

**FEMALE LABOUR FORCE PARTICIPATION
AND HOUSEHOLD DEBT CHANGE IN KANCHANABURI
DEMOGRAPHIC SURVEILLANCE SYSTEM PROJECT (KDSS)**



**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF ARTS
(POPULATION AND SOCIAL RESEARCH)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY
2009**

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Thesis
entitled
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DEMOGRAPHIC SURVEILLANCE SYSTEM PROJECT (KDSS)**



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ACKNOWLEDGEMENTS

First of all, I would like to thank to the Wellcome Trust, United Kingdom for the financial support of my study and the Institute for Population and Social Research (IPSR), Mahidol University for providing scholarship and permitting me to use data of the Kanchanaburi Project for analytical data.

In addition, the success of this thesis can be made possibly by the attentive support from numerous people. I would like to express my sincere thanks and deepest gratitude to my advisor, Asst. Prof. Dr. Aree Jampakly, who had guided and supervised me throughout the process of completing this thesis. My deeply appreciation goes to my co-advisor, Dr. Umaporn Pattaravanich for her useful suggestions. I am grateful to Asst. Prof. Wg. Cdr. Dr. Ngamlami Piolueang, my external reader for her knowledgeable and constructive comment with kind support. I also extend my thankfulness to Asst. Prof. Dr. Kanchana Tangchonlatip for her kindness in being a chair of my thesis examination and providing recommendations for improvement in this thesis.

Moreover, I am grateful to all the lecturers of IPSR Mahidol. I thank friends, sisters and brothers M.A. and Ph.D. for their caring and kind support. I also would like to thank Archan Thomas Edward Blair who suggested me about thesis writing in English version.

Finally, I am grateful to my family who support me everything. Their love enabled me complete this master degree.

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FEMALE LABOUR FORCE PARTICIPATION AND HOUSEHOLD DEBT
CHANGE IN KANCHANABURI DEMOGRAPHIC SURVEILLANCE SYSTEM
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ABSTRACT

The purpose of this study was to explore patterns of household debt and household debt change between 2000 and 2004. The study further investigated impacts of female labour force participation on household debt change. The analyses used KDSS Round 1 (2000) and Round 5 (2004). 8,434 households were included in the analyses, in which Multinomial Logistic Regression was employed.

Results showed that the percentage of households with in-debtedness was higher than those without debt in Round 1 and Round 5. About 57.0 percent of the households had increased debt, which was the largest proportion in the pattern of household debt change. Having at least one woman working in the household, especially a woman working with no income, strongly affected the change in household debt. Compared to households with women working but earning no income, households with women working and earning income were less likely to have debt increased or decreased than those having no debt. The results were net based on the household assets in 2004, characteristics of the household head, characteristics of the household in 2000 and the characteristic residential area outside household.

The findings suggest that one of the possible ways to improve household debt situation is to support women working and earning income.

KEY WORDS : FEMALE LABOUR / HOUSEHOLD DEBT

74 pages

การมีส่วนร่วมในตลาดแรงงานของผู้หญิงกับการเปลี่ยนแปลงหนี้สินครัวเรือนในพื้นที่เฝ้าระวังทางประชากรกาญจนบุรี

FEMALE LABOUR FORCE PARTICIPATION AND HOUSEHOLD DEBT CHANGE IN KANCHANABURI DEMOGRAPHIC SURVEILLANCE SYSTEM PROJECT (KDSS)

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บทคัดย่อ

การศึกษานี้มีวัตถุประสงค์เพื่อศึกษารูปแบบการมีหนี้สินและการเปลี่ยนแปลงหนี้สินครัวเรือน และผลกระทบจากการมีส่วนร่วมในตลาดแรงงานของผู้หญิงที่มีต่อการเปลี่ยนแปลงหนี้สินครัวเรือน โดยใช้ข้อมูลจากโครงการเฝ้าระวังทางประชากรกาญจนบุรี (KDSS) รอบที่ 1 (พ.ศ. 2543) และรอบที่ 5 (พ.ศ. 2547) ซึ่งมีครัวเรือนสำหรับการวิเคราะห์ 8,434 ครัวเรือน นำมาวิเคราะห์ด้วย Multinomial Logistic Regression

จากการวิเคราะห์พบว่าครัวเรือนส่วนใหญ่เป็นครัวเรือนที่มีหนี้สินทั้งในรอบที่ 1 และรอบที่ 5 ประมาณร้อยละ 57 ของครัวเรือนมีการเปลี่ยนแปลงไปในทางที่หนี้สินเพิ่มขึ้น ครัวเรือนที่มีผู้หญิงทำงานแต่ไม่มีรายได้ มีโอกาสเป็นครัวเรือนที่มีหนี้สินเพิ่มขึ้นหรือลดลงมากกว่าไม่มีหนี้สินอย่างมีนัยสำคัญทางสถิติ เมื่อเทียบกับครัวเรือนที่ไม่มีผู้หญิงทำงาน และครัวเรือนที่มีผู้หญิงทำงานและมีรายได้ มีโอกาสเป็นครัวเรือนที่ไม่มีหนี้สินมากกว่ามีหนี้สินเพิ่มขึ้นหรือลดลงอย่างมีนัยสำคัญทางสถิติ เมื่อเทียบกับครัวเรือนที่มีผู้หญิงทำงานไม่มีรายได้ โดยวิเคราะห์ร่วมกับทรัพย์สินครัวเรือน พ.ศ. 2547 ลักษณะของหัวหน้าครัวเรือน ลักษณะภายในครัวเรือน พ.ศ. 2543 และลักษณะภายนอกครัวเรือน

การที่ผู้หญิงทำงานมีรายได้เป็นของตนเองของจึงเป็นสิ่งที่ควรได้รับการสนับสนุน เพราะจะเป็นแนวทางหนึ่งที่จะช่วยให้ครัวเรือนไม่มีหนี้สิน

CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
ABSTRACT (ENGLISH)	iv
ABSTRACT (THAI)	v
LIST OF TABLES	vii
LIST OF FIGURES	ix
CHAPTER I INTRODUCTION	1
1.1 Background and significance	1
1.2 Research question	4
1.3 Objectives	5
1.4 Contribution of the study	5
CHAPTER II LITERATURE REVIEW	6
2.1 Female labour force participation	6
2.2 Household debt	12
2.3 Female labour force participation and household debt change	19
2.4 Conceptual framework	22
2.5 Hypothesis	23
CHAPTER III METHODOLOGY	24
3.1 Data source	24
3.2 Population	25
3.3 Instrument	26
3.4 Data analysis	31
3.5 Limitation	32

CONTENTS (cont.)

	Page
CHAPTER IV RESULTS	34
4.1 General characteristics of household	34
4.2 Female labour force participation and household debt change	42
CHAPTER V SUMMARY DISCUSSION AND RECOMMENDATIONS	53
5.1 Summary of the study results	53
5.2 Discussion	54
5.3 Recommendations	62
BIBLIOGRAPH	64
APPENDIX	71
BIOGRAPHY	74

LIST OF TABLES

Table	Page
3.1	30
4.1	34
4.2	35
4.3	36
4.4	36
4.5	37
4.6	38
4.7	39
4.8	41
4.9	44
4.10	48
4.11	51

LIST OF TABLES (cont.)

Table		Page
A.1	Multinomial Logistic Regression Analysis of impact of female labour force participation on household assets change (ref: have woman but not working)	72
A.2	Multinomial Logistic Regression Analysis of impact of female income earning on household assets change (ref: have woman but not working)	72
A.3	Multinomial Logistic Regression Analysis of impact of female income earning on household assets change (ref: women working but no income)	73
A.4	Percentage distribution of households by female labour force participation and residential area	73

LIST OF FIGURES

Figure		Page
2.1	Trend of male and female workers in the agricultural sector 1987-2007	7
2.2	The percentage dispersion comparison of male and female workers by occupation	7
2.3	Trend of female labours in market place 2001-2009	8
2.4	Blumberg's theory of gender stratification	21
2.5	Conceptual framework	23
3.1	Selection of households to be analyzed for this study	25

CHAPTER I

INTRODUCTION

1.1 Background and significance

This study aims to explore the effects of women working outside the home on household economic status. In economics, the household is the foundational social institution and the primary economic unit. The household is both a consumer unit and source of productivity, including land, labour, capital, and entrepreneurship (Boonkong Hunchangsith, 2006, p. 54), and women play key roles in both household consumption and production. Thai society depends heavily upon women in terms of productivity and alternative sources of labour. Women help to promote labour for energy that lost in each day so as to be ready to work in the next cycle of following day. Women help integrate their families into the larger through consumption activities as well as providing labour for household activities. Additionally, women also play a direct role in production as labourers outside the home (Teeranad Kanjanauksorn, 1999, p. 119). The separation of gender roles in the past was based on traditional values. In Asia, men are generally considered to be the heads of households and the primary breadwinners for the family, and thus work outside the home. Women, on the other hand, take on the role of homemaker and caretaker, especially with regard to raising children. This role constrains women's interaction with the world outside the home (Passorn Limanont, 1998, p. 259-260).

Modern society, on the other hand, provides opportunities for women to broaden the repertoire of roles they play. In addition, changing economic conditions have forced large numbers of women to work outside the home to help support their families (Teeranad Kanjanauksorn, 1999, p. 98). Women comprise 56.6 percent of the global labour force—43.5 percent in Asia and 61.2 percent in East Asian and the Pacific (Kupt Punhingong, 2008). In Thailand, a survey of the National Statistical Office of June 2008 (2008) found that among the population of 66.18 million, 37.83 percent were of working age—46.0 percent of whom were women. Sixty-five percent of all

working-age women were employed, 6.83 million of whom were working in agriculture, which is a fundamental economic sector in the Thai economy. A large number of women, 10.40 million, has left the agricultural sector as a result of economic growth and industrialization, which have increased the demand for female labour, resulting in almost equal numbers of women and men working in industries such as textiles, mining, construction, etc. (Teeranat Kanjanauksorn, 1999, p. 98).

However, most of Thai women working outside the agricultural sector represent a source of unskilled labour, whereas there are number of men more than women in foremen and industrial employers. Therefore, while the status of women may have improved for those in the middle and upper classes that represent a source of skill labour, no matter what sector female labourers work in, they are confronted with bias (Supawadee Petcharat, 2003).

Studies indicate that the income women receive does not equal that of men. According to “The Global Gender Pay Gap” published by the International Trade Union Confederation (ITUC), on average women are compensated up to 16 percent less for their work than are men, and the gap is even greater when comparing educated women to educated men. The study found that women who had a higher education often received wages not corresponding to their level of education. Despite the forces of globalization and competition that has decreased the gap, men still tend to receive higher wages than do women. In fact, in some regions and countries there has been hardly any change at all ([Prachathai] 2008). For instance, in South Asia, 60 percent of working women receive no wages at all. For Southeast Asia and the Pacific, this figure is 11 percent. Women in the manufacturing sector of Korea and Japan receive 60 percent less than their male counterparts. In Singapore, Taiwan, and Hong Kong, women receive 30–40 percent less than do men ([Khaosod]b 2008).

In Thailand, women receive lower wages than do men for the same type of work and position. This is the case in agriculture, fisheries, construction, logistics, transportation, and domestic services. According to a National Statistical Office study of 2000 and 2001 (Supawadee Petcharat, 2003), salaries of males and females were, respectively, 69,482 and 55,359 baht for directors, 37,765 and 22,606 baht for managers, 18,248 and 16,126 baht for supervisors, and 10,206 and 9,505 baht for staff. This may be due to a general view that women are not the breadwinners of the

household. This is likely one reason that women change jobs more frequently than do men. Women lose the opportunity to develop various skills that may help them professionally and provide opportunities for promotions, which tend to be far fewer than those provided to men.

Even though the main source of household income may come from men, supplementary income from the jobs women do also helps household economic status. Given the current economic situation, unemployment, and long-term cost-of-living increases, Thai households may find themselves in debt. A study of debt in 2008 by the Center for Economic and Business Forecasting, University of the Thai Chamber of Commerce ([Khaosod]a 2008) investigated 1,232 households across the country and found that Thai households have an average debt of 135,166.34 baht. Debt from formal sources accounts for 65 percent. The average debt of Thai households in 2008 has increased 2.2 percent from those in 2007 that have an average debt of 132,262.65 baht.

Additionally, the Center for Economic and Business Forecasting ([Khaosod]a 2008) also found that 63.5 percent of households had a problem finding sufficient income to meet expenses, largely as a result of expensive goods, high interest rates on loans, and expensive fuels. About 47.1 percent of households with debt try to solve the problem by taking out loans. This is consistent with a study by the Bank of Thailand, indicating that low income households are at risk of falling into debt because their expenses are greater than their income. Low income households, which earn on average 4,342 baht a month, have a debt of about 32,000 baht, or 7.3 times their monthly income. Mid- to high-income households, with average incomes around 9,406 baht and 16,675 baht, respectively, have average debts of 47,300 and 90,000 baht, or 5.0 and 5.4 times of their income, respectively ([Khaosod]c 2008).

The study makes use of Kanchanaburi Demographic Surveillance System (KDSS) data, a longitudinal study conducted from 2000 to 2004. The project was carried out by the Institute for Population and Social Research (IPSR), Mahidol University, supported by the Wellcome Trust, United Kingdom. According to KDSS data, unemployment among women had increased between 2000 and 2004. In the KDSS, the proportion of unemployment among women aged 15 and over was about three times greater than it was for men. There has been a slight increase over time in

the proportion of unemployment among women: from 24 percent in Round 1 (2000) (Aree Jampaklay, 2003, p. 56) to 26 percent in Round 5 (2004) (Rossarin Gray, 2004, p. 44). The highest proportion of working women was employed in the agricultural sector, which was the major economic activity (Vorachai Thongthai and Sureeporn Punpuing, 2000, p. 43). No analysis of changes in female labour force participation and household debt in the KDSS has yet been done. Thus, it remains to be seen whether female labour force participation in Kanchanaburi has affected household economics in relation to any changes in household debt. Since the KDSS is a longitudinal study, it allows for investigating household debt change.

This study focuses on women's participation in the labour market and changes in household debt. We expect to show the economic effects of women working outside the home on households. The result of the study will help promote equal career and work opportunities, reduce wage gaps and differences in male-female employment rates, as well as equalize working hours between male and female labourers. This study examines whether or not the entry of women into the job market affects household debt and whether gender equality in the labour market can significantly improve both women's and households' economic condition. The Thai economy has expanded into non-agricultural areas such as financial and service industries. Economic growth has resulted in a high demand for labour because of a shortage of machinery and capital to be used as an important part of manufacturing. Labour has thus become the most important resource. It exists in abundance, and women compose almost half of the working population. Therefore, opportunities for women should be appreciated and promoted for the economic benefit of individual households and for the country as a whole.

1.2 Research question

How does female labour force participation affects changes in household debt?

1.3 Objectives

1.3.1 To study patterns of household debt and household debt changes in the Kanchanaburi Demographic Surveillance System (KDSS) between 2000 and 2005.

1.3.2 To investigate impacts of female labour force participation on changes in household debt.

1.4 Contribution of the study

1.4.1 The study provides a clear understanding about the impact of female labour force participation on household economic in the Kanchanaburi Demographic Surveillance System.

1.4.2 The results from an understanding of the impacts of female labour force participation on changes in household debt will inform policy development for working women in the context of Kanchanaburi. The results will be especially beneficial for context-based policy since working women in urban and rural areas have different statuses in terms of income earning.

CHAPTER II

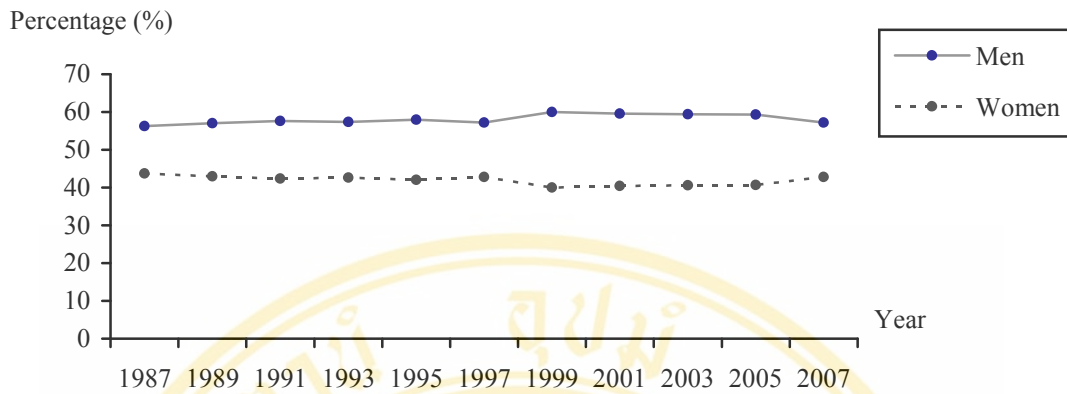
LITERATURE REVIEW

This chapter reviews concepts, theories, and past research concerned with female labour force participation and household debt change as follows;

- 2.1 Female labour force participation
- 2.2 Household debt
- 2.3 Female labour force participation and household debt change

2.1 Female labour force participation

Since the Sukhothai period, women, especially those from the middle and lower classes, have performed domestic labour. They have also produced traditional handicrafts, but such labour produced little or no income. In the Rattanakosin era, women were employed in the agricultural sector, in domestic work, etc., as a result of national development. Later, the global depression and World War II pushed women out of their households to find jobs in order to support their families (Mayuree Chaiyasit, 1988, p. 44-47). Since then, the number of female labourers has steadily increased. Women nowadays have a broader range of choices for employment. This is in part the result of the consistent promotion and development of job opportunities for women from 1995-2006 (Thailand's Gender Information Center, 2007). Employment opportunities for women have expanded from the agricultural sector to other economic sectors. According to labour reports from 1987 to 2007, there has been very little change in the percentage of women in the agricultural sector from 1987 to 2007 (Figure 2.1).

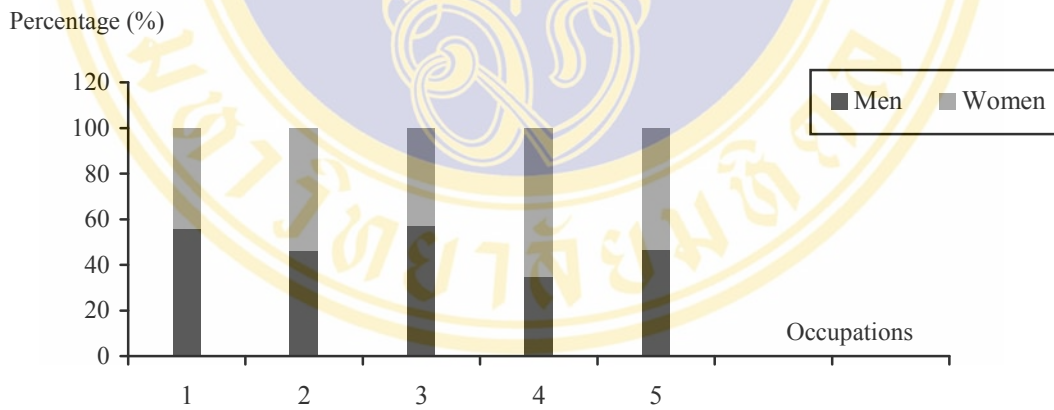


Source: Gender and Development Research Institute: GDRI (2007)

Figure 2.1

Trend of male and female workers in the agricultural sector 1987-2007

As for the industrial sector, the National Statistics Office in 2007 found that there were more females than males in the manufacturing and service industries (Figure 2.2).



Source: Calculated from the Labour Force Survey by the National Statistics Office (2008)

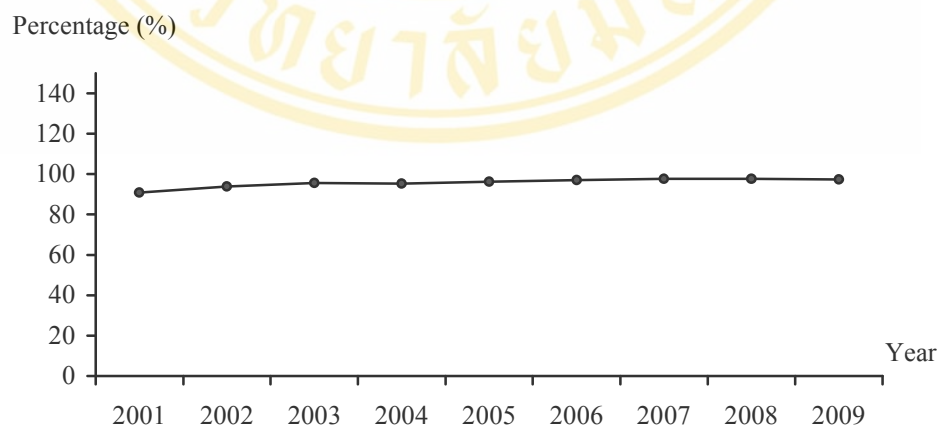
Remarks 1 refers to agriculture, forestry, hunting, fishery 2 refers to manufacturing
 3 refers to finance 4 refers to services
 5 refers to others

Figure 2.2

The percentage dispersion comparison of male and female workers by occupation

Additionally, throughout the industrial sector uneducated female labourers outnumber males, while labourers with a high school education or higher tend to be male. Most female labourers have migrated from the agricultural sector or from poor rural families that have traditional Thai lifestyles, in which young women help with the housework, take care of siblings, and make sacrifices so that younger siblings or elder brothers can study. Such women thus often miss out on their own education. When the economic situation pushes women into the labour market, their choices are most often limited to manual labour in factories and businesses such as manufacturing and assembly of computer components, textiles and clothes, shoes, canned and frozen goods, dolls and toys, etc. These industries need unskilled or low skilled labour, but emphasize meticulousness and patience, qualities associated with (young) women. Employers also prefer women because they are perceived to be easier to manage and not to cause problems in terms of labour relations (Supensri Pungkoksoong, 2006).

Nowadays, Thai women have better job opportunities and play an economic role in the country. According to a survey conducted by the National Statistical Office from 2001 to the first quarter of 2009, there has been little change in the number of women in the marketplace. There has been a large proportion of female labourers every year and a slight increase in the proportion of female labourers over the years.



Source: Calculated from the Labour Force Survey by the National Statistics Office in Quarter 1 from 2001 to 2009

Figure 2.3

Trend of female labourers in market place 2001-2009

However, the wages between women and men, the wage rate for employees outside the agricultural sector between women and men is different, and overlaps each other. Data of the Social Security Office (2005) show that male employees have higher average incomes than female employee. This is especially true for those receiving monthly wages exceeding 10,000 baht, a group in which there were significantly fewer women. Nevertheless, the wage gap between women and men had gradually decreased from 12.37 percent in 1988 to about 4.71 percent in 2006 (Thailand's Gender Information Center, 2007).

As mentioned above, women nowadays play an increasingly prominent role in the labour market. This is possibly because real wages for women have increased (thus encouraging women to enter the labour market) (Pannee Charumporn, 2005) or because of changes in tastes and attitudes, a lower birth rate, and the increased prevalence of divorce. Higher wages for women allow them to receive more money over time. A long-term financial contribution by women can increase household income, which once depended solely on men. Since the income from men is often insufficient these days, especially among those in low wage jobs, many households must adapt by having two breadwinners (husband and wife) to maintain the livelihood of the household.

There are several other possible reasons for women's more prominent role in the labour market. After the Second World War, there was greater acceptance and support for women to join the workforce. Since then, changes in tastes and attitudes as a result of the resistance to discrimination in the 1960s and better access to "men's jobs" have also evolved and the range of jobs accessible to women expanded. In addition, at present there are more part-time jobs for women, thus allowing them to work both as homemakers and workers outside the home. Finally, higher education among women has changed their attitudes regarding the type of labour they are willing to perform.

The decreasing birth rate, a result of the widespread use of birth control, along with lifestyle changes, whereby the smaller number of children reduces women's responsibilities, allows and even encourages women to be part of the workforce. But women who sacrifice job and career opportunities in favor of care giving find that when they go back to work, their wages are usually low. Only 16

percent of women who go back to work receive the same wages (Fawcett Society, 2008).

The last reason is divorce, which greatly affects the economic status of women, especially women who are dependent on their husbands as their sole source of income. Very few women receive alimony or even child support payments after a divorce. Indian law states that women are only entitled to one-fifth of the money their husband pays the government in the form of taxes (Ray and Rai, 2006), thus often forcing women into poverty, forcing them to solicit welfare from the government, or pushing them into the market. In conclusion, divorced (and separated) women may enter the workforce simply as a way to survive.

Nevertheless, for the aforementioned reasons it can be seen that the income generated from entering the workforce is an important reason that has increased the numbers of working women. A study by Chidchom Watcharaned (1979, p. 112-114) demonstrates the importance of income as the reason women work. The study found that most women who worked in banks stated that it was income more than any other reason that had led them to work. According to this study, 92.8 percent felt that husbands should encourage women to work outside the home, and only 27.68 percent of women intended to leave their jobs if their husbands left their jobs because they felt that modern women need to work outside the home in order to share the economic burden of the household. This corresponds to a study by Sudsawat Dissaraj and Malinee Wongsit (1988, p. 45), which found that female members of households needed to help out the household, especially in cases where the head of the household was unable to provide enough income. This often occurs in households where the head of the household is female. Rural households with females as heads are more susceptible to impoverishment than households with males as heads (Teeranat Kanchanauksorn, 1999, p. 102). Additionally, a study of Pimolpan Vayajud (1992, p. 79) found that households in which the wife does not work outside the house have problems of insufficient income, forcing the household to take out loans for household expenses. Thus, some women work outside the home in order to play a necessary part in providing for their households.

When women start playing a greater role in the workforce, changes occur within the household. Past study suggests that the most visible changes are increased

income, increased household expenses, and reduced time spent in the household. The increased income empowers women to decide matters concerning the allocation of resources to household members. According to Becker (1981, quoted in Bernasek and Bajtelsmit, 2002), household decisions are made by the head of the household. If the head of the household makes decisions for the general benefit of all, the allocation of resources within the household will be equally dispersed through the household, making the most of their resources. However, economic decision-making takes into consideration other factors as well (Bernasek and Bajtelsmit, 2002). But Becker did not consider the differences between the various members of the household, such as sex and income, which can have an effect on decision-making power and thus allocation of resources. Other research suggests that bringing income into the household gives a person a sense of entitlement in the household. Especially in the case of women in high-income households, an income gives them a greater voice in decision-making with regard to how money is spent (Rosenblatt and Rake, 2003).

The fact that women with incomes gain decision-making power in the household changes the consumption dynamics within the household. Past studies have found that increases in household income as a result of women working outside the home lead to increases in household consumption (Lang, 1997). This is especially true regarding the consumption of food outside home. In addition to food consumption, the consumption of other services, such as laundry and childcare, can also increase (Machado, 2007). This is consistent with a study of the mode of expenses of male and female household heads in South Africa, which found that female heads of household spent the extra money on food, clothes, and fuel, whereas male heads of household spent it on the purchase of a house, contributions to savings, vehicles, various services, and beverages (Punt et al., 2003). Additionally, an investigation of male- and female-headed American households found that there were vast differences in the management of household finances between men and women. For example, 72 percent of women paid household expenses, whereas only 52 percent of men did (Daily and Household Expenses Holding Steady – Consumer Spending Research, 2000).

Women working outside the home has resulted in a more equal management of resources between the male and female members, especially in terms of investing in children. Normally, if a household has little income, the household will

choose to invest in boys over than girls. Only with a higher income will the household invest in girls (Lokshin and Mroz, 2003). However, one study found that if a mother earns her own living, the chance of her daughters or other girls in the house getting an education increases (Lang, 1997).

Results of women spending less time in the household should also be noted. Tallcott (1959, quoted in Pimolpan Vayajud 1992, 10-11) analyzes role differentiation emphasizing the role of the man outside the household and the role of women within the household. Two types of roles are mentioned—the instrumental role and the expressive role. The instrumental role refers to the role of sustaining the household, especially in the case of taking up professions that will cause changes in the household. Men are expected to play the role of breadwinner. The expressive role refers to providing emotional support, such as taking care of the children and giving love and warmth to household members. Women are expected to fulfill this expressive role. Many duties in the household fall on women, even in situations where they have duties outside the home and where they are also breadwinners for the household.

When women work, their time spent at home is lessened. This greatly affects their children. A study of women working outside their homes in African countries found that decreases in the time women spend taking care of their children, even though they may continue to breast-feed, prepare nutritious meals, and take care of children when they are sick, affect the health of children under the age of 5 (Lang 1997). This is in addition to decreased provision of emotional support and care. The children feel abandoned and stressed because both parents are out working to support the household (Information Management for Women and Family 2008).

2.2 Household debt

“Debt” refers to money or goods of value received from others under obligations to pay off in the future. In general, the object of value can be money, goods, services, or financial rights such as business shares or government bonds, which usually indicates an amount of money.

More fundamentally, “debt” is negative wealth, stated in a unit of account. A pound of sugar in the cupboard is a piece of wealth. A pound of sugar borrowed

from a next-door neighbor yesterday, to be returned today, however, is not yours but your neighbor's. Suppose that when you go to the cupboard, you find that the children have mixed all the sugar into their mud pies. Then your sugar is less than nothing, and you have to scurry around and get a pound before your sugar "wealth" can be brought back to zero. You have to get one pound of sugar. Similarly, a debt is something you have to subtract from the amount of property in your hands to find out how much your wealth is (Hart and Kenen, 1961, p. 6). The debt mentioned is an example of waste debt that impoverishes, which means anything that makes us pay from our own money including debt from using a credit card, car loans, personal loans or mortgages. Although mortgages may be a waste debt, it is better than a car loan. In conclusion, waste debt is when money is taken from our pockets causing one to grow poorer (Olan Patrakobkit, 2006, p. 39).

Such debt is an example of "waste debt" or debt that impoverishes, which means anything that requires us to pay from our own funds, including debt from using a credit card, car loans, personal loans, or mortgages. Although mortgages may be an example waste debt, it is better than a car loan. In conclusion, waste debt is debt that requires money to be taken from our pockets, causing one to grow poorer (Olan Patrakobkit, 2006, p. 39).

Nevertheless, debt can also be a good thing for a household. Tapping the household's future income for expensive durable goods, whether vehicles, refrigerators, or tools can provide returns on investment since such items can be used to generate more household income. If the household faces an emergency such as illness or unemployment, this extra income can be used to meet these needs (Ariyaprucha, 2007). Debt acquired for the sake of investment can also generate income if it is "good" debt, such as taking out a loan to buy rental property to rent at a higher rate than the monthly mortgage and associated expenses. Loans for SMEs that result in growth are also good as long as the business is able to pay off the debt. The best kind of loan is one that does not require collateral, and thus able to give a security (Olan Patrakobkit, 2006, p. 39).

Therefore, it is inconclusive as to whether debt is in fact good or wasteful since the objective of the debt needs to be taken into account. Nattakan Sasing (2007, 8-9) has categorized objectives of loans and separated them into three classes: debt for

consumption, housing, and investment. Consumption debt occurs when loans are taken when there is insufficient income for day-to-day consumption, frivolous expenses, or emergencies, all of which would have to be paid before money became available. Therefore, the person taking the loan is not able to pay it back easily.

Another kind of debt is debt for housing, which, although usually large and long-term, results in greater value over time, after the debt has been paid off and, ideally, the value of one's property has appreciated. Therefore, debt for housing can give long-term stability.

The third kind of debt is investment debt, which is separated into educational debt and business investment debt or professional debt. Educational debts are loans taken to invest in the future of the person receiving an education, as well as for those associated with that person. Business or professional debts are loans taken out to pay for various expenses that are involved with business or professional investments. Taking out loans for such objectives provides opportunities for greater dividends than for other kinds of loans, but at a risk. Therefore, this study looks at debt in terms of debt repayment in the future, which can be either "good" or "wasteful" debt.

Previous studies of factors related to household debt suggest that one factor that should be considered is income. According to a survey of the National Statistical Office and a survey of the attitude of households towards debt and saving by the Bank of Thailand, households with debt or low income (less than 25,000 baht per year) have a greater chance of experiencing financial problems than households in general (Yangyong Thaicharoen, Kiatipong Ariyapracha, and Thitima Chuchert, quoted in Pipat Lowacharasindhi et al., 2004, p. 27). A study by Suluk Sangiempluk (2001, p. 58) found that police bureaucrats who earned between 5,000 to 22,500 baht were all in debt. Those with incomes between 20,000-22,500 baht had the greatest debt, while those with mid-incomes, from 15,000–17,500 baht, had the lowest debt.

Characteristics of household heads, especially gender and marital status, are also related to debt. According to Fisher and Lyons (2003), who studied the ability of women to pay off debt following a divorce, households with a divorced woman as household head are less likely to pay off debt than households with either a divorced man and or a married man as household head. This corresponds to a study by Hamar

(2007) that found that households headed by divorced female heads had more debt than did households with single females as heads of households. But the amount of debt differs when households with divorced females as heads are compared to households with single males as heads. For debt-to-household income ratio, it is found that households with divorced female heads are more likely to have higher debt-over-household-income than that are households with single male or female heads.

Most studies of the relationship between gender/marital status and debt in Thailand show no linkages. However, a study of gender by Rodjana Sansom (2001, p. 52) found that female public primary school teachers were more likely to be in debt than their male counterparts. In terms of marital status, the findings are more varied. Suluk Sangiempluk (2001, p. 57) found that marine police who were single had less debt than those who were married, separated, widowed, or divorced. This is consistent with a study by Rodjana Sansom (2001, p. 57), which found that married primary school teachers have a higher tendency to be in debt than their single, divorced, or widowed counterparts. However, Pipat Lowatcharasundhi et al. (2004, p. 51) found that employees at Asahi Intecc Thailand Co., Ltd. who used credit cards and who were married had a less debt than their single counterparts.

Another characteristic of household heads related to debt is age. According to the Life Cycle Model proposed by Ando and Modigliani (1963, quoted in Guy, 2004), households headed by young adults (who have recently entered the workforce) will have a rather low income and minimal accumulated wealth. Therefore, at this stage members of the household have the desire to maintain their level of consumption. The older the household, the greater the income compared to expenses, allowing the household to pay off its debt, as well as to accumulate wealth in the form of savings. Based on this theory, Sutapa Amornwiwat and Varaporn Kanchanawat (2005, p. 7) have argued that the level of debt will change along with the age of the household head. The level of debt will continue to increase until a certain age due to consumption outstripping income. Eventually, debt will decrease as income increases along with the age of the household head, thus allowing for savings. At retirement, income will once again decrease, and the household savings will inevitable decrease until exhausted.

The mentioned consumption is consuming dispersion through a lifetime under the limitation of income or income forecasts for the lifetime. Pipat Lowacharasundhi et al. (2004, p. 50) found that employees at Asahi Intecc Thailand Co., Ltd. who used credit cards, as they got older, were more capable of paying off bills than were their younger counterparts. This corresponds to a study by Rodjana Sansom (2001, p. 53) that found that young primary school teachers were more likely to be in debt than their older counterparts. However, Suluk Sangiempluk (2001, p. 68) found that older marine police also had higher debt. This is consistent with a study by Dechapan Duangrat (1992, p. 48), who found that as the age of the household head increases by one year, the debt of petty officers by 87 baht.

In addition to age, other factors within the household may be related to debt, for example, the number of household members. In general, Thai households have interdependent relationships, which allow for mutual aid in times of trouble but which sometimes lead to an unforeseen drain on household assets. Even friends who creates close bonds develop a social factor of this fundamental group that stimulates conformity of imitation in luxuriant behavior within the group (Pipat Lowacharasundhi et al., 2004, p. 46-51). Therefore, the number of household members is related to consumption and household expenses, which means that an increase in household members will also increase the consumption and expenditures of the household. This may affect the household debt.

The number of members of dependent age is another factor that may be associated with household debt. "Members of dependent age" refers to those who are in either children or elderly. At present, the number of elderly who require care has increased as a result of advances in medicine and public health programs that prolong human life, imposing upon households the burden of caring for these elderly (Information Management for Women and Family, 2008). Old age is a time when the ability to take care of oneself and the ability to work decrease. The most common problems for this age are health-related and require close care. Additionally, childhood is also an age when individuals are unable to take care of themselves and are dependent on constant care. If a household includes children and elderly, it will inevitably have health-related expenditures. Investment in children's education might also drag a household with insufficient income into debt. On the other hand, the

number household dependents can also decrease a household's debt, as found in a study by Dedchapan Duangrat (1992, p. 47-48), which found that households with one additional dependent decreased the debt of petty officers by 600 baht. But Rodjacha Sansom (2001, p. 59) did not find any relationship between the number dependents and debt among primary school teachers.

Whether or not household members contribute to household income is, obviously, of great significance. Household members in the workforce will result in changes in household income and debt. However, Rodjana Sansom (2001, p. 61) did not find a correlation between the number of household members in the workforce and debt among primary school teachers. The study, however, did not take into account the gender of working members.

Household property can imply household wealth since it can be converted to marketable value that can be used to pay for household expenses. If the household has a large parcel of land, the opportunity to create wealth also increases. Land is an asset that assures that lenders will grant loans; the more land, the more the confidence of the lender. Therefore, household property is another factor that is related to debt.

In addition to the aforementioned factors that potentially relate to debt, two more factors should be taken into account—occupation and level of education. For example, farmers may have debt problems more than do workers in other sectors. The Committee for the Cooperation of Public Enterprises for the Development of the Southern North and Central regions (Suthisom Dangsong, 1993, p. 38-39, quoted in Rodjana Sansom, 2001, p. 24-25) found that people working in the agricultural sector were in debt due to accumulated debt, natural disasters, low prices for their products, gambling, children's education, frivolous spending, and housing. Individuals in the non-agricultural sector are also confronted with financial problems, depending on the nature of their profession.

Levels of education may also be related to debt. For example, marine police with at least a bachelor's degree had less debt than did those with lower levels of education (Suluk Sangimluk, 2001, p. 55). However, Rodjana Sansom (2001, p. 54) found that public school teachers with at least a bachelor's degree were more likely to be in debt than those without a degree. This study did not correspond with research by Yangyong Thaicharoen, Kiatipong Areeyaprachaya and Thitima Chuchert (2004,

quoted in Pipat Lowacharasundhi, 2004, p. 27), who found that if a household's members have a low level education and a limited understanding of finances, they are more prone to financial problems than other households. Pipat Lowacharasunti et al. (2004, p. 49), on the other hand, did not find a correlation between level of education and debt problems.

Social factors are other issues with which researchers are concerned when studying debt, especially in terms of residential area. According to the Dependency Theory and Modernization Theory, which focus on development around urban centers of the country and the central city in each province, development expands to the suburbs. The two theories predict that a society will maximize production of consumer goods, fueling higher consumption in society. For this reason, urban society is the first to become consumerist, conforming to the values of developed countries (Kua Wongboonsin, 2002). These values spread to rural society as well as a result of the rapid increase in household consumption. As the income of the rural population increases the consumption pattern of rural people begins to resemble that of urban populations despite the fact that their buying power has not increased accordingly. The conformity of rural population as they adopt the lifestyles of urban populations is facilitated by the development of transportation and communication systems. Thus, as rural people become aware of the amenities enjoyed by their urban cousins that make their lives easier, and through the influence of product marketing, rural populations aspire towards similar amenities. These things are important reasons behind lifestyle and consumption changes (Suluk Sangiemluk, 2001, p. 10). Therefore, residential area should be taken into consideration.

In conclusion, the variables noted above are potentially related to debt. This study employs all of those variables where possible and divides them into three groups: characteristics of the household head (age, gender and marital status, education, and occupation), characteristics of the household (number of household members, number of members who are dependent by virtue of their age, education of household members, occupation of household members, male labour force participation, household assets, and amount of land owned), and characteristics outside the household (residential area). The study also includes household assets.

2.3 Female labour force participation and household debt change

Research that has directly addressed the effects of female labour force participation on household debt change is scarce, but using referential analysis of similar research enables us to see that the effects of working women on household debt can be both positive, negative, or may not be related at all.

According to the World Economic Forum (2005), women in Thailand have the highest economic participation compared to any country in the world. This participation is not only due to the number of women in the workforce, but also due to the relative equality of pay that women receive. While women's participation in the workforce increases household income (Maritra and Ray, 2000, quoted in Punt et al., 2003) and may result in increased spending on household consumption, it may also allow women begin saving and paying off debt. However, it is also possible that the leftover money may be spent by the male members of the household or on other things. A study in the United Kingdom found that men have non-mortgage debt up to 5,000 pounds, which is twice that of women (Fawcett Society, 2007). Men also make more decisions regarding investments than do women (57 percent compared to 43 percent) (Daily Household Expenses Holding Steady – Consumer Spending Research, 2000). If this is so, household debt may increase even though there is a double income from both men and women. Therefore, changes to household debt may not simply the result of income changes alone.

The household is a “black box,” in that we know what goes into the household but do not know the extent of redistribution among family members (Rosenblatt and Rake, 2003). Income is a catalyst that creates decision-making power in the household. Bernasek and Bajtelsmit (2002) suggest that when studying economic decisions of a household and related bargaining power, we should take into account not only the income generating work that women do outside the home, which allows women to accumulate their own property, but also their non-income-generating work. This would show whether women's economic decision-making power depends on their being paid for their work or not.

In the Thai context, women are considered to have relatively equal social and economic status both within and outside the household. Women in rural areas work side-by-side with men. In the cities, there is a large proportion of women who

work outside the home (Kerry Richter and Napaporn Hawanont, 1995, p. 5). Interestingly, not only do women receiving an income have decision-making power in the household, but so do women who are not working, although this may depend on their husbands (Napaporn Chomduang, 1993: abstract). This decision-making power on the part of Thai women may decrease household debt.

However, the mere fact that women work may not necessarily help reduce debt because women's wages may be quite low. To aggravate the situation, women's income may decrease once they are married, especially when women have to move with their husbands, causing them to leave their jobs and thus lose income. In addition, mothers must often quit their jobs to take care of their children. If these women decide to go back to work after a break of 2-3 years, they will most likely have to do so at lower pay. In some cases, women may have leave work or take part-time jobs or jobs with flexible times in order to take care of elderly people in the home, thus resulting in lower income for these women (Ray and Rai, 2006). Furthermore, women are not generally paid for housework, even though these activities are necessary for the well-being of the household. In cases where domestic obligations and gender bias limit women's career options and opportunities to build their own wealth and stability, women face hardship when they are the primary breadwinners. Thus, just because women may have a role in managing household budgets does not mean that women have the power to control the income of the household (Kerry Richter and Napaporn Hawanont, 1995, p. 6). Therefore, even though women enter the workforce, this may not change the household debt at all, or may even further increase household debts.

According to Blumberg's gender stratification concept (Collins, 1988, p. 165-168), the economic power of women stems from their income and ownership of property, which allow them to control their own lives, no matter their choice of lover, their marital status (i.e., single, separated, divorced or not), their reproductive rights, nor their relative power in the household. However, if women have little economic power, it will force them to depend on their husband or father. Men will have the power to restrict women to a domestic role. Blumberg explains factors that give women economic power according to the model shown in Figure 2.4.

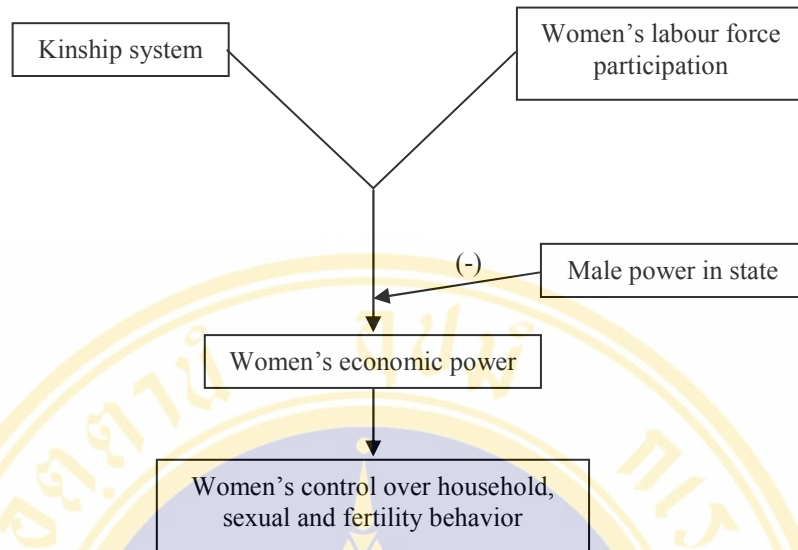


Figure 2.4
Blumberg's theory of gender stratification

According to the figure, the factors that affect women's economic power are the kinship system and women's workforce participation. In general, men inherit, thus household economic power resides with them. However, if women are able to inherit property, their economic power increases. For instance, post-nuptial residence can be an indicator of economic power. If men must move to wife's family household or community, women's economic power is higher than that of men. Conversely, if women must move to husband's family household or community, women's economic power is lower, as medieval China or India.

In societies where women's work provides the bulk of economic sustenance, women's economic position is higher. Thus, in many hunting-and-gathering tribes, where women provide most of the staple food supply through gathering, women have relatively favorable positions. By contrast, where heavy work is performed by men, women tend to be excluded from the sphere of basic economic production and become low-status and subservient domestic workers. Although women may sometimes enter the labour force in greater numbers, at other times they are largely excluded or kept in menial jobs. The difference, according to Blumberg (Collins, 1988, p. 168), depends on whether there is a surplus of male or female labour. When there is a shortage of men, women will be recruited to do what was once

male work. When there is a surplus of male labour, women are forced out of jobs into the domestic sphere.

Male power in the public and political domain is another condition that affects women's economic power. Even though women may play a role in local politics, men usually control the larger, military-based state. Hence, the state can intervene to force women into the domestic sphere by prohibiting their economic participation or their ownership of property.

Nevertheless, Blumberg's theory has an important weakness since it does not propose an association of the three conditions in the model. When one condition exists, it does not explain how the other conditions might influence women's economic power. For instance, when women play a role in the workforce, but do not inherit, how does this affect women's economic power?

Despite its weaknesses, the theory is still applicable as an approach in order to study the impact of female labour force participation on changes in household debt. According to the theory, labour force participation can increase the economic power that one holds within the household. Therefore, women's participation in the workforce not only gives women decision-making power in the household, including control other economic decisions and expenditures, but it can also lead to the paying off of debt or, on the other hand, the creation of new debts within the household. Although Thai society is an agricultural society, which, according to the theory, gives women low economic power, it nevertheless relatively empowers women. Therefore, women's labour force participation is able to decrease household debts.

2.4 Conceptual Framework

This study aims to investigate the impact of female labour force participation on household debt change. The analyses control for selected variables at baseline survey that may impact household debt change, such as characteristics of household heads (age, gender and marital status, education, and occupation), characteristics of households (number of household members, number of dependent members by virtue of age, education of household members, occupation of household members, male labour force participation, household assets, and amount of land owned), and

characteristics outside households (residential area). Moreover, the analysis takes into account an intervening variable, namely, household assets in 2004, in order to investigate the impact of women’s labour force participation on household debt and whether the impact affects debt through household assets (Figure 2.5).

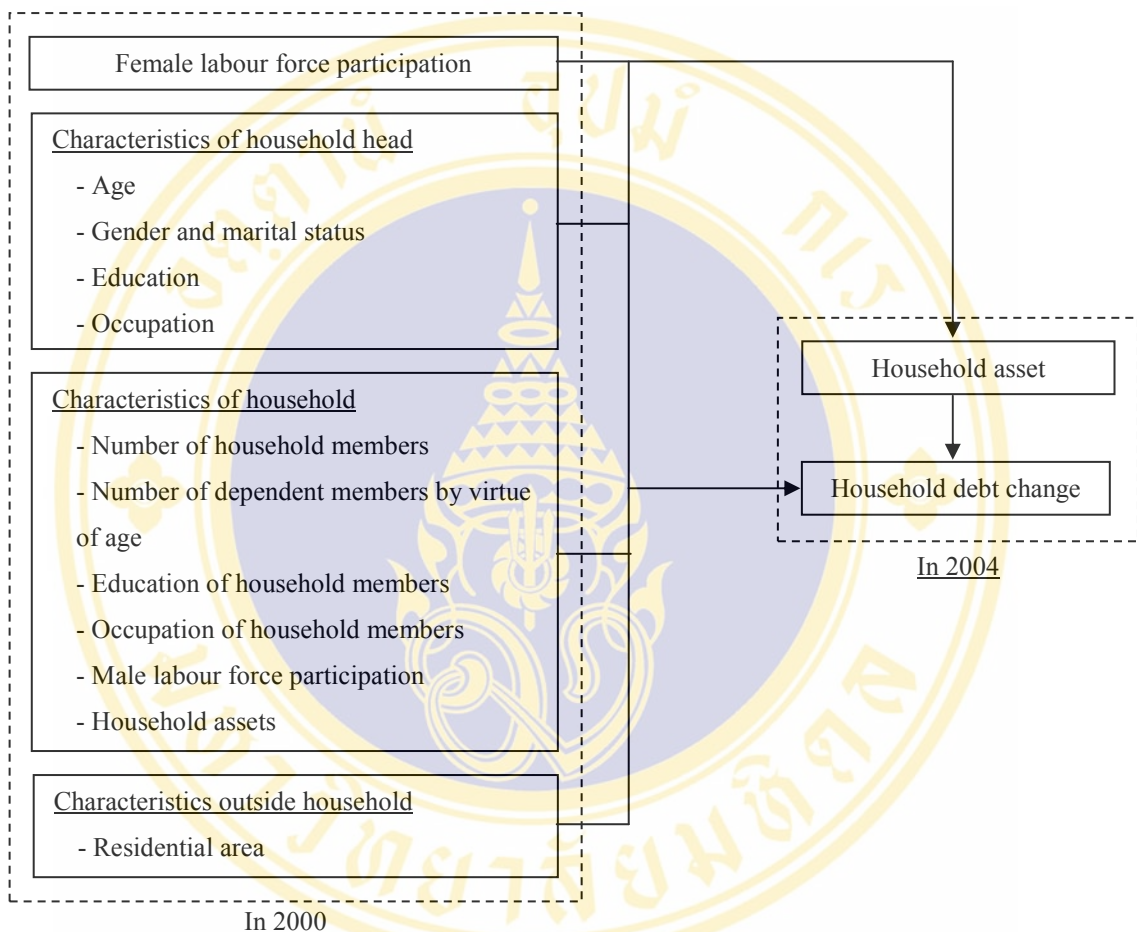


Figure 2.5
 Conceptual framework

2.5 Hypothesis

Households with women working are more likely to have experienced a decrease in debt.

CHAPTER III

METHODOLOGY

3.1 Data source

This study used data from the Kanchanaburi Demographic Surveillance System project (KDSS). The Kanchanaburi Project was conducted by the Institute for Population and Social Research (IPSR), Mahidol University, supported by the Wellcome Trust, United Kingdom. The objectives are to study population change in the field site area in conjunction with changes in the economic, social, and physical environment. This includes the effects of government and non-government community development projects. With the aim of collecting longitudinal data, the Kanchanaburi Project commenced in 2000, and data were collected annually during the middle of each year for five years, through 2004.

Each year the Kanchanaburi Project collected data using a population census for every household and for every individual aged 15 years and over in each village/block in the study area. The data were collected at three levels: village, household, and individual (for those aged 15 years and over). The method used for data collection was structured interview and entailed the use of three sets of questionnaires—the village questionnaire, the household data questionnaire, and the individual questionnaire. The enumeration consisted of two main components. In the first component, data on fertility, mortality, and migration were collected; the second component includes data related to economic, social, health, and environmental issues.

The study units of the Kanchanaburi Project are 100 villages/census blocks distributed throughout Kanchanaburi province. The study area is divided into five strata, which were categorized according to the main occupation of the population and land use pattern. These strata are: urban/semi-urban (industrialized), rice producing, plantations, uplands areas, and mixed economy. Each area has 20 villages, selected by systematic random sampling in every area, except for urban/semi-urban areas, which

were divided into rural areas and urban areas, selected using two-stage random sampling.

3.2 Population

The Kanchanaburi Demographic Surveillance System project 1st round (2000) and 5th round (2004) were analyzed. The 1st round census listed 11,612 households with a population of 42,614 (20,426 males and 22,188 females). The 5th round census listed 12,439 households with a population of 42,923 (20,396 males and 22,542 females).

Because this study used the Kanchanaburi Project in the 1st round (2000) and 5th round (2004), the study population consisted of 9,084 households interviewed in both 2000 and 2004. After excluding households with no data for some variables, the number of households was lowered to 8,434, as shown in Figure 3.1.

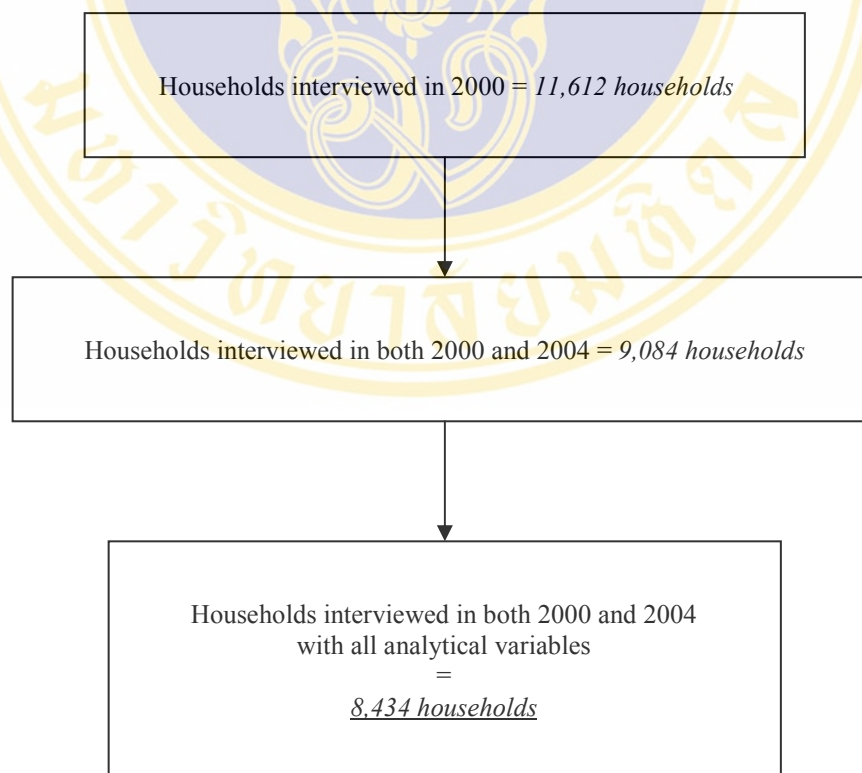


Figure 3.1

Selection of households to be analyzed for this study

3.3 Instrument

The majority of data in this study were taken from the Kanchanaburi Project Round 1 (2000) and Round 5 (2004) household data. Data were divided into five sections for each round, but the two sets differed slightly, as shown below:

Household data questionnaire in the Kanchanaburi Project Round 1

- Part 1: Basic data on household occupants
- Part 2: Household characteristics
- Part 3: Land use and agricultural products
- Part 4: Assistance from household residents
- Part 5: Mortality

Household data questionnaire in the Kanchanaburi Project Round 5

- Part 1: Basic data on household occupants
- Part 2: Mortality
- Part 3: Household characteristics
- Part 4: Environment
- Part 5: Government policy

The study used some questions from the household questionnaire in a bilateral round related to each of the study variables. In addition, this study used data from the individual questionnaire in order to analyze particular variables. The details of each of these variables are listed below.

3.3.1 Change in household debt

To study changes in household debt over a 5-year period (2000-2004), data showing household debt in 2000 and 2004 were examined. Questions came from the household questionnaire, Part 3 of Round 1 (2000) and Part 4 of Round 5 (2004). Household debt was defined as money or items amounting to 100 baht or more. The selected question about household debt had two parts: “Does your household have any debt?” and “How much household debt does your household have?” Comparing answers to these two questions in 2000 with 2004 allows for an assessment of changes in household debt over the four-year period. There were three types of changes in household debt:

- 1) The household has no debt.
- 2) The household debt has increased and has not changed.
- 3) The household debt has decreased.

3.3.2 Female labour force participation

Female labour force participation is the main independent variable in the study. This variable was derived from the KDSS 2000's household data Part 1 (basic data on household's occupants) and the individual questionnaire Part 2 (occupation and income). It was divided into the following four groups:

- 1) The household has no woman or no woman aged 15 years and over.
- 2) The household has at least one woman aged 15 years or over but who does not work.
- 3) The household has at least one woman aged 15 years or over who works and earns income.
- 4) The household has at least one woman aged 15 years or over who works but does not earn income.

3.3.3 Household assets

Household income would be an ideal variable to measure a household's economic status. Based on relevant theoretical background, the income variable is a factor related to household debt. However, the question on household income in the KDSS dataset was asked only of those respondents who could not identify any personal income. Therefore, this study used the household assets index as a proxy for household economic status. Generally, household assets represent accumulated household income in the form of consumer goods. The higher a household's earnings income, the higher its economic status. But nowadays household assets might have been purchased with borrowed money or on an installment plan. Consequently, it is quite possible that the more assets a household supposedly "has," the larger its debt (Vorachai Thongthai, 2008).

Household assets indices were considered as intervening variables and control variables. The household assets index for 2004, an intervening variable, used

data from the Kanchanaburi Project Round 5. The household assets index for 2000, considered as control variable, used data from the Kanchanaburi Project Round 1. The household assets index for both rounds was calculated by Principle Component Analysis (PCA). Household assets consist of color TV, video/vcd, audio equipment/ stereo, mobile phone, telephone, computer, air conditioner, washing machine, microwave, refrigerator, motorcycle, and car/pickup truck, as well as source of drinking water and water for household use. The calculated household asset index was then classified into five categories both 2000 and 2004, as follows;

- 1) The poorest, referring to the bottom 20 percent
- 2) The poor, referring to the next-to-the-poorest 20 percent
- 3) The middle, referring to the next-to-the-poor 20 percent
- 4) The rich, referring to the next-to-the-middle 20 percent
- 5) The richest, referring to the top 20 percent

3.3.4 Characteristics of head of household

- *Age of head of household* refers to age at last birthday or completed years.

- *Gender and marital status of head of household* is categorized into four groups:

- 1) Single or ever-married male head of household
- 2) Married male head of household
- 3) Single or ever-married female head of household
- 4) Married female head of household

- *Education of head of household* is divided into three groups:

- 1) Primary education or less
- 2) Low secondary education
- 3) Upper secondary education

- *Occupation of head of household* is divided three groups:

- 1) No occupation
- 2) Agricultural sector
- 3) Non-agricultural sector

3.3.5 Characteristics of household

- *Number of household member* refers to the total number of household members of all ages.

- *Number of household member of dependent age* refers to total number of members in household aged less than 15 and greater than 59 years.

- *Male labour force participation* is similarly the female labour force participation but male's income is not considered, only the number of working males. Thus, there are three categories of households according to male labour force participation:

- 1) The household has no male or male aged 15 years or over.
- 2) The household has at least one male aged 15 years or over but who does not work.
- 3) The household has at least one male aged 15 years or over who works.

- *Education of household member* is divided into two groups:

- 1) No household member completed secondary education.
- 2) At least one member completed secondary or higher education.

- *Occupation of household member* is categorized into the following two groups:

- 1) No one worked in non-agricultural sector
- 2) At least one member worked in non-agricultural sector

- *Size of household land owned* was derived from the household data questionnaire of Round 1 (2000), Part 3 (land use and agricultural products), giving information about size of land owned by the household.

3.3.6 Characteristics outside household

- *Residential area*

The Kanchanaburi Project classified the study area according to the amount of agricultural land in each village, the number of wet rice crops grown, the number of plantation crops grown (cassava and sugar cane), and the number of adult

workers employed in industry, and the size of the population. The study area was similarly divided into the following five strata:

1) The urban/semi-urban (industrialized) stratum includes the population living in municipal areas. The areas have been categorized into census blocks following the National Statistical Office (NSO) procedure. This stratum also covers villages that have a significant proportion of their labour force employed in industries.

2) The rice stratum consists of villages located in lowland areas where the main occupation is rice cultivation.

3) The plantation stratum comprises villages that are also located in lowland areas and where the major occupation of the local people is cultivating cassava or sugar cane.

4) The upland stratum contains villages located in the three highland districts.

5) The mixed Economy stratum contains villages that could not be classified into the categories listed above.

The data gathered from the questionnaire from the Kanchanaburi Project Round 1 (2000) and Round 5 (2004) used the following study variables, as summarized in Table 3.1

3.1 Variables and level of measurement of the study variables

Variables	Definition	Level of Measurement
<i>Dependent variable</i>		
Household debt change (2000-2004)	1 = No debt 2 = Increased debt 3 = Decreased debt	Nominal
<i>Independent variable in 2000</i>		
Female labour force participation	1 = No woman or woman aged 15 years and over 2 = At least one woman aged 15 years and over does not work 3 = At least one woman aged 15 years and over who works and earns income 4 = At least one woman aged 15 years and over who works but does not earn income	Nominal
<i>Intervening variable in 2004</i>		
Household assets	1 = The poorest 2 = The poor 3 = The middle 4 = The rich 5 = The richest	Nominal

3.1 Variables and level of measurement of the study variables (Continued)

Variables	Definition	Level of Measurement
<i>Control variables in 2000</i>		
<i>Characteristics of household head</i>		
- Gender and marital status	1 = Single or ever married male-head household 2 = Married male-head household 3 = Single or ever married female-head household 4 = Married female-head household	Nominal
- Age of household head		Ratio
- Education of household head	1 = Primary or less 2 = Lower secondary education 3 = Upper secondary education	Nominal
- Occupation of household head	1 = No occupation 2 = Agricultural sector 3 = Non-agricultural sector	Nominal
<i>Characteristics in household</i>		
- Number of member		Ratio
- Number of dependent aged member		Ratio
- Male labour force participation	1 = No man or man aged 15 years and over 2 = At least one man aged 15 years and over does not work 3 = At least one man aged 15 years and over who works	Nominal
- Education of member	1 = No any member completed secondary education 2 = At least 1 members completed secondary and upper education	Nominal
- Occupation of member	1 = No one worked in non-agricultural sector 2 = At least 1 member worked in non-agricultural Sector	Nominal
- Household assets	1 = The poorest 2 = The poor 3 = The middle 4 = The rich 5 = The richest	Nominal
- Size of household land owned	Amount of land owned by the household, measured in "Rai"	Ratio
<i>Characteristic outside household</i>		
- Residential area	1 = Urban/semi-urban 2 = Rice 3 = Plantation 4 = Upland 5 = Mixed Economy	Nominal

3.4 Data analysis

3.4.1 Descriptive analysis is presented in a table for all study variables (household debt change, characteristics of household head, characteristics in

household, and characteristics outside household). Descriptive statistics, including percentage, mean, and standard deviation, were used. Cross tabulation between independent variables and dependent variable are also shown.

3.4.2 To analyze the impact of female labour force participation and household debt change, Multinomial Logistic Regression was employed for the analysis because the dependent variable is nominal with more than two groups.

3.5 Limitations

3.5.1 The data in the Kanchanaburi Demographic Surveillance System project Round 1 (2000) and Round 5 (2004) did not include any questions concerning the causes of going into debt. (Only Round 4, in 2003, collected such information.) Therefore, it was not possible to determine whether the debt in each household was “good” or “wasteful” debt, so the study looks at debt in terms of debt repayment in the future, which can be either good or wasteful debt.

3.5.2 Earnings income is important information for describing changes in household debt because earnings income, either individual or household income, indicates the debt-to-income ratio that reflects the percentage of total debt, compared to the percentage of total income. This helps understand the ability of a household to borrow money. The standard rule for most lenders is that one’s debt-to-income ratio should be no higher than 36 percent (Moore, 2007). Despite that, some respondents in the Kanchanaburi Project did not know the exact amount of their personal income. As for household income in this project, it was asked only of respondents who did not identify personal income. Therefore, the analyses could not determine the amount of income per se but had to rely on whether or not a person could identify personal income instead. The study uses household asset as a proxy for household income. However, the debt-to-income ratio was not able to be determined.

3.5.3 This study does not take into account occupation, education, and income earning by female members as household characteristics. Instead, household members working in a non-agricultural sector, having more than a secondary education, and, for females, earning income were used as proxies for socioeconomic status of households.



CHAPTER IV

RESULTS

This chapter presents results from data analysis of female labor force participation and household debt change in Kanchanaburi Demographic Surveillance System (KDSS). The chapter is divided into two sections: 1) General characteristics of household, and 2) Female labor force participation and household debt change using Multinomial Logistic Regression.

4.1 General characteristics of household

4.1.1 Changes in household debt between 2000 and 2004

Table 4.1 shows cross-sectional pictures of the percentage distribution of households in KDSS Round 1 (2000) and Round 5 (2004) according to their household debt. In Round 1, the percentage of households with debt (56.2 percent) was higher than it was for those without debt (43.8 percent). Four years later, the percentage of households with debt jumped to 72.3 percent, almost three times higher than households with no debt (27.7 percent).

4.1 Number and percentage distribution of household debt in 2000 and 2004

Household debt	2000		2004	
	Number	Percentage	Number	Percentage
Had debt	4,743	56.2	6,097	72.3
Had no debt	3,691	43.8	2,337	27.7
Total	8,434	100.0	8,434	100.0

Table 4.2 tracks changes in status of household debt for the same households in 2000 and in 2004. Results indicate that the largest proportion (30.9 percent) of households was made up of those households with debt in 2000 whose debt had increased by 2004. Almost one-fourth (24.0 percent) of households without debt in 2000 had debt in 2004. Those households with debt in 2000 but whose debt had decreased by 2004 account for only 15 percent. Households that were debt-free in both rounds of the survey account for about one fifth (19.7 percent) of the total. Eight percent of households that had debt in 2000 were able get free from debt by 2004. Those households with debt in 2000 and whose debt did not change by 2004 account for a very small proportion (2.1 percent).

4.2 Number and percentage distribution of household debt change between 2000 and 2004

Household debt change		Number	Percentage
2000	2004		
1) No debt	No debt	1,663	19.7
2) No debt	Had debt	2,027	24.0
3) Had debt	No debt	673	8.0
4) Had debt	Debt increased	2,607	30.9
5) Had debt	Debt decreased	1,288	15.3
6) Had debt	Debt not change	176	2.1
Total (number)		8,434	100.0

To simplify the patterns, households were classified into three types: 1) “No debt” (categories 1 and 3 - 27.7 percent), 2) “Debt increased” (categories 2, 4, and 6 - 57.0 percent), and 3) “Debt decreased” (category 5 - 15.3 percent), as shown in Table 4.3.

4.3 Number and percentage distribution of household debt change between 2000 and 2004 in 3 categories

Household debt change	Number	Percentage
Not had	2,336	27.7
Increased	4,810	57.0
Decreased	1,288	15.3
Total	8,434	100.0

Source of debt is important information to understand the context of having debt because it indicates the ability of a household to access loans. Some sources of debt must have secured loans but some do not. Borrowing money that must be secured by property, land, etc. makes it difficult to access loans. Generally, sources of debt can be divided into two groups: 1) formal debt, which refers to loan money from public or private financial institutions, and 2) informal debt, which refers to loan money from other sources, such as a relative, employer, store or shop, etc. Results shown in Table 4.4 show that the majority of households (almost 80 percent) had debt from formal sources (e.g., banks or finance companies), with very little difference between male- or female-headed households.

4.4 Number and percentage distribution of household by source of debt and gender of household head in 2004

Source of debt	Gender of household head			
	Male		Female	
	Number	Percentage	Number	Percentage
Formal only	3,533	78.3	1,253	79.0
Formal and informal	975	21.6	332	20.9
Unknown	3	0.1	1	0.1
Total	4,511	100.0	1,586	100.0

4.1.2 Labor force participation of females and males

The results from Table 4.5 show that the majority of households had at least one woman working and that during the four-year period, the proportion had increased (77.1 and 82.9 percent in 2000 and 2004, respectively). In 2000, the

percentage of households with women working and earning income was similar to the percentage of those with women working but earning no income (39.2 compared to 37.9 percent). Four years later, the percentage of households with women working and earning income had increased to 51.1 percent while the percentage of households with women working but earning no income has decreased to 31.9 percent. Table 4.5 shows how the proportion of women in the labor force tended to increase.

4.5 Number and percentage distribution of female labor force participation of household member between 2000 and 2004

Female labor force participation	2000		2004	
	Number	Percentage	Number	Percentage
No woman or no woman aged 15 years or over	321	3.8	199	2.4
At least one woman but not working	1,608	19.1	1,226	14.5
At least one woman working	6,505	77.1	6,994	82.9
- At least one woman working and earning income	3,308	39.2	4,306	51.1
- At least one woman working but no income	3,197	37.9	2,688	31.9
Unknown	0	0.0	15	0.2
Total	8,434	100.0	8,434	100.0

Table 4.6 presents a descriptive analysis of household members, both female and male, and labor force participation in Round 1 (2000). A relatively large proportion of households with no woman or with a woman who was not working had no debt compared to households with at least one working woman. More than half of households with a woman working saw their debt increase (58.8 percent) while 15 percent saw their debt decrease.

When differentiating women working and earning income from those not earning income, we see that households with working women receiving pay account for a higher percentage of those households having no debt than those with women working without income. Households that had women working but earning no income comprise the largest proportion of households that saw their debt either increase or decrease.

Regarding male labor force participation, the proportion of households with no debt is largest among households without any working man (41.6 percent).

Households whose debt increased or decreased (59.1 and 16.2 percent, respectively) are in highest proportion among those with at least one man working.

4.6 Percentage distribution of households by labor force participation in 2000 and changes in household debt between 2000 and 2004

Labor force participation in 2000	Changes in household debt between 2000 and 2004			
	No debt	Debt increased	Debt decreased	Total
	27.7	57.0	15.3	100.0 (8,434)
<i>Female labor force participation</i>				
- No woman or no woman aged 15 years or over	37.4	50.8	11.8	100.0 (321)
- At least one woman but not working	36.6	51.3	12.1	100.0 (1,608)
- At least one woman working	25.0	58.8	16.2	100.0 (6,505)
- At least one woman working and earning income	30.0	54.8	15.2	100.0 (3,308)
- At least one woman working but no income	19.9	62.9	17.3	100.0 (3,197)
<i>Male labor force participation</i>				
- No man or no man aged 15 years or over	37.0	51.4	11.6	100.0 (1,089)
- At least one man but not working	41.6	46.1	12.3	100.0 (697)
- At least one man working	24.7	59.1	16.2	100.0 (6,648)

4.1.3 Demographic and social characteristics of household head

Table 4.7 shows the percentage distribution of households by changes in household debt between Round 1 and Round 5 across characteristics of household head. Regardless of gender, more households headed by single or ever married parties had no debt than did households headed by married individuals. In contrast, fewer households headed by single or ever married people saw their debt increase or decrease compared to households headed by married individuals.

In terms of education, the proportion of households headed by the least educated and having no debt is highest. These households also had the lowest percentages of both households whose debt increased or decreased. Households headed by individuals not working represented the largest proportion of households not in debt while representing the smallest proportions of those whose debt increased or decreased. Households headed by individuals working in a non-agricultural sector, by contrast, saw their debt either increase or decrease in the largest proportions. Regarding age of household head, results show that the average age of household head

was highest (51.85 years old) among households without debt and lowest (46.04 years old) among households that saw their debt increase.

4.7 Percentage distribution of households by characteristics of household head in 2000 and household debt change between 2000 and 2004

Characteristics of household head in 2000	Changes in household debt between 2000 and 2004			
	No debt	Debt increased	Debt decreased	Total
	27.7	57.0	15.3	100.0 (8,434)
<i>Gender and marital status</i>				
- Single or ever married male	41.3	48.4	10.4	100.0 (395)
- Married male	24.5	59.6	15.9	100.0 (5,664)
- Single or ever married female	39.0	47.7	13.3	100.0 (1,322)
- Married female	25.9	57.9	16.1	100.0 (1,053)
<i>Education</i>				
- Uneducated	40.0	49.4	10.5	100.0 (1,446)
- Low secondary education	24.3	59.9	15.8	100.0 (5,462)
- Upper secondary education	28.2	54.1	17.8	100.0 (1,526)
<i>Occupation</i>				
- No occupation	40.9	46.6	12.5	100.0 (1,514)
- Agricultural sector	30.5	54.0	15.5	100.0 (2,393)
- Non-agricultural sector	21.8	62.1	16.0	100.0 (4,527)
<i>Mean age</i>	51.85	46.04	48.29	47.99 (8,434)

4.1.4 Social and economic characteristics of household in 2000

Table 4.8 presents the distribution of households by socioeconomic characteristics and changes in household debt. There are no clear differences in household debt changes across education of household members. However, the percentage of households whose debt decreased is slightly higher for those that had at least one member who completed secondary education compared to households with nobody having a secondary education or higher (17.6 and 13.2 percent, respectively).

Occupation of household members is a proxy for household economic status. Non-agricultural work is usually considered more remunerative than is agricultural work. Results show that the proportion of households without debt is larger among households that had at least one member working in a non-agricultural sector relative to their counterparts (30.7 and 25.4 percent, respectively). For increases

in debt, the proportion is higher among households with no member working in a non-agricultural sector (59.4 and 53.9 percent, respectively).

The results of changes in household debt across the five categories of household asset reveal similar patterns for 2000 and 2004. Households without debt were in higher proportions among those considered poorest and poor (more than 30 percent). Households whose debt increased are in highest proportions among middle, rich, and richest asset groups while the proportions of households whose debt decreased are not much different across different asset groups.

Households with an average number of 4.00 household members saw their debt decrease, while the smallest households (with an average of 3.56) had no debt. The average number of members of dependent age made no difference in terms of changes in household debt. For amount of land owned, results indicate that households whose debt decreased had the largest amount of land (19.87 rai) while the smallest amounts of land owned (11.50 rai) were found among households with no debt.

Changes in household debt across five residential strata are also shown. Data in Table 4.8 indicate that the proportion of households without debt is largest among those in the urban/semi-urban stratum (42.4 percent) and smallest among the rice stratum (17.4 percent). Percentages of households whose debt increased are relatively high in rice and plantation strata (64 and 65 percent, respectively) while those in the urban/semi-urban stratum represent the lowest proportion (40.8 percent). Regarding households whose debt decreased, proportions are relatively high among households in urban/semi-urban, rice, and plantation strata and relatively low in upland (12.6 percent) and mixed economy strata (13.2 percent).

4.8 Percentage distribution of households by characteristics of household and changes in household debt between 2000 and 2004

Characteristics of household	Changes in household debt between 2000 and 2004			
	No debt	Debt increased	Debt decreased	Total
	27.7	57.0	15.3	100.0 (8,434)
<i>Education of household members in 2000</i>				
- No any member who completed secondary education	28.5	58.3	13.2	100.0 (4,454)
- At least one member who completed secondary or higher education	26.8	55.7	17.6	100.0 (3,980)
<i>Occupation of household member in 2000</i>				
- No any member worked in non-agricultural sector	25.4	59.4	15.2	100.0 (4,791)
- At least one member working in a non-agricultural sector	30.7	53.9	15.4	100.0 (3,643)
<i>Household assets in 2000</i>				
- Poorest	32.1	55.9	11.9	100.0 (1,686)
- Poor	33.2	50.7	16.1	100.0 (1,687)
- Middle	27.1	57.9	15.0	100.0 (1,688)
- Rich	22.9	59.5	17.6	100.0 (1,686)
- Richest	23.2	61.1	15.8	100.0 (1,687)
<i>Household assets in 2004</i>				
- Poorest	32.6	51.0	16.4	100.0 (1,686)
- Poor	32.5	54.0	13.5	100.0 (1,686)
- Middle	22.2	63.3	14.5	100.0 (1,690)
- Rich	22.5	61.7	15.8	100.0 (1,685)
- Richest	28.7	55.1	16.1	100.0 (1,687)
<i>Average of number of household members</i>	3.56	3.86	4.00	3.80 (8,434)
<i>Average of number of member with dependent age</i>	1.55	1.54	1.53	1.54 (8,434)
<i>Average amount of land owned</i>	11.50	14.69	19.87	34.60 (8,434)
<i>Residential area</i>				
- Urban/semi-urban	42.4	40.8	16.8	100.0 (1,631)
- Rice	17.4	64.0	18.6	100.0 (1,629)
- Plantation	18.2	65.6	16.2	100.0 (1,368)
- Upland	30.4	57.0	12.6	100.0 (2,057)
- Mixed Economy	27.8	59.0	13.2	100.0 (17,49)

4.2 Female labor force participation and household debt change

4.2.1 Analyzing female labor force participation and household debt change using Multinomial Logistic Regression

Table 4.9 shows the impact of female labor force participation on household debt change, categorized into 3 groups: households with no debt, households with increased debt, and household with decreased debt. A multinomial logistic regression analysis was employed. Three comparisons are presented. First, the probability of households with debt increasing is compared to the probability of households with no debt. Second, the probability of households with debt decreasing is compared to probability of households without debt. Third, the probability of households with debt increasing is compared to probability of households with debt decreasing. For each comparison two models are shown.

Model 1 represents the real direct effect of female labor force participation on household debt change. Findings show that in the first and the second comparisons (debt increased/no debt and debt decreased/no debt), having at least one woman working in the household increases the likelihood of having debt, either increased or decreased, over not having debt, compared to households with no working woman. For another comparison (debt increased/debt decreased), female labor force participation does not show a statistically significant effect.

Model 2 is the full model controlling for household assets in 2004, characteristics of household head, characteristics of households in 2000, and characteristics outside the household. The association between female labor force participation on household debt change is positive and statistically significant for the first and the second comparisons, but the association does not show statistical significance in the third comparison. Household assets in 2004 only shows a positive effect on debt increased over no debt but no effects on the second and the third comparisons.

Regarding characteristics of household head (age, gender and marital status, education, and occupation), only age, gender and marital status, and education of household head have a statistically significant effect on household debt change in the three models. Age of household head is positively associated with household debt

change for three comparisons, while gender and marital status and education of household head are positively associated with household debt change in the first and the second comparison, but they are negatively associated with household debt change in the third comparison. Households headed by those who are single or ever married are more likely to be debt-free, regardless of gender. At the same time, we also see that households headed by males are more likely to see their debt increased than decreased, regardless of marital status.

In terms of characteristics of households, the number of household members and household assets in 2000 have a statistically significant relationship with household debt change in three comparisons. The number of dependent-age members and male labor force participation have a statistically significant relationship with household debt change in the first and the second comparison. Amount of land owned is associated with decreased debt in the second and the third comparisons. But occupation of household members shows only a significant effect in the second comparison (debt decreased/no debt). Households having at least one member in a non-agricultural sector are more likely to have no debt than to have debt decreased. Living outside the urban/semi urban stratum increases households' odds of having debt increased. While only living in rice and plant strata is positively related to having debt decreased compared to having no debt.

4.9 Multinomial Logistic Regression Analysis of impact of female labor force participation on household debt change (ref: have woman but not working)

Variables	Debt increased VS No debt			Debt decreased VS No debt			Debt increased VS Debt decreased		
	Model 1	Model 2	Model 2	Model 1	Model 2	Model 2	Model 1	Model 2	Model 2
	Odds ratio	S.E.	Odds ratio	S.E.	Odds ratio	S.E.	Odds ratio	S.E.	Odds ratio
Number	8,434		8,434		8,434		8,434		8,434
-2Log likelihood	43.589		15172.599		43.589		43.589		15172.599
Constant	0.339		1.126		-1.104		1.442		1.373
<i>Female labor force participation</i>									
(ref: Have at least one woman but not working)									
- No woman/ no woman aged 15+	0.968	0.132	1.199	0.171	0.955	0.204	1.385	0.248	0.936
- Have at least one woman working	1.673***	0.062	1.335***	0.074	1.954***	0.092	1.425***	0.104	0.866
<i>Household assets in 2004</i>									
(ref: Richest)									
- Poorest			1.007	0.086			1.062	0.114	0.949
- Poor			0.935	0.084			0.863	0.116	1.084
- Middle			1.335***	0.088			1.191	0.118	1.138
- Rich			1.237*	0.088			1.196	0.116	1.034
<i>Characteristics of household head in 2000</i>									
<i>Age</i>			0.976***	0.002			0.992*	0.003	0.984***
<i>Gender and marital status</i>									
(ref: Married female)									
- Single or ever married male			0.694*	0.165			0.405***	0.242	1.713**
- Married male			0.995	0.094			0.800	0.122	1.244*
- Single or ever married female			0.802*	0.104			0.726*	0.142	1.105
<i>Education</i>									
(ref: Upper secondary education)									
- Uneducated			0.687***	0.114			0.455***	0.156	1.511**
- Lower secondary education			1.098	0.089			0.889	0.114	1.234*
<i>Occupation</i>									
(ref: Agricultural sector)									
- No occupation			1.033	0.109			0.820	0.150	1.260
- Non-agricultural sector			1.064	0.098			0.985	0.131	1.080

*Significant at 0.05 level, **Significant at 0.01 level, ***Significant at 0.001 level

4.9 Multinomial Logistic Regression Analysis of impact of female labor force participation on household debt change (Continued)

Variables	Debt increased VS No debt			Debt decreased VS No debt			Debt increased VS Debt decreased					
	Model 1			Model 2			Model 1			Model 2		
	Odds ratio	S.E.		Odds ratio	S.E.		Odds ratio	S.E.		Odds ratio	S.E.	
<i>Characteristics of households in 2000</i>												
<i>Number of household members</i>												
- Number of members with dependent aged	1.130***	0.029		1.201***	0.037		0.940*	0.032		0.940*	0.032	
- Education of household members	0.924*	0.036		0.865***	0.046		1.068	0.040		1.068	0.040	
(ref: Not completed secondary education)												
- At least one member completed secondary or higher education	1.069	0.072		1.148	0.095		0.932	0.083		0.932	0.083	
<i>Occupation of household members</i>												
(ref: Not working in a non-agricultural sector)												
- At least one member working in a non-agricultural sector	0.862	0.087		0.715**	0.115		1.206	0.102		1.206	0.102	
<i>Male labor force participation</i>												
(ref: Not working)												
- No man or man aged 15 years or over	1.323*	0.132		1.132**	0.188		1.169	0.178		1.169	0.178	
- Working	1.433***	0.109		1.501	0.153		0.955	0.146		0.955	0.146	
<i>Household assets</i>												
(ref: Richest)												
- Poorest	0.798**	0.088		0.607***	0.123		1.314**	0.108		1.314**	0.108	
- Poor	0.779**	0.089		0.844	0.118		0.932	0.104		0.932	0.104	
- Middle	1.005	0.089		0.927	0.119		1.084	0.103		1.084	0.103	
- Rich	1.007	0.090		1.053	0.117		0.956	0.099		0.956	0.099	
- Amount of land owned	1.001	0.001		1.004***	0.001		0.997***	0.001		0.997***	0.001	
<i>Characteristic outside household</i>												
(ref: Urban/semi-urban)												
- Rice	3.328***	0.099		2.395***	0.127		1.389**	0.112		1.389**	0.112	
- Plantation	2.984***	0.106		1.880***	0.139		1.587***	0.122		1.587***	0.122	
- Upland	1.635***	0.095		0.999	0.130		1.636***	0.121		1.636***	0.121	
- Mixed Economy	1.915***	0.086		1.023	0.118		1.871***	0.110		1.871***	0.110	

*Significant at 0.05 level, **Significant at 0.01 level, ***Significant at 0.001 level

Results from multivariate analysis above are intriguing. Having woman working supports both an increase and a decrease in the amount of debt. In the context of Thailand, especially in the agricultural sector, working might not always generate income to pay off debt. Descriptive analysis shows that there were many women who were working but who were not receiving individual pay (39.2 percent of households had a woman working and earning income, but 37.9 percent of women who worked received no income). The next analysis, therefore, distinguishes between households with women working for pay or those with women working without pay. Table 4.10 shows the impact of female income-earning on changes in household debt. Clearly, the analysis for this table is similar to Table 4.9, which consists of two models for three comparisons.

Households that had a woman working, either with or without income had were more likely to have debt vs. not having debt in Model 1, which presents the actual direct impact of female labor force participation on household debt change. Similar to Table 4.9, female labor force participation does not show a significant effect on increased debt compared to decreased debt.

Model 2 is the relationship between female labor force participation and household debt change when controlling for household assets in 2004, characteristics of household head, characteristics of households in 2000, and characteristics outside household. Having only women working without income had positive effect on both increased debt and decreased debt, compared to no debt. For the third comparison (increased/decreased), female labor force participation still does not show a statistically significant effect. Household assets in 2004 only show a positive effect on changes in household debt in the first comparison.

With respect to characteristics of household head, age, gender and marital status, and education of household head, there is a statistically significant effect on household debt change in the three models. The effect of age and education of household head on changes in household debt is not much different from the effects of those in Table 4.9. Only gender and marital status of household head in all groups shows a positive effect on the second comparison, but gender and marital status of household head has the same effect on the first and the third comparison in Table 4.8.

The association between characteristics of household and household debt change does not differ from Table 4.9 except for occupation of household members, which, although significant in the second comparison in Table 4.9, does not show a statistically significant effect on household debt change. The relationship of residential area is also similar to results in Table 4.9 for the three comparisons.



4.10 Multinomial Logistic Regression Analysis of impact of female income earning on household debt change (ref: have woman but not working)

Variables	Debt increased VS No debt			Debt decreased VS No debt			Debt increased VS Debt decreased					
	Model 1	S.E.	Odds ratio	Model 2	S.E.	Odds ratio	Model 1	S.E.	Odds ratio	Model 2	S.E.	Odds ratio
Number	8,434		8,434	8,434		8,434	8,434		8,434	8,434		8,434
-2Log likelihood	58.264		15155.582	58.264		15155.582	58.264		15155.582	58.264		15155.582
Constant	0.339		0.506	-1.104		-0.862	1.442		1.368	1.442		1.368
<i>Female income-earning</i>												
(ref: Have at least one woman but not working)												
- No woman/ no woman aged 15+	0.968	0.132	1.206	0.171	0.955	1.396	0.204	1.014	0.197	0.864	0.233	0.233
- Have at least woman working and earned income	1.301***	0.067	1.143	0.082	1.527***	1.189	0.099	0.851	0.094	0.962	0.105	0.105
- Have at least one woman working but no income	2.256***	0.071	1.578***	0.083	2.621***	1.736***	0.101	0.861	0.093	0.909	0.104	0.104
<i>Household assets in 2004</i>												
(ref: Richest)												
- Poorest			1.015	0.086		1.073	0.114			0.947	0.103	0.103
- Poor			0.934	0.084		0.861	0.116			1.084	0.105	0.105
- Middle			1.362***	0.088		1.197	0.118			1.138	0.102	0.102
- Rich			1.239*	0.088		1.198	0.116			1.034	0.100	0.100
<i>Characteristics of household head in 2000</i>												
<i>Age</i>			0.976***	0.002		0.992**	0.003			0.984***	0.003	0.003
<i>Gender and marital status</i>												
(ref: Married female)												
- Single or ever married male			0.686*	0.166		0.400***	0.242			1.716*	0.228	0.228
- Married male			0.973	0.095		0.778*	0.122			1.249*	0.106	0.106
- Single or ever married female			0.805*	0.104		0.729*	0.142			1.103	0.129	0.129
<i>Education</i>												
(ref: Upper secondary education)												
- Uneducated			0.687***	0.114		0.455***	0.156			1.511**	0.142	0.142
- Lower secondary education			1.088	0.089		0.881	0.114			1.235*	0.100	0.100
<i>Occupation</i>												
(ref: Agricultural sector)												
- No occupation			1.041	0.109		0.827	0.150			1.259	0.140	0.140
- Non-agricultural sector			1.075	0.098		0.993	0.131			1.082	0.116	0.116

*Significant at 0.05 level, **Significant at 0.01 level, ***Significant at 0.001 level

4.10 Multinomial Logistic Regression Analysis of impact of female income earning on household debt change (Continued)

Variables	Debt increased VS No debt			Debt decreased VS No debt			Debt increased VS Debt decreased					
	Model 1			Model 2			Model 1			Model 2		
	Odds ratio	S.E.		Odds ratio	S.E.		Odds ratio	S.E.		Odds ratio	S.E.	
<u>Characteristics of households in 2000</u>												
<i>Number of household members</i>	1.135***	0.029		1.208***	0.037		0.940*	0.032		0.940*	0.032	
<i>Number of members of dependent age</i>	0.922**	0.036		0.863***	0.046		1.068	0.040		1.068	0.040	
<u>Education of household members</u>												
(ref: Not completed secondary education)												
- At least one member completed secondary or higher education	1.062	0.073		1.139	0.095		0.933	0.083		0.933	0.083	
<u>Occupation of household members</u>												
(ref: Not working in a non-agricultural sector)												
- At least one member working in a non-agricultural sector	0.976	0.091		0.829	0.122		1.177	0.107		1.177	0.107	
<u>Male labor force participation</u>												
(ref: Not worked)												
- No man or man aged 15 years or over	1.306*	0.132		1.116	0.188		1.171	0.178		1.171	0.178	
- Working	1.345**	0.110		1.395*	0.155		0.965	0.147		0.965	0.147	
<u>Household assets</u>												
(ref: Richest)												
- Poorest	0.801**	0.088		0.609***	0.123		1.314**	0.108		1.314**	0.108	
- Poor	0.780**	0.089		0.846	0.118		0.922	0.104		0.922	0.104	
- Middle	1.006	0.089		0.928	0.119		1.084	0.103		1.084	0.103	
- Rich	1.011	0.090		1.059	0.117		0.955	0.099		0.955	0.099	
<i>Amount of land owned</i>	1.001	0.001		1.003***	0.001		0.997***	0.001		0.997***	0.001	
<u>Characteristic outside household</u>												
<u>Residential area</u>												
(ref: Urban/semi-urban)												
- Rice	3.292***	0.099		2.365***	0.127		1.392**	0.112		1.392**	0.112	
- Plantation	2.954***	0.106		1.856***	0.139		1.592***	0.122		1.592***	0.122	
- Upland	1.584***	0.095		0.962	0.131		1.647***	0.121		1.647***	0.121	
- Mixed Economy	1.881***	0.086		1.002	0.118		1.877***	0.110		1.877***	0.110	

*Significant at 0.05 level, **Significant at 0.01 level, ***Significant at 0.001 level

Whether or not households had a woman working and earning income or a woman who was not working does not have a statistically significant relationship with household debt change in the above analysis. But we still do not know the impact on household debt change of women's working and earning income compared to that of women's working without income. So, this impact was analyzed, and results are shown in Table 4.11. The analysis included two models for three comparisons, similar to Tables 4.9 and 4.10.

In light of the full model (Model 2), households with a woman working and earning income are less likely to have debt increased or decreased than having no debt compared to households with a woman working but earning no income. In other words, having a woman working and earning income is associated with households having no debt vs. having a woman working but not earning any income of their own.

Regarding household assets in 2004, characteristics of household heads in 2000 and characteristics outside household, the impact of households on household debt change is not much different for the results in Table 4.10.

4.11 Multinomial Logistic Regression Analysis of impact of female income earning on household debt change (ref: working but no income)

Variables	Debt increased VS No debt			Debt decreased VS No debt			Debt increased VS Debt decreased					
	Model 1	S.E.	Odds ratio	Model 2	S.E.	Odds ratio	Model 1	S.E.	Odds ratio	Model 2	S.E.	Odds ratio
Number	8,434		8,434	8,434		8,434	8,434		8,434	8,434		8,434
-2Log likelihood	58.264		15155.582	58.624		15155.582	58.264		58.264	15155.582		15155.582
Constant	1.152		0.962	-0.140		-0.310	1.292		1.292	1.273		1.273
<i>Female income-earning</i>												
(ref: Women working but no income)												
- No woman/ no woman aged 15+	0.429***	0.129	0.764	0.171	0.364***	0.195	0.804	0.186	1.178	0.951	0.227	0.227
- Have at least one woman but not working	0.443***	0.071	0.634***	0.083	0.381***	0.101	0.576***	0.093	1.162	1.101	0.104	0.104
- Have at least woman working and earned income	0.576***	0.060	0.725***	0.073	0.583***	0.080	0.684***	0.070	0.989	1.059	0.083	0.083
<i>Household assets in 2004</i>												
(ref: Richest)												
- Poorest			1.015	0.086	1.073		0.947		1.084		0.103	0.103
- Poor			0.934	0.084	0.861		1.084		1.138		0.105	0.105
- Middle			1.362***	0.088	1.197		1.138		1.034		0.102	0.102
- Rich			1.239*	0.088	1.198		1.034		0.947		0.100	0.100
<i>Characteristics of household head in 2000</i>												
<i>Age</i>			0.976***	0.002	0.992**		0.984***		0.984***		0.003	0.003
<i>Gender and marital status</i>												
(ref: Married female)												
- Single or ever married male			0.686*	0.166	0.400***		1.716*		1.716*		0.228	0.228
- Married male			0.973	0.095	0.778*		1.249*		1.249*		0.106	0.106
- Single or ever married female			0.805*	0.104	0.729*		1.103		1.103		0.129	0.129
<i>Education</i>												
(ref: Upper secondary education)												
- Uneducated			0.687***	0.114	0.455***		1.511**		1.511**		0.142	0.142
- Lower secondary education			1.088	0.089	0.881		1.235*		1.235*		0.100	0.100
<i>Occupation</i>												
(ref: Agricultural sector)												
- No occupation			1.041	0.109	0.827		1.259		1.259		0.140	0.140
- Non-agricultural sector			1.075	0.098	0.993		1.082		1.082		0.116	0.116

*Significant at 0.05 level, **Significant at 0.01 level, ***Significant at 0.001 level

4.11 Multinomial Logistic Regression Analysis of impact of female income earning on household debt change (Continued)

Variables	Debt increased VS No debt			Debt decreased VS No debt			Debt increased VS Debt decreased			
	Model 1		Model 2	Model 1		Model 2	Model 1		Model 2	
	Odds ratio	S.E.	Odds ratio	S.E.	Odds ratio	S.E.	Odds ratio	S.E.	Odds ratio	S.E.
Characteristics of households in 2000										
<i>Number of household members</i>										
<i>Number of members with dependent aged</i>										
<i>Education of household members</i>										
(ref: Not completed secondary education)										
- At least one member completed secondary or higher education	1.135***	0.029	1.062	0.073	1.139	0.095	0.940*	0.032	1.208***	0.037
<i>Occupation of household members</i>										
(ref: Not working in a non-agricultural sector)										
- At least one member working in a non-agricultural sector	0.922*	0.036	0.976	0.091	0.829	0.122	1.068	0.040	0.863***	0.046
<i>Male labor force participation</i>										
(ref: Not working)										
- No man or man aged 15 years or over	1.306*	0.132	1.345**	0.110	1.116	0.188	1.171	0.178	1.395*	0.155
- Working	0.801**	0.088	0.801**	0.088	0.609***	0.123	0.965	0.147	0.609***	0.123
<i>Household assets</i>										
(ref: Richest)										
- Poorest	0.780**	0.089	0.780**	0.089	0.846	0.118	0.922	0.104	0.846	0.118
- Poor	1.006	0.089	1.006	0.089	0.928	0.119	1.084	0.103	0.928	0.119
- Middle	1.011	0.090	1.011	0.090	1.059	0.117	0.955	0.099	1.059	0.117
- Rich	1.001	0.001	1.001	0.001	1.003***	0.001	0.997***	0.001	1.003***	0.001
<i>Amount of land owned</i>										
<i>Characteristic outside household</i>										
<i>Residential area</i>										
(ref: Urban/semi-urban)										
- Rice	3.292***	0.099	3.292***	0.099	2.365***	0.126	1.392**	0.112	2.365***	0.126
- Plantation	2.954***	0.106	2.954***	0.106	1.856***	0.139	1.592***	0.122	1.856***	0.139
- Upland	1.584***	0.095	1.584***	0.095	0.962	0.131	1.647***	0.121	0.962	0.131
- Mixed Economy	1.881***	0.086	1.881***	0.086	1.002	0.118	1.877***	0.110	1.002	0.118

*Significant at 0.05 level, **Significant at 0.01 level, ***Significant at 0.001 level

CHAPTER V

SUMMARY DISCUSSION AND RECOMMENDATIONS

This study aims to study the pattern of household debt holding and household debt change between 2000 and 2004 and to investigate the impact of female labour force participation on household debt change in the Kanchanaburi Demographic Surveillance System (KDSS). The total number of households for this analysis is 8,434. This study uses percentage, mean, standard deviation, and cross tabulation for descriptive statistics and Multinomial Logistic Regression for the analysis.

5.1 Summary of the study results

5.1.1 In KDSS Round 1 (2000), the percentage of households with debt was higher than the percentage of those without debt (56.2 percent compared to 43.8 percent, respectively). However, four years later (2004), the percentage of households with debt substantially increased (72.3 percent), while there were only one third of households without debt in 2004 (27.7 percent). In terms of change in household debt between 2000 and 2004 in the KDSS, the largest proportion was made up of households with increased debt (57.0 percent), compared to other kinds of household debt change (27.7 percent of households without debt and 15.3 percent of households with decreased debt, respectively).

5.1.2 Having a woman working outside the home, regardless of whether she receives any income, is associated with the likelihood of a household having debt, either increased or decreased debt. This is especially true for households with women working without receiving wages. At the same time, we also see that households with women working and earning income are less likely to see their debt increased or

decreased rather than having no debt at all, compared to households with women working but receiving no income. The results are net of household assets in 2004, characteristics of household head, characteristics of households in 2000, and characteristics outside the household. According to the study hypothesis, households with women working are more likely to see their debt decrease. Therefore, the finding from comparing households with women who were not working and those with working women, whether paid or unpaid, did not correspond to the hypothesis. But the finding does correspond to the hypothesis when comparing households with paid working women and those with unpaid working women.

5.2 Discussion

5.2.1 The pattern of household debt holding and household debt change in KDSS between Round 1 (2000) and Round 5 (2004)

From the analysis of 8,434 households, it was found that most households got into debt between KDSS Round 1 (2000) and Round 5 (2004). There was an increase in debt accumulation by Round 5, leading to the proportion of households with debt to increase, which is the most prevalent pattern of household debt change. One potentially important reason for the increased debt is the ease of access to sources of investment funds. A previous study indicates that a household's access to money lending in the KDSS had been increasing (Malee Sunpuwan and Chai Podhisita, 2007). Corresponding data on the access to sources of investment funds by households in 2004 show a higher proportion of households with debt from formal sources than those with debt from informal sources. An important source of investment funds for households in the KDSS is the Village Fund, which was begun in 2001 by the government, as noted in a study by Nattakan Sasing (2007). This study also found that almost a half the households (45.2 percent) took out loans from the Village Fund, making it the major source of investment funds for the largest proportion of households with debt in the KDSS Round 5.

The tendency for the increase of household debt in the KDSS to come from the Village Fund corresponds to the situation that occurred in Northeast Thailand, where it was found that household debt had increased from 70,586 baht in 2001 to 84,603 baht in 2004, representing an increase from 5.7 to 6.1 percent of household income ([Thaipost], 2004). The objective of the Village Fund is to provide employment for individuals, households, and communities (Monsikul Ovatpesad, 2001). Household debt in the KDSS was mostly taken out for investments in employment opportunities, both in the agricultural and industrial sectors. Agricultural investment includes the purchase of materials or tools for agriculture, livestock to sell or use, and agricultural land (Nattakan Sasing, 2007). Because the local people are mostly agriculturists (56.8 percent), debts due to agricultural investments are much higher than for other sectors. In addition, the proportion of households with debt is larger among households that work in the agricultural sector, in both 2000 and 2004 (57.7 percent compared to 54.3 percent in 2000 and 74.6 percent compared to 69.3 percent in 2004).

Use of the Village Fund demonstrates the structure of household debt and the change in household debt that had a tendency to increase in the KDSS. In other areas, social conditions may be different and thus may have a different effect on household debt structure and changes in debt. Indeed, household debt and its fluctuations may have different causes.

5.2.2 Female labour force participation and household debt change

Having at least one woman working in the household increases the likelihood that the household will have debt, either increased or decreased, compared to households with no working woman. This result does not agree with the hypothesis and does not correspond to Blumberg's theory (Collins, 1988), which states that the participation of women in the workforce gives them economic decision-making power in the household, including power to direct household spending.

One possible explanation for the above results is that the population in the KDSS works in agriculture, which sometimes proves to be an uncertain source of income. Therefore, this analysis takes into consideration paid and unpaid labour of women, compared to women who do not work. The results reveal that households with

unpaid working women tend to see their debt increase or decrease, compared to households with no working women. As noted by Rosenblatt and Rake (2003), a household is like a “black box.” Although we can know what income may be put into it, it is difficult to know how resources are allocated among household members. Even though women may have responsibilities outside the home, they are still expected to take care of members of the household (Teeranat Kanchanauksorn 1999, p. 119-124). Therefore, women’s control over money in households in which they work outside the home but receive no income is less than it is for women who do not work. Unpaid working women are only the giver for household because households with those women have a possible of household asset to be increased, over household asset decreased compared to households with unemployment women (Table 2 in Appendix).

Controlling for other variables, no significant differences were found between households with at least one woman working and receiving income and households with no working women. An increase or a decrease in the amount of household debt is thus a result of having woman working without income, not just a woman working. Therefore, even though women play roles in the workforce, without independent income they do not necessarily have economic power. As noted by Bernasek and Bajtelsmit (2002), economic decision-making power of women in the household needs to take into consideration their wages as well.

Before the 1997 economic crisis, Thailand enjoyed a flourishing economy. There were two million fewer female than male labourers in the agricultural sector. Women labourers that had left the agricultural sector became paid labour in non-agricultural work. Statistics from the Ministry of Labour show that the proportion of female labour in industries had increased from 51 percent in 1992 to 58 percent in 1996. But these numbers decreased during the economic crisis because of the extreme impact the crisis had on women (Chanida Janyaped, 1999). While the proportion of unemployed female labour was greater than that of unemployed male labour in 1998, the difference was not great. But while unemployment among women was not a serious problem for women of working age, the case was different for the elderly and low-skilled female labourers, who were among the first to be laid off. Re-entering the labour market was difficult for these women since they had fewer options when looking for a new job. Most resorted to working in the home or migrating to work in

rural areas (Saovaluk Kittiprapas and Chedtha Intaravitak, 2000, p. 54-55). Such jobs are considered the informal sector, in which fair wages are neither guaranteed nor forthcoming, especially in times of economic crisis. Earnings of informal sector labourers decreased by 12.5 percent in 1997 and decreased a further 1.5 percent after the economic crisis. In 2001, informal sector labour earned an average of only 3,051 baht per person per month (Office of the National Economic and Social Development Board, 2003). Female labourers felt the negative effect of income more than did their male counterparts (Saovaluk Kittiprapas and Chedtha Intaravitak, 2000, p. 54-55). Most women who worked in the informal sector (not specifically the elderly and low-skilled workers) worked in agriculture or as vendors or hired workers (Chanida Janyaped, 1999). These women earned little and their income was uncertain. Some female labourers were not paid at all (Busayarat Kanchanadit, 2009). About 18.4 percent of informal sector labourers experienced problems in their work. Half (52.7 percent) of these had problems because of low wages (Ministry of Information and Communication Technology, 2008). Since women such as these earn such low income, the fact that they may be working has little effect on reducing household debt compared to women who did not work outside the home at all.

However, it has also been found that having at least one woman working and earning income in a home makes it less likely that debt will either increase or decrease, compared to households with a working woman who receives no income. Women in Thai culture tend to do everything out of consideration for others, extending help to others, valuing friendships, and lending a sympathetic ear when needed (Wichita Wattanopas and Krittinee Nuttavuthisit, 2006, p. 108). These characteristics mean that women tend to spend their money on household expenses, especially on food and savings for the future so that household has money to pay off debt (Machado, 2007). Thus even women earning a very low income can still help decrease household debt.

This analysis also takes into consideration other independent variables, namely, household assets in 2004, characteristics of household heads, characteristics of households, and characteristics outside households in 2000. As for household assets in 2004, the higher the asset index, the more likely it is that the household will see its debt increased. No influence was found when comparing the likelihood of debt

decreasing to not having debt. This is because middle or rich asset households have a greater chance of increasing their debt than do households without debt, when compared to extremely wealthy households. Many people would like to increase their assets while decreasing their debt. For example, buying a second house or stock is one way of maximizing the value of a loan. In such a case, assets may have increased, but so has debt (Sompong Suvanjitkul, 2005). However, extremely poor and poor households saw no change in household debt compared to extremely wealthy households. This may be a result of the fact that a household's assets are not a representation of actual income of the household because such assets may have been bought on credit. Therefore, having many household assets will most likely come with increased debt as well, as seen in a study by Vorachai Thongthai (2007).

In terms of the characteristics of household head (age, gender and marital status, education, and occupation), only age, gender and marital status, and education had an influence on changes in household debt. The greater the household head's age, the less likely was the debt to either increase or decrease. And in fact, the older the household head, the greater the likelihood that the debt decreased. This corresponds to the Life Cycle Model of Ando and Modigliani (1963, quoted in Guy B., March, 2004) and to the explanation given by Sutapa Amornwiwat and Varaporn Kanchanawat (2005, p. 7), suggesting that the older the household is (measured by age of the household head), the greater the ability to pay off debt. Therefore, the older a household head, the less the debt of household, similar to the conclusion in studies by Pipat Lowacharasundhi et al. (2004, p. 50) and Rodjana Sunsom (2001, p. 53).

As for gender and marital status of the household head, it was found that a single or ever married household head, regardless of gender, is likely to be in a household without debt. This may be due to limited access to credit. Since married household heads tend to have easier access to credit because they have a guarantor when they need to take out a loan. Single or ever married heads of household, if they do not have assets to put up as collateral, are less likely to be trusted by lenders. Data show that households headed by married individuals are among the rich and richest asset groups in larger proportions than households headed by single or ever married people (41.3 percent compared to 34.7 percent, respectively). At the same time, households headed by single or ever married people are among the poor and poorest

groups in larger proportions than are households headed by married individuals (44.6 percent compared to 38.8 percent, respectively). However, finding a guarantor is difficult task (Malee Sunpuwan and Chai Podhisita, 2007) that couples' households to have better access to source of investment fund than single household. Therefore, heads of household who were single or ever married were not likely to have any more debt than indebted households.

Only minor differences were found in the results regarding gender and marital status of household heads and paid and unpaid labour of women (Table 4.9 and Table 4.10) and their effect on households with reduced debt and those with no debt. It was found that households with female heads who were single or ever married were more likely to see their debt decrease compared to those who were married. The comparison between the probability of indebted households increasing or decreasing their debt indicates that whether households were headed by a single or ever married person or by a married person, having a man in the household was associated with a higher chance of the household becoming indebted. This can be explained by the general case that when the household head is a man, he makes most of the decisions in the household, including economic decisions. Since men take more risks than women, this means that men tend to make more investment decisions than do women (Daily and Household Expense Holding Steady – Consumer Spending Research, 2000). Household money may be diverted into investments to advance occupational opportunities or education of members of the household. Moreover, men are also able to access formal loans more easily than are women (Fawcett Society, 2007) because households with men as heads have greater assets than those with female heads (41.8 percent compared to 35.3 percent, respectively). Therefore, households with male heads are more likely to be indebted vs. seeing their debt decreased, compared to female-headed households.

The last variable of the characteristics of household heads in 2000 is education. It was found that heads of households with no education were more likely to have no debt compared to household heads with upper secondary education. It is possible that heads of household with no education could not readily access loans. Given that the opportunity to earn a high income is associated with a high education, it can be seen that household heads with no education had less opportunity in this regard.

The individual income of a household head is taken into consideration by a lender, which puts the less educated household head at a disadvantage for getting a loan but at the same time protects him or her from going into debt. On the other hand, a low income may be insufficient to meet household expenses, and when a household has debt, it becomes more of a burden than for households headed by a person with a higher education. Results show that household heads with no education and household heads with lower secondary education had a tendency to increase their debt vs. decreasing it, compared to household heads with upper secondary education.

The characteristics of households in 2000 that were found to affect change in household debt are the number of household members, number of members of dependent age, occupations of household members, male labour force participation, household assets, and amount of land owned. The more household members, the higher the likelihood of the household having debt, whether or not this debt increased or decreased. The reason could be that living together in a household creates interdependence (Pipat Lowatcharasundhi et al., 2004, p. 46-51). Consequently, the number of household members is also correlated with consumption and household expenses. Nevertheless, having a big household increased the chance of it becoming a household with decreasing debt. In addition to consuming more household resources, larger households can also bring in more external resources. Since earning an income to pay for household resources is a duty of all members of the household, this results in a decrease in the household debt more than an increase.

Households with even one person of dependent age increased the probability of its becoming a household without debt vs. one having debt, whether this debt increased or decreased, which corresponds to a study by Dechapan Duangrat (1992, p. 47-48). This is possibly the result of difficulty accessing credit, especially, if the person of dependent age is a child, which is impossible because they have yet to reach juristic maturity. As for the unemployed elderly, they would have no income or assets to be put up as collateral for loans. Chances of accessing credit would be very slim; thus the chances of going into debt for a household member living in a house with a person of dependent age is also decreased.

In terms of occupation, it was found that households with at least one member working in a non-agricultural sector were more likely to be households

without debt compared to households that had members working only in the agricultural sector. The occupation of a household member is a type of investment, either agricultural or non-agricultural. It is hoped that this occupational investment generates future income. As for agricultural investment, future returns are uncertain because there are many risks, for example, from the weather, which is beyond anyone's control. If there is natural a disaster, crop yield will be affected household income will plummet. For those in non-agricultural occupations, different hazards may occur, depending on the occupation. Therefore, occupational risks are a reason for households to have at least one member working in a non-agricultural sector so as to avoid slipping (further) into debt, since returns from non-agricultural sectors are not so dependent on the vagaries of the weather, market prices for commodities, etc.

With regard to the participation of men in the workforce, households with at least one working man were more likely to be in debt, which had either increased or decreased, compared to households with no working man. This may be due to ease of access to credit and the male characteristic of risk taking, as noted in the gender and marital status discussion. Therefore, having working men in the house increased the likelihood of investment, which creates good debt because working generates a higher income, which in turn increases one's line of credit. The data from cross tabulation between male labour force participation and assets show that the proportion of rich and richest is the largest among households with at least one man working (41.9 percent) while the proportion of poor and poorest is the largest among households with no man or no man aged 15 years or over (46.9 percent). Additionally, it was found that households without men or men above 15 years old stood the chance of being households that saw their debt increase debt more than decrease, compared to households with no working man.

The effect of household assets in 2000 on household debt change is similar to household assets in 2004. Extremely poor and impoverished households were more likely to be debt free than to have either increased or decreased debt. At the same time, extremely poor households were more likely to see increased rather than decreased debt. Households with rather low asset status were found to have low debt as well.

Land owned is an asset that is able to be converted into capital because it can serve as collateral for lenders. If a household is in a crisis that requires money, its

land can be mortgaged get cash for consumption, investment, or to pay off other debts. This study found that households with large amounts land are more likely to be households whose debt decreased.

Households in rural areas (rice, plantation, upland, and mixed economy) are more likely to have seen their debt either increase or decrease. They are also more likely to have had their debt increase compared to households in urban areas. This corresponds to the Dependency and Modernization Theory, which claims that to develop society consumption needs to be promoted, thus creating a consumerist society (Kua Wongboonsin, 2002). Household income in rural areas is less than in urban areas because most rural households engage in agriculture, making them more likely to create and increase their debt. Imitation of urban consumption patterns in the rural areas also makes rural households more likely to create and increase their debt.

5.3 Recommendations

5.3.1 Recommendations for policy

Households that had a working woman earning income faced less likelihood of having debt, compared to household with a working woman but who was not earning income. Therefore, the government should support individual pay for female labour, especially in the informal sector, because female income benefits the financial status of households by helping keep the household debt free.

Moreover, we should also take into account the residential area of female labour. Results here indicate that having a household in a rural area, especially in the case of rice and plantation areas, increases the probability of growing debt, compared to having a household in an urban/semi-urban area. Thus, we should support individual pay for female labour in each area as appropriate, particularly in the case of unpaid working women on plantations, upland areas, and rice areas since women in these fields comprise larger proportions (47.7, 46.3, and 43.1 percent, respectively) than they do in mixed economy and urban/semi-urban areas (37.4 and 14.4 percent, respectively). Furthermore, one way to increase income of female labourers in those

areas is to encourage women to make money from unearned income. Because there is also an amount of paid women working that live in those areas (Table 4 in Appendix).

5.3.2 Recommendations for future research

- 1) In-depth qualitative research should be pursued to explore mechanisms underlying the impact of female labour force participation on household debt change, especially with regard to paid and unpaid female labour that affects household income.
- 2) The results from this analysis show the impact of female labour force participation on household debt change in the last studied year (2004). If we study the change in household debt for each year, such as household debt change between 2000 and 2001, 2001 and 2002, ..., 2003 and 2004, etc., the impact of female labour force participation on household debt change may be different from the present study.
- 3) To go deeper into descriptive detail, we can use the data from the Report of Household Socioeconomic Survey of the National Statistical Office and compare these data with the results from the KDSS.

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A.1 Multinomial Logistic Regression Analysis of impact of female labour force participation on household assets change (ref: have woman but not working)

Variables	Asset increased VS No change		Asset decreased VS No change		Asset increased VS Asset decreased	
	Odds ratio	S.E.	Odds ratio	S.E.	Odds ratio	S.E.
Number	8,434		8,434		8,434	
-2Log likelihood	44.479		44.479		44.479	
Constant	0.605		0.750		-0.145	
<i>Female labour force participation</i> (ref: Have at least one woman but not working)						
- No woman/ no woman aged 15+	-0.048	0.177	0.241	0.167	-0.289*	0.138
- Have at least woman worked	0.098	0.077	-0.034	0.075	0.133*	0.062

A.2 Multinomial Logistic Regression Analysis of impact of female income earning on household assets change (ref: have woman but not working)

Variables	Asset increased VS No change		Asset decreased VS No change		Asset increased VS Asset decreased	
	Odds ratio	S.E.	Odds ratio	S.E.	Odds ratio	S.E.
Number	8,434		8,434		8,434	
-2Log likelihood	59.481		59.481		59.481	
Constant	0.605		0.750		-0.145	
<i>Female income-earning</i> (ref: Have at least one woman but not working)						
- No woman/ no woman aged 15+	-0.048	0.177	0.241	0.167	-0.289*	0.138
- Have at least woman working and earned income	0.092	0.085	0.098	0.083	-0.006	0.068
- Have at least one woman working but no income	0.104	0.084	-0.176*	0.083	0.280***	0.069

A.3 Multinomial Logistic Regression Analysis of impact of female income earning on household assets change (ref: women working but no income)

Variables	Asset increased VS No change		Asset decreased VS No change		Asset increased VS Asset decreased	
	Odds ratio	S.E.	Odds ratio	S.E.	Odds ratio	S.E.
Number	8,434		8,434		8,434	
-2Log likelihood	59.481		59.481		59.481	
Constant	0.709		0.574		0.134	
<i>Female income-earning</i>						
(ref: Women Working but no income)						
- No woman/ no woman aged 15+	-0.152	0.170	0.417**	0.160	-0.569***	0.133
- Have at least one woman but not working	-0.104	0.084	0.176*	0.083	-0.280***	0.069
- Have at least woman working and earned income	-0.012	0.068	0.274***	0.068	-0.286***	0.056

A.4 Percentage distribution of households by female labour force participation and residential area

Female labour force participation in 2000	Residential area				
	Urban/semi-urban	Rice	Plantation	Upland	Mixed economy
No woman or no woman aged 15 years or over	4.2	2.5	3.4	4.2	4.6
At least one woman but not working	21.5	16.4	14.1	24.7	16.6
At least one woman working	74.4	81.2	82.5	71.1	78.8
- At least one woman working and earning income	60.0	38.1	34.8	24.8	41.4
- At least one woman working but no income	14.4	43.1	47.7	46.3	37.4
Total	100.0	100.0	100.0	100.0	100.0

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