HOUSEHOLDS LABOUR SUBSTITUTE DEMAND DURING SOME LABOUR FORCE AGE TEMPORARY MIGRATED

SUTTIDA CHANGSOM

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
2003

ISBN 974-04-3590-4

วิทยานิพนธ์
เรื่อง
ความต้องการแรงงานทดแทนของครัวเรือน
เมื่อมีสมาชิกวัยแรงงานย้ายถิ่นออกชั่วคราว

.....

นางสาวสุทธิดา ช่างสม
ผู้วิจัย

.....

ผู้ช่วยศาสตราจารย์โยธิน แสวงดี, Ph.D.
ประธานกรรมการควบคุมวิทยานิพนธ์

.....

รองศาสตราจารย์อมรา สุนทรธาดา, Ph.D.
กรรมการควบคุมวิทยานิพนธ์

.....

รองศาสตราจารย์รัศมีดารา หุ่นสวัสดิ์, Ph.D.
คณบดีบัณฑิตวิทยาลัย
มหาวิทยาลัยมหิดล

.....

รองศาสตราจารย์กุศล สุนทรธาดา, Ph.D.
ประธานกรรมการประจำหลักสูตร
ศิลปศาสตรมหาบัณฑิต สาขาวิชาวิจัยประชากร
และสังคม สถาบันวิจัยประชากรและสังคม

วิทยานิพนธ์

เรื่อง

ความต้องการแรงงานทดแทนของครัวเรือน
เมื่อมีสมาชิกวัยแรงงานย้ายถิ่นออกชั่วคราว

ได้รับการพิจารณาให้นับเป็นส่วนหนึ่งของการศึกษาตามหลักสูตร
ปริญญาศิลปศาสตรมหาบัณฑิต สาขาวิชาวิจัยประชากรและสังคม
วันที่ 9 มิถุนายน พ.ศ. 2546

.....

นางสาวสุทธิดา ช่างสม
ผู้วิจัย

.....

ผู้ช่วยศาสตราจารย์โยธิน แสวงดี, Ph.D.
ประธานกรรมการควบคุมวิทยานิพนธ์

.....

รองศาสตราจารย์เนาวรัตน์ พลายน้อย, Ed.D
กรรมการควบคุมวิทยานิพนธ์

.....

รองศาสตราจารย์อมรา สุนทรธาดา, Ph.D.
กรรมการควบคุมวิทยานิพนธ์

.....

รองศาสตราจารย์รัศมีดารา หุ่นสวัสดิ์, Ph.D.
คณบดีบัณฑิตวิทยาลัย
มหาวิทยาลัยมหิดล

.....

รองศาสตราจารย์เบญจา ยอดดำเนิน-แอ็ตติกจ์, Ph.D.
ผู้อำนวยการสถาบันวิจัยประชากรและสังคม
มหาวิทยาลัยมหิดล

ACKNOWLEDGEMENTS

The researcher owes much gratitude to Assistant Professor Dr.Yothin Sawangdee, Associate Professor Dr.Amara Soonthorndhada and Associate Professor Dr. Nawarat Phlainoi for their grateful knowledge, assistance and help, all of which contribute to the completeness of this thesis.

Much gratitude is expressed to lecturers and researchers from the Institute for Population and Social Research, Mahidol University for their academic insight and experience during the entire research period.

I would like to thank the Wellcome Trust – IPSR Graduate Scholarship for research-grant that enabled me to undertake this thesis.

I also thanks the staff of the Institute for Population and Social Research, the doctoral candidates, the Master students the 24th Batch for their support and encouragement in times of troubles.

Lastly, without the financial support from my parents grandparents and aunts together with their willingness to provide moral support as well as other assistance, this thesis could not have been successfully completed. Therefore, I am honored and proud to recognize them here.

Suttida Changsom

HOUSEHOLDS LABOUR SUBSTITUTE DEMAND DURING SOME LABOUR FORCE AGE TEMPORARY MIGRATED

SUTTIDA CHANGSOM 4437302 PRPR / M

M.A. (POPULATION AND SOCIAL RESEARCH)

THESIS ADVISORS : YOTHIN SAWANGDEE, Ph.D. (SOCIOLOGY), AMARA SOONTHORNDHADA, Ph.D.(GENDER AND DEVELOPMENT STUDIES)

ABSTRACT

The objective of this thesis is to define the factors of households labour substitute demand during some labour force age(13-59 years) temporary migrated. This thesis is based upon the 1995-1996 Survey of Population Change in Thailand of Phase I (July-August 1995) by the National Statistical Office. The unit of analysis is the household, and the dependent variable is the number of laborers who temporarily migrate into households. The independent factors are the temporary out-migration from households, dependency ratio, the household production structure and the household area. The basic assumption is that there is no correlation between each and every independent variable, which are analyzed by multiple regression analysis.

From the 7 models analysis, it may be concluded that the high number of labourers who temporarily migrate out of households is not related to household labour substitute demand, no matter whether the migrants are male or female. However, when controlling for the number of labourers who temporarily migrate out, it was found that there is a statistically significant correlation between household labour substitute demand and the number of labourers permanently living in a household, Child and Age Dependency Ratio, the temporary migration of family leaders, the number of grandchildren, household production structure and the location of the household. These factors affect household labour substitute demand when migration occurs.

It is recommended that the migrant labour force should pay more attention to children and elder people so that they are be taken care of. Migration to urban areas in the Central and Northern regions should be promoted to ease the labour shortage; whereas, migration both across regional boundaries and within region boundaries to the provincial areas in the North-Eastern and Southern regions can provide a sufficient labour supply.

KEY WORDS : LABOUR DEMAND/ HOUSEHOLD/ TEMPORARY MIGRATION

61 P. : ISBN 974-04-3590-4

ความต้องการแรงงานทดแทนของครัวเรือน เมื่อมีสมาชิกวัยแรงงานย้ายถิ่นออกชั่วคราว (HOUSEHOLDS LABOUR SUBSTITUTE DEMAND DURING SOME LABOUR FORCE AGE TEMPORARY MIGRATED)

สุทธิดา ช่างสม 4437302 PRPR/M

ศศ.ม. (วิจัยประชากรและสังคม)

คณะกรรมการควบคุมวิทยานิพนธ์ : โยธิน แสวงดี, Ph.D.(SOCIOLOGY), อมรา สุนทรธาดา, Ph.D.(GENDER AND DEVELOPMENT STUDIES)

บทคัดย่อ

การศึกษาครั้งนี้มีวัตถุประสงค์เพื่อค้นหาปัจจัยที่ทำให้ครัวเรือนมีความต้องการแรงงานทดแทน เมื่อครัวเรือนนั้นมีสมาชิกในวัยแรงงาน(อายุ 13-59 ปี)ย้ายถิ่นออกชั่วคราว จากข้อมูลการสำรวจการเปลี่ยนแปลงประชากรในประเทศไทย พ.ศ.2538-2539 รอบที่ 1 ระหว่างเดือนกรกฎาคม ถึง เดือนสิงหาคม พ.ศ.2538 โดยสำนักงานสถิติแห่งชาติ หน่วยในการวิเคราะห์ คือ ครัวเรือน กำหนดให้ตัวแปรตาม คือ จำนวนสมาชิกวัยแรงงานที่ย้ายถิ่นเข้าครัวเรือนชั่วคราว ในขณะที่ตัวแปรอิสระประกอบด้วย ตัวแปรทางด้านการย้ายถิ่นออกจากครัวเรือนชั่วคราว ตัวแปรอัตราพึ่งพิงทางประชากร ตัวแปรโครงสร้างการผลิตของครัวเรือน ตัวแปรเขตที่อยู่อาศัย โดยมีข้อตกลงเบื้องต้นคือ ตัวแปรอิสระทุกตัวเป็นอิสระต่อกัน โดยใช้การวิเคราะห์ความสัมพันธ์ด้วยการวิเคราะห์ถดถอยพหุคูณ(Multiple Regression Analysis)

จากการวิเคราะห์เพื่อหาความสัมพันธ์โดยแบบจำลองทั้ง 7 แบบจำลอง สามารถสรุปได้ว่า ครัวเรือนที่มีจำนวนสมาชิกวัยแรงงานย้ายถิ่นออกชั่วคราวมากไม่มีความสัมพันธ์ต่อความต้องการแรงงานทดแทนของครัวเรือน ไม่ว่าสมาชิกวัยแรงงานที่ย้ายถิ่นออกจากครัวเรือนชั่วคราวจะเป็นเพศชายหรือเพศหญิงก็ไม่มีความแตกต่างกันและไม่มีผลต่อความต้องการแรงงานทดแทนของครัวเรือน อย่างไรก็ตามเมื่อควบคุมจำนวนสมาชิกวัยแรงงานย้ายถิ่นออกจากครัวเรือนชั่วคราวแล้วพิจารณาถึงปัจจัยอื่นๆ ในครัวเรือนว่าจะมีผลต่อความต้องการแรงงานในครัวเรือนหรือไม่ ผลการศึกษาพบว่า จำนวนสมาชิกวัยแรงงานอยู่ประจำในครัวเรือน, อัตราพึ่งพิงทางประชากรวัยเด็กและวัยสูงอายุ, ครัวเรือนที่มีหัวหน้าครัวเรือนย้ายถิ่นออกจากครัวเรือนชั่วคราว, จำนวนหลานของหัวหน้าครัวเรือนย้ายถิ่นออกจากครัวเรือน, โครงสร้างการผลิตของครัวเรือน จำแนกตามลักษณะการประกอบอาชีพเกษตรกรรม ค้าขาย รับราชการหรือรัฐวิสาหกิจ และรับจ้างของสมาชิกวัยแรงงานในแต่ละครัวเรือน, ครัวเรือนที่อยู่อาศัยในเขตเทศบาลภาคกลาง และภาคตะวันออกเฉียงเหนือ มีความสัมพันธ์ต่อความต้องการแรงงานทดแทนของครัวเรือน อย่างมีนัยสำคัญทางสถิติ ซึ่งหมายความว่าปัจจัยต่างๆ เหล่านี้เป็นตัวกำหนดความต้องการแรงงานของครัวเรือน เมื่อมีการย้ายถิ่นออกนั่นเอง

ดังนั้นประชากรวัยแรงงานจึงควรให้ความสำคัญกับประชากรวัยเด็กและวัยสูงอายุมากขึ้น เช่นในการตัดสินใจย้ายถิ่นควรหาบุคคลอื่นทดแทนเพื่อดูแลเด็กและผู้สูงอายุด้วย อีกทั้งควรส่งเสริมให้มีการย้ายถิ่นเข้าสู่เขตเทศบาลภาคกลางและภาคเหนือมากขึ้นเพื่อทดแทนแรงงานที่มีความขาดแคลน และควรหาแนวทางให้แรงงานย้ายถิ่นทั้งภายในภาคและระหว่างภาคเข้าสู่เขตชนบทในภาคตะวันออกเฉียงเหนือและภาคใต้ เพื่อว่าครัวเรือนจะได้มีแรงงานเพียงพอต่อความต้องการ

61 หน้า : ISBN 974-04-3590-4

CONTENTS

CONTENTS (Continue)

LIST OF TABLES

LIST OF GRAPHS

CHAPTER I
INTRODUCTION

1.1 Problem Identification

Migration is the population phenomenon which creates changes in the size, distribution and structure of the population. That is, it reduces population in some areas and increases population in others. This phenomenon results in an imbalance status between population and resources in the living areas. Thailand also faces the problem of population distribution imbalance because of the economic and social differences between rural and urban areas. Together with the influx of western modernization which influences social beings and well-being values, migration is a problem rooted in the economic and social system for a very long period of time. This occurs both at the place of destination and at the place of origin since the migration people possess positive selectivity, which can cause a decrease in production as well as labour shortages.

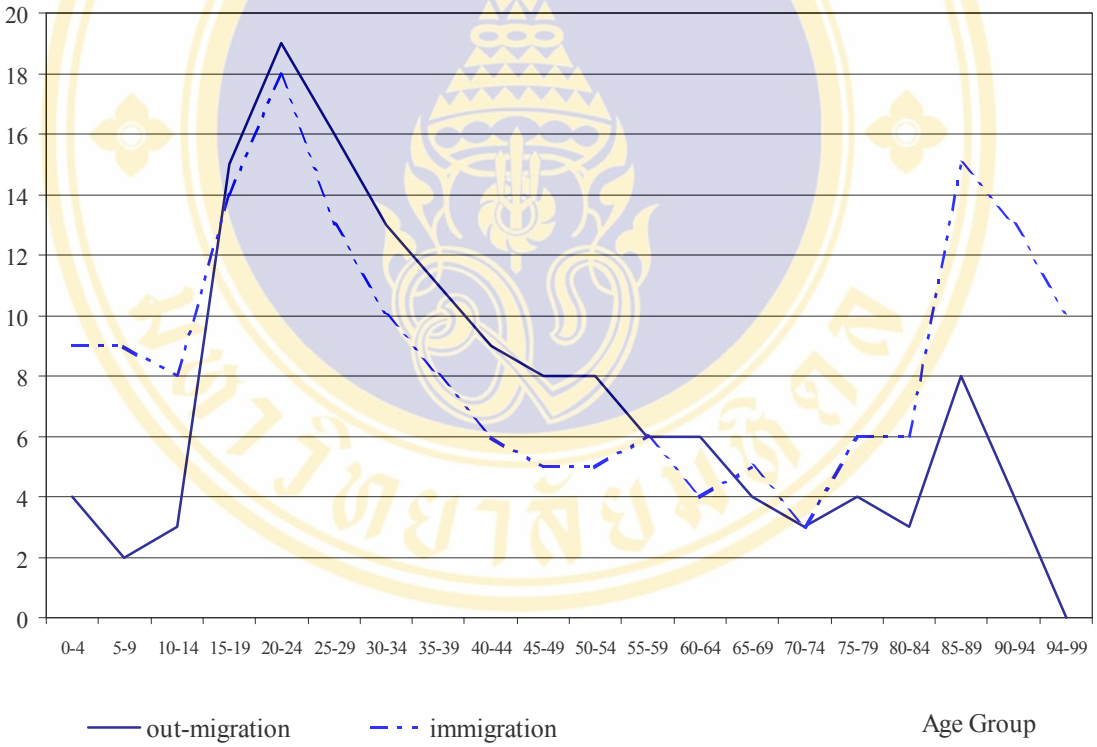
With Thailand's increasing economic growth, the economic and social structure turns to a more modernized industry and service, resulting in income and employment increases being reasons for economic labour demand. Such demand leads to the hiring of more labour in the industry and service segment than in the agricultural area. This problem, together with high overseas migration, makes the decreasing agricultural labour supply even more serious. At the other end, the national labour population is in a downward trend due to the relatively low fertility condition along with the compulsory education period enlargement from 6 to 9 years. All these factors help reinforce the labour shortage of non-skillful, partial skillful and skillful labourers in some areas and in some seasons. (Thummarak Karnpisit, 1993)

In the past, the employment demand in the rainy and hot season was much different in that during the hot season, less agricultural work produced the high influx of population migrating to urban area. The labour force age has created a negative impact on the labour source in terms of the high dependency ratio among the children and the elder people. (Chalongpob Susungkornkan and Yongyut Charamwong, 1988) The irrigation improvement machinery adaptation enhances all-year-round cultivation, which leads to the increasing labour demand of agricultural sectors during the hot or rainy season. This is especially true in the Northern and Central region; whereas, the labour demand of the Southern part remains at a continuous level all year. In the meantime, the industrial and service enlargement changes the status of work outside agriculture to be permanent, not temporary in the hot season. This situation resulted in a reduction in agricultural labour from 66 percent in 1989 to 60 percent in 1991 which definitely reflects the tendency of labour to reside in the cities. (Phillips Guest and Sureeporn Punpung, 2000)

According to an employment survey prior to the economic crisis during 1994 to 1996, there was 35 percent migration from the agricultural to the industrial sector in the hot season, while 13 percent migration back to the agricultural sector in the cultivation period. (Department of Employment, 1998) The Central and Southern part incurred the labour shortage in the hot season where labour was required in various activities such as cane, rubber, and fishing industry. This was especially true for the Southern part where there was demand for labour the entire year. In the Central part, labour shortages arose both from the demand and supply side because the population growth rate had been declining since the end of 1967. People in rural areas migrated to other parts, and the government promoted farmers to household's industrial work. This plan required excessive labour and created short and temporary migration in the rural areas; consequently, there arose a temporary labour demand from the North Eastern as well as from other parts of the country. Also, foreign labourers were becoming more in demand. (Nipon Puapongsakorn and Pattamavadee Susuki, 1992) The latter brought about illegal foreign migration that is now Thailand's major problem as it pertains to eroding economic, social and political growth. This problem will eventially become worse without appropriate action by the government.

The 1995-1996 Survey of population change in Thailand, carried out from July to August in 1995 showed statistics based on the three kinds of living; (1) permanent living : people normally living in the household and present on the interview day or not present and left for work, (2) temporary migration : people normally living in the household but away for less than 3 months at the time of interview and (3) temporary move-ins : people whose household were located in other areas but had moved in less than 3 months prior to the interview day as shown in Graph I.

Graph 1 presents the number of temporary in and out migration people classifying by age groups.(1,000 people)



The graph pertains to the labour force age 13 to age 59 and demonstrates a large number of temporary in and out migrations. This leads to a critical situation if such labour force age(13-59 years) out-migrates on a large scale and the people remaining in the household is fewer. How the household copes with the labour substitute demand raises the research question of whether there will be a need for substitute demand if the age of the temporary migration labour force rises. The

research will therefore shed some light to the factors concerning the substitute demand which will be academically useful for labor allocation.

1.2 Objective of the Study

This study aims to determine the facts concerning households labour substitute demand involving the temporary migration of the labour force from 13 through 59 years of age.

1.3 Scope of the Study

This study is based on the 1995-1996 Survey of population change in Thailand by the National Statistical Office. The sampling covers every provinces inside and outside the municipal area. The target group was people living only in private household. The data used came from the survey of base population Phase I (July-August, 1995), and was conducted by interviewing the target group about day, month, and year of birth, age, sex, type of living, marital status, the number of children ever born, the number of children surviving etc. The reason for using this data is due to the informative base population and its data collection as being representative of all population in Thailand.

1.4 Basic Assumptions

The basic assumptions set for the study require that the household consumption did not change during the one-month survey and the household's production structure was controlled and measured by the percentage of the household's occupation, which was : (1) the percentage of agricultural occupation : agriculture, farming, planing, fishing or mining, (2) the percentage of merchandizing : merchant or private business or industry and service, (3) the percentage of civil servant or state enterprise personnel and (4) the percentage of employee : employee, laborer, and others.

CHAPTER II
LITERATURE REVIEW

The literature and research review serving as fundamental conceptual knowledge for the Households Labour Substitute Demand During Some Labour Force Age Temporary Migrated were as follows:

2.1 Relevant Concepts and Theories

2.2 Households Migration

2.3 General Labour Situations

2.4 Relevant Studies and Researches

2.1 Relevant Concepts and Theories

2.1.1 The Theory of The Multiphasic Responses

The Multiphasic Responses Theory concerns fertility and signifies rural and urban migration in every industrialized country. This pertains not only to the general increase in farmers but also to the increase in existing population as well. Both the rural and urban migration involve the change of occupation and geographical living area. In fact, members of the farming community may migrate from agricultural occupations periodically or full time ; therefore, the best indicator of rural and urban migration is the decrease in the number of agricultural labourers. For example, in Great Britain there were 1.8 million agricultural male labourers in 1851 but 100 years later the number of male labourers had reduced to 1.1 million even though the total population had increased by 2.5 times. Similarly, in Japan the number of male agricultural labourers fell from 15.7 million in 1876 to 13.7 million in 1958. Davis indicated that in industrialized countries there was a downward trend of people living in the countryside.(Davis,1963)

2.1.2 The Theory of Labour Demand on the Individual and Household

Becker (1965) gave his core idea that the decision for participate labour force did not arise from individual labour only, but was a shared household decision. This was due to various household factors such as the ability to earn income by each member and other household activities as well. As a result, the entire household was viewed as a decision making unit. In modern households, parents could earn a living but did not have enough time to do housework and also take care of children. Therefore, it was necessary to utilize modern facilities and house maids for support. The change in household size as a result of the necessity to care for elder parents or children leaving to start their own lives, and the systematical change in production and consumption activity had an effect on diverse household labour participation. For example, when other members of the household were studying, labour members had to work hard. In summary, the decision about labour demand came from every household member depending upon consumption pattern, style and level to earn income as well as the impact of studying by its members. (Juthar Manaspaiboon, 1994)

2.1.3 The New Economics of Labour Migration

This concept explains the rural and urban migration in that, in general, the migration of each individual and each household is accomplished in expectation of increased household income with the least risk management. The family expends excessive labour for urban work though there is minimal difference in revenue due to travel expenditures. With the decision support data, it is expected that earning can cover cost and that a risk management is established because poverty or starvation may arise. Hence, families normally manage risk by sending their members to work and deciding which individual will migrate and who will substitute. (Stark and Bloom, 1985)

2.1.4 The Traditional Kinship Approach

Believes that the labour demand of migrants is seasonal during annual cultivation periods. Migrant labour remains importance temporarily when the entire

household labour is used, especially the male labour force. This is added by the kinship labour, which creates the regular agricultural yield. (Palmer, 1985)

2.1.5 The Neo-Classical Approach

Views that male migration reduces agricultural production in rural areas, resulting in labour adjustment for maximum benefit. Migrants are able to provide enough household remittance for substitute labour. Moreover, the less consumption unit of adults in a household creates more food ratio per person. Even if this cannot level up the household consumption, the migration provides benefits such as investment in new resources, production technology change to increase more yields and increasing revenue distribution in rural areas due to labour shortage. (Palmer, 1985)

2.2 Households Migration

2.2.1 Definition

There are many versions of "Migration", most of which stress the importance of it's distance and duration. The definition of migration by National Statistical Office is "The movement from one place to another permanently or temporarily in a period of time". (National Statistical Office, 1997) Phayap Payomyont defines migration as "The movement of population from the regular area to another area, government area and geographical area".(Labour Welfare and Protection Division, 1994) Whereas Watinee Boonchalaksee opines that migration is the movement out of the same area for at least one month. (Watinee Boonchalaksee, 1997) One type of migration is seasonal migration. Agricultural labour migration to other regions in a season and coming back within the same year when a cultivation season comes. (National Statistical Office, 1997)

Temporary and permanent migration occurs when the migrants intend to stay permanently or temporarily in new areas, depending on the duration. The stay at a new place for less than one year, with no intention to stay longer and with the possibility to

migrate back, is considered temporary migration compared to longer period of stay with the intention to do so and no chance to return. (National Statistical Office, 1997).

2.2.2 The Definition of Household

A household is the smallest social unit comprising one individual or many living in the same place and sharing food supply or necessity commodity. These people may be relatives or may not be and it may be only one household or many households but the members must bear responsibility for household survival. (Labour Division, 1990) National Statistical Office conveys the meaning of household as the sharing and using required necessary commodity among two people or more. (National Statistical Office, 1997) While Eshleman views households as people living in the same place mixing relatives and non-relatives, for example, maids and servants. His definition of household also includes one person living in a place and a group of non-relatives living together. (Eshleman, 1993)

2.2.3 Migration Decision Unit

Migration is a population phenomenon arising from a household decision rather than individual one since household is a basic demographic institution and a primary decision unit for social behaviors. (Fuller et.al., 1983; Stark, 1984)

Household is considered an essential social component and the study of which is based on population. The relationship between the population generation and sex is a real demographic, economic and social behavior decision unit. Kuznets (1978) suggested that household was a basic group in which the genetic related household members by marriage or patronage would lead to economic decision for shared benefit. As a result, household was confirmed to be used in analyzing economic and other fields (Kuznets, 1978) because the household decision power affected economic ways such as educational level, occupation, the decision to work or to work in household.

The household leader plays the most important role to control (Panpiamras et.al., 1987) and to decide about the household's members to migrate (Lauby and

Stark, 1988). The migration rate of the household leader is lower than that of non-leader members (Sukhothat Thammathirat Open University, 1987). Most migration happens among men and women, and single people. The most frequent migration occurs with the leader's son, and both male and female migration is found to decrease when they are elder.

In most developing countries, household is a production, investment and consumption decision unit. Hugo (1994) proposed that since household being a production unit, the labour resources were distributed among various work to gain required result. But owing to different abilities, characteristics and skills, labour management had to be handled best to meet two objectives; that is, an increase of highest products and revenue and the minimum risk (Hugo, 1994).

The migration trend prominent among Thai population is seasonal migration to serve labour demand and supply. In other words, in the cultivation season, labour demand is found in some areas and migration is created to serve that demand (Pramote Prasartkul and Phimolpan Issarapakdee, 1999).

The seasonal migration is considered important in Thailand especially in the North Eastern region because there is the highest migration in January due to the lack of labour employment in villages and the urge to work somewhere before the season comes (National Statistical Office, 1993). Men migrate seasonally more than women do, perhaps owing to agricultural labour demand and seasonal employment as road and infrastructure work in rural areas. When there is a constant seasonal agricultural labour migration, not less than 2 million people per year comes to work in town (Phananiramai, 1992).

2.2.4 The Effect of Labour Migration on the Place of Origin

The research in Thailand and developing countries shows similar result that the labour migration especially that of the household leader has an effect on other members and his/her labour source society as (1) most migrants from rural areas are young people with better education, resulting in the lack of competent manpower; (2)

male migration, labour in production, might reduce agricultural production of household; and (3) household members participate more to raise the production efficiency (Oberai, 1981). Therefore, more labour demand is forecasted when there is temporary migration.

2.3 General Labour Situation

Domestic migration results from the development of economic structure from agriculture to industry and service, causing labour shortage in some occupations and areas (Thienchai Keeranant, 1983).

In Thailand, most people work in agricultural sector – more than 4 out of 5 people of labour age and also work in other sectors when the agricultural season is over. The ratio of people in the sector decreased from 82 percent to 72 percent (Richter and Podhisita, 1997). From the survey of working situation prior to the economic crisis (1994-1996) it was found that there was a constant fall from about 80 percent to nearly half the labour force. The change was seasonal due to the agricultural rain: the labour force reduced in the hot season but rose in the rainy. During 1995-1999, in February (hot season) labour force in agricultural sector accounted for approximately 40 percent of the total employment; and increased to 50 percent in August, which was the cultivation period. Normally, August is the month when labour migrates back to agricultural sector.

Therefore, agriculture takes an important role in the country's economic development. If the migration from agriculture to industry and service sector takes place, agricultural production will increase to facilitate such migration. And the more migration out of the agriculture sector, the more efficient the labour left in the sector will be for existing food demand (Srion Somboonsup, 1996).

Labour demand in rural areas hence doesn't have a fixed pattern. The migration is flexible because it mostly involves agricultural product activities,

agriculture-related industry and activities outside agriculture such as household industry and small and medium industries, for example, Household provides major labour of low education and less skills. Together with technological development, transportation, and government policy to expand industry development to rural areas and to create prosperity and more income by agricultural improvement to prevent city migration (Labour Welfare and Protection Division, 1994). The agriculture production technology in rural areas is improved for the product's quantity and quality, more production style for sale, higher investment and more labour demand (Philip Guest and Sureeporn Panpung, 1997).

The industry and service sector which concentrates in cities (Richard et.al., 1987) is a massive and diversified labour market. The national labour demand survey in 1993 showed that 371,176 people were required within cities. This in part did not require high knowledge or skill and therefore did not justify higher wages. (Labour Welfare and Protection Division, 1994) At the same time, the high technological need for the industry development in Bangkok and its suburb demanded high education labour (Koanantakool, 1993).

2.4 Relevant Studies and Researches

The study of migration tends to show a similar result that the migration out of labour source creates the loss of population in labour age group with higher knowledge and work skill compared with non-migrants. Since this group plays a vital role for productivity building, causing the disadvantage to the labour source (Phasorn Limanon and Penporn Theerasawad, 1989).

Stark (1984) believes that household labour force population is an essential factor in the production process to support economic demand; therefore, the increase and decrease of labour directly affected the production process. (Stark, 1984) Most migrants are younger generation of 21-23 years or son-in-law or daughter-in-law, causing the loss of necessary household labour in communities. Less agricultural

labour and less productivity lead to the hiring of labour from other places. When there is a household members migration, the most of household production structure applies the non-migrant labour and hired labour. The amount of money sent back from the migrate is little and not enough to invest and to help improve productivity efficiency because most money is spent on household consumption and paying debt. (United Nations, 1988) Therefore, the more the household has the member in labour age, the more they have more labour to earn a living. (Guest, 1989; Root and De Jong, 1991)

Under Thailand's economic and social development changes the role of women in household and society in that they have to work outside to share economic load. This increases their burden besides the taking care of the elder. Children and household members, causing migration decision. As a result, if a person can do their role, the limitation of migration will lessen (Phananiramai and Hutaserani, 1992). The decision making is borne by women when their husbands or sons do not work in Middle East, together with the substitution of other people' working for husbands or sons (Wilaiwaj Krisanapoom, 1988). Likewise, women in rural areas participate in household agriculture as much as husbands do. When agricultural technology is introduced, men gain more advantage than women do because men's work time and burden is lessened but the load of women doubles due to the fact that productivity technology is finished by women (Ratchaneekorn Seththo, 1989). At the same time, the migration member in household may be a daughter since they are not required to do agricultural labour and there is no work in village. They are also expected to send back more money than men to decrease household risk (Guest, 1993).

The Study of Internal Migration and Occupational Mobility in Thailand in 1999 by Ogena and De Jong found that most labour were in the agricultural sector and considered necessary in the production and service process. There were temporary migrants in general especially in agricultural rural areas. 54 percent of total migrants was in the North Eastern Region (Ogena and De Jong, 1999). Within 100 years in the future, it was projected that there would be marginal labour in 1995; where as, 9 percent labour shortage would appear in 2000 and would be intense in the next 10

years especially the woman labour demand in the production, sales and service (Philip Guest and Sureeporn Panpung, 1997).

The study of migration of labour in the Southern Region: Patani Province found out that the dependency member of household and the labour member had an effect on the labour migration of population in Patani rural areas (Suchada Taweesit, 1986). Likewise, the working quality study of labour migration presented that population dependency rate correlated with labour migration in that when there was an increase in the population dependency rate, less opportunity to migrate happened, partly because of the role of women to take care of elder people and children. When a household has more elder people and children, the decision to allow women to migrate is affected. (Gunatilleke, 1992). This study was relevant to the study of younger generation in the North Eastern Region whether there was any sex difference or not. It was done by Plaimas Kunpakdee, 1999, who discovered that elder people and children in household resulted to the migration decision of women in that household (Plaimas Kunpakdee, 1999). And when labour age population increased, migration also increased because the risk management had to be managed: there would be enough labour for household activities and other labour was promoted to migrate for work in other places for better income and money requirement (Benjamas Teeramaswanich, 1989).

De Jong et.al. (1996) investigated Gender, Values and Intentions to Move in Rural Thailand are revealed that the migration limitation of each household was the burden incurred from the migration especially large household with dependent children and elder people. Moreover, The migration level was slightly higher for short and seasonal migration. The Thai women's migration pattern was changed by economic and social structure: both single and married women were pushed to work outside household due to the limited income earned only by men. The separated and once married women tended to migrate as much as single children. Whereas, sons, sons-in-law and married daughters tended to migrate less since they lived with extended household and someone could take care of their children. So, household has an influence on the migration decision in household in that if the household has more

than three generation population, the migration trend will be higher compared with the household of the elder people and children (age 6-12 years) (De Jong et.al., 1996). In summary, the country's domestic migration is mostly temporary and seasonal happening among labour age with the influence from the household.

The report of in out of work and the labour demand in 1995 discovered that people worked more than unemployed by 38.82 percent of the total employed figure. More than half was the substitution of former people comprising 50.38 male labour and 31.17 female labour and 18.45 unidentified labour (Labour Recruitment Division, 1995). The agricultural labour ratio fell from 66 percent (2.06 million) in 1989 to 60 percent (1.89 million) in 1981 because of (1) decreased agricultural growth rate resulting from less area, natural disasters and less productivity; (2) the rapidly expanding work outside agricultural sector; and (3) a signal of labour shortage in agricultural sector caused by the migration to the industrial sector. In the past, the employment rate in the rainy and hot season was different by 5 people due to less agriculture but at present, the irrigation, machinery and multi-cultivation all year round together with the temporary work outside agricultural sector becoming the permanent. This is incorporated by the work wage in the hot season for the sector besides agriculture being higher than in the rainy season for almost all region of Thailand.

From the above description, the factor to determine the labour market was not season but the labour demand from the sectors besides agriculture (National Statistical Office, 1997). Agricultural labour mostly migrates seasonally by being hired to increase income, being employed in the industrial sector (sugar cane, agricultural produce transformation, mining, stoning and sand mining) or in the service sector (hotel, resort, tourist attraction, souvenir) or general service.

Apichart Chamrasrittirong studied in 1983 and found that the reason of temporary migration to Bangkok was due to economic reason. 80 percent of male and 68 percent of female migrated to work because they were free and went back to work in agricultural season. There were labour shortages for the lower level in some

provinces among the agricultural and construction sectors, causing foreign labour substitution. It led to the illegal labour employment especially provinces near the border such as Mae Hong Son, for example, not including the Southern Part where there was not popular to work outside the Part. Nevertheless, there was still the migration labour and foreign labour in fishing since this industry was hard and not clean: Thai labour was not accustomed to it (NIDA, 2001). When they were free from the farming work, farmers were fond of temporary work for more income. But now the labour migration occurs both during and outside agricultural season to cope with the quick economic change. The World Bank indicated that Thai rural labour market was tight – the women and children labour was used to help in the agricultural sector (Chamratrithirong et.al.,1995).

The research of rubber plantation and fishing of Labour Employment Division in 1997 showed that the rubber plantation focussing in the Southern provinces possessed the labour shortage during agricultural season. It was due to the industrial growth and the migration to industrial sector. The owners of the two businesses employed to solve the problem were the search for labour from other areas, foreign labour and labour in other industries in the same province. The all year round problem coincided with the fishing labour shortage in the South and the East of Thailand. Major reasons came from the migration to overseas and to the industrial and service sector, and the negative characteristics of fishing (Labour Employment Division, 1997).

It is clearly shown from the mentioned literature that Thailand begins to face labour shortage in some production sector and that if household migration still exists, the substitute labour force will replace. To search for the answer and for the factors leading to the household labour demand in Thailand in times of temporary labour shortage, the researcher proposed the hypotheses as follows.

2.5 Conceptual Framework

The study has unit of observation and unit of analysis is household. To believe that the number of labour immigration in household is function fixed that (1) the number of labour temporary out-migration both male and female including separated by the relationship with head household (2) the number of permanent resident labour (3) Dependency ratio with child and aging (4) Household production structure and (5) Area of household residence. Meanwhile the basic assumptions set for the study require that the household consumption did not change. The independence and dependence variables are set in the following function:

$$Linm = \int [\ Loutm , Lmoutm , Lfoutm , Lstay , Cdepen , Adepen$$
$$Lreloutm , Occstructure , Area\ ]$$

Setting L*inm* = The number of labour temporary immigration.

L*outm* = The number of labour temporary out migration.

L*moutm* = The number of labour (male) temporary out migration.

L*foutm* = The number of labour (female) temporary out migration.

L*stay* = The number of permanent resident labour in household.

C*depen* = Child Dependency ratio.

Compute from $\frac{\text{The number of child(0-12) in each household}}{\text{The number of labour(13-59) in each household}} * 100$

A*depen* = Aging Dependency ratio.

Compute from $\frac{\text{The number of aging(60up) in each household}}{\text{The number of labour(13-59) in each household}} * 100$

L*reloutm* = The number of labour temporary out migration with the relationship of head household.

Such as L*hhhoutm* = Head household temporary out migration.

L*whhoutm* = Spouse of head household temporary out migration.

O*ccstructure* = Household production structure which was :

(1) O*ccAgri* = The percentage of agricultural occupation : agriculture, farming, planing, fishing or mining.

Compute from $\frac{\text{The number of agricultural labour}}{\text{The number of total labour in each household}} * 100$

(2) O*ccsale* = The percentage of merchandizing: merchant or private business or industry and service.

Compute from $\frac{\text{The number of merchandizing labour}}{\text{The number of total labour in each household}} * 100$

(3) O*ccGov* = The percentage of civil servant or state enterprise personnel.

Compute from $\frac{\text{The number of civil servant labour}}{\text{The number of total labour in each household}} * 100$

(4) O*ccOthers* = The percentage of employee: employee, laborer, and others.

Compute from $\frac{\text{The number of employee labour}}{\text{The number of total labour in each household}} * 100$

A*rea* = Area of household residence : Bangkok Metropolis, urban area of central, urban area of northern, urban area of northeastern and urban area of southern.

2.6 Hypotheses

1. The household with much labour temporary out migration demands high labour substitution.

2. The household with much male temporary out migration demands high labour substitution.

3. The household with permanent resident labour demands low labour substitution.

4. The household with high children and aging dependency ratio requires high labour substitution.

5. The household in urban areas requires more labour substitution that in rural areas.

2.7 The Definitions used in the Research

1. Labour are people of 13-59 years and are working, unemployed and working seasonally.

2. Labour Substitute Demand means the household labour demand or work employment demand which can be the substitute labour demand or new labour demand. This research holds that when there is a migration in and out at the same time, it is defined as the substitute labour demand.

3. Permanent resident labour means the people who normally live in a household and still live on the interview day; and the people who normally live in a household but was not present on the interview day.

4. Temporary out-migrant means the people who normally live in a household but leave temporarily outside the village or household municipal area not more than 3 months until the interview day.

5. Temporary immigrant means the people who normally live in other places but temporarily stay in the household in the village or municipal area not more than 3 months until the interview day.

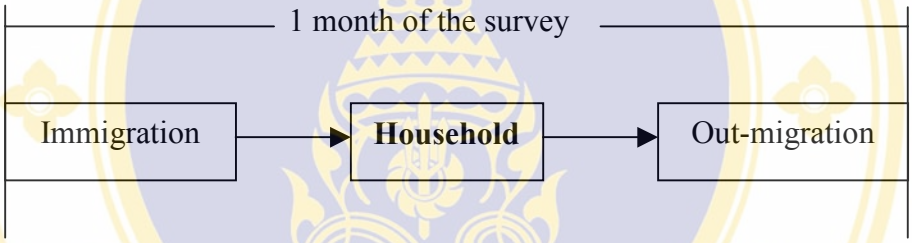
6. Household means the people who live in the same place consisting of relatives, and non-relatives such as maids, servants. They include a person living in one place and a group of people living together.

7. Dependency ratio means the ratio between people whose age cannot be grouped in the labour age or out of the labour age; and people in labour age.

8. Household production structure means the percentage of the household's occupation, which was (1) the percentage of agricultural occupation : agriculture, farming, planing, fishing or mining (2) the percentage of merchandizing: merchant or private business or industry and service (3) the percentage of civil servant or state enterprise personnel and (4) the percentage of employee: employee, laborer, and others.

CHAPTER III
METHODOLOGY

This study is a Cross-sectional Design which used Symmetrical Events. That is two events occuring simultaneously.(Friedman and Gofman, 2002) during the period of one month from the 1995-1996 Survey of Population Change in Thailand by National Statistical Office. There will be households in and out migration simultaneously as shown in the following diagram.



3.1 Source of Data

This study is taken from 1995-1996 Survey of Population Change in Thailand by National Statistical Office. The first round survey pertained to the period from July to August of 1995. The reason for choosing this data set is that it is a labourious data survey in detailed household levels such as the number of migrant, personnel occupation, age and sex information, etc. The survey period during July and August takes place during the cultivation period. Normally, this is the period in which a large number of the population whose work in the non-agricultural sector will return to the agricultural sector. It is expected that labour needs will be high in both the city and rural areas. In addition, this set of database uses a systematic sampling method following the Probability Random Sampling which can be representative of the country ‘s population as a whole.

3.2 Population and Sample

3.2.1 Population

The 1995-1996 Survey of Population Change in Thailand, Phase 1 (July to August, 1995). Persons were enumerated as the base population in the first round. The survey included all usual residents of the household in sample enumeration districts / villages. Their demographic characteristics such as ; month and year of birth, age, sex, residence status, number of children ever born and living children etc. The sampling covers every province inside and outside the urban area. The target group was people living only in private households. A Stratified One-Stage Sampling was adopted for the survey. Bangkok Metropolis and groups of provinces in each region were constituted strata. There were altogether 5 strata, i.e., Bangkok Metropolis, Central (excluding Bangkok Metropolis), Northern, Northeastern and Southern regions. Each stratum was divided into two parts according to the type of local administration, namely urban areas and rural areas. The sample selection of blocks / villages were performed separately and independently in each part of using systematic method.

3.2.2 Sample

The 1995-1996 Survey of Population Change in Thailand, Phase 1 (July to August, 1995). There are 260,668 people (126,132 male and 134,536 female) in 68,923 individual households. The distribution in each region of Thailand is reflected in table 1 as follows :

Table 1 Household sample by area

Region	Population	Households	Percentage
Bangkok Metropolis	55,532	14,736	21.30
Central (exclude Bangkok)	51,283	13,401	19.70
Northern	55,362	15,834	21.20
Northeastern	52,096	13,073	20.00
Southern	46,405	11,879	17.80
Total	**260,668**	**68,923**	**100.00**

3.2 Variables

Independent variables is the number of labour immigrations into households. This is discrete data. Dependent variables are the group of labourers temporarily migration out of households covering all of the labourers that migrate from the household. Since, no migrant can be defined as 0, the number of labourers which migrate can be referred as Discrete Data. Others dependent variables are co-variational consist with Dependency Ratio, Household Production Structure, Area of household residence. The basic assumption is that the variables are independent and do not depend on each other.

Table 2 The name, definitions and scale of variables

The name	Definition	Scale
Independent variable		
Labour immigration	The number of labourers temporarily immigrating into households.	Interval
Dependent variables		
1.Labour out-migration	The number of labourers temporarily out migrating.	Interval
2.Male out-migration	The number of labourers (male) temporary out migrating.	Interval
3.Female out-migration	The number of labourers (female) temporarily out migrating.	Interval
4.permanent resident labour	The number of labourers permanent resident in household.	Interval
5.Child dependency ratio	Child(0-12years) Dependency ratio in household.	Ratio
6.Aging dependency ratio	Aging (60 up) Dependency ratio in household.	Ratio
7.Head household out-migration	Head of Household out-migration.	Dummy variable
8.Spouse of head household out-migration	Spouse of head of household out-migration.	Dummy variable
9.Child not married out-migration	The number of child not married of head household out-migration.	Interval

Table 2 (continued) The name, definition and scale of variables

The name	Definition	Scale
10.Child in law out-migration	The number of child in law of head household out-migration.	Interval
11.Grandchild out-migration	The number of grandchild of head household out-migration.	Interval
12. Household production structure	Percentage of household's occupation, which was :	
(1) Agricultural	The percentage of agricultural occupation : agriculture, farming, planing, fishing or mining.	Ratio
(2) Sale	The percentage of merchandizing: merchant or private business or industry and service	Ratio
(3) Government	The percentage of civil servant or state enterprise personnel	Ratio
(4) Others	The percentage of employee: employee, laborer, and others.	Ratio
13.Bangkok Metropolis	Bangkok Metropolis	Dummy
14.Urban of central	Urban of central	Dummy
15. Urban of northern	Urban of north	Dummy
16. Urban of northeastern	Urban of northeast	Dummy
17. Urban of southern	Urban of south	Dummy

3.3 Data Analysis

1. Descriptive Statistics Analysis of Data is used in order to learn the basic characteristic of the sample group which is used in Reference Statistics analysis of data. The statistic values to be found are percentage, mean, median, maximum, minimum and standard deviation. These values exhibit the distribution of the sample group and its trend of distribution approach to the center and are useful in considering the samples in outliers cases.

2. Since the principal agreement of Multiple Regression Analysis is that each variable must be independent and must not depend any other variable, the analysis of the relationship between variables to test Collinearity and Multicollinearity has to consider Pearson Correlation Coefficients. From Correlation Matrix table, if Pearson Correlation Coefficients value is between 0.000 and 0.650, it is implied that each independent variable has no correlation (Blalock, 1968).

3. In this experiment, the degree of dependent variable measurement has the manner of continuous data and has interval scale, while the numbers of independent variables mostly have interval scale and ratio scale. Therefore, the relation analysis applied is Multiple Regression Analysis. This allows the investigation of factors that affect the household labour substitute demand during the temporary migration of somemembers which are of labour force age from the household. The analysis used in Enter method is based on the concept of considering the power of variables in the equation from Constrained and Unconstrained Models. Because independent variables used in this analysis i.e. the numbers of labourers temporarily migrating, the numbers of males temporarily migrating, the numbers of females temporarily migrating and the numbers of labourers temporarily migrating when separated by relationship with the head of the household may affect the Confounding factors. The summation of sub-variables is equal to the numbers of total labourers migrating. The formula used to calculate the Constrained and Unconstrained Models is as following.

$$Y_1 = a_1 + B_1 X_1 + e_1 \longrightarrow \textbf{Constrained Model}$$

$$Y_2 = a_2 + B_1 X_1 + B_2 X_2 + e_1 \longrightarrow \textbf{Unconstrained Model}$$

$$\textbf{F - ratio Test} = \frac{(RSS_C) - (RSS_U) \;/\; (dfc - dfu)}{RSS_U \;/\; (n - k)}$$

Setting

	RSS_C	is	Residual Sum of Squares of Constrained Model
	RSS_U	is	Residual Sum of Squares of Unconstrained Model
	dfc	is	Degree of Freedom of Constrained Model
	dfu	is	Degree of Freedom of Unconstrained Model
	n	is	The total of variable.
	k	is	The number of constant.

From the equation above, it can be seen that Constrained Model is the intersection of Unconstrained Model. That is, the independent variable used in the Constrained Model will also be defined in the form of Unconstrained Model. Then, the influence of added independent variables whether it can increase the anticipating power to the equation is considered. The considering method is to check F-ratio value obtained from the calculation with that of F-distribution table. If the value of F-ratio test from the calculation is greater than that of F-distribution table, the independent variable added to the anticipating equation can increase the anticipating power to that anticipating equation. That independent variable will be considered to have relation to the dependent variable although the degree of statistical significance of the relation is below 0.05. In addition, the Forward method is applied in Multiple Regression Analysis to consider the variables that enhance anticipating power to the equation when a new set of variables is added. The analysis is performed by considering the changing of R-square and F-change value of the equation whether it has statistical significance or not.

4. After getting the Multiple Regression Equation by Multiple Regression Analysis, the estimation of the household is evaluated to find the intersection that represents the degree of labour substitution requirement. By using a simulation method which is the specifying of simulated value of independent variables under anticipation, the other independent variable is real value. The simulation program is called STATA.

CHAPTER IV
RESULTS

4.1 General Characteristics of the Sample Households

The sample households in this study consist of 68,923 houses. The mean of labour migrate members to the households is about 0.00257 person which is very few or could be considered none. In the same period, the mean of temporary labour migration members is about 0.00329 persons and also very small number. The temporary migrant is male more than female. The majority of temporary labour migrate are male, single and son of heads of households. The second highest number of migrates is the heads of households who temporarily migrates from the household. The mean of fixed labour members in sample household is about 3 persons.

Considering the population dependency ratio from table 3, it is found that each sample household has mean of child population dependency ratio of about 34.86 per 100 labour population and mean of aging population dependency ratio of about 14.37 per 100 labour population. This means that for each 100 labourers, there are 35 children and 14 persons of older age.

The production characteristics of sample household can be divided to be employee and other occupation about 42.01%. The second place is agricultural occupation which is about 26.39%, merchant or private business or industry and service which is about 16.15% and work for the government is the least at about 11.57%.

Table 3 Mean and standard deviation of variables

Variables	Means	S.D.
Independent Variable		
Labour immigration	0.00257	0.23000
Dependent Variables		
1.Labour out-migration	0.00329	0.23000
2.Male out-migration	0.00213	0.16000
3.Female out-migration	0.00136	0.14000
4.permanent resident labour	2.56000	1.46000
5.Child dependency ratio	34.86000	47.72000
6.Aging dependency ratio	14.37000	35.98000
7.Head household out-migration	0.00087	0.00927
8.Spouse of head household out-migration	0.00040	0.00628
9.Child not married out-migration	0.00109	0.12000
10.Child in law out-migration	0.00035	0.00623
11.Grandchild out-migration	0.00010	0.00373
12. Household production structure		
(1) Agricultural	26.39130	40.20030
(2) Sale	16.14520	30.07230
(3) Government	11.57190	25.57550
(4) Others	42.00620	39.51870
13.Bangkok Metropolis	0.21000	0.41000
14.Urban of central	0.00687	0.25000
15. Urban of northern	0.00812	0.27000
16. Urban of northeastern	0.00760	0.27000
17. Urban of southern	0.00646	0.25000
Total	**68,923 Households**	

Table 4 Number of households, minimum, maximum and means of variables which was households have / haven't labour temporary immigration

Variables	Households					
	Have immigration			Haven't immigration		
	Min	Max	Means	Min	Max	Means
Total member	1	16	4.22	1	25	3.77
Labour (13-59 years)	1	11	3.18	0	19	2.61
Labour immigration	1	8	1.54	0	0	0.00
1.Labour out-migration	0	6	0.00480	0	6	0.00326
2.Male out-migration	0	5	0.00286	0	5	0.00212
3.Female out-migration	0	4	0.00192	0	5	0.00135
4.Permanent resident labour	0	9	1.58	0	19	2.58
5.Child dependency ratio	0.00	400.00	27.05	0.00	600.00	34.99
6.Aging dependency ratio	0.00	200.00	13.08	0.00	400.00	14.39
7.Head household out-migration	0	1	0.00087	0	1	0.00087
8.Spouse of head household out-migration	0	1	0.00070	0	1	0.00039
9.Child not married out-migration	0	4	0.00148	0	3	0.00108
10.Child in law out-migration	0	2	0.00052	0	3	0.00035
11.Grandchild out-migration	0	2	0.00035	0	3	0.00009
12. Household production structure						
(1) Agricultural	0.00	100.00	16.96	0.00	100.00	26.55
(2) Sale	0.00	100.00	18.32	0.00	100.00	16.11
(3) Government	0.00	100.00	13.16	0.00	100.00	11.55
(4) Others	0.00	100.00	51.56	0.00	100.00	41.84
13.Bangkok Metropolis	0	1	0.12000	0	1	0.22000
14.Urban of central	0	1	0.13000	0	1	0.00676
15.Urban of northern	0	1	0.15000	0	1	0.00800
16.Urban of northeastern	0	1	0.10000	0	1	0.00756
17.Urban of southern	0	1	0.00915	0	1	0.00641
Total	**1,147 Households**			**67,776 Households**		

When considering the characteristics of sample households separated by households which have no labour migration members and households which have labour migration members, it is found that there are 67,776 households which have no labour migration members while there are 1,147 households which have labour migration members. Each household has mean of labour migration members of about 2 persons. Note that both households which have labour migration members and which have no labour migration members have mean household members of about 4 persons, 3 of which are labour members. Considering the number of total members in the households it can be seen that households with labour migration members, the maximum number of members is 16 and the maximum number of labour members is 11. It is different from households with no labour migration members. In these households, the maximum number of members is 25 and the maximum number of labour members is 19. Because these households have a large number of members, they have no labour migration members.

Considering the number of temporary migration labour member from table 4, it is found that both households which have no labour migration members and households which have labour migration members have an equal number of temporary migration members. But households which have no labour migration members have more fixed labour members(mean is about 3 persons) than households which have labour migration members(mean is about 2 persons). This affects the population dependent rate of children and aging members in that the dependent rate of these two groups in households that have no labour migration members is greater than it is in households with labour can be inferred that households with migration members. Consequently, it temporary labour migration members while having no permanent labour migration members will result in a large number of children and aging members living alone.

The household which has labour migration members has the structure of production separated by its occupation; mean of employee and other occupation are maximum of about 51.56%, the second place is merchant or private business or industry and service about 18.32%, agricultural occupation about 16.96% and work for

the government is the least at about 13.18%. The household which has no labour migration member has the structure of production separated by its occupation; mean of employee and other occupation are maximum about 41.84%, the second place is merchant or private business or industry and service about 26.55%, agricultural occupation about 16.11% and work for the government is the least at about 11.55%.

Therefore, the analysis of relation between variables to test Collinearity and Multicollinearity has to consider Pearson Correlation Coefficients. From Correlation Matrix Table, as the Pearson Correlation Coefficients value is between 0.000 and 0.650, there is no correlation in each independent variables according to the Appendix 1.

4.2 The Analysis of Households Labour Substitute Demand

The analysis to find factors related to households labour substitute demands the use of 7 models.

In the first model set, the independent variable is the number of labourers temporarily migrating out of households which is used to find the relation between temporary labour migration members and it is real effect on households labour substitute demand.

In the second model set, the independent variable is the number of labourers temporarily migrating out of households separated by sex(male and female) to find the difference between the number of males and females temporarily migrating out and how this relates to households labour substitute demand.

In the third model set, the independent variable is the number of permanent resident labourers required to constantly control the effects of the numbers of temporary migration member.

In the 4th model set, the independent variable is the population dependency ratio of child and aging. When controlled, the effects of the numbers of labourers temporarily migrating out and the number of permanent resident labourers.

In the 5th model set, the independent variable is the numbers of labourers temporarily migrating out separated by the relation with heads of the households which controlled the effects of the numbers of labourers temporarily migrating out, the numbers of permanent resident labourers and the population dependency ratio of child and aging.

In the 6th model set, the independent variable is the household production structure by the occupation characteristic in the household i.e. agricultural occupation, sale, government and others. Which controlled the influence of the number of labourers temporarily migrating out, the number of permanent resident labourers, the population dependency ratio of child and aging and the numbers of labourers temporarily migrating out separated by the relation with head of the household.

In the 7th model set, the independent variable is the area of household residence which controlled the influence of the numbers of labourers temporarily migrating out, the numbers of permanent resident labourers, the population dependency ratio of child and aging, the number of labourers temporarily migrating out separated by the relation with head of the household and the household production structure by the occupation characteristic.

In Table 5 by considering the first model to find the relation between labourers temporarily migrating out that has real effect on households labour substitute demand, it can be inferred that the number of labourers temporarily migrating out has no relation to households labour substitute demand. When compared to the second model, labourers temporarily migrating out, both male and female, has no difference. That means neither male nor female temporarily migrating has no relation to household labour substitute demand.

Table 5 Seven models of multiple regression coefficients

Variables	Model 1	Model 2	Model 3	Model 4
Constant	0.00255***	0.00255***	0.00600***	0.00800***
Std. Error	[0.001]	[0.001]	[0.002]	[0.002]
1.Labour out-migration	0.00054		0.00000	0.00006
	[0.004]		[0.004]	[0.004]
2.Male out-migration		0.00014		
		[0.005]		
3.Female out-migration		0.00077		
		[0.006]		
4.permanent resident labour			-0.01500***	-0.00161***
			[0.001]	[0.001]
5.Child dependency ratio				0.00002***
				[0.000]
6.Aging dependency ratio				0.00002***
				[0.000]
7.Head household out-migration				
8.Spouse of head household out-migration				
9.Child not married out-migration				
10.Child in law out-migration				
11.Grandchild out-migration				
12. Household production structure				
(1) Agricultural				
(2) Sale				
(3) Government				
(4) Others				
13.Bangkok Metropolis				
14.Urban of central				
15. Urban of northern				
16. Urban of northeastern				
17. Urban of southern				
R Square	0.000	0.000	0.009	0.011
R Square Change	0.000	0.000	0.009***	0.001***
Sig. F	0.000	0.000	0.000	0.000
N	68,923	68,923	68,923	68,923

*** P < 0.01 ** P < 0.05 * P < 0.10

Table 5 (continued) Seven models of multiple regression coefficients.

Variables	Model 5	Model 6	Model 7
Constant	0.00759***	0.00000	-0.00011
Std. Error	[0.002]	[0.004]	[0.004]
1.Labour out-migration	0.00079	0.00005	0.00053
	[0.012]	[0.012]	[0.012]
2.Male out-migration			
3.Female out-migration			
4.permanent resident labour	-0.00162***	-0.00218***	-0.00213***
	[0.001]	[0.001]	[0.001]
5.Child dependency ratio	0.00002***	0.00002***	0.00002***
	[0.000]	[0.000]	[0.000]
6.Aging dependency ratio	0.00002***	0.00002***	0.00002***
	[0.000]	[0.000]	[0.000]
7.Head household out-migration	-0.00336**	-0.00391**	-0.00397**
	[0.016]	[0.016]	[0.016]
8.Spouse of head household out-migration	0.00115	0.00047	0.00046
	[0.018]	[0.018]	[0.018]
9.Child not married out-migration	-0.00083	-0.00060	-0.00070
	[0.014]	[0.014]	[0.014]
10.Child in law out-migration	0.00023	0.00080	0.00074
	[0.021]	[0.021]	[0.021]
11.Grandchild out-migration	0.00359	0.00360	0.00345*
	[0.026]	[0.026]	[0.026]
12. Household production structure			
(1) Agricultural		0.00008***	0.00008***
		[0.000]	[0.000]
(2) Sale		0.00009***	0.00009***
		[0.000]	[0.000]
(3) Government		0.00009***	0.00009***
		[0.000]	[0.000]
(4) Others		0.00011***	0.00011***
		[0.000]	[0.000]
13.Bangkok Metropolis			-0.00168***
			[0.003]
14.Urban of central			0.00282***
			[0.004]
15. Urban of northern			0.00143***
			[0.004]
16. Urban of northeastern			0.00032
			[0.004]
17. Urban of southern			0.00025
			[0.004]
R Square	0.011	0.019	0.021
R Square Change	0.000***	0.004***	0.000***
Sig. F	0.000	0.000	0.000
N	68,923	68,923	68,923

*** P < 0.01 ** P < 0.05 * P < 0.10

When considering both models, it can be said that the confidence of R square is equal to 0.000. This means the numbers of temporary migration members can not describe households labour substitute demand. If the constant of anticipating equation is considered to be equal to 0.00255, it means that the household still needs labour substitution when there is at least 1 temporary migration member at the degree of statistical significance 0.010. This constant value is equal to mean of the dependent variable as shown in Table 3.

Consider the third model when the effects of the numbers of temporary migration members are controlled to be equal or constant in order to consider the numbers of permanent resident labour, it is found that the numbers of permanent resident labour has a relation to households labour substitute demand the degree of statistical significance of 0.010. That is when the household has the additional numbers of permanent resident labour of 1 person, the household labour substitute demand is decreased from the confidence of R Square equal to 0.009. That is this model can describe this relation by 1.0%. This result agrees with the study of Root and De Jong (1991) which stated that the greater the number of labour member of the household, the more labourers of that household will earn for a living (Root and De Jong, 1991).

When considering confidence of R Square value of the first model through the third model, it can be seen that the value increases. In conclusion, considering the households labour substitute demand requires the consideration of the numbers of permanent resident labourers.

Consider the 4th model when the effects of the numbers of temporary migration members and that of permanent resident labourers are controlled to be equal to constant in order to consider the child and aging dependency ratio, it is found household will need substitute that the labour at the rate of at least 1 person with statistical significance degree of 0.010 if it has 1 additional child and aging dependency ratio. The confidence of R square is equal to 0.011 which means that this model can describe this relation 1.1%. This implies that when considering the constant

to be equal to 0.008, if the household has labourers temporarily migrating, it requires at least l labourer to take care of children and the aging with a statistical significance degree of 0.010. Likewise, R-Square Change value of model 3 changes to model 4 with statistical significance. We can be infer from this that households labour substitutes demand when there are labourers temporarily migrating out seems to be specified by child and aging dependency ratio.

Consider the 5th model when the effects of the numbers of labourers temporarily migrating out, the numbers of permanent resident labourers and that of child and aging dependency ratio. In order to consider the numbers of labourers temporarily migrating out separated by the relation with heads of households, it is found that when the household head and son who has not married temporarily migrate from their house, the household has no requirement for labour substitution. If the households have spouses, sons-in-law, daughters-in-law and nephews who temporary move from the household, the household will require labour substitution for those people. The confidence of R Square is equal to 0.011 in this case. It means that this model can describe this relation 1.1%. Note that in the 4th and 5th models the confidence values do not change. This means that considering the numbers of labourers temporarily migrating out separated by the relation of heads of households does not increase the confidence of anticipation. When considering the constant to be 0.00759 which is near that of the 4th model (0.00800). It implies that when the household has labourers temporarily migrating out separated by the relation with heads of households, it still needs labour substitution of those people at the level of at least 1 person with statistical significance of 0.010. The characteristic of the relation of migrants has no effects on households labour substitute demand and the characteristic of the relation of heads of households can increase the anticipating power to the equation.

One reason is that the household has defined the role of women as being that of a caretaken for children and aging members. When one household has additional aging persons or child, it should affect the decision to migrate women especially daughters (Vipawee Sripian, 2001; Dang et al., 1996). This agrees with the study of

migration of young adults in North-east rural area reflected in the case study of gender difference by Plaimart Kunpakdee, 1999. She found that aging and children in the household affect the decision to migrate women in that household (Plaimart Kunpakdee, 1999). This could be the reason for smaller numbers of spouses and daughters migrating and a lack of labour or substitute demand for labourers in this category. For the sons, son-in-law and daughter-in-law has very little intention to migrate (De Jong et al.,1996 ; Goldstein and Goldstein, 1991)

Consider the 6th model when the influence of the numbers of labourers temporarily migrating out, the numbers of permanent resident labourers, the child and agind dependency ratio and the numbers of labourers temporarily migrating out separated by the relation of heads of households in order to consider the production structure of it by the occupation characteristic in the household i.e. agricultural occupation, sale, the government and employee. The result is clearly seen that the production structure of the household is related to the household's labour substitute demand. When the household has a percentage of agricultural occupation, sale, the government and employee increased by 1%, it will need additional labour substitution of at least 1 person with statistical significance of 0.010. The confidence of R Square is equal to 0.019 which means that this model can describe the relation 1.9% or 2.0%. It can be said that increasing the variable of production structure of households to the anticipated equation affects the degree of percentage anticipated relation from 1% to be 2%. That is, considering the households labour substitute demand and the production structure. For example, when increasing the set of production structure variables into the model, R-Square Change with statistical significance. Thus, the production structure can increase the anticipated power to the equation.

Consider the 7th model when the influence of the numbers of labourers temporarily migrating out, the numbers of permanent resident labourers, the child and aging dependency ratio, the numbers of labourers temporarily migrating out separated by the relation of heads of households and the production structure by the occupation characteristics of the household in order to consider the area of household residence, it can be stated that the household in Bangkok Metropolis has no requirement of

households labour substitution with statistical significance of 0.010. The households in the central and northern urban areas need labour substitution in households of 1 person with statistical significance of 0.010. Unlike the households in the northeastern and southern urban areas, there is no relation to the households labour substitute demand. The confidence of R Square is equal to 0.009 which means this model can describe the relation 0.9%. It can be seen that there is a trend of increase in this value from model 1 to model 7.

When consider the R Square Change value which represents the increasing of the anticipating power of each independent variable in the equation, the forward method is used to consider the statistical changing value of Multiple Regression Analysis (Appendix 2).

From the 3rd model to 7th model, it can be inferred that every group of variables added to each equation can increase the anticipated power to the equation with statistical significance of 0.010. When considering the detail of each variable that can precisely increase the anticipated power to the equation, it consists of the numbers of permanent resident labourers, child and aging dependency ratio, the households of which heads temporarily migrate from these houses, the production structure and the households in Bangkok, in the central and northern urbam areas. The variables that cannot increase the anticipated power to the equation are the households that has spouses, sons no married, sons or daughters-in-law and nephews of heads of households who temporarily migrate from the house.

In conclusion, the households from which the numbers of labourers temporarily migrated out does not have a relation to households labour substitute demand. No matter what the gender of the temporary migration members, there is no difference and no effect on the households labour substitute demand.

When the numbers of labour temporarily migrante out and migration is controlled, it is found that the numbers of permanent resident labourers, the child and aging dependency ratio, the households from its head temporarily migrate from the

house, the numbers of nephews who migrate from the households, the production structure separated by occupation characteristic of the labour member i.e. agricultural occupation, sale, the government and employee, the household in the central and northeastern urban areas are related to households labour substitute demand with statistical significance of 0.010.

Since there is continuous household migration in Thai society, it is difficult to survey the number of households which have labour migration in order to study the household's labour substitute demand. Some households may hire labour in the manner of daily work. This causes no report of household migration or immigration such as from the 1995-1996 survey of population change in Thailand by National Statistical Office. It is mentioned about the completeness of the survey that there are more mistakes in the urban areas than in the rural areas (National Statistical Office, 1997). It may be caused by the problem of access to the houses both rich and poor. The households where economic status is low may need much time to earn for a living. When the survey is carried out, no one is found to be interviewed and no cooperation from the household in which economic status is high, etc. Therefore, some results from this study do not cover all the households labour substitute demand.

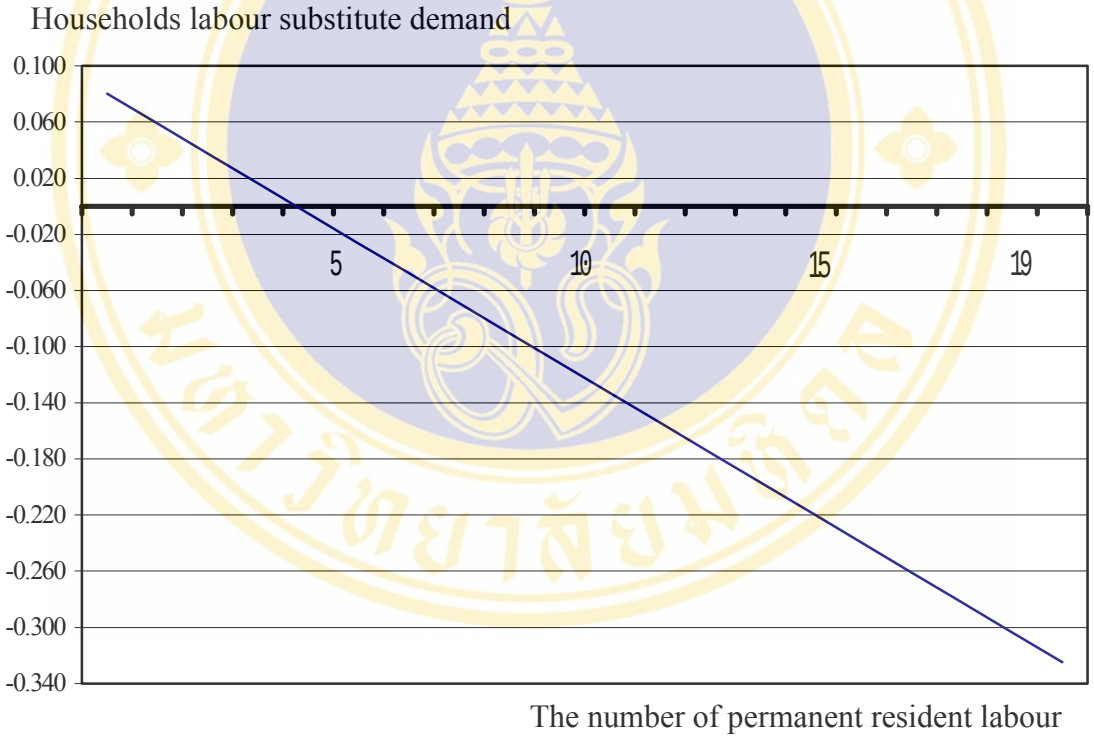
4.3 The Estimation of Households Labour Substitute Demand

The estimation of households labour substitute demand with the change of related factors is determined in order to clearly reveal the trend of households labour substitute demand. The simulation is performed by specifying the simulated value of independent variables which need to be anticipated into the model. Other independent variables are specified by real value. The simulation program is called STATA.

4.3.1 The estimation of households labour substitute demand when the number of permanent resident labourers changed

The estimation of households labour substitute demand when the number of permanent resident labourers changed values ranging from 0-19 persons following the frequency of sample groups (as shown in Table 4). This is done to find the trend of the suitable number of permanent resident labourers that affect the household labour substitute demand.

Graph 2 Estimation of household's labour substitute demand

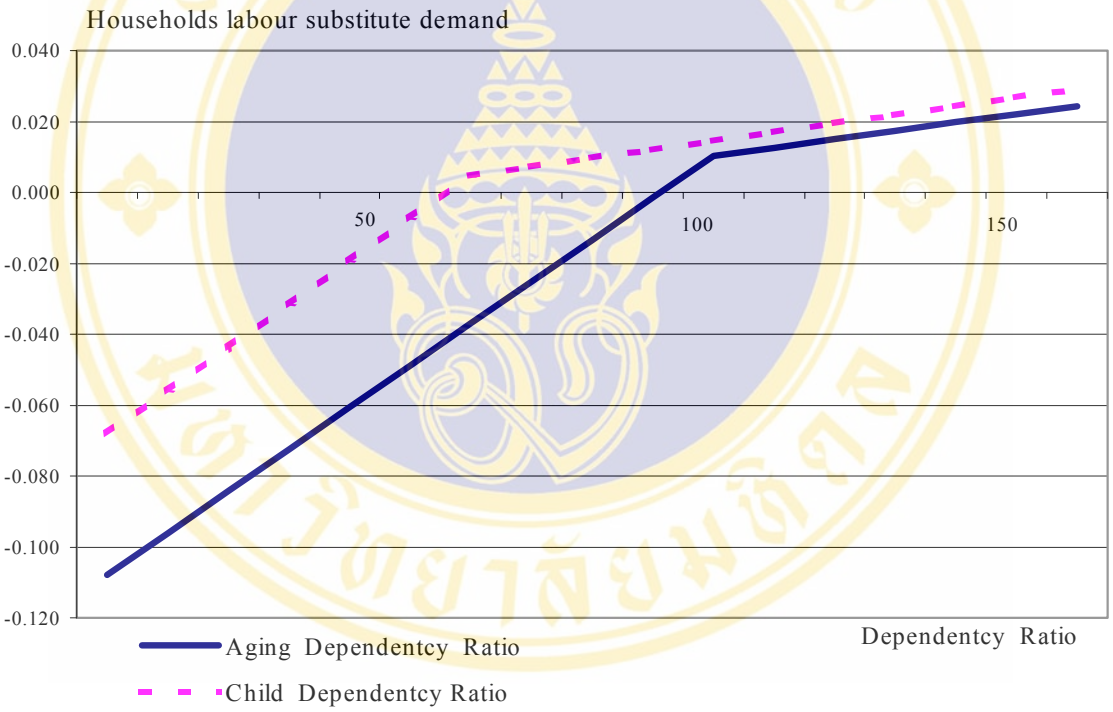


Graph 2 illustrates the estimation of households labour substitute demand when there is fewer permanent resident labourers and that the household will still have labour substitute demand. When households have more permanent resident labourers, the household's labour substitute demand decreases. If there are 4 permanent resident labourers in the household, labour substitution demand is not needed..

4.3.2 The estimation of household's labour substitute demand when specifying the simulated value of child and aging dependency ratio

The estimation of household's labour substitute demand when the specified simulated value of child and aging dependency ratio is from 0-170. This is done to find the trend of the suitable child and aging dependency ratio that affects the household labour substitute demand.

Graph 3 Estimation of household's labour substitute demand



Graph 3 represents the estimation of household's labour substitute demand when child dependency ratio is increased. It can be seen that the households in which the child dependency ratio is low the child members (0-12 years) are less than the permanent resident labourers, there is no labour substitute demand. If the household has a child dependency ratio of about 60, it will need the labour substitution. That is, the household which has 6 children per 1 permanent resident labourer lacks the estimation of labour substitution demand.

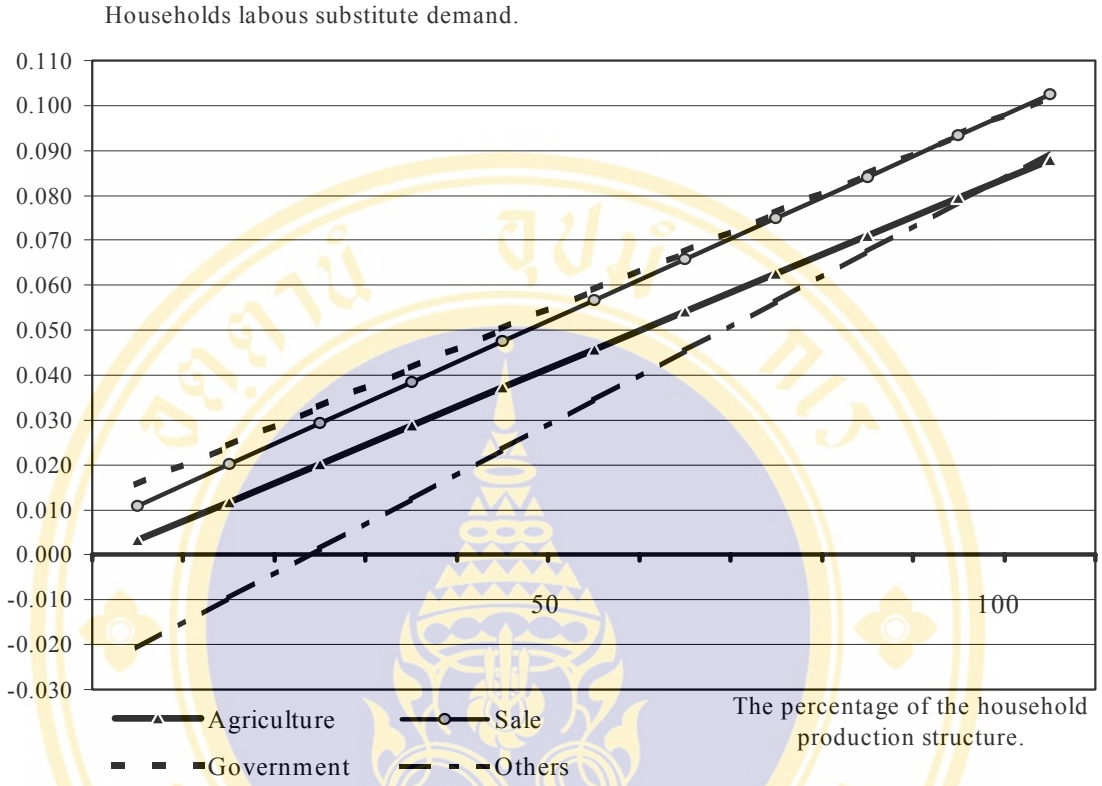
When aging dependency ratio increases, and when the household aging dependency ratio(60 years up) is less than the permanent resident labourers, there is no labour substitute demand. When the household has aging dependency ratio increased to about 100(10 aging members per 1 permanent resident labourer), it will need more additional labour substitution as the child and aging dependency ratio increase.

4.3.3 The estimation of household's labour substitute demand when the household production structure is projected to change (the percentage of the occupation characteristic)

The estimation of household's labour substitute demand when the production structure is projected to change with the percentage of the occupation characteristic of members in the household i.e. agricultural, merchandizing, civil servant or state enterprise personnel and employee from 0-100. This is done to find the trend of the suitable household production structure that affects the household labour substitute demand.

Graph 4 represents the estimation of household's labour substitute demand when the production structure is projected to change with the percentage of the occupation characteristic of members in household. It is found that when the percentage of all occupation characteristic increases, the household will have more labour substitute demand. The household in which civil servants or state enterprise personnel are occupied, labour substitution is needed. Agricultural households and other employees will have less labour substitute demand. This is because the labourers of the household i.e. working civil servant or state enterprise personnel, merchandizing, private business, industry and employees, can earn much money in each household. In addition, the spouses of the new households can earn a living but have no time to take care of their children and do housework. The substitution is compensated by using the facilities and hiring employee to do the housework (Jutha Manasphiboon, 1994). Therefore, it is the household that needs more labour substitution.

Graph 4 Estimation of household's labour substitute demand

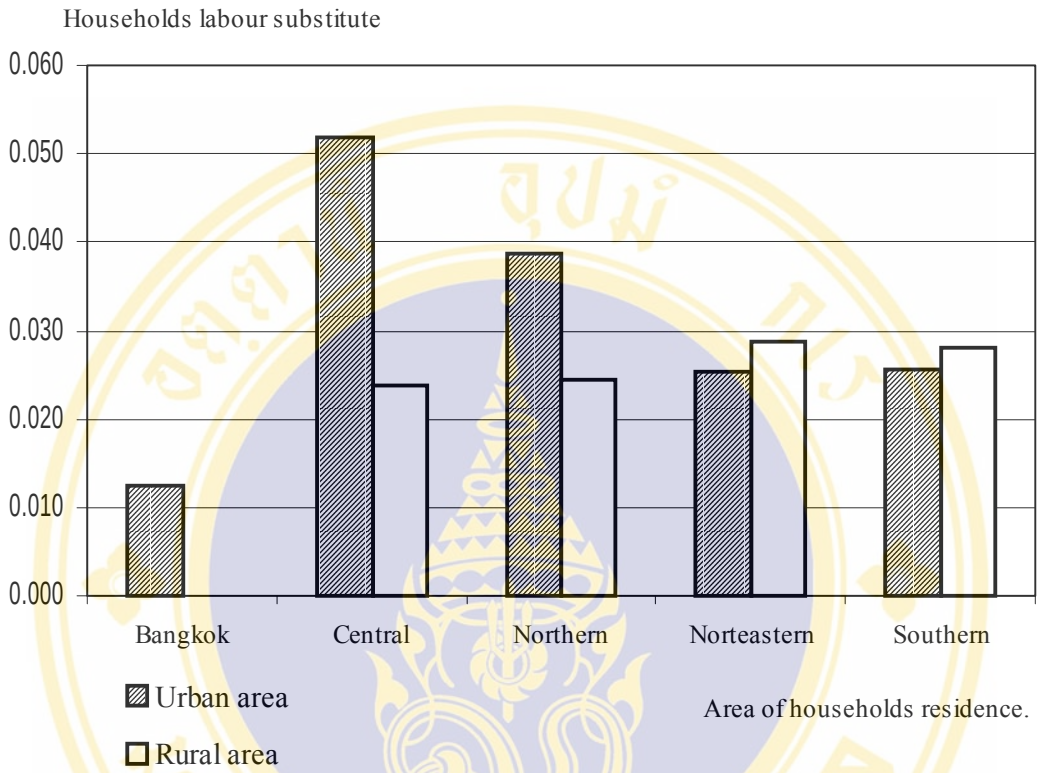


4.3.4 The estimate of household's labour substitute demand separated by area of household's residence

The estimation of household's labour substitute demand separated by area of household's residence i.e. Bangkok Metropolis, central urban area, northern urban area, northeastern urban area and southern urban area in order to investigate the trend of household's labour substitute demand in the different area of households residence.

Graph 5 illustrates the estimation of household's labour substitute demand separated by area of household's residence. It is found that households in every part require labour substitution. The households in the central and northern urban areas require more labour substitution than that in rural areas. In contrast, the households in the northeastern and southern rural areas require more labour substitution than those in urban areas.

Graph 5 Estimation of household's labour substitute demand separated by area of households residence



CHAPTER V
CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

This analysis was conducted to find the relation of temporary migration variables, of population dependency ratio, of household production structure and of area of household residence that may affect households labour substitute demand. All 7 models shown in Chapter 5 supports the conclusion that large numbers of temporary migration labourers in a household have no bearing on the household's labour substitute demand regardless of the member sex.

The statistical significance is 0.010. It is household from which the head temporarily migrates that is related to household's labour substitute demand with statistical significance of 0.050. This satisfies the hypothesis.

The results of this study show that an increase in the number of permanent resident labourers causes the household's labour substitute demand to decrease because household labourers continuously migrate. Therefore, the allotment of labour is needed. One reason is because the objective of risk distribution of the household. Labour is divided as necessary and in a manner sufficient to the household production activity. Another reason is that members are pushed to migrate from the household. They expect that the income will be higher thereby allowing them to send money home (Chamratrithirong et al.,1995; De Jong, Richter and Isarabhakdi, 1996). Most of them expect that they will receive money from female as well as from male migrants. Thus, there is no basic difference between the number of male and female migrants.

When considering the household production structure separated by occupation characteristics, it is found that the household which employs civil servant or state enterprise personnel has the highest households labour substitute demand. The second highest demand is in merchandizing or private business where it is expected that members will have the ability to earn considerable money in each household. Moreover, spouses of modern households both work outside the house but have no time to do housework, or take care of their children. The substitution demand is compensated by using facilities and hiring employees to work for them (Jutha Manasphiboon, 1994). Thus, in these households more demand substitution is needed.

Households labour substitute demand increases with child and aging dependency ratio. The old ages in Thai society mostly live with their nephews. Living with their sons seems to decrease(Kanchanakitsakul, 2002) because they migrate to work in other places. This causes the production in the household to be the responsible of the children and members of advanced age, this includes taking care of each other (Mason, 1992). Due to the changing of household structure, the number of sons is limited. The spouses needs freedom to build their new households and to migrate in order to earn for a living or to study. This decreases the number of labour members (Napaporn Chayowan et.al., 2001) and affects children and members of advanced age since these two groups depend on others to take care their health and memtal needs. (Sulee Thongwichian and Pimwan Sinlapasuwan, 1991; Gerksak Boonyanupong et al., 1993; Adul Viriyavechakul et al., 1997)

5.2 Recommendations

5.2.1 Recommendations for Further Study

1. From this study, it is found that some independent variables used to find the relation i.e. the spouses of heads of households who temporarily migrate, sons who have not married, sons or daughters-in-law, and grand children cannot increase the anticipating power to the equation with no relation to dependent variables. Further study should be done by considering these variables. It is expected that these variables may be able to anticipate household's labour substitute demand if temporary labour continues to be used in the present and future.

2. This study showed that the households in the central and northern urban areas have labour substitute demand. The households in the northeastern and southern urban areas have labour substitute demand. Therefore, further study of specific areas may be appropriate. It may show some trends of household's labour substitute demand in other areas in Thailand.

3. This study does not consider the household consumption structure due to limited information. Therefore, further study is recommended to determine facts involving the household consumption structure. Some of this information could be obtained by reviewing average household income, consumption habits. The objective is to study the changing of both production and consumption at the same time whether it affects labor substitution requirements and how it affects.

5.2.2 Policy Recommendations

1. It is found from the study that when child and aging dependency ratio increases, households demand labour substitution. Thus, labourers should pay more attention to children and the elderly. The decision to migrate should consider the availability of others who can take care of the children and the elderly.

2. The study implies that households in the central and northern urban areas demand labour substitution. Therefore, immigration to the central and northern urban areas should be promoted to replace lack of labour.

3. The study shows that households in the northeastern and southern urban areas demand labour substitution. Therefore, the guidelines to migrate labour from the northeastern and southern rural areas should be sought.

BIBLIOGRAPHY

ภาษาไทย

กรมการจัดหางาน. (2538). **รายงานผลการสำรวจการเข้า - ออกงาน และความต้องการแรงงาน ปี 2538**. กรุงเทพฯ : กรมการจัดหางาน กระทรวงแรงงานและสวัสดิการสังคม .

กรมการจัดหางาน. (2541). **รายงานผลการศึกษาวิจัยเรื่อง การขาดแคลนแรงงานกรีดยางพารา และแรงงานประมงทะเล**. กรุงเทพฯ : กรมการจัดหางาน กระทรวงแรงงานและสวัสดิการสังคม.

กรมแรงงาน. (2533). **รายได้รายจ่ายของครัวเรือนผู้ใช้แรงงานที่มีรายได้น้อย**. กรุงเทพฯ : กรมแรงงาน กระทรวงมหาดไทย .

กรมสวัสดิการและคุ้มครองแรงงาน. (2537). **รายงานผลการสำรวจการเข้าออกงานและความต้องการแรงงานปี 2536** . กรุงเทพฯ : บพิธการพิมพ์ .

กุศล สุนทรธาดา และอุมาภรณ์ ภัทรวานิชย์. (2540). **กระบวนการจ้างแรงงานข้ามชาติที่ลักลอบเข้าเมือง และความคิดเห็นของภาครัฐและเอกชนที่เกี่ยวข้อง**. นครปฐม : สถาบันวิจัยประชากรและสังคม มหาวิทยาลัยมหิดล สนับสนุนโดย สำนักงานกองทุนสนับสนุนการวิจัย (สกว.).

กุศล สุนทรธาดา และจิรกิต บุญชัยวัฒนา. (2543). **แรงงานสัมพันธ์ในประเทศไทยภายใต้กระแสโลกาภิวัตน์** . รายงานการสัมมนาไตรภาคีระดับชาติ เรื่อง แรงงานสัมพันธ์ในประเทศไทยภายใต้กระแสโลกาภิวัตน์ . วันพุธที่ 28 มิถุนายน พ.ศ.2543 . กรุงเทพฯ : องค์การแรงงานระหว่างประเทศ.

เกริกศักดิ์ บุญญานุพงศ์ และคณะ. (2534). **ชีวิตคนชราในจังหวัดเชียงใหม่.** เชียงใหม่ : สถาบันวิจัยสังคม.

จอห์น โนเดล, อภิชาติ จำรัสฤทธิรงค์, นิพนธ์ เทพวัลย์ . (2530). **การปฏิวัติขนาดครอบครัวในประเทศไทย : การลดลงอย่างรวดเร็วของภาวะเจริญพันธุ์ในประเทศโลกที่สาม** . กรุงเทพฯ : สำนักพิมพ์รจิตา .

จุฑา มนัสไพบูลย์. (2537). **การวิเคราะห์ตลาดแรงงาน : แนวคิดเชิงทฤษฎี** . กรุงเทพฯ : โรงพิมพ์จุฬาลงกรณ์มหาวิทยาลัย .

ฉลองภพ สุสังกร์กาญจน์ และยงยุทธ แฉล้มวงษ์. (2531). **ประเด็นและปัญหาความต้องการแรงงานในประเทศไทย** .กรุงเทพฯ : สถาบันวิจัยเพื่อการพัฒนาประเทศไทย .

ฉันทนา บรรพศิริโชติ, นิตยา กัทลีรดะพันธุ์ และรัตนา จารุเบญจ. (2540). **ครัวเรือนแรงงานเด็กในชนบท : การตัดสินใน การรับรู้ปัญหา และทัศนะต่อการไปทำงานของเด็ก**. กรุงเทพฯ : สถาบันวิจัยสังคม จุฬาลงกรณ์มหาวิทยาลัย.

เฉลิม สุขทอง . (2530). **ปัจจัยระดับหมู่บ้านที่มีอิทธิพลต่อการย้ายถิ่น** . วิทยานิพนธ์ปริญญาสังคมศาสตรมหาบัณฑิต, สาขาวิจัยประชากรและสังคม บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล

ณัฐจิรา รุจิตระการโชติกุล. (2538). **ปัจจัยที่สัมพันธ์กับความตั้งใจย้ายถิ่นกลับภูมิลำเนาเดิมของประชาชนชุมชนแออัดในกรุงเทพมหานคร**. วิทยานิพนธ์ปริญญาศึกษาศาสตรมหาบัณฑิต, สาขาประชากรศึกษา บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล .

ทรงธรรม สวนียะ. (2540**). สวัสดิการผู้สูงอายุ : การมีส่วนร่วมของชุมชนในสังคมไทยภายใต้ภาวะวิกฤต**. กรุงเทพฯ : สำนักงานปลัดกระทรวง กระทรวงแรงงานและสวัสดิการสังคม.

เทียนฉาย กีระนันทน์. (2526). **เศรษฐศาสตร์ประชากร** . กรุงเทพฯ : จุฬาลงกรณ์วิทยาลัย .

ธรรมรักษ์ การพิศิษฐ์. (2536). **แนวโน้มประชากรกับการมีงานทำในอนาคต : การพัฒนาฝีมือแรงงานในทศวรรษหน้า** . เอกสารประกอบการประชุมวิชาการประชากรศาสตร์แห่งชาติ วันที่ 18-19 พฤศจิกายน 2536 . กรุงเทพฯ : สมาคมนักประชากร .

นภาพร ชโยวรรณ และคณะ. (2544). “ประชากรสูงอายุไทย” ใน สุทธิชัย จิตะพันธ์กุล และคณะ. **โครงการผู้สูงอายุในประเทศไทย รายงานการทบทวนองค์ความรู้และสถานการณ์ในปัจจุบันตลอดจนข้อเสนอแนะทางนโยบายและการวิจัย**. กรุงเทพฯ : สำนักงานกองทุนสนับสนุนการวิจัย.

นิพนธ์ พัวพงศกร และปัทมาวดี ซูซูกิ. (2535). **รายงานการวิจัยเรื่อง การเปลี่ยนแปลงของตลาดแรงงานสู่ภาวะขาดแคลนแรงงาน** . การสัมมนาประจำปี 2535 เรื่อง โครงสร้างเศรษฐกิจเส้นทางสู่ความสมดุลย์. วันที่ 12-13 ธันวาคม 2535. กรุงเทพฯ : โรงแรมแอมบาสซาเดอร์ซิตี้จอมเทียน ชลบุรี .

เบญจมาศ ตีระมาศวณิช. (2532). **แบบแผนการย้ายถิ่นของประชากรวัยแรงงานเข้าสู่เขตปริมณฑลที่มีการพัฒนาเศรษฐกิจหลักแตกต่างกัน.** ปริญญาสังคมศาสตรมหาบัณฑิต, สาขาวิชาวิจัยประชากรและสังคม บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

ประภา คงปัญญา. (2538). **การศึกษาเปรียบเทียบการย้ายถิ่นเข้ากรุงเทพมหานครและจังหวัดในเขตปริมณฑล ระหว่างปี 2518-2523 และปี 2528-2533**. วิทยานิพนธ์ปริญญาสังคมศาสตรมหาบัณฑิต, สาขาวิจัยประชากรและสังคม บัณฑิตวิทยาลัยมหาวิทยาลัยมหิดล .

ประภาพรรณ อุ่นอบ. (2538). **การย้ายถิ่นออกของหัวหน้าครัวเรือนและผลสืบเนื่องที่มีต่อการตัดสินใจทางเศรษฐกิจภายในครัวเรือนของผู้หญิง**. วิทยานิพนธ์ปริญญาศึกษาศาสตรดุษฎีบัณฑิต, สาขาวิชาประชากรศึกษา บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล .

ปราโมทย์ ประสาทกุล. (2522). **ทฤษฎีที่น่าสนใจทางประชากรศาสตร์**. กรุงเทพฯ : เรือนแก้วการพิมพ์.

ปราโมทย์ ประสาทกุล และพิมลพรรณ อิศรภักดี. (2543). **ปัจจัยที่มีผลกระทบต่อการย้ายถิ่นของชาวชนบท : กรณีศึกษาของอำเภอนางรอง จังหวัดบุรีรัมย์** . เอกสารทางวิชาการหมายเลข 245 สถาบันวิจัยประชากรและสังคม มหาวิทยาลัยมหิดล . นครปฐม : สถาบันวิจัยประชากรและสังคม มหาวิทยาลัยมหิดล .

ปลายมาศ ขุนภักดี. (2542). **การย้ายถิ่นของหนุ่มสาวในชนบทภาคตะวันออกเฉียงเหนือ : กรณีศึกษาความแตกต่างทางเพศ** . วิทยานิพนธ์ปริญญาประชากรศาสตรดุษฎีบัณฑิต, สาขาประชากรศาสตร์ บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล .

พิชิต พิทักษ์เทพสมบัติ. (2529). **การเพิ่มประชากรและการพัฒนาเศรษฐกิจ ประชากรพัฒนาและการวางแผนครอบครัว**. กรุงเทพฯ : โรงพิมพ์จุฬาลงกรณ์มหาวิทยาลัย .

พิมพ์ลักษณ์ ดีสวัสดิ์. (2541). **ความตั้งใจย้ายถิ่นเพื่อหางานทำของนักศึกษาผู้ใหญ่ หลักสูตรการศึกษานอกโรงเรียนในพื้นที่ที่มีระดับการพัฒนาอุตสาหกรรมแตกต่างกัน ในภาคตะวันออกเฉียงเหนือตอนล่าง**. วิทยานิพนธ์ปริญญาศึกษาศาสตรมหาบัณฑิต สาขาประชากรศึกษา บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล .

ฟิลิปส์ เกสต์ และสุรีย์พร พันพึ่ง. (2540). **อุปสงค์และอุปทางของกำลังแรงงานไทยกับแรงงานข้ามชาติ.** รายงานการสัมมนาระดับชาติ วันที่ 26-28 พฤษภาคม 2540. กรุงเทพฯ : สถาบันวิจัยประชากรและสังคม มหาวิทยาลัยมหิดล .

ภัสสร ลิมานนท์ และ เพ็ญพร ธีรสวัสดิ์. (2532). **การย้ายถิ่นกับการพัฒนา.** กรุงเทพฯ : สถาบันประชากรศาตร์ จุฬาลงกรณ์มหาวิทยาลัย.

มหาวิทยาลัยสุโขทัยธรรมาธิราช. (2530) . **เอกสารการสอนชุดวิชาเศรษฐศาสตร์กำลังคน (Manpower Economics) หน่วยที่ 1-8**. กรุงเทพฯ :มหาวิทยาลัยสุโขทัยธรรมาธิราช สาขาวิชาเศรษฐศาสตร์ .

รัชนีกร เศรษโฐ. (2532). **โครงสร้างสังคมและวัฒนธรรมไทย** . กรุงเทพฯ : ไทยวัฒนาพานิช .

วาทินี บุญทะลักษี. (2540). **รายงานวิจัยฉบับภาษาไทย เรื่อง การติดตามผู้ย้ายถิ่นในภาคตะวันออกเฉียงเหนือ : การย้ายถิ่นเป็นการเพิ่มรายได้หรือเพิ่มความเครียดให้กับครอบครัวชนบท.** เอกสารทางวิชาการ หมายเลข 211. นครปฐม : สถาบันวิจัยประชากรและสังคม มหาวิทยาลัยมหิดล.

วิภาวี ศรีเพียร. (2539). **การสร้างปัจจัยเพื่อใช้กำหนดอัตราค่าจ้างขั้นต่ำที่เหมาะสมสำหรับประเทศไทย.** วิทยานิพนธ์สังคมสงเคราะห์ศาสตรมหาบัณฑิต สาขาพัฒนาแรงงานและสวัสดิการ บัณฑิตวิทยาลัย มหาวิทยาลัยธรรมศาสตร์.

วิไลวัจส์ กฤษณะภูมิ. (2531). **บทบาทของสตรีแม่บ้านที่สมาชิกครอบครัวย้ายถิ่นไปทำงานตะวันออกกลาง : ศึกษากรณีบ้านบ่อแดง ตำบลโคกสำราญ อำเภอบ้านไผ่ จังหวัดขอนแก่น** . ขอนแก่น : กรมวิชาการเกษตร สถาบันการวิจัยการทำฟาร์ม มหาวิทยาลัยขอนแก่น .

ศรีอร สมบูรณ์ทรัพย์ . (2529). **เศรษฐศาสตร์การพัฒนา** . กรุงเทพฯ : โอเดียนสโตร์ .

สถาบันบัณฑิตพัฒนบริหารศาสตร์. (2544). **รายงานฉบับสมบูรณ์ "การสำรวจความต้องการแรงงานและการขาดแคลนแรงงานเพื่อจัดการเคลื่อนย้ายแรงงานอย่างเป็นระบบ"**. กรุงเทพฯ :โรงพิมพ์เจริญผล.

สุขเกษม วงศ์สุบรรณ, สมเกียรติ กำจรกิจบวร และฉลองภพ สุสังกร์กาญจน์ . (2532). **การศึกษาโครงสร้างตลาดแรงงานไทยและการประมาณความต้องการแรงงานในระยะแผนพัฒนาเศรษฐกิจและสังคมแห่งชาติ ฉบับที่ 7 (2535-2539)** . กรุงเทพฯ : กองวางแผนทรัพยากรมนุษย์ สำนักงานคณะกรรมการพัฒนาการเศรษฐกิจและสังคมแห่งชาติ และฝ่ายการวิจัยทรัพยากรมนุษย์และพัฒนาสังคม สถาบันวิจัยเพื่อการพัฒนาประเทศไทย .

สุชาดา ทวีสิทธิ์. (2529). **การเคลื่อนย้ายเชิงพื้นที่ของแรงงานในจังหวัดชายแดนภาคใต้ : ศึกษาเฉพาะกรณี จังหวัดปัตตานี**. วิทยานิพนธ์ปริญญาสังคมศาสตรมหาบัณฑิต, สาขาวิชาวิจัยประชากรและสังคม บัณฑิตวิทยาลัย มหาวิทยาลัยมหิดล.

สุลี ทองวิเชียร และ พิมพ์วรรณ ศิลปสุวรรณ. (2532). **การดูแลตนเองของผู้สูงอายุในชุมชนกรุงเทพมหานคร**. กรุงเทพฯ : ภาควิชาพยาบาลสาธารณสุข มหาวิทยาลัยมหิดล.

สำนักงานสถิติแห่งชาติ. (2536). **รายงานเชิงวิเคราะห์ฉบับที่ 1 การย้ายถิ่น สำมะโนประชากรและเคหะ พ.ศ.2533.** กรุงเทพฯ : กองคลังข้อมูลและสนเทศสถิติ .

สำนักงานสถิติแห่งชาติ. (2538). **รายงานลักษณะทางประชากรจากการสำรวจการเปลี่ยนแปลงของประชากร พ.ศ.2538-2539** . กรุงเทพฯ : กองคลังข้อมูลและสนเทศสถิติ .

สำนักงานสถิติแห่งชาติ. (2533). **การสำรวจการย้ายถิ่นของประชากรประเทศไทย พ.ศ. 2533.** กรุงเทพฯ : กองคลังข้อมูลและสนเทศสถิติ .

สำนักงานสถิติแห่งชาติ. (2541). **ผลกระทบของภาวะวิกฤติเศรษฐกิจที่มีต่อภาวะการทำงานการว่างงานและการเคลื่อนย้ายแรงงาน**. กรุงเทพฯ : กองคลังข้อมูลและสนเทศสถิติ .

อดุลย์ วิริยเวชกุล และคณะ. (2540). **รายงานการวิจัยเรื่อง คุณภาพชีวิตของผู้สูงอายุในประเทศไทย ประเด็นการเกื้อหนุนทางสังคมแก่ผู้สูงอายุ พื้นที่ศึกษาในเขตภาคกลาง**. กรุงเทพฯ : คณะสังคมสงเคราะห์ศาสตร์ มหาวิทยาลัยธรรมศาสตร์.

อภิชาติ จำรัสฤทธิรงค์. (2526). ปัญหาการกระจายตัวและการย้ายถิ่นที่อยู่ของประชากรไทยในทศวรรษ 2523 . **วารสารสำนักงานคณะกรรมการการวิจัยแห่งชาติ, 15** (1).

อภิชัย พันธเสน, Tran Van Hoa, กิตติ ลิ่มสกุล, วีระพงษ์ สิริกรวุฒิพงศ์ และไพฑูรย์ สุจริตจันทร์. (2537). **รายงานผลการวิจัย เรื่อง การศึกษาแบบจำลองพฤติกรรมของครัวเรือนในประเทศไทย.** กรุงเทพฯ : สถาบันทรัพยากรมนุษย์ มหาวิทยาลัยธรรมศาสตร์ .

English

Chamratrithirong A. et.al. (1995). **National Migration Survey of Thailand.** Nakonpathom : Institute for Population and Social Research.

Brenda, D.R. and De Jong ,G.F. (1991). Family Migration in a Developing Country . **Population Studies, 45**, (2), 221-233.

Dang, A. , Goldstein, S. and Mcnally, J. (1996). **Internal Migration and Development in Vietnam** . PSTC working Paper # 96-05 . USA : Population Studies and Training Center Brown University .

De Jong, G.F. , Johnson, A.G. and Kerry, R. (1996). Determinants of Migration Values and Expectations in Rural Thailand . **Asia and Pacific Migration Journal, 5** (4), 399-416 .

De Jong, D.F., Kerry, R., Isarabhakdi, P. (1996). Gender ,Values , and Intentions to Move in Rural Thailand. **International Migration Review, 30**, (3), 748-770 .

Friedman, Y. and Gofman, Y. (2002). **Relativistic Linear Space-time Transformations Based on Symmetry.** Jerusalem College of Technology. Jerusalem, Israel. Or www.jct.ac.il/academic/rector/rellinearfpz.pdf

Fuller, T.D. and et.al. (1983). **Migration and Development in Modern Thailand.** The Social Sciences Associations of Thailand .

Gary, D.S. and Wilbur, J. S. (1981). A Dynamic Analysis of Migration : An Assessment of the Effects of Age, Family and Career Variables. **Demography, 18**, (3), 355-368 .

Goldstein, S. and Goldstein, A. (1991). **Permanent and Temporary Migration Differentials in China** . Paper of the East– West Population Institute Number 117 . Honolulu , Hawaii : East – West Center .

Guest, P. (1989). **Labor Allocation and Rural Development : Migration in Four Javanese Villages** . USA : Westview Press Inc. Boulder,Colorado.

Guest, P . (1993). **The determinants of female migrations from multilevel perspective**. Internal migration of women in developing countries. New York : United Nations.

Gunatilleke G. (1992). **The Impact of Labour Migration on Household : a Comparative Study in Seven Asian Countries.** Tokyo : The United Nations University Press.

Hugo, G. (1994). **Migration as a survival strategy : The family dimention of migration** . Paper presented at the United Nations Expert Group Meeting on Population Distribution and migration, Santa Cruz, Bolivia .

Karnchanakitsakul, M. (2002). **Consequences of Demographic Transition on Thai Elderly Living Arrangements.** Thesis, Doctor of Philisophy (Demography), Mahidol University

Kingsley, D. (1963). **The Theory of Change and Preponse in Modern Demographic History (The Theory of Multiphasic response).** Sociological Analysis Demographic Processes .

Koanantakool, C.P. (1993). **Urban life and urban people in transition** . The 1993 year-end conference who get what and how ? : Challenges for the future synthesis paper vol.2 .

Lauby, J. and Stark, O. (1988). Individual Migration as a Family Strategy : Young Women in Philippines. **Population Studies**, 42 (3), 473-486.

Mason, K.O. (1992). Family Change and Support of the Elderly in Asia : What do we know ?. **Asia Pacific Population Journal**, 12 (3),

Massey, D.S. (1990). Social Structure ,Household Strategies ,and the Cumulative Causation of Migration . **Population Index, 56**, (1), 3-26 .

Oberai, A.S. (1981). **Migration ,Production and Technological Change : Analysis Issue and Guideline for Data Collection and Analysis.** In W.E.P.R. (pp.7-19).

Ogena, N.B. and De Jong, G.F. (1999). Internal Migration and Occupational Mobility in Thailand . **Asian and Pacific Migration Journal, 8,** (4), 419-445 .

Palmer, I. (1985). **The Impact of Male out-Migration on Women in Farming.** Connection : Kumarian press.

Panpiamras, K. and Krusuansombat, S. (1982). **Seasonal migration and employment in Thailand** . Bangkok : National Economic and Social Development Board .

Panpiemras, K. and Krusuansombat, S. (1987)**. Seasonal Migration and Employment in Thailand** . Bangkok : National Economic and Social Development Board .

Phananiramai, M. and Hutaserani, S. (1992). **Changes in women's economic role in Thailand** . Bangkok : Thailand Development Research Institute .

Prachuabmoh, V., Tirasawat, P., Goldstein, S. and Glodstein, A. (1979)**. Thailand : Urban and rural migration selectivity.** In R.J. Pryor (Ed.), Migration and development in South-East Asia (pp. 48-58). Malaysia : Oxford University Press.

Ralph, R.S. (1983). Analyzing Migration Decisions: The First Step – Whose Decisions ?. **Demography, 20**, (3), 299-311 .

Richard, E. B., McDevitt, T. M., Kossoudji, S. and Richard, F. (1987). The Impact of Origin Community Characteristics on Rural – Urban Migration in a Developing Country. **Demography, 24**, (2), 191-210 .

Richter, K. and Podhisita, C. (1991). Thai Family Demography : A Review and Research Prospects . **Journal of Population and Social Studies, 3,** (1-2) .

Root, B.D. and De Jong, G.F. (1991). Family Migration in a Developing Country. **Population Studies, 45**, (2), 211-233.

Stark, O. (1984). Migraion decision making : A review article . **Journal of Development Studies, 16,** (1), 318-322 .

Stark, O. (1991). **The Migration of Labour.** London : Basil Blackwell.

Stark, O. and Bloom, D. E. (1985). The New Economics of Labor Migration . **The merican Economics Review, 75**, (2), 173-178 .

Yanagisako, S. (1979). Family and Household : The Analysis of Domestic Groups . **Annual Review of Anthropology, 8.**

United Nations. (1988). **Internal Migration and Structural Changes in the Labour Force.** Asian Population Studies SeriesNo.90. Thailand : United Nations.

APPENDIX

Appendix 1 Pearson Correlation Coefficients Between Independent Variables.

Independent Variables	Labour out-migrated			Labour	Dependency Ratio		Labour who has relationship with Head Households out-migrated.				
	Out-migration	male	female	permanent	Child	Aging	Head HH	spouse	Child not marry	Child in law	nephew
Labour out-migrated.	1.000										
Male Labour out-migrated.	0.872***	1.000									
Female Labour out-migrated.	0.699***	0.305***	1.000								
Permanent resident	-0.062***	-0.054***	-0.054***	1.000							
Child Dependency Ratio / 100	0.039***	0.051***	0.001	-0.117***	1.000						
Aging Dependency Ratio / 100	0.003	0.003	0.000	-0.182***	0.054***	1.000					
Head Household out-migrated.	0.557***	0.580***	0.248***	-0.087***	0.065***	-0.033***	1.000				
Spouse of HHH. Out-migrated.	0.456***	0.261***	0.531***	-0.067***	0.003	-0.019***	0.353***	1.000			
Child not marry out-migrated.	0.621***	0.563***	0.377***	-0.001	-0.011***	-0.002	0.068***	0.068***	1.000		
Child in law out-migrated.	0.433***	0.405***	0.273***	-0.002	0.036***	0.038***	0.017***	0.008**	0.063***	1.000	
Household production structure											
- Agriculture	0.047***	0.046***	0.028***	0.016***	0.185***	0.072***	0.013***	0.002	0.046***	0.033***	0.006
- Sale / own business	-0.032***	-0.033***	-0.017***	0.017***	-0.023***	-0.019***	-.018***	-0.011***	-0.020***	-0.019***	-0.010***
- Government	-0.024***	-0.026***	-0.026***	-0.026***	-0.043***	0.007*	-0.006*	-0.002	-0.024***	-0.015***	-0.008**
- Employees / others	0.006*	0.008**	0.160***	0.160***	-0.017***	-0.024***	0.014***	0.014***	-0.007**	-0.004	0.010***
Bangkok Metropolis	-0.055***	-0.051	-0.037***	-0.104***	-0.115***	-0.066***	-0.034***	-0.017***	-0.038***	-0.027***	-0.014***
Urban area of Central	-0.026***	-0.025***	-0.017***	0.015***	-0.033***	-0.023***	-0.015***	-0.010***	-0.017***	-0.015***	-0.004
Urban area of Northern	-0.026***	-0.024***	-0.015***	-0.049***	-0.038***	-0.008**	-0.013***	-0.005	-0.018***	-0.014***	-0.004
Urban area of Northeastern	-0.016**	-0.015***	-0.011***	0.013***	-0.011***	-0.021***	-0.014***	-0.009**	-0.008**	-0.008**	-0.008**
Urban area of Southern	-0.008**	-0.008**	-0.004	-0.011***	-0.002	-0.019***	0.005	0.004	-0.011***	-0.010***	-0.005

Total Households 68,923 Households.

Note ; *** Significance at 0.010 level ** Significance at 0.050 level * Significance 0.100 level

Appendix 1 (continued) Pearson Correlation Coefficients Between Independent Variables.

Independent Variables	Household production structure				area of Households residence.				
	Agriculture	Sale	Government	Others	Bangkok	Central	Northern	Northeastern	Souther
Labour out-migrated.									
Male Labour out-migrated.									
Female Labour out-migrated.									
Labour permanent resident									
Child Dependency Ratio / 100									
Aging Dependency Ratio / 100									
Head Household out-migrated.									
Spouse of HHH. Out-migrated.									
Child not marry out-migrated.									
Child in law out-migrated.									
Nephew out-migrated.									
Household production structure									
- Agriculture	1.000								
- Sale / own business	-0.326***	1.000							
- Government	-0.280***	-0.131***	1.000						
- Employees / others	-0.523***	-0.292***	-0.218***	1.000					
Bangkok Metropolis	-0.334***	0.080***	0.106***	0.240***	1.000				
Urban area of Central	-0.162***	0.093***	0.037***	0.078***	-0.142***	1.000			
Urban area of Northern	-0.179***	0.106***	0.087***	0.050***	-0.155***	-0.081***	1.000		
Urban area of Northeastern	-0.175***	0.116***	0.104***	0.034***	-0.150***	-0.078***	-0.085***	1.000	
Urban area of Southern	-0.139***	0.072***	0.065***	0.049***	-0.137***	-0.071***	-0.078***	-0.075***	1.000

Total Households 68,923 Households.
Note ; *** Significance at 0.010 level ** Significance at 0.050 level * Significance 0.100 level

Appendix 2 Statistic Changing of Multiple Regression Analysis By Forward method

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	Df 1	Df 2	Sig. F Change
1	0.095a	0.009	0.009	0.22	0.009	627.40	1	68921	0.000
2	0.108b	0.012	0.012	0.22	0.003	187.30	1	68920	0.000
3	0.115c	0.013	0.013	0.22	0.001	99.12	1	68919	0.000
4	0.120d	0.014	0.014	0.22	0.001	87.46	1	68918	0.000
5	0.123e	0.015	0.015	0.22	0.001	58.94	1	68917	0.000
6	0.126f	0.016	0.016	0.22	0.001	53.26	1	68916	0.000
7	0.129g	0.017	0.016	0.22	0.001	41.36	1	68915	0.000
8	0.131h	0.017	0.017	0.22	0.001	35.80	1	68914	0.000
9	0.144 I	0.021	0.020	0.22	0.004	248.10	1	68913	0.000
10	0.144 j	0.021	0.021	0.22	0.000	16.09	1	68912	0.000
11	0.145k	0.021	0.021	0.22	0.000	12.09	1	68911	0.001

a Predictors: (Constant), LBSTAY

b Predictors: (Constant), LBSTAY, OCC4_OTH

c Predictors: (Constant), LBSTAY, OCC4_OTH, CENTRAL

d Predictors: (Constant), LBSTAY, OCC4_OTH, CENTRAL, DECHIL

e Predictors: (Constant), LBSTAY, OCC4_OTH, CENTRAL, DECHIL, BKKMU

f Predictors: (Constant), LBSTAY, OCC4_OTH, CENTRAL, DECHIL, BKKMU, DEAGING

g Predictors: (Constant), LBSTAY, OCC4_OTH, CENTRAL, DECHIL, BKKMU, DEAGING, OCC2_SAL

h Predictors: (Constant), LBSTAY, OCC4_OTH, CENTRAL, DECHIL, BKKMU, DEAGING, OCC2_SAL, OCC1_AGR

i Predictors: (Constant), LBSTAY, OCC4_OTH, CENTRAL, DECHIL, BKKMU, DEAGING, OCC2_SAL, OCC1_AGR, OCC3_GOV

j Predictors: (Constant), LBSTAY, OCC4_OTH, CENTRAL, DECHIL, BKKMU, DEAGING, OCC2_SAL, OCC1_AGR, OCC3_GOV, NORTH

k Predictors: (Constant), LBSTAY, OCC4_OTH, CENTRAL, DECHIL, BKKMU, DEAGING, OCC2_SAL, OCC1_AGR, OCC3_GOV, NORTH, HHH

Explanation of Variables

LBSTAY : The number of permanent resident labour in Households

DECHIL : Child (0-12 years) Dependency Ratio in each Households

DEAGING : Aging (60 years and up) Dependency Ratio in each Households

HHH : Head of Household temporary out-migrated

Household Production Structure which was :

OCC1_AGR : (1) Agriculture : The percentage of labour work for agricultural or Farming or planing or fisherman or mining

OCC2_SAL : (2) Merchandizing : The percentage of labour work for merchant or private business or industry and service

OCC3_GOV : (3) Government : The percentage of labour work for civil servant or state enterprise personnel

OCC4_OTH : (4) Employee : The percentage of labour work for employee or labourer or others

Area of households residence

BKKMU : Bangkok Metropolis

CENTRAL : Urban area of central

NORTH : Urban area of northern

BIOGRAPHY

NAME	Miss. Suttida Changsom
DATE OF BIRTH	August 13, 1979
PLACE OF BIRTH	Maehongson, Thailand
INSTITUTIONS ATTENDED	Chiangmai University, 2001 : Bachelor of Arts (Home and Community) Mahidol University, 2003 : Master of Arts (Population and Social Research)
RESEARCH GRANT	The Wellcome trust – IPSR Graduate Scholarship