KINSHIP NETWORKS OF THE THAI ELDERLY IN A RURAL AREA: A CASE STUDY OF NANG RONG DISTRICT, BURIRAM PROVINCE

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ABSTRACT

This study investigated the kin preferences of the elderly in rural Thailand, the availability of kinship networks who are potential caregivers, and factors affecting the availability of potential kin living within the same village. Longitudinal data collected in 1984, 1994, and 2000 in Nang Rong district in Buriram Province, Thailand were used. The survey was conducted at three levels—individual, household, and community—by the Nang Rong Project. This three-wave longitudinal study provides essential demographic data, complete social network data among kin, and geographic locations of dwelling units. The dataset allowed the researcher to investigate demographic changes as well as kinship network changes during the period. To supplement the quantitative data, a qualitative study was conducted in April 2012 to provide further explanations for the quantitative findings. In addition, methodologies from disciplines including social network analysis, spatial analysis, and multivariate analysis were integrated into this demographic study.

The results showed that most of the present generation of elderly in rural Thailand are able to access their preferred kin in their home village for various types of assistance and support: meal preparation, personal care, transportation, financial support, and emotional support. Factors affecting the availability of preferred kin depend upon the type of support and the gender of caretakers. Spouse, daughter, son, grandson, and granddaughter are the top rankings of kin preference. Siblings and neighbors are helpful when close kin are not available.

In Thai culture, children—especially daughters—are obligated to care for older parents to pay parents back for nurturing them in childhood. Necessary assistance for the elderly's daily living, which is meal preparation and personal care, are considered female tasks. Following matrilocal residential norms existing in northeastern Thailand, daughters play important roles as caregivers. The greatest concern regarding elderly care in the future is that the next generation may lack preferred kin; the percentage of kin availability in a village for the elderly’s female offspring dramatically dropped about 18 percent compared to their elderly parents in 2000. Most existing kin in the village currently are of school age or work in the agricultural sector, which has the highest rate of out-migration from this region.

KEY WORDS: ELDERLY / KINSHIP NETWORK / SOCIAL TIES / SPATIAL FACTOR / KIN PREFERENCE

167 pages

เครือข่ายญาติของผู้สูงอายุไทยในชนบท กรณีศึกษา อำเภอนางรอง จังหวัดบุรีรัมย์

KINSHIP NETWORKS OF THE THAI ELDERLY IN A RURAL AREA: A CASE STUDY OF NANG RONG DISTRICT, BURIRAM PROVINCE

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บทคัดย่อ

งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาเครือข่ายญาติที่ผู้สูงอายุต้องการได้รับความช่วยเหลือ ความเป็นไปได้ที่จะมีญาติเพื่อดูแล และปัจจัยที่มีเกี่ยวข้องกับความเป็นไปได้ที่จะมีญาติคอยให้ความช่วยเหลือ โดยใช้ข้อมูลระยะยาวจากโครงการนางรองที่เก็บข้อมูลในพื้นที่อ.นางรอง จ.บุรีรัมย์ ในปีพ.ศ. 2527, 2537 และ 2543 ชุดข้อมูลนี้ประกอบด้วยข้อมูลด้านประชากร เครือข่ายทางสังคม และพิกัดทางภูมิศาสตร์ของครัวเรือน ซึ่งช่วยให้สามารถศึกษาความเปลี่ยนแปลงทางประชากรและเครือข่ายญาติระหว่างช่วงเวลาดังกล่าว งานวิจัยนี้ได้เก็บข้อมูลเชิงคุณภาพในเดือนเมษายน พ.ศ. 2555 เพื่ออธิบายผลวิจัยที่ได้จากการวิเคราะห์เชิงปริมาณ และประยุกต์ใช้การวิเคราะห์ในสาขาวิชาต่างๆ กับการศึกษาทางประชากร ได้แก่ การวิเคราะห์เครือข่ายทางสังคม การวิเคราะห์เชิงพื้นที่ และการวิเคราะห์ทางสถิติ

ผลการวิจัยพบว่าผู้สูงอายุส่วนมากสามารถเข้าถึงความช่วยเหลือของญาติที่ต้องการ ด้านการเตรียมอาหาร การดูแลใกล้ชิด การเดินทาง การเงิน และการสนับสนุนด้านอารมณ์ เนื่องจากส่วนมากมีญาติอาศัยอยู่ในหมู่บ้านเดียวกันซึ่งขึ้นอยู่กับประเภทความช่วยเหลือและเพศของผู้สูงอายุ ญาติที่ผู้สูงอายุต้องการได้รับความช่วยเหลืออันดับต้นๆได้แก่ คู่สมรส ลูกสาว ลูกชาย หลานสาว และหลานชาย อย่างไรก็ตามในความเป็นจริงผู้สูงอายุมักได้รับความช่วยเหลือจากพี่น้องที่อาศัยอยู่ใกล้เคียงและเพื่อนบ้าน

การดูแลพ่อแม่ผู้ชราถือเป็นสิ่งที่ลูกควรปฏิบัติในสังคมไทยเพื่อเป็นการทดแทนบุญคุณที่พ่อแม่เลี้ยงดูตั้งแต่เด็ก ประกอบกับธรรมเนียมการอยู่อาศัยหลังแต่งงานในภาคตะวันออกเฉียงเหนือ โดยลูกชายจะไปอยู่ที่บ้านพ่อแม่ภรรยา ในขณะที่ลูกสาวจะให้สามีเข้ามาอยู่ในบ้านพ่อแม่ของตนเอง อีกทั้งการดูแลผู้สูงอายุในชีวิตประจำวัน เช่น การเตรียมอาหารและการดูแลใกล้ชิดถือเป็นงานของผู้หญิง ดังนั้นลูกสาวผู้ที่อยู่กับพ่อแม่ จะมีบทบาทสำคัญในการดูแลพ่อแม่ที่สูงอายุ แม้ในปัจจุบันผู้อายุยังสามารถหาผู้ดูแลที่เป็นญาติอยู่ในหมู่บ้านได้ไม่ยากนัก แต่สิ่งที่น่าเป็นห่วงสำหรับประชากรที่กำลังจะกลายเป็นผู้สูงอายุในรุ่นถัดไปอาจจะขาดแคลนคนดูแล เนื่องจากพบว่าประชากรรุ่นลูกที่อาศัยอยู่ในหมู่บ้านมีจำนวนลดลงมากถึงร้อยละ 18 และส่วนมากเป็นนักเรียนหรือคนที่ทำงานในภาคเกษตรกรรมซึ่งมีแนวโน้มที่อาจจะย้ายถิ่นในอนาคต

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CHAPTER I
INTRODUCTION

1.1 Background

The ageing population has become a large number and proportion of Thai population and this population change concerns Thailand's fiscal policy related to health and social welfare. Thailand economics mainly depends upon agricultural products, to the extent that most of elderly have worked or been working in farms, an informal sector. They do not have a reliable pension when turning into retirement age. Due to their vulnerable health and financial security, Thai elderly typically rely on their children for many kinds of support such as meal preparation, personal care, and financial support. The older parents may expect to receive these particular familial supports from their preferred family members especially from their spouse and children. However, currently, there are fewer numbers of children in a family due to a successful family planning in the past. The elderly live longer because of advanced medical technology, but they lose their spouse in older age. Moreover, the elderly are left-behind in rural areas because their children migrate to work in Bangkok and other industrial areas. The large number of elderly emerges in Thailand and the ageing dependency ratio also becomes relatively larger. This demographic transition in the Thai context should be studied to understand household structure changes affecting to familial support and who would be the one who provide a particular support. Of course, family members or relatives are preferred by the elderly as a care giver or supporter.

As a result of this social and demographic change, there are fewer children and some children in a family migrate for reasons related to work. This creates a familial constraint of finding someone taking care of the older parents. A household with more family members has more options to find a person to take care of their older parents. However, some families have no choice due to financial conditions. Because of barely institutional support especially in rural areas, these older people may find

difficulties living on their own or living with someone who are not able to provide help as they need. An assumption of this study is that the elderly who have their preferred kin providing support, the elderly's well-being should be better off. Nevertheless, familial support can be found as cultural obligation.

Generally, a family formation occurred after marriage; however, the structure of households depends upon social norms. Some Asian countries are influenced by Confucian tradition, so the parents expect to reside with their eldest son or daughter (Ogawa & Retherford, 1993). In Thailand, the filial responsibility is more imposed on the youngest daughter (Foster, 1975); nevertheless, the norm of co-residence with their parents after marriage is relatively more flexible compared to other countries in the Southeast Asia (Chamratrithirong, Morgan, & Rindfuss, 1988). Regardless of the institutional support, the elderly expect to co-reside with their children or relatives.

Assistance or support given to the elderly can be determined by the nature of gendered tasks (Campbell & Martin-Matthews, 2003). In the other words, caregivers may hesitate or are not keen to provide some assistance due to the types of tasks characterized by gender. Campbell classified filial care tasks into three groups: traditionally male care, gender neutral care, and traditionally female care. Traditionally male tasks are, for examples, home maintenance and financial or managerial assistance. Transportation and emotional assistance are gender neutral care. Meal preparation and personal care are more likely to be traditionally female tasks. On the other side of care receivers, the elderly may prefer receiving assistances from different relatives according to the nature gender of tasks. Additionally, the elderly themselves may not feel comfortable to receive some assistance from a particular gender. Moreover, the proximity between the elderly and care givers is one of the restrictions for some assistance that require on the regular basis. The closer relative may be more helpful for meal preparation, personal care, and transportation than the farther one. On the contrary, financial and mental support can be given distantly with the communication technology. Filial cares, however, are induced by social process relevant to household structure.

The modernization theory predicts that "extended family households are losing ground to nuclear family households in the process of industrialization (Kamo

& Zhou, 1994).” Women, who are more expected than are men to be a caregiver, receive higher education and work in formal sectors (Ogawa & Retherford, 1993). Once gender roles of women are transferred from the duty within family to their employment, declining fertility occurred in many countries including Thailand (Knodel, Chayovan, & Siriboon, 1992). The household structures changed from traditional extended families to be nuclear families as many studies found (Hirschman & Rindfuss, 1982; Jiang & O'Neill, 2007; Kamo & Zhou, 1994; Knodel, et al., 1992; Kramarow, 1995; Weinstein, Sun, Chang, & Freedman, 1990), these would directly affect the elderly’s support inevitably.

Advanced communication technology should not be neglected as it can connect distant people and provide support somehow. For example, the elderly’s emotional problems can be coped with their preferred kin even they live apart. In the past public telephone booths and landline telephone were rarely found. The older parents may have found difficulties to keep contact with their distant children that might cause less quality of relationships between them as a result of psychological well-being among the elderly. Currently, cell phones have become available and more affordable. Thus some supports such as mental and financial support are not restricted by geographic distance.

In Thailand, the sufficient social welfare system for the elderly care has been concerned and being developed. However, it could not be expected to be fully implemented in the near future like more developed countries. Hence, the care of older parents is retained as filial responsibility inevitably. If the elderly's preferred choices for a particular task are available, they will live in well-being circumstance and any interventions provided by community and government will be success through their kinship network.

1.2 Research Questions

According to the rationale described above, three research questions are developed.

1) How have the kinship networks of the elderly in rural Thailand changed over time?

2) What are factors affecting the presence of preferred kin living in the studied area?

3) What is the availability of having preferred kin who might be able to provide support to the elderly in rural Thailand?

1.3 Objectives

Regarding the research questions, the objectives of this study are

1) To investigate kinship networks available for the elderly in rural Thailand over time

2) To investigate the factors affecting the presence of kin living within a village

3) To investigate the possibility of having available kin who might be able to provide support to the elderly living in rural Thailand

1.4 Scope of Study

This study aims to investigate the elderly's kinship network in rural Thailand, find the possibility of having preferred kin for a particular support that the elderly may need, and investigate factors affecting the presence of preferred kin living in the village. To accomplish the objectives of this study, Nang Rong district in Buriram province, one of poorest area located in the northeastern Thailand, is the study area. The data set at three levels of individual, household, and community has been produced in 1984, 1994, and 2000 by the Nang Rong Project. This three-wave longitudinal study including the complete social network data among kin and geographic locations of dwelling units allows a researcher to investigate demographic change as well as kinship network.

1.5 Implication

Due to the demographic transition and cultural adaptation, household structure including its functions has changed in some dimensions. The expectation of caring older parents would be transferred, sooner or later, from a child to other relatives or to non-family association. The study of household structure and kinship network of the elderly through time would help to understand the change of household structure, the potential kinship network among the elderly in rural Thailand, and available kin for familial support. The availability of kinship network classified by types of support, gender, and proximity may play an important role for resource management as the conditions to consider before providing help.

CHAPTER II
LITERATURE REVIEW

The ultimate goal of this research is to study the older persons' kinship networks and factors affecting the availability of kin. There are many gerontological researches paying attention to the dimension of health, which can be treated by advanced medical technology. However, no one can refuse that the psychological well-being is related to the physical health in old age. The literature review shows that there are two main factors that directly influence the elderly's psychological well-being: health and quality of relationship between older parents and their children (Booth and Amato 1994; Johnson 1978; Lawton, Silverstein and Bengtson 1994; Lye et al. 1995; Quinn 1983). Given the condition of psychological well-being and vulnerability of older age, care givers are the key persons who provide necessary support to assist the elderly. Therefore, this study intends to study the potential kin of elderly parents' care givers and related factors influencing the availability of those kin. Firstly, it is essential to understand what factors related to the elderly's well-being and how they work. So all related factors are summarized at the end of chapter (in figure 2.3 causal model of elderly's well-being). The figure is to illustrate their relationships and the factors influencing the elderly's well-being which are classified into four levels: first, social transformation (demographic trend, modernization, urbanization, cultural specificity), second, primary factors (household structure, social network, geographical factors), third, intermediate factors (affection and communication influenced by filial responsibility and expectation), and last, immediate factors (health and quality of relationship). These relations among these factors are described by the levels; however, some factors could not be explained separately due to their relations. Next, I will focus on the elderly's support determined by gender, geographic factors, and social closeness and then summarize variables in the conceptual framework.

2.1 Social Transformation

This section describes four components of social transformation (demographic trend, modernization, urbanization, cultural specificity) that influence the primary factors.

2.1.1 Demographic Trend

The demographic transition of declining fertility and decreasing mortality have been found in many countries, especially in more developed countries and some developing countries. Thailand is one of the countries pertaining fertility at below replacement level, 1.5, and low crude death rate, 6.9 per 1,000 population. In addition, life expectancy at birth for male is 69.5 and 76.3 for female. Life expectancy at age 60 for men and women in 2011 are 20 and 22 years (Institute for Population and Social Research 2012), whereas life expectancy at the same age during 1974-1996 are 16.0 and 18.9 for men and women respectively (Prasartkul and Vapattanawong 2001). The Thai population tends to live longer, while there are fewer births. The result of this demographic trend has brought Thailand to aging population containing 7,790,000 persons, defined by age 60 and over, and carrying old age dependency ratio of 18.08 (Institute for Population and Social Research 2012). Consequently, household structures have changed induced by the demographic conditions.

2.1.2 Modernization

Modernization may be considered in four aspects (Kamo and Zhou 1994): technological advancement, industrialization, modern education, and functional specialization on aging and family. The development of health and medical technology plays significant roles in minimizing the rate of infant mortality and increasing longevity. Unlike pre-industrial or agrarian society which allows people work in their farms nearby, industrialization which concentrates in a particular geographical area requires “a separation of work from home.” People in labor force age become highly mobile and this weakens familial ties (Cowgill 1986).

Once modern education became relatively more accessible in later generations, especially for women, there have been changes in values. In the gender roles aspect, women were expected to be responsible to familial care than were men. However, at least recently in some countries, women attain more modern education and engage in formal employment. Additionally, the fact in the United States is that the elderly themselves who achieved higher education tend to remain their privacy by not living with married children (McPherson, Smith-Lovin and Brashears 2006). Last, some social institutions such as elderly care center have been conducted. Initially, those institutions are to assist the elderly; however, they have reduced the traditional family function as the filial care giver.

Finally, it can be concluded that "modernization makes extended family living less essential and economically less advantageous, thus facilitates the transition to nuclear family living arrangement (Kamo and Zhou 1994)."

2.1.3 Urbanization

Some research studying in Asian countries find a correlation between urbanization and household structure by transforming extended families to nuclear families. Urban residence and education are found as the factors discouraging the elderly from living with their married children in some the Philippines, Singapore, Taiwan, and Thailand (Casterline et al. 1991). Moreover, a correspondent finding of changes in levels and correlates of extended co-residence during 1980-1985 confirms that urbanization is positively associated with the extent of nuclear family in Taiwan (Weinstein et al. 1990).

2.1.4 Cultural Specificity

Cultural specificity is explained by indigenous values about family existing in a society. In this case, traditional filial responsibility would be the most effect on household structure in a form of co-residence. In many Asian countries such as China and Japan, Confucian tradition plays important roles on the care of older parents, including co-residence after marriage of eldest son. It might be considered as the practice of primogeniture (Kamo and Zhou 1994).

As mentioned, Japan is a strong Confucian country, to the extent that family values and behavior are based on patrilineal descent, patriliarchal authority, and patrilocal residence (Rindfuss et al. 2004). However, these customs have been changed by women's formally economical involvement as Japan faded into "the second demographic transition." For examples, women have higher education and increase the participation in the paid labor force. Although Rindfuss et al.'s study uses the social network with egocentric approach, not from the informant himself, to examine the knowledge of innovative familial behaviors, it shows some common elements: delayed marriage or non-marriage, increasing cohabitation, delayed parenthood or childlessness, and divorce (Rindfuss et al. 2004).

On the contrary, most of the Thais do not practice Confucian tradition generally. Even though a substantial Chinese minority can be found in Thailand like many other Asian countries and they are well-integrated to Thai society, the postnuptial living arrangement and age at marriage would be expected as the influence of Confucian heritage. Considered as a cultural determinant, the postnuptial residence or familial formation in Thailand is relatively more relaxed. Especially, the rural Thais prefer matrilocal residence; nevertheless, they also consider lucrilocality, where one has access to strategic resources, as well. In addition, the marriage behavior and patterns are reported that "young Thais have considerable discretion in choosing their spouse, age at marriage (Chamratrithirong, Morgan and Rindfuss 1988)."

2.2 Primary Factors

Primary factors influencing the elderly's well-being are composed of three elements: household structure, social network, and geographical factors.

2.2.1 Household Structure

To study about household structure, its definition and functions are described in details below.

2.2.1.1 Household Definition

Household structure is the smallest familial institution which reflects the composition of total population. Weinstein et. al. proposed principles of

classification as the economic and associative dimension . The first includes pertinent relatives eat and live together, whereas the latter includes pertinent relatives eat and/or live together. Thus, all economic units are implied as associative units (Weinstein et al. 1990). However, types of household are defined differently depend upon the research's objective. In this section, two approaches of married generation and cultural norm are described.

The married generation types of household proposed by Weinstein and colleagues are categorized into nuclear, extended, stem, joint, and joint-stem (Weinstein et al. 1990). The definition of nuclear household is that those household contains only one married couple and may contain other unmarried relatives or non-relatives except parents of either husband or wife. The extended household is defined as the household which contains, in addition to husband and wife, at least one other married couple or parent or grandparent of the husband and wife. Stem household is the household containing, in addition to husband and wife, one or more parents of the husband or wife or a grandparent of the husband or wife. The joint household's definition is the household which contains one or more other married couples of the same generation as the husband and wife. Last, the joint-stem household contains both vertical and horizontal linkages (Weinstein et al. 1990). Another approach of cultural norm proposed by Kamo and Zhou (1994) is to determine the extended family household which is relevant to the filial responsibility. The definition is adopted for an extended family household as "composed of an elderly person or an elderly couple and his or her own ever-married children, siblings or parents (Kamo and Zhou 1994)."

Since this study focuses on the household with an elderly, the definition of focused households is the household containing at least one elderly person or an elderly couple. However, other types of household are taken into consideration for the measurement of living arrangement.

2.2.1.2 Function of Household Structure

A household functions in a form of individuals' contribution. Thus, the characteristic of households reflects in size and composition such as living arrangement and age of household members. Specifically, for example, the household containing the elderly persons needs medical treatment, food, cloth, and services

different from the household containing an infant. The elderly, who tend to loss or earn less income after retirement and carry health conditions, require familial support regardless of welfare system. The study of Kamo and Zhou indicates that “living in extended family households serves as an alternative mode of coping with aging (Kamo and Zhou 1994).” Usually, a primary caregiver for an impaired elderly person is one of household members. Additionally, primary caregivers who are kin are more easily able to cope with stress and burden from taking care of the elderly (Dwyer and Miller 1990). Hence, the elderly who co-reside with children or kin would receive various kinds of support such as primary caregivers and other informal helps through their kin network.

2.2.2 Social Network

Social network is a social mechanism functioning by interaction at the level of individuals.

2.2.2.1 Theoretical Social Network

Mostly the studies related to social network have been conducted and conceptualized generally based on western context. For example referred by Entwisle et al., “Marx who characterized preindustrial rural villages of mid-19th century as potatoes in a sack. Villages vary in shape and size, according to this metaphor, but not essence, and logic extended, studying one is sufficient to understanding what is occurring in many.” Described by Durkheim as a type of social organization, “mechanism solidarity, in which unity and social cohesion are achieved through commonality and it is found in peasant societies.” In addition, that the “patrimonial forms of authority and organization rely on overlapping kin and economic ties” is proposed by Weber (Entwisle et al. 2007). According to the objectives aiming to study in Thailand, a developing country in Asia, this section proposes an argument relevant to the social networks in a rural community in Thailand.

Entwisle and colleagues (2007) found that the villages in rural area in Thailand are clustered and heterogeneous. Thus, the study of networks and contexts through social ties and their multiplexity such as kinship, friendship, economic, and helping ties should plausibly help to understand the social mechanism.

The patterns of social interaction related to local contexts and their effects are categorized into four ways: social cohesion, social capital, informal social control, and collective efficacy. The authors measure each of these characteristics (Entwisle et al. 2007), as follow.

The study defines *social cohesion* as Schacter's definition "the social forces that draw and bind men [and women] together" and measures it based on the relational of entire villages that is the strength and nature of social ties in the neighborhood or community as a whole. Because the study focuses on the village level, it examines associations with other characteristics of those villages and its consequences on a migrant follow-up survey (Entwisle et al. 2007).

For the *social capital*, the authors study its involvement of the patterns of social interaction relate to local contexts and their effects. Due to the various ways to measure social capital by indirect and direct measures. The indirect measures typically stratify, for examples, socio-economic status, income inequality, and geographic isolation. Entwisle and colleagues used the direct method measuring of social ties (Entwisle et al. 2007).

The concept of *informal social control* is defined as "the capacity of a group to regulate its members according to desired principles as opposed to forced goals." To study for villages in Nang Rong district, this is measured by positive behaviors that are hospitality and cooperation to follow-up migrants (Entwisle et al. 2007).

Last, the concept of *collective efficacy* combines the concept of social cohesion and informal social control to a single concept. It is defined as "the linkage of mutual trust and the willingness to intervene for the common good." The measures are also a combination, which are closeness, friendliness, and trustworthiness of the people in the neighborhood (Entwisle et al. 2007).

In brief, the social networks, at least in Nang Rong district, Thailand, are viewed differently from western societies. The four characteristics of patterns of social interaction reflect the mechanism within these particular contexts. The networks are found effective to individual outcomes through the structure of social ties, and interaction directly at community level.

2.2.2.2 Definitions

Due to different kinds of networks, not surprisingly, there are several definitions of social network defined by many theorists who may be anthropologist, sociologist, mathematician, physicist, etc. Therefore, definitions depend upon their interests. Some definitions and phrases brought here would illustrate various ideas relevant to the study of social network. The definition of social network is then summarized in order to make it suitable to this study.

Newman gives the definition of general networks which is implied to social network as type of network categories, while Wasserman and Faust (1994) and Adams (1967) are more into elements that constitutes a social network. Wellman claims how important the social network is and Bruggeman reveals that social relations rather than individuals would make more understandable for a study of humans.

"A network is set of items, which we will call vertices or sometime nodes, with connections between them, called edges. … It is represented mathematically in a form of graph (Newman 2003)"

"Social network refers to the set of actors and the ties among them (Wasserman and Faust 1994)."

"The individuals' social network consist of those persons with whom he maintains contact and has some form of social bonds (Adams 1967) ."

"Network analysis is a fundamental approach to the study of social structure (Wellman 1983)"

"Network analysts … try to describe [regular network patterns] and use their descriptions to learn how network structures constrain social behavior and social change (Wellman 1983)."

"When we attempt to comprehend humans, studying them in their social environment is much more illuminating than seeing them only as individuals. We should therefore focus on social relations in the most general sense. (Bruggeman 2008)"

With respect to the above statements, social network analysis is based on an assumption of the importance of relationships among *interacting units* and the *linkages* between units defined as relations. The unit of analysis is an entity of

a collection of individuals and linkages among them. The relations might be dyads (two actors and their ties), triads (three actors and their ties), or larger systems (subgroups of individuals or entire network). Thus the special method is necessary, however, with the key assumptions that “the behavior of a specific unit does not influence any other units” and “one has measurements on interactions between all possible pairs of units” (Wasserman and Faust 1994). In my research, social network is scoped by the elderly's kinship networks. The elderly and their kin are interacting units for which their relationships are identified by child-parent and spouse ties. The behavior of a specific unit is restricted by child-parent and spouse ties. For example, the relationship of father-child does not influence other's relations of father-child. The relationship occurs once a child born or one married to another one.

In addition, the principles of social network analysis are described by Wasserman and Faust as the concepts below (Wasserman and Faust 1994) would be suitable for this particular study focusing on individuals’ social networks.

- Actors and their actions are viewed as interdependent rather than independent, autonomous units
- Relational ties (linkages) between actors are channels for transfer or “flow” of resources (either material or nonmaterial)
- Network models focusing on individuals view the network structural environment as providing opportunities for or constrains on individual action
- Network models conceptualize structure (social, economic, political, and so forth) as lasting patterns of relations among actor

2.2.2.3 Function of Social Network

Social networks embedded of norms are essential for access to information and other resources as well as social support especially among older adults who become more vulnerable and suffer with loneliness and rolelessness due to their concerned health conditions. An evidence in the United States shows that the mean egocentric network size (the average network size measured at an individual) of older adults in the sample is 3.6 people, but the modal network size is 5 people. Moreover, the results suggest that “age is negatively related to network size, closeness

to network members, and number of non-primary-group ties." The oldest adults have the smallest networks (Cornwell, Laumann and Schumm 2008), which means the elderly is losing resources and their access to information.

Powerful effects of social relationships and affiliation on physical and mental health are presented in a conceptual model presented by Berkman and colleagues (Berkman et al. 2000). It illustrates how social networks have an impact on health and psychological well-being. Corresponding to the model, it is found that the availability of social support provides emotional support and enhances a sense of control and self-esteem. Especially, the ties among family members of kin protect against loneliness (Iecovich et al. 2004).

The model contends the consequences of social structural conditions in a macro level towards a micro level of psychosocial mechanisms. The concept model is compounded of many factors related to health behavioral pathways and one of them is the social support (instrumental and financial, informational, appraisal, and emotional). Additionally, the social network structure and characteristics of network ties are between the macro and micro level. For more practical evidence, the social network performs significant roles on health care utilization among immigrants through their contacts (Devillanova 2008).

2.2.2.4 Characteristics of Social Network

Social network of the elderly's caregivers can be viewed into two perspectives: the model of substitution or complementary and task-specific model. In the model of substitution or complementary, support providers are arranged in hierarchy and they may be replaced by others in the hierarchy as needed. The primary source in this model is kin and followed by non-kin such as friends and neighbors (Iecovich et al. 2004). The task-specific model implies that different types of support are provided by different groups that are family, friends, and neighbors (Iecovich et al. 2004). Both models act differently in the social network; however, family, friends, and neighbors are significant persons in the network anyway (Iecovich et al. 2004).

2.2.2.5 Measurement of Social Network

There are a number of criteria to measure social network of the elderly. For examples, those measures are the number of persons in the network (network size), its composition, frequency of contact with others, geographic

proximity (Litwin 1995) and satisfaction with social network relationships (Quinn 1983).

2.2.2.6 Theoretical Approaches to Social Network

Given the evidence, the concept of social network was adapted to explain an epidemic of runaways at the Hudson School for girls in upstate New York in 1932 by a psychiatrist, Jacob Moreno. He and his colleague, Helen Jennings, used “sociometry” to map the social network at Hudson, a technique for eliciting and graphically representing individuals’ subject feeling towards another. The graph shows social network influenced among girls. However, he called it “social atoms” as a kind of physics and its law of “social gravitation” (Borgatti et al. 2009).

The term “social network” was first used by Barnes in 1954. Since then the notion of a network of relations linking social entities, or of webs or ties among social units emanating through society, has been widely found in expression throughout the social sciences. In addition, social network analysis is an interdisciplinary endeavor because the meeting to develop the social network analysis with formal mathematical, statistical, computing methodology and, of course, social sciences occurred (Wasserman and Faust 1994). Since there is no such a social network theory specifically developed, related theories that are the interaction and exchange theory are applied to approach social networks.

2.2.2.6.1 Interaction Theory

The theory of interaction proposed by Adams involves with two types of relations: affection and interaction. The affection can be considered as liking, positive sentiment, and attraction, while the interaction is the social psychological attribute of social relations, including consensus, sharing of common values, interests, and attitudes. Regarding the relations described, social network can be classified into two categories: kin and non-kin. A factor distinguishes these social categories is symbiosis and obligation (Adams 1967).

The feelings of obligation contribute affectional or positive concerns which characterize as intimate kinship, while consensus and affection contribute to the close friendship. In addition to two categories, the kin network can be subdivided by the degree of relationship (frequency of interaction and mutual aid involvement), so the immediate kin such as parents, children, and siblings

might be determined differently from other relatives. It can be concluded that "the closer the kin relationship, the more likely is substantial interactional and mutual aid involvement." The relation between children and parents are considered as the closest social relations, which are composed of both consensus and strong positive concerns. Close and mild friends share intimacy and emotional intensity according to norm commitment (Goode 1960); however, friends are needed to consider the milieus where they are located and tend to need more interaction to maintain relationship (Adams 1967).

To sum, propositions relevant to interaction contributed by affection and consensus are illustrated (Adams 1967).

i. Consensus is likely to be modal in friendship and positive concern in kinship relations.

ii. In general, interaction is likely to be desired with friends in preference to kin, due to the consensual component of friendship and the absence of strong obligatory feelings toward friends.

iii. Positive concern is more likely to lead to relationship persistence than is consensus.

iv. Relationship based upon positive concern is more likely than the consensus relationship to have as an element intimate communication.

v. The consensual and concern components of social relations demonstrate a substantial overlap between the various structural categories of individuals frequently considered as "givens" in descriptive interactional studies.

Finally, to strengthen the interaction theory approaching social network, referred to Ronald S. Burt, types of interpersonal relation vary by tie strength, frequency of contact, and role of relationship (Marsden 1990).

2.2.2.6.2 Exchange Theory

Exchange theory and network analysis have a common aspect based on the concept of actors. Additionally, the exchange theory emphasizes on the exchange aspects of ties which is relevant to exchange relations in a network. The conception of actor which may be individuals, organizations, and even

national states allow researchers implementing analysis at different levels. Therefore, it is a possible approach to apply to social network study (Cook and Whitmeyer 1992).

The exchange theory views a network as "connected sets of exchange relations" that should be analytically separated to positive and negative exchange connections which depend upon characteristics of relations. The principles of exchange theory are illustrated below (Cook and Whitmeyer 1992).

i. The actor can be modeled as motivated by interests or rewards/punishment

ii. Most interaction consists of the exchange of valued items.

Exchange theory has been interestingly applied to the Thai context in the study of "Family structure and the generation of Thai social exchange networks by Brian L. Foster, an anthropologist (Foster 1984)." His study reveals that in the Thai society, loosely structured[1] by having Buddhist temples (*Wat*) as social organizations, households are important organizational units and an important part in Thai informal "social security" networks. Foster considers a household containing family members as an actor and uses graph to present exchange relations between households and intergeneration within a village shown in figure 2.1. A circle represents a household, an arrow line is a financial aid in case of emergency (borrow money) between individuals, and a dot line represents attendance at funerals in case he/she could not do that represents affairs, and a frame over households is kinship. There are a number of directions of aid go to an older generation. The village contains 15 households equal to the number of actors in the figure, which means that this studied social network is a complete network. However, the author presents the number of aids would occur rather than presenting in a proportion of possible events. The principles with given evidence have been proved that exchange theory can be an alternative approach to study social network in the Thai society.

[1] Various interpretation as the problem case in word ethnography

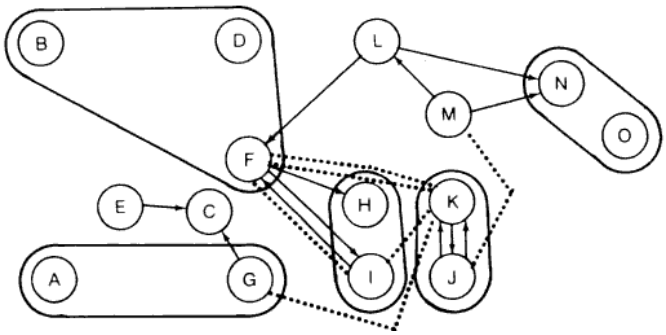

Figure 2.1 Household relationship of an urban village in Thailand in 1981
Source: Family structure and the generation of Thai social exchange networks (Foster 1984)

2.2.2.7 Network Study Design

The design of network study should consider three main issues: levels of analysis, boundary specification, and network sampling.

2.2.2.7.1Levels of Analysis

There are two concerns for levels of analysis. First, complete network data collected by the complete enumeration are required for comparing entire social structure such as organization and communities to one another or for studying by the techniques of centrality. However, some methods of estimation might produce the properties of social structure by using a sample of units.

Another concern is at the level of individual actors. Because of individuals containing social position, the sample of particular elements may represent the social environment if they are defined as general social positions in the study. The complete network data is difficult to obtain because it is resource- and time-consuming, egocentric network data is more likely to be used. However, it tends to be biased toward close ties. On the other words, “most network data appear to be of better quality for close and strong ties than for distal and weak ones (Marsden 1990).”

2.2.2.7.2 Boundary Specification

Boundary specification is required for both complete and egocentric network data. Inappropriately defining population might result the omission of pertinent elements which causes misleading results and consequently interpretation. Boundary for complete network data can be defined by the attributes of units as membership of the formal criteria such as school or work

organization. Social position focused on individuals such as professional communities is an alternative. Moreover, social relations may also be used as a sampling tool that is snowball sampling procedure (Marsden 1990).

The problem of the boundary specification for egocentric network data is which other units should be taken into account of the given focal unit in the network. A solution is an identified order. If a social network analyst identifies, for example, the second-order is the boundary. It is referred to those links to the focal unit by one intermediary (Marsden 1990; Wasserman and Faust 1994).

2.2.2.7.3 Network Sampling

Sampling is not problematic for complete enumeration, but the issue is brought to select networks for a purposive or convenience basis of study. There are some sampling procedures available for a particular purpose, but one should keep in mind that limitations vary by those procedures (Marsden 1990). For example, the conventional random sampling can be used for egocentric network data (Marsden 1990); however, the samples are biased by relatively close ties (Marsden 1990) and it might be skeptical to make result generalized due to its small sample size (Newman 2003).

2.2.3 Geographic Factors

Social context is the predictive of social networks and it alters the impact of spatial structure (Doreian and Conti 2010). Thus, social networks have been integrated into geographic factors as they are study in the form of sociological factors influenced by spatial arrangement. Cravey et al. reveals that spatial arrangement is not mutually exclusive (Cravey et al. 2001). It is stated in their study relevant to the relationship between sociological and geographical dimension towards the efficiency of health services in a community that

“Assessment of health belief systems and the local geographies of health beliefs can assist community health planners to create cost-effective strategic intervention programs where populations are at high risk for chronic diseases.”

2.3 Intermediate Factors

Intermediate factors that eventually affect on the elderly's well-being are affection and communication between them and their child/children.

2.3.1 Affection

Affection is used to represent the quality of relationship between dyads (two actors and their ties) (Johnson 1978). It is characterized by closeness, love and affection (Smith and Bengtson 1979). The relationship between two generations such as parents and children is based on mutual respect and trust. In addition, emotional involvement and affectional closeness are indicated by a combination of mutual aid potential and desire for frequent contact (Adams 1967). Although the affection influences the quality of relationship, only quantitative approach may not be able to capture affection. Therefore, the communication is another reasonable variable to investigate the older parents' quality of relationship.

2.3.2 Communication

Communication helps to maintain effective kin (Adams 1967) and it is also associated with the quality of relationship between older parents and adult children (Quinn 1983). Even though the child-parent communication can improve the quality of relationship, to meet older parents' expectation is subjective and depends upon filial expectations by parents and filial responsibility contributed by children. Both are varied by socioeconomic status of parents, including sex, age, marital status, and income, and age and life stressor of children. The measurement of communication is usually the frequency of contacts from children, so the number of living children becomes essential (Bachrach 1980). In addition to the frequency, the availability and accessibility to the facilities especially in rural areas should be taken into account in the research.

2.4 Immediate Factors

2.4.1 Health

Health is the primary and strongest predictor influencing the well-being in the old age (Quinn 1983). There is no doubt how important the health is, thus this study would rather concentrate on other factors which can be customized in any way to promote the elderly's psychological well-being.

2.4.2 Quality of Relationship

The quality of relationship between older parents and their adult children strengthen coping skills consequently enhance aged well-being (Booth and Amato 1994; Johnson 1978; Lawton, Silverstein and Bengtson 1994; Lye et al. 1995). In addition, the quality of relationship is the measure of parents' perception, so it is subjective to the parents' expectation, which is varied by income and support from non-family association. However, this variation originally depends on age, sex, and marital status (Quinn 1983).

There are many efforts developing the measures to quantify the quality of relationship between adult child and parents such as *frequency of contact* (visits, phone calls, letters) (Booth and Amato 1994; Kaufman and Uhlenberg 1998; Lawton, Silverstein and Bengtson 1994; Lye 1996; Lye et al. 1995; Pas and Tilburg 2009; Umberson 1992), *affection* (Lawton, Silverstein and Bengtson 1994), *helping behavior* (Lawton, Silverstein and Bengtson 1994), *exchange of social support* (Kaufman and Uhlenberg 1998; Lye 1996; Umberson 1992; White and Rogers 1997), *closeness* (Booth and Amato 1994; Kaufman and Uhlenberg 1998; White and Rogers 1997), *proximity or geographic distance* (Kaufman and Uhlenberg 1998; Lawton, Silverstein and Bengtson 1994; Lye 1996; Rogerson, Weng and Lin 1993), *perception of regular and importance contact* (Pas and Tilburg 2009; White and Rogers 1997), *relationship strains* (Umberson 1992), *parental dissatisfaction* (Umberson 1992), and *adult's assessment* (Lye et al. 1995).

Regarding the literature above, almost all measures are subjective to either parents or children except the frequency of contact and proximity. The proximity or the distance between children and parents can be viewed as zero if they are co-

residence. In addition, the contact is considered as an essential element of family solidarity (White and Rogers 1997) and associated with the levels of interaction and exchange of support or assistance especially for the forms of support of which distance does not play a role (Kaufman and Uhlenberg 1998; Lawton, Silverstein and Bengtson 1994; Lye 1996; Pas and Tilburg 2009; Rogerson, Weng and Lin 1993).

2.4.3 Issues Concerned

Communication and transportation are the approaches for interactions and exchange through social relations in networks, at least in this study. Thus they are integrated into the study as issues concerned because of rapidly technological and infrastructure development. Especially in Asia, the number of telephones per 1,000 population increased from 8.17 during 1965-1985 to 19.04 in 1990 and total kilometers of roads per 1,000 population increased from 0.47 to 0.84 during the same period of time (Bloom, Craig and Malaney 2001). The development is even more spread into rural areas in recent years.

2.4.3.1 Communication

The communication among persons in a network at present may include all methods of interactions such as mass media as one-way communication or face-to-face, telephone, cell phone, and online services as two-way communication. Thus the communicable equipment may not only help to provide information, but it may also help to request for aids immediately through social ties. Although some helps or can be provided distantly, some helps cannot due to geographic distance of ties. Therefore, appropriate communication methods should necessarily be considered for a particular population, elderly for this study, in the community.

2.4.3.2 Transportation

The centrality measures shortest social distances, typically called geodesics, which does not take into account of geographical distances. Yet this study needs to investigate if the social network potentially provides information, resources, and aids. The conception of centrality is meaningful in human-related behavior not only for communication purpose, but it is also advantageous in the accessibility to resources. For example, Barton illustrates about this advantage as “the

surplus of importance of a place, or the ability of a place to provide goods and services in excess of the needs of its own residents (Barton 1978).” Then the virtue of centrality can be applied to community in Nang Rong district, even though the distance factor for some cases may not interrupt the relations due to high speed transportation.

2.5 Elderly Support

This study focuses on the basic needs among the elderly in five types of assistance and support: meal preparation, personal care, transportation, financial support, and emotional support. These five items are related to the instrumental activities of daily living (IADL) which has been widely used to measure elderly’s condition (Kobayashi 2006; Lawton and Brody 1969). IADL includes ability to use telephone, shopping, food preparation, housekeeping, laundry, transportation, responsibility for own medications, and ability to handle finances (Branch 2000). The elderly who are able to access their preferred kin for a particular support should receive both functional and sentimental care. Hence, they live with higher well-being. Three dimensions of accessibility are considered in this study: gender roles on support, geographic distance, and social closeness.

2.5.1 Gender Roles on Support

Thai society is characterized by Theravada Buddhism (Keyes 1984) and social norm based upon her agricultural culture. Gender is a dominant factor inducing Thai people’s roles. Men's important religious duty is to be ordained and join the monkhood, while women considered as a mother nurturing their family. In addition, Embree (1950) noted that there are rules for parents and children's duty by quoting from Chandrung (1940).

> *"These are the duties of parents to their children: giving food, clothing, and shelter, forbidding wrongdoing, encouraging right conduct, giving education, assisting them in matrimony, and transferring properties to them in good time.*
> *The duties of children toward their parents are: taking care of them when they are old, helping them in their work, keeping the*

good name of the family, obedience, trustworthiness, using their properties sensibly, and remembering them after their death"

According to gender differentials to accrue religious merit, both male and female children should repay to present their gratitude towards their parents differently. Men ordained as a monk are considered to make merit, paying back their parents, while women need to do more by caring for their parents when they become older to make the equal merit as do men (Keyes 1984). Keyes focused on the rural-traditional northern and northeastern Thailand in 1984 which the elderly aged 60 and over in our study area were in adulthood. It is assumed that the elderly taking part in this study followed the Theravada Buddhism.

In Thailand, it is usual that female household members including wife and daughter take care of general household chores, including meal preparation, cleaning house, and laundry. Male members work outside such as farming and taking care of household chores that need physical strength and technical skill such as fixing and maintaining house. Males may be reluctant to do female tasks, even if they are willing to do them, they may not be keen on doing so. Female is determined as mother’s gender and relatively gentle, so women would do better personal care and emotional support because they are more likely to be gentle and feel free to express her sympathy. Typically, being the same gender helps to understand the emotional characteristics and behavior of the same gender. Male kin may understand the problems faced by elderly males and give proper counseling. Thus, the gender of the elderly as receivers of support is a primary determinant and the gender of kin as givers is determined by tasks. For these reasons, I would expect the elderly prefer female kin for meal preparation, personal care, and emotional support.

2.5.2 Geographical Distance

The cultural norm of post-nuptial residence is a dominant one to reinforce older parents' expectation and children's familial obligation. In northeastern Thailand, newly married couples are expected to live in the wife's parental house. After they collected enough resource, the couple may build a house within the same compound (if there is sufficient space) and leave room for younger siblings. Typically, the

youngest daughter inherits parental house and it is her responsibility to take care of their older parents for the rest of life (Podhisita 1984). In addition, the practice of matrilocal residence was revealed in a northeastern Thai village (Potter 1979). This custom allows daughters who traditionally live geographically close to look after their parents easily. Seventy two percent of residence in the rural northeast is an evidence of matrilocal culture (Limanonda 1979).

Geographical factors such as the distance between the elderly's place and their preferred kin can be a factor of providing or receiving support. For examples, the elderly are more likely to receive support from their nearby siblings when other core family members including spouses, children, and parent are not available (Miner and Uhlenberg 1997). Geographic proximity is related to the relationship between grandfather and grandchild (Kivett 1985). Consideration of distance in Nang Rong district is mainly focused on when the landscape of the study area is not greatly affected by the difficulty of travelling due to unpaved roads, steep elevation gradients, and flooding or other types of water obstacles. Kin living geographically closer to the elderly are more likely to be able to provide meal preparation, personal care and transportation assistance than those living further away. Financial and mental support are less restricted by distance because of advanced technology these days. Money transfer can help the elderly receive the money within a day or even shorter period of time. Telephone and cell phone can help the elderly contact to their children or other kin immediately or vice versa.

2.5.3 Closeness of Kin

The closeness of kin is defined as the connection between the focal person and others relatives of which they can be conjugal or blood relatives. The closer kin, defined by immediate connections of kinship network, indicates the elderly's preference. In the case of the elderly as focal persons, the closest relations are considered by spouse and child-parent ties of which the ties include spouse, children, and parents. Siblings, grandchildren, nieces, and nephews are determined as the next closest level. Although parents are directly familial cohesive to the elderly, they may not be considered as the first preference due to their frailty. However, they may be eligible for the next options for some types of support. Siblings are also directly

connected to the elderly in the kinship network; however, they are more responsible to their own family. Grandchildren, nieces, and nephews sometimes play roles in kinship network because their familial tie towards the elderly who are their parents' siblings.

The closeness among kin is somewhat subjective to individuals and their experience toward those kin. Nonetheless, some studies found patterns of gender orientation by examining female centrality. It was found that women is the centered of kin networks in urban bilateral kinship by which the social closeness emerges more among female kin than male kin. Consequently, this matrilateral bias can be expected in social and cultural process as the status of mother or wife (Yanagisako 1977). In addition, as a daughter, she provides most salient for types of support. Thus, having at least a daughter is the key to receive help (Spitze and Logan 1990). The same study found that living with children influenced by the number of children. Gender does not matter. However, this argument might need to prove in my research.

Providing instrumental assistance or helps can be obligated or voluntarily, but emotional support may need a confidant. There is an attempt to rank kin by the likelihood that one is selected as confidant (Hoyt and Babchuk 1983). Given extended kin as the reference category, spouses are about 30 times to be selected as a confidant and followed by parent, adult child, sibling, and young child. The finding affirms that age, frequency of interaction, and status of homogeneity (age and gender) are factors related to the probability of being selected as a confidant. For example, adult child is more likely to be selected than young child (Hoyt and Babchuk 1983). Moreover, it should be noted that close ties among kin such as spouse, son or daughter, parent, and sibling can be ambivalent. Despite affective relationship, the close kin may create more tension than other relationships such as friendship and acquaintanceship (Fingerman, Hay and Birditt 2004).

2.5.4 Factors Influencing Support Provided by Kin

Figure 2.2 describes the notions of factors influencing supports preferences in three dimensions of gender, geographic distance, and closeness of kin. Five supports are served differently regarding the gender of both receivers and givers and closeness of kin. The options available to an elderly person may be limited by geographical distance. For example, a widowed elderly male may prefer his daughter

to prepare food for him every day, but if she lives in another village 10 kilometers away this would be impossible or at best very difficult. This elderly male might ask a nearby granddaughter to cook for him instead. Another example is about a female elderly having emergency health problem. She might ask her sibling living next door to drive her to the hospital. Another example, an elderly female might prefer expressing her emotional feelings about conflicts with her husband with her daughter rather than her son who lives in the village and she needs money to repair her agricultural equipment she may also feel more comfortable asking her daughter than her son. She may call her daughter who is living in other province for a comforting conversation and to ask her daughter for money which the daughter does the next day. Some support may be restricted by geographic distance such as meal preparation, personal care, and transportation, but some supports may not be such as mental and financial support. Nonetheless, some tasks are considered as gender orientation, for examples, meal preparation, personal care, and mental support.

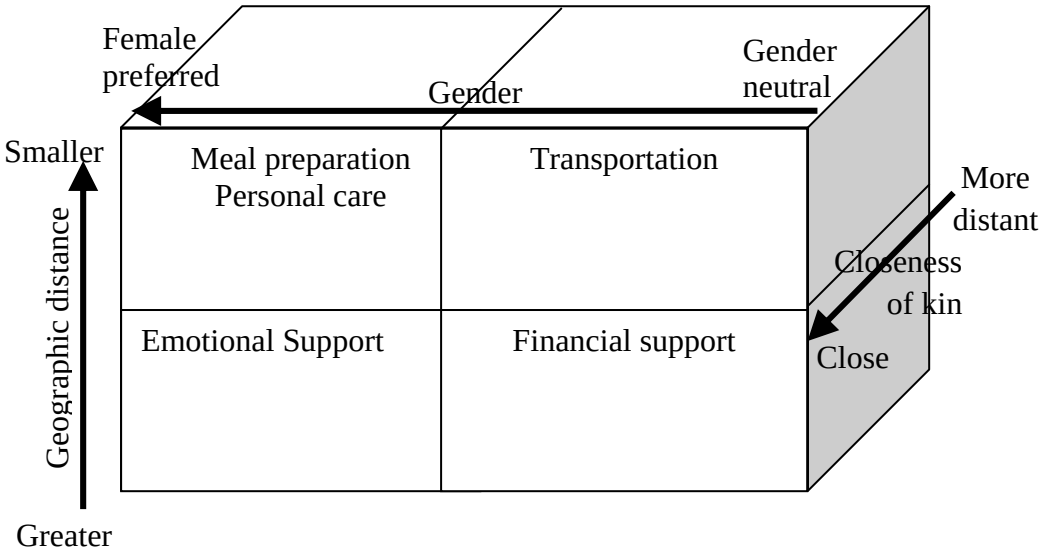

Figure 2.2 Factors influencing support preferences of Thai elderly

According to vulnerable health and limited living conditions after retirement age, the elderly in Thailand usually rely on their kin in different aspects such as personal care, emotional, and financial assistance. Thus the elderly who are able to find their preference of kin for a particular support should live with well-being. This study aims to investigate the availability of preferred kin to help the elderly in

different needs of support. To identify the availability of preferred kin, therefore, the hypothetical orders of kin preference is developed to rank the orders of kin preference by types of support if those options are available.

The preferences of support provided among kin can be determined by three dimensions: gender of both givers and receivers, closeness of kin, and geographic factors. In addition, the preferences vary by type of support. In the other words, one may prefer different persons regarding their manners to help for a particular need. This study will concentrate on five different support types: meal preparation, personal care, transportation, financial support, and mental support. These five types of support essentially maintain the elderly's well-being.

2.6 Summary

In summary of given evidence, the figure 2.3 recruits all as a causal model of the elderly's well-being, but this study is more focused on the aspect of household structure, social network of the elderly (kinship network), and geographic factors influencing the familial support (availability of preferred kin). This aspect and related factors are in the dash box in figure 2.3. Due to relevant factors and the advantage of available complete social network and longitudinal data, this study will focus on the elderly and the availability of their potential kin through their kinship network including spouse and child-parent ties. The hypothetical orders of kin preference should be developed with respect to Thai cultural impact for statistic analysis; however, this should be verified by qualitative study. The prediction of related factors influencing the availability of kin will take into account of individual, household, community, and geographic factors.

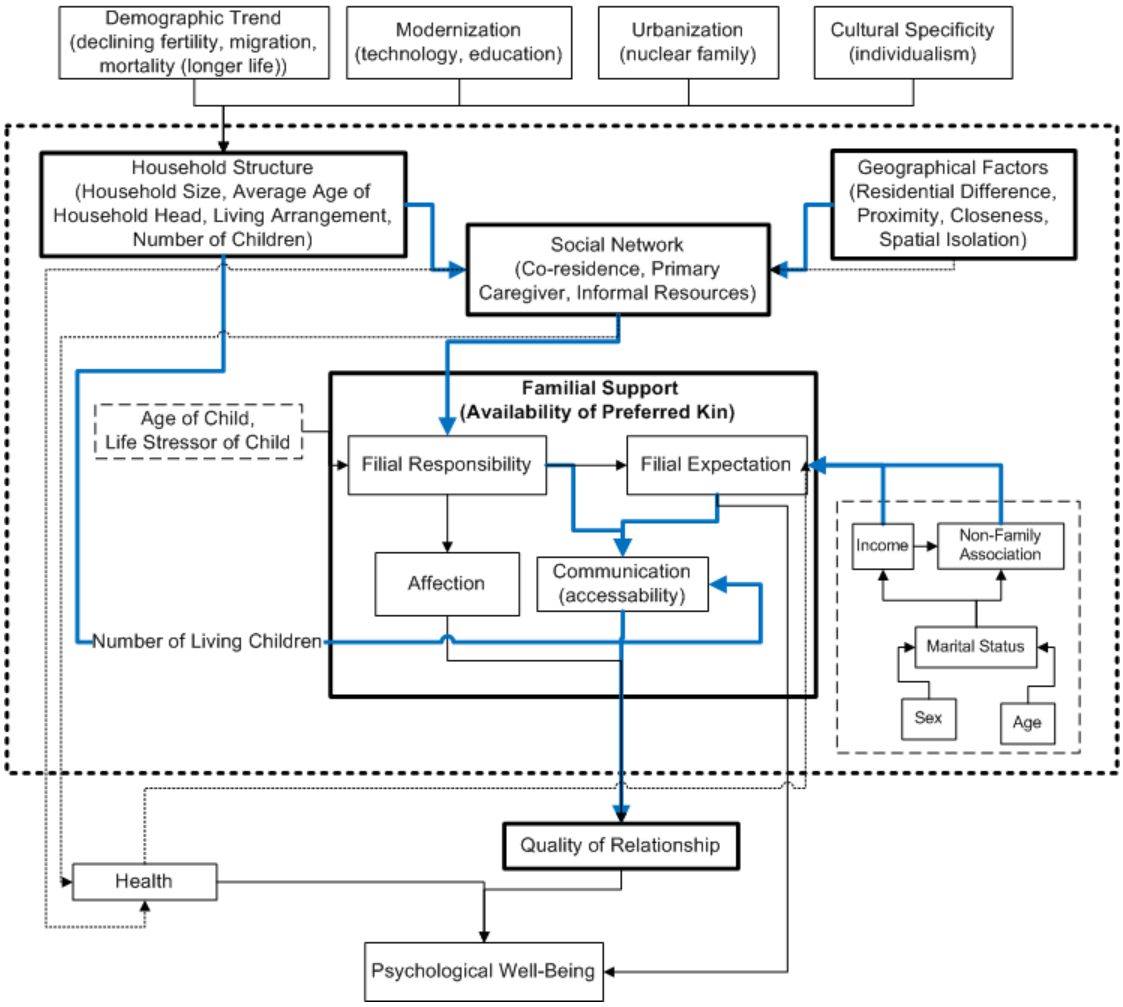

Figure 2.3 Causal model of the elderly's well-being

Some key terms relevant to the study are clarified as the following.

- Social network is a social mechanism functioning by interaction at the level of individuals (Wasserman and Faust 1994). Since this study focuses on the elderly individually and their kinship network, the elderly's social network is scoped to the elderly's kinship network.
- Kinship network of the elderly is the relation between the elderly and their relatives including blood relatives and relatives by marriage.
- Kin are all relatives including blood relatives such as siblings, children, and grandchildren and relatives by marriage such as spouse, spouse's siblings, son-in-law, and daughter-in-law.

- Preferred kin mean the kin or relatives that the elderly prefer to ask or receive assistance or support. Preferred kin are subjective to individuals.

CHAPTER III
RESEARCH METHODOLOGY

Research methodology is developed to answer three research questions: first, how have the kinship networks of the elderly in rural Thailand changed over time? Second, what are factors affecting the availability of preferred kin living in the studied area? Third, what is the availability of having preferred kin who might be able to provide support to the elderly in rural Thailand? Regarding the Nang Rong data set used for this study, the methodology integrates qualitative and quantitative approaches including social network, spatial, and statistical analysis to accomplish research objectives. Therefore, characteristics of Nang Rong data set, method to construct and retrieve social network data, geographical indicators derived from spatial analysis, logistic regression models, and qualitative approach are described below.

3.1 Characteristics of Nang Rong Data Set

The Nang Rong data set is used for this study. The Nang Rong project has been conducted in 1984, 1994, and 2000 in Nang Rong district, Buriram province, located in Northeast Thailand. Figure 3.1 shows the location of the Nang Rong studied area in Thailand and figure 3.2 shows the location of villages in the area. The area of Nang Rong district is approximately 1,300 square. The population is 183,000 in 1990 (Rindfuss et al. 2004) and 178,080[1] in 2000. The number of villages in surveyed in 1984 is 51 villages and 310 villages in 1994. On the average, there are 100 households each village. Some villages are later split because of the reason of political administration. However, all villages, including new split villages, are retained along the study. During the survey commenced in 1984 until the last data collection in 2000, the local economy was mainly dominated by farming, especially rice cultivation. Due

[1] Source: Department of Provincial Administration, Ministry of Interior

to the poor soils and unstable rainfall, people in the area are poor because of agricultural difficulties (Rindfuss et al. 2004).

The Nang Rong project captures the key features, which are size, economy, spatial organization, demographic history, and tradition of cooperation. The complete social network, which is rarely found in social network research, was collected in 2000. Moreover, the satellite technology was integrated into the research by using the geographical information system to obtain the global positioning location of households and villages in the area. The attributes of data set providing longitudinal demographic and socioeconomic data, complete social network, and geographic location allow ones to study by integrated disciplines (Rindfuss et al. 2004). Unlike a cross-sectional data set, the longitudinal data set from Nang Rong data allows a researcher to study demographic changes from time to time. Kinship networks of child-parent ties and spouse ties are complete social network which is rarely found in other social network study. Moreover, global positioning system (GPS) locations of all dwelling units were collected in 2000. These three advantages could not typically be found in any other data sets. Making use of the Nang Rong data set will result a useful inter-disciplinary research methodology.

3.2 Demographic Indicators

Demographic indicators, household size, mean of household size, and household composition, are used to study changes of household structure from 1984 until 2000.

3.2.1 Household Size

The household size is quantified by the number of the persons living within the same household. A household may contain one or more elderly. Since this study focuses on the persons who became the elderly in 2000, individual elderly are the units of analysis. The reason is that each person may define their preferences differently no matter how their households are structured. The household size by the cohort of these focal people can help to see their household changed from time to time.

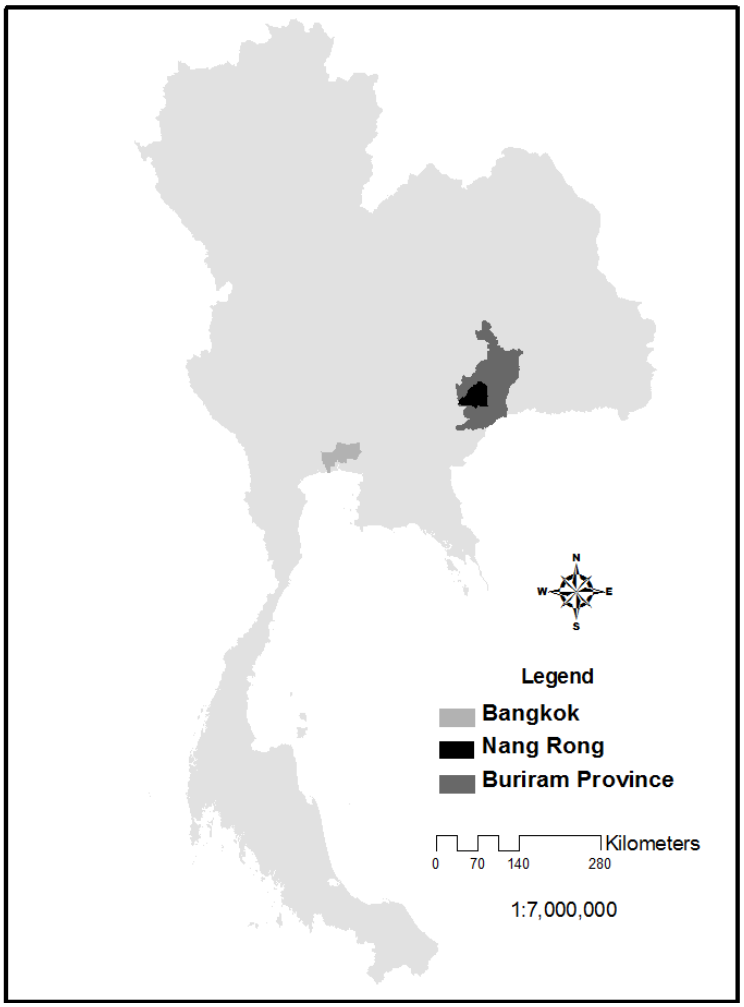

Figure 3.1 Location of Nang Rong studied area in Buriram province, Thailand

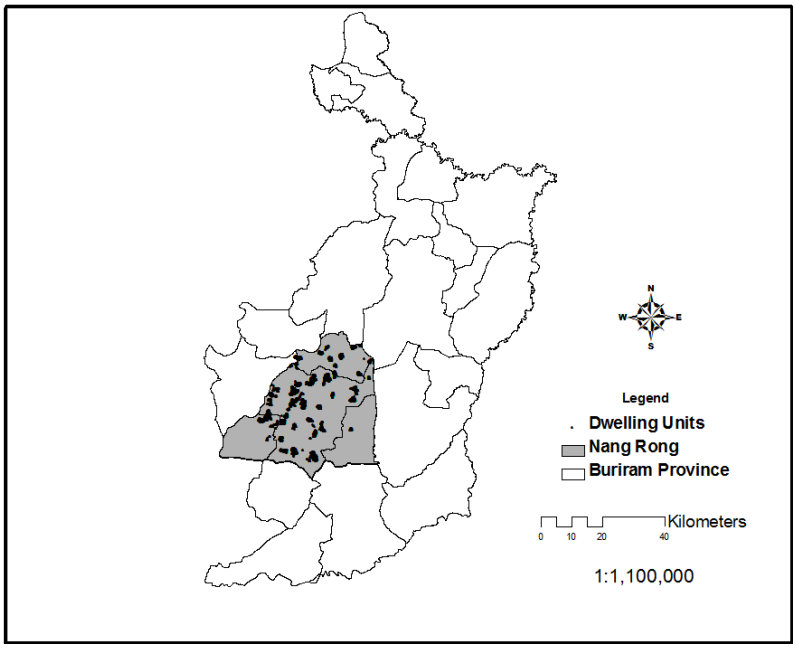

Figure 3.2 Spatial distribution of villages in Nang Rong studied area

3.2.2 Mean of Household Size

The mean of household size is the measure of every focal elder's household size divided by the number of focal elderly's household, which is equal to the number of elderly. In other words, the household size of all focal elderly will be taken into account as the unit of analysis. The mean of household size is measured by villages and time of observations: 1984, 1994, and 2000.

3.2.3 Household Composition

Household composition is described by living arrangement of the focal elderly. The unit of analysis for household composition is the elderly who became 60 years old in 2000. The number of unit of analysis is counted by the number of elderly in the household. For example, a couple elderly are living with a daughter, daughter's spouse, and a grandson. This household contains two units that characterize the same living arrangement of the household having the elderly with spouse, adult child, child-in-law and grandchild. The intergenerational living arrangement below presents the household members' position within the household by age and sex.

- The elderly alone
- The elderly with spouse
- The elderly with daughter/son
- The elderly with granddaughter/grandson

Each type of household may have other members residing with. Since this research is to study the relations between the elderly and their kin, the availability of kinship networks are focused.

3.3 Social Network Analysis: Construction and Retrieval of Kinship Network Data

Social network analysis is based on an assumption of the importance of relationships among *interacting units* and the *linkages* between units defined as relations. The relations in this study are dyads of child-parent and spouse ties in 1984, 1994, and 2000. Social network analysis by matrix operation is used to identify the

focal elderly's relationship of 4 dyads between parents and their children by gender (father-son, father-daughter, mother-son, and mother-daughter) and spouse ties. The matrix represents the relations of all residents living within the village. In addition, it also allows the researcher to identify each relation and its attributes, for examples, whether the resident is focal elderly, gender, and residential status by the year of survey.

3.3.1 Child-Parent Ties

Child-parent ties are retrieved from questions in the household survey: where is this person's father and mother? If their father and mother were found within the village, their personal identification can be identified. The matrix operation is described in details in the section 3.3.1.1 (Matrix algebra can be found in the article "Social and spatial networks: Kinship distance and dwelling unit proximity in rural Thailand (Verdery et al. 2012)"). To find all child-parent ties in and out of village, sibling data set is used and the algorithm is explained in the section 3.3.1.2.

3.3.1.1 Child-Parent Ties from Matrix Operation

The child-parent relations of all villagers are constructed in the form of matrices. The size of matrices is n by n of which n denotes the number of all respondents in a village. The value 1 in the matrix presents child-parent ties between two respondents. Matrix operation is deployed to find the presence of children and proportion of elderly and their children. In order to compare the possibility of finding support of the elderly from time to time, all people aged 60 and over at the years of survey, that is 1984, 1994, and 2000, are included.

The possibility of finding children's support of the elderly is derived by matrix computation of child-parent matrix denoted as C. C is a square matrix and its size is the number of respondents in each village (nxn). This matrix shows the presence of ties between a child to parents when value in matrix is 1 and 0 when the tie is absent. The transpose of C, C', is parent-child matrix named P. The matrix M, F, E, and R are attribute vectors to respectively indicate whether the respondents are male, female, focal elderly (defined as those over 60 years of age), and currently residing in the village at the time of observation or not. Each vector M, F, E, and R consists of a single column of n elements. Thus, the size of these vectors is

the number of respondents by 1 (nx1). The steps of matrix computation are described below.

First, the focal male elderly who are living in the village can be retrieved by using elementwise matrix multiplication, of E, M, and R. Recall that each cell in M, F, E and R are binary indicators with a value of 1 in cell i if person i is male (matrix M), female (matrix F), elderly (matrix E) and resident (matrix R), respectively. The elementwise multiplies every single element in a vector by a same position element in another same size vector. The product of elementwise multiplication among three vectors of E, M, and R is denoted EMR (nx1). Because each cell in the vectors E M and R has a value of either 0 or 1, cell i of EMR will only have a value of 1 if cell i of each of the E M and R vectors has a value of 1; that is, if the person is elderly, male and living in the village. Similar logic and notation is used in the next calculation: to retrieve males who are living in the village is by doing elementwise multiplication between M and R resulting in a vector we term MR (nx1).

We then take advantage of a mathematical trick of matrix products[2]. Third, multiplying matrix P by vector MR results in a vector where cells are the sum of the number of each parents' sons in village, PMR (nx1). Fourth, the male elderly living with son in the same village is derived by doing elementwise between EMR (nx1) and PMR (nx1). Last, the total number of elderly in the fourth step divided by the total number of male elderly is the proportion of male elderly who are currently living with their son in the same village in a particular year of survey. Repeating the same steps for male and female parents and children can derive four matrices: elderly males living with son in the same village, elderly males living with daughter in the same village, elderly females living with son in the same village, and elderly females living with daughter in the same village. The result of matrix computation each village is revealed in table A4-A6 (see in Appendix A).

3.3.1.2 Child-Parent Ties from Sibling Data

Child-parent ties retrieved from sibling data are to identify the elderly who have living children, but only living children in the village are identified their child-parent ties. Figure B1 (see in Appendix B) shows the flowchart of algorithm to find focal elderly by sibling data set through child-parent ties. Sibling

[2] See appendix for an illustration.

data were collected by sibling survey form in 2000 and can be used to identify the sibling relations back to the data collected earlier. The siblings whom can be found in household roster are not required to collect by this form.

The first step is taking sibling data from both household roster and sibling data set and then merging to the 2000 individual information. The combined identifier of household identification in 2000 (HHID00) and the 2000 personal identification (CEP00) is used to link between files. This step results individual sibling information with the Nang Rong Personal Identification (NRPID) found in 2000. Second, take the result from the first step and merge to child-parent ties by children's NRPID to get all siblings with their parents' NRPID. Third, merge the result from the second step to the 2000 individual information by parents' NRPID. The result from this step contains parents' information with their children retrieved from sibling data. Last, gender of the parents and age can identify whether they are father or mother and whether they are the elderly or not. Residential status and gender of children can identify the presence of son/daughter.

3.3.2 Spouse Ties

Spouse ties are retrieved from the question in household survey: what is the spouse's location or place of residence? The personal identification of spouse is identified if they were found in the villages.

3.3.2.1 Spouse Ties from Matrix Operation

All respondents are included into the matrix of spouse ties. The presence of spouse relationship is shown in value 1; otherwise it is shown in 0. The matrix carries both relationship of currently married and divorced. The use of spouse matrix needs to specify whether the respondents are currently married or not. Similar to child-parent ties, the proportions of spouse ties are retrieved by matrix computations. The matrix of spouse ties is denoted by S. S is a square matrix containing marital status and its size regarding the number of respondents in the village (nxn). The matrix E, M, R, and MS are attribute matrices (nx1) respectively indicates whether the respondents are the focal elderly, male, residing in the villages, and currently married by the year of survey.

The matrix computation is described by steps. First, the matrix S is multiplied by the product of elementwise of M, R, and MS. This gives the result of all respondents who are currently married to males, not necessary to be the focal elderly, and residing in the villages SMRMS (nx1). Second, multiplying matrix S by the product of elementwise of M, R, E and MS gives the result of all respondents who are currently married to elderly males and residing in the villages SMREMS (nx1). Third, to identify only focal elderly females who are currently married and residing in the villages is the product of elementwise between E, F, R, and MS denoted EFRMS (nx1). Last, the product of elementwise between EFREMS and SMREMS gives the focal elderly females currently residing in the villages and married to focal elderly males who are currently residing in the same village. However, the focal elderly may be married to the respondents who are younger than 60. The product of elementwise between EFRMS and SMRMS gives the focal elderly females currently residing in the villages and married to males who are currently residing in the same village. The same procedure with opposite sex is repeated to retrieve the focal elderly males currently residing in the villages and married to females who are currently residing in the same village.

The child-parent ties and spouse ties are used to identify whether the elderly have son, daughter, and spouse in the village or not. The total counts of presence ties will be measured as the proportion of kin available to help the elderly.

3.4 Spatial Analysis: Geographic Indicators

Spatial analysis used in this study takes the advantage of remote sensing technology. All dwelling units recorded by the GPS tool in Nang Rong are geographic location. Household's attributes attached to the geographic location can illustrate demographic and social characteristics spatially. These integrated information would help to better understand about geographic impacts on demographic indicators.

The area of this study remains the boundary of Nang Rong district originally studied in 1984. The original Nang Rong district has since split into four administrative districts: Nang Rong, Non Suwan, Chamni, and Chalermprakiet

districts. The Royal Thai Survey Department (RTSD) provides the most recent boundaries and spatial information including transportation routes and important places' coordinators. All maps of RTSD and original Nang Rong boundary are transformed to the same coordinator system, WGS_1984_UTM_Zone_48N, to find whether the data from two different sources can be reconciled. All dwelling units are within the RTSD Nang Rong boundary; however, the original boundary is little shifted out of the RTSD map. Since all Nang Rong data will be analyzed, the slightly shifting off is not seriously harmful to the original dwelling units' information. Thus, the RTSD map can be used in the study.

Spatial distribution of dwelling units is measured as a distance band from neighbor count by village. The tool in ArcGIS takes all dwelling units in a village and examines distance between or among a specified number of neighbors and then returns three values at the village level: minimum, average, and maximum distance[3]. For examples, if neighbor count equals to 1, it examines the distance between a dwelling unit and the nearest neighbor. If neighbor count equals to 2, it examines the distance among a dwelling unit and the other two nearest neighbors. In addition, the distance between the dwelling unit of the elderly and their nearest child will be examined as individual level. Both average distance from neighbor count and distance to the nearest child will be used as geographical independent variables in logistic regression models.

3.5 Statistic Analysis: Logistic Regression Models

Statistic analysis should help to predict the relation of factors to the availability of preferred kin. The logistic regression models are used to determine independent variables as predictors of having the first choice of preferred kin among the focal elderly. They are developed with the respect to the hypothetical orders of

[3] The maximum distance will be the distance between a feature and its nth neighbor for that feature which is furthest from its nth neighbor.
The minimum distance will be the distance between a feature and its nth neighbor for that feature which is closest to its nth neighbor.
The average distance is the average of the distances between all the features and their nth neighbor

preferred kin whom the elderly may ask for help as their first choice of support. Since the hypothetical orders are classified into five types of support and gender of receiver, there are ten different models. Male and female elderly may prefer similar or different kin by supports that are for meal preparation, personal care, transportation, financial support, and mental support. The hypothetical orders of kin preference are developed for the preliminary test; however, these hypothetical orders will be verified by qualitative study. Table 3.1 shows the hypothetical order of Thai elderly's kin preference by types of support and gender of the elderly.

The objective of developing the hypothetical ranking orders of kin preference is to rank the persons whom the elderly may ask for support in an order. The orders are presented by gender of elderly and kin by type of supports. The geographic distance is omitted at this point so that we can see how gender plays role on providing support and how the elderly prioritize their kin for each support. The geographic distance will be taken into account in the logistic regression analysis. The idea of three dimensions in figure 2.4 factors influencing support preferences of Thai elderly is transformed to the ranking orders of kin whom the elderly may ask for supports as shown in table 3.1. This transformation is based on the perspective of kinship networks and assistance within the Thai rural context. However, these ranking orders will be studied by the qualitative approach, which will be conducted in spring 2012.

The ranking orders are developed as the basis of examining the availability of kin from whom the elderly prefer ask for and receive support. In table 3.1, the rows show the relationship of kin towards the elderly and the columns show five different types of support for elderly men and women. Even though many kin relations are shown in the table, only four highest ranks are prioritized. The higher ranks (the preferences) are more precise than the lower because the lower ranks may be arbitrarily close. Thus I attempt to study the culturally most predictable orders.

Table 3.1 Hypothetical orders of preferred kin whom the elderly may ask for supports

Relationship	Meal Preparation		Personal Care		Transportation		Financial Support		Mental Support	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Spouse	1		1	3		1	1	1	2	1
Daughter	2	1	2	1	1	2	2	2	4	2
Son					1	2	2	2		3
Grand Son					2	3				
Grand Daughter	3	2	3	2	2	3				
Male Siblings							4	3	1	
Female Siblings		3	4	4			4	3		4
Male siblings in laws										
Female siblings in laws										
Father							3	4		
Mother							3	4	3	
Father in law										
Mother in law										
Nephew					3	4				
Niece	4	4			4	4				

Meal preparation, for example, can be interpreted that, male elderly are more likely to ask their spouse, daughter, granddaughter, and niece respectively, whereas female elderly are more likely to ask their daughter, granddaughter, female siblings, and niece respectively. The orders indicate that meal preparation is considered as a female task and male elderly tend to ask the younger rather than kin who is about the same age such as female siblings.

The elderly prefer their female kin for personal care because they are gentle and sympathetic. Male elderly may ask their spouse, daughter, granddaughter, and female siblings, while female elderly may ask daughter, granddaughter, spouse, and female siblings respectively. Male elderly have spouse as the closest female kin, but female elderly do not have. Thus they consider their daughter as their first female preference. Like the meal preparation, personal care is viewed as female task, but this support requires kin to come over at home. Both male and female elderly put female

siblings at the same pace because they may consider their female siblings as further kin who are more responsive to their own households.

Compared to meal preparation and personal care, transportation support is relatively less gender preferred. An issue needed to bear in mind is that the ability of driving is not common among female older persons. The male and female elderly may prefer the closer kin and the younger kin tend to be able to drive or ride. Male elderly may ask their son/daughter, grandson/granddaughter, nephew, and niece respectively. Gender becomes a condition of choosing further kin among the elderly males. Female elderly may ask their spouse first if their spouse are able to ride and then their son/daughter, grandson/granddaughter, and nephew/niece.

For financial support, gender becomes less important. Both male and female elderly may ask their spouse, son/daughter, grandson/granddaughter respectively. Once the other option becomes out of the immediate family, female elderly may ask their siblings first, but the male elderly may ask their parents instead. The reason behind this is that female elderly feel closer to their siblings than the male elderly feel to their siblings. Male elderly ask their parents and their parents may ask their children, who are the male elderly's sibling, to help instead. Financial support is not limited by geographic distance because of banking services and postal facilities which allow kin to transfer money with acceptable fee.

Mental support is more gender preference among male elderly than among female elderly. Due to their masculine responsibilities, male elderly tend to talk to their siblings first and then spouse, daughter, and mother respectively, where as female elderly tend to talk to their spouse, daughter, son, and female siblings. Although choosing kin preference is subjective and can be changed individually, the ranking orders of possibility of finding supports are complied with the Thai context in general.

The presence of ties (the elderly's preferred kin) in 2000 is considered as a dependent variable. The value 1 refers that the preferred kin is available by the definition of boundary; otherwise, the value is 0. Meal preparation, personal care, and transportation require kin within the village, considered as a geographic distance. Financial and mental support may not be restricted by geographical distance due to the advanced communication technology. It allows distant people to transfer money and

communicate by telephones. Thus the presence of ties (preferred kin) for these two latter supports is referred to living preferred kin regardless of geographic distance.

Independent variables are considered as time-lag factors, to the extent that the factors occurred in previous time cause the latter outcome. In this study, the 1984 and 1994 factors are taken into account of causal factors that are elderly's demographic factors (age, marital status, household size, different household size between years), socioeconomic factors (education, non-agricultural occupation, land ownership, car and motorcycle ownership), geographic factors (average distance band from neighbor count, distance between dwelling units of the elderly and their kin), household factors (improvement need of earning for living and building/improve house), and community factors (whether have irrigation and bus system). The conceptual framework of the availability of preferred kin is in figure 3.3. The logistic model is shown in the equation (1) below.

$$\text{The presence of first choice of support}_{t1} = \alpha + \beta_1 \text{ Demographic} + \beta_2 \text{ Socioeconomic}_{t0} + \text{Geographic}_{t0} + \beta_3 \text{ Household}_{t0} + \beta_4 \text{Community}_{t0} \quad (1)$$

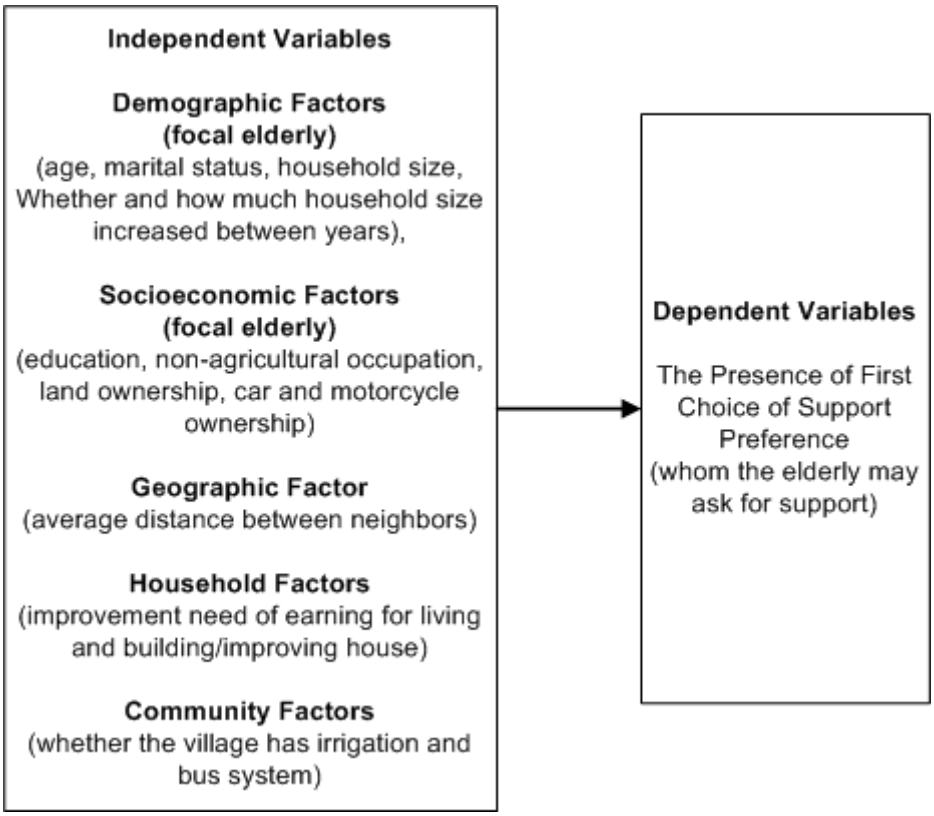

Figure 3.3 Conceptual framework of the availability of preferred kin

3.6 Qualitative Approach

The qualitative approach is operationalized after the quantitative part finished in order to find an evidence to support the quantitative findings. Even though this study focuses on the focal elderly (people who were found in 1984 at age 44 and over and became 60 years old in 2000), the youngest among the focal elderly becomes 72 years old by the time of this study (2012). They may not be able to answer questions clearly. Therefore, any elderly aged 60 and over by 2012 will be interviewed in a focus group instead. Seven male and seven female focus groups are proposed to interview.

3.6.1 Questions and Its Objective

Questions tended to be asked and its objectives are described below. The details of questions are in the appendix.

3.6.1.1 Who would be the elderly's preference for these supports including meal preparation, personal care, transportation, financial support, emotional support? Please rank the first four orders. The objective is to find if the hypothetical ranking orders correspond to the elderly's response.

3.6.1.2 Do the elderly have the first choice of preference available? Are the elderly satisfied by having the latter choice if the first choice is not available? The objective is to see if the elderly have the first choice of support preference. If they do not have their first choice, are they satisfied with the second choice.

3.6.1.3 Which support do the elderly find difficulty to receive? Why? The difficulty might be, first, the elderly's uncomfortable feelings to receive support, second, the distance/travelling, and third financial reasons. The objective is to find reasons that may be related to providing support by children and/or spouse.

3.6.1.4 Do the elderly receive any support from their neighbors excluding spouse, children, siblings, closed relatives, and non-relative neighbors? Please describe, first, What are supports the elderly mention?, second, How far is your neighbor giving the supports? (distance), third, How long do their neighbors travel to meet at the elderly's place or how long do the elderly travel to meet their neighbors?

(time) The objective is to see if the elderly receive any support from other and how far/how long the neighbor can generally provide helps

3.6.1.5 Do children tend to move back when their parents are older? For what reasons: first, to take care of their parents, second, to do farming because their parents can no longer farm. Another reason is to identify whether older parents have more children due to less modern method of contraception. The objective is to explain the result from logistic regression model that age is positively significant for the presence of the first choice by having son and/or daughter as the elderly's preference.

3.6.1.6 Do the elderly help their children and grandchildren such as household chore or taking care of their children? The objective is to study the flow of help in both directions and the roles of elderly as the givers.

CHAPTER IV
RESULTS

The results of this study can be classified into four main sections: first, information about focal elderly and some demographic background, second kinship network, third availability of kin and kin preference, and fourth factors affecting the availability of kin among the elderly by types of support.

4.1 Focal Elderly and Demographic Background

Demographic background is shown in the attrition of focal elderly found in Nang Rong district in 1984, 1994, and 2000, fertility among focal elderly in 1994, and their household size as a demographic indicator.

4.1.1 Attrition of Focal Elderly in Nang Rong Data

I examine the attrition of focal elderly in the longitudinal data set to understand its representativeness in the later years of the panel study. Some of the elderly may be lost to follow-up or deceased at some point of time. Table 4.1 summarizes the number and percentage of people aged 44 and over in 1984 who became aged 60 and over in 2000 by their interview status in 1994 and 2000. There were 5,511 persons aged 44+, including 2,569 males and 2,942 females, in Nang Rong district in 1984. Among them, 4,159 were found in 1994, which is 75 percent. This amount contains 1,852 males and 2,307 females. In 2000, 3,356 persons, 61 percent of persons aged 44 in 1984, were found. Approximately, twenty eight percent died during 1984-2000. There were only 2.5 percent of focal elderly whose households were found and reported the elderly moved from the village. Nine percent of focal elderly could not be found because all members of household died or moved away or some members died and other moved away as a result of households disappeared. There is no evidence of refusal to be interviewed.

In brief, the evidence in table 4.1 shows that about 40 percent of focal elderly were not found in 2000, and most of this is the result of mortality. A few percent moved out of their household in the village. Only about nine percent lost to follow-up, which is a relatively small proportion. Hence, the data set is encouraging for the purpose of this study.

Table 4.1 Attrition of focal elderly in 1984, 1994 and 2000

Residential Status	1984 (age 44+)	1994 (age54+)		2000 (age 60+)	
	Number	Number	Percentage	Number	Percentage
Alive and still live in the households or 2 or more months within the villages	5,511	4,159	75.5	3,356	60.9
Deceased		944	17.1	1,528	27.7
Moved out of this village 2 or more months ago		0	0.0	137	2.5
Household lost to follow-up		408	7.4	488	8.9
Missing/Don't know/Don't know the person		0	0.0	2	0.0
Total	5,511	5,511	100.0	5,511	100.0

Table 4.2 summarizes the focal elderly lost to the follow-up in 1994 and 2000. There were 408 focal elderly whose households lost to the follow-up in 1994. Among this number, 22.5 percent (92 elderly) returned to the village in 2000. Table 4.3 shows characteristics of focal elderly by residential status compared to people who resided in 2000. This table is derived from the multinomial logistic regression. The model determines factors affecting the residential statuses of respondents in 2000 including dead, move out of the village for 2 or more months, and lost to the follow-up compared to the status of living in the village in 2000. Independent variables are age in 1984, male, married in 1984, education level compared to no education, and non-agricultural occupation. Older males and lower education level are more likely to be dead that is consistent with typical mortality patterns. Males and not married in 1984 people more likely to have moved out of the village by 2000. Focal elderly who were lost to follow-up in 2000 are more likely to be older males, unmarried in 1984, have lower or higher education level of Prathom 4, and work as non-agricultural occupation in 1984. Almost of focal elderly had primary education and agricultural occupation, so

the selection bias does not occur for this study. The descriptive characteristics of focal elderly are shown in table 4.4.

Table 4.2 Summary of focal elderly lost to the follow-up in 1994 and 2000

Reason	Number	Percentage
Focal elderly whose households lost to the follow-up since 1994	316	77.5
Focal elderly whose households lost to the follow-up in 1994 and returned in 2000	92	22.5
Total	408	100.0

Table 4.3 Characteristics of focal elderly by residential status compared to people who resided in 2000 (N=5,450)

Attributes	Dead			Move out of village 2 or more months			Lost the follow-up		
	Coef.	P>z	Std. Err.	Coef.	P>z	Std. Err.	Coef.	P>z	Std. Err.
Age in 1984	0.11	0.00	0.00	-0.02	0.11	0.01	0.04	0.00	0.01
Male	0.86	0.00	0.08	0.68	0.00	0.19	0.35	0.00	0.11
Married in 1984	-0.16	0.09	0.09	-0.79	0.00	0.22	-0.34	0.01	0.13
Prathom1-3 vs No Education	-0.04	0.76	0.14	0.00	1.00	0.42	-0.27	0.19	0.21
Prathom 4 vs No Education	-0.15	0.12	0.10	0.06	0.84	0.29	-0.44	0.00	0.14
Higher Education vs No Education	-0.43	0.04	0.21	-0.08	0.89	0.55	-0.53	0.08	0.30
Non-agricultural Occupation in 1984	-0.05	0.79	0.19	0.36	0.38	0.42	0.59	0.01	0.22
Constant	-7.27	0.00	0.33	-1.85	0.04	0.88	-3.98	0.00	0.45

Table 4.4 Descriptive statistics of focal elderly

Variables	Male (N=1,435)	Female (N=1,921)
Married 1994	88.3	59.7
Age in 1984		
44-49	41.4	37.4
50-59	43.0	41.6
60-69	13.8	16.1
70-79	1.6	4.3
80+	0.2	0.6
Education in 1984		
None	10.1	24.0
Primary school 1-3	5.9	8.8
Primary school 4	78.0	66.3
Higher than primary school	5.9	1.0
Non-agricultural occupation	4.8	2.7
Household size 1984 (range 1-18)		
0-4	13.4	20.5
5-9	72.3	67.9
10+	14.4	11.7
Whether and how much household size increased between 1984 and 1994		
0	13.2	12.1
1-4	59.7	60.3
5-9	26.3	26.7
10+	0.8	0.9
Land ownership (rai) in 1984		
0	2.04	2.26
1-19	48.94	48.08
20-39	28.51	29.17
40-59	9.73	8.99
60-79	4.97	4.47
80-99	3.32	4.28
100+	2.49	2.75
Car owned in 1994	7.1	5.6
Motorcycle owned in 1984	8.8	8.6
Motorcycle owned in 1994	34.6	28.3
Whether a household needs to improve earning in 1984	27.6	81.6
Whether a household needs to improve their house in 1984	17.7	18.5
Water irrigation in village in 1984	63.8	64.9
Bus system in village in 1994	90.8	91.6
Average distance between 2 neighbors (in meters) in 2000	41.6	41.6

Note: Missing value can be found in some variables of respondents

4.1.2 Fertility among Focal Female Elderly

Fertility among women who became the elderly determines the maximum number of children who could provide support to their elderly parents. Table 4.5 summarizes the background of fertility of women living in the Nang Rong studied area. Among 2,160 focal elderly women in 1994, only 40 women were childless and mean of children per a woman is 6.5 children. And 45 women have no living children. On the average, about one child died prior to the survey year 1994, which results mean of living children 5.6 persons per a woman in the same year. Among remaining focal elderly women, living children in 1994 and 2000 remained 3.0 and 3.3 persons per a woman respectively. Some focal elderly lost to the follow-up survey, 1,910 focal elderly women remained in 2000.

Table 4.5 Fertility among women in Nang Rong

Number of focal female elderly and children	Number of focal female without children	Number of children	Mean of children
Children ever born 1994 (Number of focal female elderly: 2,160)	40	13,856	6.5
Living children 1994	45	11,955	5.6
Children in the village in 1994	337	6,416	3.0
Children in the village in 2000 (Number of focal female elderly: 1,910)	230	6,153	3.3

According to the results in table 4.5, there was approximately one child per a woman on average who had died before 1994. Only about half of the living children lived in the same villages as the focal female elderly. In the other words, these focal female elderly had geographically dispersed children. Geographical distance may diversify resources and support delivered by children.

The average elderly woman had three children in her village in 1994. These elderly women are able to access their children within a short distance. Additionally, the elderly might receive some resources from their migrant children. The number of children living in the village slightly increased from 3.0 in 1994 to 3.3 in 2000. Some children returned to the villages when their parents became older.

Less than two percent of focal women in 1994 had no children ever born. The mean number of children ever born is 6.5 and the number of children ever born ranged across villages about 4 to 9 children. The mean of living children in 1994 is 5.6. Only one child per a woman died in a village prior to 1994. It can be concluded that a few childless women and mortality do not significantly affect the number of child-parent ties which will be discussed later in this chapter. Additionally, the mean number of living children within the village in 2000 (3.3 persons) is slightly higher than the mean number in 1994 (3 persons). The mean number living children retained about the same pace and the number of children living in the village increased in most of villages. Hence, the focal female elderly tend to have children in the village.

More details of fertility among women who are focal elderly females is revealed in table A1 and A2 (see in the Appendix A) by showing the number of children ever born in 1994 and the number of living children in 1994. In addition to fertility, this table contains the number of children living in the same village of these focal elderly in 1994 and 2000. Because this study focuses on the elderly turning 60 and over in 2000, women aged less than 54 years old in 1994 are excluded.

The number of children ever born and living children are retrieved from the question asked only of women who have ever been married in 1994 without an age restriction. There were no similar questions in 1984. The same questions were asked in 2000, but they were asked only of women who have ever been married and who are 50 or less than 50 years old. This age range does not cover age of focal elderly, 60 years and over, in 2000.

In table A1 and A2 (see in the Appendix A), the column next to village number shows the number of focal female elderly and the remaining columns can be classified into four sets of information: children ever born 1994, living children 1994, children in the village in 1994, and children in the village in 2000. Each set of information contains the number of focal female elderly without the children, number of children, and mean of the number of children. The type of children each model is specified regarding the four sets of information.

Total number of focal female elderly reporting about children ever born is 2,160, which is less than the number presented in the previous section on attrition (2,307 focal females) for a number of reasons. Among these 2,160 women, there were

40 people (1.9 percent) who had no children ever born, 45 people (2.1 percent) had no living children, 337 people (16 percent) had no children living in the same village in 1994, and 230 people (12 percent) had no children living in the village in 2000. The denominator is the number of focal female women in the same year of survey data. There were 13,856 children ever born to these focal female elderly and 1,901 children died as the result of 11,955 children left in 1994. There were 6,416 children of which this number is about half, 46 percent, of living children lived in the same village with focal female elderly in 1994. The mean number of children ever born in 1994, living children in 1994, children living in the villages in 1994 and 2000 are 6.5, 5.6, 3.0, and 3.3 respectively (see the detail in table A1, A2).

4.1.3 Demographic Indicators

Household size is the number of members living in a household. The household size of the elderly reveals the number of people with whom the elderly live. These household members might be potentially helpful by giving assistance to the elderly. The means of household size of the focal residents are shown in table A3 (see in the Appendix A) by village. With the respect to the definition described in the section of demographic indicators, every focal elderly's household size is included in the numerator. The denominator of household size is the number of focal elderly. In other words, the unit of analysis is the individual focal elderly. In the case where there are two elderly people living in the same household, that household is represented twice in table A3.

The average of mean household size for all villages is 6.6, 3.9, and 4.0 in 1984, 1994, and 2000 respectively. The mean decreased from 1984 to 2000 in all villages. The table reveals that, among the households of people aged 44 and over found in 1984 and became the elderly aged 60 and over in 2000, the household size decreased 2.7, approximately 3 persons, from 1984 to 1994 and remained about the same level from 1994 to 2000.

Table A6 (see in the Appendix A) shows that the average proportion of focal elderly living in the same village with a son or daughter in 2000 ranged between 0.59 and 0.79. Despite the smaller household size (6.6 in 1984 and 4.0 in 2000), there is a substantial proportion of the elderly, at least about 60 percent shown in table A6,

living in the same village as their children in 2000. This means that out-migration affects household size but that the splitting of larger households into two or more households was also a major cause for the decline in household size. Moreover, in table A2 (see in the Appendix A), the mean of children living in the village in 2000 is 3.3 which is slightly higher than that observed in 1994, 3.0. It is possible that migrant children returned to the village for some reasons when their parents became older.

4.2 Kinship Network

This section presents the availability of kin investigated through kinship network. Due to the available network data set, child-parent and spouse ties are focused. In order to better understand who the elderly prefer to ask for assistance and support, a qualitative study is used to find their kin preferences. Regarding the kin preferences, the availability of kin preferences is determined.

4.2.1 Availability of Kin through Kinship Network

Kinship networks are studied to identify whether those people the elderly prefer to receive care when needed are available by type of kin relation. The relationship among relatives including relatives by marriage, are examined here. Siblings might play roles for some types of support. However, the elderly's sibling data set is not complete. The sibling data were collected in 2000 by asking household members aged 18-41. These people and most of their siblings were not elderly yet by year 2000. There is a question asked where a household member’s mother is, the answer is the location of mother. If mother is not dead, the location is coded by either CEP00 (individual identifier in household roster) or village number or district number or province number or country number. For the best case, the individual identifier is provided and siblings can be identified. This requires several data manipulation steps. If individuals have the same mother’s identification, they are siblings. If mother lived out of the study area, it is not possible to find mother’s identification. Thus, this study focuses primarily on the dyads between child-parent and spouse.

4.2.1.1 Child-Parent Ties

This study aims to investigate the options the elderly have for possibly finding support through their kinship network. Taking care of older parents by children is considered as an obligation (Chamratrithirong et. al, 1988). Because parents sacrifice their lives to nurture and educate their children, the children should pay back in return by taking care of their parents in later life when they are old. Child-parent ties, along with spousal ties, are the primary relation of kinship networks, so the presence of children in the villages is used to indicate whether the elderly can find their preference for a particular support or not. Due to the gender roles explained in the previous section, the preference is specified by gender of both elderly parents and children. In addition, the proportions of children are measured by the total number of focal elderly as the denominator to find possibilities of access to children.

Table A4-A6 (see in the Appendix A) show the proportion of elderly who had at least one son or one daughter living in the same village in 1984, 1994, and 2000. In order to compare the proportion among these three years, the elderly aged 60 and over in 1984 and 1994 are included. These tables contain 1984, 1994, and 2000 number and proportion of elderly with children in the village. Each table contains village number, the number of elderly by gender, the number of male and female elderly living with son and daughter, and the proportion of male and female elderly living with son and daughter by which the denominator is the number of elderly classified by gender. The number and proportion are shown by village and the average proportion of 51 villages is shown at the bottom of table.

There were 736 elderly males and 945 elderly females in 1984, 1,131 elderly males and 1,542 elderly females in 1994 and 1,420 elderly males and 1,910 elderly females in 2000[1]. The different number is the result of matrix computation by having unidentified gender of either elderly or children.

On the average, the proportion of elderly males who had at least a son living in the same village is .63 in 1984, .60 in 1994 and .61 in 2000. The proportion of elderly males who had at least a daughter living in the same village is .75 in 1984, .78 in 1994 and .79 in 2000. The proportion of elderly females who had at least a son living in the same village is .49 in 1984, .55 in 1994 and .59 in 2000. Last, the

[1] 26 fewer people than table 4.1 because of missing data in the component of child-parent ties

proportion of elderly females who had at least a daughter living in the same village is .66 in 1984, .74 in 1994, and .78 in 2000. Both male and female elderly have larger proportion of daughter living in the same village than that of son; this is as would be expected from Thailand's general tendency for uxorilocal residence patterns (Foster 1975).

Table A4-A6 (see in the Appendix A) compare the proportion of elderly having at least one son and one daughter living in the same village. The proportions did not shrink as one would expect by decreasing household size. On the contrary, the proportions are more likely to increase except the proportion of son for elderly males. However, the proportion of son for elderly males did not reduce in a large number. This phenomenon shows that even though children moved out of household, some of them considered living nearby. Specifically, at least one son and/or daughter tend to live within a distance of village boundary.

The proportions of the elderly living with at least one son and/or daughter in table A4-A6 are spatially presented by village. Figures 4.1 and 4.2 show spatial distribution of proportion of male and female elderly respectively with son and daughter residing in the same village 1984, 1994, and 2000. Larger figures are in Appendix B. A spot represents the proportion of a village in Nang Rong district. The size of spots is classified by quartiles (4 categories). Therefore, the maps show relative difference which can be compared within the set of proportions such as the set of proportions among male elderly with son, but they cannot be compared between others. In figure 4.1 shows that both proportions of the elderly males residing with son and daughter are relatively larger in central Nang Rong in 2000. In figure 4.2, the proportion of the elderly females with daughter in some villages in the north of Nang Rong became smaller. The change among elderly females with son cannot be seen. There were some spatial distribution changed during 1984 and 2000; however, any spatial patterns are difficult to capture by eyes. Advanced spatial tool might be used for further analysis.

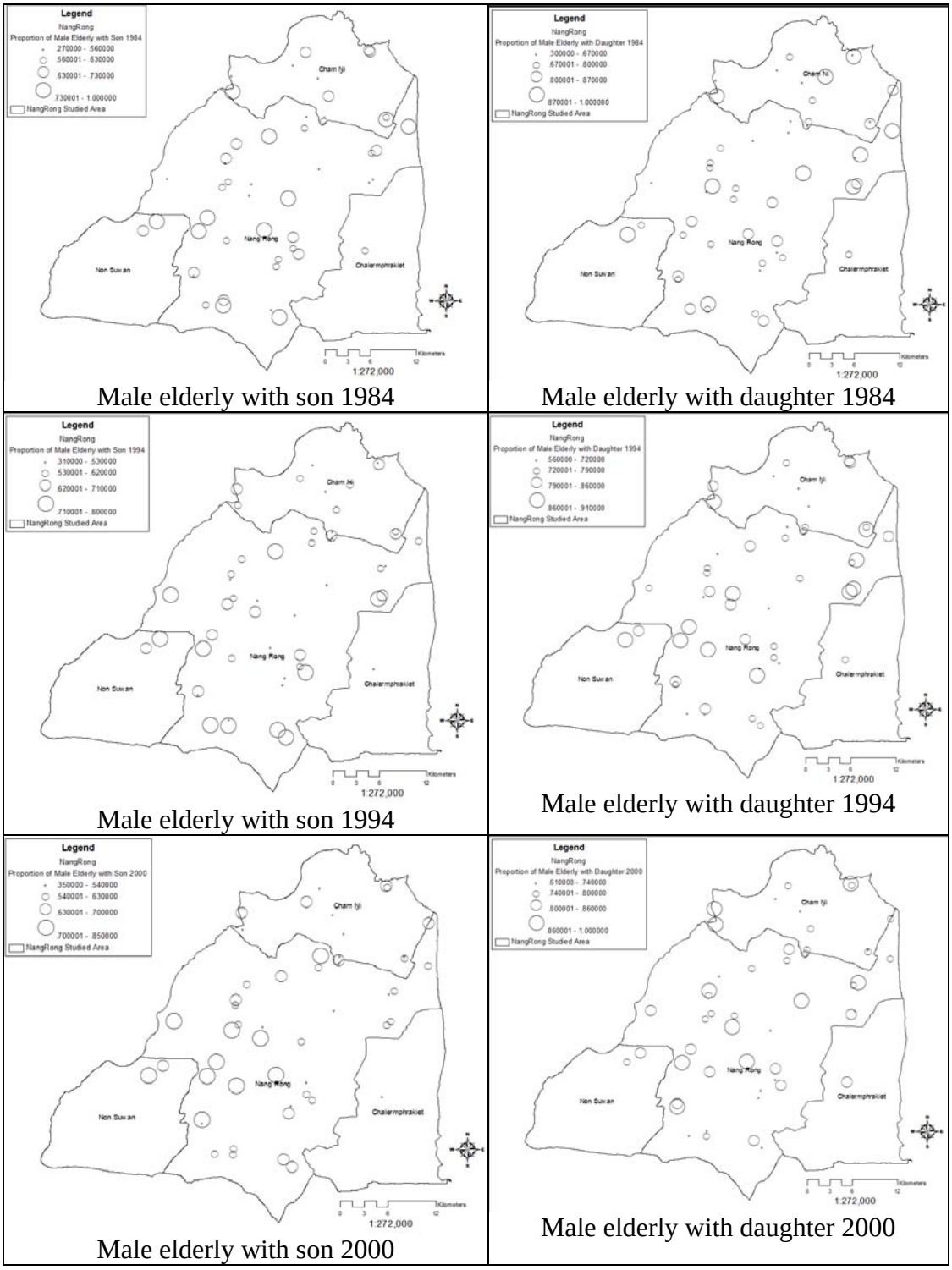

Figure 4.1 Map of proportion among male elderly with son and daughter residing in the same village 1984, 1994, and 2000

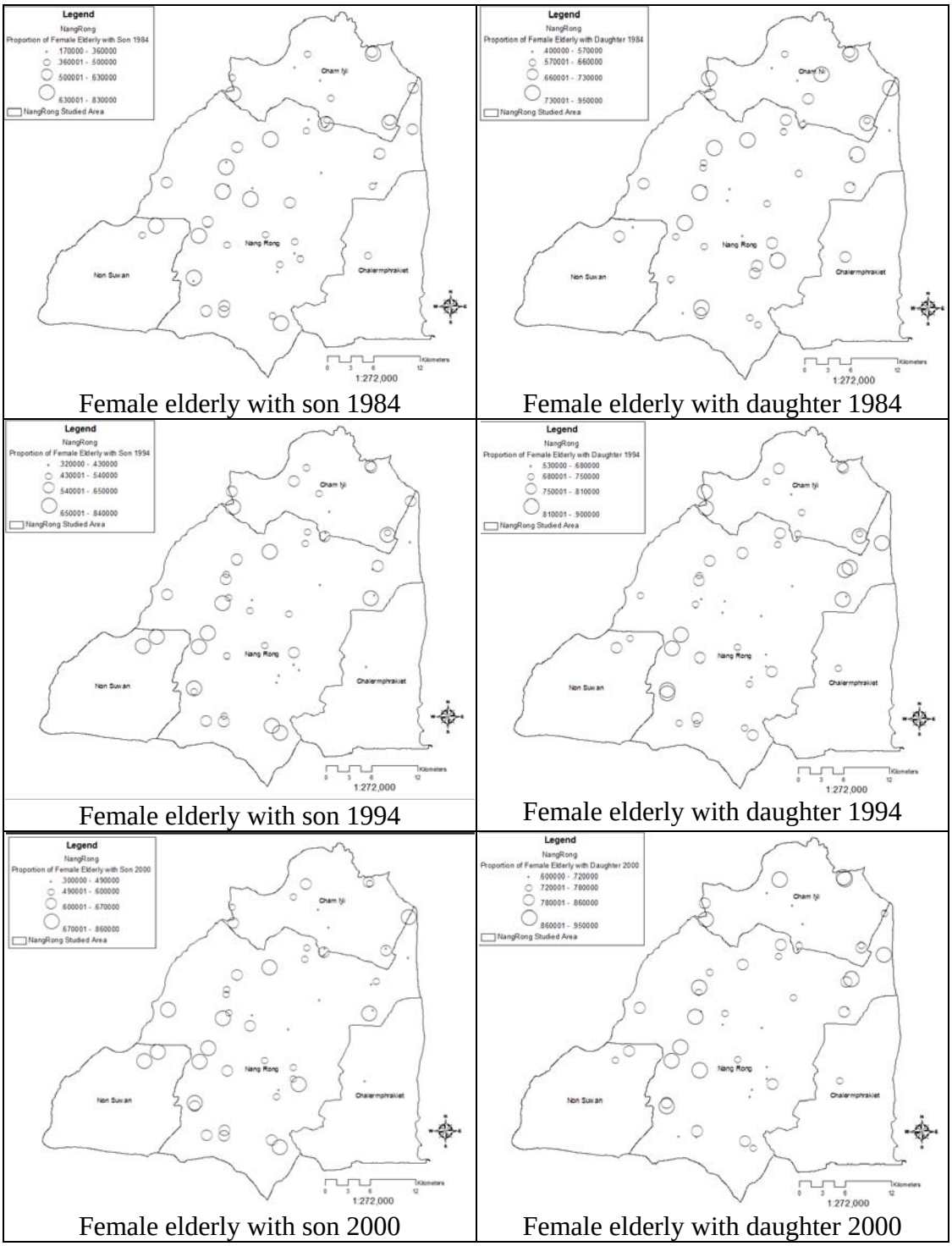

Figure 4.2 Map of proportion among female elderly with son and daughter residing in the same village 1984, 1994, and 2000

4.2.1.2 Spouse Ties

Spouse is taken into account of elderly's support preference. Usually, male elderly are more likely to be older than their female spouse. Thus both older male and female elderly may have more difficulties to either give support to their spouse or receive support from their spouse due to their health conditions in the older age. According to life expectancy and age specific death rate in Thailand, life expectancy of males (67.9 years old in 2003) is less than females (74.9 years old in 2003) (Institute for Population and Social Research, 2005) and death rate is higher in the older age. Thus the older female elderly are more likely to lose their male spouse than the reverse.

Table A7-A9 (see in the Appendix A) show the total number of male and female elderly and the proportion of elderly resided with spouse in the same villages in 1984, 1994, and 2000. In order to compare the proportion of elderly between years, all elderly aged 60 and over by 1984 and 1994 are included. In the tables, each year of survey contain village number, the number and proportion of elderly married to the elderly spouse, and the number and proportion of elderly with spouse at any ages. All columns are classified by gender.

On the average, the proportions of male and female elderly residing with elderly spouse within the same village are .38 and .31 in 1984, .56 and .42 in 1994 and .56 and .42 in 2000 respectively. The proportions of male and female elderly residing with spouse at any ages are .66 and .33 in 1984, .82 and .46 in 1994 and .80 and .45 in 2000 respectively. The proportions of elderly males with spouse at any ages are about twice as large as their female counterparts. Approximately, in 2000, 80 percent of male elderly and 45 percent of female elderly resided in the same village with their spouse. Elderly females are less likely than their male counterparts to have spouse as their care givers. On the other hand, almost all elderly males were more able to find their spouse for support. The smaller proportion of female elderly with their spouse suggests that they may need to find support from other sources such as their children.

4.3 Kin Preference

To explore the kin preference, the qualitative approach of focus group discussion was conducted in Nang Rong studied area during April 2012.

4.3.1 Elderly Participants

Male and female elderly aged 60 and over took part in separate focus group discussions. As part of the discussion, the elderly were asked to rank their first four kin preferences by type of support and their feelings toward those care givers.

Determining kin preference is subjective to respondents' condition and experience. However, the focus group discussion of male and female elderly in seven villages out of 51 villages was geographically random. Totally, there were 50 elderly males and 52 elderly females took part of the discussion. They are homogeneous by age ranged 60-84 and 60-85 years old for male and female respectively. Their education is primary school level and their occupation is in agricultural sector. The results of qualitative study are reliable based on the time of study under the matrilocal norm in Thai context.

Nang Rong was split into four districts, including Nang Rong, Chamni, Nonsuwan, and Chalermprakiet, for administrative purposes. Totally, there were 51 villages in the longitudinal data set used in other chapters in this dissertation. The focus group data collection was conducted in seven villages geographically dispersed across the four split districts. For each village, male and female elderly aged 60 and over took part in separate focus group discussions. As part of the discussion, the elderly were asked to rank their first four kin preferences by type of support and express feeling toward mentioned persons.

The recruitment of elderly was assisted by public health officers in the district and village health volunteers in the villages. The elderly were asked to gather at the public place within the villages such as a community pavilion and local healthcare center. It was difficult to manage with villagers who want to observe the discussion. This condition allowed village health volunteers and other elderly observing the discussion. However, those waiting elderly were asked to sit further apart and not allowed to join the conversation. Since they enjoyed talking amongst themselves, they did not pay attention to the discussion. Thus the first conversation did

not influence the latter group's discussion. I led a group discussion, which last about 60-90 minutes. Central Thai language was spoken during the discussion. The elderly spoke central Thai with some dialect words which were translated into central Thai immediately by village health volunteers.

Table 4.6 summarizes the characteristic of focus group participants in seven villages. The village name and location are not disclosed, so the meaningless village number is used to refer to the characteristics of village for this chapter. Each focus group recruited 6-9 participants. Age range of male and female participants is 60-84 and 60-85 years old, respectively. Only one elderly male were never been married, but others have ever been married. Mostly, male participants were married and lived with their spouse by the time of qualitative data collection. The proportion of married female participants with their spouse was relatively lower than their male counterparts, but the proportion of widowers was relatively higher. Most of participants worked or have been working in the agricultural sector of rice cultivation, even though some villages has become more urban recently. Among these seven villages, five villages spoke Thai Korat, one village spoke Khmer, and the other one spoke both Thai Korat and Khmer most often. According to the community data collected in 2000, three villages are older than one hundred years. The details of villages are shown in table 4.7. Although there are various factors such as number of living children and sex composition that may affect the elderly's kin preferences, the elderly were asked regardless of those factors.

Table 4.6 Characteristics of 14 focus group participants

Village No.	Number of Participants		Min Age		Max Age		Marital Status	
	Male	Female	Male	Female	Male	Female	Male	Female
1	8	8	60	61	78	72	1 single, 6 married, 1 windowed	5 married, 3 widowed
2	6	7	64	60	73	70	5 married, 1 widowed	3 married, 4 widowed
3	9	8	61	63	79	78	9 married	4 married, 4 widowed
4	7	8	64	60	83	85	6 married, 1 widowed	1 single, 2 married, 2 separated, 1 divorced, 2 widowed
5	6	6	60	62	80	71	1 single, 4 married, 1 widowed	4 married, 2 widowed
6	7	8	64	62	84	82	5 married, 2 divorced	6 married, 2 widowed
7	7	7	63	63	77	70	7 married	4 married, 3 widowed

Table 4.7 Characteristics of villages studied by focus group discussion

Village No	Agricultural Cultivation	Language Spoken Most Often	Diversity
1	85 percent of households in the village do agricultural cultivation. Among these households, 99 percent grew rice. The remaining households grew corns, sugar case, eucalyptus, and other crops.	Thai Korat and Khmer	This village is diversity due to many languages were spoken including Central Thai, Thai Korat, Khmer, Lao/Northeastern Thai/Isan, Suay, Northern Thai, and Southern Thai. In addition, Chinese and English were used.
2	84 percent of households in the village do agricultural cultivation. All of these households grew rice. Few households also grew cassava and eucalyptus.	Khmer	This village is relatively less diverse when compared to the first village. People speak Central Thai, Thai Korat, Khmer, Lao/Northeastern Thai/Isan, and Suay
3	71 percent of households in the village do agricultural cultivation. All of these households grew rice. Some households also grew coconuts, bananas, eucalyptus, and mixed cultivation.	Thai Korat	This village is relatively less diverse when compared to the first village. People speak Central Thai, Thai Korat, Khmer, Lao/Northeastern Thai/Isan, and Suay
4	69 percent of households in the village do agricultural cultivation. Among these households, 99 percent grew rice and 28 percent grew cassava.	Thai Korat	This village is relatively less diverse when compared to the first, second, and third village. People speak Central Thai, Thai Korat, Khmer, and Lao/Northeastern Thai/Isan
5	73 percent of households in the village do agricultural cultivation. Among these households, 95 percent grew rice and 47 percent grew cassava. Few households grew corns and vegetable.	Thai Korat	This village is relatively less diverse when compared to the first village. People speak Central Thai, Thai Korat, Khmer, Lao/Northeastern Thai/Isan, and Suay
6	78 percent of households in the village do agricultural cultivation. All of these households grew rice. Few households grew vegetable.	Thai Korat	This village is relatively less diverse when compared to the first, second, and third village. People speak Central Thai, Thai Korat, Khmer, and Lao/Northeastern Thai/Isan
7	39 percent of households in the village do agricultural cultivation. All of these households grew rice. Few households also grew vegetable. This village became urbanized due the expanded city. Since this area is more urbanized, the rest do non-agricultural occupation.	Thai Korat	This village is relative least diverse. People speak only Central Thai and Thai Korat.

Three main questions were asked. First, ‘typically, who do you think the elderly prefer taking care of the assistance/support most? why?’ Second, ‘who would be the next person the elderly prefer taking care of the assistance/support?’ Third, ‘how would you feel if you received assistance from that person compared to the first

person mentioned?' These questions were used for five types of support: meal preparation, personal care, transportation, financial and emotional support. In addition, other questions were raised to encourage the elderly to keep thinking about the issues until no additional new information was produced.

The conversations were recorded with the focus group participants' permission and were transcribed. The transcribed documents were coded and analyzed using QRS NVivo software. To rank the elderly's kin preference for the various types of assistance, the ranking that the elderly mentioned certain types of persons, the rational provided and the emotional expression toward those care givers were taken into account.

4.3.2 Kin Preference by Types of Support

Kin preference of elderly's support is presented in the first four ranks by types of support and gender of elderly in table 4.8. The first column is the relationship from the elderly to their kin including spouse, daughter, son, granddaughter, and grandson. The preferences are shown in the remaining columns by types of support. The preference of elderly participants is distinguished by gender of elderly. For example, the kin preferences of meal preparation expressed by male elderly participants are ranked by 1) spouse, 2) daughter, and 3) son, while their female counterparts prefer 1) daughter, 2) son, and 3) granddaughter. The elderly may prefer one or more kin for a type of support such as transportation. Both male and female participants consider daughter and son for the first rank similarly. With the attempt to fill out four ranks, however, some types of support could not be identified by the elderly in lower ranks. In addition to the ranks, the quotes taken from the focus group discussions in all villages are the evidence to affirm the elderly's kin preference shown in the following sections.

Table 4.8 Kin preferences of Thai elderly for assistance and support

Relationship	Meal Preparation		Personal Care		Transportation		Financial Support		Emotional Support	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Spouse	1		1						1	1
Daughter	2	1	2	1	1	1	1	1	2	2
Son	3	2			1	1	1	1		2
Granddaughter		3		2	2					
Grandson					2					

4.3.2.1 Meal Preparation

Meal preparation refers to meals that may be cooked at the house where the elderly person resides or cooked elsewhere and then brought to the house of the elderly. Male elderly are more likely to ask their spouse, daughter, son, and siblings and/or neighbors for meal preparation, whereas female elderly are more likely to ask their daughter, son, granddaughter, and siblings respectively. Both male and female elderly consider female kin for the first ranks.

Male elderly were asked to think about a person who should prepare meal for them, but some of them who are capable of cooking tend to answer that they would rather cook themselves because they do not want to bother their children and their family. Once asked to think about other people, most of male elderly mentioned their wife because she used to cook for them in the past.

> *I would like my wife to cook for me. So, I would rather wait until she arrives. (Male, Village 5).*
>
> *If the wife is not able to cook or no longer alive, children are the next option. Mostly, the son does not pay much attention to cooking. The daughter is preferred because she lives with her parents after married. In addition, daughters are keen to cook and have more cooking experience.*
>
> *I prefer my daughter. It is because sons will never cook and always hang around. The daughter's work usually is in the*

kitchen while the son's is outside. Sometimes sons go to work or go hanging out. (Male, Village 3)

Daughters always cook. Sons do not care about meal preparation and have moved out after marriage. (Male, Village 4)

The food cooked by the daughter tastes better. Some sons may cook well, but they are not as good as daughters. (Male, Village6)

Many men mentioned that they like their wife's cooking as well as their daughters. Comparing their wife and daughters, elderly men prefer their wife for a reason that they have been together for long time and their wife knows what they like to eat.

The cooking of my daughter and wife is different. My daughter cannot cook as good as my wife, who always cooks for me (I am familiar with her food). So, I prefer my wife to cook for me. (Male, Village 5)

The daughter usually makes fried food. But the elderly do not like oily food. Old people like to have vegetable and chili sauce. (Male, Village 6)

Children cook only what they like. Their food is perhaps too salty or spicy. Whenever my wife cooks, the food becomes tasty. I do love my wife's cooking and feel sympathetic for those who do not have their wife to cook for them. (Male, Village 5)

One reason a daughter as male elderly's preference for meal preparation is that a health condition of the wife may make it difficult for her to cook. Although elderly men mostly prefer their wife, they avoid complaining on food cooked by their wife, but they feel free to complain on their daughter's food.

My wife sometimes complains when getting tired from work that she does not want to cook. So, I should not complain about her food. If I say the food is not delicious, she will say you should cook by yourself. I can complain on my daughter's food and she has never answered back. So, whatever my wife cooks,

I have to eat (laugh). If my daughter cooks, I can say to her it is not delicious, but not to my wife.

Some elderly men feel that assistance provided by their children is a kind of obligations, good children should take care of their old parents.

It is common that children have to take care of their parents. They have to do even getting tired from work. I used to take care of my parents. Now it is time for our children to take care of us. Sometimes I cook for my children when I see them tired. I may cook rice and wait for them. (Male, Village 6)

I just wait to eat. It is good when they cook for us. Without cooking, they are not helpful and cannot be relied on. (Male, Village 3)

However, some elderly men expressed their feelings towards children preparing meal for them. Many of them appreciate children's help, feel sympathetic for them, and be afraid of bothering them because their children have to cook for them although they are tired from work.

I feel thankful and sympathetic for children who take care of us. I am happy for the good care they give. It is usual for us to feel we are bothering them. (Male, Village 1)

On the other hand, they are also worried whether we like their food. (Male, Village 5)

I am grateful to both my children and my wife that they cook for me. They prepare food every day. (Male, Village 3)

Their neighbors as their siblings or their wife's siblings are considered for the last preference. Neighbors are helpful when their wife and children are not available.

My neighbors will help me when my wife and my children are away. These neighbors and I are quite close. They are my siblings. (Male, Village 2)

The first preference of female elderly is their daughters. Since daughters live geographically closer and sons moved out after married. In addition,

elderly think that it is an obligation for their children, especially daughters who live closely, to take care of meal preparation for them.

> *It should be our daughter to take care of us because she is better than the son. Sons are different from daughters. Sons live far away and have to work outside. Even though our son truly loves us, he is different from our daughter. He is not as gentle as her. She gives more attention in taking care of us, thoroughly. She knows what we like to eat and brings those things to us. Our son says he worries about us. However, he is just different from her. She is better. (Female, Village 4)*
>
> *It should be our daughters because sons moved out after marriage. Our daughter does everything including laundry, cooking, and cleaning the house. (Female, Village 3)*

Many female elderly prefer their daughter rather than their son and other relatives because they are their closest offspring. Affection between mother and daughters create sentimental ties, so they prefer asking their daughter for assistance even though some of them may and may not be afraid of bothering them. In addition to the closeness between mother and daughter, cultural tradition of post-nuptial residence and the household tasks influence female elderly's preference of meal preparation.

> *I feel grateful. My daughter is my own child. She is worried about me. She cooks for me every time I request. I can no longer cook myself. I am very pleased. (Female, Village 5)*
>
> *I feel heart-warming and appreciate my children's help. (Female, Village 3)*
>
> *[However,] I am afraid if I may bother them. Sometimes they are upset about something. I do not feel this with my daughter-in-law as much as I feel with my own children. I feel sad with my children. I am afraid to bother my daughter-in-law too. I had never heard if she complains, but I am afraid she may have. I think my children do not complain because I am their mother. I think I am not bothering my daughters because they*

think they are doing for their mother. They do it as filial duties. They cook for me because they are willing to do so. I do not feel if I am bothering them. (Female, Village 2)

Since elderly women deeply care for their children's feelings. They do not blame even the food's taste is not good because they do not want to make their children's feel down.

I feel grateful when someone cooks for me. Even though the food is not that good, I admire them and tell them the food is delicious. We cannot let them upset. We have to keep them cheerful. (Female, Village 7)

If they cook well, I encourage them to do it. If the food is not delicious, I will say something funny (laugh) and say that your food is good. I do not want to make them sad. And so I ask them to cook for me again (Female, Village 7)

I am grateful that my children cook for me. I eat what they cook. If I do not, they will regret. I cannot let this happen. (Female, Village 7)

Granddaughters are specified when asked for other preference. Although grandchildren are the elderly's close kin, they do not feel as comfortable as asking their children. Some of them mentioned that 'Children are the best. They are different. We cannot ask grandchildren to do something like our offspring.

Siblings as the elderly's neighbors can help if the closer relatives especially children and grandchildren cannot provide meal preparation. However, neighbors cannot cook for them regularly because they have to work. Finally, the elderly are confident that they will not face the difficulty of finding a person to cook because they can definitely ask their children or grandchildren.

There are many siblings living nearby. They may cook at their place and bring food to share. It is not possible for the neighbors to cook for you every day. They can do sometimes. They may not have enough time to cook for us frequently. If they are busy, as being farmers, they cannot cook for us.

However, children or grandchildren will never let us starve to death. (Female, Village 4)

4.3.2.2 Personal Care

Personal care includes any care given in person to the elderly who may or may not carry a disease. Both male and female consider the closest female kin. Elderly men prefer their wife, while women prefer their daughters. Since the male elderly's wife may be less able to help due to their own old age, daughters are considered the next choice. After daughters, female elderly prioritized their preference as granddaughter, female siblings, and neighbors respectively.

Spouse and children are supportive. Male elderly consider asking their spouse first even sometimes they consider their spouse does not function well. However, male elderly may be reluctant to ask their daughters directly. Their spouse then asks their children to take care instead.

I think of my wife first because she has experience. Children and grandchildren may not understand. She is (socially) closer. A wife is supposed to take care of her husband and children. (Male, Village 4)

Elderly men expressed the opinion that caring for parents is the responsibility of their offspring. Daughter are preferred especially if they are living with their parents.

I feel closer to my daughters (compared to other relatives). They look after us, for getting dressed, feeding, medicating, and caring when sick. They do well. I am grateful. I raised them since they were very little. (Male, Village 5)

I am happy that they return us the take care. I am happy and do not feel uncomfortable. They are my children. They do it because they love us. I may be afraid to bother other people. Because my children are my family, I am not afraid to bother them. I do not feel uncomfortable. I am proud and grateful to have someone taking care of us. I may get well much sooner because I am very happy when seeing them. (Male, Village 4)

With respect to their expression toward the first two preferences, their wife and daughter, personal care is determined as a female task. Siblings who typically live nearby are helpful when spouse and daughter are not available.

> *I will ask the relatives living nearby for help. They are my neighbors. I have only my siblings as neighbors. They always ask whether I am alright. They come over to look after me and I do the same when they get sick. (Male, Village 6)*

Female elderly ranked by their closest female kin: daughter, granddaughter, and female siblings. Elderly women prefer personal care provided by the same gender. Daughter is the elderly's socially and geographically closest kin takes care of them gently and does not reluctant to clean mess. It is partially because of the move-out after marriage that normally happens with sons. So, in taking care of, the female elderly prefers daughters to do so than sons. A daughter especially the youngest daughter resides with their parents. This affirms that living arrangement influences their preference.

> *Our children will take care of us. Who would come to do this when we are sick? Either son or daughter will do. They can look after us. However, the sons are not that gentle. It should be the daughter. So, the son probably does not do this task. (Female, Village 5)*

> *The daughter is female like us. We do not feel close to the son. He touches us strongly. The daughter can do anything including cleaning our mess when we are seriously sick and unconscious. Other people do not take care of us. They are not akin to our children. We do not feel comfortable to others. (Female, Village 4)*

> *I do not ask my son to take care of me personally. He is a man. My daughter is better because she does it gently and she is a*

woman. She understands more than the son because she is a woman. (Female, Village 2)

I feel more familiar to my daughter than son because he lives with his wife. He comes over once in a while. Either son or daughter is fine for me. When knowing that their mother is sick, they will come. However, I will ask from the one who lives (geographically) closer. Then I will later call the one who lives further. The closer child will come to me first. (Female, Village 6)

Granddaughter, female siblings as their neighbors are the next options for female elderly.

I feel comfortable when getting her touches. A boy may be reluctant to give me a touch. I may feel comfortable, but the boy may not. A boy is not like a girl. A girl does better. (Female, Village 4)

My granddaughter is a cleanness lover. (Female, Village 5)

My grandson has his own family. My granddaughter lives with us. Female siblings are our blood relatives. So they will not be disgusted. If necessary, male siblings may do personal care for us. Female siblings may be willing to do so. The neighbors who are our relatives are also good (than non-relative). (Female, Village 2)

There are very few men to take care of us. If children are not available, it would be neighbors to do so. (Female, Village 3)

An elderly woman said that she took good care of her mother when she was alive. She would expect the same thing from her children.

I took a good care of my mother, so my children will do as well as I did. I did everything including feeding her food, giving her medicine and cleaning her mess. The doctor admired me for what I did to my mother. I took very good care of her until she

passed away. I never felt disgusted with my mother. (Female, Village 4)

4.3.2.3 Transportation

Transportation refers to an assistance or transport given to the elderly by taking them to receive medical treatment or do some business in town. Providing transport is related to availability of vehicles and the transport provider. This assistance is relatively less gender task compared to meal preparation and personal care. Male and female elderly prefer the closer and younger kin who are capable of driving. Male elderly prefer son and/or daughter because they not only provide transport, but their children also can be their emotional support. Grandson and/or granddaughter, siblings or relatives, and neighbors are respectively considered when their children are not available. Neighbors may provide transport by driving their car like an informal taxi. The elderly may be charged for gas expense. .

It should be my children. It is heart-warming because my children know my symptoms and they can explain it to the nurse. Either son or daughter who has a car will take me to hospital. (Male, Village 6)

Sometimes, my daughter is busy. My son drives me to see the doctor. Anyone available would drive me. (Male, Village 1)

Although the elderly are thankful for children's assistance, it is considered as an obligation. The elderly feel more comfortable to ask them for transport. Grandchildren can be considered not as close as their children.

I am glad and not afraid to bother my children. I am glad that my children take me to the hospital. I do not feel uncomfortable. I know they have to do it, in return for being raised by their parents. I am thankful, but I do not necessarily say thank you to them (laugh). I say thank you to relatives instead. I feel awkward to say thank you to my children. I may say to other people, "Thank you very much for the ride". I thank them. (Male, Village 7)

I am afraid to bother my grandchild. I ask him for help a lot. He still helps me as usual. I may go to town with him in the afternoon (after his work done in the morning). (Male, Village 3)

My grandchild usually tells me to see a doctor. He/She has never refused taking me out for that. I don't have to pay him/her for the ride. I am grateful that he/she takes care of me. (Male, Village 7)

I do not have any children or grandchildren taking me to a hospital. There is only my wife. We rent a car and she goes with me. I feel lonely going alone. It is difficult to talk to the doctor. (Male, Village 5)

Neighbors are helpful for transportation, but the elderly may be reluctant to ask for a ride. They may ask their neighbors only for necessary cases.

I would ask my siblings or relatives or some neighbors who live nearby. We can ask anyone. My children live far away, so we have to ask neighbors drive us by their car. I would ask them to ride us and we pay them gasoline. (Male, Village 7)

If you ask for their ride, they will request some money. It is not a problem for us. They are not greedy. If you do not have money to pay at the moment, they will let you pay later. (Male, Village 5)

In addition, local health volunteers suggest where I should go such as a hospital or a village health center. And then I ask my grandchild to ride a motorcycle to take me there. (Male, Village 2)

I am sometimes afraid to bother my neighbors in night time. I wake them up. I am afraid I may bother them, but it is necessary, I have to do so. They are just like our relatives. We help out one another. (Male, Village 5)

In addition, some villages have a good service of transport provided by the Tambon Administrative Organization (TAO), an institutional care at

sub-district level. Many elderly mentioned about this service before their children. Thus the comparison between the sub-district's service and their children was raised.

> *I am not afraid to ask* TAO *because it is necessary and they dedicate themselves to help people in the sub-district. I am not afraid to ask my children as well because they are my offspring. I feel grateful. Sometimes, my tears drop because I really appreciate their help. (Male, Village 1)*
>
> *Our children have to take us to a hospital no matter how busy they are. They have to save their parents' life. I feel uncomfortable to ask others to do so because they have to waste their time for us. (Male, Village 2)*

With respect to their spouse's physical health and incapable of driving, female elderly may ask their daughter and/or son, sibling and/or relatives, and neighbors respectively. Like male elderly, the first preference for transport among female elderly is their children. Yet the second preference skips from their grandchildren to be their siblings and then neighbors. Female elderly mentioned that their grandchildren are too young to provide them transport. The persons especially siblings living nearby should be the best in case of their children are busy or unreachable due to the geographic distance.

> *I prefer any children who can drive. (Female, Village 5)*
>
> *Either the son or daughter is fine. (Female, Village 7)*
>
> *I do not feel uncomfortable. I am glad that my children take me to see a doctor. I am cheerful. (Female, Village 6)*
>
> *I am glad and proud of them. Even though they are tired (from work), they take their mother (the elderly themselves) to see the doctor. Sometimes my daughter or my daughter-in-law takes me (to a hospital). If they are busy, my son will do. I am afraid I may waste their time. (Female, Village 2)*
>
> *I think of my children first. If they are busy, I ask my siblings. If they are busy, I ask* TAO. *After getting my call, they come to me immediately. My children live far and cannot come at the*

moment. I ask my siblings living nearby. We cannot be sure if we can rely on the one who lives far away. (Female, Village 4)

If my children are not living too far, I will ask them. I have to ask someone living nearby to help. When we ask neighbors, they are willing to help. (Female, Village 2)

We and our neighbors moved to Nang Rong. We are not blood relatives, but we respect one another as our siblings. We help each other about anything. (Female, Village 5)

I am grateful for both children and neighbors, but I prefer my children because I raised and took care of them. I would rather have them taking care of me. I can ask my children buying things for me. Relatives may not do so. I am afraid to ask relatives to do me a favor. I am not reluctant to ask my children. I am proud that they do not abandon us. (Female, Village 3)

In addition, they prefer their daughters to their sons because daughters are with them, but sons have to go for work outside.

Siblings and neighbors play an important role of providing a transport to the elderly. Some elderly accept their destiny that one day they will die. Without anyone to look after them, the elderly would die and finally they will be brought to a temple for funeral.

I am afraid to bother my (biological) children. If it is necessary, I have to ask some neighbors to help. They will willingly help, but I am afraid to bother them. Folks in countryside help each other. (Female, Village 3)

I am afraid to bother neighbors even though I pay for their ride. Sometimes, they receive the payment and sometimes not, I am indebted to them. (Female, Village 7)

The elderly think that they owe their neighbors, thus they help their neighbor as much as they can in order to pay for the debt. 'We brought something for them. When they are sick, we come over to visit them. We help out one another.

I am glad that people who are not my children and not my husband ride me to a hospital. I am thankful, I even pay for driving their car because they are kind. (Female, Village 7)
I am glad and think about a debt of gratitude I owe them. I feel that people in this village are concerned about their neighbors. They come over to visit and help out. (Female, Village 4)

4.3.2.4 Financial Support

Financial support refers to any household expenses which can include household consumption and medical treatment. Since elderly consider their spouse as their own financial source, they skip to refer to this source. Both male and female elderly similarly consider their son/daughter first, then siblings, and neighbors. Children are the most important financial source. Once the elderly could not have assistance from their closest kin, they borrow money from their siblings or neighbors mostly with interest. Financial helps given from close kin such as children may or may not need to pay back; however, the return depends upon ones' manner and how closed the borrower feel towards the giver. On the contrary, financial helps taken from other relatives and neighbors typically need to be returned. An interest rate may be imposed on the amount of money borrowed from a neighbor or a loaner. Although financial support is not limited by geographic distance because of banking services and postal facilities which allow kin to transfer money with acceptable fee, the elderly prefer asking the geographically and socially closest kin.

Male elderly consider their wife as their financial partner rather than someone to turn to for financial help. Money that they earn goes to their wife’s purse. Husband and wife spend money from the same purse. When they run out of money, it means that both of them do not have money. Thus usually male elderly typically did not mention their wife. Further, gender of children does not make any difference.

It is normal that we ask our wife first for money. Our money is in the same purse. The husband earns money and put into her purse. When I need money, I ask her for it. (Male, Village 3)

My wife is my small bank because she is saving the money. (Male, Village 1 and 3)

Children are the preferred source of financial support among male elderly because they do not have to repay children. Although money can be transferred from the distant children through postal or bank services, the elderly prefer to ask their children who live near because it is easier and faster to reach them. In addition, unmarried children are able to provide financial support regularly.

For me, I think of my child whom I live with. (Male, Village 5)

I ask my children "Do you have some money?" If they do not have any, then I think about other sources to get money from. Children transfer money through postal service if they have money. Children have their own family and send money once in a while. Children who do not have their own family yet send more often. (Male, Village 6)

My wife is old. She is not able to give suggestions. When I told her about farming, she suggests me to discuss with our children because they usually come up with a solution. Children can work and earn. (Male, Village 3)

I consult my children and they give me some money. If they do not have money, they suggest me to get it from my neighbors. (Male, Village 4)

The elderly's feelings are not different by the gender of children and geographical distance. However, the closer child was thought of firstly according to matrilocal residence.

I love all children equally. If anything happens, the nearest child knows first. It is easier and faster to get help from children living nearby. A son and a daughter are fine for me. (Male, Village 5)

I would think of the one who lives (geographically) closer first. I will ask my daughter because she saves money and lives with us. Mostly, the son moves out after marriage. (Male, Village 3)

Siblings as the elderly's relatives and neighbors are another source of financial support when their children are not available or not be able to provide help.

> *I borrow some money from my relatives or siblings. I may find neighbors who are not my relatives to borrow as well. Someone will lend us some money. When receiving money from our children, I do not have to return it. It is just sometimes that we have to borrow from other sources because our children cannot help. (Male, Village 5)*
>
> *If children cannot help, I will borrow money from my neighbors. Mostly, neighbors require some interest. (Male, Village 7)*
>
> *It is more complicated to get a loan from a bank because the bank requires the title deed. (Male, Village 4)*
>
> *After taking a glance at our children, I think they may not have money. Then I ask a neighbor to lend me some money. What I say means if we ask our siblings and they may not have money, we have to go asking a neighbor to lend us money. It is difficult to find someone lending you some money. If we need an amount of money, we have to look for a lender. (Male, Village 7)*

Likewise, female elderly prefer their children especially from the child living nearby.

> *Who else we should think of? We live with our children, we think of the children first. We can no longer work, so we need children to work and earn money to take care of us. (Female, Village 3)*
>
> *I think of my children. If we do not have any children, we will be starved to death. I think of my children who move out to work. They send money back immediately when I ask. (Female, Village 5)*

> *The children can be relied on. If children do not have any money, we will think about asking from our relatives for some money. (Female, Village 1)*
> *I raised them since they were little babies. They do good things. They have never committed a sin. They have never said bad words to me. They also give me money for expenses. (Female, Village 6)*

There is no difference between sons and daughters, but it is not similar between children and relatives. Money received from children is not necessary to pay back, but the money from relatives is. For the childless elderly, they may think of their siblings first. Other than these kin, they consider of difficulties to live.

> *I have to think of my siblings first because I do not have a husband or any children. My siblings are my family and we care for each other. (Female, Village 4)*
> *If a sibling does not have money, I will ask other siblings. If no one has money, I will be starved to death. (Female, Village 5)*

Some elderly women realize that they have the right to receive free medical treatment in public hospitals. They do not borrow or ask for money because it is not necessary to pay. They would rather let their children pay for other things such as fixing their house.

> *I will not ask anyone for money. It is complicated to borrow someone's money. I just do not spend. If it is necessary, we have to borrow. There is a universal healthcare coverage card for the elderly which covers all medical treatments. We can get free services and medication. This saves us money. (Female, Village 7)*

All elderly aged 60 and over receive elderly pension monthly. While helpful, it is not enough to cover their financial needs. When they are short, they buy food from a grocery store on credit, and pay when they receive their pension funds.

I do not owe anyone any money. I only buy food from a grocery store on credit. I borrow food for my family. I can barely survive by the elderly's pension fund along each month. If I do harvesting sugarcane and cassava, the farm owner will lend me some money. (Female, Village 5)

Neighbors lend me some money, but how could I earn money and return it? The interest is about 5-10 percent per month. (Female, Village 7)

One must ask his/her children for money. If he/she has no children, he/she would ask his/her siblings who live nearby, I ask for money from my sisters. (Female, Village 4)

Siblings should help each other. If we borrow some money from them, we have to pay back the loan as usual. If we are short of money, we can borrow. (Female, Village 6)

There are only neighbors and children. Neighbors help each other very well. If they have some money, they will lend us too. (Female, Village 4)

4.3.2.5 Emotional Support

Emotional support refers to any action such as talking, consulting, and discussion which expressed a giver's feeling of affection and sympathy toward the elderly. The elderly were asked to consider the persons whom they prefer to talk and consult with when they are facing a problem or having stress or anxiety or depression. The elderly mentioned that they may talk to people to relieve stress; however, they may not tell that problem. They would rather talk about something else to have fun instead.

Male elderly are more likely to talk to their spouse, daughter, and siblings and/or neighbors in that order. They may go for a walk alone in the field until they feel better or go to the temple and discuss with monks about the teaching of Buddhism rather than telling the problem. Male elderly consider their close kin to receive emotional support. The health problem which is not easily cured and financial problem such as earning enough for household consumption seems to be the crucial

problems for many elders. Male elderly consider a particular person to consult about a particular issue or trouble. Since earning is related to their daily living, elderly men prefer to discuss with their wife.

Mostly, I consult my wife. (Male, Village 6)

I live with her, so I talk to her. There are only two of us. (Male, Village 5)

I worry about having no money and so there will be no food to eat. When we are short of money, we discuss what we should do to earn some. (Male, Village 7)

Male elderly mostly expressed towards their wife that they are glad that she is always with him and supportive.

I am happy when talking to my wife because we have each other (Male, Village 1)

I am glad that my wife does not refuse. We can consult when having a problem and she can help by suggesting good things. This helps me not to be distracted by depression. (Male, Village 7)

I am proud and glad that my wife is with me and shares my fate. (Male, Village 2)

Despite the fact that a couple may have different opinions, male elderly prefer their wife for emotional support. Male elderly mentioned that they have to wait until a good time to discuss with her to ensure that she is in a good mood. It is usual that the elderly may have contradictory opinions and this may create an argument

We have to see whether it is a right time to talk. We should not talk when she is stressful, for example, when she gets exhausted from work or getting hungry. (Male, Village 1)

I sometimes have conflicts with my wife, but it lasts for a short period. I am happy that she agrees with me. It is stressed when we cannot get along well during the discussion. (Male, Village 1)

However, some problems could not be solved by their wife, but she could be helpful for some situation.

I do not consult my wife. I solve problems such as fixing my motorbike myself. I tell my wife to take me to see a doctor. I am happy that she accompanies me because she can hear when the doctor calls. I can barely hear. (Male, Village 7)

Due to their health condition and limited information, an elderly couple may not be able to work and have outdated information about working or farming. The second preference is children especially their daughters who live with them. Siblings and neighbors are the latter preference respectively.

It depends on the issue. These days I consult my children about rice farming. I have to consult my children about the investment. My wife does not understand. (Male, Village 3)

I consult my children. (Male, Village 5)

I have to consult my daughter first, because she is nearby. She is good. (Male, Village 2)

I talk to my eldest child. He/She is mature. (Male, Village 4)

I consult my wife first and, then, my children. (Male, Village 2)

If my wife does not understand, it will become more complicated. This is the problem. I talk to my relatives then. (Male, Village 6)

I think of those living nearby, or my neighbors. They are my wife's relatives. We tell about troubles to one another. When I am alone and do not know whom to talk with, there are only neighbors. (Male, Village 7)

It depends. If a male sibling is not around, I can talk to a female sibling. I prefer talking to people in the same age. (Male, Village 6)

My wife and children are different. When I am worried, I consult my wife. When I talk to my children, I feel different. For example, I do not want my children to know about family problems. They may be sad that their parents have a quarrel

and fight. I discuss about working and earning with my children. I teach them to do good things. We experienced before and will lead them to a good way. (Male, Village 5)

Some elderly also ask for advice from their siblings or neighbors. They were asked to compare between their wife and siblings.

They are different. I can talk to my wife about many things. I feel free to tell some siblings, but I cannot tell the same thing to someone. It depends. (Male, Village 7)

I am afraid to bother my neighbors by asking them for advice, but I have no idea who else to consult. (Male, Village 7)

Male elderly may not feel comfortable to talk to people, but other think that anybody may make a mistake and they deserve a good advice. Male elderly were asked whether they do something else to get rid of depression. Some of them mentioned they do not drink alcohol and they would rather go to a temple. A temple surrounded by peaceful environment helps them relaxed and relieved.

Female elderly were firstly asked if they have depression and anxiety and how they cope with them. Some of them try to understand, not worry, and let it go, but others talk to someone. Most of them prefer talking to their husband first. However, some of them refer to other people with conditions, for examples, husband died, never been married. They think about other people with whom the elderly feel socially close, such as children who they live with or near, friends as neighbors. Elderly women do not feel different between sons and daughters.

I always talk about anything to my husband. (Female, Village 3)

I think of my husband first because we are together. We talk about sickness and earning. (Female, Village 6)

We discuss what we should do when things happen. (Female, Village 4)

I can talk to him when I am depressed. (Female, Village 2)

I want to talk to my husband, but he passed away. I no longer have him, so I talk to my children. (Female, Village 7)

I release my anxiety by talking to my children, friends, and neighbors. I think of my children first. (Female, Village 6)

I think of my daughter because she is always taking care of me. I consult only my husband and daughter. My son lives far away. He lives with his family. I can call him, but I would rather talk to my daughter first because she lives with me. (Female, Village 1)

Female elderly do not just receive mental support from their children, but both of them also provide it to one another. Helping to solve a problem can be a heartwarming obligation between a mother and her children.

Female elderly may feel very close to their neighbors even though they are not relatives. This makes them feel free to talk and tell troubles to one another, but they feel closer to their husband.

There is nothing we do not want to tell our neighbors. We are like siblings. We can get together and tell our troubles to them. (Female, Village 3)

If there is no sibling, I talk to my neighbors who are our relatives and live nearby. We talk about fun and make it a laugh. The sorrow becomes less sorrowful. I equally like talking to my relatives and neighbors. (Female, Village 2)

We can tell troubles to neighbors to feel relieved. Sometimes they cannot help, but they can suggest what I should do. There might be something we do not know, but neighbors do. (Female, Village 3)

The feelings expressed about their incapability of working and distant children reveal that elderly women deeply expect their children to return home and take care of them in their late life. However, they realized that it may not be possible at least at the moment. They keep communicating with their children by telephone.

I could not go to work, I am depressed. (Female, Village 4)

I worry about my children who move out to earn money far away. I want them back and live with me. I keep thinking about

this. When my children are working in Bangkok or elsewhere, I am always worried about them. I miss them. I want them to live nearby, but it is not possible because they have to earn money. I keep thinking of them until the feeling has gone. I talk to my neighbors about anything to relieve and forget that feeling. (Female, Village 1)

If I live with my children, I consult the ones who live nearby. (Female, Village 5)

We can talk about anything, but some of them are far away. (Female, Village 1)

Besides emotional support from kin, female elderly consider themselves to cope with troubles. Some of them go to a temple to make a merit. Although it is not the solution, but this makes them feel relieved.

Myself. I do not want to think too much. I go to a temple to make merit. I do not know whether it helps solving the problem (laugh). Yet I feel grateful. When I donate some food for monks in the morning, I am delighted. (Female, Village 1)

I would go to a temple if there is no one to help and look after me. I just go to a temple. [If I live alone at home], no one knows when I die. I might be brought to a temple when a time passed (laugh). In case if we cannot ask for help from anyone children do not come over no one sees us, I am alone and not capable of taking care of myself, I will go to a temple (other female elderly laugh). Who else would come to help us? We die alone. (Female, Village 6)

The elderly expect to have basic needs which are enough for their daily living. Those basic needs are food, shelter, and medical treatment. However, a major problem that makes female elderly living in grieve is related to their health and their children.

I rarely feel depressed because I do not expect too much. I live happily so far. I have sufficient food to eat and a house to live. If I do not get sick, I live with no grief. Now, I suffer with my

health condition. I cannot walk well due to my humpback. (Female, Village 4)

4.4 Availability of Kin Preference for Elderly's Assistance and Support

Table 4.9 shows the proportion of available kin for giving support[2] towards the elderly including meal preparation, personal care, transportation, financial support and mental support and by gender of elderly. The proportion of the first ranks are omitted because they are relatively small proportion. In addition, the evidence from qualitative study shows that the first and second orders of preferred kin of the elderly's support are spouse or son or daughter or grandson or granddaughter. Thus the proportion of preference can be found from the child-parent and spouse ties in the kinship network within the village. However, the limitation of this network is its geographic boundary. Even though child-parent ties allow one to find the elderly with children residing in the village, these child-parent ties are also used to find grandchildren residing in the village. The grandchildren from these ties are restricted to their parents residing in the village. Grandchildren of parents who had never been enumerated in the village could not be identified.

Table 4.9 Proportion of available kin in 2000

Relationship	Meal Preparation		Personal Care		Transportation		Financial Support		Emotional Support	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Spouse	0.85		0.85						0.86	0.48
Daughter	0.78	0.78	0.78	0.78	0.91	0.89	0.98	0.95	0.78	0.90
Son		0.48								
Grand Daughter				0.39						
Grand Son					0.38					

Note: The number with highlight shed on is the first rank of kin preference. The number without highlight is the second rank of kin preference.

[2] See table 4.8 kin preference of the elderly for assistance and support

For meal preparation and personal care, 85 percent of male elderly had spouse residing in the village as their preference of support. Among the rest of male elderly (15 percent) who did not have their spouse in the village, 78 percent of them had their daughter as their preference. The third and fourth orders of preferred kin for meal preparation and personal care among male elderly are female siblings, relatives, and neighbors. 78 percent of female elderly had their daughter residing in the village as their preference. Among the rest of 22 percent who did not have their daughter as the first preference, 48 percent of them could find their son in the village as preference. Granddaughter, siblings, /relatives, and neighbors are the next preferences to assist female elderly for meal preparation and personal care. Females are more likely to be widowed, so they may mention less about spouse as preferred kin.

The first preference for transport among male elderly is their daughter and/or son residing in the village and 91 percent remained available for this assistance. Among the rest of 9 percent who neither have son nor daughter in the village, 38 percent of them could find the second preference, their grandson or granddaughter in the village. Siblings/relatives and neighbors are the third and fourth rank of preference. 89 percent of female elderly had the first preference of transport, their daughter and/or son, available within the village. The second rank of transport for female elderly is their siblings or relatives, which could not be identified the number of them as the reason explained above. Neighbors are last options.

For financial support which is not restricted by village boundary, 98 percent of male elderly and 95 percent of female elderly had their daughter and/or son as the first preference of financial support. Siblings/relatives are considered as the next preference for both male and female elderly, so the number is not specified. Neighbors are another option.

Emotional support can be provided through communication services, so this support is not restricted by geographical distance. Both male and female elderly prefer their spouse for emotional support. 86 percent of male and 48 percent of female elderly had their spouse available. The second preference for emotional support of male elderly is daughter and 78 percent of them had their daughter available at any places. The second preference of female elderly is daughter and/or son and 90 percent

of female elderly had their second preference available. Siblings/relatives and neighbors are the third and fourth preference.

The proportion of the first preference among male elderly tends to be higher than that of female elderly. However, the second preference can replace the missing of first preference and makes higher percent for the availability of the first two preferences. For an example, among 22 percent of female elderly who did not have their first preference of meal preparation and personal care, 39 percent could find their second preference. Female elderly may rarely find the first and second preference for meal preparation and personal care, compared to male elderly, because of the fact that these two types of support are specific-female tasks, thus female elderly themselves are the persons who give this support.

4.5 Generations

The study of the focal elderly can explain the availability of kin who can be their care givers; however, it cannot illustrate what would happen to the later generation. The study of generations of the focal elderly and their next generations should help to speculate the availability of kin ties as the potential care givers.

Table 10 (see details in table A10 in the Appendix A) summarizes population by generation of the focal elderly in Nang Rong district in 2000. The first column contains the focal male and female elderly taken as the first generation (G1). The second column contains focal elderly's children by sex as generation 2 (G2) in the village. The third column is the generation 3 living in the village (G3V) who are the children of parents in G2. The fourth column contains the number of women in G2 living with at least one son or daughter (G3V) in the village. Since fertility indicates the number of children per a woman, the generational study focuses on women only. The last column shows the proportion of women in G2 with G3V. Totally, 1,420 and 1,910 focal male and female elderly lived in Nang Rong district in 2000. The focal elderly had 2,695 sons and 4,200 daughters living in the villages as shown in G2. The number of G3V is 3,009 males and 5,740 females. Fifty-nine percent of the G2 women, 2,363, lived with their sons and 60 percent of the G2 women, 2,396, lived with their daughters. The last column shows the proportion of the G2 women living with G3 son and daughter. Because fertility such as

gross reproduction rate (GRR) and net reproduction rate (NRR) is measured by the number of children born to a woman, the proportion of women living with son and daughter are used to compared between generations.

Table 4.10 Summary of generations in Nang Rong district in 2000

Generation 1		Generation 2 (G2)		Generation 3 in Village (G3V)		Female G2 with G3V		Proportion of Female G2 with G3V	
Number of Focal Elderly 2000		Focal Elderly's Children in Village							
Male	Female	Male	Female	Male	Female	Son	Daughter	Son	Daughter
1,420	1,910	2,695	4,200	3,009	5,740	2,363	2,396	0.59	0.60

The evidence from table 10 shows that the later generation seems likely to have less possibility to find a female care giver as preference. According to table A6, 59 and 78 percent of focal female elderly (female G1) lived with their son and daughter respectively, while table 10 shows that 59 and 60 percents of G2 females lived with their son and daughter respectively. The proportion of living with sons became one percent lower in G2, but the proportion of living with daughters dropped 18 percent in G2. Compared the G1 women, the proportion of women in G2 living with their daughters is relatively lower.

Table 4.11 shows the percentage of generation 3 living in the villages by marital status. The total number of generation 3 in the villages is 6,095 of which 48.2 percent is male and 51.8 percent is female. Figure 4.3 shows the age distribution of generation 3 living in the villages in 2000. Sixty-three percent of them aged 15 and lower and 93 percent aged 30 and lower. Approximately, 46.2 percent are students and 37.7 percent are paddy farmer, orchard grower, or field crop farmer. Obviously, people in generation 3 remaining in the villages are in school age and others are working in agricultural sector. It is possible that, after their graduation, the young generation may possibly move for seeking employment if they decide not to do farming.

Table 4.11 Percentage of generation 3 in villages by marital status (N=6,095)

Generation 3 in the Villages	Marital Status				Total
	Single	Married	Widowed	Divorced/Separated	
Male	43.7	4.2	0.0	0.2	48.2
Female	40.3	10.8	0.1	0.6	51.8
Total	84.0	15.0	0.2	0.9	100.0

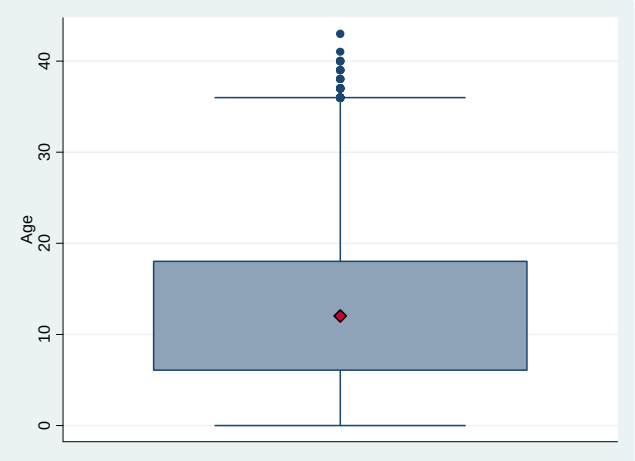

Figure 4.3 Age distribution of generation 3 living in the villages in 2000

4.6 Factors Related to the Availability of Kin

Factors related to the availability of kin presents in four categories: geographic indicators, demographic and socio-economic factors at individual level, economic factors at household level, and community development.

4.6.1 Geographical Indicators

Two geographical indicators are examined in this study: average distance between the focal elderly and neighbors and the distance between focal elderly parents and their nearest son and daughter.

The average distance among dwelling units of neighbors (a function of distance band from neighbor count in ArcGIS) and proximity between elderly and their children are considered as geographical factors in this study. The average distance among neighbors is the result of ArcGIS tool's calculation by taking dwelling units, collected in 2000, within each village and examining the distance between a specified numbers of neighbors. The nearest neighbor of this study is automatically selected by the ArcGIS tool. Given each dwelling unit, the tool finds a number of nearest neighbors and calculate the average distance between/among them. The nearest neighbor may be asked for an emergent assistance. This can be considered as the elderly's security; however, neighbors may be relatives and non-relatives. The average distance explains how far the elderly may access to their neighbors in case they need help. The shorter distance to neighbor provide

easier accessibility. Details are described in research methodology. The proximity between the elderly and their children is derived by examining the distance between dwelling units of elderly and their children within the village.

The average distance examined by village from 1 to 5 neighbors is shown in table A11 (see in the Appendix A) which are summarized in table 4.12. Each count of neighbors results minimum, average, and maximum distance. The average distances for neighbor count from 1 to 5 are 26.9, 41.6, 53.3, 64.2, and 74.1 meters respectively. The average number of households in a village in Nang Rong district is 169 in 2000. The function of distance band from neighbor count require to all GPS location of dwelling units within a village. It then asks to identify the number of neighbors (dwelling units) to determine the average distance among them. Given a dwelling unit, a number of nearest neighbors are around. When considering more neighbors, they tend to live further. Therefore, the more number of determined neighbors are given to determine in the function, the longer average distance is returned from the function. A sensitivity test reveals that average distances between the focal elderly and another two neighbors are significant in predictive models.

Table 4.12 Average distances between the focal elderly and their neighbors

Number of Neighbors	Average Distance (meters)
1 Neighbor	26.92
2 Neighbors	41.56
3 Neighbors	53.30
4 Neighbors	64.22
5 Neighbors	74.10

4.6.2 Distance to the Nearest Child

Table 4.13 summarizes the average distance between focal elderly to their nearest son and daughter residing within village in 2000. The details by village can be seen in table A12 (see in Appendix A). There are three sets of columns presented by village: average distance between focal elderly and their nearest son and daughter including co-residents, average distance between focal elderly and their nearest son and daughter excluding co-residents, and the proportion of focal elderly who resided with their children. Most of villages, sons tend to live further away from their parents than do daughters. Included co-residents, the approximated average distance from

elderly parents to their nearest son and daughter is 170 (170.7 for elderly male and 170.2 for elderly female) and 118 (116.8 for elderly male and 119.7 for elderly female) meters respectively. Once excluded co-residents, the approximated distance from the elderly parents to their nearest son and daughter is 272 (281.5 for elderly male and 261.8 for elderly female) and 218 (217.2 for elderly male and 219.8 for elderly female) meters respectively.

Table 4.13 Summary of average distance between focal elderly to their nearest son and daughter

Average Distance between Focal Elderly to Their Nearest Son/Daughter Including Co-residents (meters)				Average Distance between Focal Elderly to Their Nearest Son/Daughter Excluding Co-residents (meters)				Proportion of Focal Elderly Residing with Children in 2000 (Distance=0 meter)			
Male		Female		Male		Female		Male		Female	
Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter
170.7	116.8	170.2	119.7	281.5	217.2	261.8	219.8	0.24	0.39	0.21	0.37

In Nang Rong, male elderly are more likely to have children living further compared to female elderly. However, the table shows a substantial number of focal elderly residing with their children. 24 and 21 percent of focal male and female elderly resided with son, while 39 and 37 percent of focal male and female elderly resided with daughter. The elderly parents are more likely to live with their daughter. The finding of distance to the nearest child is consistent with matrilocal residence found in qualitative study[3].

> Evidence from the focus group discussion among male elderly:
>
> Focus group discussion among male elderly from Village No. 3
>
> *"Mostly men marry out, [they] move to their wife's place. It is traditional. Daughters marry and bring in their husband to live at home and with their mother. If there are no other siblings, daughters live for long period of time. If there are siblings, they have to find their own places after a while. Otherwise, they can live at their parental house forever."*

[3] Characteristics of study villages are shown in table 4.6 and 4.7

Focus group discussion among male elderly from Village No. 7

"Sons move to their wives' place, but my sons live around in the same compound. They do not go anywhere. Typically, men marry out because they need to live on their own. They just said that they want to live at their wives' place. They need to improve their economic status. Daughters live at home after married. Sometimes, it would be better if they move out. Children who do not have any asset or property will come back home to stay with their siblings. In this community, daughters move out after married are rarely found. Usually, son-in-law moves in, our son move out to live with daughter-in-law."

Focus group discussion among male elderly from Village No. 2

"After married, sons move to their wife's place. Some of them may need to live with their parents to take care of them, but mostly [sons] move out. Daughters live with their own parents. Once they need to move out, they may decide to do later or we arrange resources for them to move out."

Focus group discussion among male elderly from Village No. 4

"Mostly, sons get married and move to live at their wife's house for 3-4 days or a week and then they go back to work. Daughter brings a son-in-law home. It is our tradition."

Evidence from focus group discussion among female elderly:

Focus group discussion among female elderly from Village No. 6

"After married, sons usually move out to live with their mother-in-law and their wives. Daughters live in their parental place for a few years. If they are ready and want to live on their own, they will move out. They will build their own house, not live at their husband's parental place. If we have land, we share the land even it might be little piece. They can build a house."

Focus group discussion among female elderly from Village No. 2

"It is our custom that sons have to live at their wife's place first. They may move out afterwards."

Focus group discussion among female elderly from Village No. 4

"My daughters found their husband out of the village. They came back for a wedding at home here, then they are back to work and live there. For the case that both man and woman are in this village, the man has to move and live at his wife's house according to the tradition. There are very few cases that daughters move to live at her husband's place. I myself move to my husband's house because there are no other children to take care of his parents. There are quite a number of couples that moved out of the village after married because they have to go for work. They have enough money to buy a house and live there, in Bangkok. Only daughter live with their mother, but son does not."

Table 4.14 shows the number and percentage of the elderly, aged 60 and over, who lived alone in their household in 1984, 1994, and 2000. The numbers and percentage are classified by gender and marital status of the elderly. There are 6 males and 18 females in 1984, 38 males and 125 females in 1994, and 50 males and 137 females lived alone in Nang Rong. Most of them are widowed. The percentage of female elderly living alone is about three times higher than that of male elderly in the same year. .2 percent males and .5 percent females in 1984, 1.5 percent males and 4.7 females in 1994, and 2 percent males and 6 percent females in 2000 were widowed. Totally, the percentage of female elderly living alone are higher than that of male elderly in every year of survey; however, the percentage of both male and female are less than one percent, which is very small.

Table 4.14 People aged 60 and over and lived alone in household by marital status in 1984, 1994, and 2000

Marital Status	1984				1994				2000			
	Number		percentage		Number		percentage		Number		percentage	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Single	2	2	0.1	0.1	3	6	0.2	0.3	8	6	0.6	0.3
Married	-	-	0.0	0.0	5	5	0.3	0.2	14	6	1.0	0.3
Widowed	4	14	0.2	0.5	27	109	1.5	4.7	28	115	2.0	6.0
Divorced/ Separated	0	2	0.0	0.1	3	5	0.2	0.2	0	10	0.0	0.5
Total	6	18	0.2	0.6	38	125	2.1	5.4	50	137	3.5	7.1

Note: Denominator is the number of alive people aged 60 and over by gender in that year

4.6.3 Prediction of Factors Affecting the Availability of Kin Preference

One of objectives for this study is to investigate the factors affecting the availability of preferred kin. The preliminary findings in previous sections reveal a substantial proportion of kin residing in the village especially spouse, son, and daughter in spite of the smaller household size. An outcome of a phenomenon may be caused by the factors occurred earlier. Therefore, the factors as independent variables determined in this study are the factors occurred in 1984 and 1994 and used to predict the dependent variable, the availability of kin occurred in 2000. The independent variables influencing the availability of kin are determined by two aspects: fertility and migration. These variables are described by individual, household, and community level.

At individual level, age specifies the birth cohort of 1984 focal elderly. Whether the focal elderly are currently married is used to identify marital status. The elderly with higher education can provide more resources to their children for better opportunities lying in urban or industrial areas. Agricultural occupation is required family members to maintain farming and they are more likely to live in the village. Children of elderly having non-agricultural occupation are not necessary to work on land, so they are more flexible to move out of the village.

At household level, the 1984 household size is a proxy of fertility. Since most population in Nang Rong in 1984 was the frontier, the household size is plausibly caused by the number of children. Household size creates options of kin that the elderly may ask for assistance. Whether and how much household size increased between 1984 and 1994 indicates the return migration of focal elderly's adult children. The elderly own more land (rai) should be able to provide their land for building a house or farming to retain their children in the village. This should inhibit their children's out-migration. Motorcycles owned by the household in 1984 and 1994 as well as cars in 1994 show household wealth. The perception of household improvement needs of earning and building/improving their houses explain households' living condition, which may create a condition of migration among children for an economic reason.

At community level, water irrigation is useful for farmingand may prohibit out-migration. Bus system may either positively or negatively causes migration. It facilitates children to commute between the village and town. In addition, it makes children to move out further since they can travel easier. Average distance between two neighbors is used to indicate how close the villagers live within the village. The elderly who live closer to their neighbors may be more accessible to urgent help when needed. Children can consider this as psychological security when they make decision to migrate out of village.

Since some questions such as age, sex, marital status, and education were asked all three waves and they are highly correlated for the same variable from time to time, so the information which least likely changed over time is not necessarily put in models. As demographic factors, age in 1984 and marital status in 1994 are used. Age is linearly increases for all respondents. Because age has been asked since 1984 for all focal elderly and, additionally, these people were traced in the later survey. Thus the 1984 age is used. Marital status may have changed from time to time; however, the 1994 marital status is considered as the latest status that affected the availability of spouse and children in 2000. In addition, marital status is not included in the model when the presence of spouse is dependent variable. Education level in 1984 is conducted as four categorical variables: prathom 1-3, prathom 4, prathom 5 and

higher, and no education as a reference. The higher education may increase opportunity of career for the elderly themselves and their children.

The prediction of factors affecting the availability of kin preference among elderly is developed. This takes types of support and gender of elderly and their children into consideration. The combination of five types of support by gender of elderly results ten logistic regression models. The dependent variable of the models is the availability of preferred kin presented by types of support. Elderly males and females may prefer the same kin for a particular support. For example, a daughter is preferred for personal care among both male and female elderly. Therefore, the result of models may refer to the same kin. However, as mentioned earlier, the kin preferences are supported by qualitative study in previous chapter.

Table 4.15-4.16 shows the prediction of factors affecting the availability of preferred kin by types of support for male and female elderly respectively. Both tables contain five different models of support: model I meal preparation, model II personal care, model III transportation, model IV financial support, and model V emotional support. Model I, II, and III consider a distance as the limitation of support. The persons who live out of village may not be able to provide assistance as often as the elderly need. On the other hand, financial and emotional support can be provided by any kin living any places due to the advanced communication technology. Ninety-five percent confident level is to indicate the significance of predictors. Marital status is omitted when the availability of spouse is determined as a dependent variable in the model.

The prediction of factors affecting the presence of preferred kin in 2000 among focal male and female elderly by types of support is presented in table 4.15-4.16 respectively. Table A4.13-A4.16 and table A4.17-A4.20 (see in the Appendix A) show the correlation of the models for male and female elderly. The availability of spouse and daughter living in the village in 2000 is the dependent variable of model I meal preparation, as well as model II personal care, for male and female elderly respectively. Age, household size in 1984, and larger household size between 1984 and 1994 are statistically related to the presence of male elderly's spouse. Marital status is omitted for the model with dependent variable of spouse. Male elderly are

less likely to have their wife alive when they are older. For those who were in the larger size of household in 1984 are less likely to live with their wife. It is plausible that lose of female spouse encourages the return of migrant children.

Given daughter as female elderly's kin preference for meal preparation and personal care, those of whom married in 1994, older age, and live in larger household are more likely to have at least one daughter in the village. Water irrigation in 1984 and bus system in 1994 are negatively related to the presence of their daughters. Even though water irrigation served agricultural production, pull factors of occupational opportunities in the period of industrialization played substantially stronger roles. With the respect to the bus system, this allowed villagers in the labor force age migrated out easily.

Model III transportation, the presence of son and/or daughter in the village in 2000 is the dependent variable for both male and female elderly. Male elderly who were older and lived in larger household in 1984 are more likely to have at least son and/or daughter in the village. The perception of household improvement needs for building or improving house has positive effect, while water irrigation has negative effect on having son and/or daughter in the village. The need of improvement indicates household's economically needs which is a push factor of moving out. Water irrigation is expected to be positively significant. The contradictory result may reveal insufficient facilities of doing farming. Average distance between two neighbors was negatively related to the presence of son and/or daughter. The further average distance between two neighbors was, the less likely that male elderly had their son and/or daughter in the village. Since children tend to reside or live in the same compound of their parental house, children should be found within the closer distance. For those elderly who were not with their children in the village, children who tend to make their decision of migration moved out of the village.

Although female elderly have the same dependent variable, son and/or daughter, different factors affected their presence. Age remained positively significant. Those had status of married in 1994 and lived in larger household size between 1984 and 1994 are more likely to have their son and/or daughter living in the village. Female elderly living in the household which became larger were more likely to have more options including their children in the village. The availability of water irrigation

was negatively related to the presence of children for both male and female elderly. Despite existing water irrigation, children were more likely to be out of village. This can be explained by the limited resources and land to be shared among children that could not produce satisfied agricultural outcome.

Financial support in model IV may come from any distance of sources. Male and female elderly consider their children as their primary financial support. Thus whether the elderly have son and/or daughter living any places is the dependent variable. Without a doubt, the elderly who were married in 1994 as well as older elderly were more likely to have children in 2000 due to less commonly contraceptive use back in their fertilized age. The larger household size in 1984 was negatively related to the availability of children in 2000, while the larger household size between 1984 and 1994 was positively related. The households with more members including children of elderly may have had limited resources to take care children, so the focal elderly in those households may have lost children before they became adults. However, the households with more members in 1994 provided more options of children.

Emotional support in model V could be delivered to the elderly distantly. Whether the elderly have their spouse living any places in 2000 is the dependent variable for both male and female elderly. Age was negatively significant, while household size in 1984 was positively significant. The older elderly are more likely to suffer a bereavement, especially the lost of spouse. The larger household size mostly included spouse. There is no evidence from the model showing significant household wealth.

Table 4.15 Prediction of factors affecting the presence of preferred kin by types of support among male elderly (* P-value < .05)

Male Elderly's Preference	Model I Meal Preparation			Model II Personal Care			Model III Transportation			Model IV Financial Support			Model V Emotional Support		
	Spouse in Village			Spouse in Village			Son and/or Daughter in Village			Son and/or Daughter Living Anywhere			Spouse Living Anywhere		
Independent Variables	Coefficient	P-value	Std. Error	Coefficient	P-value	Std. Error	Coefficient	P-value	Std. Error	Coefficient	P-value	Std. Error	Coefficient	P-value	Std. Error
Married 1994							0.61	0.05	0.31	1.78	0.00	0.29			
Age in 1984	-0.08	0.00	0.01	-0.08	0.00	0.01	0.10	0.00	0.02	0.05	0.02	0.02	-0.08	0.00	0.01
Prathom1-3 vs No Education	0.06	0.87	0.35	0.06	0.87	0.35	0.53	0.36	0.58	-0.76	0.27	0.69	-0.07	0.84	0.35
Prathom 4 vs No Education	0.36	0.14	0.25	0.36	0.14	0.25	0.49	0.18	0.36	-0.66	0.20	0.52	0.30	0.24	0.25
Prathom 5 and higher vs No Education	0.74	0.10	0.45	0.74	0.10	0.45	-0.26	0.61	0.51	-0.87	0.21	0.69	0.55	0.23	0.46
Non-agricultural occupation in 1984	0.43	0.38	0.50	0.43	0.38	0.50	-0.60	0.18	0.45	-0.44	0.45	0.58	0.65	0.22	0.53
Household size 1984	0.18	0.01	0.07	0.18	0.01	0.07	0.15	0.03	0.07	-0.22	0.00	0.06	0.19	0.00	0.07
Whether and how much household size increased between 1984 and 1994	-0.14	0.03	0.07	-0.14	0.03	0.07	0.09	0.26	0.08	0.57	0.00	0.08	-0.13	0.05	0.07
Land ownership in 1984	0.00	0.45	0.00	0.00	0.45	0.00	0.00	0.59	0.00	0.01	0.27	0.01	0.00	0.54	0.00
Car owned in 1994	-0.15	0.68	0.35	-0.15	0.68	0.35	0.04	0.92	0.44	0.18	0.72	0.49	-0.11	0.77	0.36
Motorcycle owned in 1984	-0.19	0.58	0.35	-0.19	0.58	0.35	-0.26	0.52	0.41	-0.17	0.75	0.53	0.00	1.00	0.37
Motorcycle owned in 1994	0.01	0.97	0.19	0.01	0.97	0.19	0.43	0.07	0.24	0.15	0.58	0.27	-0.02	0.91	0.20
Whether a household needs to improve earning in 1984	-0.17	0.38	0.19	-0.17	0.38	0.19	0.04	0.86	0.23	0.07	0.82	0.29	-0.25	0.20	0.20
Whether a household needs to improve their house in 1984	0.25	0.40	0.30	0.25	0.40	0.30	1.06	0.03	0.48	0.19	0.67	0.44	0.15	0.62	0.30
Water irrigation in village in 1984	0.17	0.35	0.19	0.17	0.35	0.19	-0.74	0.00	0.25	-0.07	0.80	0.28	0.17	0.36	0.19
Bus system in village in 1994	0.19	0.45	0.26	0.19	0.45	0.26	-0.36	0.28	0.33	0.18	0.61	0.35	0.10	0.71	0.27
Average distance between 2 neighbors (in meters) in 2000	0.01	0.12	0.01	0.01	0.12	0.01	-0.02	0.01	0.01	-0.02	0.13	0.01	0.01	0.18	0.01
Constant	4.18	0.00	0.93	4.18	0.00	0.93	-3.12	0.02	1.32	-0.21	0.89	1.47	4.44	0.00	0.96

Table 4.16 Prediction of factors affecting the presence of preferred kin by types of support among female elderly (* P-value < .05)

Female Elderly's Preference	Model I Meal Preparation			Model II Personal Care			Model III Transportation			Model IV Financial Support			Model V Mental Support		
	Daughter in Village			Daughter in Village			Son and/or Daughter in Village			Son and/or Daughter Living Anywhere			Spouse Living Anywhere		
Independent Variables	Coefficient	P-value	Std. Error	Coefficient	P-value	Std. Error	Coefficient	P-value	Std. Error	Coefficient	P-value	Std. Error	Coefficient	P-value	Std. Error
Married 1994	0.53	0.00	0.13	0.53	0.00	0.13	0.87	0.00	0.17	1.79	0.00	0.22			
Age in 1984	0.05	0.00	0.01	0.05	0.00	0.01	0.08	0.00	0.01	0.05	0.00	0.02	-0.10	0.00	0.01
Prathom1-3 vs No Education	-0.41	0.08	0.23	-0.41	0.08	0.23	-0.22	0.47	0.30	-0.04	0.92	0.36	0.12	0.57	0.21
Prathom 4 vs No Education	0.10	0.58	0.18	0.10	0.58	0.18	0.27	0.24	0.23	0.13	0.63	0.27	0.09	0.56	0.15
Prathom 5 and higher vs No Education	-0.61	0.29	0.58	-0.61	0.29	0.58	-0.59	0.37	0.66	0.26	0.78	0.91	-0.30	0.59	0.57
Non-agricultural occupation in 1984	-0.28	0.42	0.35	-0.28	0.42	0.35	-0.30	0.49	0.43	-0.51	0.30	0.49	-0.35	0.29	0.33
Household size 1984	0.13	0.00	0.05	0.13	0.00	0.05	0.05	0.39	0.06	-0.26	0.00	0.05	0.11	0.00	0.04
Whether and how much household size increased between 1984 and 1994	0.03	0.56	0.05	0.03	0.56	0.05	0.17	0.01	0.06	0.60	0.00	0.07	-0.06	0.14	0.04
Land ownership in 1984	0.00	0.38	0.00	0.00	0.38	0.00	0.00	0.44	0.00	0.00	0.49	0.00	0.00	0.85	0.00
Car owned in 1994	0.13	0.65	0.29	0.13	0.65	0.29	0.07	0.85	0.37	1.14	0.07	0.62	0.11	0.64	0.24
Motorcycle owned in 1984	0.14	0.59	0.27	0.14	0.59	0.27	-0.14	0.68	0.33	0.62	0.26	0.55	0.23	0.32	0.23
Motorcycle owned in 1994	0.00	1.00	0.15	0.00	1.00	0.15	-0.06	0.75	0.19	-0.08	0.71	0.22	0.18	0.14	0.12
Whether a household needs to improve earning in 1984	0.04	0.78	0.15	0.04	0.78	0.15	0.14	0.49	0.20	-0.16	0.51	0.24	-0.01	0.91	0.13
Whether a household needs to improve their house in 1984	-0.15	0.46	0.20	-0.15	0.46	0.20	0.27	0.34	0.29	0.23	0.51	0.35	-0.17	0.34	0.18
Water irrigation in village in 1984	-0.41	0.00	0.14	-0.41	0.00	0.14	-0.55	0.00	0.19	-0.43	0.07	0.23	0.10	0.42	0.12
Bus system in village in 1994	-0.44	0.04	0.22	-0.44	0.04	0.22	-0.43	0.14	0.29	0.19	0.54	0.31	0.15	0.37	0.17
Average distance between 2 neighbors (in meters) in 2000	0.00	0.60	0.01	0.00	0.60	0.01	-0.01	0.26	0.01	0.00	0.79	0.01	0.01	0.16	0.00
Constant	-2.13	0.01	0.76	-2.13	0.01	0.76	-2.44	0.02	1.01	-1.02	0.37	1.15	3.90	0.00	0.63

CHAPTER V
DISCUSSION AND CONCLUSION

This chapter summarizes and discusses the findings aiming to answer the research questions about the change of kinship network of the elderly, the availability of kin preference for assistance and support, and factors affecting the availability of preferred kin. The findings of this study are presented in figure 5.1 the causal model of kinship networks of the Thai elderly for assistance and support.

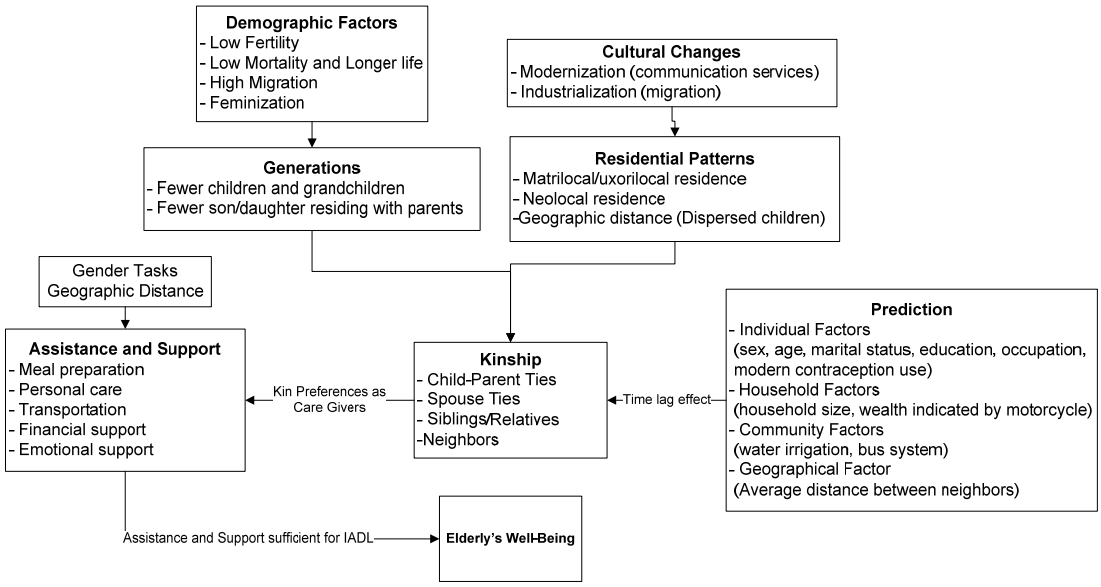

Figure 5.1 Causal model of kinship networks of the Thai elderly for assistance and support

The change of kinship network is caused by demographic factors. Low fertility and mortality result that people live longer with the fewer number of kin in younger generations. In addition, high migration among people in labor force age causes more elderly parents left behind. These demographic factors consequently changes Thai population in generations. Regarding modernization and

industrialization, people adapt their residential pattern to be closer resources which may be far from their origin and parental houses. With the limited social welfare services in Thailand, kin especially children are considered as the elderly's security. The changes in the number of population in younger generations and their residential pattern have a significant effect on the availability of kin inevitably.

The kin preferences of assistance and support for the elderly in rural Thailand were studied to better understand whom the elderly prefer to ask or receive assistance and support. These kin preferences were used as the guidelines to determine whether the elderly were able find their preferences for a particular assistance and support or not. Five types of assistance and support including meal preparation, personal care, transportation, financial and emotional support, should help to maintain the elderly's Instrumental Activities of Daily Living (IADL) and provide longer term and palliative care. Meal preparation and personal care are somehow considered as female gender tasks. Some tasks i.e. meal preparation, personal care, and transportation require contact in persons, so geographic distance does matter to provide assistance within a certain time.

Factors affecting the availability of preferred kin are investigated by the logistic regression models. Due to the effect of time lag, the variables in 1984 and 1994 including the characteristics of individuals, households, communities were used to predict the consequence of available kin in 2000. The average distance between neighbors is the only factor derived from the data collected in 2000. This spatial data set was calculated from the GPS location of focal elderly's and their neighbors' residence. Thus, it is assumed that those household locations have not changed overtime and there were few new households established.

5.1 Changes of Kinship Network

The study of kinship network focuses on the focal elderly who were found in the 1984 survey and reach 60 years old or older by the survey in 2000. The characteristics of focal elderly in the prior years of surveys (1984, 1994) are used to predict factors affecting the availability of preferred kin in the later year (2000). The reason is that historic events somehow cause the result in later time. In order to

compare the availability of kin ties of the elderly, all elderly aged 60 and over in 1984 and 1994 are used. The kinship network of the elderly includes blood relatives and relatives by marriage such as child-parent, spouse, and siblings. However, the Nang Rong dataset has the completed network data of child-parent and spouse ties within the village which is the most potential kin. To see the changes over time, the results of network analysis are categorized by gender of focal elderly and presented by the year of survey.

5.1.1 Child-Parent Ties

Child-parent ties are determined by the four ties of dyads: father-son, father-daughter, mother-son, and mother-daughter. This study found that the proportion of available father-son ties in the village declined from 1984 to 1994 and remained about the same pace in 2000. At least 60 percent of male elderly had their son in the village during the entire period. The proportions of available ties for father-daughter, mother-son, and mother-daughter increased from 1984 to 2000. The proportions of female elderly with their son, as well as their daughter, were lower than that of male elderly. When considering the gender of children, daughters are more likely to live within the village than do sons for both male and female elderly. The evidence from qualitative study confirms that the post-nuptial residence of matrilocality has been practicing in the study area. Daughters tend to live at their parental houses or within the same compound of their parents after they are married, while sons move to live at their wife’s parental houses at least after marriage. From the qualitative study, the elderly participants mentioned that their children followed the matrilocal custom. Nonetheless, many of them gave some examples of adaptation. Many daughters met their husband elsewhere. They came to have a wedding at their hometown and stayed at their parental house for a few days and moved out to live near their workplace. Some of them build their new house in or out of their village. The location of new house depends upon their or their husband's workplace.

In addition, the evidence from the spatial analysis is consistent that the average distance between focal elderly to the nearest daughter is shorter than the average distance to son. The proportion of daughter residing with their parents is

higher than that of son. However, the proportion of daughters as well as sons residing with male elderly was higher than their female counterparts. I speculate that male elderly, including male elderly who live with spouse, have health conditions and are less likely to live on their own. Therefore, male elderly are more likely to need assistance and support for daily basis such as meal preparation and personal care from children than female elderly. Despite the fact, no evidence was found to explain this phenomenon. The future research should consider this matter. The calculation of average distance between elderly parents to the nearest son and daughter is limited by the boundary of village due to the available kinship network data. Thus the different distance between sons and daughters to their parents in the village ranges about 60-70 meters. There were very few number of elderly lived by themselves.

The proportions of focal female elderly (G1) with their son and daughter in 2000 were .59 and .78 respectively. Among these focal female elderly's children (G2), the proportions of them with their son and daughter living in the village are .58 and .60. The proportion of sons with their mother is not substantially different, but the proportion of daughters with their mother between generations dropped about 18 percent. This evidence suggested that the much lower proportion of daughters (G3) who can potentially be care givers for their parent generation (G2) might be troublesome. In addition, the G3 children in the village were in school age. After finished a certain level of education, they may move out of the village for higher education or seek a job opportunities elsewhere. This will cause even smaller number of children, especially daughters in the villages.

According the modernization, local people adapt their custom with respect to the demographic and cultural changes (Mason 1992). Post-nuptial residence might be changed from matrilocal to neolocal residence, so that people can access resources and opportunities which often located in urban areas. Although most of elderly in the focal generation have their children available in village, sooner or later, people of next generation who are becoming elderly will definitely have fewer children to provide care for them.

5.1.2 Spouse Ties

The proportion of focal elderly from the survey in 2000 living with spouse in the village are used to compare to the elderly aged 60 and over by 1984 and 1994. The proportion of male elderly living with spouse in the village increased from .66 in 1984 to .80 in 2000 and from .33 in 1984 to .45 in 2000 for female elderly. The proportion of male elderly living with spouse in the village is about twice as high as the proportion of female elderly over time. There were about 38 and 31 percent of male and female elderly living with elderly spouse in the village in 1984. These percentages increased to 56 and 42 percent for male and female elderly respectively in 1994 and remained the same level in 2000. The increasing proportion of elderly living with spouse can be explained by the improvement of medical technology which has been increasing people's life span. Usually, an elderly couple resides at the same place. Due to the increasing proportion of elderly with spouse in the village suggest that the older people could ask for assistance from their spouse or look after one another for longer period of time. However, among vulnerable older people, there were more elderly with elderly spouse who may have difficulties to take care of one another instead of providing helps.

5.2 Availability of Preferred Kin

To better understand the persons whom the elderly may ask for or receive assistance and support, the qualitative approach was used to investigate the elderly's kin preference in April 2012. This study focuses on five types of assistance and support that should help the elderly maintain their necessary daily living functions according to the instrumental activities of daily living (IADL). The focused assistance and support are meal preparation, personal care, transportation, financial and emotional support. Since these tasks are dominated by gender regarding traditional beliefs embedded in a particular society, the kin preferences of male and female elderly were studied separately by the focus group discussion. Seven villages in Nang Rong district were drawn geographically dispersed which contains slightly different

characteristics of agricultural cultivation and language or dialect mostly used in each village. Despite the difference of location and composition in the village[1], the elderly expressed their opinions about their kin preferences similarly. The reason for those choices of preferences is based upon the post-nuptial residence pattern found in the northeastern Thailand (Limanonda 1979; Podhisita 1984; Yoddumnern-Attig, Richter et al. 1992) and the accessibility restricted by geographical distance.

The availability of kin preference is based on the qualitative study shown in table 4.9. This table summarizes the possibility of the elderly's kin preference taken into account of the kinship network found in 2000. The availability of kin preference is presented by types of assistance and support and gender of elderly. Meal preparation, personal care, and transportation are considered as the distance-restricted tasks. This means that the care givers have to be around or live within a certain distance that allows them to provide the required assistance or allow the elderly reach them in time. This study attempts to address a point that living arrangement within households may be misleading the potential care givers available for the elderly because the kin who are able to travel to provide support regularly should also be potential care givers. In addition to the distance matter, meal preparation and personal care are considered as female tasks. The first two ranks of kin preference that the elderly mentioned are their close kin, so the percentage of elderly who are able to find their preferred kin by types of assistance and support are summarized here.

Male elderly preferred their spouse, while female elderly preferred their daughters for meal preparation and personal care. This fact reflects actual as females are more likely to be widowed. 96.7 percent of male elderly can find their first two preferences which are their spouse and daughter for meal preparation and personal care. 88.6 percent of female elderly can find the first two preferences of meal preparation from their daughters and/or sons. Since personal care necessarily needs to contact the elderly personally, female elderly prefer female kin to take care that are their daughters and granddaughters. The percentage of kin preference for personal care among female elderly is 86.6 which is slightly lower than the percentage of kin preference for meal preparation. 94.4 and 89 percent of male and female elderly can

[1] see table 4.6 Characteristics of 14 focus group participants and table 4.7 Characteristics of villages studied by focus group discussion

access to a transport provided by their preferred kin. Male elderly may ask their children or grandchildren for the transport, while female elderly are more specific to their children who are the first preference. Otherwise, they may ask their siblings or relatives for this assistance. These numbers suggest that almost elderly in the study area were able to access their preferred kin within the village for gender and distance-restricted assistance and support.

Financial and emotional support can be delivered by communication services such as money transfer and telephone, so geographical distance is not a significant obstacle. Both male and female elderly prefer their children who live at anyplace for financial support. However, children of male elderly are more accessible, 98 percent, than their female counterparts, 95 percent. Because elderly females tend to live longer than their husband, they are more likely to lose their children. 96.9 percent of male elderly were able to access their spouse or daughters for emotional support as their first two preferences. 94.8 percent of female elderly were able to access their spouse and sons and/or daughters for the same support. Almost elderly can access to their first two kin preferences for financial and emotional support. The elderly participants were asked to rank their preferred kin by types of support. However, it is not clear-cut whether their responses reflect their preferences or not. The elderly may consider by the combination of feelings such as expectation, norm, and actual practice, they experienced.

Siblings, relatives, and neighbors are referred when the elderly's kin preference are not available for all assistance and support. Neighbors may include their siblings and wife's sibling and relatives. In addition, some people consider their non-relatives neighbors as their relatives because they help one another very well and this makes them feel close. Unfortunately, there is no completed network data set of siblings and relatives of the elderly. Therefore, this study cannot identify the availability of elderly's siblings, relatives, and neighbors in numbers.

This study examined the preferences that Thai elderly receive support and assistance for five types: meal preparation, personal care, transportation, financial support, and emotional support. The study area is a district located in northeast Thailand where most of people work in the agricultural sector. In addition, matrilocal

residence typically exists for the generation of the elderly and their children. Newly married couples tend to live at wife's place. The elderly usually have at least a daughter as their care givers. It is considered an obligation of a good child that she should take care of their parents when they become older and can no longer work. According to this matrilocal residence, the elderly tend to consider their daughter as their kin preference in most of types of assistance and support. With the respect to matrilocal culture, typically the closest child is their daughter. A study of Spitze and Logan's study (1990) stated that the key to receive help is having at least a daughter. The finding of my study corresponds to their study that daughters are preferred and more likely to be with their parents in the village.

Although advanced communication technology have emerged, the elderly consider their kin who live geographically closest to be the ones on whom they rely. In 2000, the proportion of the households having telephones and/or mobile is 0.03. By the time of this study in 2012, cell phones can be found more in households in the villages. Almost elderly or their households in the study area own a cell phone. It is not a big deal for children to afford for the most reasonable price of cell phone which may cost less than 30 U.S. dollars. Since answering calls are not charged for services, the cheapest prepaid credit of about 5 U.S dollars lasts one year. Despite the affordable communication cost, the elderly prefer to have someone living nearby rather than to contact to those far away. Thus closest children, mostly daughters as well as siblings who are neighbors, are the elderly's preference. The presence of younger generation can be determined as the elderly's psychological security in their old age (Kivett 1985). In addition, the geographic proximity affects the closeness between the older persons and their relatives (Kivett 1985).

Gender tasks are the determinants of selective kin preference. Elderly expressed towards care givers by gender of respondents and types of support which are meal preparation, personal care, transportation, financial support, and mental support. Meal preparation and personal care are considered to be female tasks. Both male and female elderly prefer female kin for personal care. Female elderly feel more comfortable to receive an intimate assistance from the same gender, while male elderly prefer their close kin that is their spouse. Daughters as their closest kin play significant roles of children's obligation. This finding is consent with Curran's study

referred in Vanwey (2004) that women send more remittances in rates and levels than men do (Curran 1995). Moreover, Vanwey found the patterns of remittances comparing between male and female migrants and households in rural Thailand that women behave more altruistically, while men behave more contractually (Vanwey 2004). This affirms why daughter remain preferred kin among elderly parents.

Figure 2.4 visually shows the factors influencing supports preferences in three dimensions, gender, geographic distance, and closeness of kin. Five supports are served differently regarding the gender of both receivers and givers and closeness of kin. The options available to an elderly person may be limited by geographical distance. For example, a widowed elderly male may prefer his daughter to prepare food every day. However, this would be impossible or difficultly feasible if she lives in another village, 10 kilometers away. So the elderly might ask a granddaughter living closer to cook for him instead. The preferences show the elderly's preferred kin they would ask for assistance or help; however, the availability of kin may not meet their preferences. The elderly who have available care givers match their kin preferences each support seem to have their psychological security. The elderly can be confident that they should receive help when asking and from whom they feel comfortable.

Although neighbors are not included into kin by the definition of this study, they play an important role of elderly support, especially when their close kin, such as their spouse and children, are not available. Geographically, the neighbors live close to the elderly. So, the elderly may ask them for necessary helps and emergent requests. Sharing food is a common behavior found in the Thai context. People kindly keep eyes on neighbors to see whether they need helps. Neighbors may offer their assistance without their expectation of return especially when the elderly have difficulties in their daily living. When one helps one another, he or she takes this as gratitude and one should do something in return. For example, a neighbor drives the elderly to a hospital for an emergent medical treatment. Some neighbors may not request for any expense; however, some people may. The elderly consider their neighbors' help of both cases as the gratitude of which they have to pay back in a way. Attending and giving their labor for neighbors' occasional event, such as the wedding

of neighbor's children, ordination ceremony of a son, and funeral of relatives, are a way of paying back. Because the villages studied are in the rural areas, except one where it has become more urbanized due to expanded city, there are not much different among these villages.

5.3 Factors Affecting the Availability of Preferred Kin

The logistic regression models are developed to determine independent variables as the predictors of the availability of first kin preference among the focal elderly. The dependent variable is the availability of preferred kin examined through kinship network by child-parent and spouse ties. Independent variables are considered as time-lag factors; therefore, the factors occurred in 1984 and 1994 caused the outcome in 2000. The models by types of assistance and support and gender of focal elderly take into account of demographic factors (age, marital status, and household size), socio-economic factors (education, occupation, land ownership, and household asset such as cars and motorcycles, improvement need of earning and building/improving a house), community factors (water irrigation and bus system), and a spatial factor of average distance between two neighbors. All variables are taken from either 1984 or 1994 except the average distance between two neighbors which is derived from the data collected in 2000. With respect to the assumption of few households' location changed during the period, the average distance between neighbors should not significantly change.

Demographic factors including age, marital status (omitted if spouse is the first preference), and household size are significantly related to the availability of kin in all models for both male and female elderly. In case of spouse as kin preference, people in older age are less likely to find spouse available according to the bereavement among the elderly. In the financial support model, the larger household size is positively significant for the availability of preferred kin among male and female elderly. For every person increases in a household, the availability of children living anyplace increase by the factor of 1.76 and 1.82 for male and female elderly respectively, holding all other independent variables constant. It is more possible for the larger household to increase the availability of preferred kin for financial support.

The average distance between two neighbors is negatively related to the availability of children in the village in the model of transportation among male elderly, but it is not significant among female elderly. The further average distance between two neighbors is, the more likely male elderly have their children in the village. Although there is no evidence from qualitative study to support this finding, it can be speculated that their children may consider living close to their elderly father if they live further from their neighbors. The average distance between two neighbors is not statistically significant among female elderly because of matrilocal residence (daughters tend to reside with or live nearby their mother). Among 51 villages, the average distance between two neighbors ranges from 21 to 64 meters in which usually one can walk easily. So they can easily reach their neighbors for sudden helps.

Water irrigation in 1984 and bus system in 1994 are negatively related to the availability of daughter in the village in the model of meal preparation and personal care among female elderly. Daughters as the young women by the time of survey may prefer to work in non-agricultural sector. They may decide to move out of village easier due to the bus system. Wealth indicated by household asset is not statistically significant for having children in the village in all models among both male and female elderly. In model III transportation for male elderly, the elderly are less likely to have children available in the village. The economic reason indicated by the perception of household improvement needs negatively affects the availability of children and causes out-migration among adult children. For model V emotional support, age and household size are related to the availability of spouse. Typically, the elderly couples live in the same house. Due to the higher death rate in older age, the older people are less likely to have their spouse. Those who live in larger household size in 1984 are more likely to have their spouse for emotional support.

According to the kin preference and the models predicting the availability of kin, female kin seem to be the kin preference of elderly care in the models of meal preparation and personal care (wife for male elderly, daughter for female elderly). The female elderly are helpful care givers for their husband. However, they may not be able to do these duties for the rest of their life due to their health problems in their

older age. The closest and preferred female kin like daughters could be the most potential kin who can provide cares for their older parents.

5.4 Limitation

The attempt of this study is to investigate the availability of kinship network of the elderly in rural Thailand that should help the elderly to live with higher well-being. To improve the elderly's well-being to reach the adequate living condition, the sufficient assistance and support should be served the elderly properly especially from their potential kin which could be found through their kinship network. This study makes use of the longitudinal demographic survey conducted in the northeastern Thailand since 1984 and integrates multiple approaches to understand the Thai kinship network. The data set provides the completed social network data among kin that is child-parent, spouse, and siblings; however, the sibling network is limited by age of respondents, 18-41 years old by 2000. Since there is no completed sibling network data for the elderly aged 60 and over, the availability of elderly's siblings could not be specified in numbers. Moreover, the social network boundary is restricted by the village boundary. Although all individuals who had ever been enumerated were linked by social ties, there may be few individuals had never been enumerated at anytime of survey. Since very few individuals lost to the enumeration, this research recruits almost all social ties in Nang Rong into the study.

5.5 Recommendation

Since the elderly's kinship networks in the village became smaller regarding the demographic and cultural changes and neighbors were mentioned for urgent assistance, the future research may study the elderly's neighbors and roles of neighbors related to cares given toward the elderly. Since changes in socio-economic conditions can be expected in the future, this may affect the elderly's way of living as well as the neighbors who are no longer be of help as it is at present. In addition, the study on the community network to set up some kind of mechanism to help out the

elderly who need support would be valuable for the elderly in the future such as volunteers, meals-on-wheel, and house visit.

The demographic and cultural changes affected the elderly's kinship network. This causes the fewer potential kin in later generations and their adaptation of post-nuptial residence. Although the elderly from the recent survey in 2000 are likely able to find their kin as their reliance of care givers affirmed by the qualitative study in 2012, the evidence suggested that later generations will face difficulties of seeking care givers through their scant kinship network. The local authority should be prepared of elderly care or adequate facilities for their daily living.

Generalization of this study can be complied with the area where matrilocal norm and filial obligation play roles. The data were collected in the northeastern Thailand in 2012. Thus the kin preference found in this study might differ from time to time and the other part of Thailand where matrilocal residence do not play roles significantly. Moreover, the fading matrilocal norm may weaken the reliability of findings. However, as the elderly prefer specific kin to take care of them for particular assistance and support, both physically and sentimentally, the kin preference should be considered as part of the elderly's long-term care policy. The relationship between the elderly and their kin could not only maintain and strengthen the family institution, but yield benefits to the government sector in dealing with ageing society. Not only intergenerational care givers should be considered for the policy implication, but intra-generational should also be paid attention. Due to shrinking of intergenerational care givers, intra-generational care givers that are siblings or neighbors who are likely to live nearby can be the elderly’s potential helpers.

The policy implication of this study is that ageing society with shrinking of intergenerational care givers for the elderly should be concerned. Due to the smaller household size and changing residential pattern, parents in later generation will have fewer potential kin especially daughter. The care giver for the elderly is a serious issue when there is no close kin living nearby and when they cannot take care of themselves or cannot take care of their elderly spouse. If it is the case, long term and palliative care for the elderly should be prepared at institutions.

BIBLIOGRAPHY

Adams, B. N. (1967). Interaction Theory and the Social Network. *Sociometry, 30*(1), 64-78.

Bachrach, C. A. (1980). Childlessness and Social Isolation among the Elderly. *Journal of Marriage and Family, 42*(3), 627-637.

Barton, B. (1978). The Creation of Centrality. *Annals of the Association of American Geographers, 68*(1), 34-44.

Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine, 51*, 843-857.

Bloom, D. E., Craig, P. H., & Malaney, P. N. (2001). *The Quality of Life in Rural Asia* (Vol. 4). New York: Oxford University Press.

Booth, A., & Amato, P. R. (1994). Parental Marital Quality, Parental Divorce, and Relations with Parents. *Journal of Marriage and Family, 56*(1), 21-34.

Borgatti, S. P., Mehra, A., Brass, D. J., & Labianca, G. (2009). Network Analysis in the Social Sciences. *SCIENCE, 323*.

Branch, L. G. (2000). Assessment of Chronic Care Need and Use. *The Gerontologist, 40*(4), 390-396.

Bruggeman, J. (2008). *Social Networks: an Introduction*. Oxon: Routledge.

Campbell, L. D., & Martin-Matthews, A. (2003). The Gendered Nature of Men's Filial Care. *Journal of Gerontology: Social Sciences, 58B*(6), S350-S358.

Casterline, J. B., Williams, L., Hermalin, A., Chang, M.-c., Chayovan, N., Cheung, P., . . . Ofstedal, M. B. (1991). Differences in the Living Arrangements of the Elderly in Four Asian Countries: The Interplay of Constraints and Preferences. *Elderly in Asia Report, 91*(10).

Chamratrithirong, A., Morgan, S. P., & Rindfuss, R. R. (1988). Living Arrangements and Family Formation. *Social Forces, 66*(4), 926-950.

Chandrung, K. (1940). *My Boyhood in Siam*. New York.

Cook, K. S., & Whitmeyer, J. M. (1992). Two Approaches to Social Structure: Exchange Theory and Network Analysis. *Annual Review of Sociology, 18*, 109-127.

Cornwell, B., Laumann, E. O., & Schumm, L. P. (2008). The Social Connectedness of Older Adults: A National Profile. *American Sociological Review, 73*, 185-203.

Cowgill, D. O. (1986). *Aging around the world*. Belmont California: Wadsworth Pub. Co. .

Cravey, A. J., Washburn, S. A., Gesler, W. M., Arcury, T. A., & Skelly, A. H. (2001). Developing socio-spatial knowledge networks: a qualitative methodology for chronic disease prevention. *Social Science & Medicine, 52*, 1763-1775.

Curran, S. R. (1995). *Gender Roles and Migration: 'Good Sons' vs. Daughters in Rural Thailand*. Working paper (Seattle Population Research Center). Center for Studies in Demography and Ecology, University of Washington. Seattle, Washington.

Devillanova, C. (2008). Social networks, information and health care utilization: Evidence from undocumented immigrants in Milan. *Journal of Health Economics, 27*, 265-286.

Doreian, P., & Conti, N. (2010). Social context, spatial structure and social network structure. *Social Networks*.

Dwyer, J. W., & Miller, M. K. (1990). Differences in Characteristics of the Caregiving Network by Area of Residence: Implications for Primary Caregiver Stress and Burden. *Family Relations, 39*(1), 27-37.

Embree, J. F. (1950). Thailand-A Loosely Structured Social System. *American Anthropologist, New Series, 52*(2), 181-193.

Entwisle, B., Faust, K., Rindfuss, R. R., & Kaneda, T. (2007). Networks and Contexts: Variation in the Structure of Social Ties. *American Journal of Sociology, 112*(5), 1495-1533.

Fingerman, K. L., Hay, E. L., & Birditt, K. S. (2004). The Best of Ties, the Worst of Ties: Close, Problematic, and Ambivalent Social Relationships. *Journal of Marriage and Family, 66*(3), 792-808.

Foster, B. L. (1975). Continuity and Change in Rural Thai Family Structure. *Journal of Anthropological Research, 31*(1), 34-50.

Foster, B. L. (1984). Family Structure and the Generation of Thai Social Exchange Networks. In R. M. Netting, R. R. Wilk & E. J. Arnould (Eds.), *Households: comparative and historical studies of the domestic group* (pp. 84-105). Berkly: University of California Press.

Goode, W. J. (1960). Norm Commitment and Conformity to Role-Status Oligations. *American Journal of Sociology, 66*, 258.

Hirschman, C., & Rindfuss, R. R. (1982). The Sequence and Timing of Family Formation Events in Asia. *American Sociological Review, 47*(5), 660-680.

Hoyt, D. R., & Babchuk, N. (1983). Adult Kinship Networks: The Selective Formation of Intimate Ties with Kin. *Social Forces, 62*(1), 84-101.

Iecovich, E., Barasch, M., Mirsky, J., Kaufman, R., Avgar, A., & Kol-Fogelson, A. (2004). Social Suppport Networks and Loneliness among Elderly Jews in Russia and Ukraine. *Journal of Marriage and Family, 66*(2), 306-317.

Institute for Population and Social Research, M. U. (2012). Mahidol Population Gazette. In M. U. Institute for Population and Social Research (Ed.). Nakhornpathom: Institute for Population and Social Research, Mahidol University.

Jiang, L., & O'Neill, B. C. (2007). Impacts of Demographic Trends on US Household Size and Structure. *Population and Development Review, 33*(3), 567-591.

Johnson, E. S. (1978). “Good” Relationships Between Older Mothers and Their Daughters: A Causal Model. *Gerontologist, 18*(3), 301-306.

Kamo, Y., & Zhou, M. (1994). Living Arrangements of Eldelry Chinese and Japanese in the United States. *Journal of Marriage and Family, 56*(3), 544-558.

Kaufman, G., & Uhlenberg, P. (1998). Effects of Life Course Transitions on the Quality of Relationships between Adult Children and Their Parents. *Journal of Marriage and Family, 60*(4), 924-938.

Keyes, C. F. (1984). Mother or Mistress but Never a Monk: Buddhist Notions of Female Gender in Rural Thailand. *American Ethnologist, 11*(2), 223-241.

Kivett, V. R. (1985). Grandfathers and Grandchildren: Patterns of Association, Helping, and Psychological Closeness. *Family Relations, 34*(4), 565-571.

Knodel, J., Chayovan, N., & Siriboon, S. (1992). The Impact of Fertility Decline on Familial Support for the Elderly: An Illustration from Thailand. *Population and Development Review, 18*(1), 79-103.

Kobayashi, E. (2006). Trends in Old-Age Functioning and Disability in Japan, 1993-2002. *Population Studies, 60*(1), 39-53.

Kramarow, E. A. (1995). The Elderly Who Live Alone in the United States: Historical Perspectives on Household Change. *Demography, 32*(3), 335-352.

Lawton, L., Silverstein, M., & Bengtson, V. (1994). Affection, Social Contact, and Geographic Distance between Adult Children and Their Parents. *Journal of Marriage and Family, 56*(1), 57-68.

Lawton, M. P., & Brody, E. M. (1969). Assessment of older people: self-maintaining and instrumental activities of daily living. *Gerontologist, 9*(3), 179-186.

Limanonda, B. (1979). Mate Selection and Post Nuptial Residence in Thailand.: Institute for Population Studies, Chulalongkorn University.

Litwin, H. (1995). *Uprooted in old age: Soviet Jew and their social networks in Israel.* Westport: Greenwood Press.

Lye, D. N. (1996). Adult Child-Parent Relationships. *Annual Review of Sociology, 22*, 79-102.

Lye, D. N., Klepinger, D. H., Hyle, P. D., & Nelson, A. (1995). Childhood Living Arrangements and Adult Children's Relations with Their Parents. *Demography, 32*(2), 261-280.

Marsden, P. V. (1990). Network Data and Measurement. *Annual Review of Sociology, 16*, 435-463.

Mason, K. O. (1992). Family Change and Support of the Elderly in Asia: What Do We Know? *Asia Pacific Population Journal, 7*(3), 13-32.

McPherson, M., Smith-Lovin, L., & Brashears, M. E. (2006). Social Insolation in America: Changes in Core Discussion Networks over Two Decades. *American Sociological Review, 71*(3), 353-375.

Miner, S., & Uhlenberg, P. (1997). Intrageneratinal Proximity and the Social Role of Sibling Neighbors after Midlife. *Family Relations, 46*(2), 145-153.

Newman, M. E. J. (2003). The Structure and Function of Complex Networks. *SIAM Review, 45*(2), 167-256.

Ogawa, N., & Retherford, R. D. (1993). Care of the Elderly in Japan: Changing Norms and Expectations. *Journal of Marriage and Family, 55*(3), 585-597.

Pas, S. v. d., & Tilburg, T. G. v. (2009). The Influence of Family Structure on the Contact Between Older Parents and Their Adult Biological Children and Stepchildren in the Netherlands. *Journal of Gerontology: Social Sciences, 65*(2), 236-245.

Podhisita, C. (1984). Marriage in Rural Northeast Thailand: A Household Perspective. In A. Chamratrithirong (Ed.), *Perspectives on the Thai Marriage* (pp. 71-112). Bangkok, Thailand: Sri Anata Press.

Potter, S. H. (1979). *Family Life in a Northern Thai Village*. Berkley and Los Angeles, California: University of California Press.

Prasartkul, P., & Vapattanawong, P. (2001). *Life Table: A Powerful Demographic Tool*. Bangkok: Amarin Printing Co. Ltd.

Quinn, W. H. (1983). Personal and Family Adjustment in Later Life. *Journal of Marriage and Family, 45*(1), 57-73.

Rindfuss, R. R., Choe, M. K., Bumpass, L. L., & Tsuya, N. O. (2004). Social Networks and Family Change in Japan. *American Sociological Association, 69*(6), 838-861.

Rindfuss, R. R., Jampaklay, A., Entwisle, B., Sawangdee, Y., Faust, K., & Prasartkul, P. (2004). The Collection and Analysis of Social Network Data in Nang Rong, Thailand. In M. Morris (Ed.), *Network Epidemiology A Handbook for Survey Design and Data Collection* (pp. 175-200). New York: Oxford University Press.

Rogerson, P. A., Weng, R. H., & Lin, G. (1993). The Spatial Separation of Parents and Their Adult Children. *Annals of the Association of American Geographers, 83*(4), 656-671.

Smith, K. F., & Bengtson, V. L. (1979). Positive Consequences of Institutionalization: Solidarity Between Elderly Parents and Their Middle-Aged Children. *Gerontologist, 19*(5), 438-447.

Spitze, G., & Logan, J. (1990). Sons, Daughters, and Intergenerational Social Support. *Journal of Marriage and Family, 52*(2), 420-430.

Umberson, D. (1992). Relationships between Adult Children and Their Parents: Psychological Consequences of Both Generations. *Journal of Marriage and Family, 54*(3).

Vanwey, L. K. (2004). Altruistic and contractual remittances between male and female migrants and households in rural Thailand. *Demography, 41*(4), 739-756.

Wasserman, S., & Faust, K. (1994). *Social Network Analysis: Methods and Applications*. New York: Cambridge University Press.

Weinstein, M., Sun, T.-H., Chang, M.-C., & Freedman, R. (1990). Household Composition, Extended Kinship, and Reproduction in Taiwan: 1965-1985. *Population Studies, 44*(2), 217-239.

Wellman, B. (1983). Network Analysis: Some Basic Principles. *Sociological Theory, 1*, 155-200.

White, L. K., & Rogers, S. J. (1997). Strong Support but Uneasy Relationships: Coresidence and Adult Children's Relationships with Their Parents. *Journal of Marriage and Family, 59*(1), 62-76.

Yanagisako, S. J. (1977). Women-Centered Kin Networks in Urban Bilateral Kinship. *American Ethnologist, 4*(2), 207-226.

Yoddumnern-Attig, B., Richter, K., Soonthorndhada, A., Sethaput, C., & Pramualratana, A. (1992). *Changing roles and statuses of women in Thailand: a documentary assessment*. Nakhornpathom: Institute for Population and Social Research, Mahidol University at Salaya.

APPENDICES

APPENDIX A

TABLES

Table A1 Children ever born 1994 and living children 1994

Village Number	Number of focal female elderly	Children Ever Born 1994			Living Children 1994		
		Number of focal female elderly without children	Number of children ever born	Mean of children ever born	Number of focal female elderly without living children	Number of living children	Mean of living children
A	24	0	207	8.6	0	185	7.4
B	33	0	252	7.6	0	207	6.3
C	55	0	263	4.8	1	234	4.3
D	21	0	156	7.4	0	147	7.0
E	48	0	316	6.6	0	279	5.8
F	44	0	211	4.8	1	194	4.4
G	52	1	307	5.9	0	271	5.2
H	37	1	263	7.1	0	241	6.5
I	42	0	332	7.9	0	290	6.9
J	45	4	265	5.9	4	243	5.4
K	34	0	224	6.6	0	186	5.5
L	37	0	229	6.2	0	212	5.7
M	53	1	289	5.5	2	238	4.5
N	53	4	264	5.0	4	227	4.3
O	39	2	272	7.0	2	225	5.8
P	44	0	352	8.0	0	295	6.7
Q	61	1	434	7.1	1	367	5.8
R	49	2	333	6.8	2	294	5.9
S	35	0	226	6.5	0	184	5.3
T	43	0	275	6.4	0	239	5.6
U	42	2	276	6.6	2	219	5.2
V	29	0	143	4.9	1	130	4.5
W	50	2	284	5.7	2	246	4.8
X	26	1	158	6.1	1	140	5.2
Y	38	2	249	6.6	2	212	5.6
Z	30	0	192	6.4	0	170	5.7
AA	54	2	366	6.8	2	326	6.0
AB	34	0	247	7.3	0	219	6.4
AC	42	0	313	7.5	0	270	6.3
AD	62	0	361	5.8	0	329	5.3
AE	43	0	313	7.3	0	275	6.4
AF	59	2	319	5.4	2	294	5.0
AG	44	5	213	4.8	5	194	4.4

Table A1 Children ever born 1994 and living children 1994 (cont.)

Village Number	Number of focal female elderly	Children Ever Born 1994			Living Children 1994		
		Number of focal female elderly without children	Number of children ever born	Mean of children ever born	Number of focal female elderly without living children	Number of living children	Mean of living children
AH	41	0	223	5.4	0	175	4.3
AI	38	0	264	6.9	1	212	5.4
AJ	46	0	294	6.4	1	241	5.1
AK	90	2	534	5.9	3	424	4.7
AL	39	0	292	7.5	0	242	6.1
AM	37	0	224	6.1	0	207	5.6
AN	44	0	281	6.4	0	244	5.5
AO	29	1	166	5.7	1	160	5.5
AP	62	1	421	6.8	1	366	5.9
AQ	28	1	197	7.0	1	155	5.5
AR	31	0	253	8.2	0	194	6.3
AS	49	0	355	7.2	0	319	6.5
AT	36	1	250	6.9	1	198	5.5
AU	38	1	218	5.7	1	187	4.9
AV	44	0	327	7.4	0	270	6.1
AW	52	0	309	5.9	0	280	5.4
AX	35	1	241	6.9	1	204	5.7
AY	19	0	103	5.4	0	95	5.0
Total of Number/ Average of Mean	2,160	40	13,856	6.5	45	11,955	5.6

Table A2 Children in the village 1994 and children in the village in 2000

Village Number	Children in the village in 1994			Children in the village in 2000			
	Number of focal female elderly without children in villages	Number of children living in villages	Mean of children living in villages	Number of focal female elderly in 2000	Number of focal female elderly without children in villages	Number of children living in villages	Mean of children living in villages
A	2	88	3.7	20	2	85	4.3
B	3	88	2.7	34	3	93	2.7
C	15	122	2.2	54	10	115	2.1
D	0	64	3.0	20	0	68	3.4
E	2	173	3.6	40	2	156	3.9
F	6	86	2.0	41	4	103	2.5
G	5	117	2.3	40	5	126	3.2
H	5	143	3.9	33	2	134	4.1
I	4	167	4.0	35	2	160	4.6
J	11	104	2.3	40	9	109	2.7
K	3	100	2.9	30	5	96	3.2
L	7	97	2.6	36	6	96	2.7
M	10	133	2.5	46	9	117	2.5
N	14	153	2.9	43	6	135	3.1
O	2	110	2.8	33	2	96	2.9
P	4	129	2.9	41	2	116	2.8
Q	25	152	2.5	60	15	121	2.0
R	7	147	3.0	42	2	142	3.4
S	2	131	3.7	32	2	127	4.0
T	9	102	2.4	34	6	111	3.3
U	8	110	2.6	34	7	78	2.3
V	7	58	2.0	20	4	59	3.0
W	9	169	3.4	55	11	179	3.3
X	5	89	3.4	25	4	79	3.2
Y	6	106	2.8	32	2	105	3.3
Z	2	105	3.5	28	0	125	4.5
AA	3	259	4.8	44	5	214	4.9
AB	0	137	4.0	31	1	142	4.6
AC	4	120	2.9	37	3	113	3.1
AD	10	121	2.0	57	9	133	2.3
AE	3	155	3.6	36	3	146	4.1
AF	9	157	2.7	57	6	158	2.8
AG	9	90	2.0	38	9	81	2.1
AH	11	89	2.2	41	9	83	2.0
AI	6	106	2.8	28	2	90	3.2
AJ	12	159	3.5	49	8	139	2.8
AK	21	216	2.4	76	14	194	2.6
AL	2	133	3.4	33	2	125	3.8

Table A2 Children in the village 1994 and children in the village in 2000 (Cont.)

Village Number	Children in the village in 1994			Children in the village in 2000			
	Number of focal female elderly without children in villages	Number of children living in villages	Mean of children living in villages	Number of focal female elderly in 2000	Number of focal female elderly without children in villages	Number of children living in villages	Mean of children living in villages
AM	4	126	3.4	35	3	112	3.2
AN	2	175	4.0	37	1	164	4.4
AO	7	76	2.6	30	5	89	3.0
AP	8	225	3.6	51	5	232	4.5
AQ	6	49	1.8	25	6	58	2.3
AR	3	107	3.5	28	0	96	3.4
AS	12	155	3.2	43	2	164	3.8
AT	3	125	3.5	28	0	122	4.4
AU	8	146	3.8	32	4	145	4.5
AV	5	163	3.7	36	2	152	4.2
AW	8	111	2.1	47	5	113	2.4
AX	7	96	2.7	25	4	85	3.4
AY	1	77	4.1	18	0	72	4.0
Total of Number/ Average of Mean	337	6,416	3.0	1,910	230	6,153	3.3

Table A3 Mean of household size among focal elderly

Village No.	Mean of Household Size		
	1984	1994	2000
A	7.7	4.5	4.3
B	6.8	3.2	3.4
C	6.0	3.9	3.9
D	7.0	3.7	4.2
E	6.7	3.9	4.1
F	5.6	3.5	3.7
G	6.7	3.6	4.1
H	7.0	4.1	4.4
I	7.1	3.8	4.1
J	6.1	3.5	3.7
K	6.7	3.9	3.9
L	6.6	4.0	3.9
M	6.0	4.1	4.2
N	6.5	3.8	3.5
O	7.1	3.9	3.9
P	6.8	4.1	4.2
Q	6.3	3.8	3.8
R	6.0	3.3	3.5
S	6.8	3.7	4.3
T	6.8	3.6	3.8
U	6.8	4.2	3.9
V	6.3	3.9	3.6
W	6.2	4.0	4.1
X	6.6	4.1	3.9
Y	6.0	3.8	3.8
Z	6.9	4.4	4.5
AA	7.3	4.5	4.4
AB	6.9	3.7	4.0
AC	7.1	3.5	3.9
AD	5.8	3.4	3.7
AE	6.9	4.0	4.1
AF	6.4	3.5	4.0
AG	6.4	4.1	4.4
AH	6.1	3.8	4.0
AI	6.4	3.9	4.5
AJ	7.2	4.9	4.7
AK	6.2	4.3	4.4
AL	6.3	4.4	3.9
AM	6.3	3.8	3.9
AN	6.8	4.0	3.7
AO	6.2	3.3	4.1
AP	7.0	3.8	3.9
AQ	6.0	3.2	3.6
AR	7.1	3.6	3.8
AS	7.0	3.8	3.3
AT	6.9	4.0	4.6
AU	6.0	4.1	4.2
AV	7.1	4.2	3.8
AW	5.7	3.9	4.2
AX	6.9	3.7	3.7
AY	6.2	4.5	4.2
Average Household Size	6.6	3.9	4.0

Table A4 Proportion of elderly living in the same village with son and daughter in 1984

Village No.	Number of Elderly (60+) 1984		Number				Proportion			
			Male Elderly		Female Elderly		Male Elderly		Female Elderly	
	Male	Female	Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter
A	15	19	10	12	8	11	0.67	0.80	0.42	0.58
B	10	17	5	3	6	9	0.50	0.30	0.35	0.53
C	27	29	15	14	9	13	0.56	0.52	0.31	0.45
D	9	9	7	8	6	6	0.78	0.89	0.67	0.67
E	7	16	3	3	7	15	0.43	0.43	0.44	0.94
F	8	18	4	4	5	12	0.50	0.50	0.28	0.67
G	12	24	7	8	9	15	0.58	0.67	0.38	0.63
H	18	21	12	16	15	20	0.67	0.89	0.71	0.95
I	15	18	10	9	10	12	0.67	0.60	0.56	0.67
J	24	23	12	22	4	18	0.50	0.92	0.17	0.78
K	16	14	10	10	11	9	0.63	0.63	0.79	0.64
L	15	18	4	12	7	9	0.27	0.80	0.39	0.50
M	17	22	11	13	9	15	0.65	0.76	0.41	0.68
N	19	29	9	18	10	19	0.47	0.95	0.34	0.66
O	14	18	8	8	5	10	0.57	0.57	0.28	0.56
P	21	24	14	19	15	19	0.67	0.90	0.63	0.79
Q	18	35	10	15	9	20	0.56	0.83	0.26	0.57
R	18	23	10	16	11	16	0.56	0.89	0.48	0.70
S	10	18	8	10	10	10	0.80	1.00	0.56	0.56
T	12	10	6	10	6	8	0.50	0.83	0.60	0.80
U	10	21	6	9	5	12	0.60	0.90	0.24	0.57
V	8	20	3	6	6	8	0.38	0.75	0.30	0.40
W	15	20	7	12	13	11	0.47	0.80	0.65	0.55
X	13	11	7	9	8	7	0.54	0.69	0.73	0.64
Y	10	16	7	8	5	10	0.70	0.80	0.31	0.63
Z	13	9	10	11	5	7	0.77	0.85	0.56	0.78
AA	24	20	19	17	14	13	0.79	0.71	0.70	0.65
AB	13	11	9	11	7	7	0.69	0.85	0.64	0.64
AC	17	17	12	16	9	13	0.71	0.94	0.53	0.76
AD	15	25	12	12	14	17	0.80	0.80	0.56	0.68
AE	16	14	8	11	5	8	0.50	0.69	0.36	0.57
AF	14	13	8	12	7	6	0.57	0.86	0.54	0.46
AG	18	27	11	14	13	18	0.61	0.78	0.48	0.67
AH	15	20	9	10	7	14	0.60	0.67	0.35	0.70
AI	10	22	7	8	11	20	0.70	0.80	0.50	0.91
AJ	14	20	10	12	10	14	0.71	0.86	0.50	0.70
AK	21	43	12	13	14	23	0.57	0.62	0.33	0.53
AL	18	18	10	13	9	11	0.56	0.72	0.50	0.61
AM	15	14	12	13	9	9	0.80	0.87	0.64	0.64
AN	11	9	8	11	4	6	0.73	1.00	0.44	0.67
AO	10	11	7	8	6	9	0.70	0.80	0.55	0.82
AP	12	14	12	8	9	13	1.00	0.67	0.64	0.93
AQ	10	13	6	6	7	8	0.60	0.60	0.54	0.62
AR	16	16	15	13	12	12	0.94	0.81	0.75	0.75
AS	13	15	7	6	8	11	0.54	0.46	0.53	0.73
AT	17	19	10	13	7	12	0.59	0.76	0.37	0.63
AU	16	21	12	13	9	11	0.75	0.81	0.43	0.52
AV	8	11	7	6	7	6	0.88	0.75	0.64	0.55
AW	15	28	9	11	13	20	0.60	0.73	0.46	0.71
AX	17	16	15	14	10	10	0.88	0.82	0.63	0.63
AY	7	6	4	4	5	5	0.57	0.57	0.83	0.83
Total	736	945	466	560	440	617	0.63	0.75	0.49	0.66

Note: All elderly found in 1984

Table A5 Proportion of elderly living in the same village with son and daughter in 1994

Village No.	Number of Elderly (60+) 1994		Number				Proportion			
			Male Elderly		Female Elderly		Male Elderly		Female Elderly	
	Male	Female	Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter
A	12	22	6	9	10	17	0.50	0.75	0.45	0.77
B	24	24	13	17	15	18	0.54	0.71	0.63	0.75
C	37	42	17	25	21	27	0.46	0.68	0.50	0.64
D	10	14	6	9	10	12	0.60	0.90	0.71	0.86
E	16	26	10	13	17	23	0.63	0.81	0.65	0.88
F	18	33	10	13	16	26	0.56	0.72	0.48	0.79
G	26	32	15	19	16	24	0.58	0.73	0.50	0.75
H	22	32	14	18	19	26	0.64	0.82	0.59	0.81
I	30	27	16	25	16	22	0.53	0.83	0.59	0.81
J	28	43	15	18	16	25	0.54	0.64	0.37	0.58
K	19	26	12	15	16	17	0.63	0.79	0.62	0.65
L	23	27	10	18	9	20	0.43	0.78	0.33	0.74
M	25	40	14	18	13	29	0.56	0.72	0.33	0.73
N	24	40	12	18	14	25	0.50	0.75	0.35	0.63
O	21	30	12	16	10	25	0.57	0.76	0.33	0.83
P	30	35	16	26	21	30	0.53	0.87	0.60	0.86
Q	31	53	20	27	20	32	0.65	0.87	0.38	0.60
R	24	33	18	21	23	27	0.75	0.88	0.70	0.82
S	21	21	13	18	9	19	0.62	0.86	0.43	0.90
T	13	27	4	9	15	17	0.31	0.69	0.56	0.63
U	21	35	12	18	19	23	0.57	0.86	0.54	0.66
V	11	19	5	10	6	12	0.45	0.91	0.32	0.63
W	30	38	20	25	19	25	0.67	0.83	0.50	0.66
X	19	29	10	15	17	22	0.53	0.79	0.59	0.76
Y	21	27	13	16	12	19	0.62	0.76	0.44	0.70
Z	11	19	7	10	14	17	0.64	0.91	0.74	0.89
AA	30	28	22	27	21	23	0.73	0.90	0.75	0.82
AB	28	30	19	24	20	26	0.68	0.86	0.67	0.87
AC	25	35	12	20	18	27	0.48	0.80	0.51	0.77
AD	29	46	23	21	29	34	0.79	0.72	0.63	0.74
AE	19	24	8	15	13	21	0.42	0.79	0.54	0.88
AF	22	32	16	14	19	22	0.73	0.64	0.59	0.69
AG	22	34	10	13	13	23	0.45	0.59	0.38	0.68
AH	15	31	8	13	12	22	0.53	0.87	0.39	0.71
AI	18	30	13	10	13	23	0.72	0.56	0.43	0.77
AJ	16	40	10	12	23	27	0.63	0.75	0.58	0.68
AK	36	50	21	28	21	32	0.58	0.78	0.42	0.64
AL	27	31	20	21	21	22	0.74	0.78	0.68	0.71
AM	24	24	18	19	18	19	0.75	0.79	0.75	0.79
AN	19	19	13	17	16	15	0.68	0.89	0.84	0.79
AO	21	23	12	14	14	18	0.57	0.67	0.61	0.78
AP	25	27	20	20	21	21	0.80	0.80	0.78	0.78
AQ	13	17	8	10	8	12	0.62	0.77	0.47	0.71
AR	20	22	14	18	16	18	0.70	0.90	0.73	0.82
AS	22	31	16	17	20	23	0.73	0.77	0.65	0.74
AT	24	29	14	21	15	23	0.58	0.88	0.52	0.79
AU	27	30	13	23	14	21	0.48	0.85	0.47	0.70
AV	22	25	17	18	17	18	0.77	0.82	0.68	0.72
AW	23	44	12	17	17	32	0.52	0.74	0.39	0.73
AX	23	30	12	16	16	16	0.52	0.70	0.53	0.53
AY	14	16	10	10	13	12	0.71	0.71	0.81	0.75
Total	1,131	1,542	681	884	821	1,129	0.60	0.78	0.55	0.74

Note: All elderly found in 1994

Table A6 Proportion of focal elderly living in the same village with son and daughter in 2000

Village No.	Number of Focal Elderly 2000		Number				Proportion			
			Male Elderly		Female Elderly		Male Elderly		Female Elderly	
	Male	Female	Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter
A	14	20	7	11	13	18	0.50	0.79	0.65	0.90
B	25	34	16	16	20	24	0.64	0.64	0.59	0.71
C	43	54	15	32	23	39	0.35	0.74	0.43	0.72
D	13	20	6	13	13	19	0.46	1.00	0.65	0.95
E	23	40	16	21	24	34	0.70	0.91	0.60	0.85
F	21	41	16	18	22	33	0.76	0.86	0.54	0.80
G	32	40	18	24	21	29	0.56	0.75	0.53	0.73
H	30	33	19	24	18	29	0.63	0.80	0.55	0.88
I	34	35	23	31	23	31	0.68	0.91	0.66	0.89
J	28	40	14	18	18	26	0.50	0.64	0.45	0.65
K	25	30	16	20	20	20	0.64	0.80	0.67	0.67
L	28	36	13	22	15	27	0.46	0.79	0.42	0.75
M	34	46	18	26	20	31	0.53	0.76	0.43	0.67
N	38	43	20	33	20	33	0.53	0.87	0.47	0.77
O	23	33	9	18	15	26	0.39	0.78	0.45	0.79
P	26	41	15	24	21	36	0.58	0.92	0.51	0.88
Q	34	60	21	25	26	36	0.62	0.74	0.43	0.60
R	31	42	19	25	30	34	0.61	0.81	0.71	0.81
S	30	32	19	24	14	28	0.63	0.80	0.44	0.88
T	24	34	16	18	23	25	0.67	0.75	0.68	0.74
U	17	34	10	13	19	23	0.59	0.76	0.56	0.68
V	16	20	7	12	6	15	0.44	0.75	0.30	0.75
W	40	55	34	36	37	38	0.85	0.90	0.67	0.69
X	18	25	10	14	15	19	0.56	0.78	0.60	0.76
Y	20	32	13	19	17	28	0.65	0.95	0.53	0.88
Z	19	28	15	16	24	25	0.79	0.84	0.86	0.89
AA	39	44	29	35	31	39	0.74	0.90	0.70	0.89
AB	34	31	26	29	23	26	0.76	0.85	0.74	0.84
AC	26	37	15	18	23	30	0.58	0.69	0.62	0.81
AD	25	57	14	20	37	41	0.56	0.80	0.65	0.72
AE	32	36	16	29	22	32	0.50	0.91	0.61	0.89
AF	35	57	22	23	35	40	0.63	0.66	0.61	0.70
AG	27	38	12	18	17	26	0.44	0.67	0.45	0.68
AH	22	41	14	16	22	28	0.64	0.73	0.54	0.68
AI	20	28	12	17	19	23	0.60	0.85	0.68	0.82
AJ	26	49	14	21	26	34	0.54	0.81	0.53	0.69
AK	64	76	37	39	42	50	0.58	0.61	0.55	0.66
AL	31	33	20	25	20	26	0.65	0.81	0.61	0.79
AM	27	35	19	19	25	26	0.70	0.70	0.71	0.74
AN	34	37	25	27	30	28	0.74	0.79	0.81	0.76
AO	25	30	15	17	20	22	0.60	0.68	0.67	0.73
AP	43	51	28	34	36	41	0.65	0.79	0.71	0.80
AQ	20	25	10	14	12	19	0.50	0.70	0.48	0.76
AR	24	28	15	19	18	24	0.63	0.79	0.64	0.86
AS	32	43	23	26	31	36	0.72	0.81	0.72	0.84
AT	18	28	14	15	18	□6	0.78	0.83	0.64	0.93
AU	31	32	22	27	19	25	0.71	0.87	0.59	0.78
AV	31	36	20	25	28	31	0.65	0.81	0.78	0.86
AW	28	47	15	23	23	36	0.54	0.82	0.49	0.77
AX	25	25	15	18	12	18	0.60	0.72	0.48	0.72
AY	15	18	11	12	13	16	0.73	0.80	0.72	0.89
Total	1,420	1,910	868	1,119	1,119	1,469	0.61	0.79	0.59	0.78

Note: Focal elderly found in 2000

Table A7 Proportion of the elderly living with spouse in the same village in 1984

Village No.	Number of Elderly 60+ (***Non-Focal***)		Elderly Aged 60+ Married to Someone Aged 60+				Elderly Aged 60+ Married to a Person of Any Age			
			Number		Proportion		Number		Proportion	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
A	15	19	6	6	0.40	0.32	11	6	0.73	0.32
B	10	17	3	3	0.30	0.18	5	3	0.50	0.18
C	27	29	4	4	0.15	0.14	10	4	0.37	0.14
D	5	9	4	4	0.80	0.44	7	5	1.40	0.56
E	7	16	1	1	0.14	0.06	3	1	0.43	0.06
F	8	18	1	1	0.13	0.06	5	2	0.63	0.11
G	12	24	4	4	0.33	0.17	6	4	0.50	0.17
H	18	21	10	10	0.56	0.48	13	12	0.72	0.57
I	15	18	7	7	0.47	0.39	10	7	0.67	0.39
J	24	23	11	11	0.46	0.48	18	11	0.75	0.48
K	16	14	5	5	0.31	0.36	8	5	0.50	0.36
L	15	18	5	5	0.33	0.28	7	5	0.47	0.28
M	17	22	7	7	0.41	0.32	14	7	0.82	0.32
N	19	29	8	8	0.42	0.28	12	8	0.63	0.28
O	14	18	5	5	0.36	0.28	9	5	0.64	0.28
P	21	24	11	11	0.52	0.46	15	12	0.71	0.50
Q	18	35	8	8	0.44	0.23	12	9	0.67	0.26
R	18	23	7	7	0.39	0.30	13	8	0.72	0.35
S	10	18	3	3	0.30	0.17	6	4	0.60	0.22
T	12	10	3	3	0.25	0.30	6	3	0.50	0.30
U	10	21	3	3	0.30	0.14	6	3	0.60	0.14
V	8	20	3	3	0.38	0.15	3	3	0.38	0.15
W	15	20	6	6	0.40	0.30	10	6	0.67	0.30
X	13	11	5	5	0.38	0.45	9	5	0.69	0.45
Y	10	16	1	1	0.10	0.06	5	2	0.50	0.13
Z	13	9	4	4	0.31	0.44	8	4	0.62	0.44
AA	24	20	8	8	0.33	0.40	16	8	0.67	0.40
AB	13	11	6	6	0.46	0.55	12	6	0.92	0.55
AC	17	17	10	10	0.59	0.59	16	10	0.94	0.59
AD	15	25	10	10	0.67	0.40	13	11	0.87	0.44
AE	16	14	4	4	0.25	0.29	11	5	0.69	0.36
AF	14	13	5	5	0.36	0.38	7	5	0.50	0.38
AG	18	27	4	4	0.22	0.15	11	4	0.61	0.15
AH	15	20	5	5	0.33	0.25	8	5	0.53	0.25
AI	10	22	5	5	0.50	0.23	9	5	0.90	0.23
AJ	14	20	9	9	0.64	0.45	10	9	0.71	0.45
AK	21	43	10	10	0.48	0.23	14	10	0.67	0.23
AL	18	18	9	9	0.50	0.50	12	9	0.67	0.50
AM	15	14	6	6	0.40	0.43	13	7	0.87	0.50
AN	11	9	3	3	0.27	0.33	5	3	0.45	0.33
AO	10	11	3	3	0.30	0.27	7	3	0.70	0.27
AP	12	14	5	5	0.42	0.36	10	5	0.83	0.36
AQ	10	13	5	5	0.50	0.38	8	5	0.80	0.38
AR	16	16	9	9	0.56	0.56	11	9	0.69	0.56
AS	13	15	4	4	0.31	0.27	8	6	0.62	0.40
AT	17	19	5	5	0.29	0.26	11	5	0.65	0.26
AU	16	21	6	6	0.38	0.29	9	6	0.56	0.29
AV	8	11	1	1	0.13	0.09	5	1	0.63	0.09
AW	15	28	10	10	0.67	0.36	11	11	0.73	0.39
AX	17	16	5	5	0.29	0.31	12	5	0.71	0.31
AY	7	6	3	3	0.43	0.50	3	4	0.43	0.67
Total	732	945	285	285	0.38	0.31	483	301	0.66	0.33

Table A8 Proportion of the elderly living with spouse in the same village in 1994

Village No.	Number of Elderly 60+ (***Non-Focal***)		Elderly Aged 60+ Married to Someone Aged 60+				Elderly Aged 60+ Married to a Person of Any Age			
			Number		Proportion		Number		Proportion	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
A	12	22	6	6	0.50	0.27	8	6	0.67	0.27
B	24	24	12	12	0.50	0.50	19	12	0.79	0.50
C	37	42	15	15	0.41	0.36	24	19	0.65	0.45
D	10	14	7	7	0.70	0.50	10	9	1.00	0.64
E	16	26	7	7	0.44	0.27	12	8	0.75	0.31
F	18	33	13	13	0.72	0.39	15	13	0.83	0.39
G	26	32	13	13	0.50	0.41	22	15	0.85	0.47
H	22	32	14	14	0.64	0.44	18	17	0.82	0.53
I	30	27	16	16	0.53	0.59	25	16	0.83	0.59
J	28	43	19	19	0.68	0.44	25	22	0.89	0.51
K	19	26	13	13	0.68	0.50	16	15	0.84	0.58
L	23	27	12	12	0.52	0.44	18	12	0.78	0.44
M	25	40	13	13	0.52	0.33	18	14	0.72	0.35
N	24	40	14	14	0.58	0.35	17	18	0.71	0.45
O	21	30	9	9	0.43	0.30	20	9	0.95	0.30
P	30	35	18	18	0.60	0.51	25	18	0.83	0.51
Q	31	53	19	19	0.61	0.36	26	20	0.84	0.38
R	24	33	16	16	0.67	0.48	21	19	0.88	0.58
S	21	21	11	11	0.52	0.52	15	11	0.71	0.52
T	13	27	6	6	0.46	0.22	8	6	0.62	0.22
U	21	35	11	12	0.52	0.34	18	16	0.86	0.46
V	11	19	4	4	0.36	0.21	11	4	1.00	0.21
W	30	38	17	17	0.57	0.45	26	18	0.87	0.47
X	19	29	13	13	0.68	0.45	16	13	0.84	0.45
Y	21	27	11	11	0.52	0.41	19	12	0.90	0.44
Z	11	19	5	5	0.45	0.26	9	8	0.82	0.42
AA	30	28	15	15	0.50	0.54	22	16	0.73	0.57
AB	28	30	23	23	0.82	0.77	27	23	0.96	0.77
AC	25	35	16	16	0.64	0.46	21	18	0.84	0.51
AD	29	46	20	20	0.69	0.43	27	21	0.93	0.46
AE	19	24	7	7	0.37	0.29	17	7	0.89	0.29
AF	22	32	10	10	0.45	0.31	14	12	0.64	0.38
AG	22	34	13	13	0.59	0.38	16	13	0.73	0.38
AH	15	31	10	10	0.67	0.32	14	13	0.93	0.42
AI	18	30	9	9	0.50	0.30	13	9	0.72	0.30
AJ	16	40	9	9	0.56	0.23	14	11	0.88	0.28
AK	36	50	21	21	0.58	0.42	30	21	0.83	0.42
AL	27	31	17	17	0.63	0.55	23	18	0.85	0.58
AM	24	24	13	13	0.54	0.54	22	13	0.92	0.54
AN	19	19	9	9	0.47	0.47	15	11	0.79	0.58
AO	21	23	8	8	0.38	0.35	13	11	0.62	0.48
AP	25	27	15	15	0.60	0.56	22	17	0.88	0.63
AQ	13	17	7	7	0.54	0.41	12	7	0.92	0.41
AR	20	22	11	11	0.55	0.50	16	11	0.80	0.50
AS	22	31	14	14	0.64	0.45	21	17	0.95	0.55
AT	24	29	14	14	0.58	0.48	20	14	0.83	0.48
AU	27	30	9	9	0.33	0.30	16	10	0.59	0.33
AV	22	25	15	15	0.68	0.60	19	15	0.86	0.60
AW	23	44	16	16	0.70	0.36	20	17	0.87	0.39
AX	23	30	11	11	0.48	0.37	17	12	0.74	0.40
AY	14	16	9	9	0.64	0.56	13	9	0.93	0.56
Total	1,131	1,542	635	636	0.56	0.42	925	696	0.82	0.46

Table A9 Proportion of the focal elderly living with spouse in the same village in 2000

Village No.	Number of Elderly 60+ (***Focal Elderly***)		Elderly Aged 60+ Married to Someone Aged 60+				Elderly Aged 60+ Married to a Person of Any Age			
			Number		Proportion		Number		Proportion	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
A	14	20	5	5	0.36	0.25	9	6	0.64	0.30
B	25	34	16	16	0.64	0.47	21	17	0.84	0.50
C	43	54	27	27	0.63	0.50	34	30	0.79	0.56
D	13	20	11	11	0.85	0.55	11	12	0.85	0.60
E	23	40	4	4	0.17	0.10	12	7	0.52	0.18
F	21	41	14	14	0.67	0.34	19	19	0.90	0.46
G	32	40	21	21	0.66	0.53	24	23	0.75	0.58
H	30	33	16	16	0.53	0.48	24	18	0.80	0.55
I	34	35	21	21	0.62	0.60	29	22	0.85	0.63
J	28	40	14	14	0.50	0.35	22	15	0.79	.38
K	25	30	18	18	0.72	0.60	23	18	0.92	0.60
L	28	36	19	19	0.68	0.53	24	19	0.86	0.53
M	34	46	16	16	0.47	0.35	25	19	0.74	0.41
N	38	43	22	22	0.58	0.51	32	22	0.84	0.51
O	23	33	13	13	0.57	0.39	21	14	0.91	0.42
P	26	41	15	15	0.58	0.37	20	16	0.77	0.39
Q	34	60	25	25	0.74	0.42	28	27	0.82	0.45
R	31	42	22	22	0.71	0.52	27	23	0.87	0.55
S	30	32	13	13	0.43	0.41	19	14	0.63	0.44
T	24	34	13	13	0.54	0.38	19	14	0.79	0.41
U	17	34	12	12	0.71	0.35	14	13	0.82	0.38
V	16	20	7	7	0.44	0.35	15	8	0.94	0.40
W	40	55	21	21	0.53	0.38	29	22	0.73	0.40
X	18	25	9	9	0.50	0.36	13	11	0.72	0.44
Y	20	32	13	13	0.65	0.41	19	16	0.95	0.50
Z	19	28	13	13	0.68	0.46	17	13	0.89	0.46
AA	39	44	17	17	0.44	0.39	21	20	0.54	0.45
AB	34	31	23	23	0.68	0.74	29	23	0.85	0.74
AC	26	37	17	17	0.65	0.46	25	18	0.96	0.49
AD	25	57	21	21	0.84	0.37	23	24	0.92	0.42
AE	32	36	14	14	0.44	0.39	26	14	0.81	0.39
AF	35	57	12	12	0.34	0.21	20	14	0.57	0.25
AG	27	38	15	15	0.56	0.39	25	16	0.93	0.42
AH	22	41	15	15	0.68	0.37	21	16	0.95	0.39
AI	20	28	12	12	0.60	0.43	17	12	0.85	0.43
AJ	26	49	14	14	0.54	0.29	21	16	0.81	0.33
AK	64	76	26	26	0.41	0.34	36	27	0.56	0.36
AL	31	33	17	17	0.55	0.52	25	17	0.81	0.52
AM	27	35	15	15	0.56	0.43	25	17	0.93	0.49
AN	34	37	17	17	0.50	0.46	23	17	0.68	0.46
AO	25	30	17	17	0.68	0.57	21	18	0.84	0.60
AP	43	51	17	17	0.40	0.33	26	21	0.60	0.41
AQ	20	25	10	10	0.50	0.40	19	10	0.95	0.40
AR	24	28	13	13	0.54	0.46	22	14	0.92	0.50
AS	32	43	18	18	0.56	0.42	30	24	0.94	0.56
AT	18	28	8	8	0.44	0.29	14	8	0.78	0.29
AU	31	32	12	12	0.39	0.38	21	13	0.68	0.41
AV	31	36	13	13	0.42	0.36	16	13	0.52	0.36
AW	28	47	19	19	0.68	0.40	25	19	0.89	0.40
AX	25	25	12	12	0.48	0.48	22	12	0.88	0.48
AY	15	18	9	9	0.60	0.50	13	9	0.87	0.50
Total	1,420	1,910	783	783	0.56	0.42	1,116	850	0.80	0.45

Table A10 Generations in Nang Rong district in 2000

Village No.	Generation 1		Generation 2 (G2)		Generation 3 in Village (G3V)		Female G2 with G3V		Proportion of Female G2 with G3V	
	Number of Focal Elderly 2000		Focal Elderly's Children in Village							
	Male	Female	Male	Female	Male	Female	Son	Daughter	Son	Daughter
A	14	20	274	364	351	512	47	39	0.13	0.11
B	25	34	37	56	40	83	37	34	0.66	0.61
C	43	54	41	70	49	82	41	34	0.59	0.49
D	13	20	20	41	34	66	24	27	0.59	0.66
E	23	40	66	100	74	153	61	70	0.61	0.70
F	21	41	41	63	49	82	35	35	0.56	0.56
G	32	40	48	72	43	109	48	53	0.67	0.74
H	30	33	50	87	67	162	66	65	0.76	0.75
I	34	35	69	85	94	144	69	61	0.81	0.72
J	28	40	37	76	48	96	41	41	0.54	0.54
K	25	30	45	67	53	77	33	37	0.49	0.55
L	28	36	38	68	29	90	37	38	0.54	0.56
M	34	46	55	84	48	107	43	54	0.51	0.64
N	38	43	53	109	62	135	59	65	0.54	0.60
O	23	33	27	75	24	94	42	41	0.56	0.55
P	26	41	36	88	38	94	42	44	0.48	0.50
Q	34	60	51	67	48	79	46	36	0.69	0.54
R	31	42	57	92	58	99	54	46	0.59	0.50
S	30	32	51	93	56	140	68	65	0.73	0.70
T	24	34	50	71	58	120	42	49	0.59	0.69
U	17	34	36	68	42	86	36	37	0.53	0.54
V	16	20	18	39	14	38	14	22	0.36	0.56
W	40	55	78	107	105	154	59	63	0.55	0.59
X	18	25	29	52	41	60	24	26	0.46	0.50
Y	20	32	37	73	39	103	43	42	0.59	0.58
Z	19	28	54	80	56	116	46	48	0.58	0.60
AA	39	44	92	131	108	209	90	104	0.69	0.79
AB	34	31	67	79	69	113	58	59	0.73	0.75
AC	26	37	37	65	50	90	41	38	0.63	0.58
AD	25	57	58	68	49	94	50	38	0.74	0.56
AE	32	36	41	100	38	146	65	63	0.65	0.63
AF	35	57	59	90	55	133	63	53	0.70	0.59
AG	27	38	33	58	34	63	30	27	0.52	0.47
AH	22	41	30	52	35	64	28	29	0.54	0.56
AI	20	28	32	77	35	87	39	44	0.51	0.57
AJ	26	49	67	86	46	121	45	56	0.52	0.65
AK	64	76	79	118	82	143	60	63	0.51	0.53
AL	31	33	51	78	70	101	48	52	0.62	0.67
AM	27	35	51	59	69	71	30	34	0.51	0.58
AN	34	37	64	94	63	149	68	69	0.72	0.73
AO	25	30	40	59	46	85	44	37	0.75	0.63
AP	43	51	88	131	96	174	73	75	0.56	0.57
AQ	20	25	21	38	14	50	24	23	0.63	0.61
AR	24	28	44	71	48	112	46	51	0.65	0.72
AS	32	43	67	87	61	140	68	65	0.78	0.75
AT	18	28	40	72	47	111	42	44	0.58	0.61
AU	31	32	55	88	54	105	44	58	0.50	0.66
AV	31	36	80	76	114	122	59	52	0.78	0.68
AW	28	47	33	81	37	81	39	47	0.48	0.58
AX	25	25	40	54	34	56	27	28	0.50	0.52
AY	15	18	28	41	35	39	25	15	0.61	0.37
Total/ Average	1,420	1,910	2,695	4,200	3,009	5,740	2,363	2,396	0.59	0.60

Table A11 Distance band from neighbor count by village

Village No.	1 Neighbor Distance (meter)			2 Neighbors Distance (meter)			3 Neighbors Distance (meter)			4 Neighbors Distance (meter)			5 Neighbors Distance (meter)			Number of Households
	Min	**Average**	Max	Min	**Average**	Max	Min	**Average**	Max	Min	**Average**	Max	Min	**Average**	Max	
A	3.32	**21.44**	543.68	7.92	**30.06**	625.42	14.66	**36.04**	626.74	17.18	**43.83**	631.76	18.01	**51.10**	636.48	141
B	0.31	**22.48**	220.86	11.65	**33.76**	220.88	13.46	**41.62**	224.79	16.18	**49.15**	229.16	22.54	**58.11**	233.86	164
C	2.50	**20.50**	89.41	4.86	**33.83**	101.97	8.55	**44.33**	105.62	8.56	**52.74**	147.52	10.02	**59.69**	165.43	171
D	5.80	**25.93**	298.15	9.58	**43.12**	628.69	14.41	**52.54**	648.52	16.62	**61.37**	704.44	21.61	**78.58**	735.99	96
E	0.95	**18.68**	179.36	8.29	**27.60**	191.28	9.25	**34.09**	235.41	15.16	**41.25**	249.82	19.04	**47.75**	278.45	237
F	6.75	**26.04**	219.70	10.72	**38.58**	231.51	18.17	**47.06**	234.21	23.30	**54.87**	242.85	27.24	**62.14**	250.32	170
G	4.99	**38.37**	291.82	13.58	**56.44**	305.90	19.43	**70.82**	390.86	27.31	**87.82**	529.71	30.56	**102.74**	616.18	194
H	2.66	**20.83**	320.59	8.51	**29.63**	322.31	12.46	**36.28**	333.93	15.97	**41.51**	366.92	19.19	**48.85**	392.51	187
I	0.95	**16.40**	142.89	5.65	**23.78**	160.55	11.27	**29.50**	172.99	12.40	**35.10**	176.65	17.03	**39.64**	179.35	197
J	5.29	**33.15**	148.54	8.62	**49.12**	316.42	15.35	**63.25**	344.72	24.81	**73.99**	363.33	28.23	**87.36**	395.20	155
K	4.06	**25.83**	113.05	15.58	**37.61**	129.80	18.08	**47.48**	151.74	24.80	**55.57**	184.64	33.54	**63.39**	190.29	126
L	4.73	**27.39**	317.91	11.54	**38.40**	318.71	15.54	**50.20**	325.28	21.97	**57.67**	335.97	28.69	**65.33**	340.55	125
M	3.64	**19.70**	52.07	8.58	**29.03**	74.23	12.78	**36.22**	80.11	19.79	**42.64**	102.64	22.75	**47.76**	134.51	152
N	3.19	**21.40**	62.99	9.73	**31.07**	80.43	15.24	**39.57**	84.58	19.09	**45.97**	103.85	25.27	**51.56**	104.10	201
O	4.98	**18.09**	131.74	8.13	**26.15**	132.37	12.38	**33.90**	147.17	14.14	**41.90**	161.44	16.53	**47.69**	193.21	139
P	4.28	**25.56**	226.70	10.67	**38.47**	244.11	12.89	**50.04**	246.64	17.26	**63.75**	267.02	20.16	**82.04**	597.22	168
Q	2.92	**19.32**	68.87	7.21	**28.46**	85.64	13.46	**41.14**	428.24	16.16	**47.89**	450.53	21.38	**54.40**	452.86	173
R	1.63	**22.59**	193.15	7.20	**36.75**	269.39	11.60	**48.26**	353.53	19.36	**56.24**	380.53	21.42	**63.85**	384.63	192
S	4.92	**17.69**	147.39	10.64	**24.69**	148.68	11.79	**29.96**	184.47	17.59	**33.84**	185.40	19.16	**38.17**	197.86	160
T	4.54	**27.16**	1674.83	12.18	**37.74**	1680.79	15.81	**44.11**	1688.96	18.94	**51.83**	1696.52	23.71	**57.48**	1698.42	170
U	9.82	**41.98**	528.30	10.98	**64.17**	529.04	22.11	**85.67**	580.82	30.30	**99.06**	605.49	35.89	**111.20**	608.92	164

Table A11 Distance band from neighbor count by village (Cont.)

Village No.	1 Neighbor Distance (meter)			2 Neighbors Distance (meter)			3 Neighbors Distance (meter)			4 Neighbors Distance (meter)			5 Neighbors Distance (meter)			Number of Households
V	3.42	**26.25**	387.54	10.16	**40.25**	475.93	14.96	**58.65**	611.44	19.72	**67.88**	618.19	26.99	**77.65**	634.07	86
W	0.38	**31.59**	301.56	10.88	**45.86**	308.73	17.96	**56.95**	326.66	20.78	**67.32**	328.87	28.28	**76.25**	334.72	213
X	6.28	**43.60**	659.16	11.35	**65.98**	694.60	23.36	**86.28**	748.07	35.29	**121.74**	827.63	40.03	**145.79**	1260.64	165
Y	6.04	**36.73**	175.64	12.78	**56.07**	376.90	15.63	**75.97**	378.93	23.80	**93.75**	494.85	31.41	**109.67**	553.86	179
Z	5.04	**32.83**	123.56	16.76	**65.69**	1348.37	19.63	**77.62**	1366.02	24.47	**87.90**	1375.07	30.87	**98.42**	1375.33	130
AA	4.84	**35.98**	1308.15	9.36	**52.41**	1423.67	16.56	**74.67**	1427.66	23.22	**96.38**	1443.29	25.94	**108.37**	1452.97	324
AB	0.00	**24.70**	441.53	8.66	**42.27**	1050.29	15.19	**52.13**	1060.14	17.93	**64.97**	1182.76	18.01	**75.90**	1372.46	165
AC	2.54	**24.86**	156.45	8.41	**64.04**	2308.05	17.24	**78.03**	2315.16	22.01	**90.60**	2322.86	30.87	**99.10**	2357.05	147
AD	4.61	**29.34**	324.76	7.02	**43.93**	335.06	12.21	**56.31**	416.55	13.52	**65.66**	437.74	17.18	**73.15**	449.06	173
AE	3.97	**23.65**	129.70	12.92	**32.80**	143.83	17.37	**40.52**	155.58	19.74	**47.28**	175.40	21.43	**54.25**	190.56	194
AF	2.60	**26.82**	329.96	9.74	**38.25**	344.46	15.56	**46.84**	349.05	18.96	**56.75**	354.30	25.46	**68.75**	473.21	229
AG	3.72	**22.80**	272.81	9.08	**36.60**	273.72	16.80	**48.85**	275.71	26.54	**57.76**	296.86	28.93	**66.23**	309.63	107
AH	4.81	**22.79**	87.16	6.44	**51.35**	1209.20	14.14	**62.84**	1210.14	24.23	**73.32**	1211.94	33.13	**83.45**	1236.94	126
AI	5.93	**21.16**	159.54	11.90	**31.58**	179.34	15.28	**40.11**	235.92	15.65	**46.10**	245.26	24.74	**54.97**	262.58	107
AJ	1.81	**15.23**	76.11	5.35	**21.48**	88.19	9.18	**26.82**	113.34	12.70	**34.18**	152.50	21.69	**38.95**	160.65	147
AK	1.57	**17.58**	60.64	6.70	**26.38**	170.76	9.66	**33.63**	189.58	16.19	**39.55**	214.66	20.36	**45.49**	223.88	224
AL	3.66	**31.10**	280.27	12.52	**47.57**	285.18	22.02	**62.34**	291.54	27.22	**88.77**	1184.12	33.94	**102.27**	1448.59	186
AM	5.09	**39.54**	422.49	10.39	**61.08**	471.59	16.87	**79.01**	582.89	21.25	**98.57**	634.54	26.48	**121.15**	636.33	156
AN	2.12	**28.58**	269.04	5.91	**41.39**	276.63	10.68	**53.66**	277.96	18.73	**64.39**	299.84	26.03	**73.23**	313.39	229
AO	2.27	**43.65**	211.10	13.30	**67.95**	559.16	26.15	**86.96**	676.98	29.47	**101.97**	698.85	33.79	**115.52**	746.34	134
AP	6.42	**34.97**	194.47	13.67	**51.92**	215.94	22.17	**69.27**	274.55	28.78	**85.58**	365.54	34.25	**99.20**	484.30	297
AQ	5.76	**20.23**	52.37	6.15	**29.57**	72.07	13.48	**36.89**	74.33	15.99	**43.31**	92.92	23.25	**49.41**	103.75	92

Table A11 Distance band from neighbor count by village (Cont.)

Village No.	1 Neighbor Distance (meter)			2 Neighbors Distance (meter)			3 Neighbors Distance (meter)			4 Neighbors Distance (meter)			5 Neighbors Distance (meter)			Number of Households
AR	5.41	**18.96**	61.98	8.49	**29.39**	111.09	13.29	**36.75**	116.09	16.76	**43.37**	119.56	21.12	**49.40**	124.38	131
AS	3.41	**31.94**	494.60	7.12	**51.39**	502.76	10.74	**69.61**	543.62	15.89	**83.84**	571.82	21.64	**92.94**	594.19	201
AT	5.39	**26.87**	449.13	10.52	**38.84**	460.74	15.01	**48.55**	464.04	15.67	**57.75**	467.73	23.09	**65.82**	477.22	165
AU	5.91	**34.44**	369.06	12.45	**50.96**	397.23	15.35	**63.33**	457.84	24.48	**77.64**	493.82	30.94	**91.44**	735.88	175
AV	5.35	**32.77**	393.00	9.09	**47.97**	462.84	12.18	**64.12**	507.42	18.30	**76.18**	584.79	22.55	**86.79**	683.99	267
AW	3.76	**19.06**	168.78	9.38	**29.27**	186.85	15.52	**34.89**	191.58	19.52	**40.51**	195.34	22.09	**47.59**	206.55	119
AX	2.42	**21.56**	89.15	5.95	**34.73**	133.13	11.59	**44.20**	155.20	16.64	**52.82**	174.53	18.64	**60.24**	182.54	173
AY	4.58	**42.89**	345.68	11.85	**64.17**	576.21	24.76	**90.26**	851.97	30.66	**111.17**	878.73	40.75	**128.70**	880.22	115
Average	3.95	**26.92**	289.56	9.73	**41.56**	436.09	15.28	**53.30**	475.20	20.22	**64.22**	520.79	25.21	**74.10**	569.64	169

Table A12 Average distance between focal elderly to their nearest son and daughter residing in village in 2000

Village No.	Average Distance between Focal Elderly to Their Nearest Son/Daughter Including Co-residents (meters)				Average Distance between Focal Elderly to Their Nearest Son/Daughter Excluding Co-residents (meters)				Proportion of Focal Elderly Residing with Children in 2000 (Distance=0 meter)			
	Male		Female		Male		Female		Male		Female	
	Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter
A	165.9	54.9	110.7	71.5	290.3	86.2	140.9	99.0	0.21	0.29	0.15	0.25
B	154.5	82.0	230.7	125.7	206.0	163.9	307.5	215.4	0.16	0.32	0.15	0.29
C	124.9	70.3	113.1	21.3	170.4	149.9	169.6	65.7	0.09	0.40	0.13	0.43
D	94.2	119.2	114.3	94.3	141.4	204.3	135.1	149.4	0.15	0.38	0.10	0.35
E	152.7	95.7	133.1	121.3	244.3	182.7	212.9	212.3	0.26	0.43	0.23	0.38
F	175.3	49.9	126.8	43.6	255.0	179.8	194.5	82.1	0.24	0.62	0.20	0.37
G	160.4	109.1	225.4	271.7	262.5	261.8	346.7	606.0	0.22	0.44	0.18	0.40
H	136.1	127.1	120.3	103.0	222.7	226.9	185.9	151.7	0.23	0.37	0.18	0.27
I	158.8	207.1	91.0	126.3	254.0	321.0	109.2	170.3	0.26	0.32	0.11	0.23
J	142.0	133.3	164.8	85.6	221.0	253.2	215.5	202.3	0.18	0.32	0.10	0.38
K	104.0	77.9	119.7	71.0	166.4	173.0	184.2	157.9	0.24	0.44	0.23	0.37
L	50.3	57.4	94.0	153.3	109.0	109.6	215.0	217.8	0.25	0.36	0.25	0.22
M	100.3	35.1	90.9	34.7	173.3	114.1	151.5	123.4	0.24	0.53	0.17	0.50
N	197.8	72.9	127.7	91.3	230.8	130.4	200.7	172.5	0.08	0.39	0.19	0.37
O	20.8	19.4	34.4	46.4	37.5	55.1	85.9	109.6	0.17	0.48	0.27	0.45
P	141.3	26.9	127.9	105.7	204.1	84.7	255.7	253.8	0.15	0.58	0.24	0.51
Q	81.9	74.5	89.8	67.6	120.1	129.1	137.4	131.4	0.21	0.32	0.15	0.28
R	149.4	49.1	129.0	70.9	206.9	79.7	184.2	127.0	0.16	0.32	0.21	0.36
S	91.0	53.5	49.8	33.9	144.1	106.9	88.6	86.3	0.23	0.43	0.22	0.53
T	47.2	51.9	53.9	38.4	88.4	98.0	103.3	57.7	0.29	0.33	0.32	0.24
U	493.1	48.6	303.0	43.0	904.1	243.1	411.2	109.9	0.29	0.71	0.15	0.41
V	48.4	159.2	55.1	33.9	169.5	318.4	128.6	101.8	0.31	0.38	0.20	0.50
W	109.3	135.0	136.1	108.5	182.2	233.2	209.8	178.0	0.35	0.40	0.24	0.29
X	643.9	497.2	462.3	331.8	1287.9	994.4	667.8	788.1	0.28	0.39	0.16	0.44
Y	235.6	82.5	379.6	162.7	471.1	142.5	554.8	274.6	0.30	0.40	0.19	0.34
Z	223.4	22.7	170.2	22.7	418.8	42.9	291.8	49.3	0.37	0.42	0.36	0.50

Table A12 Average distance between focal elderly to their nearest son and daughter residing in village in 2000 (Cont.)

Village No.	Average Distance between Focal Elderly to Their Nearest Son/Daughter Including Co-residents (meters)				Average Distance between Focal Elderly to Their Nearest Son/Daughter Excluding Co-residents (meters)				Proportion of Focal Elderly Residing with Children in 2000 (Distance=0 meter)			
	Male		Female		Male		Female		Male		Female	
	Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter	Son	Daughter
AA	390.0	223.9	310.3	320.4	531.8	373.2	551.6	492.9	0.21	0.36	0.32	0.32
AB	99.3	417.5	74.8	382.0	148.9	626.3	126.5	682.2	0.24	0.26	0.29	0.35
AC	104.0	129.3	72.2	175.1	242.7	199.9	127.7	238.7	0.31	0.23	0.27	0.22
AD	86.4	78.6	153.2	120.8	144.0	127.0	291.0	195.2	0.24	0.32	0.32	0.28
AE	140.3	81.4	110.4	67.5	222.2	152.6	181.4	119.1	0.22	0.44	0.25	0.36
AF	159.3	129.2	237.9	114.6	261.8	297.1	346.9	212.9	0.26	0.37	0.19	0.32
AG	154.1	7.9	131.4	47.1	250.4	47.5	226.9	159.0	0.19	0.56	0.21	0.50
AH	67.8	179.5	161.2	90.0	105.5	359.1	221.6	252.1	0.23	0.36	0.15	0.44
AI	93.9	53.3	86.1	37.1	152.5	77.5	136.3	77.6	0.25	0.25	0.25	0.43
AJ	88.3	36.3	60.3	37.8	154.6	69.2	100.5	98.8	0.23	0.38	0.20	0.43
AK	58.1	39.0	80.3	28.2	160.9	103.0	173.4	81.2	0.36	0.36	0.29	0.42
AL	228.2	175.5	319.4	231.8	326.0	292.5	447.1	405.7	0.19	0.32	0.18	0.36
AM	489.5	286.0	313.2	315.2	775.1	572.0	711.7	519.1	0.26	0.37	0.40	0.31
AN	169.0	146.2	325.9	108.3	289.8	194.9	393.8	168.4	0.29	0.21	0.14	0.27
AO	227.5	123.7	181.9	43.4	353.9	300.4	288.0	119.2	0.20	0.40	0.23	0.47
AP	563.6	261.3	417.6	247.2	778.3	410.6	683.3	412.0	0.19	0.28	0.27	0.31
AQ	47.9	66.9	65.5	45.7	131.6	133.8	141.9	114.1	0.35	0.35	0.28	0.48
AR	92.0	61.5	108.2	65.4	153.3	102.6	162.3	116.8	0.25	0.33	0.21	0.39
AS	451.8	487.3	736.1	623.1	664.4	641.2	934.3	747.7	0.25	0.19	0.16	0.14
AT	89.2	9.8	80.1	76.5	167.2	52.4	120.2	248.5	0.39	0.72	0.21	0.64
AU	124.9	99.6	160.0	150.3	249.8	185.9	258.4	268.3	0.39	0.42	0.25	0.34
AV	128.6	218.5	117.6	130.1	197.8	308.5	143.2	192.1	0.23	0.23	0.14	0.28
AW	154.2	47.8	125.5	47.3	210.3	116.8	160.4	165.6	0.14	0.46	0.11	0.53
AX	70.0	42.2	103.3	43.8	124.4	126.6	147.6	100.0	0.28	0.48	0.12	0.36
AY	226.3	44.5	296.3	73.2	377.1	122.3	385.2	130.2	0.27	0.47	0.17	0.39
Total	170.7	116.8	170.2	119.7	281.5	217.2	261.8	219.8	0.24	0.39	0.21	0.37

Male Elderly: Correlations among Independent Variables by Elderly's Gender and Types of Support

Table A13 Correlation of the Model of Meal Preparation and Personal Care for Male Elderly Having Spouse in the Village (Observations=1,271)

	age84	edu84	nonag~84	hhsize84	difhhs~e	land84	car94	mcycle84	mcycle94	earn84	house84	water84	lbus94	avgn2
age84	1.00													
edu84	-0.25	1.00												
nonagri84	0.01	0.20	1.00											
hhsize84	-0.13	0.02	-0.07	1.00										
difhhsize	-0.07	0.02	-0.03	0.78	1.00									
land84	0.00	0.01	-0.03	0.03	0.00	1.00								
car94	-0.01	0.09	0.23	0.01	-0.03	0.06	1.00							
mcycle84	-0.04	0.02	-0.01	0.05	0.05	0.16	0.05	1.00						
mcycle94	-0.11	0.18	0.17	0.00	-0.09	0.01	0.24	0.00	1.00					
earn84	-0.05	-0.02	-0.03	0.00	-0.02	-0.09	0.01	0.05	-0.01	1.00				
house84	-0.01	0.01	0.02	-0.04	-0.01	-0.09	0.01	0.09	0.04	-0.19	1.00			
water84	0.00	0.03	0.04	-0.02	-0.04	0.01	0.00	-0.02	0.02	-0.02	0.00	1.00		
lbus94	0.01	0.09	0.02	-0.06	-0.02	-0.02	-0.02	-0.01	-0.04	0.01	0.06	-0.14	1.00	
avgn2	0.01	0.01	-0.05	-0.01	0.00	0.01	0.00	0.02	0.02	0.03	-0.03	-0.38	-0.17	1.00

Table A14 Correlation of the Model of Transportation for Male Elderly Having Son and/or Daughter in the Village (Observations=1,270)

	marri~94	age84	edu84	nonag~84	hhsize84	difhhs~e	land84	car94	mcycle84	mcycle94	earn84	house84	water84	lbus94	avgn2
married94	1.00														
age84	-0.18	1.00													
edu84	0.10	-0.25	1.00												
nonagri84	0.06	0.01	0.20	1.00											
hhsize84	0.10	-0.13	0.02	-0.08	1.00										
difhhsize	0.03	-0.07	0.02	-0.03	0.78	1.00									
land84	0.01	0.00	0.01	-0.03	0.03	0.00	1.00								
car94	0.02	-0.01	0.09	0.23	0.01	-0.03	0.06	1.00							
mcycle84	0.03	-0.04	0.02	-0.01	0.05	0.05	0.16	0.05	1.00						
mcycle94	0.06	-0.11	0.18	0.17	0.00	-0.08	0.01	0.24	0.00	1.00					
earn84	-0.04	-0.05	-0.02	-0.03	0.00	-0.02	-0.09	0.01	0.05	-0.01	1.00				
house84	0.02	-0.01	0.01	0.02	-0.04	0.00	-0.09	0.01	0.09	0.03	-0.19	1.00			
water84	0.03	0.00	0.03	0.04	-0.02	-0.04	0.02	0.00	-0.02	0.01	-0.02	0.00	1.00		
lbus94	0.00	0.01	0.09	0.02	-0.06	-0.02	-0.02	-0.02	-0.01	-0.04	0.01	0.06	-0.14	1.00	
avgn2	0.04	0.01	0.01	-0.05	-0.01	0.00	0.01	0.00	0.02	0.02	0.03	-0.03	-0.38	-0.17	1.00

Table A15 Correlation of the Model of Financial Support for Male Elderly Having Son and/or Daughter Anywhere (Observations=1,350)

	marri~94	age84	edu84	nonag~84	hhsize84	difhhs~e	land84	car94	mcycle84	mcycle94	earn84	house84	water84	lbus94	avgn2
married94	1.00														
age84	-0.18	1.00													
edu84	0.09	-0.25	1.00												
nonagri84	0.06	0.01	0.20	1.00											
hhsize84	0.11	-0.13	0.02	-0.08	1.00										
difhhsize	0.05	-0.06	0.02	-0.04	0.75	1.00									
land84	0.02	0.00	0.01	-0.03	0.03	0.02	1.00								
car94	0.01	0.00	0.10	0.24	0.01	-0.03	0.06	1.00							
mcycle84	0.03	-0.04	0.02	-0.01	0.05	0.05	0.18	0.04	1.00						
mcycle94	0.06	-0.09	0.17	0.16	0.02	-0.07	0.01	0.23	0.00	1.00					
earn84	-0.04	-0.06	-0.02	-0.03	-0.01	-0.02	-0.07	0.01	0.06	-0.01	1.00				
house84	0.01	-0.01	0.02	0.02	-0.03	0.00	-0.10	0.01	0.08	0.04	-0.19	1.00			
water84	0.02	0.01	0.02	0.03	-0.03	-0.04	0.01	0.00	-0.02	0.01	-0.02	-0.01	1.00		
lbus94	0.00	0.01	0.08	0.01	-0.06	-0.01	-0.02	-0.04	0.00	-0.03	0.00	0.06	-0.15	1.00	
avgn2	0.02	0.00	0.01	-0.05	-0.01	0.00	0.01	-0.01	0.01	0.03	0.02	-0.01	-0.37	-0.17	1.00

Table A16 Correlation of the Model of Emotional Support for Male Elderly Having Spouse Living Anywhere (Observations=1,271)

	age84	edu84	nonag~84	hhsize84	difhhs~e	land84	car94	mcycle84	mcycle94	earn84	house84	water84	lbus94	avgn2
age84	1.00													
edu84	-0.25	1.00												
nonagri84	0.01	0.20	1.00											
hhsize84	-0.13	0.02	-0.07	1.00										
difhhsize	-0.07	0.02	-0.03	0.78	1.00									
land84	0.00	0.01	-0.03	0.03	0.00	1.00								
car94	-0.01	0.09	0.23	0.01	-0.03	0.06	1.00							
mcycle84	-0.04	0.02	-0.01	0.05	0.05	0.16	0.05	1.00						
mcycle94	-0.11	0.18	0.17	0.00	-0.09	0.01	0.24	0.00	1.00					
earn84	-0.05	-0.02	-0.03	0.00	-0.02	-0.09	0.01	0.05	-0.01	1.00				
house84	-0.01	0.01	0.02	-0.04	-0.01	-0.09	0.01	0.09	0.04	-0.19	1.00			
water84	0.00	0.03	0.04	-0.02	-0.04	0.01	0.00	-0.02	0.02	-0.02	0.00	1.00		
lbus94	0.01	0.09	0.02	-0.06	-0.02	-0.02	-0.02	-0.01	-0.04	0.01	0.06	-0.14	1.00	
avgn2	0.01	0.01	-0.05	-0.01	0.00	0.01	0.00	0.02	0.02	0.03	-0.03	-0.38	-0.17	1.00

Female Elderly: Correlations among Independent Variables by Elderly's Gender and Types of Support

Table A17 Correlation of the Model of Meal Preparation and Personal Care for Female Elderly Having Daughter in the Village (Observations=1,684)

	marri~94	age84	edu84	nonag~84	hhsize84	difhhs~e	land84	car94	mcycle84	mcycle94	earn84	house84	water84	lbus94	avgn2
married94	1.00														
age84	-0.31	1.00													
edu84	0.20	-0.54	1.00												
nonagri84	-0.03	0.02	0.02	1.00											
hhsize84	0.16	-0.16	0.09	-0.05	1.00										
difhhsize	0.08	-0.22	0.14	-0.03	0.82	1.00									
land84	0.00	0.00	-0.02	-0.02	0.02	0.02	1.00								
car94	0.04	-0.06	0.04	0.10	0.07	0.02	0.01	1.00							
mcycle84	0.03	-0.05	0.04	0.00	0.02	0.03	0.14	0.01	1.00						
mcycle94	0.07	-0.05	0.13	0.09	0.13	0.01	0.03	0.21	0.01	1.00					
earn84	0.00	-0.01	0.01	-0.02	0.00	-0.01	-0.06	0.02	0.04	0.04	1.00				
house84	0.00	0.00	0.01	-0.01	-0.01	0.02	-0.10	0.00	0.10	-0.01	-0.17	1.00			
water84	-0.02	0.07	-0.01	0.02	-0.01	-0.01	0.01	0.00	-0.01	-0.03	0.00	-0.02	1.00		
lbus94	-0.01	-0.02	0.05	0.01	-0.07	-0.08	-0.02	-0.05	0.02	-0.02	0.00	0.04	-0.16	1.00	
avgn2	0.07	-0.04	0.07	-0.05	0.00	0.02	0.02	0.01	0.02	0.01	0.02	-0.02	-0.37	-0.16	1.00

Table A18 Correlation of the Model of Transportation for Female Elderly Having Son and/or Daughter in the Village (Observations=1,684)

	marri~94	age84	edu84	nonag~84	hhsize84	difhhs~e	land84	car94	mcycle84	mcycle94	earn84	house84	water84	lbus94	avgn2
married94	1.00														
age84	-0.31	1.00													
edu84	0.20	-0.54	1.00												
nonagri84	-0.03	0.02	0.02	1.00											
hhsize84	0.16	-0.16	0.09	-0.05	1.00										
difhhsize	0.08	-0.22	0.14	-0.03	0.82	1.00									
land84	0.00	0.00	-0.02	-0.02	0.02	0.02	1.00								
car94	0.04	-0.06	0.04	0.10	0.07	0.02	0.01	1.00							
mcycle84	0.03	-0.05	0.04	0.00	0.02	0.03	0.14	0.01	1.00						
mcycle94	0.07	-0.05	0.13	0.09	0.13	0.01	0.03	0.21	0.01	1.00					
earn84	0.00	-0.01	0.01	-0.02	0.00	-0.01	-0.06	0.02	0.04	0.04	1.00				
house84	0.00	0.00	0.01	-0.01	-0.01	0.02	-0.10	0.00	0.10	-0.01	-0.17	1.00			
water84	-0.02	0.07	-0.01	0.02	-0.01	-0.01	0.01	0.00	-0.01	-0.03	0.00	-0.02	1.00		
lbus94	-0.01	-0.02	0.05	0.01	-0.07	-0.08	-0.02	-0.05	0.02	-0.02	0.00	0.04	-0.16	1.00	
avgn2	0.07	-0.04	0.07	-0.05	0.00	0.02	0.02	0.01	0.02	0.01	0.02	-0.02	-0.37	-0.16	1.00

Table A19 Correlation of the Model of Financial Support for Female Elderly Having Son and/or Daughter Living Anywhere (Observations=1,737)

	marri~94	age84	edu84	nonag~84	hhsize84	difhhs~e	land84	car94	mcycle84	mcycle94	earn84	house84	water84	lbus94	avgn2
married94	1.00														
age84	-0.31	1.00													
edu84	0.20	-0.54	1.00												
nonagri84	-0.03	0.02	0.03	1.00											
hhsize84	0.16	-0.16	0.08	-0.04	1.00										
difhhsize	0.08	-0.20	0.13	-0.04	0.79	1.00									
land84	0.00	-0.01	-0.02	-0.03	0.02	0.03	1.00								
car94	0.04	-0.06	0.05	0.11	0.06	0.01	0.01	1.00							
mcycle84	0.04	-0.05	0.04	0.00	0.02	0.03	0.16	0.01	1.00						
mcycle94	0.07	-0.05	0.14	0.09	0.13	0.00	0.02	0.21	0.01	1.00					
earn84	0.00	-0.01	0.01	0.00	0.00	0.00	-0.06	0.02	0.05	0.04	1.00				
house84	0.00	0.00	0.01	-0.01	0.00	0.01	-0.10	0.00	0.10	0.00	-0.17	1.00			
water84	-0.02	0.07	0.00	0.02	-0.01	-0.01	0.02	0.00	-0.01	-0.03	0.00	-0.02	1.00		
lbus94	-0.01	-0.02	0.04	0.01	-0.07	-0.07	-0.02	-0.05	0.02	-0.01	0.01	0.03	-0.16	1.00	
avgn2	0.07	-0.04	0.08	-0.06	0.00	0.02	0.02	0.01	0.01	0.02	0.01	-0.02	-0.37	-0.16	1.00

Table A20 Correlation of the Model of Emotional Support for Female Elderly Having Spouse Living Anywhere (Observations=1,739)

	age84	edu84	nonag~84	hhsize84	difhhs~e	land84	car94	mcycle84	mcycle94	earn84	house84	water84	lbus94	avgn2
age84	1.00													
edu84	-0.54	1.00												
nonagri84	0.02	0.03	1.00											
hhsize84	-0.16	0.08	-0.04	1.00										
difhhsize	-0.21	0.13	-0.04	0.79	1.00									
land84	-0.01	-0.01	-0.03	0.02	0.03	1.00								
car94	-0.06	0.05	0.11	0.06	0.01	0.01	1.00							
mcycle84	-0.05	0.04	0.00	0.02	0.03	0.16	0.01	1.00						
mcycle94	-0.06	0.14	0.09	0.13	0.00	0.02	0.21	0.01	1.00					
earn84	-0.01	0.01	0.00	0.00	0.00	-0.06	0.02	0.05	0.04	1.00				
house84	0.00	0.01	-0.01	0.00	0.01	-0.10	0.00	0.10	0.00	-0.17	1.00			
water84	0.06	0.00	0.02	-0.01	-0.01	0.02	0.00	-0.01	-0.03	0.00	-0.02	1.00		
lbus94	-0.02	0.04	0.01	-0.07	-0.07	-0.02	-0.05	0.02	-0.01	0.01	0.03	-0.16	1.00	
avgn2	-0.04	0.07	-0.06	0.00	0.02	0.02	0.01	0.01	0.02	0.02	-0.02	-0.37	-0.16	1.00

APPENDIX B

FIGURES

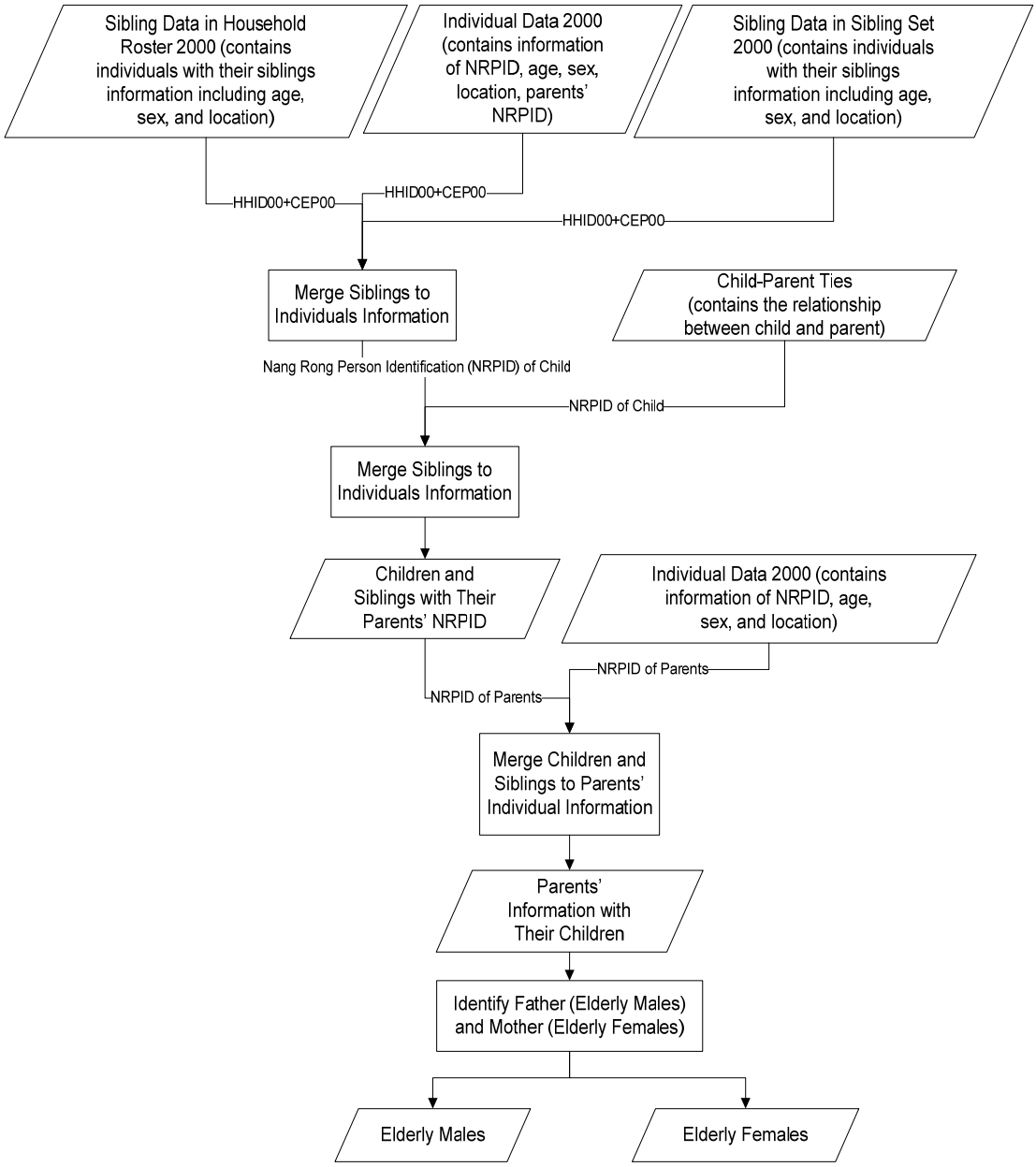

Figure B1 Flowchart of finding focal elderly by sibling data set through child-parent ties

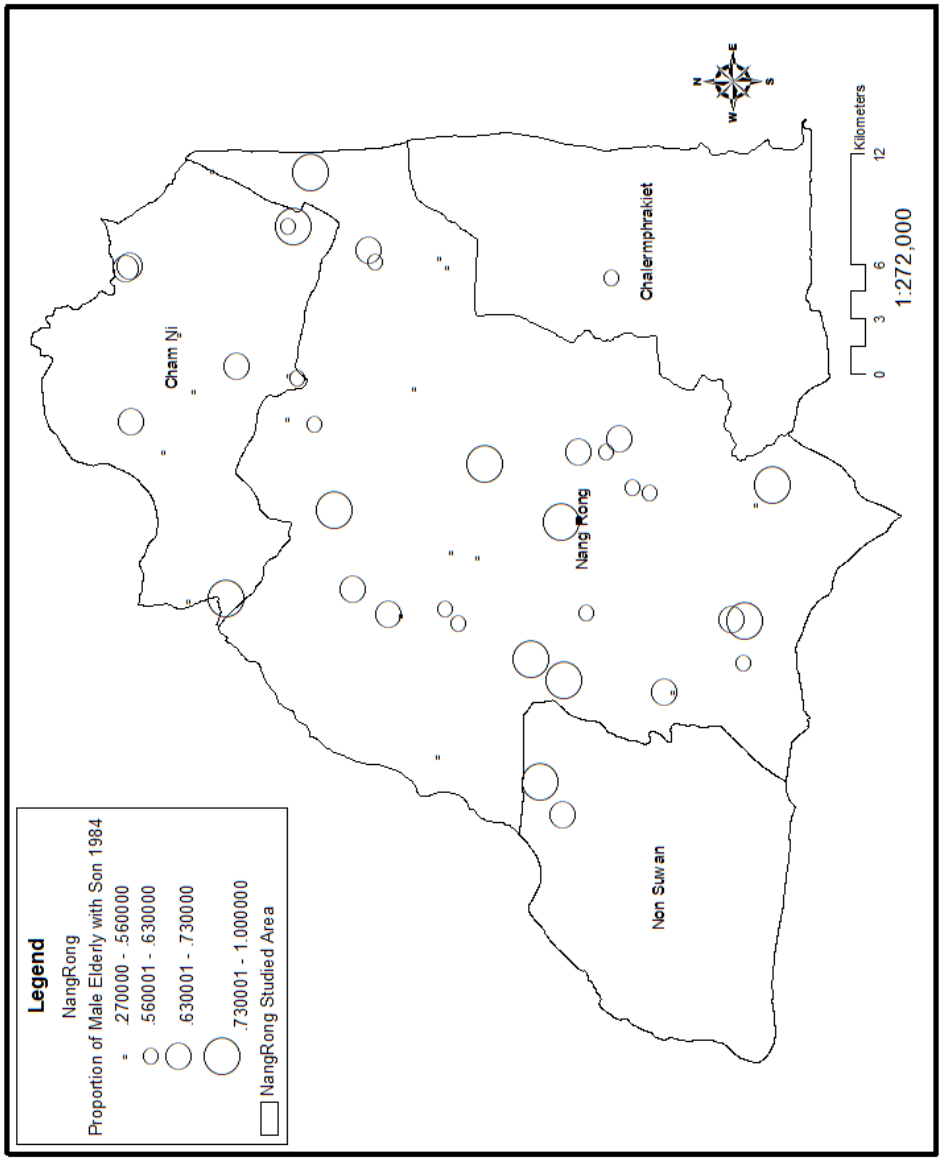

Figure B2 Spatial distribution of proportion of male elderly with son residing in the same village 1984

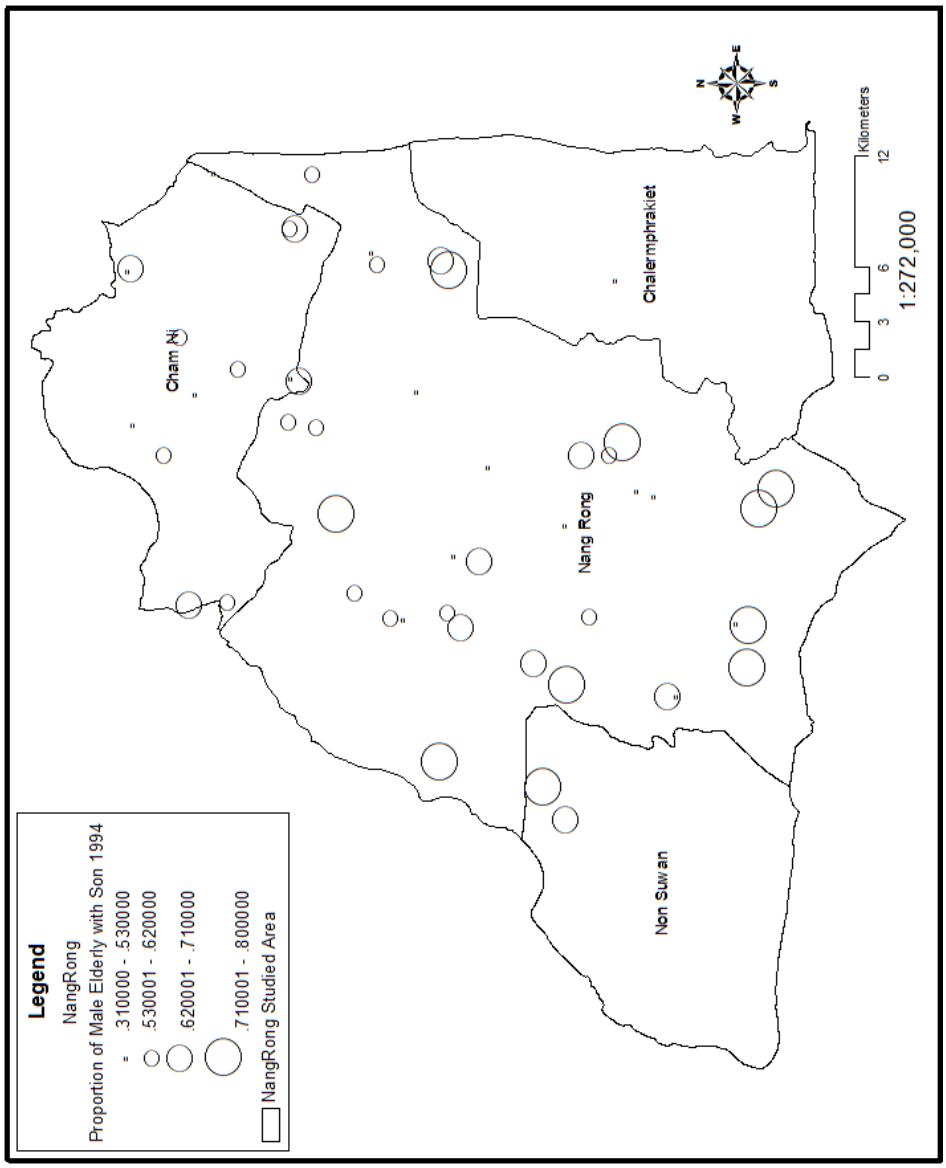

Figure B3 Spatial distribution of proportion of male elderly with son residing in the same village 1994

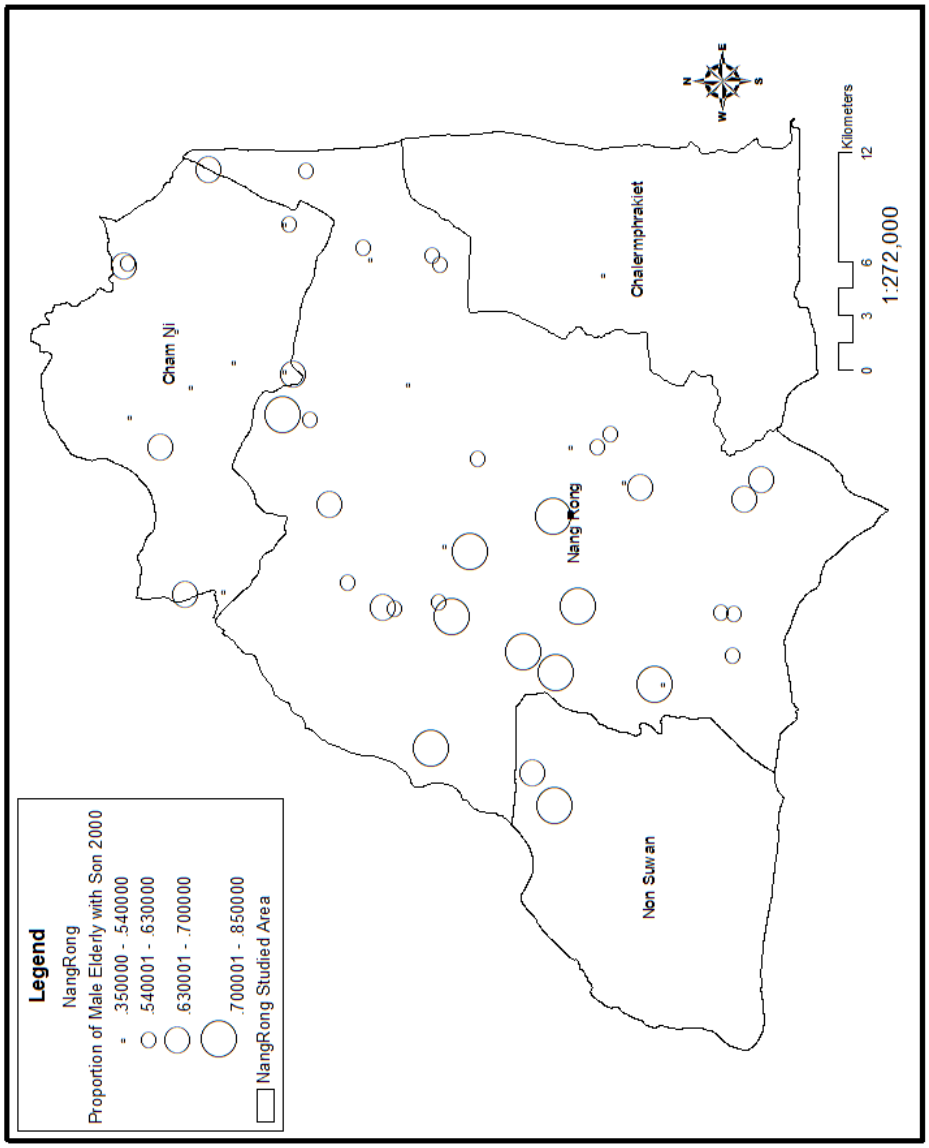

Figure B4 Spatial distribution of proportion of male elderly with son residing in the same village 2000

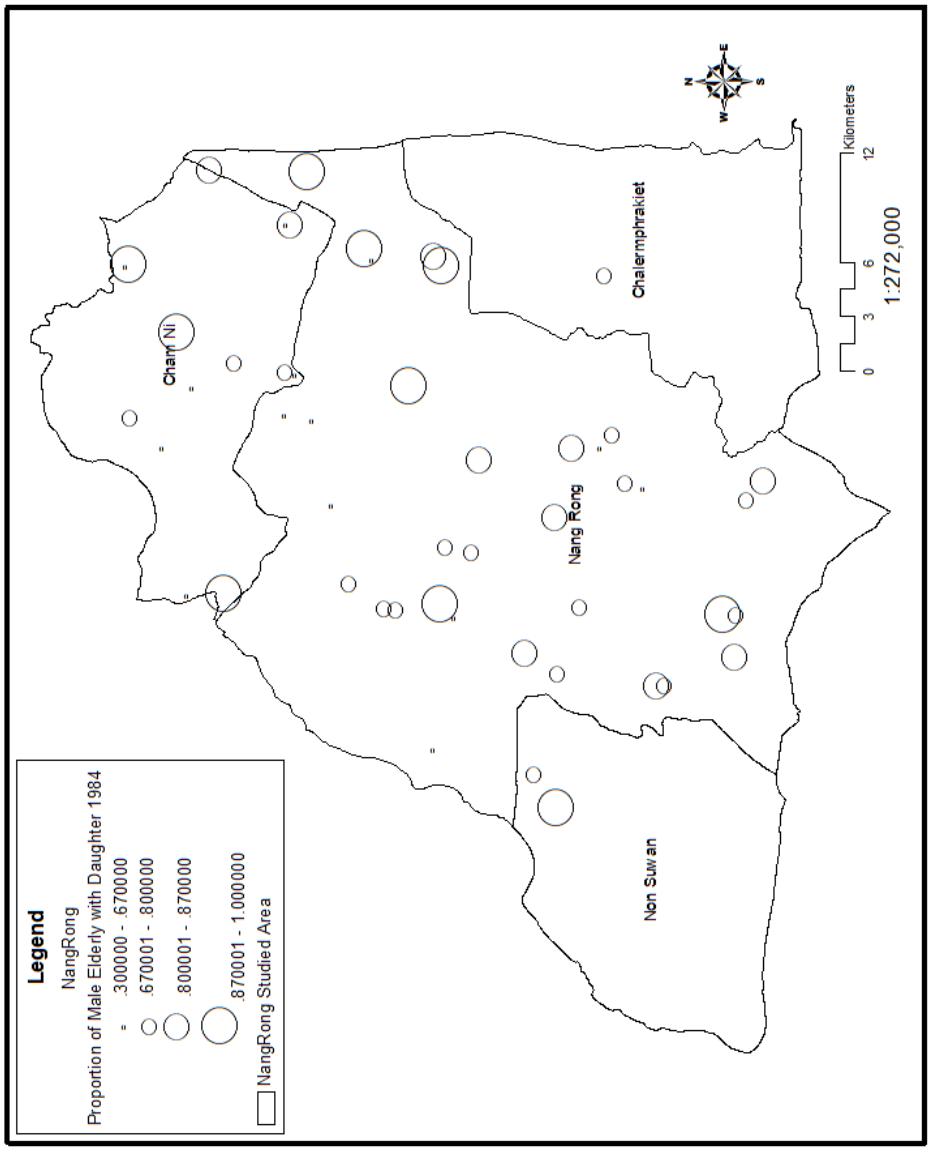

Figure B5 Spatial distribution of proportion of male elderly with daughter residing in the same village 1984

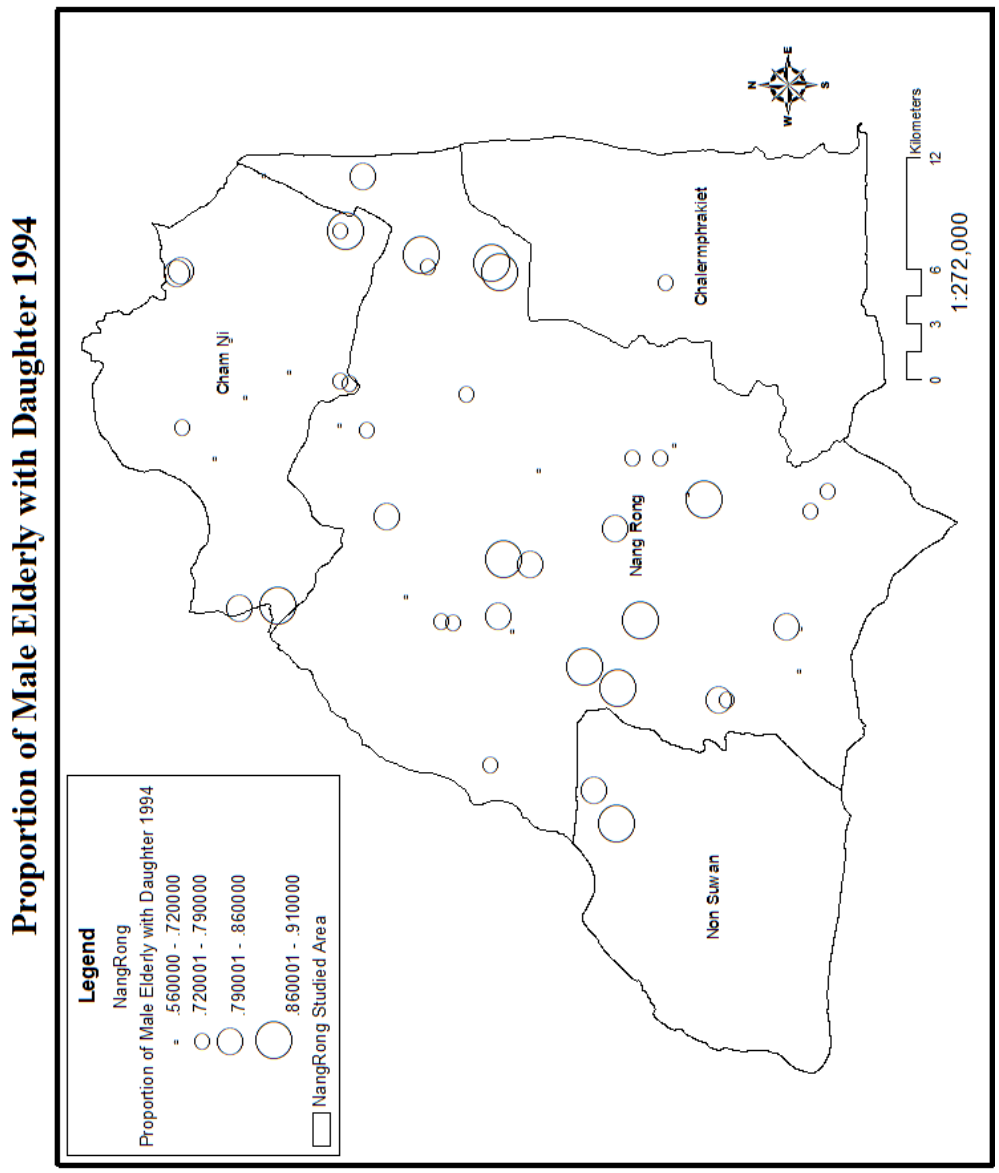

Figure B6 Spatial distribution of proportion of male elderly with daughter residing in the same village 1994

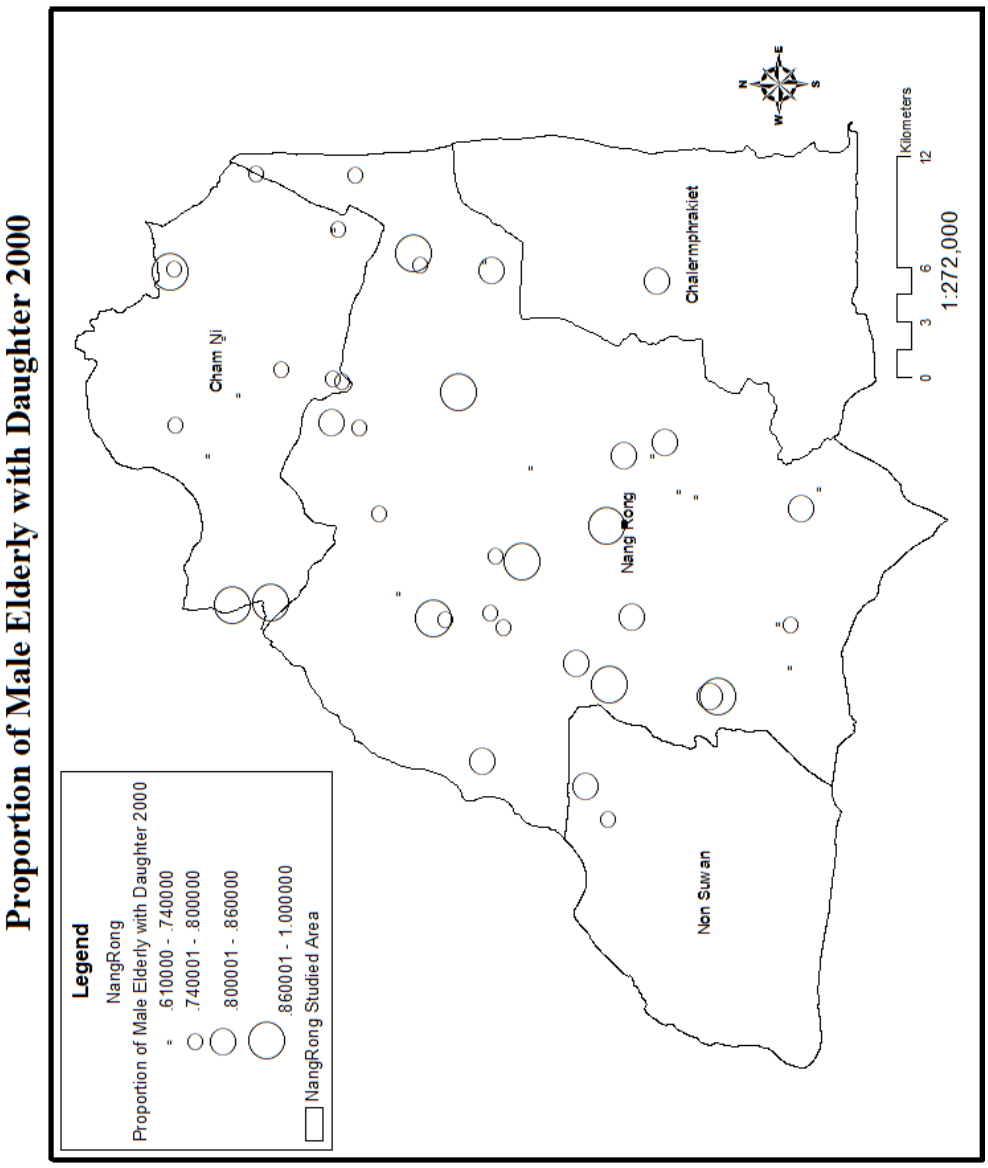

Figure B7 Spatial distribution of proportion of male elderly with daughter residing in the same village 2000

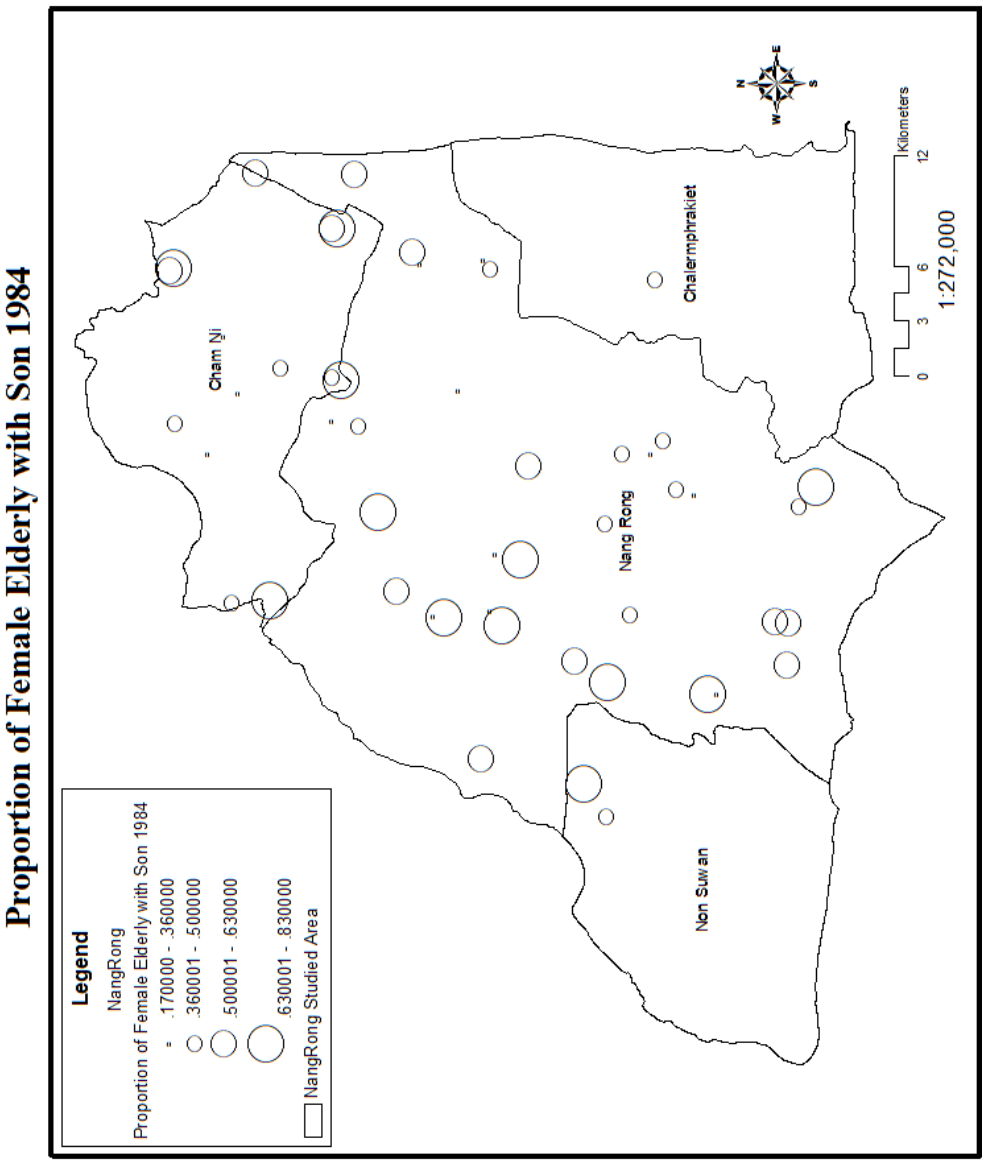

Figure B8 Spatial distribution of proportion of female elderly with son residing in the same village 1984

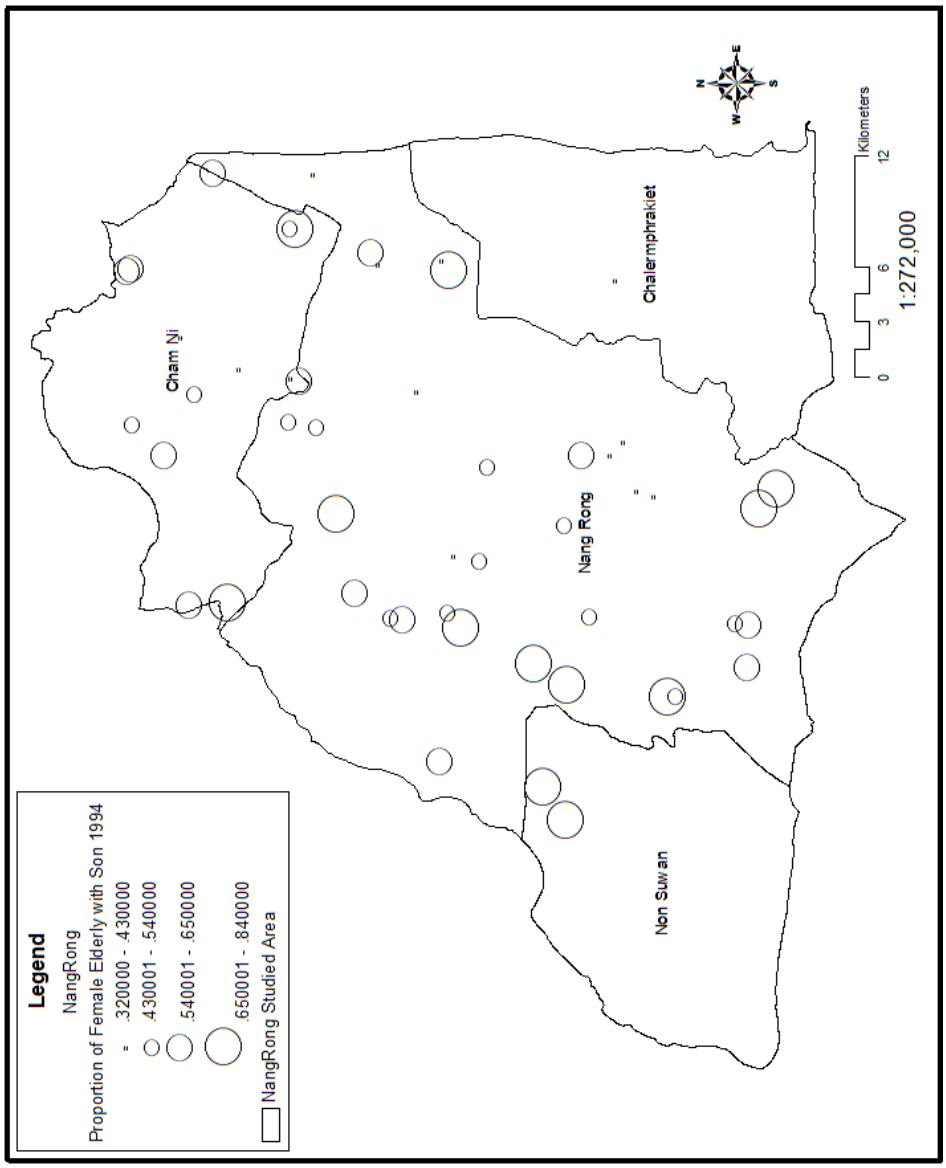

Figure B9 Spatial distribution of proportion of female elderly with son residing in the same village 1994

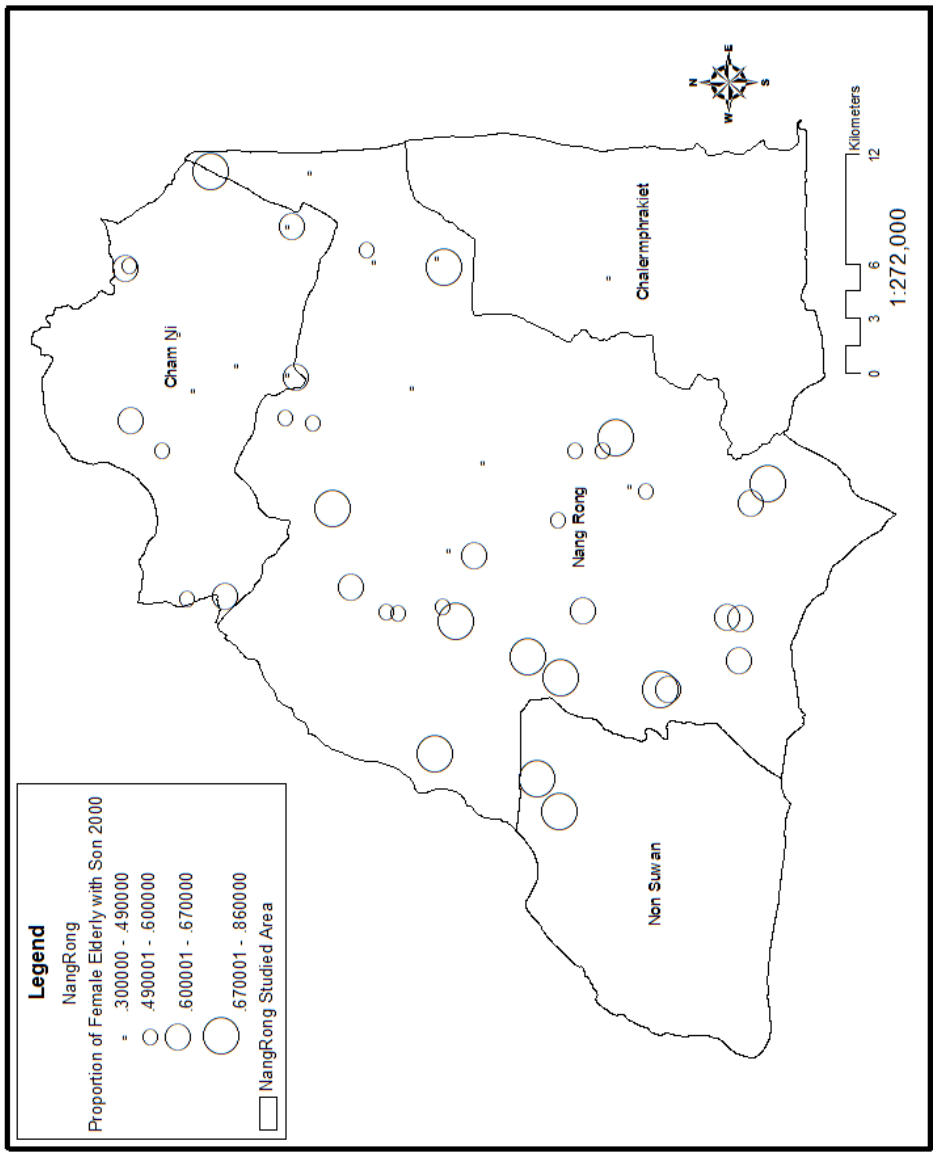

Figure B10 Spatial distribution of proportion of female elderly with son residing in the same village 2000

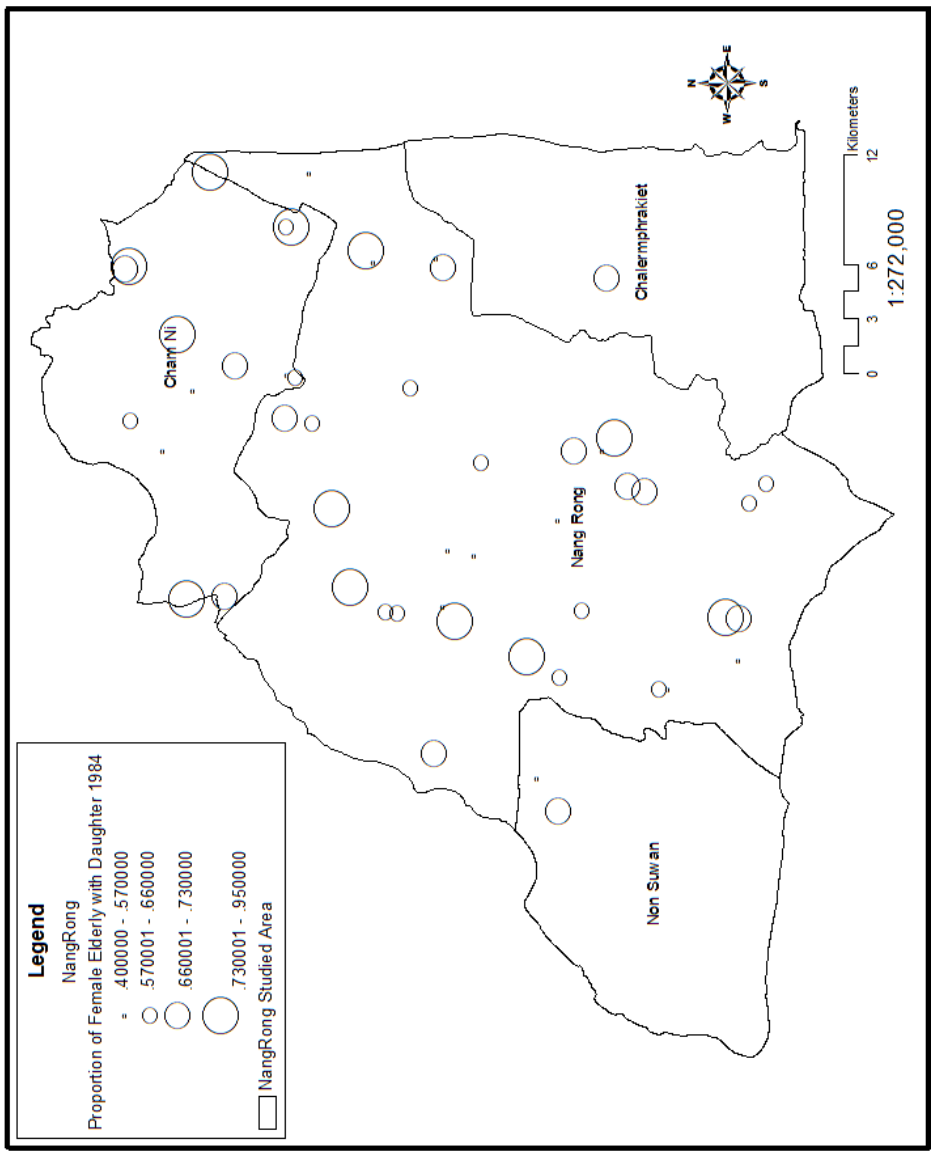

Figure B11 Spatial distribution of proportion of female elderly with daughter residing in the same village 1984

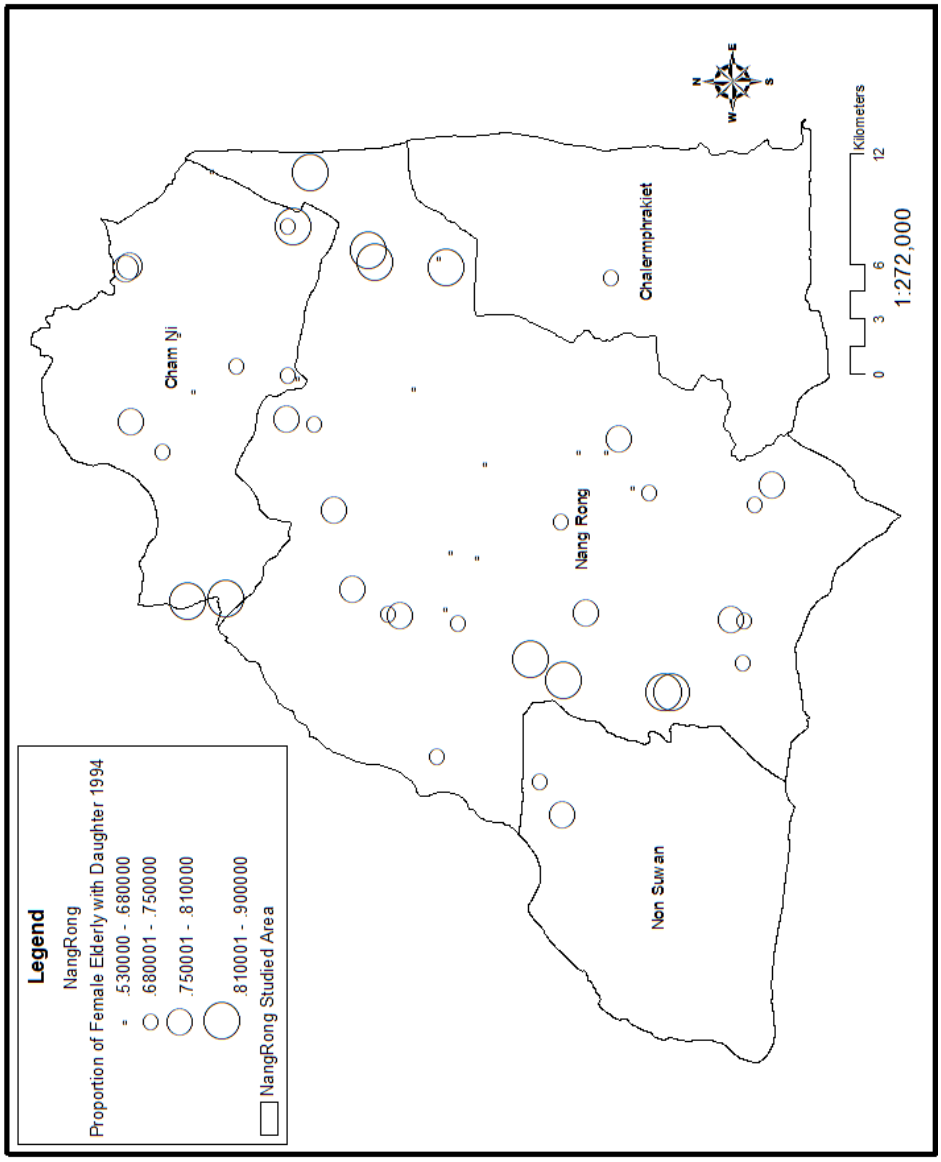

Figure B12 Spatial distribution of proportion of female elderly with daughter residing in the same village 1994

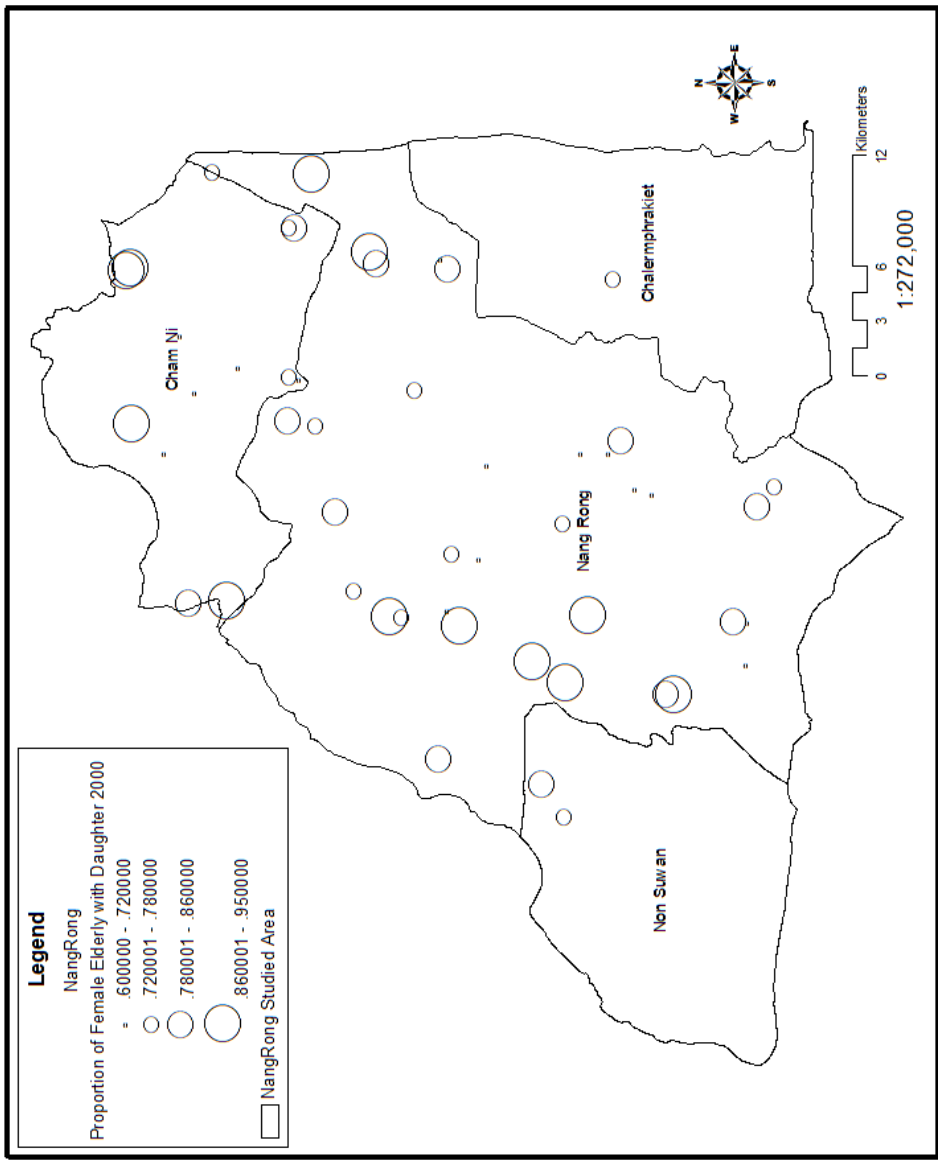

Figure B13 Spatial distribution of proportion of female elderly with daughter residing in the same village 2000

APPENDIX C
QUESTIONS FOR QUALITATIVE STUDY

เครือข่ายญาติของผู้สูงอายุในชนบทไทย กรณีศึกษาผู้สูงอายุในอ.นางรอง จ.บุรีรัมย์

กลุ่มประชากรที่ศึกษา: ผู้สูงอายุ (60 ปีขึ้นไป) ชายและหญิง

วิธีศึกษา: ประชุมกลุ่ม กลุ่มละ กลุ่ม และกลุ่มผู้สูงอายุหญิง 6 คน โดยแบ่งเป็นกลุ่มผู้สูงอายุชาย 8-6 กลุ่ม 6

- ผู้สูงอายุแต่ละคนมาจากครัวเรือนเดียวกันได้

แนวคำถามตัวแทนหมู่บ้าน (ถามก่อนประชุมกลุ่ม)

1. ในหมู่บ้านนี้มีบริการใดบ้างที่เป็นประโยชน์ต่อผู้สูงอายุ
   1.1 ชมรมผู้สูงอายุ
   1.2 โรงพยาบาลส่งเสริมสุขภาพตำบล
   1.3 อื่นๆ ระบุ.....
2. จำนวนผู้สูงอายุที่อยู่คนเดียวในหมู่บ้าน หรือโดยรวม
3. ท่านคิดว่าสาเหตุใดที่ทำให้ครัวเรือนมีขนาดใหญ่ขึ้นหรือเล็กลงจากอดีตจนถึงปัจจุบัน (ระหว่างปี จนถึง 2527 2537 หรือ จนถึงปัจจุบัน) เป็นเพราะเหตุใด
   - จำนวนเด็กเกิดใหม่ การรวมครัวเรือนของญาติที่อยู่ใกล้กัน

-

หมู่บ้าน .....
อำเภอ .....
วันที่ .....

แบบสอบถามคัดกรองผู้สูงอายุ ในเขตพื้นที่ศึกษานางรอง จบุรีรัมย์เพื่อการวิจัยเชิงคุณภาพ.
เรื่องเครือข่ายญาติของผู้สูงอายุในชนบทไทย กรณีศึกษาผู้สูงอายุในอบุรีรัมย์.นางรอง จ.

1. ชื่อ..... นามสกุล .....
2. ชื่อเล่นหรือชื่อที่คนทั่วไปเรียก .....
3. อายุ ปี.....
4. เพศ ☐ ชาย ☐ หญิง
5. สถานภาพสมรส

☐ โสด ☐ แต่งงานอยู่ด้วยกัน ☐ แต่งงานแยกกันอยู่

☐ หย่า ☐ หม้าย

6. ปัจจุบันท่านทำงานหรือไม่ ☐ ทำ ระบุอาชีพปัจจุบัน.....
☐ ไม่ทำ ระบุอาชีพที่เคยทำ.....
7. จำนวนบุตรทั้งหมด คน.....

7.1 บุตรชาย.....คน 7.2 บุตรสาว..... คน

7.3 จำนวนบุตรชายที่เสียชีวิต.....คน 7.4 จำนวนบุตรสาวที่เสียชีวิต.....คน

8. ปัจจุบันท่านพักอยู่กับใครบ้าง

☐ พ่อ ☐ แม่
☐ พี่ชาย ☐ พี่สาว
☐ น้องชาย ☐ น้องสาว
☐ บุตรชาย ☐ บุตรสาว
☐ ลูกเขย ☐ ลูกสะใภ้
☐ หลานชาย ☐ หลานสาว
☐ ญาติ ระบุความสัมพันธ์..... ☐ เพื่อนบ้าน
☐ อื่นๆ ระบุ .....

แนวคำถามประชุมกลุ่ม

1. เรื่องการหุงหาอาหารให้ผู้สูงอายุ
    1.1 ที่ปฏิบัติกันอยู่หรือที่เห็นๆกันอยู่ ท่านคิดว่าใครน่าจะเป็นคนดูแลเรื่องหุงหาอาหารให้ผู้สูงอายุมากที่สุด เพราะเหตุใด
    1.2 ถ้าไม่มีบุคคลนั้น ท่านคิดว่าใครน่าจะเป็นคนดูแลเรื่องหุงหาอาหารให้ผู้สูงอายุรองลงมา เพราะเหตุใด ท่านจะรู้สึกอย่างไรที่ได้รับความช่วยเหลือจากคนนี้ เมื่อเทียบกับการได้รับจากคนที่ระบุคนแรก (รู้สึกพอใจเท่าเดิม หรือน้อยลง)
    1.3 ในความเป็นจริง ใครเป็นคนดูแลเรื่องหุงหาอาหารให้ท่าน เพราะเหตุใดบุคคลที่ควรจะให้การดูแลในข้อ 1 ไม่สามารถทำได้
    1.4 โดยทั่วไปท่านรู้สึกอย่างไรที่ได้รับความช่วยเหลือจากคนที่ระบุ อึดอัดใจหรือไม่ หากอึดอัดใจ เพราะเหตุใด หากไม่อึดอัดใจ เพราะเหตุใด
    1.5 โดยทั่วไปท่านคิดว่าอะไรเป็นอุปสรรคในการดูแลหุงหาอาหารให้ผู้สูงอายุ
        1.5.1 ระยะทาง
        1.5.2 เวลาของผู้ดูแล
        1.5.3 เงิน
2. เรื่องการดูแลยามเจ็บไข้ได้ป่วย (ใช้แนวคำถามจากข้อ 1 เรื่องการหุงหาอาหาร)
3. เรื่องการเดินทางพาไปหาหมอหรือทำธุระในเมือง (ใช้แนวคำถามจากข้อ 1 เรื่องการหุงหาอาหาร)
4. เรื่องการให้ความช่วยเหลือด้านการเงิน ให้เงิน หรือให้ยืมเงิน หรือรับผิดชอบค่าใช้จ่ายในบ้าน (ใช้แนวคำถามจากข้อ 1 เรื่องการหุงหาอาหาร)
5. เรื่องการให้คำปรึกษาเมื่อมีปัญหาหรือมีเรื่องกลุ้มใจ (ใช้แนวคำถามจากข้อ 1 เรื่องการหุงหาอาหาร)
6. เรื่องลูก
    6.1 หลังจากแต่งงานแล้ว โดยทั่วไปที่เขาทำๆกัน ลูกชายจะอยู่กับครอบครัวตัวเองหรือภรรยา และ ลูกสาวจะอยู่กับครอบครัวตัวเองหรือสามี
    6.2 สมมติว่าท่านหรือผู้สูงอายุคนอื่นๆ มีลูกที่โต และแต่งงานมีครอบครัวแล้วหรือทำงานแล้ว แต่อยู่ที่อื่น ท่านคิดว่าลูกของผู้สูงอายุนั้นมีแนวโน้มว่าจะย้ายกลับมาอยู่ด้วยกัน หรือย้ายมาอยู่ใกล้ๆ เมื่อพ่อแม่อายุมากขึ้นหรือไม่ หากมีแนวโน้มว่าจะย้ายกลับท่านคิดว่า ด้วยเหตุผลอะไร หากไม่มีแนวโน้มว่าจะย้ายกลับ ท่านคิดว่าเพราะเหตุใด (หรือพ่อแม่จะถูกพาไปอยู่ด้วยกัน)

6.2.1 เพื่อดูแลพ่อแม่

6.2.2 เพื่อทำไร่หรือทำนาต่อจากพ่อแม่ เนื่องจากพ่อแม่ไม่สามารถทำได้แล้ว

6.3 หากผู้สูงอายุอยู่กับคู่สมรส ท่านคิดว่าเมื่อทั้งคู่อายุมากขึ้นลูกอาจจะกลับมาอยู่กับผู้สูงอายุหรือย้ายมาอยู่ใกล้ๆหรือไม่ (การที่มีลูกอยู่ในหมู่บ้าน เกี่ยวข้องกับการมีหรือไม่มีคู่สมรสอยู่ด้วยกับท่านหรือไม่)

6.4 หากผู้สูงอายุอยู่ต้องอยู่คนเดียวเพราะไม่มีลูก หรือลูกย้ายไปอยู่ที่อื่นกันหมด ท่านคิดว่าใครจะช่วยดูแลหรือให้ความช่วยเหลือ (ญาติ เพื่อนบ้าน วัด สังคม)

6.5 ท่านเห็นว่าผู้สูงอายุในหมู่บ้านให้ความช่วยเหลือแก่ลูกหรือหลานหรือไม่ อย่างไร เช่น งานบ้าน เลี้ยงดูหลาน ให้เงินช่วยเหลือ (ท่านรู้สึกอย่างไร ที่ท่านให้ความช่วยเหลือหรือไม่ให้ความช่วยเหลือเพราะสาเหตุใด มีเงื่อนไขอย่างไร เช่น เมื่อลูกหรือหลานขอ จึงให้ความช่วยเหลือ)

7. เรื่องเพื่อนบ้าน

7.1 โดยทั่วไปที่เขาทำๆกันอยู่ เพื่อนบ้านให้ความช่วยเหลือซึ่งกันและกันอย่างไร

7.2 ขอให้ยกตัวอย่างความช่วยเหลือที่ท่านได้รับจากเพื่อนบ้านทั้งที่เป็นญาติและไม่ใช่ญาติ

7.2.1 ได้รับความช่วยเหลือด้านใดบ้าง

7.2.2 ระยะทางจากเพื่อนบ้านที่ระบุ หรือระยะเวลาที่ใช้เดินทาง

7.3 ท่านรู้สึกอย่างไรจากการที่ได้รับความช่วยเหลือจากเพื่อนบ้านที่ระบุ (เกรงใจเขาหรือไม่ รู้สึกเป็นหนี้บุญคุณหรือไม่ โดยปกติเพื่อนบ้านจะช่วยกันแบบนี้ไหม คนฐานะอย่างไรจึงจะให้ความช่วยเหลือหรือรับความช่วยเหลือ)

8. ครัวเรือน

8.1 เมื่อเทียบกับ 20 ปีที่แล้วหรือเมื่อตอนที่ท่านอายุประมาณ 40 ปี ท่านคิดว่าปัจจุบันนี้บ้านหลังหนึ่งๆ มีจำนวนคนอยู่มากขึ้นหรือน้อยลงนับทั้งเด็ก ผู้ใหญ่ และคนแก่ ท่านคิดว่าเพราะเหตุใดจึงเป็นเช่นนั้น (ลูกแต่งงานแล้วเขยหรือสะใภ้ย้ายเข้ามาอยู่ เด็กเกิดใหม่)

8.2 ท่านเห็นลูกๆที่แต่งงานไปนานๆ แล้วย้ายกลับมาอยู่กับพ่อแม่หรือญาติบ้างหรือไม่ หรือเห็นญาติพี่น้องย้ายมาอยู่ด้วยกันหรือไม่ อย่างไร เพราะเหตุใด (การรวมครัวเรือน อาจเพราะย้ายกลับมาอยู่กับพ่อแม่หรือจากปัญหาไม่มีที่อยู่ หรือไม่มีที่ปลูกบ้าน)

8.3 20 ปีที่ผ่านมาหรือตั้งแต่ตอนที่ท่านอายุประมาณ 40 ปี มีหลายครัวเรือนหรือไม่ที่มีเด็กเกิดใหม่ในบ้านบ้างหรือไม่ อย่างไร เด็กเกิดใหม่ประมาณกี่คนต่อบ้านหลังหนึ่ง

8.4 หากมีลูกหลายคน ท่านคิดว่าลูกจะช่วยกันดูแลผู้สูงอายุได้ดีขึ้นหรือไม่ อย่างไร (ท่านคิดว่า หากมีลูกมาก จะประกันได้หรือไม่ว่าลูกจะดูแลพ่อแม่ได้ดี เพราะเหตุใด หากไม่ดี เพราะเหตุใด หรือไม่เกี่ยวกับจำนวนลูกเลย เพราะเหตุใด)

8.5 หากมีลูกหลายคน ท่านคิดว่าลูกจะทำให้ครอบครัวมีภาวะเศรษฐกิจที่ดีขึ้นหรือไม่ อย่างไร หากดีขึ้นหรือไม่ดีขึ้น จะส่งผลให้ลูกๆช่วยกันดูแลผู้สูงอายุได้ดีขึ้นหรือไม่ อย่างไร

9. ท่านอยากให้มีการปรับปรุงการให้บริการในด้านใดบ้าง เพื่อช่วยให้ท่านและผู้สูงอายุคนอื่นๆ ได้ใช้ชีวิตได้อย่างมีความสุข (ใครปรับปรุง ลูกหลาน ญาติ หรือบ้านเมือง)

BIOGRAPHY

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