3.3	3.0	3.6	3.9	2.4	3.3	2.9	3.5	3.8	2.3	3.4	2.9	3.5	3.5	2.3	3.4	2.9	3.5	3.5
1-2	18.2	62.6	33.9	48.4	28.1	19.1	61.1	32.0	49.3	29.2	21.2	66.4	29.3	49.5	31.4						
3-4	51.4	22.0	48.0	31.3	45.4	52.2	25.8	52.5	32.4	46.5	52.3	21.2	52.2	32.1	45.7						
5-6	24.0	12.7	13.9	15.7	20.9	23.0	11.4	11.8	14.1	19.4	21.1	10.9	15.8	15.2	18.6						
>=7	6.4	2.8	4.2	4.7	5.6	5.7	1.8	3.6	4.1	4.9	5.3	1.4	2.7	3.3	4.3						
Proportion of non-workers to workers	1.0	0.7	1.3	1.1	1.0	1.0	0.7	1.2	1.1	1.0	0.9	0.7	1.1	1.0	0.9						
#Non-workers similar to workers	23.4	25.4	27.6	28.5	24.8	22.1	25.9	27.0	30.1	24.4	21.8	23.7	25.1	28.7	23.6						
# Non-workers exceeds workers	26.1	19.0	37.7	29.9	27.2	25.4	16.8	36.9	28.8	26.5	23.8	16.6	31.6	28.4	24.9						
# Workers exceeds non-workers	50.5	55.7	34.7	41.7	48.0	52.5	57.3	36.1	41.1	49.2	54.5	59.7	43.4	43.0	51.5						
Household debt																					
No	64.1	75.1	59.6	72.3	66.0	65.1	75.6	64.5	72.2	67.2	58.9	72.0	59.4	69.6	62.2						
Yes	35.9	24.9	40.4	27.7	34.0	34.9	24.4	35.5	27.8	32.8	41.1	28.0	40.6	30.4	37.8						
Geographical areas																					
Urban	28.4	43.9	34.2	37.3	31.5	29.0	43.2	32.7	37.8	32.1	29.8	45.4	33.7	35.3	32.6						
Rural	71.6	56.1	65.8	62.7	68.5	71.0	56.8	67.3	62.2	67.9	70.2	54.6	66.3	64.7	67.4						

Table 6.2: Characteristics of sample households, KDSS 2000-2004

Characteristics	2000						2002						2004								
	Male			Female			Male			Female			Male			Female					
	MMH	MSH	FMH	FSH	Total	MMH	MSH	FMH	FSH	Total	MMH	MSH	FMH	FSH	Total	MMH	MSH	FMH	FSH	Total	
N	6,015	412	1,100	1,424	8,951	6,808	540	1,394	1,723	10,465	7,304	797	1,883	2,178	12,162						
%	67.2	4.6	12.3	15.9	100	65.1	5.2	13.3	16.5	100	60.1	6.6	15.5	17.9	100						
Marital status																					
Single		33.4		16.2	4.1			31.4	14.3	4.0		32.4		16.7	5.1						
Married	100		100		79.4	100	100			78.4	100		100		75.6						
Widowed		40.4		60.7	11.5			40.9	63.5	12.6		35.1		58.0	12.7						
Separated/Divorced		26.2		23.1	4.9			27.7	22.3	5.1		32.5		25.3	6.6						
Age (Average)	46.7	52.3	43.1	55.2	47.8	47.2	53.0	43.2	56.0	48.4	47.3	50.8	42.7	55.3	48.2						
Less than 30 years	7.8	14.6	11.5	4.1	7.9	7.5	12.8	12.1	3.3	7.7	7.6	14.6	12.9	4.9	8.4						
30-39 years	25.3	14.3	30.0	11.2	23.1	24.0	15.7	29.6	10.2	22.1	23.3	17.4	29.3	11.2	21.7						
40-49 years	29.8	15.3	31.2	20.3	27.8	29.1	16.9	31.1	19.9	27.2	29.8	18.2	31.4	19.9	27.5						
50-59 years	18.9	15.3	17.0	22.5	19.1	19.8	13.5	16.1	23.0	19.5	19.9	13.3	17.2	22.6	19.6						
60 years and above	18.3	40.5	10.4	42.0	22.1	19.6	41.1	11.0	43.6	23.5	19.4	36.5	9.3	41.4	22.9						
Education																					
Never enrolled in school	13.2	16.0	21.1	30.5	17.0	18.0	15.8	17.6	28.9	18.4	15.0	15.8	18.1	27.3	17.7						
Primary school	70.0	59.7	64.4	58.5	67.0	69.1	67.6	59.6	60.3	66.2	67.5	59.7	68.2	58.9	65.6						
Secondary school and higher	16.9	24.3	14.5	11.0	16.0	12.9	16.6	22.8	10.8	15.5	17.5	24.5	13.7	13.8	16.7						
Occupation																					
Agriculture	63.0	44.2	49.2	37.7	56.4	50.7	60.5	43.3	38.7	54.7	57.6	40.4	44.2	34.3	50.2						
Non-agriculture	28.9	27.4	29.2	25.6	28.3	27.2	31.2	30.0	25.5	29.7	34.6	33.8	32.3	29.5	33.3						
Not working	8.1	28.4	21.6	36.7	15.2	22.1	8.3	26.7	35.8	15.6	7.8	25.8	23.5	36.1	16.5						

Table 6.2: Characteristics of sample households, KDSS 2000-2004 (Continued)

Characteristics	2000						2002						2004								
	Male			Female			Male			Female			Male			Female					
	MMH	MSH	FMH	FSH	Total	MMH	MSH	FMH	FSH	Total	MMH	MSH	FMH	FSH	Total	MMH	MSH	FMH	FSH	Total	
Household size (Average)	4.1	2.9	3.6	3.3	3.8	4.4	3.4	4.3	3.8	4.3	4.6	3.5	4.6	4.0	4.4	4.6	3.5	4.6	4.0	4.0	4.4
1-2	13.7	52.7	25.8	40.7	21.3	15.2	11.0	40.2	31.9	16.5	11.2	41.3	30.6	16.9	16.9	11.2	41.3	13.1	30.6	30.6	16.9
3-4	53.7	27.4	50.2	36.5	49.3	47.1	48.9	32.8	34.4	45.4	44.9	28.6	44.0	33.2	41.6	44.9	28.6	44.0	33.2	33.2	41.6
5-6	25.0	14.3	18.9	17.4	22.5	26.6	28.0	17.8	23.0	26.5	28.9	18.9	26.5	22.6	26.7	28.9	18.9	26.5	22.6	22.6	26.7
>=7	7.6	5.6	5.1	5.3	6.8	11.1	12.1	9.3	10.7	11.6	15.0	11.2	16.4	13.6	14.7	15.0	11.2	16.4	13.6	13.6	14.7
Proportion of non-workers to workers	0.31	0.37	0.38	0.46	0.35	0.17	0.29	0.18	0.31	0.20	0.19	0.16	0.24	0.17	0.31	0.19	0.16	0.24	0.17	0.17	0.31
#Non-workers similar to workers	13.6	15.6	18.9	25.1	16.2	5.3	15.2	8.3	17.9	8.3	4.8	14.4	7.0	15.9	7.8	4.8	14.4	7.0	15.9	15.9	7.8
# Non-workers exceeds workers	5.2	6.5	6.4	5.8	5.5	3.0	2.8	1.7	2.6	2.7	2.4	1.1	1.5	3.4	2.4	2.4	1.1	1.5	3.4	3.4	2.4
# Workers exceeds non-workers	81.2	77.9	74.7	69.1	78.3	91.8	82.0	90.0	79.5	89.0	92.7	84.4	91.6	80.7	89.8	92.7	84.4	91.6	80.7	80.7	89.8
Household debt																					
No	40.9	55.8	42.0	54.8	43.9	31.3	31.2	52.4	43.8	34.4	27.5	50.8	25.2	41.6	31.2	27.5	50.8	25.2	41.6	41.6	31.2
Yes	59.1	44.2	58.0	45.2	56.1	68.7	68.8	47.6	56.2	65.6	72.5	49.2	74.8	58.4	68.8	72.5	49.2	74.8	58.4	58.4	68.8
Geographical areas																					
Urban	17.0	24.5	22.5	26.8	19.6	18.9	17.3	24.8	25.0	19.2	18.2	24.3	19.2	27.5	20.4	18.2	24.3	19.2	27.5	27.5	20.4
Rural	83.0	75.5	77.5	73.2	80.4	81.1	82.7	75.2	75.0	80.8	81.8	75.7	80.8	72.5	79.6	81.8	75.7	80.8	72.5	72.5	79.6

Relationship between selected variables and asset holding: Cross-sectional studies

In this section the relationship between related factors and levels of asset holdings is tested by using bivariate analysis. Asset score is divided into quintiles, which are referred to as the five levels of asset holding. The lowest quintile (Q1) represents the poorest group of households in terms of asset holding while the top quintile (Q5) is the richest group. This bivariate analysis focuses on these extreme (lowest and highest) quintiles. Selected characteristics of household heads, household characteristics, household debt, and geographical area are explored in relation to levels of asset holdings. The data from both SES and KDSS are employed.

The analysis of the relationship between selected characteristics of household heads and levels of asset holding reveals that gender, marital status, age, education, and occupation are significantly related to levels of asset holding (see Table 6.3-6.4).

SES data show that there was a statistically significant difference among types of household headships in terms of asset quintile. Table 6.3 indicates that single-headed households headed by males had highest proportion in the lowest quintile (Q1) (37.5% to 38.6%). Single-headed households with female heads accounted for 24.9% to 26.9% of lowest quintile households, and male-headed married-couple households made up 15.9% to 16.8%. However, married-couple households with female heads comprised higher proportions (22.8% to 24.3%) of highest quintile households, followed by married-couple households with male heads (21.7% to 22.6%), single-headed households with female heads (15.0% to 16.1%), and single-headed households with male heads (10.0% to 11.2%).

Turning to the KDSS data, it reveals that in the lowest quintile there were 24.3% to 28.9% of single-headed households with male heads, 17.5% to 21.5% of male-headed married-couple households, 16% to 19% of single-headed households

with female heads, and 16.2% to 17.2% of female-headed married-couple households. While in the highest quintile there were 20% to 23% of male-headed married-couple households, 19.3% to 21.0% of female-headed married-couple households, 15.3% to 20.4% of male single-headed households, and 15.2% to 18.1% of female single-headed households.

Bivariate analysis of the SES and KDSS data also indicates that the differences in the levels of asset holdings among the four groups of households with different headship are statistically significant. It is important to note that in the lowest quintile there were more single-headed households with male heads than there were other types of households.

With regard to the age of household heads, SES data show a significant difference between age groups and level of asset holdings. Households whose heads were aged less than 30 were more likely to be in the bottom quintile (34% to 35%). Households with heads ages 40-49 were less likely to be in the poorest group (14.5% to 15.4%). A corresponding pattern can be seen for the highest quintile. Household heads aged 40-59 were more likely to be in this quintile (24.2% to 25.5%) while those aged less than 30 were less likely to be (6.2% to 6.5%).

KDSS data show a similar relationship to the one found in the SES data between the age of the household head and the level of asset holdings. About one-third (30.5% to 37.2 %) of households with the youngest age group were in the lowest quintile whereas less than one-fifth (14.7% to 17.7%) of households with heads aged between 40-59 were in this lowest quintile, while 23.1% to 24.5% of this latter group were in the highest quintile.

Comparing age groups from both data sources, it is clear that over the period of the study, the youngest household heads were more likely to be in the lowest quintile. As age increased, the proportion in this quintile decreased, then rose again for household heads aged 60 and over.

Education of household heads plays an important role in household socioeconomic status. The SES data confirm that greatest proportion (35.1% to 45%) of households in the highest quintile comprised those with heads who had completed at least secondary school, followed by those whose heads had completed primary school (9.7% to 15.0%). Only 7.5% to 10.4% of households with heads who had never enrolled in school were in the highest quintile. Similarly, KDSS data reveal that slightly more than two-fifths (43.3% to 49.8%) of households headed by those who had completed at least secondary school, 16% to 19% of households with heads who had completed primary school, and only 5.4% to 6.6% of households with heads who had never enrolled in school were in the top quintile.

Inversely, SES data show that slightly more than one-third to nearly half (37% to 45.4%) of those households with heads who had never enrolled in school were in the lowest quintile whereas almost one-fifth to slightly more than one-fourth (17.0% to 26.2%) of households with heads who had completed primary school and only 7.9% to 10.8% those with heads who had completed at least secondary school were in this quintile. KDSS data correspond to SES data in this regard: 46.4% to 53.4% of households with heads who had never enrolled in school, 13.6% to 17.0% of households with heads who had completed primary school, and only 4.0% to 5.3% of those whose heads had completed at least secondary school were in this poorest quintile.

A clear relationship between educational level and level of asset holdings can be observed over the period of the study. Both sources of data reveal that the lower the level of education of the household head, the higher the percentage of households in the lowest quintile, and the higher the level of education the lower the percentage in the lowest quintile. Over time, the risk that those households with heads who had never enrolled in school would be disadvantaged in terms of asset holdings increased.

The relationship between occupation of household heads and asset holdings is also shown in Tables 6.3-6.4. The SES data show that households with heads engaged in agriculture were less likely to be in the highest quintile. Only 4.5%

to 7.3% of these households were in the highest quintile, compared to 24.2% to 26.5% of households whose heads worked in non-agricultural sectors and 20.3% to 22.1% of households whose heads did not work. KDSS findings agreed with the results from SES data, revealing that households whose heads worked in agriculture were disadvantaged in terms of asset holdings. Only 9.5% to 13.7% were in the highest quintile. Among those households whose heads were not working, the proportion in the highest quintile was 18.2% to 19.7%, while for those households whose heads were engaged in the non-agricultural sector the range was 31.8% to 36.5%.

SES data indicate that 22.9% to 28.4% of households whose heads worked in agriculture fell into the lowest quintile while 17.9% to 20.4% and 7.2% to 10.5% of, respectively, households whose heads were not working and households whose heads worked in the non-agricultural sector were in the lowest quintile.

It is clear that there is a significant relationship between occupation and level of asset holdings. Households whose heads engaged in agriculture were more likely to have fewer assets when compared to households whose heads engaged in other occupations.

With respect to household characteristics, this study considers household size and proportion of non-workers to workers as one such characteristic. To begin with the relationship between household size and level of asset holdings, SES data show that the smaller the household size the greater the risk of being in the lowest asset quintile. Among households with only 1 to 2 persons, the proportions of being at the lowest quintile were almost one-third (30.7% to 32.3%). In contrast, the larger the household size, the lower the risk of being in this lowest quintile. Thus, only 8.6% to 12.3% of the largest size households were in this quintile. This significant relationship is also observed from the KDSS, in which smaller households had the highest proportions in the poorest asset group (24.3% to 28.4%), while for the largest households the range was 17.3% to 19.2%.

It can be seen that both data sources reveal a significant relationship between household size and asset holdings. While the smallest households are more likely to be in the lowest quintile when compared to the larger households, the studies mentioned in chapter 2 find that the larger the household size the greater the risk of it being poor. Upon further investigation of the data set, I found that once household size reached 12 and greater the risk of being in the lowest quintile increased again.

Turning to the proportion of non-workers to workers, the SES data illustrate that households with similar numbers of non-workers and workers had the highest proportions in the poorest asset group (20.9% to 22.2%). Next came households whose workers exceeded non-workers (20.7% to 21.3%), followed by households with more non-workers than workers (16.3% to 16.8%). KDSS data also reveal that about one-fourth (23.8% to 26.6%) of households with a similar number of workers and non-workers in the poorest asset group, while the other two groups of households—those in which non-workers outnumbered workers and those in which workers outnumbered non-workers—showed lower proportions in the lowest quintile.

Although there is a significant relationship between the proportion of non-workers to workers and the level of asset holdings, it is important to note that if non-workers outnumber workers, households are less likely to be in the lowest quintile. However, this is a bivariate analysis, which does not control for other factors. Therefore, it may be confounded by several factors that the study needs to explore in multivariate analysis.

As for the relationship between present debt and level of asset holdings, the SES data show that those households that had access to any source of credit were less likely to be in the poorest group. For instance, about 14.8% to 16.2% of households with present debt were in the lowest quintile while 22.3% to 23.0% of households that had no access to any source of credit were in that quintile. KDSS data confirm these findings, indicating that the proportion of households with any debt fell into the highest quintile in greater proportions (21.1% to 20.6%) and into the lowest quintile in lower proportions (14.0% to 15.7%). These findings show a clear

relationship between household debt and level of asset holdings, in particular at the lowest quintile.

Household assets are also significantly affected by residential area. Over the period of study, households located in rural areas were disadvantaged in terms of the assets they held. For instance, the SES data show urban dwellers in higher proportions in the highest quintile (about one-fourth, 24.6% to 26.6%) whereas only 9.4% to 12.1% of those located in rural area were in this quintile. The KDSS results also support these findings and show that 41.6% to 48.1% of households located in urban area were had the most assets while only 13.1% to 15.0% of rural dwellers were in this quintile.

From the perspective of the lowest quintile, SES data indicate that 26.3% to 28.3% of rural households were in the poorest asset group while only 14.8% to 16.2% of urban households were in the same quintile. KDSS data show similar results, with 22.4% to 24.3% of rural households in the poorest quintile but only 2.7% to 3.3% of urban households in the same category.

Table 6.3: Relationship between independent variables and asset quintile, pooled SES data

Characteristics	2000					2002					2004				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
Gender and marital status***															
Male heads with spouse	16.6	19.7	20.5	21.0	22.2	16.8	19.6	20.8	21.2	21.7	15.9	19.2	20.7	21.6	22.6
Male heads without spouse	37.5	22.2	15.2	13.9	11.2	37.7	22.9	15.6	13.2	10.5	38.6	23.5	14.8	13.2	10.0
Female heads with spouse	14.9	18.7	20.8	22.9	22.8	15.9	18.7	19.1	22.0	24.3	14.3	18.3	21.7	22.8	23.0
Female heads without spouse	26.1	20.9	20.0	17.8	15.2	24.9	21.0	19.9	18.1	16.1	26.9	21.8	19.3	16.9	15.0
Age ***															
Less than 30 years	34.7	30.9	17.2	10.8	6.4	34.2	27.5	19.0	13.2	6.2	34.9	27.3	20.1	11.1	6.5
30-39 years	21.2	21.2	21.5	19.8	16.4	20.7	21.2	21.4	21.0	15.8	19.2	21.0	22.8	20.5	16.5
40-49 years	14.5	18.1	20.2	22.4	24.8	14.9	18.6	19.6	21.3	25.5	14.7	18.6	19.9	22.0	24.8
50-59 years	15.3	17.4	20.2	22.2	25.0	14.9	18.2	19.9	21.8	25.2	15.4	18.3	20.0	22.1	24.2
60 years and above	22.9	19.1	19.4	19.4	19.2	24.0	19.6	19.8	18.6	18.0	24.9	19.8	18.1	18.8	18.3
Education***															
Never enrolled in school	45.4	24.5	13.4	9.2	7.5	45.2	23.5	14.2	10.0	7.2	37.0	21.8	16.6	14.2	10.4
Primary school	26.2	29.0	19.8	15.3	9.7	25.4	25.3	23.7	15.8	9.7	17.0	19.6	23.3	24.7	15.4
Secondary school and higher	10.1	13.4	16.0	25.3	35.2	10.8	11.3	19.6	23.1	35.1	7.9	9.7	13.3	24.0	45.0
Occupation***															
Agriculture	28.4	25.9	22.8	15.6	7.3	33.8	26.4	21.9	13.3	4.5	32.7	26.7	20.2	15.1	5.4
Non-agriculture	14.4	17.3	18.9	22.9	26.5	14.5	18.3	20.0	22.5	24.7	14.8	18.2	20.6	22.2	24.2
Not working	21.9	18.4	18.6	19.1	22.1	23.3	19.3	18.3	18.8	20.3	23.8	19.1	17.9	18.0	21.3

Remark *** p<.001

Table 6.3: Relationship between independent variables and asset quintile, pooled SES data (Continued)

Characteristics	2000					2002					2004				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
Household size ***															
1-2	31.9	22.9	18.3	15.3	11.6	30.7	23.2	18.5	15.9	11.7	32.3	23.6	18.5	14.7	10.9
3-4	16.2	19.8	20.8	21.6	21.6	15.7	19.7	21.2	21.5	22.0	14.6	19.3	21.1	22.4	22.7
5-6	12.9	17.3	21.2	22.3	26.2	13.8	16.4	20.7	22.8	26.3	12.1	16.1	20.7	23.3	27.7
>=7	10.4	15.3	19.0	24.3	31.1	12.3	14.9	16.6	23.1	33.1	8.6	14.3	18.4	25.1	33.6
Proportion of non-workers to workers ****															
#Non-worker similar to workers	21.9	19.4	19.2	20.1	19.4	22.2	19.4	19.5	19.3	19.6	20.9	20.0	19.1	20.0	20.1
# Non-workers exceeds workers	16.3	18.8	19.5	20.6	24.8	16.8	18.3	19.5	21.6	23.7	16.5	18.2	20.2	21.1	24.0
# Workers exceeds non-workers	21.2	21.1	20.8	19.6	17.3	20.7	21.3	20.6	19.5	18.0	21.3	20.9	20.4	19.6	17.9
Household debt ***															
No	22.3	21.3	20.4	19.2	16.9	23.0	21.9	20.8	18.9	15.4	24.7	21.9	20.2	18.3	14.9
Yes	16.0	17.8	19.4	21.4	25.3	14.8	16.8	18.8	22.0	27.6	13.2	17.3	19.8	22.5	27.1
Geographical areas***															
Urban	14.8	17.6	18.9	22.1	26.6	15.6	17.4	18.9	22.0	26.1	16.2	17.6	20.0	21.5	24.6
Rural	28.3	23.9	21.8	16.5	9.4	27.1	24.3	21.8	16.8	10.0	26.3	24.0	20.0	17.6	12.1

Remark *** p<.001

Table 6.4: Relationship between independent variables and asset quintile, pooled KDSS data

Characteristics	2000					2002					2004				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
Gender and marital status***															
Male heads with spouse	21.5	18.8	19.9	19.7	20.1	20.5	18.3	19.3	20.4	21.4	17.5	18.4	20.2	21.2	22.8
Male heads without spouse	24.3	22.1	16.7	16.5	20.4	26.1	23.5	20.2	14.8	15.4	28.9	24.5	18.6	12.8	15.3
Female heads with spouse	16.2	19.9	22.4	20.5	21.0	16.9	21.4	21.0	21.5	19.2	17.2	20.8	21.7	21.0	19.3
Female heads without spouse	16.2	25.1	19.6	21.1	18.1	18.7	24.4	21.8	18.7	16.4	19.3	24.5	20.8	20.2	15.2
Age ***															
Less than 30 years	35.2	22.8	18.8	14.5	8.7	37.2	22.4	15.7	15.5	9.3	30.5	23.8	21.2	15.3	9.1
30-39 years	23.1	22.0	19.1	20.4	15.4	22.9	20.1	19.7	19.1	18.2	20.4	20.7	20.7	20.8	17.4
40-49 years	16.6	17.4	21.7	21.1	23.1	16.3	16.6	20.9	23.1	23.1	14.8	17.1	20.9	22.8	24.4
50-59 years	17.7	16.7	19.6	21.4	24.5	15.8	19.7	20.3	21.1	23.1	14.7	18.3	20.4	23.3	23.4
60 years and above	18.3	23.2	19.6	18.3	20.6	19.3	23.3	20.5	17.7	19.1	20.0	23.9	19.3	16.7	20.1
Education***															
Never enrolled in school	46.4	22.7	14.2	10.0	6.6	53.4	20.2	13.0	7.7	5.7	50.4	22.8	13.3	8.1	5.4
Primary school	17.0	22.0	22.7	22.1	16.2	14.5	22.2	23.2	22.5	17.6	13.6	21.9	23.1	22.8	18.6
Secondary school and higher	5.3	9.2	14.7	21.0	49.8	4.0	10.5	14.5	23.7	47.3	4.0	11.1	17.4	24.1	43.4
Occupation***															
Agriculture	27.0	26.3	20.2	16.9	9.5	28.4	21.3	20.3	18.8	11.3	22.9	21.2	21.4	20.7	13.7
Non-agriculture	10.5	16.0	19.4	22.1	31.8	7.6	13.9	19.0	23.3	36.3	7.2	12.2	19.4	24.8	36.5
Not working	20.0	26.0	19.3	16.5	18.2	20.4	24.2	19.1	16.6	19.7	17.9	21.8	20.4	19.4	20.6

Remark *** p<.001

Table 6.4: Relationship between independent variables and asset quintile, pooled KDSS data (Continued)

Characteristics	2000					2002					2004				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
Household size ***															
1-2	24.3	27.7	18.7	16.0	13.2	27.1	26.3	18.9	17.0	10.8	28.4	26.5	20.2	15.6	9.3
3-4	19.0	20.1	21.6	20.7	18.6	18.4	20.7	21.3	21.0	18.6	16.8	21.0	21.6	21.5	19.2
5-6	19.7	15.5	19.5	21.8	23.5	18.6	17.1	20.1	20.5	23.7	15.4	18.1	20.0	22.9	23.7
>=7	17.3	10.6	14.4	19.1	38.6	19.2	14.8	16.6	19.2	30.1	17.8	14.6	18.2	18.5	30.9
Proportion of non-workers to workers ****															
#Non-workers similar to workers	23.8	21.9	18.3	18.4	17.5	26.6	23.8	21.3	15.1	13.1	25.0	27.2	18.2	15.3	14.3
# Non-workers exceeds workers	20.6	20.9	19.6	18.0	20.9	19.0	25.0	21.1	19.4	15.5	17.2	26.6	20.0	20.3	15.9
# Workers exceeds non-workers	19.2	19.5	20.4	20.4	20.5	19.4	19.5	19.9	20.4	20.7	18.0	19.5	20.6	20.9	21.0
Household debt ***															
No	25.8	19.3	17.7	17.5	19.7	29.6	18.0	16.1	16.0	20.2	28.4	19.5	16.9	15.2	20.0
Yes	15.7	20.6	21.8	21.7	20.1	14.9	21.0	22.0	22.1	19.9	14.0	20.5	22.0	22.8	20.6
Geographical areas***															
Urban	3.0	10.0	15.2	23.6	48.1	2.7	12.2	16.3	25.3	43.5	3.3	12.1	18.3	24.6	41.6
Rural	24.3	22.5	21.2	19.0	13.1	24.1	21.9	20.9	18.7	14.4	22.4	22.3	20.9	19.4	15.0

Remark: *** p<.001

Determinants of asset holdings of households: Cross-sectional studies

The foregoing bivariate analysis has shown a relationship between related factors and asset holding without any control. Therefore, this section aims to estimate effect of households with different types of headship on the level of asset holdings by controlling for confounding factors. Multiple regression analysis is performed, controlling for year effect, selected characteristics of household heads, household characteristics, present debt, and residential area. Before running the model, multicollinearity was tested and all independent variables are accepted to be included into the model (see Appendix C). Findings from Tables 6.5-6.6 show that throughout the period of study, the type of household headship is related to asset holdings. In addition, selected characteristics of household heads, household characteristics, present debt, and residential area are associated with household asset holdings.

The study takes single-headed households with female heads as the reference category because it allows for a comparison of the level of asset holdings of female single-headed households with those of other types of households. The coefficient shows a clear picture in which married-female-headed households are better off than are any other type. Even compared to male-headed married-couple households, they are still better off in terms of asset holdings. For single-headed households, results show that households with single female heads are significantly worse off than households with married heads. Yet female single-headed households are better off than those with male heads who are not currently married.

In addition, other characteristics of household heads are significantly linked to asset holdings, namely, age, education, and occupation. The age of household heads is significantly related to asset holdings. When the age of the household head increases, the ability of household to hold assets also increases. Yet, once household heads reach age 60 and above, households are less likely to hold as many assets, as previously shown by descriptive statistics. It can be seen from the sign of its coefficient, which is inversely related to asset holdings when a square term of age is taken into consideration.

Education of household heads also played a crucial role in asset holdings. The coefficients show effect size of education, which implies that the higher the education the greater the opportunity of asset holding. It is clear that education is an important determinant of household assets.

As shown in Tables 6.5-6.6, households whose heads were engaged in the non-agricultural sector were more likely to hold greater assets than households whose heads were engaged in other occupations. Surprisingly, households with heads who did not work are not worse off than those who work in the agricultural sector. This may be as a result of support from outside the household, such as remittances or even pensions in the case of those who are retired. However, this study does not have sufficient information to explain this definitively.

Analysis of household characteristics as determinants of asset holdings found that household size and the proportion of non-workers to workers are both related to asset holdings of households. The relationship between household size and asset holdings reveals that when household size increases, households are more likely to hold greater assets, yet once a certain household size is reached, opportunity to hold assets is reduced, especially for those households with more than eleven members.

As mentioned earlier, it is clear that the proportion of non-workers to worker is associated with asset holdings. Increasing the proportion of non-workers to workers tends to have a negative impact on asset holdings, meaning that, everything being equal, if the number of non-workers in households exceeds the number of workers, the opportunity for households to hold greater assets decreases.

Household debt is also significantly related to level of asset holdings. The analysis shows that households with any kind of debt are more likely to hold greater assets than those with no debt. In addition, residential area is found to be statistically related to household asset holdings, with households in urban area more likely to hold larger assets than those in rural areas.

Table 6.5: Multiple regression estimates of asset holdings among household types, pooled SES data

Variables	B	S.E.	P-value
Year 2000®			
Year 2002	0.0203	0.0067	0.0026
Year 2004	0.2245	0.0067	0.0000
Female heads without spouse®			
Male heads with spouse	0.0588	0.0075	0.0000
Female heads with spouse	0.2046	0.0105	0.0000
Male heads without spouse	-0.0874	0.0111	0.0000
Age of household heads	0.0772	0.0011	0.0000
Age-squared	-0.0006	0.0000	0.0000
Never enrolled in school®			
Primary school	0.2695	0.0111	0.0000
Secondary and higher	1.1015	0.0124	0.0000
Inactive occupation ®			
Agriculture	-0.3688	0.0100	0.0000
Non-Agriculture	0.0194	0.0089	0.0291
Household size	0.2860	0.0052	0.0000
Household Size Squared	-0.0168	0.0006	0.0000
Proportion of non-workers to workers	-0.0117	0.0026	0.0000
Household debt	0.0923	0.0056	0.0000
Urban	0.3038	0.0058	0.0000
Constant	-3.4434	0.0316	0.0000
F		3217.2738***	
R squared			0.354
N			73,129

Table 6.6: Multiple regression estimates of asset holding among household types, pooled KDSS data

Variables	B	S.E.	p
Year 2000®			
Year 2002	0.0320	0.0124	0.0097
Year 2004	0.1031	0.0121	0.0000
Female heads without spouse®			
Male heads with spouse	0.0934	0.0142	0.0000
Female heads with spouse	0.1334	0.0181	0.0000
Male heads without spouse	-0.1114	0.0239	0.0000
Age of household heads	0.0505	0.0022	0.0000
Age-squared	-0.0004	0.0000	0.0000
Never enrolled in school®			
Primary school	0.5190	0.0133	0.0000
Secondary and higher	1.2422	0.0184	0.0000
Inactive occupation ®			
Agriculture	-0.1997	0.0191	0.0000
Non-Agriculture	0.1214	0.0202	0.0000
Household size	0.1262	0.0074	0.0000
Household Size Squared	-0.0033	0.0006	0.0000
Proportion of non-workers to workers	-0.0009	0.0001	0.0000
Household debt	0.0483	0.0104	0.0000
Urban	0.5507	0.0133	0.0000
Constant	-2.6016	0.0574	0.0000
F		939.5571***	
R squared		0.334683	
N		31,578	

Summary

The findings from both the SES and the KDSS reveal that there is a significantly difference among types of household headship in terms of asset holdings. Over the period of the study, households with female married heads were more likely to hold greater assets than were other types of households. Even compared with their male counterparts, they were still better off. Female single-headed households were also better off than were households of their male counterparts. This will be further discussed in chapter 8.

Apart from household headship, other factors are also associated with asset holdings. They are: selected characteristics of household heads, household

characteristics, household debt, and residential area. It can be seen that over the period 2000 to 2004, the variables of human capital of household heads such as education and occupation play a role in terms of the level of asset holdings of households. In addition, the role of household debt, which is viewed as the ability of the household to access credit, is significant in terms of assisting households to hold more assets. It is important to note that a disparity in development between rural and urban areas existed over the time of the study.

CHAPTER VII

HOUSEHOLD HEADSHIP AND ASSET HOLDING: A PANEL STUDY

This chapter uses longitudinal data to describe the association of household assets with different types of household headship. Pooled panel data from the Kanchanaburi Demographic Surveillance System in 2000 and 2004 are employed to better understand changes in asset holding when compared to cross-sectional data, which generally provides a figure at a point in time (Rose, 2000).

Therefore, households with the same head who has remained married or unmarried throughout 2000-2004 are included in analysis. In addition, items of household assets that were used to construct the asset index for cross-sectional analysis are used. Moreover, the same items of assets from 2000 and 2004 are pooled together, and an asset index is constructed at the same time in order to get the same weight. It also helps in illustrating any absolute change of household assets over time.

The same confounding factors are controlled, just as they are in pooled cross-sectional analysis. They include characteristics of household heads, household characteristics, household debt, and household location. The association among related factors and asset holding is also examined.

The findings from panel analysis are presented in three main sections. Initially, characteristics of sample households are demonstrated. Then bivariate analysis of asset holding by selected characteristics is investigated. Following this section, multivariate analysis is done in order to highlight the extent to which household headship is longitudinally associated with asset holding of households.

Characteristics of Sample Households

Although 8,282 households were followed from 2000 to 2004, only 5,397 households met the criteria of the study. These households were headed by the same persons from 2000 to 2004, and these household heads remained either married or unmarried throughout the study period. Figure 7.1 illustrates that the majority of the households were married-couple households with male heads (74.6%), followed by single-headed households with female heads (15.5%), married-couple households with female heads (6.7%), and single-headed households with male heads (3.2%), respectively.

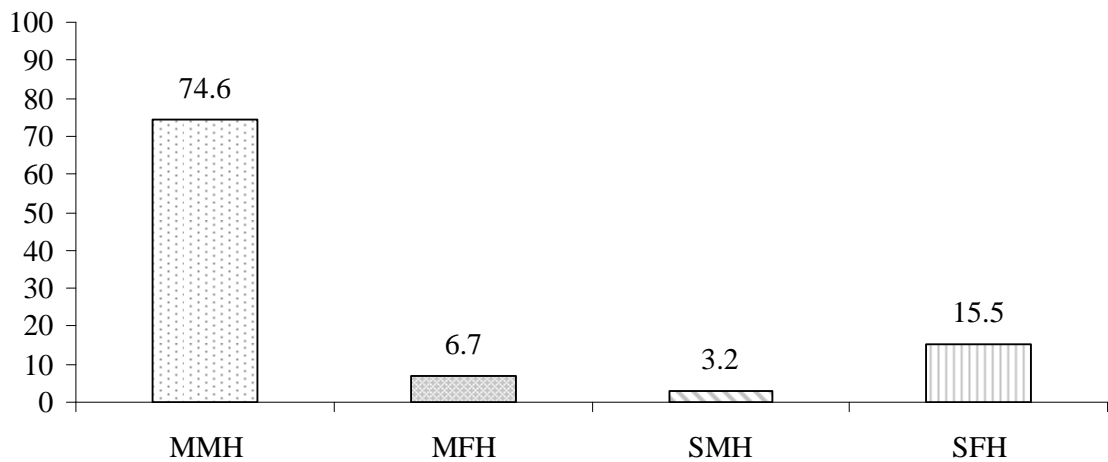


Figure 7.1: Proportion of household headship, KDSS panel data 2000 to 2004

With regard to the age of the household head, heads of single-headed households were older than heads of married-couple households. On average, heads of female single-headed households were the oldest, while heads of female married-couple households were the youngest. Since the same household head was used in both 2000 and 2004, the average age of the household head of every type of household increased by four years in 2004 (see Table 7.1).

The educational variable for household heads shows that 16% of households had never enrolled in school while nearly 68% had completed primary school, and 15% had completed at least secondary school. The educational level of the

household head did not change from 2000 to the end of the study in 2004. Data also show that female single-headed households are at a disadvantage in terms of education. One-third of female heads in single-headed households had never enrolled in school while 20% of women in households headed by males without a spouse, 16% of women in female-headed married-couple households, and 14% of men in male-headed married couple households had. It is important to note that the proportion of household heads who had not enrolled in school decreased while the proportion of those who had completed at least a secondary school increased. The possible explanation of this is that informal education, which has been offered to Thai people since the late 1970s, plays an important role, especially among the household heads (Office of The Non-Formal and Informal Education, 2009).

Most household heads were still working in 2004, 60% in agriculture, 20% in the non-agricultural sector, and 12% in unsalaried labor. In households in which the household heads do not work, single-headed households were disadvantaged when compared to other households. Notably, female single-headed households accounted for one-third, which is higher than for other types of household headship. By 2004 the proportion of households whose heads did not work had increased to 42%. This makes sense since as household heads get older, especially at they approach retirement age, they are more likely to be non-workers.

Household size generally changes a little. As shown in Table 7.1, the average household size was 3.9 in 2000 and increased to 4.7 in 2004. All types of household headship increased in household size. Single-headed households were smaller than married-couple households. Male single-headed households were the smallest, followed by female single-headed households, female married-couple households, and male married-couple households, respectively.

The proportion of non-workers to workers during the period of five year differed little (0.32 in 2000 and 0.20 in 2004). Since the same households were followed throughout the period of the study, reductions in this proportion were due to the maturing of household members. Female-headed households were more likely to

have a higher proportion of non-workers to workers than were their male counterparts. Moreover, households with female single heads had the highest proportion of non-workers to workers, followed by female married-couple households (see Table 7.1).

The issue of household debt is also taken into account since it can be seen as one form of credit that helps improve household socioeconomic status. Table 7.1 reveals that the proportion of households with present debt increased from 57% in 2000 and 74% in 2004. The possible explanation for this may be that the government launched additional a micro-credit project (called the "village fund" or "one village, one million [baht]") to help people to get loans from the formal sector at low interest rates (Community Development Department, 2003). Although the government has had a program for poverty alleviation since the 1960s, it was limited to those households under the poverty. The current government program, on the other had, allows all households access to the fund.

In terms of household headship, married-couple households made up a higher proportion of indebted households compared to single-headed households. However, percentages of indebted households increased for all household types from 2000 to 2004. For instance, the percentage of indebted male married-couple households increased from 61% in 2000 to 77% in 2004. Similarly, 57% of female married-couple households had debt in 2000 while 81% had debt in 2004. This pattern is also found in single-headed households. Indebted male single-headed households increased from 38% to 54%, and. indebted female single-headed households increased from 44% to 74% (see Table 7.1).

With regard to residential area, four-fifths of households in this study were located in rural areas. Among households in urban areas, the proportion of female-headed households was greater than that of male-headed households. Moreover, the percentage of single-headed households was higher than that of married-couple households in urban areas (see Table 7.1). There is no change in location because the same households were followed over the study period.

Table 7.1: Characteristics of sample households, panel data from KDSS 2000 and 2004

	2000						2004					
	Male			Female			Male			Female		
	MMH	SMH	MFH	SFH	%	N	MMH	SMH	MFH	SFH	%	N
Number	4,026	175	360	836		5,397	4,026	175	360	836		5,397
Percent	74.6	3.2	6.7	15.5	100.0		74.6	3.2	6.7	15.5	100.0	
Age (Average)	46.5	55.5	41.0	56.2	48.0		50.5	59.5	45.0	60.2	52.0	
Less than 30 years	6.7	9.7	11.7	1.1	6.2	336	1.89	4.57	4.44	0.12	1.87	101
30-39 years	25.2	10.9	31.4	8.7	22.6	1220	18.26	10.29	25.00	4.78	16.36	883
40-49 years	31.4	14.3	37.2	20.7	29.6	1595	31.77	14.29	41.67	15.79	29.39	1586
50-59 years	20.2	18.9	15.6	26.7	20.8	1125	23.99	14.29	21.67	26.20	23.87	1288
60 years and above	16.6	46.3	4.2	42.8	20.8	1121	24.09	56.57	7.22	53.11	28.52	1539
Education												
Never enrolled in school	13.7	20.0	15.6	31.6	16.8	908	11.6	14.3	11.9	29.4	14.5	780
Primary school	69.1	62.3	70.0	61.8	67.8	3659	68.7	65.7	72.2	63.2	67.9	3667
Secondary school and higher	17.2	17.7	14.4	6.6	15.4	830	19.8	20.0	15.8	7.4	17.6	950
Occupation												
Not working	6.5	28.6	18.6	33.4	12.2	657	9.2	37.1	18.1	42.1	15.8	854
Agriculture	64.6	45.7	48.9	41.7	59.4	3204	59.0	34.9	44.2	35.5	53.6	2891
Non-agriculture	29.0	25.7	32.5	24.9	28.5	1536	31.8	28.0	37.8	22.4	30.6	1652

Table 7.1: Characteristics of sample households, panel data KDSS 2000 and 2004 (continued)

	2000						2004					
	Male			Female			Male			Female		
	MMH	SMH	MFH	SFH	%	N	MMH	SMH	MFH	SFH	%	N
Household size (Average)	4.1	3.0	3.6	3.2	3.9	3.9	4.9	3.9	4.7	4.1	4.7	4.7
1-2.	13.3	49.7	24.4	42.5	19.7	1064	7.0	34.3	11.4	28.9	11.6	625
3-4	54.0	28.0	51.7	35.9	50.2	2711	42.9	29.1	46.9	33.1	41.2	2225
5-6	25.5	16.0	18.9	16.5	23.4	1261	32.1	22.3	22.8	23.0	29.7	1604
>=7	7.2	6.3	5.0	5.1	6.7	361	18.0	14.3	18.9	15.0	17.5	943
Proportion of non-workers to workers	0.3	0.4	0.3	0.4	0.3		0.2	0.3	0.2	0.3	0.2	
#Non-workers similar to workers	13.2	17.1	18.1	24.9	15.4	833	4.3	18.9	6.4	16.7	6.8	369
# Non-workers exceed workers	4.4	5.7	4.4	5.7	4.7	252	3.1	1.1	1.7	3.5	3.0	162
# Workers exceed non-workers	82.4	77.1	77.5	69.4	79.9	4312	92.6	80.0	91.9	79.8	90.2	4866
Household debt												
No	39.3	61.7	43.1	55.9	42.8	2312	22.8	46.3	19.4	39.7	26.0	1401
Yes	60.7	38.3	56.9	44.1	57.2	3085	77.2	53.7	80.6	60.3	74.0	3996
Geographical areas												
Urban	17.2	22.3	23.3	26.3	19.2	1037	17.2	22.3	23.3	26.3	19.2	1037
Rural	82.8	77.7	76.7	73.7	80.8	4360	82.8	77.7	76.7	73.7	80.8	4360

Description of asset holding across household headship: A panel study

Figure 7.2 and 7.3 provide a snapshot of asset differences across types of household headship in the panel data of the Kanchanaburi Demographic Surveillance System. There is a significant difference among household headship types in terms of asset holding. Although all types of households were able to gain more assets over time, there are some differences among the households. For example, married-couple households were more likely to hold greater assets than were single-headed households. When the gender of the household head is taken into account, among married-couple households, those households with female heads showed a greater difference in assets between 2000 and 2004 than did their male counterparts. The same pattern is also observed from the single headed- households (Figure 8.2).

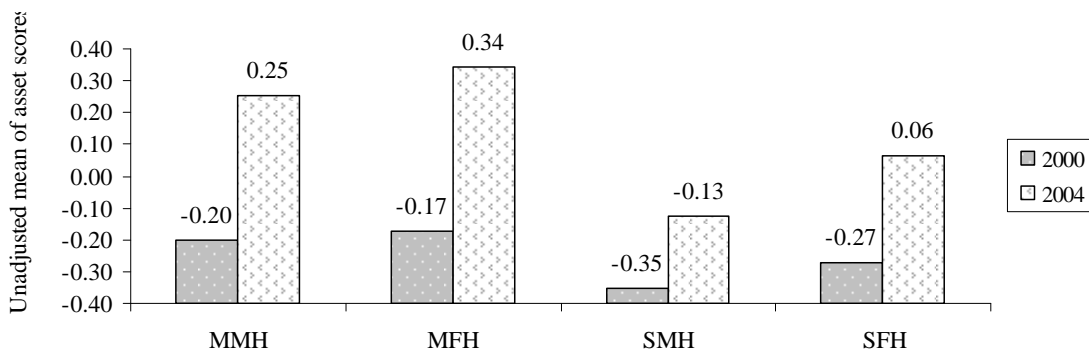


Figure 7.2: Mean score of assets across household headship types between 2000 and 2004

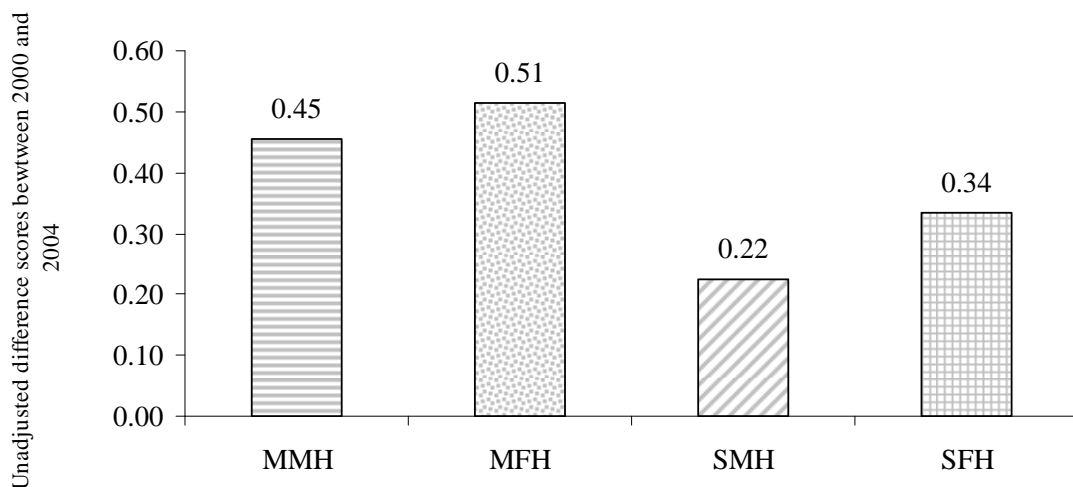


Figure 7.3: Difference in Mean Score of Assets, 2000 and 2004

Relationship between household headship and level of asset holding: A Panel Study

To answer the research question concerning patterns of asset holding across household headship, the relationship between levels of asset holding and household headship as well as some selected characteristics is examined by using cross-tabulations and chi-square analyses. Table 7.2 gives the proportion of households of various types of headship in each quintile in 2000 and 2004, showing that throughout the period of the study, married couple households were more likely to escape from the bottom quintile than were single-headed households.

Among married couple households, female heads were less likely to be in the bottom quintile than were their male counterparts. The bottom quintile, which is an arbitrary relative poverty floor, contained almost 26% of male married-couple households in 2000 compared to 22% of female married-couple households. Although the proportion of households in the bottom quintile decreased from 26% to 14%, the proportion of households with male heads in this quintile was still higher than for households with female heads.

For single-headed households, the proportion of male single-headed households in the lowest quintile was higher than for households with female heads. It reveals that proportion of households with male heads at the lowest quintile is higher than that of female heads. In 2000, 34% of single-headed households with male heads were in the lowest quintile compared to 25% of those headed by females. This pattern can also be seen in 2004, when 27% percent of male single-headed household were in the bottom quintile, while only 19% of female single-headed households were.

In brief, although the percentage of households in lower quintiles has been reduced, those households at the greatest risk of being in the bottom quintile are male single-headed households. Whether or not women are part of a married-couple

household or a single-headed one, when compared to their male counterparts, female heads are better off.

Relationship between selected variables and asset holding: A Panel Study

In addition to the aspects household headship covered above, other variables are also taken into account. As shown in Table 7.2, the age of household heads makes a difference in terms of asset holding. Those households with younger heads are more likely to have fewer assets, and as the age of the household head increases so do its assets. However, as the household head reaches 60 and above, household assets decrease again.

For education, a linear relationship between the education of the household head and asset holding can be seen. There is a significant difference among households with different levels of education; the greater the education, the better the opportunity to hold assets (see Table 7.2).

Occupation, which is categorized into three groups, shows that households with heads who work in nonagricultural sectors are more likely to hold assets than are other households. Surprisingly, households with heads who do not work for wages are better off than those households whose heads work in the agricultural sector (see Table 7.2).

Household size, which is divided into four groups, illustrates a significant difference among households with different numbers of members. Table 7.2 indicates that the greater the number of household members, the greater the opportunity to hold more assets. However, a more detailed examination of household size shows that households with twelve members or more were more likely to be in the lowest quintile.

The proportion of non-workers to workers reveals that households in which the number of workers exceeds non-workers are more likely to hold more assets. There is hardly any difference between those households that have a similar number of workers and non-workers and those in which the number of non-workers is greater than workers.

Debt is taken into consideration due to the fact that it is one form of credit that helps improve household living conditions. Therefore, the analysis takes into account present household debt. Table 7.2 illustrates a significant relationship between household debt and household assets, showing that households with present debt are more likely to hold more assets.

As shown in Table 7.2, there is also a significant difference between household location and household assets. Urban households are more likely to hold greater assets than those households located in rural areas.

Table 7.2: Relationship between independent variables and asset quintile

Characteristics	2000					2004				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
Gender and marital										
Male heads with spouse	25.5	23.2	23.4	15.2	12.7	13.1	14.8	16.7	26.3	29.0
Female heads with spouse	23.3	24.4	22.2	15.8	14.4	9.7	13.3	18.3	24.9	33.8
Male heads without spouse	34.3	25.1	17.1	12.0	11.4	26.9	20.6	17.1	18.3	17.1
Female heads without spouse	27.2	28.6	21.2	12.7	10.4	18.5	20.9	18.2	21.9	20.5
Age ***										
Less than 30 years	46.4	22.0	15.5	11.3	4.8	24.8	14.9	17.8	28.7	13.9
30-39 years	29.9	22.5	23.2	14.6	9.8	15.3	13.5	16.6	28.8	25.8
40-49 years	20.4	23.6	25.0	16.7	14.3	11.5	13.5	16.4	26.8	31.8
50-59 years	21.3	23.7	24.5	15.1	15.3	12.9	14.8	18.0	25.8	28.5
60 years and above	27.7	28.1	19.6	12.7	11.9	16.7	20.7	17.1	21.0	24.6
Education***										
Never enrolled in school	54.9	23.8	12.8	5.5	3.1	38.7	21.4	15.9	15.5	8.6
Primary school	22.6	27.1	25.7	15.0	9.6	11.8	16.9	19.1	28.1	24.1
Secondary school and higher	8.7	11.9	20.8	23.5	35.1	3.4	7.5	10.0	22.3	56.8
Occupation***										
Agriculture	27.7	26.9	19.2	12.6	13.5	18.0	20.4	17.6	19.4	24.6
Non-agriculture	32.0	27.1	22.9	11.9	6.1	18.6	18.2	18.8	26.9	17.5
Not work	12.4	17.1	24.0	21.5	25.0	4.5	9.5	13.7	25.4	46.9

Table 7.2: Relationship between independent variables and asset quintile (Continued)

Characteristics	2000					2004				
	Q1	Q2	Q3	Q4	Q5	Q1	Q2	Q3	Q4	Q5
Household size ***										
1-2	34.6	28.4	18.2	9.2	9.6	25.3	25.6	17.1	13.6	18.4
3-4	24.9	24.4	23.7	15.2	11.8	12.3	15.9	18.3	27.0	26.5
5-6	22.9	22.3	24.9	16.9	13.0	11.8	13.8	16.1	29.3	29.0
>=7	18.6	16.9	21.6	19.7	23.3	15.5	12.7	15.6	22.1	34.1
Proportion of non-workers										
#Non-workers similar to	30.6	25.1	18.6	13.8	11.9	20.1	24.7	16.0	17.3	22.0
# Non-worker exceed workers	36.9	23.4	17.9	10.3	11.5	17.3	23.5	20.4	19.8	19.1
# Workers exceed non-	24.3	24.1	23.9	15.2	12.5	13.6	15.0	17.0	26.0	28.3
Household debt ***										
No	30.5	22.0	20.3	13.8	13.3	22.3	15.5	13.8	17.7	30.7
Yes	22.4	25.8	24.7	15.4	11.7	11.4	16.0	18.2	27.9	26.5
Geographical area***										
Urban	8.0	14.6	20.6	22.0	34.8	3.2	7.7	11.2	21.6	56.3
Rural	30.1	26.5	23.3	13.0	7.1	16.8	17.8	18.5	26.1	20.8
Occupation***										

Remark *** p<.001

Random effect regression estimates of asset holding among household headship

This section estimates asset holding among types of household headship by applying multiple regression with random effects. Based upon the hypothesis of the study, a model is generated, demonstrating the effects of household headship while controlling for other variables by using female single-headed households as the reference group. This allows single-headed households with female heads to be compared with other types of households.

In the model, the study examines the impact of household headship on asset holding when controlling for year of study, selected characteristics of household heads, household characteristics, household debt, and geographical area. The variation found in the model reflects the differences in asset holding across types of household headship. Multivariate analyses provide additional support for the conceptual model and the observed relationships that have been discussed.

Panel data allows the study to explore absolute changes in asset holding over a period of time by controlling for time effect, shown as the difference in household assets between 2000 and 2004. If the coefficient estimates for year show a positive sign, it implies that over time the household was more likely to hold greater assets.

Table 7.3 shows that households hold had more assets at the end of the study. However, there is a significant difference in asset holding among household headship. The result shows that the variable of household headship, which is a combination of gender and marital status, matters when other control variables are taken into account. It illustrates that single-headed households with female heads are significantly different from other types of households. The coefficient shows that single-headed households with female heads were less likely to hold greater assets when compared to married-couple households, whether headed by a male or a female. Yet, they were more likely to hold larger assets than their male counterparts. In addition, the coefficient from the model also reveals that among married-couple households, households with female heads were more likely to hold larger assets than those of male heads.

The estimate of the effect of age and age-squared reveals that when the age of household heads increased the greater the probability of a household to hold assets. However, at a certain age of the household head, the opportunity of holding assets declines, supporting the relevance of life cycle on wealth. Most previous studies have found that the relationship between age and asset holding is "hump-shaped," and this study reveals a similar pattern.

Education of the household head shows a positive and significant effect on asset holding. Comparing households with heads who had never enrolled in school and those who had completed primary school as well as those who had completed at least secondary school, it is clear that the higher the education the greater the probability of holding assets. As shown in Table 8.3, the higher the education the greater the effect on the size of assets.

Occupational status of household heads also had a significant effect on assets. For example, households with heads who engaged in agriculture were less likely to hold assets when compared to heads who did not work for wages. But household heads who worked in the non-agricultural sector had a higher probability of holding assets compared to those who did not work.

The household size and its squared term show significant associations with asset holding in terms of a parabolic shape, implying that at a certain size of household has the strongest effect on asset holding.

The study also explores the effect of the proportion of non-workers to workers in a household on asset holding. Results show that a higher proportion of non-workers to workers had a negative effect on the probability of a household to hold assets.

Results also indicate that the present debt of household plays a crucial role in asset holding. Its coefficient shows a positive sign, which implies that households that can access credit are more likely to hold assets compared with those households that cannot.

In relation to geographical area, this study found that being an urban household increased the amount of assets compared to those of rural households. This finding supports previous studies that found that urban dwellers had greater assets than did rural dwellers.

Table 7.3: Random Effect Regression Estimates of Asset Holding among Household Headship

Variables	B	S.E.	p
Year 2000®			
Year 2004	0.2992	0.0109	0.0000
Female heads without spouse®			
Male heads with spouse	0.0688	0.0311	0.0270
Female heads with spouse	0.1610	0.0494	0.0010
Male heads without spouse	-0.1470	0.0632	0.0200
Age of household heads	0.0586	0.0047	0.0000
Age-squared	-0.0005	0.0000	0.0000
Never enrolled in school®			
Primary school	0.3290	0.0270	0.0000
Secondary and higher	0.9465	0.0366	0.0000
Not working ®			
Agriculture	-0.1231	0.0271	0.0000
Non-Agriculture	0.0579	0.0290	0.0460
Household size	0.0876	0.0118	0.0000
Household size squared	-0.0014	0.0009	0.1320
Proportion of non-workers to workers	-0.0597	0.0155	0.0000
Access to credit	-0.0067	0.0144	0.6440
Urban	0.6936	0.0277	0.0000
Constant	-2.5898	0.1268	0.0000
F		4955.74***	
R square			0.3316
Number of observations			10797
Number of groups			5399

® = Reference group

Summary

It can be concluded that panel data from the Kanchanaburi Demographic Surveillance System (KDSS) gives a clear estimate of asset holding over time. The study utilizes random effect regression to determine what factors have a significant impact on asset holding among households over time.

This study found that assets increase with time. Relative to type of household headship, it reveals that female-headed households are better off than their male counterparts in terms of asset holding when controlling for other variables. For married-couple household, it is also found that female-headed households hold more assets than do male-headed households. Among single-headed households, female-headed households are better off than male-headed ones. These findings confirm the findings from cross-sectional studies. More explanation on this issue will be discussed in the next chapter. Apart from household headship, other variables also play a role in explaining asset holdings of households as found in a previous chapter.

CHAPTER VIII

DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

Introduction

Since the mid-1970s there has been a prevailing discourse on the feminization of poverty, including the idea that the feminization of poverty is linked to the feminization of household headship (Chant, 2006). At the same time, there is an increasing number of female-headed households in both developed and developing countries (Bongaarts, 2001; Kuijsten, 1995). Thailand has also experienced this phenomenon; the proportion of female-headed households, which accounted for 15% of households in 1980, had reached 32% by 2004. As a result, female-headed households have been paid considerable attention by many scholars for several decades.

Evidence from most studies suggests that women are disadvantaged relative to men (Dreze & Srinivasan, 1997; Panda, 1995; Posel, 2001; Schmidt & Sevak, 2006) while some studies argue that female-headed households are not necessarily worse off economically than are their male counterparts (Loi, 1996; Waite, 2000). However, it remains unclear just how widespread this phenomenon is. In addition, little is known about the economic situation of female-headed households in Thailand.

Therefore, this study explores the trends and patterns in asset holding among different types of household headship. In addition, it examines the association between household headship and sociodemographic characteristics of household heads, household characteristics, residential area, and level of asset holdings of households. This discussion begins with a summary of key findings. Subsequently, the discussion of the association of household headship and asset holding of households is

organized in relation to the hypotheses of the study. Lastly, suggestions for further study are presented along with policy recommendations and conclusions.

Summary of the Key Findings

Trends and patterns of asset holdings among household headships

The analysis of trends and patterns of asset holding among types of household headship at the national level and from the Kanchanaburi Demographic Surveillance System show a significant difference. In both the cross-sectional and the panel study results reveal that female-headed married-couple households hold the most assets, followed by male-headed married-couple households, female single-headed-households, and male-single headed households, respectively.

Taking all types of household headship into consideration, it was found that married-couple households hold more assets than do single-headed households. For married-couple households, it can be concluded that households that are female-headed are better off than those headed by their male counterparts. Moreover, a comparison of male- and female single-headed households shows the same trends of asset holding as seen in married-couple households.

The findings regarding trends in asset holdings from descriptive analysis support the first hypothesis but do not support the second and third hypotheses. This is due to the fact that married-couple households are better off than single-headed households while there is a significant difference in asset holdings between male-headed and female-headed married-couple households as well as single-headed households.

Extreme quintiles of asset holding by type of household headship

The distribution of household assets is explored by taking quintiles of asset holdings into consideration. This study focuses the bottom quintile of the distribution of asset holding, which is assumed to contain the poorest households.

With regard to patterns of asset holding, throughout the period of the study single-headed households were more likely to be in the poorest quintile compared to married-couple households. Male-headed married-couple households were more likely than were their female counterparts of being in the bottom quintile. In addition, male single-headed households were also more likely to be in the poorest quintile, in clear contrast to female single-headed households.

Factors affecting household asset holdings

Multiple regression analyses, after controlling for other confounding factors, confirm that asset holding of households differed according to type of household headship, revealing that female-headed married-couple households were better off than were other households and held significantly more assets than did their male-headed married-couple counterparts. Among single-headed households, there was a similar gender pattern of asset holding as found in married-couple households. Thus, asset holding of a household can be explained by the type of household headship. This suggests that the hypothesis on differences in asset holdings between married-couple and single-headed households is fully supported, but it does not support the hypotheses on differences in asset holdings between female- and male-headed married-couple households nor single-headed households.

Apart from type of household headship, other factors also contribute to explaining asset holding of households, such as other characteristics of household heads, household characteristics, household debt, and geographical area.

Age of household head

The relationship between age and asset holdings can be represented as hump shaped. This is consistent with the concept of life cycle as it relates to wealth, which states that the older the household head the more assets the household will hold. However, once the household head reaches a certain age the opportunity for accumulating assets declines. This is based on the fact that households tend to hold more assets during the working years of the household head and tends to draw on them in old age, beginning at retirement (Keister & Moller, 2000; King & Dicks-Mireaux, 1982; Matteo, 1997).

Education and occupation of household head

With regard to education and occupation of household heads, the study finds that these factors had a significant effect on assets held. Households with heads who had completed primary education were less likely to hold assets compared to those who had completed higher levels of education. Occupation also played a positive role in asset holding. Those who had no occupation and those who engaged in agriculture were less likely to accumulate assets.

A possible explanation is that education and occupation are generally considered as human capital variables. The concept of human capital points out that those who have higher human capital can perform activities within a limited time in a more efficient way than can those who have less human capital. Moreover, human capital has played a crucial role in the development process and it is often viewed as the most important determinant of wages (Heckman, 2000; Kosempel, 2004; Seguino, 2000). Therefore, the differences in human capital among heads of households will provide different opportunities to their members. Education and occupation are also viewed as strategies to enhance skills and productivity, which help people to improve their economic status (Lloyd & Blanc, 1996; Oxaal, 1997; Terajima, 2004; Yamokoski & Keister, 2006; Zhan, 2007).

Household characteristics

Household size and its squared terms are associated with asset holdings. The relationship is in a parabolic shape, implying that at a certain size the household has the strongest effect on asset holdings. This result is consistent with previous studies that found that the greater the household size the fewer assets held. (Espenshade, Kamenske, & Turchi, 1983; Havanon, Knodel, & Sittitrai, 1990; Lanjouw & Ravallion, 1995; Waite, 2000). However, previous studies have rarely considered squared-terms of household size.

This study also found that the proportion of non-workers to workers is associated with household assets. It implies that the more non-workers in a household the less likely it is to hold assets, which is consistent with previous studies that found that the number of workers is associated with the amount of asset holdings and that the number of workers is more important than the number of children when considering the economic status of households (Posel, 2001).

Present debt

Household debt is viewed as a form of credit that a household can use for investment or income generation. It also helps households to overcome economic hardship as well as increase the well-being of household members (Cheston & Kuhn, 2002; Khandker, 2003; United Nations Population Fund, 2007). This study found that household debt increased its assets. This is consistent with a previous study that found a high correlation between household debt and assets (Thongthai, 2007). It also confirms the claim that the ability of households to access credit still plays a vital role in explaining asset holding of households.

Area of residence

In terms of residential area, urban households were more likely to hold assets than were rural households. The Ministry of Interior has classified municipal areas (urban) and non-municipal areas (rural) in Thailand based upon population density and level of economic development. The findings here reflect a disparity in the level of economic development between urban and rural that has been noted in previous studies (Jitsuchon, Plangpraphan, & Kakwani, 2006; Jones & Kodras, 1990; Leyshon & Thrift, 1995; Fisher & Weber, 2004; Social Statistics Division, 2004). The present study measures household assets in terms of household durable goods, which may reflect the needs of urban dwellers compared to those living in rural areas. It is important to note that existing development disparities need to find an appropriate strategy to reduce the asset gap between rural and urban areas.

Discussion

The results of the cross-sectional analysis partially support the findings of previous studies that claim that single-headed households are worse off than married-couple households. Controlled for other variables, households with male heads without a spouse have less ability to hold assets than do other types of household. This fully supports the first hypothesis, which emphasizes the difference in assets held among married-couple households and single-headed households. Yet, the second and the third hypotheses are rejected due to the fact that female-headed married-couple households were better off than were married-couple households headed by males and that female single-headed household also did better than did male single-headed households. It is important to note that Thai gender seems to not be as dominant an organizing principle as relative household livelihood.

Some studies in Thailand have focused on household living conditions among male- and female-headed households, but their results are opposite from the results found here. One such study found that among the three types of households, the

percentage of female-headed households at the lowest level was higher than it was for households are headed by males (Social Statistics Division, 2002). The different results from the present study are likely due to different definitions of household headship and measures.

First of all, the previous study has done by Social Statistics Division in 2002 looked at household heads in terms of gender only, thus grouping together both single-headed households and married-couple households. The present study goes one step further and examines the effect of household headship by defining headship based upon gender as well as marital status, which characterizes household headship more precisely.

Secondly, measures used in the 2002 study and the one here differ in terms of data and methods. The present study includes information on durable goods and housing material and uses a technique of Dichotomous Hierarchical Order Probit (DiHOPIT). The earlier study measured household living conditions by using housing characteristics, household durable goods, cooking fuel, toilet, drinking water, and water supply and assigning weights to each of items. Moreover, the data used for analysis were also different. The present study employs both cross-sectional and longitudinal data while the previous one utilizes only cross-sectional data. Methods for data analysis are also different. The present study controls for other variables while the previous study does not. In addition, measurement of assets differed. As noted, this study applied a Dichotomous Hierarchical Ordered Probit Model, which took into account not only whether a household had or did not have each particular asset, but also the quantity of such items. This can capture the changes in assets that happen over time. In addition, using the asset-based approach may reflect the ability of females to control resources better than males do (Cheston & Kuhn, 2002).

Returning to the gender issue, which is a focus of this study, it is now possible to describe why households with male heads have significantly lower ability to hold assets compared to households headed by their female counterparts. The findings from this study seem to disagree with the concept of feminization of poverty,

which is believed to be linked to the feminization of household headship and states that females are economically disadvantaged relative to men. Previous studies make this claim and document cases in which female-headed households are economically worse off than are male-headed ones (Pressman, 2002, 2003; Schmidt & Sevak, 2006). But the present study does not support this conclusion. The difference may be due to the fact that this concept is principally Euro-American centered and more likely to ignore culture differences in the way that gender is differently constructed in different societies. Maybe the Thai case is unique because Thai gender is much more context sensitive than its Western-constructed counterpart (Esterik, 2000). Therefore, gender in Thailand cannot be inherently "Western" on account of a Thai logic and ideology that differs in terms of basic assumptions and practices. In addition, employing a Western concept of gender makes it difficult to adequately address questions regarding Thai gender. Thus, a new approach in explaining gender in the Thai context is called for.

An anthropological view has also noted that the historical figures of gender can intervene in gender role in contemporary households (Esterik, 2000). This may not be the exception of Thai gender in households where throughout Thai history females have played an important role in economic activities of the household, in particular in rural areas, home to powerful female figures who are responsible for duties both inside and outside households. Women have worked besides men in the fields and managed markets as well contributed to decision making within the household. They have also taken responsibility for the well-being of the household members (Esterik, 2000; Kirsch, 1982).

Evidence from previous studies also points out that women's and men's statuses in Thailand do not differ substantially (Limanonda, 2000; Richter, 1992; Richter & Havanon, 1994; Yoddumnern-Attig, 1992). For example, gender statistics from the World Bank show little difference in literacy rates, school enrollment rates, and labor participation rate between males and females (Richter, 1992; The World Bank, 2004; Yoddumnern-Attig, 1992).

Apart from the variables mentioned above, other variables such as education, occupation, and opportunities to borrow money play a role in explaining possible mechanisms that help reduce the gender gap as well as the economic gap among households. Previous studies indicate the positive relationship between education, job training, and occupational advancement and the enhancement of economic status as well as the narrowing of the gender gap (Yamokoski & Keister, 2006; Zhan, 2007). Moreover, borrowing opportunities also play a crucial role in poverty reduction, which has been used by many organizations such as the World Bank, UNDP, and UNIFEM. Borrowing opportunity is also used as a strategy to empower women (Cheston & Kuhn, 2002).

Conclusion

The present study examines the association of household headship and asset holding and finds that household headship was associated with household assets. Taking household characteristics and household durable goods into account in order to measure household assets, it is found that married-couple households are better off than single-headed households. Both married-couple and single-headed households present the same gendered pattern of asset holding. These findings seem to disagree with the concept "feminization of poverty" in the Thai context.

During the past few decades, studies of household headship and issues related to poverty have mostly found that female-headed households are economically worse off than male-headed households. The empirical findings of this study suggest that whether married-couple or single-headed households, female heads are not necessarily worse off than their male counterparts.

Policy Recommendations

According to the findings from the present study, it is important to identify some implications for education and interventions to reduce gender and asset poverty of households.

The present study classifies household headship into four groups, based on gender and marital status, and reveals that male single-headed households were economically worse off than were other types of households. Therefore, poverty reduction policies should not focus only on female-headed households but also male single-headed households and other asset-poor households.

Findings from this study also further contribute to the literature by shedding light on the roles of education, occupation, and opportunities to access formal credit in reducing the gender gap as well as the poverty gap among households. Results of this study provide empirical evidence that not only may assets help improve human capital development, but human development in a household also improves household assets. In consideration of these points, the role of the government in influencing occupational and educational attainment should be considered.

The disparity of development between urban and rural areas still existed over the period of the study. Policy on poverty reduction should focus on those living in rural areas.

Suggestions for Further Study

Although the findings of this study partially support the hypotheses of the study and contribute to discerning the association between household headship and asset holding, certain limitations need to be acknowledged. Firstly, although this study employs both cross-sectional and panel designs, the time period for the panel data is quite short. It may hardly capture absolute changes of household assets over time.

Because household dynamics are a process, a short-term period may not reflect its changes. Moreover, the length of time as household head is unknown for this study. Further studies on this issue should consider the length of time one has been a household head as well as the initial household composition in order to clarify the causal relationships among variables in the model.

Secondly, measurement of assets needs to include the net worth of assets. They are, namely, the household's main residence and second residence, other rental property and land contract holdings, equity in cars, farms, or businesses, stocks, mutual funds, investment trusts, savings and checking accounts, money market funds, certificates of deposit, government savings bonds, and treasury bills, corporate bonds, cash value of life insurance policies, valuable collections for investment purposes, and rights in a trust or estate, along with mortgage debt, credit card debt, and other debt.

Thirdly, the current study focuses on household assets, which may reflect the latent ability of female heads of households to control household resources. Thus, variables with regard to the ability of females and males to control resources, such as saving behavior and management skills, need to be included into the analysis in further studies.

Fourthly, in terms of measures that are related to household poverty, assets need to be compared with those measures, such as net income and net consumption expenditure.

Finally, further studies should be comparative; cross-national studies are especially needed.

BIBLIOGRAPHY

- Adams, R. H. (1996). *REMITTANCES, INCOME DISTRIBUTION, AND RURAL ASSET ACCUMULATION* (DISCUSSION PAPER No. 17). Washington, D.C.: Food Consumption and Nutrition Division, International Food Policy Research Institute.
- Adams, R. H. (2006). *Remittances and Poverty in Ghana* (Working Papers). Washington, DC: World Bank.
- Antonopoulos, R., & Floro, M. S. (2005). *Asset Ownership along Gender Lines: Evidence from Thailand* (Working Paper No. 418). New York: The Levy Economics Institute.
- Appleton, S. (1996). *Women-Headed Households and Household Welfare: An Empirical Deconstruction for Uganda* (Vol. 24).
- Arias, E., & Palloni, A. (2006). *Prevalence and Patterns of Female-Headed Households in Latin America* (working paper No. 96-14): Center for Demography and Ecology, University of Wisconsin-Madison.
- Asian Development Bank. (1998). *WOMEN IN THAILAND* (Country Briefing Paper): The Asian Development Bank.
- Beverly, S. G., McBride, A. M., & Schreiner, M. (2003). A Framework of Asset-Accumulation: Stages and Strategies. *Journal of Family and Economic Issues*, 24(2), 143-156.
- Bianchi, S. M. (1999). Feminization and Juvenilization of Poverty: Trends, Relative Risks, Causes, and Consequences. *Annual Review of Sociology*, 25, 307-333.
- Blau, D. M. (2008). Retirement and Consumption in a Life Cycle Model. *Journal of Labor Economics*, 26(1), 35-71.
- Blau, F. D., & Kahn, L. M. (2003). Understanding International Differences in the Gender Pay Gap. *Journal of Labor Economics*, 21(1), 106-144.
- Blau, D. M. (2008). Retirement and Consumption in a Life Cycle Model. *Journal of Labor Economics*, 26(1), 35-71.

- Bongaarts, J. (2001). *Household Size and Composition in the Developing World* (No. 144). New York: Population Council.
- Bullard, J., & Feigenbaum, J. (2007). *A Leisurely Reading of the Life Cycle Consumption Data* (Working Paper No. 2003-017F (Revised January 2007)). St. Louis, MO: Research Division, Federal Reserve Bank of St. Louis.
- Busapathumrong, P. (2006). *Welfare Mix in Thailand: Women, Work and State Policies*: BookSure,LLC.
- Buvinic, M., & Gupta, G. R. (1997). Female-Headed Households and Female-Maintained Families: Are They Worth Targeting to Reduce Poverty in Developing Countries? *Economic Development and Cultural Change*, 45(2), 259-280.
- Chant, S. (2002). Researching gender, families and households in Latin America: From the 20th into the 21st century. *Bulletin of Latin America research*, 21(4), 545-575.
- Chant, S. (2003). *Female Household Headship and the Feminisation of Poverty: Facts, Fictions and Forward Strategies* (Working paper): Gender Institute, London School of Economics.
- Chant, S. (2006). *Poverty Begins at Home?: Questioning some (mis)conceptions about children, poverty and privation in female-headed households* (Background Paper): UNICEF.
- Cheston, S., & Kuhn, L. (2002). *Empowering Women through Microfinance*: UNIFEM.
- Community Development Department. (2003). *Village and Community Funds* (Unpublished Report). Bangkok: Community Development Department, Ministry of Interior.
- Deere, C. D., & Doss, C. R. (2006). THE GENDER ASSET GAP: WHAT DO WE KNOW AND WHY DOES IT MATTER? *Feminist Economics*, 12(1), 1-50.
- Deshingkar, P., & Grimm, S. (2005). *Internal Migration and Development: A Global Perspective*. Geneva, Switzerland: International Organization for Migration.

- Dreze, J., & Srinivasan, P. V. (1997). Widowhood and poverty in rural India: Some inferences from household survey data. *Journal of Development Economics*, 54, 217-234.
- Entwisle, B., & Tong, Y. (2005). *The Impact of Remittances on Rural Households in Nang Rong, Thailand*. Paper presented at the Annual Meeting of the Population Association of America, Philadelphia.
- Espenshade, T. J., Kamenske, C., & Turchi, B. A. (1983). Family Size and Economic Welfare. *Family Planning Perspectives*, 15(Nov.-Dec.), 289-294.
- Eterik, P. V. (2000). *Materializing Thailand*. New York: Berg.
- Farid, Z. K. I. (1999). *Who is the head? An Anthro-Demographic Perspective on Female Headship*. Paper presented at the Conference Name|. Retrieved Access Date|. from URL|.
- Ferguson, B. D., Tandon, A., Gakidou, E., & Murray, C. J. L. (2000). Estimating Permanent Income Using Indicator Variables. In *Healthy Systems Performance Assessment : Debates, Methods and Empiricism* World Health Organization.
- Filmer, D., & Pritchett, L. H. (2001). Estimating Wealth Effects with out Expenditure Data-or Tears: An application to Education Enrollments in States of India. *Demography*, 38(1), 115-132.
- Filmer, D., & Scott, K. (2008). *Assessing Asset Indices* (Policy Research Working Paper No. 4605): Development Research Group, The World Bank.
- Fisher, M., & Weber, B. A. (2004). Does Economic Vulnerability Depend on Place of Residence? Asset Poverty across Metropolitan and Nonmetropolitan Areas. *The Review of Regional Studies*, 34(2), 137-155.
- Floro, M. S., & Antonopoulos, R. (2004). *Asset Depletion Among the Poor: Does Gender Matter?: The Case of Urban Households in Thailand* (Working paper). New York: Vassar College
- Ford, K., Jampaklay, A., & Chamrathirong, A. (2007). *The Impact of Migration on Household Wealth in Kanchanaburi Province, Thailand*. Paper presented at the The Annual Meeting of the Population Association of America, New York.

- Fuwa, N. (2000). *A Note on the Analysis of Female Headed Households in Developing Countries*.
- Gentry, J. W., Commuri, S., & Jun, S. (2003). Review of Literature on Gender in the Family. *Academy of Marketing Science Review*, 2003(1).
- Glenn, E. N. (1987). Gender and the Family. In B. B. Hess & M. M. Ferree (Eds.), *Analyzing Gender: A Handbook of Social Science Research*. California: SAGE Publication, Inc.
- Glewwe, P., & Hall, G. (1995). *Who is most vulnerable to macroeconomic shocks? : hypotheses tests using panel data from Peru*. Washington, D.C.: The World Bank.
- Havanon, N., Knodel, J., & Sittitrai, W. (1990). *The Impact of Family Size on wealth Accumulation in rural Thailand* (No. 3:May 1990). Bangkok: Institute of Population Studies, Chulalongkorn University.
- Heckman, J. J. (2000). Policies to Foster Human Capital *Research in Economics* 51(1).
- Hill, Z. (2004). Reducing attrition in panel studies in developing countries. *International Journal of Epidemiology*, 33(3), 493–498.
- Hosseinpour, A. R., Mohammad, K., Majdzadeh, R., Naghavi, M., et al. (2005). Socioeconomic inequality in infant mortality in Iran and across its provinces. *Bulletin of the World Health Organization*, 83(11).
- Hutaserani, S. (1989). *Determinants of Household Structure in Thailand*. Bangkok: Thailand Development Research Institute Foundation.
- Iewsriwongs, N. (1992). *Sathanapap-puying: Adeed Patjuban Anakod (Women Staus: Past, Present, and Future)*. Paper presented at the KarnpattanaSatrikupkarnmuang (Women Development and Politics).
- Jampaklay, A. (2007). *Demographic Characteristics of Study Population* (No. 325). Nakhon Pathom: Institute for Population and Social Research.
- Jitsuchon, S., Plangpraphan, J., & Kakwani, N. (2006). *THAILAND'S NEW OFFICIAL POVERTY LINE*: Thailand Development Research Institute, The United National Development Programme.

- Jones, J. P., & Kodras, J. E. (1990). Restructured Regions and Families: The Feminization of Poverty in the U.S. *Annals of the Association of American Geographers*, 80(2), 163-183.
- Joshi, S. (2004). *Female Household-Headship in Rural Bangladesh: Incidence, Determinants and Impact on Children's Schooling*: Economic Growth Center, Yale University.
- Keister, L. A., & Moller, S. (2000). Wealth Inequality in the United States. *Annual Review of Sociology*, 26, 63-81.
- Khandker, S. R. (2003). *Micro-finance and Poverty: Evidence Using Panel Data from Bangladesh* (Working Paper No. 2945): The World Bank.
- Kidd, M. P., & Shannon, M. (1996). The Gender Wage Gap: A Comparison of Australia and Canada. *The Canadian Journal of Economics / Revue canadienne d'Economique*, 29, S121-S125.
- King, M. A., & Dicks-Mireaux, L.-D. L. (1982). ASSET HOLDINGS AND THE LIFE-CYCLE. *The Economic Journal*, 92(247-267).
- King, M. A., & Dicks-Mireaux, L. D. L. (1982). Asset Holdings and the Life-Cycle. *The Economic Journal*, 92(366), 247-267.
- Kirsch, A. T. (1982). Buddhism, Sex-roles and the Thai Economy. In P. V. Estrik (Ed.), *Women of Southeast Asia*. DeKalb, Illinois: Center for Southeast Asia Studies.
- Kobrin, F. E. (1973). Household Headship and Its Changes in the United States, 1940-1960, 1970. *Journal of the American Statistical Association*, 68(344), 793-800.
- Kosempel, S. (2004). A theory of development and long run growth. *Journal of Development Economics*, 75, 201-220.
- Kuijsten, A. (1995). Recent Trends in Household and Family Structures in Europe: An Overview. In E. v. Imhoff, A. Kuijsten, P. Hooimeijer & L. v. Wissen (Eds.), *Household Demography and Household Modeling*. New York: Plenum Press
- Lampietti, J. A., & Stalker, L. (2004). *Consumption Expenditure and Female Poverty: A Review of the Evidence*: The World Bank, Development Research Group/Poverty Reduction and Economic Management Network.

- Lanjouw, P., & Ravallion, M. (1995). Poverty and Household Size. *The economic Journal*, 105(433), 1415-1434.
- Laux, S. C., & Cook, C. C. (1994). Female-Headed Households in Nonmetropolitan Areas: Housing and Demographic Characteristics. *Journal of Family and Economic Issues*, 15(4), 301-316.
- Leyshon, A., & Thrift, N. (1995). Geographies of Financial Exclusion: Financial Abandonment in Britain and the United States. *Transactions of the Institute of British Geographers*, 20(3), 312-341.
- Limanonda, B. (2000). Exploring women's status in contemporary Thailand. In L. P. Edwards & M. Roces (Eds.), *Women in Asia : tradition, modernity, and globalisation* (4 ed.). Ann Arbor University of Michigan Press.
- Lipman-Blumen, J., & Tickamyer, A. R. (1975). Sex Roles in Transition: A Ten-Year Perspective. *Annual Review of Sociology*, 1, 297-337.
- Lloyd, C. B., & Blanc, A. K. (1996). Children's Schooling in sub-Saharan Africa: The Role of Fathers, Mothers and Others. *Population and Development Review*, 22(2), 265-298.
- Loi, V. M. (1996). Female-Headed Households in Vietnam. Retrieved 6 October 2006, from <http://csde.washington.edu/downloads/96-11.pdf#search=FemaleHeaded%20Households%20in%20Vietnam>
- Marcoux, A. (1998). The Feminization of Poverty: Claims, Facts, and Data Needs. *Population and Development Review*, 24(1), 131-139.
- Matteo, L. D. (1997). The Determinants of Wealth and Asset Holding in Nineteenth-Century Canada: Evidence from Microdata. *The Journal of Economic History*, 57(4), 907-934.
- McKernan, S.-M., Pitt, M. M., & Moskowitz, D. (2005). *Use of the Formal and Informal Financial Sectors: Does Gender Matter? Empirical Evidence from Rural Bangladesh* (Working paper No. 3491): World Bank Policy Research.
- McLanahan, S. S. (1988). Family Structure and Dependency: Early Transitions to Female Household Headship. *Demography*, 25(1), 1-16.

- Mencher, J. P. (1993). Female-Headed, Female-Supported Household in India: Who are They and What Are Their Survival Strategies? In J. P. Mencher & A. Okongwu (Eds.), *Wher Did All the Men Go?* (pp. 203-231): Westview Press.
- Miller, R. B., & Hollist, C. S. (2007). Attrition Bias. In N. Salkind (Ed.), *Encyclopedia of Measurement and Statistics* (Vol. 3): Sage Publications, Inc.
- Morada, H. B., Llaneta, M. A., Pangan, T. N., & Pomentil, C. L. (2001). *FEMALE-HEADED HOUSEHOLDS IN THE PHILIPPINES*. Paper presented at the DOLE First Research Conference, the Occupation Safety and Health Center, Quezon City, the Philippines.
- Muthwa, S. (1994). Female Household Headship and Household Survival in Soweto. *Journal of Gender Studies*, 3(2), 165-175.
- National Statistical Office. (1996). *Household Head Characteristics and factors Affecting Size of Household 1990 Population and Census* (No. 6). Bangkok: National Statistical Office, Office of The Prime Minister.
- Office of The Non-Formal and Informal Education. (2009). History of Office of The Non-Formal Education Commission
- Oxaal, Z. (1997). *Education and Poverty: A Gender Analysis* (No. 53): BRIDGE (development - gender), Institute of Development Studies, University of Sussex.
- Panda, P. K. (1995, December 18-22). *Female Headship, Poverty and Child Welfare: A Study of Rural Orissa, India*. Paper presented at the Eleventh World Congress of the International Economic Association, Tunis, Tunisia.
- Pitayanon, S., Kongsin, S., & Janchareon, W. (1997). *The economic impact of HIV/AIDS mortality on households in Thailand*. Delhi: Oxford University Press.
- Pitt, M. M., & Khandker, S. R. (1998). The Impact of Group-Based Credit Programs on Poor Households in Bangladesh: Does the Gender of Participants Matter? *Journal of Political Economy*, 106(5), 958-996.
- Pitt, M. M., Khandker, S. R., & Cartwright, J. (2003). *Does Micro-Credit Empower Women? Evidence from Bangladesh*. Washington, DC: The World Bank.

- Podhisita, C. (1994). Coresidence and the Transition to Adulthood in the Rural Thai Family. In L.-J. Cho & M. Yada (Eds.), *Traditional and Change in the Asian Family* (pp. 363-381). Honolulu, Hawaii: East-West Center.
- Posel, D. R. (2001). Who are heads of household, what do they do, and is the concept of headship useful? An analysis of headship in South Africa. *Development Southern Africa*, 15(5), 651-670.
- Prachuabmoh, V., & Mitranon, P. (2003). Below-Replacement Fertility in Thailand and Its Policy Implications. *Journal of Population Research* 20(1).
- Prakongsai, P. (2005). *An Application of asset Index for Measuring Household Living Standards in Thailand*. Paper presented at the First Annual Conference for Thai Economists, Thammasart University, .
- Prasartkul, P., Punpuing, S., & Vapattanawong, P. (2007). Explosion of Urbanization. In V. Thongthai & S. Punpuing (Eds.), *Urbanization and Life Styles* (pp. 3-17). Bangkok: Institute for Population and Social Research, Mahidol University.
- Pressman, S. (2002). Explaining the gender poverty gap in developed and transitional economies. *Journal of Economic Issues*, 36(1), 17-40.
- Pressman, S. (2003). Feminist Explanations for the Feminization of Poverty. *Journal of Economic Issues*, 37(2), 353-361.
- Quinn, N. (1977). Anthropological Studies on Women's Status. *Annual Review of Anthropology*, 6, 181-225.
- Richter, K. (1992). Role Strain, Deprivation and Conflict. In B. Yoddumnern-Attig, K. Richter, A. Soonthorndhada & A. Pramualratana (Eds.), *Changing roles and statuses of women in Thailand: A documentary assessment* (pp. 8-24). Nakhonpathom: Institute for Population and Social Research, Mahidol University, Publication No. 161.
- Richter, K., & Havanon, N. (1994). *Women's economic contribution to households in Thailand: Implications for national development and social welfare: The population council*.
- Rose, D. (2000). Household Panel Studies: An Overview. In D. Rose (Ed.), *Researching Social and economic change: The use of Household Panel Studies*. New York: Routledge.

- Russell, S. (2003). *The economic burden of illness for households: A review of cost of illness and coping strategies studies focusing on malaria, tuberculosis and HIV/AIDS* (Working Papers No. 15). Norwich UK: School of Development Studies University of East Anglia.
- Sahn, D. E., & Stifel, D. (2000). *Assets as a Measure of Household Welfare in Developing countries* (Working paper): Center for Social Development.
- Sarutta. (2002). Women's Status in Thai Society. *Thaiwaysmagazine*, 19 (11).
- Schmidt, L., & Sevak, P. (2006). Gender, Marriage, and Asset Accumulation in The United States. *Feminist Economics* 12(1), 139-166.
- Seguino, S. (2000). Gender Inequality and Economic Growth: A Cross-Country Analysis. *World Development*, 28(7), 1211-1230.
- Social Statistics Division. (2002). *Female and Male Heads and The Level of Household's Living*. Bangkok Social Statistics Division, National Statistical Office, Office of The Prime Minister.
- Social Statistics Division. (2004). *Female and Male Heads and The Level of Household's Living*. Bangkok Social Statistics Division, National Statistical Office, Office of The Prime Minister.
- Stuart, S. (1996). Female-headed families: A comparative perspective of the Caribbean and developed world. *Gender and Development*, 4(2), 28-34.
- Sweet, J. A. (1977). Demography and The Family. *Annual Review of Sociology*, 3, 363-405.
- Synder, A. R., & McLaughlin, D. K. (2004). Female-Headed Families and Poverty in Rural America. *Rural Sociology*, 69(1), 127-147.
- Terajima, Y. (2004). *Education, Self-Employment and Wealth Inequality*. Philadelphia: University of Pennsylvania.
- The World Bank. (2004). *Gender Stats: Database of Gender Statistics: The World Bank*.
- Thongthai, V. (2007, 22-23 November, 2007). *Do Household Assets Measure Household Economic Status?* Paper presented at the The 2007 Thai National Symposium on Population Studies Bangkok.
- United Nations Population Fund. (2007). *Women's Economic Empowerment: Meeting the Needs of Impoverished Women*: United Nations Population Fund.

- VanLandingham, M., & Hirschman, C. (2000). *Population Pressure and Fertility in Pre-Transition Thailand* (Working Paper). Washington: University of Washington.
- Varley, A. (1996). Women Heading Households: Some More Equal than Others? *World Development*, 24(3), 505-520.
- Waite, L. (2000). How is Household Vulnerability Gendered? Female-headed Households in the Collectives of Suleimaniya, Iraqi Kurdistan. *Disasters*, 24(2), 153-172.
- Walby, S. (1997). *Gender Transformations*. London Routledge.
- Wolff, E. N. (1998). Recent Trends in the Size Distribution of Household Wealth. *Journal of Economic Perspectives*, 12(34), 131-150.
- Wongsith, M. (1994). Attitudes toward Family Values in Rural Thailand. In L.-J. Cho & M. Yada (Eds.), *Traditional and Change in the Asian Family* (pp. 363-381). Honolulu, Hawaii: East-West Center.
- Wooldrige, J. M. (Ed.). (2006). *Introductory Econometrics: A Modern Approach*. Mason, OH: Thomson South-Western.
- Yamokoski, A., & Keister, L. A. (2006). The Wealth of Single Women: Marital Status and Parenthood in the Asset Accumulation of Young Baby boomers in The United States. *Feminist Economics*, 12(1), 167-194.
- Yoddumnern-Attig, B. (1992). Thai Family Structure and Organization: Changing Roles and Duties in Historical Perspective. In B. Yoddumnern-Attig, K. Richter, A. Soonthorndhada & A. Pramualratana (Eds.), *Changing roles and statuses of women in Thailand: A documentary assessment* (pp. 8-24). Nakhonpathom: Institute for Population and Social Research, Mahidol University, Publication No. 161.
- Zhan, M. (2007). Assets, Human Capital Development, and Economic Mobility of Single Mothers. *Families in Society*, 88(4), 605-615.
- Zhang, Y., & Wan, G. (2008). *Can We Predict Vulnerability to Poverty* (Research Paper No. 2008/82): United Nations University.

APPENDICES

Table A3.2: Variables Used in the Estimation Asset Index: KDSS 2000-2004

Items of Assets	2000	2001	2002	2003	2004
TV	√	√	√	√	√
VDO/VCD	√	√	√	√	√
Satellite	√	√	√	√	√
Stereo/Radio	√	√	√	√	√
Mobile telephone	√	√	√	√	√
Home telephone	√	√	√	√	√
Pager	√	√			
Computer	√	√	√	√	√
Electric fan	√				
Air conditioner	√	√	√	√	√
Sewing machine	√	√	√	√	√
Washing machine	√	√	√	√	√
Gas stove	√				
Electric pot	√				
Microwave	√	√	√	√	√
Refrigerator	√	√	√	√	√
Bicycle	√	√	√	√	√
Motorcycle	√	√	√	√	√
Tricycle		√	√	√	√
E-tan (farming machine)	√	√	√	√	√
Car	√	√	√	√	√
Pick up	√	√	√	√	√
Truck	√	√	√	√	√
Tractor		√	√	√	√
Motor boat		√	√	√	√
Water pump			√	√	√
Material of Roof (Used material, Zinc, Tile, CPAC and Cement)		√	√	√	√
Material of Wall (Used material, Zinc/tile, wood/Mixed cement wood concrete brick and stone)		√	√	√	√

Table A3.3: Variables Used in the Estimation Asset Index: Pooled cross-sectional study 2000, 2002 and 2004

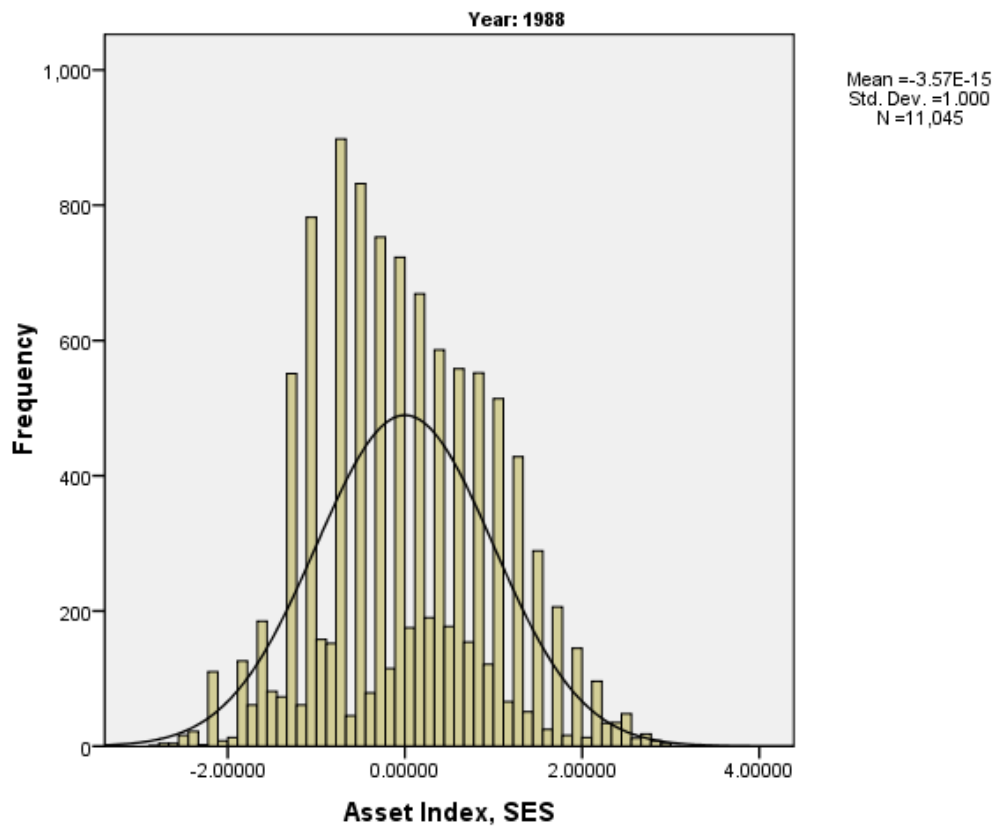
List of assets	2000	2002	2004
Refrigerator	√	√	√
Radio	√	√	√
TV	√	√	√
VDO,VCD,DVD	√	√	√
Washing machine	√	√	√
Air conditioner	√	√	√
Bicycle	√	√	√
Home computer	√	√	√
Lane phone	√	√	√
Pick up or Van	√	√	√
Mini truck	√	√	√
Motorcycle	√	√	√
Sewing machine	√	√	√
Housing material	√	√	√

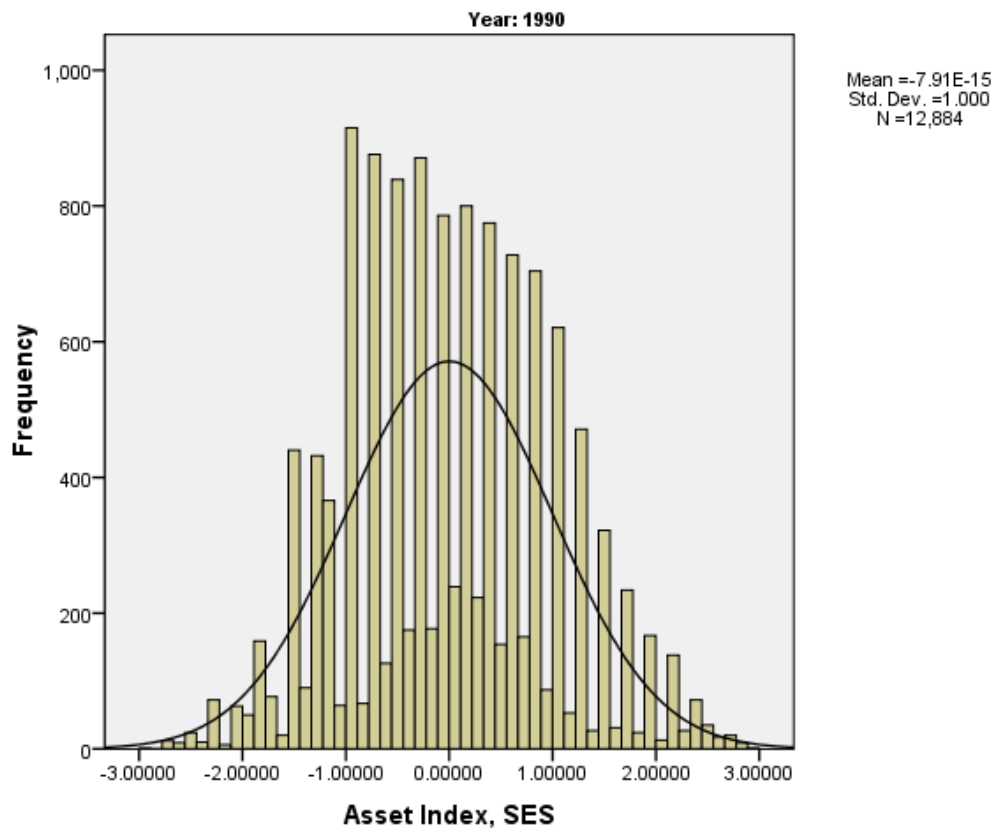
Table A3.4: Variables Used in the Estimation Asset Index: Panel study 2000 and 2004

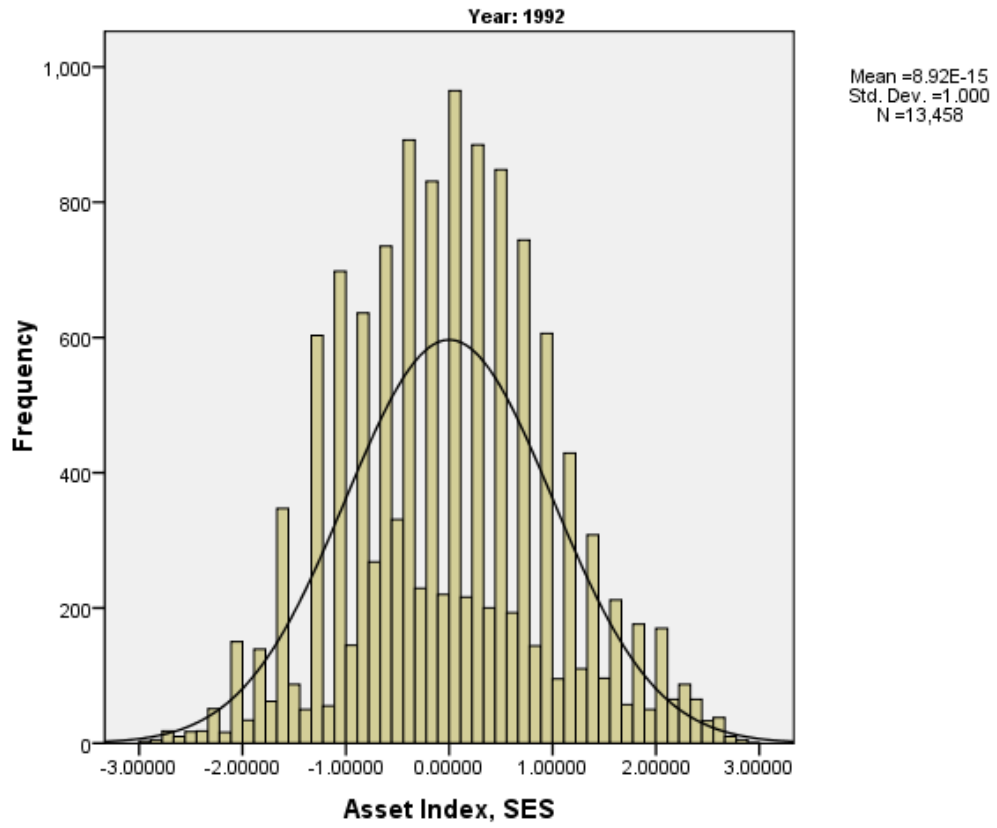
List of assets	2000	2004
Refrigerator	√	√
Radio	√	√
TV	√	√
VDO,VCD,DVD	√	√
Washing machine	√	√
Air conditioner	√	√
Bicycle	√	√
Home computer	√	√
Lane phone	√	√
Pick up or Van	√	√
Mini truck	√	√
Motorcycle	√	√
Sewing machine	√	√
Housing material	√	√

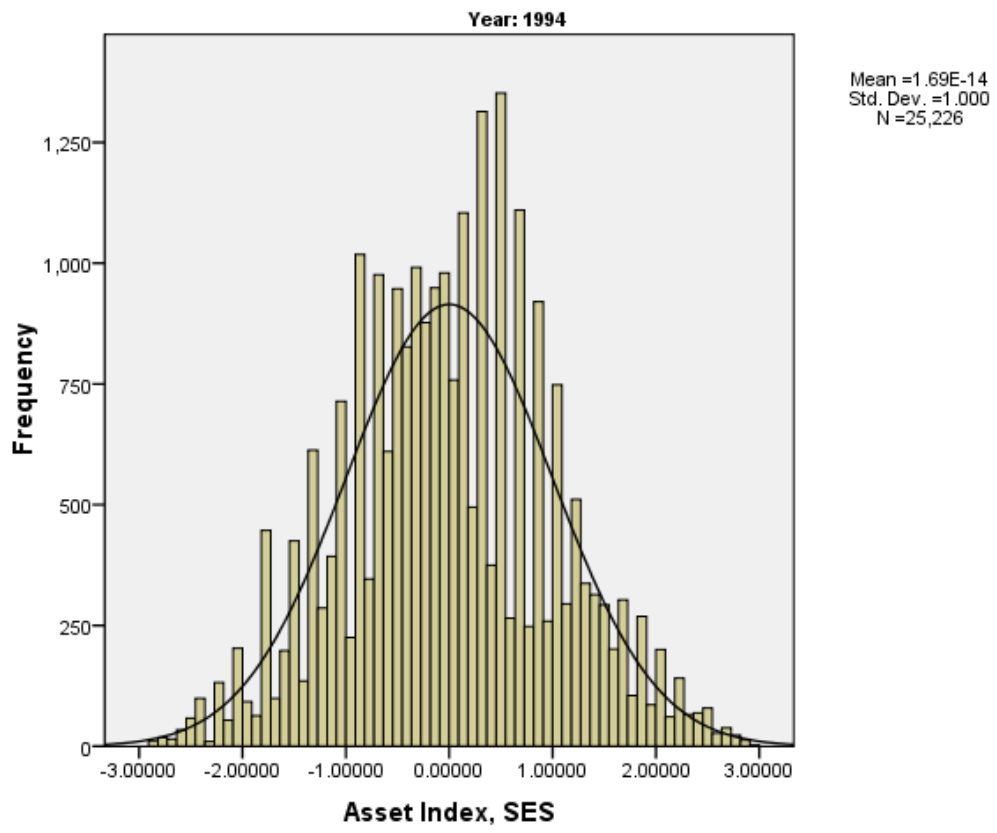
APPENDIX B

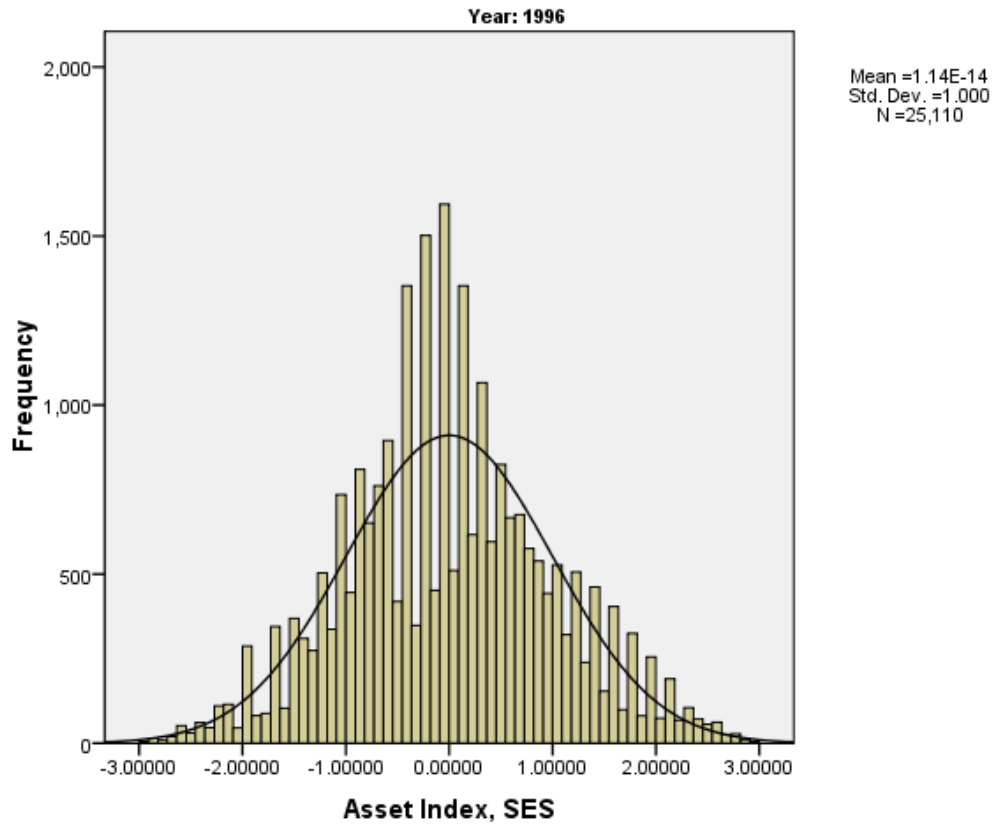
DISTRIBUTION OF ASSET INDICES

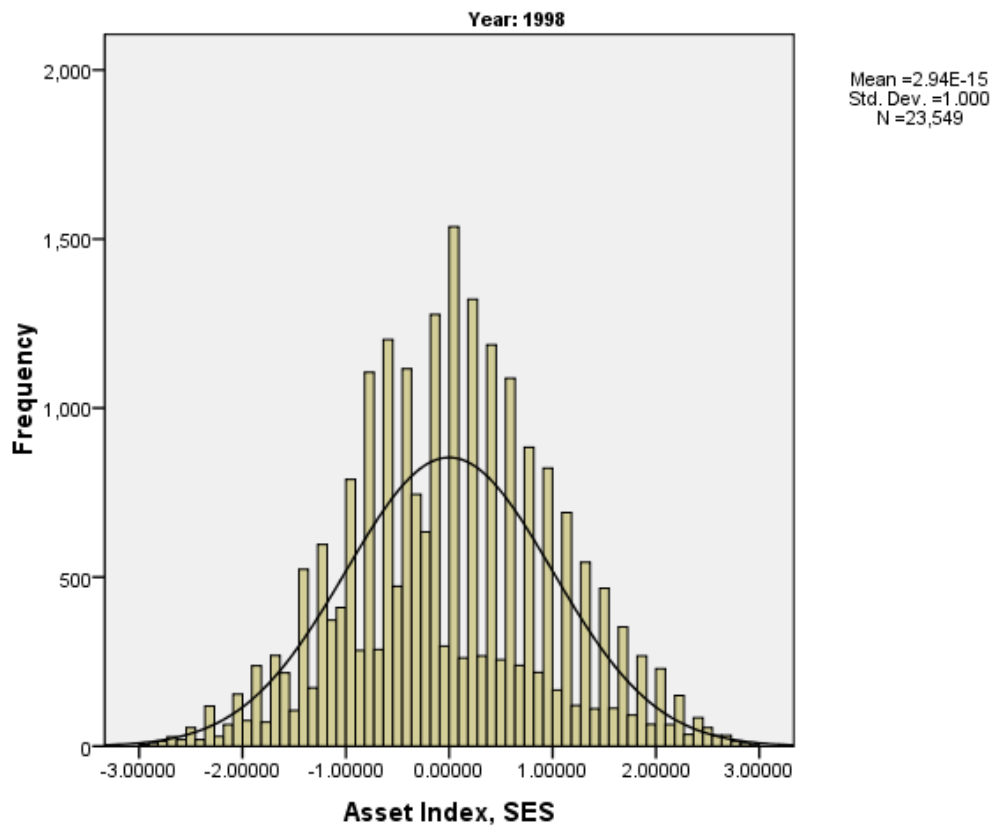


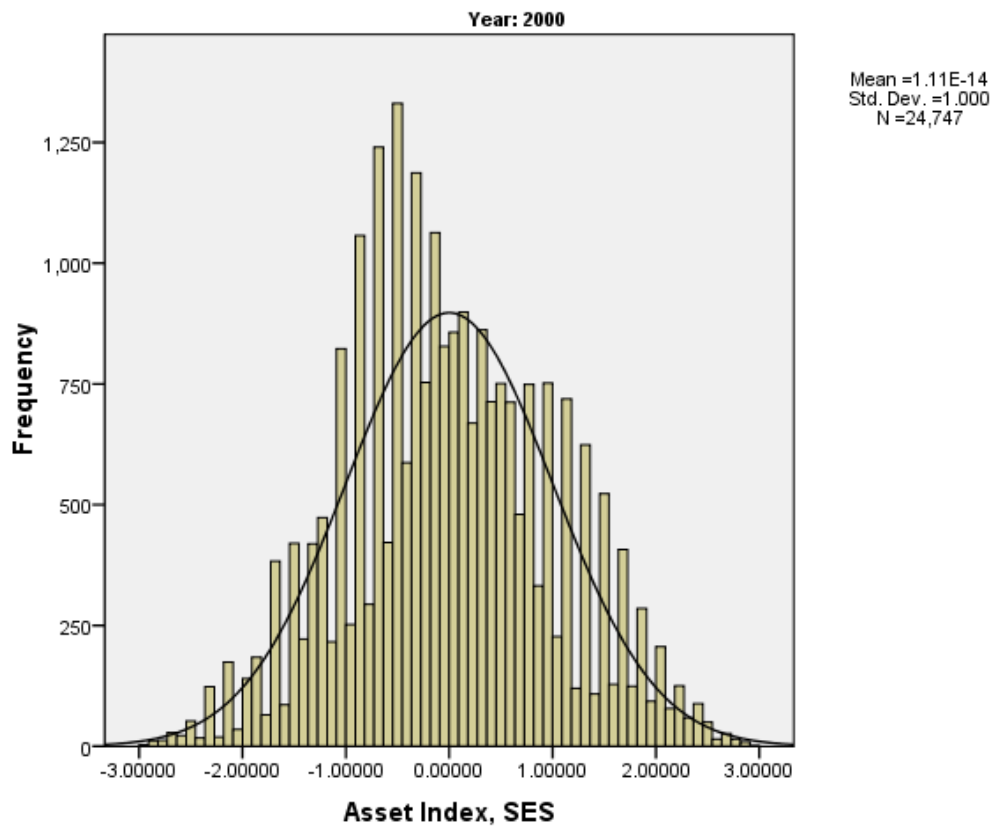


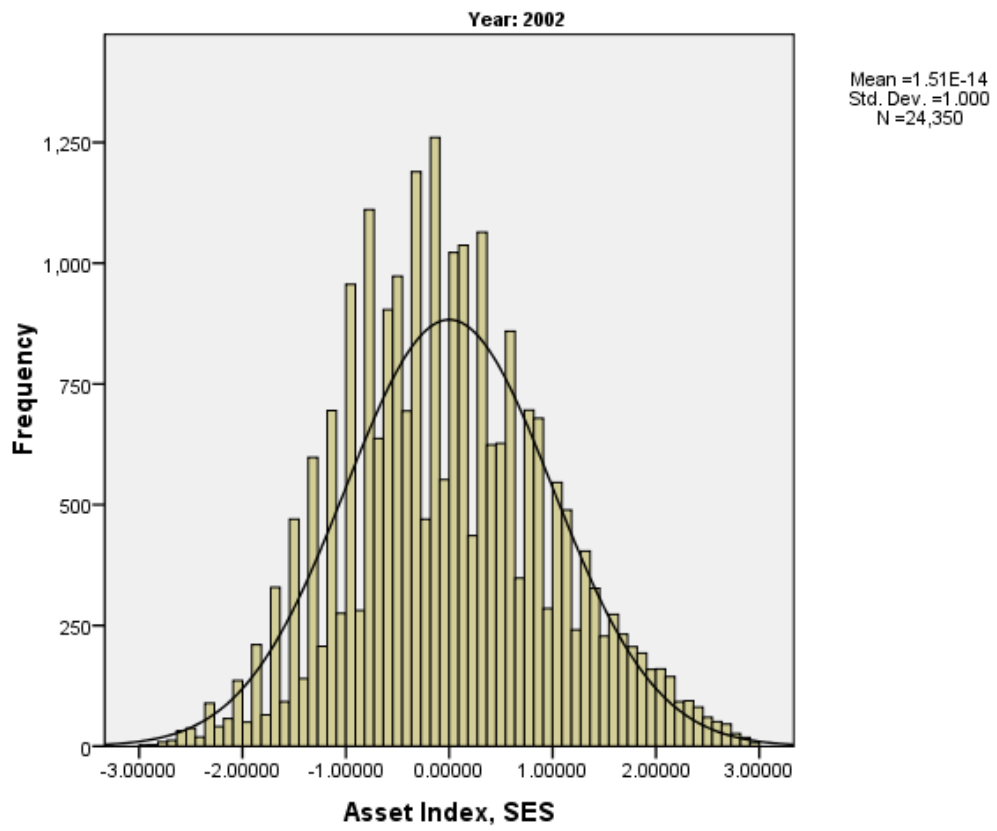


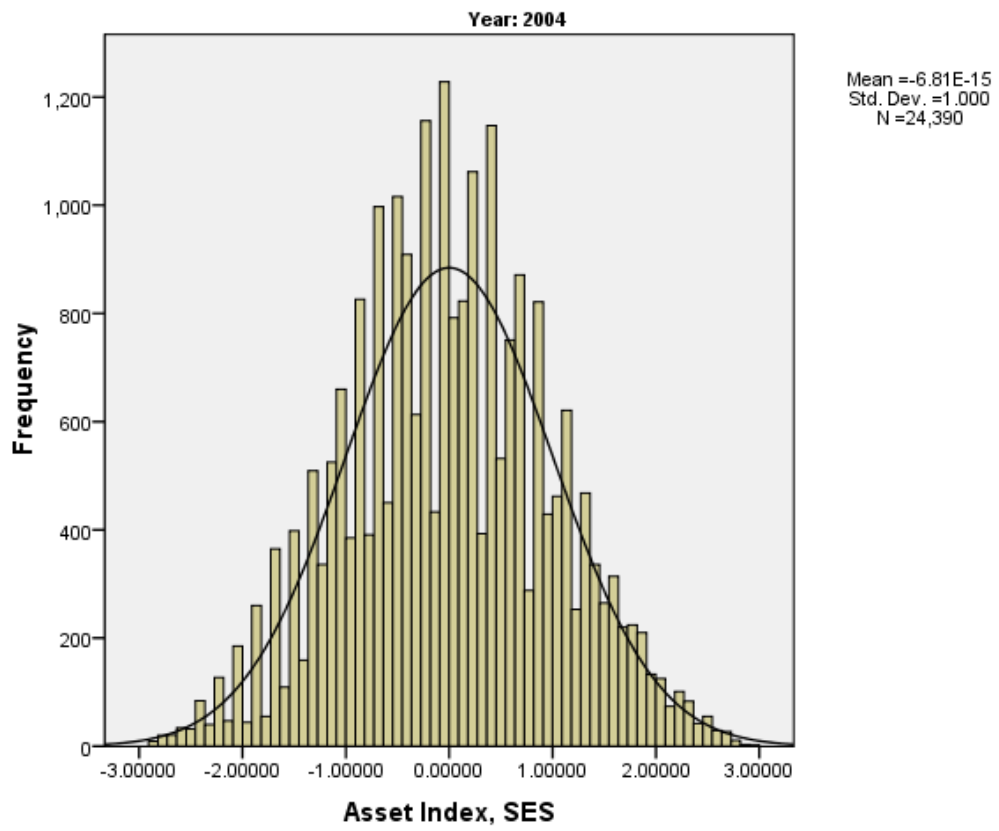


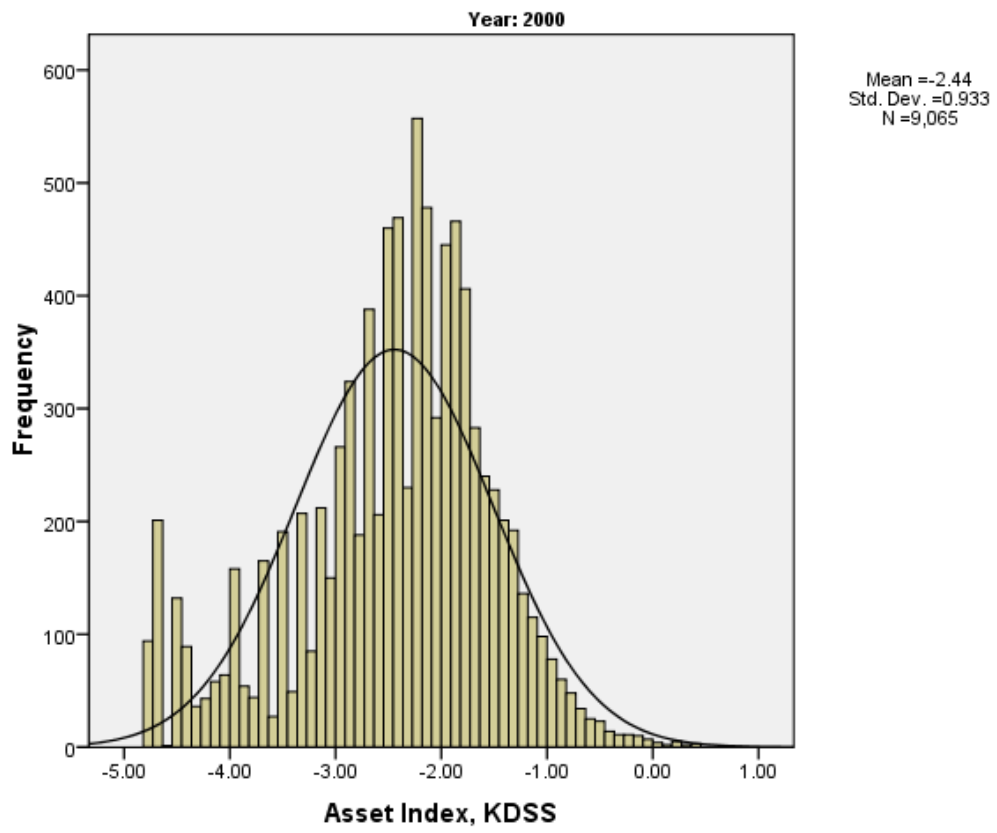


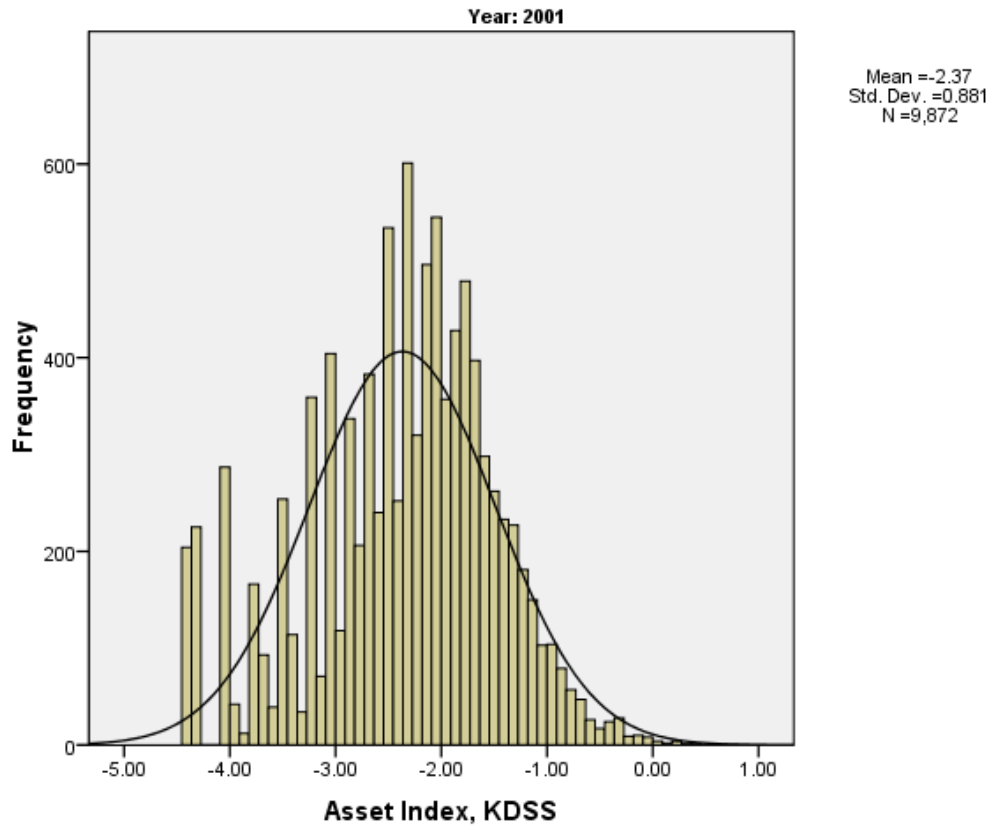


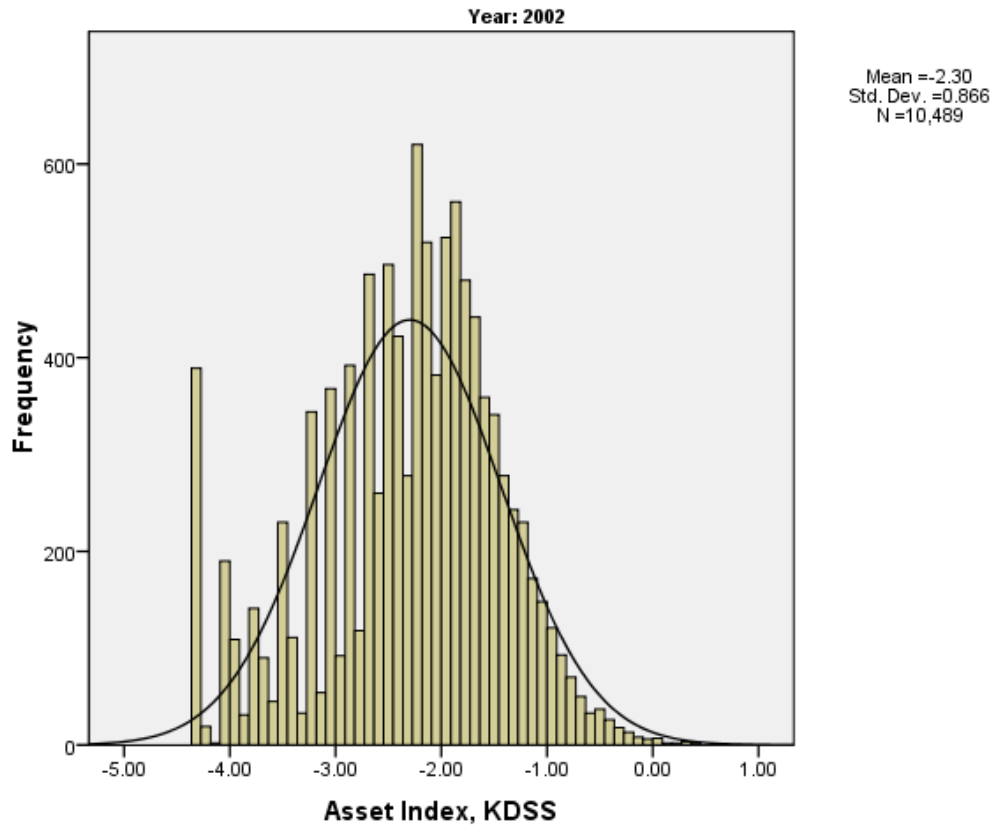


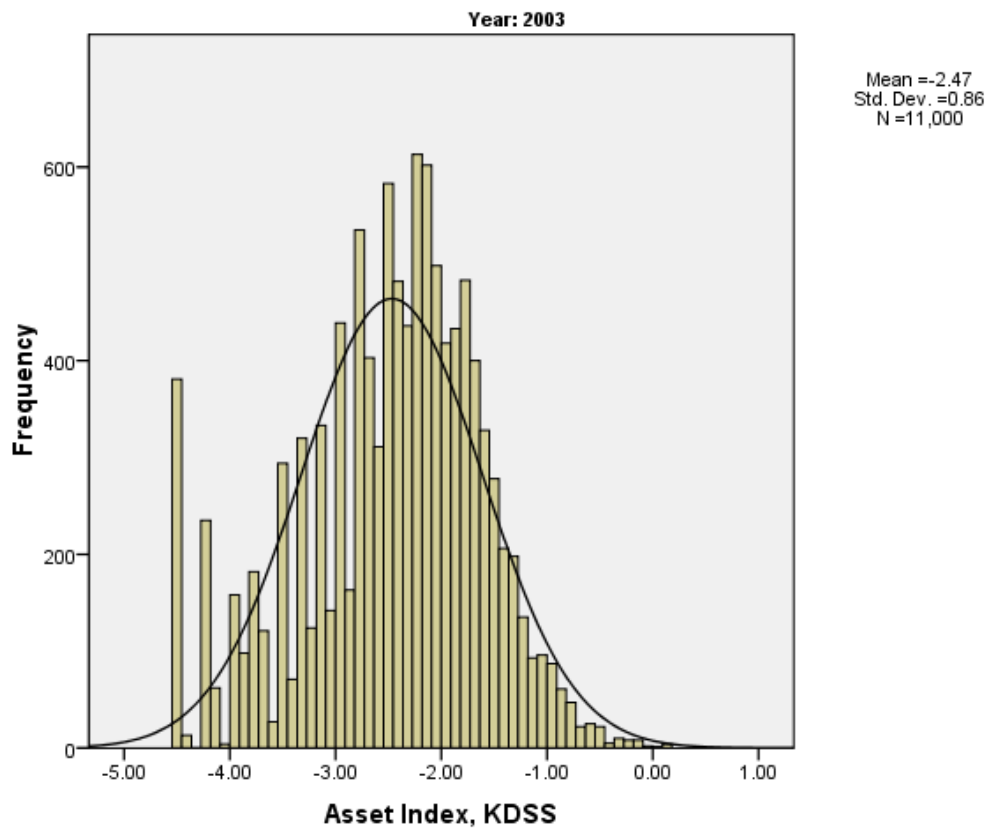


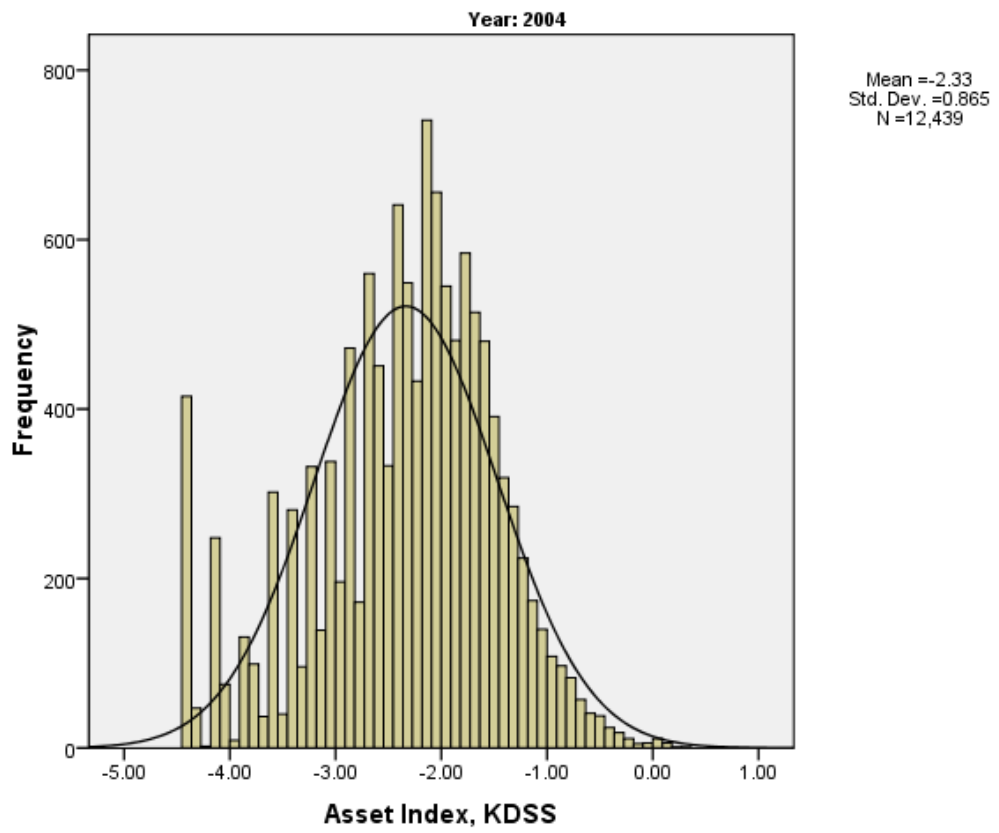


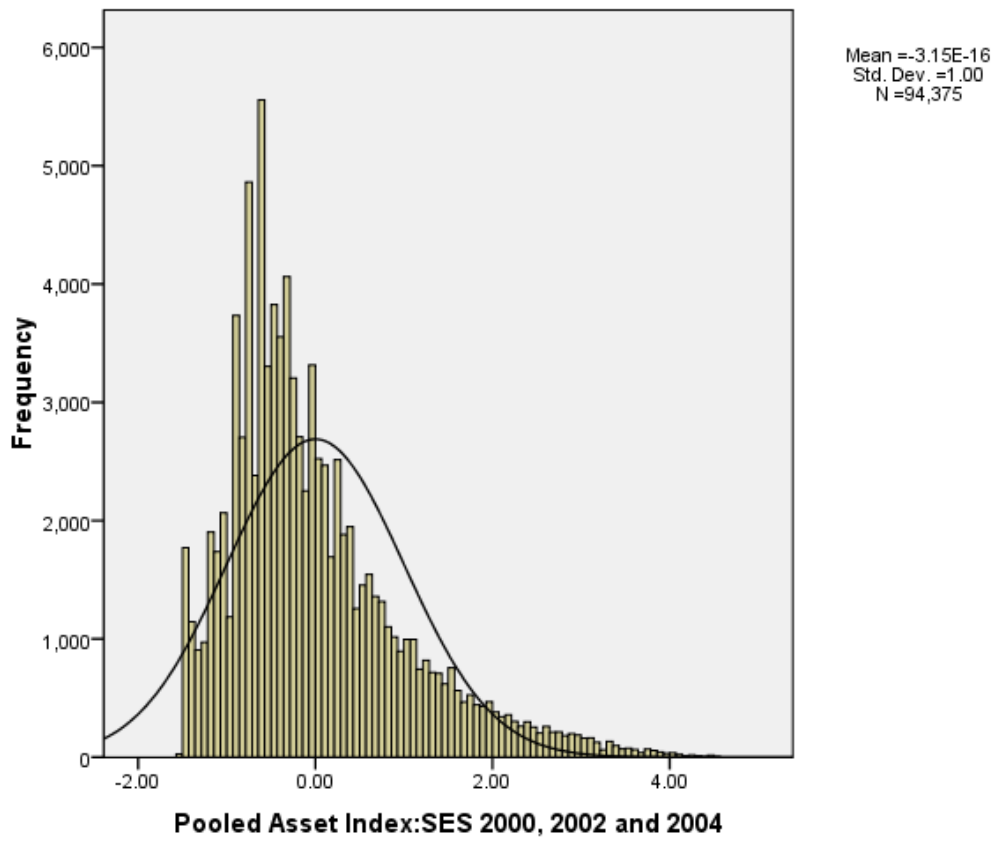


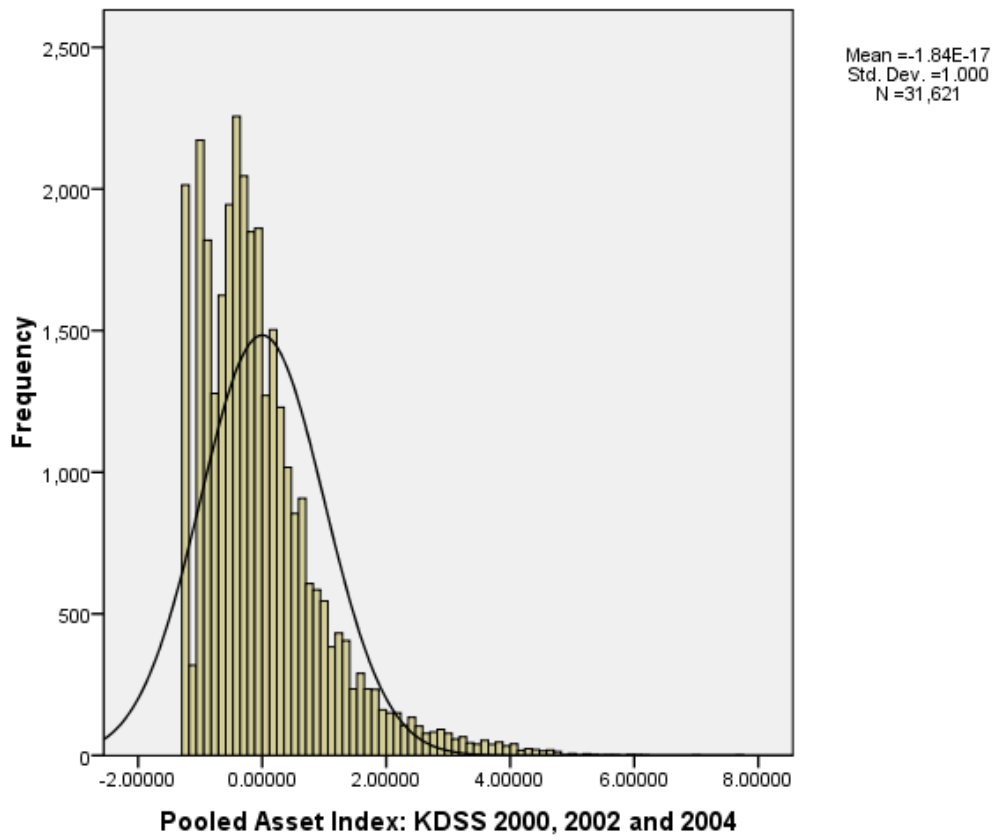


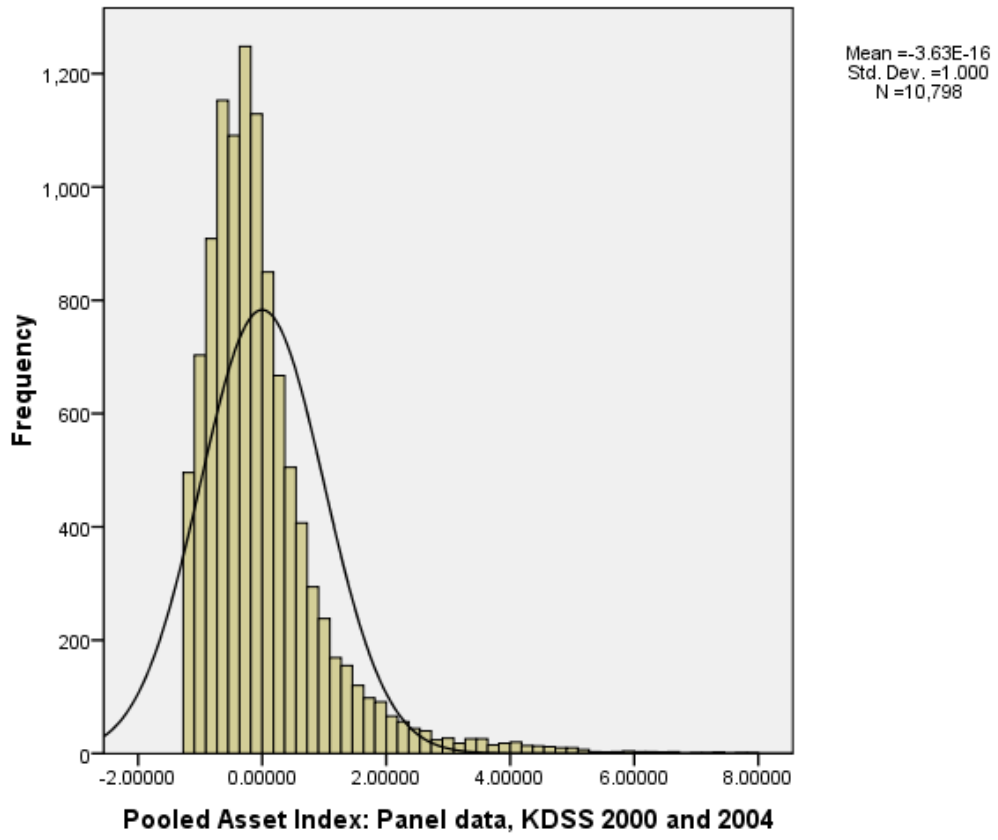












APPENDIX C: CORRELATION MATRIX

Table C1: Description of variable for correlation matrix

Variable Name	Variable Label
V1	Married male heads
V2	Single male heads
V3	Married female heads
V4	Single female heads
V5	Age of household head
V6	No school
V7	Primary school
V8	Secondary school and higher
V9	no occupation
V10	agriculture
V11	non agriculture
V12	Household size
V13	Proportion of non worker to worker
V14	Household debt
V15	Urban area

Table C.2: Correlation matrix: Pooled Cross-sectional SES

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15
V1	1														
V2	-0.376 ^{***}	1													
V3	-0.420 ^{***}	-0.098 ^{***}	1												
V4	-0.642 ^{***}	-0.150 ^{***}	-0.168 ^{***}	1											
V5	-0.065 ^{***}	-0.030 ^{***}	-0.123 ^{***}	0.189 ^{***}	1										
V6	-0.132 ^{***}	0.004 ^{***}	-0.014 ^{***}	0.167 ^{***}	0.251 ^{***}	1									
V7	0.046 ^{***}	-0.075 ^{***}	0.005 ^{***}	-0.008 ^{***}	0.225 ^{***}	-0.341 ^{***}	1								
V8	0.023 ^{***}	0.076 ^{***}	0.002 ^{***}	-0.081 ^{***}	-0.370 ^{***}	-0.182 ^{***}	-0.863 ^{***}	1							
V9	-0.276 ^{***}	0.088 ^{***}	0.014 ^{***}	0.264 ^{***}	0.481 ^{***}	0.189 ^{***}	0.018 ^{***}	-0.120 ^{***}	1						
V10	0.145 ^{***}	-0.052 ^{***}	-0.025 ^{***}	-0.122 ^{***}	0.004 ^{***}	0.028 ^{***}	0.242 ^{***}	-0.268 ^{***}	-0.261 ^{***}	1					
V11	0.099 ^{***}	-0.027 ^{***}	0.010 ^{***}	-0.110 ^{***}	-0.390 ^{***}	-0.175 ^{***}	-0.218 ^{***}	0.322 ^{***}	-0.584 ^{***}	-0.631 ^{***}	1				
V12	0.280 ^{***}	-0.198 ^{***}	-0.024 ^{***}	-0.186 ^{***}	0.108 ^{***}	0.014 ^{***}	0.127 ^{***}	-0.140 ^{***}	-0.014 ^{***}	0.112 ^{***}	-0.083 ^{***}	1			
V13	0.009 ^{***}	-0.037 ^{***}	0.031 ^{***}	-0.008 ^{***}	0.049 ^{***}	0.015 ^{***}	-0.018 ^{***}	0.011 ^{***}	0.164 ^{***}	-0.079 ^{***}	-0.065 ^{***}	0.090 ^{***}	1		
V14	0.083 ^{***}	-0.057 ^{***}	0.024 ^{***}	-0.079 ^{***}	-0.128 ^{***}	-0.071 ^{***}	-0.128 ^{***}	0.172 ^{***}	-0.128 ^{***}	-0.069 ^{***}	0.161 ^{***}	0.122 ^{***}	-0.029 ^{***}	1	
V15	-0.072 ^{***}	0.042 ^{***}	0.009 ^{***}	0.051 ^{***}	-0.080 ^{***}	-0.086 ^{***}	-0.207 ^{***}	0.262 ^{***}	0.021 ^{***}	-0.321 ^{***}	0.253 ^{***}	-0.098 ^{***}	0.035 ^{***}	0.065 ^{***}	1

Table C.3: Correlation matrix: Pooled Cross-sectional KDSS

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15
V1	1														
V2	-0.321 ^{***}	1													
V3	-0.532 ^{***}	-0.097 ^{***}	1												
V4	-0.597 ^{***}	-0.109 ^{***}	-0.181 ^{***}	1											
V5	-0.104 ^{***}	0.062 ^{***}	-0.148 ^{***}	0.232 ^{***}	1										
V6	-0.105 ^{***}	-0.008 ^{***}	0.011 ^{**}	0.129 ^{***}	0.175 ^{***}	1									
V7	0.059 ^{***}	-0.033 ^{***}	0.012 ^{**}	-0.066 ^{***}	-0.002 [*]	-0.650 ^{***}	1								
V8	0.033 ^{***}	0.051 ^{***}	-0.026 ^{***}	-0.050 ^{***}	-0.179 ^{***}	-0.203 ^{***}	-0.612 ^{***}	1							
V9	-0.282 ^{***}	0.070 ^{***}	0.075 ^{***}	0.250 ^{***}	0.420 ^{***}	0.133 ^{***}	-0.043 ^{***}	-0.083 ^{***}	1						
V10	0.178 ^{***}	-0.054 ^{***}	-0.049 ^{***}	-0.151 ^{***}	-0.122 ^{***}	0.080 ^{***}	0.141 ^{***}	-0.264 ^{***}	-0.465 ^{***}	1					
V11	0.031 ^{***}	0.002 ^{***}	-0.006 ^{***}	-0.035 ^{***}	-0.201 ^{***}	-0.192 ^{***}	-0.118 ^{***}	0.351 ^{***}	-0.289 ^{***}	-0.713 ^{***}	1				
V12	0.128 ^{***}	-0.108 ^{***}	0.005 ^{***}	-0.104 ^{***}	0.105 ^{***}	0.072 ^{***}	0.028 ^{***}	-0.111 ^{***}	0.052 ^{***}	0.051 ^{***}	-0.096 ^{***}	1			
V13	-0.085 ^{***}	0.024 ^{***}	-0.009 ^{***}	0.103 ^{***}	0.297 ^{***}	0.082 ^{***}	-0.031 ^{***}	-0.046 ^{***}	0.541 ^{***}	-0.282 ^{***}	-0.124 ^{***}	0.018 ^{***}	1		
V14	0.086 ^{***}	-0.084 ^{***}	0.037 ^{***}	-0.094 ^{***}	-0.083 ^{***}	-0.155 ^{***}	0.150 ^{***}	-0.031 ^{***}	-0.140 ^{***}	0.125 ^{***}	-0.024 ^{***}	0.114 ^{***}	-0.135 ^{***}	1	
V15	-0.074 ^{***}	0.029 ^{***}	0.002 ^{***}	0.076 ^{***}	0.034 ^{***}	-0.138 ^{***}	-0.099 ^{***}	0.271 ^{***}	0.066 ^{***}	-0.360 ^{***}	0.337 ^{***}	-0.034 ^{***}	0.057 ^{***}	-0.120 ^{***}	1

Table C.4: Correlation matrix: Pooled Panel KDSS

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14	V15
V1	1														
V2	-0.314 ^{***}	1													
V3	-0.458 ^{***}	-0.049 ^{***}	1												
V4	-0.734 ^{***}	-0.078 ^{***}	-0.114	1											
V5	-0.183 ^{***}	0.104 ^{***}	-0.140	0.266 ^{***}	1										
V6	-0.141 ^{***}	0.008 ^{***}	-0.014	0.175 ^{***}	0.184 ^{***}	1									
V7	0.036 ^{***}	-0.015 ^{***}	0.019	-0.049 ^{***}	0.026 ^{***}	-0.626 ^{***}	1								
V8	0.092 ^{***}	0.012	-0.010	-0.110 ^{***}	-0.213 ^{***}	-0.191 ^{***}	-0.646 ^{***}	1							
V9	-0.303 ^{***}	0.099 ^{***}	0.033 ^{**}	0.293 ^{***}	0.465 ^{***}	0.142 ^{***}	-0.017	-0.117 ^{***}	1						
V10	0.183 ^{***}	-0.060 ^{***}	-0.054	-0.154 ^{***}	-0.147 ^{***}	0.061 ^{***}	0.134 ^{***}	-0.229 ^{***}	-0.459 ^{***}	1					
V11	0.032 ^{**}	-0.011	0.033 ^{**}	-0.055 ^{***}	-0.194 ^{***}	-0.174 ^{***}	-0.132 ^{***}	0.337 ^{***}	-0.261 ^{***}	-0.737 ^{***}	1				
V12	0.163 ^{***}	-0.080 ^{***}	-0.021 ^{**}	-0.142 ^{***}	0.093 ^{***}	0.049 ^{***}	0.018	-0.071 ^{***}	0.023 ^{***}	0.061 ^{***}	-0.083 ^{***}	1			
V13	-0.098 ^{***}	0.028 ^{**}	-0.009	0.111 ^{***}	0.277 ^{***}	0.094 ^{***}	-0.024 ^{**}	-0.061 ^{***}	0.555 ^{***}	-0.305 ^{***}	-0.091 ^{***}	-0.019 ^{**}	1		
V14	0.121 ^{***}	-0.076 ^{***}	0.018	-0.121 ^{***}	-0.119 ^{***}	-0.122 ^{***}	0.071 ^{***}	0.030 ^{**}	-0.156 ^{***}	0.131 ^{***}	-0.023 ^{***}	0.113 ^{***}	-0.159 ^{***}	1	
V15	-0.086 ^{***}	0.014	0.028 ^{**}	0.077 ^{***}	0.038 ^{***}	-0.111 ^{***}	-0.066 ^{***}	0.191 ^{***}	0.064 ^{***}	-0.355 ^{***}	0.338 ^{***}	-0.027 ^{**}	0.048 ^{***}	-0.116 ^{***}	1

BIOGRAPHY

NAME Malee Sunpuwan

DATE OF BIRTH 3 March, 1968

PLACE OF BIRTH Phayao, Thailand

INSTITUTE ATTENDED B.S.N.: Lampang Nursing College, Lampang,
Thailand (1991)

M.A.: Population and Social Research
Institute for Population and Social Research,
Mahidol University, Thailand (2001)

Ph.D.: Demography
Institute for Population and Social Research,
Mahidol University, Thailand (2009)

SCHOLARSHIP: The Wellcome Trust- IPSR Scholarship

HOME ADDRESS: 36 Moo 11, Pafak,
Maechai, Phayao 56230
Tel. +668 1992 0252
E-mail: maleesunpuwan@yahoo.com

POSITION & OFFICE: Lecturer
Institute for Population and Social Research
Mahidol University, Salaya, Phutthamonthon
Nakhon Pathom 73170
Tel. +66 4410201 ext.268
E-mail: prmalee@staff2.mahidol.ac.th