

**POSTNUPTIAL RESIDENCE AS AN
EXPRESSION OF SOCIAL CHANGE
IN NANG RONG, THAILAND**

Sara R. Curran, Princeton University
Barbara Entwisle, University of North Carolina
Aree Jampaklay, University of North Carolina

Office of Population Research
Working Paper No. 2000-2

May 2000

Papers published in the OPR Working Paper Series reflect the views of individual authors. They may be cited in other publications, but are intended to be work-in-progress. Comments are welcome. Additional copies are available by writing to the Office of Population Research Working Paper Series, Princeton University, 21 Prospect Avenue, Princeton, NJ 08544. Fax: (609) 258-1039. Or on the web, <http://opr.princeton.edu>.

**POSTNUPTIAL RESIDENCE AS AN
EXPRESSION OF SOCIAL CHANGE
IN NANG RONG, THAILAND**

Sara R. Curran, Princeton University
Barbara Entwisle, University of North Carolina
Aree Jampaklay, University of North Carolina

Office of Population Research
Working Paper No. 2000-2

May 2000

Acknowledgements:

We are particularly appreciative of the programming work provided by Rick O'Hara at the Carolina Population Center. We are also grateful for the support received from the National Institute for Child Health and Human Development (R01 HD 33235 and P30HD32030), the Carolina Population Center, and the Office of Population Research at Princeton University. Direct correspondence to: Sara Curran, Department of Sociology, 2N1 Green Hall, Princeton University, Princeton, NJ 08544, 609/258-6487, curran@princeton.edu.

Abstract

Although Thailand is often described as having a “loosely structured” family system, there is evidence of distinct patterns of exogamy and matrilocality, specifically uxorilocality (Ngamchalermak 1995). Research in the 1980s found a surprising amount of variation, however, explaining the variation in behavior as a result of “lucrilocality,” where partners’ postnuptial residence decision depended on comparative resource advantages between husband and wife’s parents’ homes and villages. Our analysis takes up the challenges proffered by the 1980s research to examine marriage exogamy and locality with recently available data from a rural district in northeastern Thailand. Using a complete census of people from each of 51 villages for 1994, we match couples and compare their residence patterns while they were growing up and after they are married. We link postnuptial residence patterns with data about village land resources and value, distribution of land, and an individual’s age to test the lucrilocality hypothesis.

Postnuptial Residence as an Expression of Social Change in Nang Rong, Thailand

Introduction

Although Thailand is often described as having a “loosely structured” family system, there is evidence of distinct patterns of exogamy and matrilocality, specifically uxorilocality (Limanonda 1979; Ngamchalerm Sak 1995). Typically, sons move to the wife’s family’s village or house (Limanonda 1979; Podhisita 1984). This pattern is described as ideal typical and it is not without its exceptions. Researchers in the 1980s found significant amounts of variation in postnuptial residence patterns.

More than a decade ago Chamratrithirong, Morgan and Rindfuss (1988) applied the phrase “lucrilocality” to describe this variation in postnuptial residence patterns among Thai newlyweds. They posited that postnuptial residence patterns are a function of the relative resource opportunities among a limited set of locales (husband’s parents’ residence, wife’s parents’ residence, other relatives’ residences, independent residence, or separate residences). Two of their findings should be noted. First, they find a high degree of uxorilocal postnuptial residence among rural Thai couples (45%), but a much lower percentage among urban Thai couples (between 12% and 15%). Second, they find that across all groups, 30-51% of couples are living apart right after marriage. The primary explanation for both of these findings is the relative resource opportunities offered by a place of residence (Chamratrithirong et al. 1988). In a commentary to Chamratrithirong et al. (1988), Knodel and Chayovan (1992) suggest that the primary explanation for the findings was measurement error and sample selectivity, particularly with regards to living separately right after marriage. Since the publication of these papers, there has been no other test of the lucrilocality hypothesis.

Further, there has been no effort to examine possible trends in postnuptial residence patterns. One of the limitations in studying postnuptial residence patterns is that most data only allow estimation of whether a couple is living independently or with one or the other spouse's parents. In the Thai case, this limitation is particularly important, as co-residence is typical only for a few years of a young couple's married life (Podhisita 1984). After which time a young couple may establish an independent household residence in close proximity to parents or other family members. Previous research in Thailand has been limited because residence patterns beyond co-residence or non-co-residence cannot be accounted, leading to inaccurate estimates of the social relations implied by such terms as matrilocal or neolocal (Chamrathirong 1984; Chamrathirong et al. 1986; Podhisita 1984; Knodel and Chayovan 1992).¹ Fortunately, this study is not limited by this sampling constraint, offering an important opportunity for insights on postnuptial residence patterns.

An analysis of postnuptial residence patterns and trends also provides another opportunity to examine the impact of dramatic social and economic change upon many social institutions in Thailand, including that of marriage. Rising levels of age at first marriage (Guest and Tan 1994a; Limanonda 1992) and non-marriage (particularly among women, (Guest and Tan 1994a; Guest and Varangrat 1996), and increasing divorce rates (Jones 1994) are just some examples of the impacts. One component of these marital outcomes is the marriage market itself. Changes in marital outcomes are often attributed to the availability and suitability of marriage partners. As migration rates have increased,

¹ In this study, we match spouses and evaluate the place where they each grew up (lived at age 10) in terms of their village of residence at the time of the interview. An alternative approach, e.g., used in the China Health and Nutrition Survey, is to ask one of them, most likely the wife, where her own parents live and where her husband's parents live (e.g., see Chen et al. 1999).

particularly among young adults, presumably marriage markets have expanded among younger cohorts, increasing both availability and variability in suitable partners. In turn, we expect this increase in suitable partners to affect postnuptial residence patterns, perhaps decreasing the tendency for traditional residence choices.

Our analysis will examine marriage exogamy and locality using recently available data from a rural district in northeastern Thailand. Importantly and unusually for most studies of marriage, we have a complete census of people from each of 51 villages. We also know where the spouse of each married person lived while growing up. Thus, our results will not be limited because of sampling error. The study site itself is an interesting place to examine the relationship between demographic, social, economic, and environmental change and postnuptial residence patterns. We find significant variation in postnuptial residence patterns across the 51 villages in our sample. This suggests that not only is there something interesting to explain, but that patterns of difference might be explained at a village level. Thus, we find support for the fruitfulness of an inquiry that examines village level resources as an explanation for postnuptial residence choice. The study site is also interesting because the district was a frontier area until the early 1970s. Since then extensive road building, road improvements, electrification, telecommunications and migration (both into and out of the district) have changed the social and economic fabric of what was once one of the poorest regions of the country. Our data capture this period of rapid change and offer a rare opportunity to examine how social and environmental change affect marriage. The analysis explores a variety of associations between patterns of postnuptial residence choice and historic environmental data, information about economic conditions, and demographic data. Specifically, we

provide preliminary evidence of an association between the availability and value of land resources, as well as local labor market opportunities, and postnuptial residence choice. Our results provide further insights on how to refine the concept of lucrilocality and understand its behavioral implications.

Background and Research Motivation

Research on postnuptial residence patterns typically conceptualizes the issue as one related to extended family or nuclear family residence choices. Characterization of the tradeoffs between each choice suggests differences in the degree to which exchanges of time, money and other resources are important for such issues as family livelihood, childcare, and elderly care giving (Chamratrithirong et al. 1988). However, as is increasingly apparent in the literature on families and households (Curran 1996), exchanges of resources are not limited to co-residence, particularly in the Thai case where co-residence is usually experienced for a limited time. Until now there has been no consensus about, or reliable data indicating, trends in patterns of postnuptial residence to provide a basis from which one might begin to draw hypotheses about family networks of social support.

Thailand provides an interesting case for examining postnuptial trends for a number of reasons. There is significant ethnographic and historic evidence to show that women's status in Thailand was relatively high, especially compared to its East and South Asian neighbors and particularly prior to the rapid economic development experienced over the last forty years (Keyes 1984; Singhanetra-Renard and Prabhudhanitisarn 1992; Van Esterik 1982; Vichit-Vadakan 1994; Suvannathat 1989). The high status of women has been partially explained by the logic of land inheritance, which favors daughters, particularly youngest daughters. Ethnographic accounts of the

Thai inheritance system describe it as bilateral, but the tradition has been that sons relinquish their claims to parental land in return for other sorts of resources (money, animals, or education)(Yoddumnern-Attig 1992). This, in turn, explains both the predominance of matrilineal postnuptial residence and the exceptions to the rule.

One economic explanation for this female pattern of land inheritance (also observed among the Minangkabau in Indonesia(Blackwood 1995)) is the social organization of rice production (Curran 1995). The importance of women's roles in the production of rice from planting to weeding to harvesting and finally to seed selection, necessitates maintaining access to their knowledge of the land to maintain productivity and to support the household economy. One way to do that is to give priority to their land inheritance rights.

Until the 1970s, however, women could not inherit their parents' resources until they married (Keyes 1984). Thus, some have argued, women's status is much more complex and contradictory(Thitsa 1980; Tantiwiranond 1995), especially the extent to which women have control over their lives. The case of marriage and the constraint placed upon inheritance is one example of the contradictory positioning of women's status. A daughter's inheritance through marriage has also meant greater parental control over her spouse selection, especially in rural areas, as the spouse may or may not be a disruptive force for social relations within the household/family economy.

As rural economies and individuals are increasingly drawn into the global economy this pattern may be weakening for a number of reasons. Increasing rates of agricultural mechanization and migration out of the village may be weakening ties to the land. Migration is a common experience for both young men and women (Curran 1994;

Entwisle and Van Wey 2000). As evidence of a weakening of the functional relationship between matrilocality and rice production is the fact that the selection of a spousal partner has become increasingly independent of parental influence (Cherlin and Chamratrithirong 1987b). According to the Asian Marriage Survey (AMS), conducted in the mid-1980s, a majority of men and women made spousal choices independent of their parents in both rural and urban areas of Thailand (Cherlin and Chamratrithirong 1987b). Despite the independence of spousal selection, the AMS also showed continued strong preference for co-residence with the wife's parents in rural areas. Forty-five percent of rural residents were living with the wife's parents after marriage, as opposed to living with the husband's parents (16%) or living apart from both parents (30%).

Another marriage pattern of related interest and indicating a possible decline in the importance of matrilocal postnuptial residence choice is the increasing rate of non-marriage among those older than 30 years, especially women. Thailand has traditionally had an intermediate pattern of age at first marriage, between those of the West and those of other developing countries. Although its mean age at marriage is later than most Asian countries, marriage was universal until recently. According to 1970 census data, 8 percent of women aged 30-34 were not married; by 1990, that had increased to 14 percent. Similar increases in non-marriage were apparent among older age groups (Guest and Tan 1994b). Male patterns of non-marriage increased similarly but were lower to begin with. Part of the explanation for the changing pattern of non-marriage is due to changes in socio-economic structures. For women, it is increasing access to post secondary education. Many of the women with some post-secondary schooling remained un-married after the age of 40. For men, a delay in marriage is partially explained by

shifting occupation and work statuses. These included more opportunities in urban settings. However, men tended to only delay marriage into their early 30's, and universal marriage among men is achieved by their mid-30s (Guest and Tan 1994b).

In an interesting analysis Guest and Tan (1994) also find that these compositional changes in the characteristics of the population over time explain changes in marriage patterns for men, but they do not explain them for women. Instead the rates of change in celibacy rose consistently for the lowest socio-economic group of women, but the rate declined for higher groups. Guest and Tan argue that women in the higher socio-economic groups did not experience a marriage squeeze and were able to find suitable marriage partners. Whereas women in lower socio-economic groups may have experienced increasing expectations of marriage partners, which were not met by the pool of eligible men (Guest and Tan 1994b).

Part of the explanation for the decline in the importance of marriage may be a result of both changes in economic opportunity and legal statutes. In the past it used to be necessary for women to marry in order to inherit their parent's property, however since the 1980s this is no longer the case (Keyes 1984). Also, employment opportunities, for lower-skilled women workers are better in the export oriented Thai economy than for their male counterparts. This economic and legal independence may also decrease the relative benefits of marriage (Oppenheimer 1988; Dixon 1978).

Our study provides an analysis of another dimension of family life: trends in postnuptial residence and their relationship to patterns of social and economic change, heretofore unexplored in the literature on Thailand. We take advantage of data, which are not limited to sampling bias, because they represent a complete census of individuals

from 51 villages. Instead of limiting our analysis to co-residence versus non-co-residence, we define our boundary as the village.² Postnuptial residence patterns are therefore defined by whether the wife or husband grew up in the village of current residence.

Besides allowing us to overcome sampling limitations and adequately examine trends in postnuptial residence, the data we use are uniquely situated geographically, historically and socially. The study site for this analysis is Nang Rong, Thailand a relatively large district in the southern portion of the northeastern region of the country (about 350 kilometers northeast of Bangkok, 350 kilometers west of Laos, and only 60 kilometers north of Cambodia frontier). With the median per capita income about \$140 per year in 1980, it is considered a relatively poor district in which most residents are subsistence farmers. Nang Rong presents a very interesting setting to study the impact of socioeconomic change. Living in a frontier place, the life of Nang Rong people is quite dynamic. During the late 1960's, a paved, military highway was built through Nang Rong, connecting Bangkok with the Laotian border. In combination with rapid and sustained economic growth of Thailand of about 10 per cent per year from 1980-1990 (Warr 1993), the increased access to global markets creates a setting for rapid social change. Considering this context, we believe that Nang Rong is quite an appropriate setting to examine the impact of social and economic change upon one social institution, marriage.

² A village is defined by its 1984 administrative boundary. We have all visited all of the villages in our sample over the last ten years, and for a majority of the villages the administrative boundary overlaps significantly with village social life. Nevertheless, it is important to keep in mind that the overlap is incomplete or the boundary fuzzy, especially regarding social relations. Thus, our measure of village is not error free and must be understood in this context.

The setting also provides an opportunity to explore a variety of dimensions of the lucrilocality hypothesis. The hypothesis suggests the importance of relative resource opportunities for determining postnuptial residence. In this case, we conceptualize relative resources in terms of the abundance and value of land and forest at the village level, as well local labor market opportunities for the 51 villages in the sample.³ Fortunately, the data available for this study allow us to include measures along all of these dimensions. First, we hypothesize that villages with higher resources, in terms of abundance, will also be villages with greater proportions of neolocal or patrilocal couples. Second, however, a higher resource value will be associated with higher levels of matrilocality. And third, villages with a larger agricultural wage labor market will be associated with higher levels of patrilocality and neolocality.

The logic of our hypotheses is linked to our knowledge of the history, environmental setting, and family relations in the district. Our measures of availability of resources capture the potential exploitation of land for use. This is measured in two ways. First, we consider the possibility that undeveloped forestland, represents opportunities for clearing and settlement, not necessarily tied to any household ownership. This kind of land is not likely to have claims made upon it by daughters, precisely because it is not owned. Also, the more land per household the greater the amount available to share with sons after daughters make their claims. Second, and on the other hand, the greater the amount of available rice land, the more likely that land is already owned by a family and the more likely a daughter will have laid claim to it. In addition, the higher the average value of rice land in the village, the more likely the

³ We are only examining 51 villages from one district in Thailand, albeit a relatively large district. Although there is variation in contextual measures, they probably do not vary as much as in a broader

daughter will have laid claim to that property, limiting sons' claims. Further, the less likely a couple from outside of the village will have access to this kind of property. On the other hand, a larger agricultural wage labor market may also induce sons to stay in the village and new couples to move into the village, even if the land ownership possibilities are limited.

Finally the history of the district, a frontier in the 1960s and 1970s and then a place of out-migration in the 1980s and 1990s, suggests the possibility that postnuptial residence patterns will vary significantly across ages. We explicitly examine this possibility and all of our models take village age composition into account when examining other covariates.

Data

The data for this analysis come from the CEP-CPC Nang Rong Surveys. This is a longitudinal panel data set following individuals, households, and villages in one district in northeastern Thailand from 1984 to 1994. We draw especially on the 1994 Household Survey, which collected data for all individuals and households in 51 villages. Village locations are also geo-coded, allowing us to match geophysical data (both current and historical attributes), such as land cover (e.g. percent land in forest), elevation, hydrography, and transportation networks with the social data.

Our sample for this analysis is all married people 15 years and older in 1994 for whom we have been able to match husband and wife's records. Matching was quite successful because the 1994 survey included a coding scheme identifying the location of the spouse, either within the household or outside of the household. Spousal information was collected even if the spouse was not living in the household at the time of the survey,

sample of villages throughout the Northeast, or throughout the country.

as long as the spouse lived in the household in 1984. We created two data files, one using women as the base for generating couples and another using men as the starting point. We conducted our matching program on both the female-based file and a male-based file and found no significant discrepancies in either data set, giving us some reassurance in data quality. In addition, all of the following analyses were conducted on both the female-based and male-based files. Although we did not expect any differences, we were reassured to find none. From this point onward, we will only report on the results from the analysis of the female-based, matched couple dataset. The data include information on 7,988 ever married women 15 years and older in 1994.⁴ Our analysis, however, is only conducted on currently married women reducing our sample to 7,422. Finally, cases with missing data on age were eliminated yielding a final analysis sample of 7,396 currently married women.

Postnuptial Residence Patterns and Settlement History

The 1994 wave of the CEP-CPC Nang Rong survey asked several questions of respondents which allows us to uniquely examine the issue of postnuptial residence. The survey asked questions of all individuals older than 10 years where they lived at age 10. This is our measure of place of origin. We then construct measures of locality by comparing the husband and wife's answers to place of origin at age ten relative to their current location. Table 1 displays the coding of these variables and the distribution of couples in our population across categories.

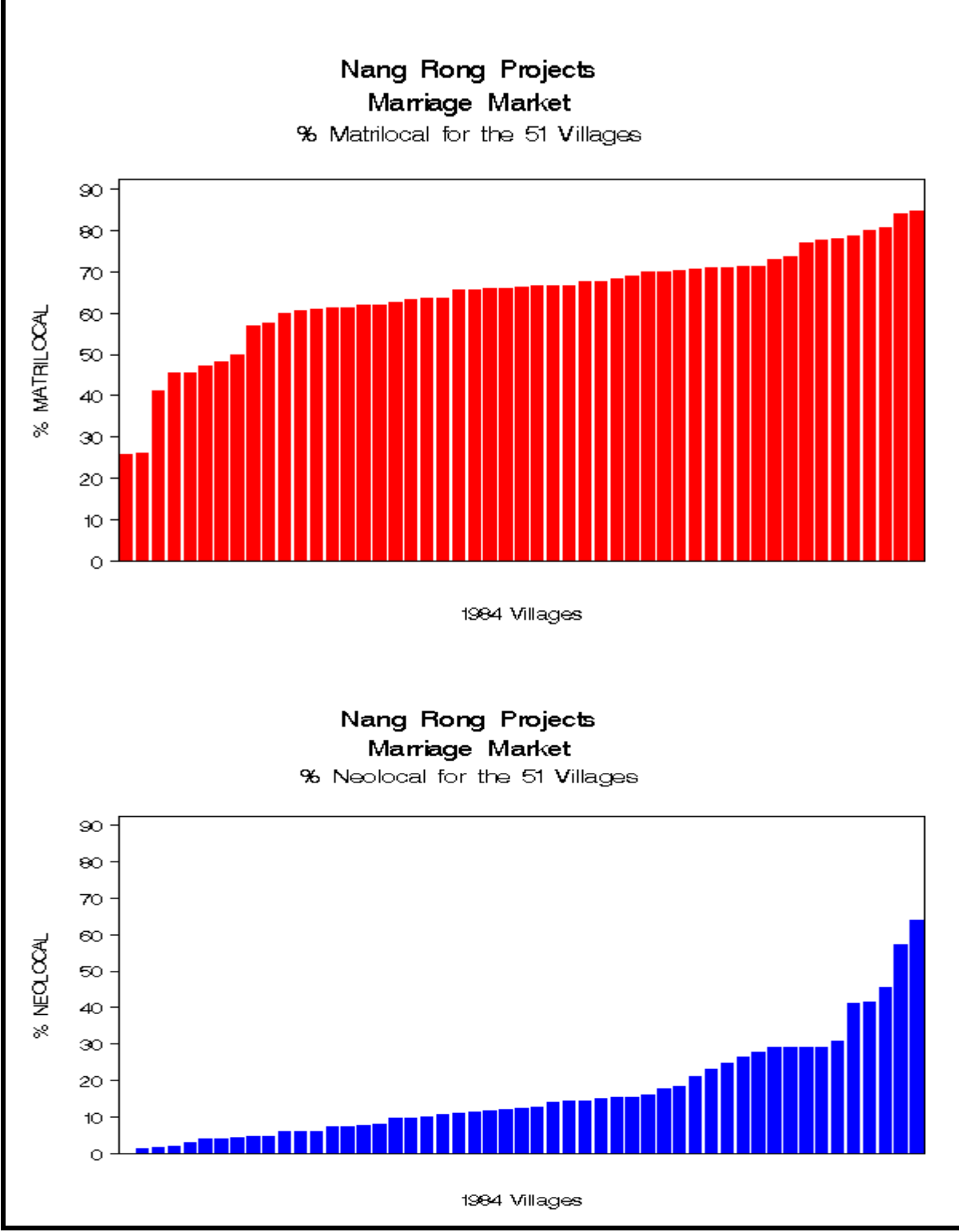
⁴ For this sample, the match rate was 69.87 percent. The relatively low match rate is primarily driven by widowhood among women in the 1984 sample, with a smaller proportion of women with absent spouses in 1984.

Table 1: Value Labels for Postnuptial Locality and Distribution Across Sample

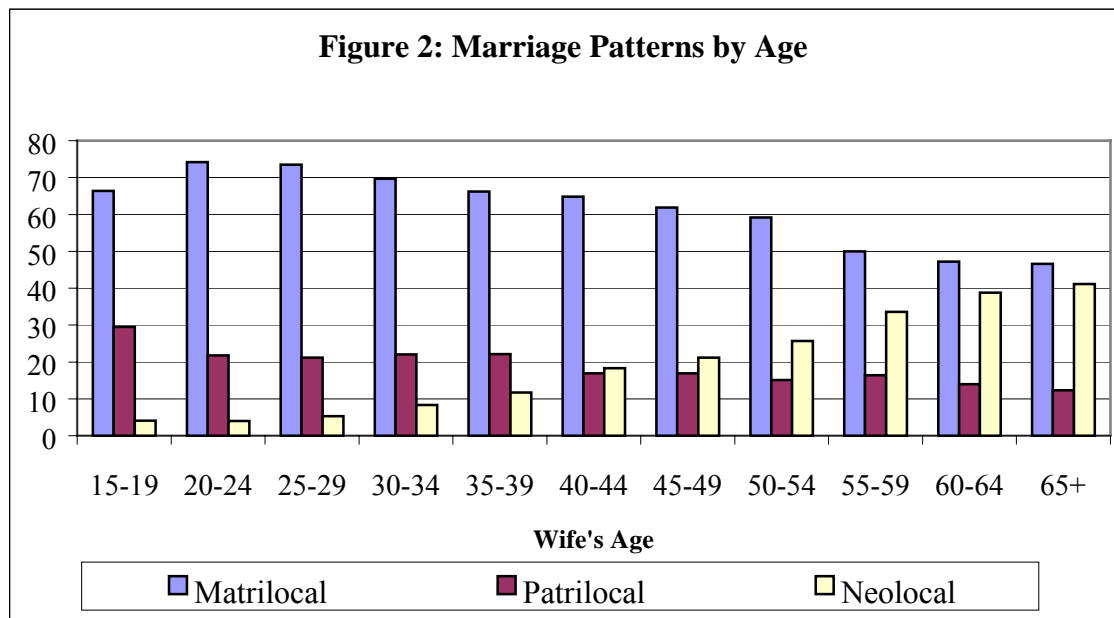
	<i>Locality</i>	<i>% of Couples</i>
Matrilocality	Both lived in the respondent's village at age 10 or wife lived in respondent's village at age 10 and husband lived elsewhere	64.0%
Patrilocality	Husband lived in respondent's village at age 10, wife lived elsewhere	19.0%
Neolocality	They both lived in a different Nang Rong village or outside of the district.	17.0%

Matrilocality, as defined by village boundaries, is the predominant postnuptial residence category. Sixty percent of couples are living in the village where the wife grew up. This is higher than previous estimates of matrilocality. However, two aspects of this measure should be considered in evaluating the statistic. First, our measure expands the definition of matrilocality from household co-residence to village co-residence. Second, among these couples, more than half of the husbands also grew up in that village. In other words, village endogamy is also an important component of matrilocality. On average matrilocality predominates, but as can be seen in Figure 1, the pattern of each postnuptial residence outcome varies significantly across villages. In the top half of Figure 1 matrilocality varies from 25% at one extreme to more than 80% at the other extreme. Similarly, in the bottom half of Figure 1 neolocality varies from as low as 2% to just over 60%. This degree of variability in postnuptial residence patterns suggests to us that part of the process for deciding about the couple's residence is partially dependent upon village characteristics.

Figure 1: Distribution of Matrilocality and Neolocality Across the 51 Villages in Nang Rong, Thailand



We suspect that patterns of postnuptial residence have changed over time, reflecting the history of settlement in the district. The data needed to properly describe historical trends do not exist. Our sample is a broad cross-section of married couples in 1994, covering a wide range of ages (15 and older).⁵ We look to age patterns within the sample for clues about the nature and direction of historical trends. These age patterns are shown in Figure 2.



The increase in neolocal residence choice with age reflects the closing of the frontier and its consequences for the in migration of both partners (whether before or after marriage). Older couples represent the migrants to the district in the 1950s through early 1970s, when much of the forest was cut down, new settlements established, and major highways built and paved. Among those 55 years and older, more than a third of both partners moved from elsewhere. Younger couples are those making residence

⁵ Making inferences about trends from age patterns in a cross-section, for instance as we have done, is always risky. But given our knowledge and experience in the locale we are fairly comfortable with the degree to which we can infer a pattern.

decisions after the frontier was closed. Among those younger than 35 years, in fewer than 10 percent of the cases did both partners move from elsewhere. Mirroring the pattern of neolocal residence choice is the decline in matrilocal residence choice with increasing age. Some caution must be used when interpreting the high rates of matrilocality among the younger age groups, as age at first marriage is relatively late and those marrying early may have a higher propensity for following traditional or ideal typical patterns of postnuptial residence. Further, out migration may exacerbate this trend as the selection of couples that remain within the village may also be less innovative or more traditional. A decline with age is also seen with patrilocal residence although not as steep or significant. The cross-sectional data suggest that matrilocality, although typical over all of the ages represented in our sample, has strengthened over time as land is claimed. Given these strong age patterns, it is important to take age composition into account when evaluating the correlates of village variability in patterns of postnuptial residence.

We analyze the importance of the lucrilocality hypothesis by examining the association of village land resources (abundance and value) and agricultural wage labor market opportunities with patterns of postnuptial residence. The availability of land for settlement, the value of rice land (a staple and export crop), average household land holdings, and relative amount of rice land were all variables we conceptualize as measuring dimensions of village land resources. The distribution of land cultivated across households is our measure of agricultural wage labor market opportunity. Table 2 displays the village averages and the range of values across villages for each of the land resource variables included in our analysis. Our measures are calculated based on the earliest date for which we have information about those resources. Since our population

includes couples marrying before the date for which we have village level measures of land resources, as well as those marrying later, we cannot examine causal relationships between land resources and postnuptial residence. Instead, our analysis is descriptive and tests only for associations.

<i>Variable Label</i>	<i>Mean</i>	<i>Standard Deviation</i>	<i>Minimum</i>	<i>Maximum</i>
Avg. Amt. of HH Land Cultivated in 1984 ⁶	21.75	5.07	11.70	38.17
Average Value of Rice Land in 1984 ⁷	3024.51	1353.71	800.00	7000.00
GINI Value of HH Cultivated Land Dist. In 1984	0.43	0.05	0.32	0.53
% of Forest Land w/in 3 km. in 1976	26.37	10.96	4.42	48.45
% of Flood Plain Land, 1984	61.22	38.23	0	100.00

Average size of landholdings in 1984 is based on data collected as part of the household survey in that year. The average across all 51 villages is about 20.7 rai (a rai equals approximately half an acre). It ranges from a low of 10.25 rai to maximum of 37.20 rai. Ten rai is considered a very small amount of land to be cultivated, barely capable of supporting a family of four if the land is completely devoted to growing rice. In most cases, landholdings are used for a variety of purposes, depending on the capacity

⁶ The unit of land measurement is a rai which is equivalent to about half an acre.

⁷ This is measured in baht/rai. 25 baht in 1984 was equivalent to \$1. This has changed since the 1997 economic crisis when the baht was devalued and the currency floated.

and location, including dwellings, pasture, rice, and other crops. The Nang Rong villages are mostly comprised of smallholders.

Paddy rice is the dominant crop in Nang Rong. The value of rice land varies as a consequence of the quality of soils, location of the land relative to water resources, accessibility to roads and paths, and the productivity of the land. In most cases this means that rice land is of highest value if it contains a high degree of organic material and clay content, is close to a year-round source of water (usually a river), is easily accessible by road and does not require accessing other people's land first, and produces consistently high yields of long-stemmed, jasmine rice (the most expensive variety of rice) (Curran and Sawaengdee 1998). Information about the value of land was obtained from community interviews conducted in 1984. The average value varies between 800 and 7000 baht per rai, with an overall average of about 3000 baht for the 51 villages in our sample.

Using satellite imagery from 1976 and information about village locations, we construct a variable that measures the percentage of land cover in forest within three kilometers of the village center. As shown in Table 2, the percentage of land cover in forest varied from 4 to almost 50 percent in 1976, averaging 26 percent. The variable measures the degree to which land that might potentially be developed is located within reasonable walking distance of the village. The greater the percentage of land in forest, the more land is available for settlement and cultivation for newly formed families or families migrating to the area. This measure also reflects two other aspects of land resources. First, most forested land in 1976 was located on higher elevations, not necessarily suitable for rice cultivation. However, the introduction of suitable cassava

species and growing techniques to the region from central Thailand, plus the growing demand for cassava from the European market (for animal feed) changed the potential of forested land (Feder et al. 1988; Warr 1993). As a result much of the land was cleared and planted in cassava over the next ten years. This change in land use potential initiated an increase in new settlements and may have increased the likelihood that sons would lay claim to these properties.

We also include a measure of village land characterizing the degree to which, within a three-kilometer range, alluvial, or flood plains predominate. This measure is derived from a digital elevation model based on a topographic map from the early 1980s. Most villages were within three kilometers of the flood plain, but they varied in the extent to which lands were located fully within the alluvial plain. Land in the flood plain is well suited for paddy rice cultivation (although not always a good place to locate houses). The percent of the land around the village that is located in the alluvial plain is an indirect measure of greater land value.

Each of these variables can be sorted into two categories of environmental resource endowments. The first category is one of resource availability. Abundance of resources is represented as forestland to be cleared and average land holdings. The second category is the value of the available land resources. Value of resources is represented by the average of value of rice land and the percentage of land classified as alluvial or floodplain.

A final measure of village resources is the inequality of the distribution of cultivated land across households. We calculate a Gini coefficient for the amount of land cultivated across households, using data from the 1984 Household Survey. The higher

the value of the Gini coefficient, the greater the inequality of access to land. We conceptualize this measure as reflecting local agricultural labor market opportunity. Higher land inequality is positively associated with higher proportions of forested land in 1976 ($r = 0.22$), but is negatively correlated with average land holdings ($r = .33$). Thus, we hypothesize that the Gini coefficient captures an aspect of the development of the cassava (and then later sugar cane) export crops. Both of which are associated with high demands for agricultural wage labor for planting, harvesting, and weeding, especially when plots are large. This labor market opportunity is gender neutral and does not coincide with rice growing labor demands. Thus, we hypothesize that the Gini coefficient, net of the effect of landholding size and percent of forestland, captures the demand for agricultural labor and would have a positive effect upon son's postnuptial residence choice, as well as draw new settlers to the village. Finally, an evaluation of our test of the lucrilocality hypothesis must consider that the hypothesis implies a comparison between the resources in a husband's village or a wife's village or another village. At this stage of our analysis we are not able to test this hypothesis. Instead, we are inferring lucrilocality based on residence patterns in relation to the characteristics of the village chosen, with no consideration for alternative options.

Village Endowments and Postnuptial Residence Patterns

We expect to find variation in patterns of postnuptial residence depending on village environmental resources. Given the strong age patterns observed earlier, it will be important to control for age composition before interpreting differences between villages. Our strategy is to estimate a series of descriptive multilevel models, where the outcome of interest is a couple's residence pattern (matrilocal, patrilocal, or neolocal). Age of the

wife enters as a determinant of residence pattern at the couple level in this model, but measures of environmental resources at the village level are of principal interest. Initially, we chose this strategy to allow us to consider the possibility that trends in residence patterns, as inferred from age differences, would reflect different resource endowments between villages. These multilevel interactions turned out not to be important, and thus, we say no more about them. Nevertheless, the additive multilevel model turned out to be an effective way to control for age while studying the effects of the contextual variables (cf.(Entwisle et al. 1989)). Our specification includes a squared age term to capture nonlinearities in trend.

We consider the measures of environmental resources one at a time, and then together. Although the number of couples in our sample is large, the key variables of interest refer to villages, and there are only 51 of them. Fortunately, our measures of abundance and value are not very strongly correlated. Estimation follows a multinomial logistic regression approach. We adjust the standard errors using the Huber-White sandwich estimator to take into account unobserved community effects that result from the clustered sample design.

Models 1 and 2 test one part of the lucrilocality hypothesis, the influence of the availability of land and forest resources on postnuptial residence choice. Although we expected the effect to be similar for both neolocal versus matrilocal and patrilocal versus matrilocal, in fact they are not. The average amount of land cultivated per household in a village does increase the odds of neolocal residence choice relative to matrilocal residence choice. With each increase in one rai of land per household the odds of neolocal residence increases by 10 percent. This is a substantial effect, no doubt

reflecting the historical connection between the timing of village settlement and size of the average holding. The more recently the village was settled, the larger the average holding. Areas most suitable for paddy rice production were settled first. The amount of land required to support a family is less given high quality paddy than lower quality land or land better suited to the production of cassava and other upland crops. It is also possible that land in more recently settled villages has not yet been broken up through inheritance. Similarly, with a one percentage point increase in forestland within a three-kilometer boundary of the village center, the odds of a couple having made a neolocal rather than a matrilineal residence choice increases by five percent. For patrilineal residence choice this positive association with available land resources is only true for forestland. Even so the effect is relatively weak, where a one percent increase in forestland is associated with an increase in the odds of a patrilineal residence choice by almost one percent. It also appears that availability of land resources is probably more influential for influencing neolocal residence choices rather than son's residence choices.

Models 3 and 4 test our hypotheses about the value of village land resources. We expected to find a negative association between resource values and neolocal and patrilineal residence choices, relative to matrilineal residence choices. We find some support for our hypothesis. In model 4 we see the effect of a daughter's claims on parental resources as the value of rice land increases relative to son's claims, although the effect is relatively small. With each 100 baht increase in the average value of rice land the odds of a daughter and her husband making a postnuptial residence choice in her village increase by .01 percent. There is no effect upon neolocal residence choice. In model 4 the percent of alluvial land (suitable for growing rice) is also negatively related

Table 3: Models of Association Between Postnuptial Residence Choice and Lucralocality (Log-odds Coefficients From a Multinomial Logistic Estimate)

Variable	Model 1			Model 2			Model 3		
	Patri/Matri	Neo/Matri	Neo/Patri	Patri/Matri	Neo/Matri	Neo/Patri	Patri/Matri	Neo/Matri	Neo/Patri
Wife's Age in 1994	-.0052	.1452**	.1504***	-.0045	.1433**	.1478***	-.0059	.1413**	.1472***
Age ²	.0000	-.0009**	-.0009***	.0000	-.0008**	-.0009***	.0000	-.0009**	-.0009***
Avg. Amt. of HH Land Cultivated in 1984	.0081	.0927*	.0847**	—	—	—	—	—	—
% of Forest Land w/in 3 km. in 1976	—	—	—	.0090*	.0466**	.0376**	—	—	—
Average Value of Rice Land in 1984	—	—	—	—	—	—	-.0001*	-.0001	-.0001
% of Flood Plain Land in 1984	—	—	—	—	—	—	—	—	—
% of Flood Plain Land in 1984 ²	—	—	—	—	—	—	—	—	—
GINI Value of HH Cultivated Land Dist. In 1984	—	—	—	—	—	—	—	—	—
Constant	-1.0586***	-5.7417***	-4.6830***	-1.2431**	-8.0001**	-6.7571***	-.8344*	-5.3668**	-4.5324***
F Value	26.7 ***			32.84***			24.97***		

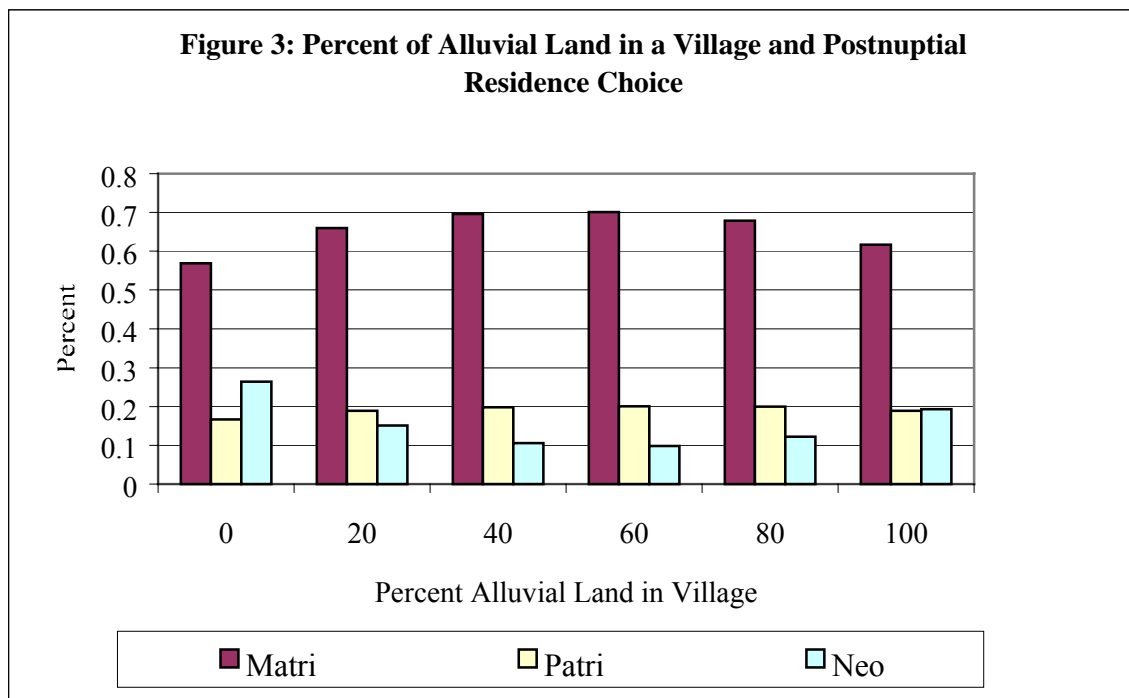
Variable	Model 4			Model 5			Model 6		
	Patri/Matri	Neo/Matri	Neo/Patri	Patri/Matri	Neo/Matri	Neo/Patri	Patri/Matri	Neo/Matri	Neo/Patri
Wife's Age in 1994	-.0058	.1418**	.1476***	-.0048	.1457***	.1505 ***	-.0059	.1463***	.1521***
Age ²	.0000	-.0009**	-.0009***	.0000	-.0008 ***	-.0009 ***	.0000	-.0008***	-.0009***
Avg. Amt. of HH Land Cultivated in 1984	—	—	—	.0134	.077 **	.0635	.0092	.0780***	.0689
% of Forest Land w/in 3 km. in 1976	—	—	—	.0038	.035 **	.0311 *	.0029	.0300***	.0271
Average Value of Rice Land in 1984	—	—	—	—	—	—	-.0001*	.0001	.0001
% of Flood Plain Land in 1984	-.002	-.0482*	-.0467**	—	—	—	-.0033	-.0404***	-.0371*
% of Flood Plain Land in 1984 ²	.000	.0004*	.0004**	—	—	—	.0000	.0004***	.0003*
GINI Value of HH Cultivated Land Dist. In 1984	—	—	—	2.9199 **	1.6125	-1.3074	2.7469***	3.0043	.2575
Constant	-1.0588*	-5.1657**	-4.1069***	-2.7366 ***	-9.4137***	-6.6772***	-2.3868***	-9.4384***	-7.0516***
F Value	24.45 ***			16.64 ***			11.58 ***		

*p<.1; **p<.05; ***p<.01

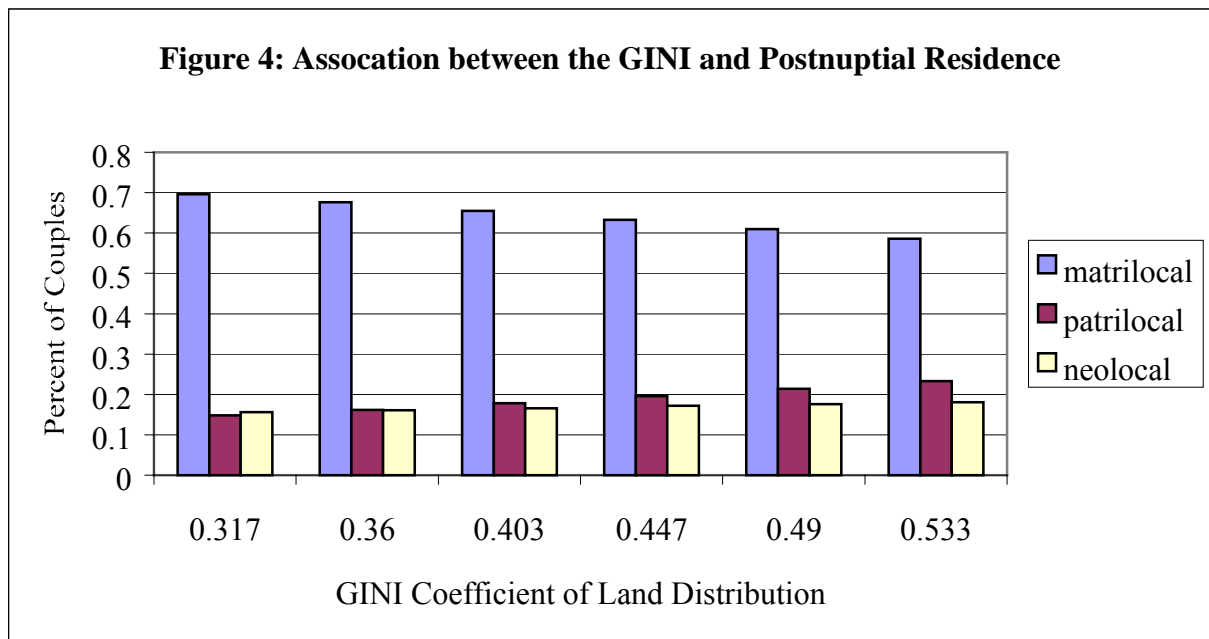
to patrilocal and neolocal residence choices, although only significantly so for neolocal residence choices. Since we modeled a curvilinear relationship between postnuptial residence choice and percentage of alluvial land within a three-kilometer radius of the village center, we calculated predicted probabilities to demonstrate the relationship.

Figure 3 displays these results

The curvilinear pattern we modeled is clearly evident for neolocal and matrilocal residence choice. As the percentage of alluvial land increases up to 60% so does matrilocal residence choice. However, as the percent of land increases beyond this level, presumably there is enough rice land for daughters with some remaining for newcomers to the village. Villages with little or no alluvial land are much more likely to have higher levels of neolocal couples residing in them. Again, this characterization of villages probably reflects village settlement. These villages are likely to be located in areas of cassava and sugarcane production and consequently more recently settled.



Model 5 tests our hypothesis that an agricultural wage labor market will be associated with more sons and their wives residing in the village and that new settlers will move into the village after marriage (this effect is hypothesized net of the amount of agricultural land and the amount of forested land and therefore both of these variables are included in Model 5). Again, we find support for our hypothesis in both cases, although the effect is only significant for patrilocal residence choices. With each increase of .1 in the Gini coefficient (which ranges between zero and one), the odds of a couple having made a patrilocal residence choice increases by more than 18 times ($e^{2.92}$) relative to matrilineal residence choice. Thus, given the discussion of bilateral inheritance earlier, it may be the case that even though sons do not always have access to parents' land resources, if they have access to some resources, plus there are local labor market opportunities, this may be enough to keep them in a village. It is important to remember, however, that the prevalence of patrilocal residence is relatively low. As Figure 4 shows, within the range of Gini values for the villages in our sample the change is visible but



less dramatic than one might assume based on the size of the exponentiated logistic regression coefficient.

Model 6 includes all of the variables in our model. All of the relationships discussed earlier hold for the full model. Thus, our description of results is left unchanged. In particular, the patterns of results show a consistent effect of environmental endowments, both in terms of amount and value, affecting postnuptial residence choice. We find support for all of our hypotheses, especially regarding the choice between neolocal postnuptial residence and matrilocal postnuptial residence.

Conclusions

This analysis of postnuptial residence draws on unique data, providing an opportunity to revisit questions asked and observations made about postnuptial residence in Thailand in the late 1980s (Chamratrithirong et al. 1986; Chamratrithirong et al. 1988; Knodel and Chayovan 1992). Unlike previous studies (Cherlin and Chamratrithirong 1987a; Chamratrithirong et al. 1988) this research finds on average higher levels of matrilocal residence. We suggest that our approach to postnuptial residence might be more revealing of customs in rural Thailand than these previous studies. In a setting where co-residence generally lasts for only a short time, but its ending often coincides with a new residence in very close proximity to the old one, restricting one's attention to co-residence misses the point.

We also find that although matrilocal residence may be an ideal, there are many departures from it. We find significant variation in postnuptial residence across villages. Opportunities might be more plentiful in the husband's village, or even a new village, than in the wife's (the lucrilocality hypothesis). But in addition, there may be a host of

factors operating at the level of individual families that influence the choices they have made. Our analyses have focused on age groups and on villages only.

We find a historic explanation for postnuptial residence choice (an age effect). Older couples are much more likely to make a neolocal choice than are younger couples. This reflects the pattern of settlement in the district during the 1960s and 1970s when many of the major highways were first built, connecting the northeast region of Thailand with the central region (Bangkok).

There is also evidence of a lucrilocality effect. Our contribution to testing the lucrilocality hypothesis is a decomposition of the concept into two components. The first component is a measure of resource availability and the second component is a measure of resource value. In our case, all but one of our measures of lucrilocality regard environmental resource endowments, specifically land characteristics, since a couple's future life in the district will be subsistence based farming. However, we also test the importance of local agricultural labor markets. In all cases we find support for our hypotheses. First, the availability of land resources increases the likelihood that a couple will choose to live in a different village from either of their childhood homes. On the other hand, a larger agricultural labor market will increase the likelihood that a couple will choose the husband's village as a residence. And, third, higher land values in a village increase the likelihood that a couple will choose to reside in the wife's village.

Our findings raise interesting insights about how culture or tradition may be contextually interpreted. The analysis does not presume to be predictive of how cultural change occurs, but describes an association that suggests a relationship between ecology and culture. As many have argued, culture is not to be reified but instead should be

viewed as variable and changeable through the everyday behavior of individuals interacting with their material and social world (Watkins and Pollack 1993; Hammel 1990; Swidler 1986). In this case, we find that ecological conditions appear to influence behaviors, which in turn challenge the cultural ideal of matrilineal residence.

Reference List

1. Blackwood, Evelyn. 1995. "Senior Women, Model Mothers, and Dutiful Wives: Managing Gender Contradictions in a Minangkabu Village." Pp. 124-58 in *Bewitching Women, Pious Men: Gender and Body Politics in Southeast Asia*, editors Aihwa Ong and Michael Peletz. Berkeley: University of California.
2. Chamratrithirong, Aphichat, editor. 1984. *Perspectives on the Thai Marriage*. Bangkok, Thailand: Mahidol University.
3. Chamratrithirong, Aphichat, S. P. Morgan, and Ronald Rindfuss. 1988. "Living Arrangements and Family Formation." *Social Forces* 66(4):926-50.
4. Chamratrithirong, Aphichat, S. P. Morgan, and Ronald R. Rindfuss. 1986. *When to Marry and Where to Live? A Sociological Study of Post-Nuptial Residence and Age of Marriage Among Central Thai Women*. Bangkok, Thailand: Mahidol University.
5. Cherlin, Andrew and Aphichat Chamratrithirong. 1987a. *Variations in Marriage Patterns in Central Thailand*. Bangkok, Thailand: Mahidol University.
6. ———. 1987b. *Variations in Marriage Patterns in Central Thailand*. Bangkok, Thailand: Institute for Population and Social Research, Mahidol University.
7. Curran, Sara R. 1994. "Household Resources and Opportunities: The Distribution of Education and Migration in Rural Thailand." University of North Carolina, Chapel Hill, NC.
8. ———. 1995. "Gender Roles and Migration: "Good Sons" Vs. Daughters in Rural Thailand." *Seattle Population Research Center Working Paper 95-11*. University of Washington.
9. ———. 1996. "Intra-Household Exchange Relations: Explanations for Gender Differentials in Education and Migration Outcomes in Thailand." *Seattle Population Research Center Working Paper, No. 96-12*.
10. Dixon, Ruth B. 1978. "Late Marriage and Non-Marriage As Demographic Responses: Are They Similar?" *Population Studies* 25:449-66.
11. Entwisle, Barbara, John Casterline, and Hussein A.-A. Sayed. 1989. "Villages As Contexts for Contraceptive Behavior in Rural Egypt." *American Sociological Review* 54(6):1019-34.
12. Entwisle, Barbara and Leah Van Wey. 2000. "The Holding Power of Land: Gender Differences in Migration in Nang Rong, Thailand." Paper Presented at the

Population Association Annual Meetings, Los Angeles, California, March 23-26..

13. Feder, Gershon, Tongroj Onchan, Yongyuth Chalamwong, and Chira Hongladarom. 1988. *Land Policies and Farm Productivity*. Washington, D.C.: The World Bank.
14. Guest, Philip and JooEan Tan. 1994a. *Transformation of Marriage Patterns in Thailand*. Bangkok, Thailand: Institute for Population and Social Research.
15. Guest, Philip and Jooean Tan. 1994b. *Transformation of Marriage Patterns in Thailand*. Bangkok, Thailand: Institute for Population and Social Research, Mahidol University.
16. Guest, Philip and Anchalee Varangrat. 1996. "Marriage: The Forgotten Component of Fertility Change." *Thailand Population Association Meeting, Bangkok*.
17. Hammel, Eugene A. 1990. "A Theory of Culture for Demography." *Population and Development Review* 16(3):455-85.
18. Jones, Gavin. 1994. "The Demise of Universal Marriage in East and South-East Asia." *Department of Demography, Australia National University*.
19. Keyes, Charles. 1984. "Mother or Mistress but Never a Monk: Buddhist Notions of Female Gender in Rural Thailand." *American Ethnologist* 11(2):223-41.
20. Knodel, John and Napaporn Chayovan. 1992. "Do Thai Newlyweds Really Live Separately." *Social Forces* 71(2):513-16.
21. Limanonda, Bhassorn. 1979. *Mate Selection and Post Nuptial Residence in Thailand*. paper no. 28 ed. Bangkok, Thailand: Institute of Population Studies.
22. ———. 1992. "Nuptiality Patterns in Thailand: Their Implications for Further Fertility Decline." Pp. 101-20 in *Fertility Transitions, Family Structure, & Population Policy*, editor Calvin Goldscheider. Boulder: Westview Press.
23. Ngamchalermak, Anchalee. 1995. "Aspects of Spouse Selection and Postnuptial Residence in Rural Thailand." *Master's Thesis, Department of Demography, Australian National University*.
24. Oppenheimer, Valerie. 1988. "A Theory of Marriage Timing." *American Journal of Sociology* 94:563-91.
25. Podhisita, Chai. 1984. "Marriage in Rural Northeast Thailand: A Household Perspective." Pp. 71-112 in *Perspectives on the Thai Marriage*, editor Aphichat Chamrathirong. Bangkok, Thailand: Institute for Population and Social Research, Mahidol University.

26. Singhanetra-Renard, Anchalee and Nitaya Prabhudhanitisarn. 1992. "Changing Socio-Economic Roles of Thai Women and Their Migration." Pp. 154-73 in *Gender and Migration in Developing Countries*, editor Sylvia Chant. New York: Belhaven Press.
27. Suvannathat, Chancha. 1989. "Thailand." *Women in Asia: Beyond the Domestic Domain*, editor UNESCO. Bangkok, Thailand: UNESCO.
28. Swidler, Ann. 1986. "Culture in Action: Symbols and Strategies." *American Sociological Review* 51:273-86.
29. Tantiwiramanond, Darunee. 1995. "Gender and Development in Thailand." Paper presented to the Southeast Asian Studies Seminar, University of Washington, Seattle, Washington, December.
30. Thitsa, Khin. 1980. "Providence and Prostitution: Image and Reality for Women in Buddhist Thailand." *International Reports: Women and Society*, London: Change International.
31. Van Esterik, Penny. 1982. *Women of Southeast Asia*. DeKalb: Center for Southeast Asian Studies, Northern Illinois University.
32. Vichit-Vadakan, Juree. 1994. "Women and Family in Thailand in the Midst of Social Change." *Law and Society Review* 28(3):515-24.
33. Warr, Peter. 1993. *The Thai Economy in Transition*. New York: Cambridge.
34. Watkins, Susan and Robert Pollack. 1993. "Cultural and Economic Approaches to Fertility: Proper Marriage or Mesalliance?" *Population and Development Review* 19(3):467-96.
35. Yoddumnern-Attig, Bencha. 1992. "Thai Family Structure and Organization: Changing Roles and Duties in Historical Perspective." Pp. 8-24 in *Changing Roles and Statuses of Women in Thailand*, editors Bencha Yodumnern-Attig, Kerry Richter, Amara Soonthorndhada, Chanya Sethaput, and Anthony Pramualrathana. Bangkok, Thailand: Institute for Population and Social Research, Mahidol University.