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# Uxorilocal Marriage as a Strategy for Heirship in a Patrilineal Society: Evidence from Household Registers in Early 20th-Century Taiwan

Chun-Hao LI<sup>ab</sup>   Martin KOLK<sup>c</sup>   Wen-Shan YANG<sup>a</sup>   Ying-Chang CHUANG<sup>db</sup>

*<sup>a</sup>Yuan Ze University, Taiwan <sup>b</sup>Academia Sinica, Taiwan <sup>c</sup>Stockholm University, Sweden.*

*Institute for Future Studies, Sweden <sup>d</sup>National Sun Yat-sen University, Taiwan*

**Abstract:** In pre-industrial Taiwan, an uxorilocal marriage, in which a man moved in with his bride's family, was a familial strategy used to continue family lineage and to enhance family farm labor. We examine the prevalence and circumstances in which a family would call in a man for one of their unmarried daughters. Using data from the Taiwan Historical Household Registers Database (THHRD) from 1906-1945, we identify the individual-level factors (including parental status, sibling status, household heads' occupations, and the capacity of the family labor force) and community-level factors (including ethnic demographics and the prevalence of uxorilocal marriages by region), which are predictive of uxorilocal marriages. Our analyses first show that women without siblings and women with only female siblings were more likely to adopt the uxorilocal form of marriage. In addition, the effects of number of siblings' were moderated by the presence or absence of parents. For women without any male siblings with at least one parent, especially a father, residing in the household, the likelihood having an uxorilocal marriage was higher than for those without any parents. Second, an uxorilocal marriage was more common in families without men in the labor force to fulfill the manpower needed for farming. Third, uxorilocal marriage was more likely to occur in families living in the poorest socioeconomic conditions, especially those families in which household heads did not own land and had to sell their labor for agricultural production. Our findings imply that the adoption of uxorilocal marriage varied not only from place to place but also from time to time; it was conditioned by the modes and the means of labor production.

Keywords: historical demography, uxorilocal marriage, family lineage, Taiwan, kinshipabstract text

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## Introduction

In all societies, an important life goal is to have descendants to continue the family line (Goody, 1973). In many societies, property and family identity are inherited based on societal rules that vary according to gender and birth order. Unlike biological genetic inheritance, in which men and women contribute similarly to future generations, in most kinship systems in the world, children of different sexes are not equal descendants of the family group of the parents. Therefore, sons and daughters place very different constraints and opportunities on their parents. In this study, we examine how individuals show flexibility when demographic and economic circumstances do not allow them to follow the prescribed societal role model for family continuity. This topic, when constraints create barriers to fulfilling normative patterns, is often neglected in quantitative research on both historical and contemporary families. We examine when and which solutions families choose when they do not have the opportunity to meet societal expectations for family organization. This was an even more central problem in past societies, which were characterized by high mortality and high fertility and thus great random variance in both the number and sex composition of their descendants (Hammel, 2005; Wrigley, 1978).

We study an East Asian society in which family descent is ideally traced exclusively along the male side (a patrilineal kinship system), and in which brides marry into the families of their husbands (patrilocal or virilocal residency). However, what happens when a couple has no son to continue the family lineage? A variety of family strategies across time and space have been developed to overcome the lack of a male heir. In 20th-century Taiwan, we study how demographic circumstances over which the parents have no direct control (e.g., having only daughters) force parents to adopt non-normative strategies for family continuity. More specifically, we study uxorilocal (or matrilocal) marriage formation, in which a family without a male heir arranges their daughter's marriage to a man who, contrary to normative expectations, will take up residence in the family of origin of the wife. Such unions can take multiple forms, and the integration of the husband into the new family varies significantly (Wolf & Huang, 1980). Common to such unions is that they have traditionally been associated with lower social status, as they go against the prescribed Chinese kinship system (Wolf & Huang, 1980). There are motives for uxorilocal marriage other than lineage continuity, many of which are related to the family's economic circumstances. Just as a husband-in-law could be a way to secure a descendant, a husband-in-law could also be needed for economic reasons if a family lacked members who could provide agricultural work (cf. Chayanov, 1925 [1966]; Chuang & Wolf, 1995; Kurosu & Ochiai, 1995).

We use administrative registers that the Japanese government collected from 1906–1945 to study the prevalence of uxori-local marriage in Taiwan. The data are from an exceptional data source based on Japanese officials' rigorous documentation of all demographic events in colonial Taiwan. The data give us a unique opportunity to use a representative and high-quality dataset to examine under which circumstances uxori-local marriages were influenced by the demographic structure of an ethnically Han-Chinese population. We show that both family structure (the absence of male siblings) and agricultural labor factors (the absence of labor in the family) both influenced the probability that a woman would enter an uxori-local marriage. Below, we outline other heirship strategies adopted in different societies, followed by a discussion of previous research on uxori-local marriage in Chinese societies. Finally, we present the aims of our study as well as our data and methods before discussing our results.

### **Heirship Strategies in an International and Comparative Perspective**

In all societies, there are cases in which demographic circumstances, over which parents have little control, make it problematic to continue a family. Here, this means that the parents have no descendants, or at least no social descendants (who can continue the family lineage of the parents); it poses a very real threat to the parents' welfare if they have no children to support them in old age. Heirship problems can be due to infertility, the premature death of several children, or simply due to sex allocation that leaves no child of a gender that can continue the lineage.

Anthropologists, sociologists, and historians have often studied the normative kinship patterns in societies, but there are many examples of flexibility (deviations from the norm) in kinship patterns to ensure heirship and a continuity of family lines as well as ensuring there will be younger household members to provide support in old age (Fauve-Chamoux, 1995, 2005; Ruggles, 1987; Schlumbohm, 2009; Young & Willmott, 1957). Culturally similar groups can simultaneously display a great difference in inheritance rules. A good example is traditional European inheritance patterns. There were major variations within Europe in both the sex of the legal descendant as well as in how descent was traced based on birth order (e.g., primogeniture and ultimogeniture) and how inheritance was traced through affines (kin by marriage) and women (Teuscher & Sabeau, 2007). In such a system, an unfortunate death of a son or a daughter could mean that an ancient aristocratic line went extinct, or that land and property would be inherited by a different branch of the family with whom relations might not

be cordial. Also in ordinary farming families, parents had to negotiate their expectations of the first son inheriting the farm, with the demographic and social realities often resulting in a daughter and son-in-law taking over a farm instead (Dribe & Lundh, 2005; Rebel, 1978). In East Asia, the kinship system was strongly entrenched but was historically not enforced to the same degree by courts and laws. Uxorilocal marriage in East Asia represents one way in which families have negotiated the dominant kinship pattern.

One common strategy for family continuity when there is no descendant is to adopt a child, which is still practiced worldwide and represents one solution to such a problem (Goody, 1969; Howell, 2009). In most societies, it is possible for infertile couples to adopt a child from another family. In this article, we examine couples with a different kind of problem—a daughter of marital age but a lack of sons who have reached marital age, perhaps due to the mortality of earlier-born sons.

In some societies, it was possible to adopt adults to serve as descendants, Japan being a prominent example, in which parents often adopted adults as legal descendants in case they had no sons. Using the Household Register of South-Tama, Kurosu and Ochiai (1995) point out that adoption was an heirship strategy to overcome the demographic constraints within Japanese families of the 19th century. While adoption was practiced in Japan, uxori-local marriage was more common in Taiwan and China. The Japanese adopted sons-in-law functioned similarly to the called-in sons-in-law of uxori-local marriage in Taiwan and China. Overall, the line between an uxori-local marriage and the adoption of an adult son is in some contexts quite fluid. However, in Taiwan, there was a clear difference, and most uxori-local marriages did not entail the full adoption of the male into the new family. Note that we talk about adopted sons-in-law as a parental heirship strategy rather than as a strategy for female marriage; this is because parents had the ultimate authority over marriage in Taiwan during the period (Wolf & Huang, 1980). An uxori-local marriage was primarily a strategy for parents to secure social descendants, though a common consequence was that the social position of the woman in these unions was often elevated relative to a bride in a patrilocal marriage. This is one reason why men who practiced matrilocal marriage were often ridiculed by their peers, a pattern also documented in Western Europe (Segalen, 1983). In some ways, this is comparable to the often hypothesized elevated position of widows in otherwise patriarchal kinship systems in both Eastern and Western societies (Dribe, Lundh, & Nystedt, 2007; Fauve-Chamoux, 2005).

### **Uxorilocal Marriage in Chinese Societies**

The Chinese kinship system can be described as largely patrilineal and patrilocal

(Freedman, 1966; Wolf & Huang, 1980). Patrilineal family lineages were an important form of societal organization and stratification (Campbell & Lee, 2011; Song, Campbell, & Lee, 2015). However, historically, uxori-local marriage is not unusual. In the interviews and the survey data collected in the Shaanxi Province of China, Li and Zhu (1999) and Li, Feldman, and Li (2003) illustrated that while virilocal marriage occurred almost universally among the Han Chinese, uxori-local marriage is common alongside patrilocal marriages in some rural areas of contemporary China. Chinese uxori-local marriage is a family strategy to deal with the issues that are caused by the constraints of family structure in which a male heir is lacking or where appropriate labor is short. By implementing uxori-local marriage, parents in need ensure the continuity of the family lineage, the security of their old age, and the increase of male laborers within the family. The reviews of Chinese cases demonstrate that the son-in-law who is called-in for one of the daughters is asked to take his new family's surname or make his son(s) take the surname of his father-in-law to continue the family lineage (see Li & Zhu, 1999; Li et al., 2003). Changing the surnames ensures the heirship of the sons-in-law of uxori-local marriage.

The practice of uxori-local marriage in Taiwan varies from its Chinese counterpart. As a consequence, our research demonstrates the diverse patterns of uxori-local marriage. Carefully scrutinizing approximately 200 published contracts of uxori-local marriage in pre-industrial Taiwan, we found that the sons-in-law neither took their wives' surnames nor inherited the property of their parents-in-law, including land and living equipment.<sup>1</sup> Most importantly, the marriage contracts usually documented that the first child of an uxori-local marriage couple had to take the maternal surname, even though the contracts may not have been fully implemented. In sum, as Chuang and Wolf (1995, p. 782) reported, “[i]n Taiwan the most common form of uxori-local marriages was an intermediate variety in which the groom retained his own surname but agreed to work for his wife's family and name one or more of his children to his father-in-law's descent line.”

Chen (1990) showed that the properties of maternal families were only passed down to the grandchildren who carried the surnames of their maternal grandfathers. In other words, the children taking maternal surnames held the heirship in addition to the rights and the obligations to worship the maternal families' ancestors. After their deaths, the couple in the uxori-local marriage would not be worshipped in the maternal family. In the Taiwanese case, the obligations of each son-in-law were clearly written in his marriage contract, which documented

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<sup>1</sup> See Taiwan Sifa Renshi Bian (臺灣私法人事編), which is a collection of local regulations. The published information in this document-type book was based on the materials that Rinji Taiwan Kyūkan Chōsakai (りんじたいわんきゅうかんちょうさかい; 臨時台灣舊慣調査會) collected in 1910.

that beside surrendering the surnames of some of his children, he was asked to take care of his parents-in-law until their deaths, to pay the bride price for initiating his uxori-local marriage and to pay the penalty for terminating his marriage. In general, it seems that for husbands of uxori-local marriage, the social costs of the marriage were higher than the social benefits.

However, uxori-local marriage somehow provided the called-in husbands who in general were not able to have a patrilo-cal marriage an opportunity to continue their lineage; they were usually allowed to give one or more of their children their own surnames. Li et al. (2017) revealed that among children born to uxori-local marriage couples in Xinzhu, Taiwan, 35.5% of the first sons and 27.5% of the first daughters took their mothers' surnames. In total, while 31.6% of the first children took their maternal surnames, 19.4% of all the children carried their mothers' surnames. The proportions of boys and girls who took their mothers' surnames were 21.7% and 17.1%, respectively. In other words, more than 80% of children born to uxori-local marriage couples took their fathers' surnames.

In Taiwan, society was rigidly governed by the patrilineal family system. Husbands involved in uxori-local marriage usually encountered social stigma that came with great psychological costs (Chuang et al., 2013; Li et al., 2003; Wolf & Huang, 1980). As a result, uxori-local marriage was not as prevalent as two types of virilo-cal marriages—major and minor marriages—in Taiwan.<sup>2</sup> However, we are curious about what factors would have led people to engage in an unwelcomed uxori-local marriage.

### **Location and Uxori-local Marriage**

In terms of geographical scale, Li et al. (2003, p. 316) revealed that uxori-local marriage was only found to be common in some areas, such as certain counties in the Gansu, Hubei,

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<sup>2</sup> Using the vocabulary developed by Arthur Wolf, most marriages in traditional Taiwan can be classified as one of three types: major, minor, or uxori-local (Wolf, 1974; Wolf & Huang, 1980). "Major" marriages represent the normative form of marriage in which, upon marrying, a woman leaves her family of origin to live with her husband's family. What Wolf calls the "minor" marriage type is when the family of the future husband adopts a daughter at a very young age; they raise her from childhood together with her future husband. Minor marriages formed a large share (up to half) of all marriages in some parts of Taiwan, including our study population, and were also not uncommon in China. In major and minor marriages, post-marital residence is patrilo-cal, that is, the bride goes to live with the husband's family and is absorbed as a member of his household. However, in major marriages, the bride is transferred as a young adult, while in minor marriages, the bride is transferred as an infant or small child. In contrast, in uxori-local marriages, the groom moves in with the family of the bride. Freedman described the groom of an uxori-local marriage as "a sort of male daughter-in-law" (1957, p. 122).

Jiangxi, Shaanxi, and Zhejiang provinces in China, but it was popular in Taiwan as a whole during the late 19th and early 20th centuries. However, we are interested in learning whether uxori-local marriage was prevalent or unwelcomed across places within Taiwan. Chuang and Wolf (1995) revealed that the prevalence of uxori-local marriages did not show distinct regional variation. Taiwan was divided into three regions: north, central, and south. On average, the percentage of uxori-local marriages was almost the same in north as in south Taiwan: 12.8% for the twelve northern research sites and 12.9% for the nine sites in the central and southern. However, the within-region distribution was highly irregular. Among the northern research sites, the percentages of uxori-local marriages during the period of 1881–1905 ranged from 6.2–25.0% of all first marriages (see Chuang & Wolf, 1995, p. 785, Table 1). In contrast, in southern Taiwan, uxori-local marriages accounted for 2.4% of all marriages in An-ping and 24.4% of all marriages among the Ta-wei Sirayas (see Chuang & Wolf, 1995, p. 786, Table 2). Therefore, Chuang and Wolf (1995, p. 786) concluded that uxori-local marriages “were a local rather than a regional phenomenon. Interestingly, they found that among the studied locations, the prevalence of uxori-local marriage was associated with the rate of minor marriages, especially in northern Taiwan, where the localities with a high rate of uxori-local marriages had a relatively low rate of minor marriages. On the contrary, in southern Taiwan, the rate of minor marriages was independent of the proportion of uxori-local marriages.

In a Chinese study, Li et al. (2003, p. 317) reported that uxori-local marriage in Lueyang, China was a part of local custom, where infertile couples adopted a daughter as a psychological way to stimulate the occurrence of more children and then in turn brought in a son-in-law to maintain family continuity and to provide them with support in old age. This bodes the question, when local custom is associated with the occurrence of uxori-local marriage in certain areas, can ethnicity that may shape local traditions explain the prevalence of uxori-local marriage at the community level? In Taiwan, although a high rate of uxori-local marriage was found in the research site that was composed of the Siraya population, the Hakka population acted differently in northern and southern Taiwan (Chuang & Wolf, 1995). In northern Taiwan, the Hakka’s proportion of uxori-local marriage was close to those of the non-Hakka research sites. In contrast, that of the southern Hakkas was similar to the general pattern of south Taiwan. In sum, in the Taiwanese case, there is no concrete evidence that the occurrence of uxori-local marriage was associated with ethnic identity.

## Family Structure and Uxorilocal Marriage

Family structure has been described as the most important factor for marriage choice. Uxorilocal marriage in Taiwan and China and the adoption of sons-in-law in Japan were influenced by the characteristics of the family structure; categorized by the differential number of siblings, this structure reflects the deficiency in family labor or in sons (Chuang & Wolf, 1995; Chuang et al., 2013; Kurosu, 1995; Li et al., 2003). The family strategies of uxorilocal marriage and adopting sons-in-law are not only to fulfill the needs of the continuity of the families of both the bride and the groom,<sup>3</sup> but they also increase the number of male laborers in the maternal family. When surveying a research site in central Taiwan, Chuang and Wolf (1995, p. 789) reported that “. . . [o]nly three of thirty-nine women who married uxorilocally had an older brother; of the three, one was adopted, one bore another surname, and two were unmarried (and probably unmarriageable). At the time of their marriage, 61.5 percent of the women had no brother at all; 74.3 percent had no natural brother; and 89.7 percent had no natural brother ten or more years of age.”

This reveals that a family continually chose the uxorilocal form of marriage when the women of marriageable age did not have male siblings or potential male laborers in their families to share the workload. The parents of families without male offspring often needed to call in a husband for one of their daughters.<sup>4</sup> Chuang and Wolf's (1995) research implied one reason for choosing uxorilocal marriage could be the demand for family labor to ensure the family's survival. Families, such as the ones mainly working in agriculture in the pre-industrial era, that required adequate family laborers were more likely to adopt uxorilocal marriage. However, the implementation of uxorilocal marriage was different in families with sons versus those without. Wolf (1989) named two types of uxorilocal marriage: the contingent and the institutional. Chuang and Wolf (1995) argued that uxorilocal marriage that occurred in a family without a son was a contingent variation of the rural patrilineal Taiwanese and Chinese family system; the latter type occurred in families with at least one son.

The lack of male siblings and the demand for family labor may not sufficiently explain

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<sup>3</sup> Wolf and Huang (1980) pointed out that uxorilocal marriage not only guaranteed the continuity of the wives' families without male heirs, but it also maintained the family lineage of husbands who were too poor to have a virilocal marriage to find themselves wives.

<sup>4</sup> Lin et al. (2014) reported some special cases and illustrated that to maintain their family lines, prostitutes in a red light district in colonial Taipei implemented uxorilocal marriage to call in husbands for their adopted daughters. These husbands were usually immigrants working in the area near the red light district.

why marriageable women engaged in uxori-local marriage. Additionally, we argue that the application of uxori-local marriage is *conditioned* by parental appearance. Wolf (2008), Chuang et al. (2013), and Lin et al. (2014) revealed that at least one of the maternal parents was present when an uxori-local marriage occurred. This may reflect the important role the bride's parents played in the process of uxori-local marriage because any uxori-local marriage required a serious negotiation between the families of the groom and the bride (Pasternak, 1985; Chuang & Wolf, 1995). The negotiation included deciding the husband's rights and the duties, which were documented in the marriage contract. If the bride's family had no family members with adequate authority to oversee the complicated and humiliating negotiation processes, uxori-local marriage rarely occurred.<sup>5</sup> In sum, although the lack of male heirs in maternal families was influential in triggering uxori-local marriage, families who were short of labor for family production were also more likely to call in sons-in-law. Moreover, due to the complicated and humiliating negotiation between the two families, the appearance of maternal parents played an important role in initiating uxori-local marriage.

We examine both the influence of household structure and geographical location as determinants of uxori-local marriage, but our study makes several important advances over previous studies on this topic (e.g., Chuang et al., 2013; Chuang & Wolf, 1995; Wolf & Huang, 1980). Our statistical approach is novel, and it makes several contributions to earlier studies on the topic.

In general, the present research is methodologically different from other Taiwanese studies on uxori-local marriage (e.g., Chuang et al., 2013; Chuang & Wolf, 1995; Wolf & Huang, 1980) drawing on data from household registers. First, instead of using aggregated information such as percentages, our analysis is based on the data at the personal level. The results relying on the aggregated data were inadequate to understand individuals' behaviors in response to social and societal difficulties. As a consequence, we use multivariate statistical analyses to examine how individual characteristics are associated with the likelihood of a woman stepping into an uxori-local marriage, with three-fold advantages. Particularly, we not only examine the effects of parents' and siblings' current status and household economic status, but we also control for marriage cohorts of women. Furthermore, we simultaneously examine

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<sup>5</sup> Chuang et al. (2013) reported that the grooms of uxori-local marriage usually did not have their parents present at the marriage ceremony.

whether the adoption of uxori-local marriage is to continue a family lineage and/or to increase the family labor force.

Second, instead of doing case studies of uxori-local marriage couples (where an observed uxori-local marriage is the unit of analysis), we are able to investigate every woman's likelihood of having an uxori-local marriage in our data. Chuang et al. (2013) explicitly analyzed 92 uxori-local marriage couples that were all residing in the research sites in the Xinzhu area before their marriages, but their research excluded a great number of women in uxori-local marriages who married husbands from outside the research sites. In addition, our research differs from Chuang et al.'s (2013) and Lin et al.'s (2014) studies, as it covers a large geographical scale by including the 19 research sites on the western part of the island of Taiwan. This guarantees that we can investigate the effects of community factors. For example, we examine whether the likelihood of uxori-local marriage is associated with community ethnicity characteristics.

Finally, this research helps us to understand the differences between uxori-local marriage in Japan (see Kurosu & Ochiai, 1995) versus Taiwan. The former shows that Japanese uxori-local marriage is generally done through adoption. The bride's parents adopt the husband of an uxori-local marriage; he adopts the bridal surname and is able to inherit the bridal family's property. In general, the husbands of uxori-local marriages in Taiwan had no need to change their surnames, but they also did not have the authority to inherit their wives' families' property.

### **Aims and Hypotheses**

Our aim is to identify the factors at the individual level and at the community level that affect the likelihood of female villagers (and their parents) choosing an uxori-local marriage. Further, we examine uxori-local marriage as a conditional family strategy. We hypothesize that the application of uxori-local marriage for female villagers is a conditional family strategy to cope with family labor shortages and to continue the family lineage. This particular strategy can be practiced under three conditions: 1) the absence of male siblings, 2) the demand of family labor for survival, and 3) the existence (survival) of the parent(s). These three causes may additionally have the interactive effects of the characteristics at the community level on the adoption of uxori-local marriage among female villagers in the research sites. Therefore, the specific hypotheses at the individual level are as follows:

H<sub>1</sub>: The absence of male siblings is positively associated with the likelihood of adopting an uxori-local form of marriage.

H<sub>2</sub>: Women in families without an adequate labor force are more likely to enter into an uxori-local form of marriage; females in families that depend on inputting family labor for agricultural production in which human power is the main *means* of production are more likely to marry a called-in husband.

H<sub>3</sub>: Since an uxori-local marriage requires a serious negotiation between the two families, the existence of a wife's parent(s) can enhance the possibility of having a called-in husband.

People and families do not live in a vacuum—particular behaviors can be affected not only by individual characteristics, but also by the community context. Therefore, we argue that personal or family behaviors are determined by the community context or local custom, such as the prevalence of certain marriage patterns. In particular, we hypothesize that the application of uxori-local marriage is associated with the prevalence of uxori-local marriage in a community (H<sub>4</sub>).

## **Data and Methods**

### *The Historical Context of Our Study*

Taiwan is known as the “Isle Formosa”—sitting between the East and the South China Seas and the Pacific Ocean, it is surrounded by Japan, South Korea, China, and the Philippines. Its history can be traced back to around 50,000 years ago when the ancestors of Taiwanese aborigines arrived. Beginning in the 14th century and continuing into the 19th century, large numbers of Chinese settlers mainly from two provinces in southeastern China, Fujian and Guangdong, arrived in Taiwan. In the Manchurian Qing dynasty, Han Chinese were frequently prohibited from migrating to Taiwan to prevent rebellions against the government. However, to escape from the economic hardship that high taxes and land shortage caused, poor people from the two provinces risked crossing the Taiwan Strait. The two primary Han Chinese ethnic groups immigrating to Taiwan were the Hokkien (the majority population and the majority ethnic group in Fujian) and the Hakka people, who lived spread across southern China. The aboriginal people living on the plains in western Taiwan (our study sites) had to a large extent been assimilated into the main Han Chinese culture by the beginning of the 20th century.

Generally speaking, several foreign powers colonized pre-industrial Taiwan. In the early 17th century, the Dutch colonized southern Taiwan, while the Spanish built a settlement in the north before the Dutch drove them out in 1642. In 1662, Koxinga (Zheng Chenggong, 國姓爺, or 鄭成功), who was a loyalist of the Ming dynasty (1368–1644), defeated the Dutch

and established his regime in Taiwan, continuing the struggle against the Manchurian Qing dynasty (1644–1912) after the Ming in China had fallen. However, Koxinga's regime collapsed in 1683; a Qing admiral defeated Koxinga's successor. The Qing emperors ruled Taiwan until the Treaty of Shimonoseki (馬關條約), which concluded the first Sino-Japanese War in 1894. In 1895, Taiwan and Penghu were integrated into the Empire of Japan. At the beginning of Japanese colonial rule, the residents of Taiwan were granted two years to choose between being Taiwanese or returning to China. It turned out that less than 0.2% (about 4,500) of the residents went back to China (Huang, 2005).

Taiwan was Japan's first overseas colony. Japanese intentions were not only to transform Taiwan into an agricultural base to supply foodstuffs and other raw materials for Japan, but they were also to turn the island into a showpiece "model colony." As a result, a great deal of effort was made to improve the island's agriculture, industry, and infrastructure as well as to change its culture through education. However, initially, Japan was inexperienced in ruling a colony. It immediately carried out large-scale surveys on lands, natural resources, population, and customary law to build up knowledge about the first colony. In 1905, the Japanese government conducted its first modern population census in colonial Taiwan. It established the household registration system as part of the preparation for implementing the first population census (Li et al., 2011). The data we analyze for our research are derived from the household registers that are the by-products of the household registration system. Throughout the period of Japanese governance, Taiwan was transformed from a primarily agricultural subsistence-based economy into a partially urbanized and industrialized society. The Japanese government had little interest in changing kinship or marriage patterns in Taiwan throughout the period, though it did spend considerable energy on abolishing the practice of female foot binding. During this period, there was little migration of Japanese people to Taiwan, and migration from across the strait stopped entirely. Japan governed Taiwan until the end of 1945, when the administration of the Republic of China took control of the island following Japan's defeat and surrender after the second world war.

### *Taiwan Household Registers and Study Subjects*

The data we used in this study come from the Taiwan Historical Household Registers Database (THHRD) from 1906–1945. The Japanese colonial government established the household registration system at the start of the 20th century; the colonial police maintained the household registers (Wolf & Huang, 1980). As Chuang and Wolf (1995, p. 782) reported,

“Japanese police recorded the date and manner in which every living person had entered the household in which he or she resided.” All events that affected the household structure, such as birth, death, migration, marriage, and adoption, had to be reported to the police within 10 days of their occurrence. With the rigid regulations and the recording system, two cases suggest that the information from the household registers is accurate. First, Li et al. (2011) applied an indirect estimation method to illustrate the accuracy of the household registers. Second, Wolf and Huang (1980) compared the household registers with genealogies constructed from the data of field research in the late 1950s and found very few discrepancies.

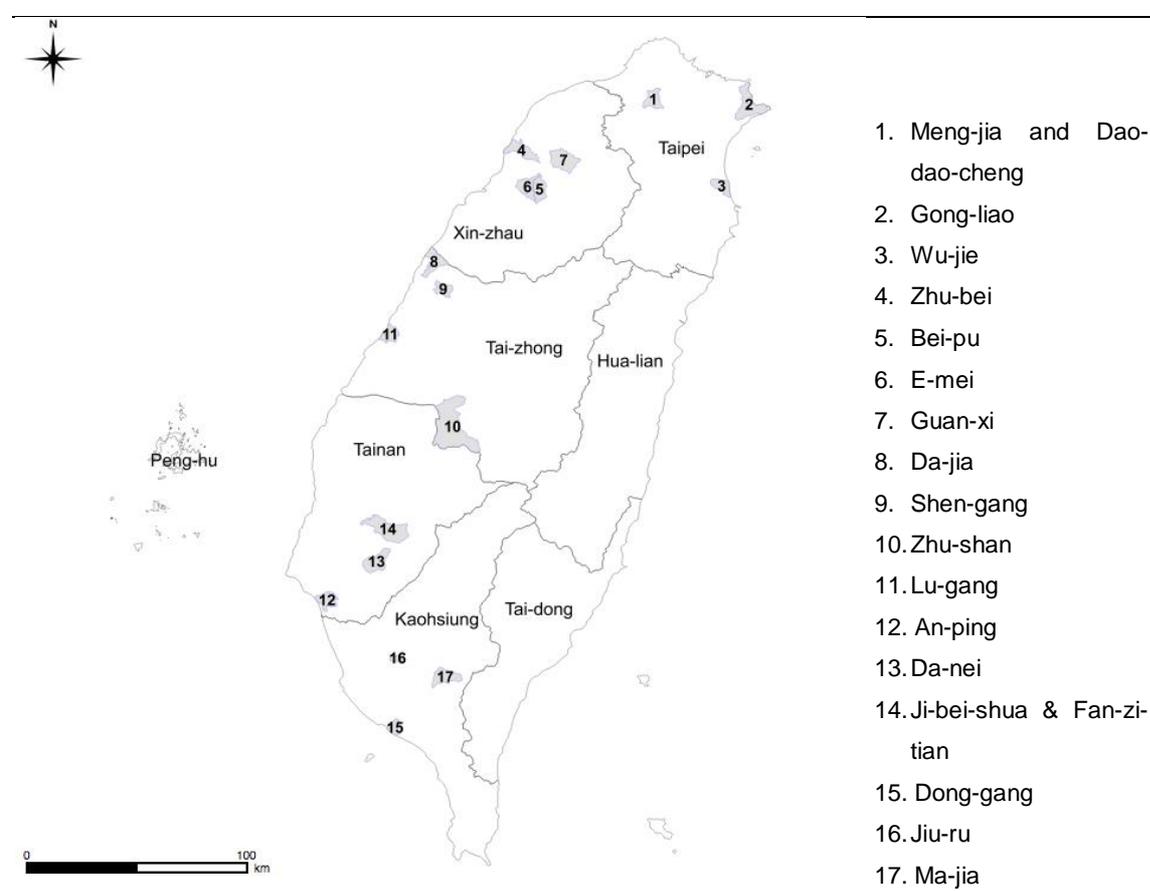


Figure 1. The 19 research sites we used in Taiwan.

There are some limitations with using household register data to study the occurrence of uxori-local marriage. Most of the husbands were from outside of the research sites, which stops us from focusing on the males' households. Because the husbands were from areas outside of the research sites where the marriage took place, we lack information on their families of origin. We can only obtain the information, such as household structure, of husbands

who resided in our research sites. However, the number of cases is small. For example, in their study of three settlements including Bei-pu, E-mei, and Zhu-bei within Xinzhu Prefecture, Chuang et al. (2013) could only identify 92 male subjects of uxori-local marriage. Therefore, to generate a big picture of uxori-local marriage with sophisticated statistical analyses, we focus our research on 26,529 women who were born in the period of 1840–1920 and had their first marriage in the cohorts of 1890s–1940s in 19 research sites in Taiwan.<sup>6</sup> We show the geographic location of the studies in Figure 1; they represent a wide selection of sociodemographic settings in colonial Taiwan, including farming populations, minor and larger cities, and fishing villages.

Our study is based on the perspective of women in households at the time the marriage occurred. We capture all of the women in marriages in the 19 study areas we examine. Using logistic regression models, we determine which women entered into an uxori-local marriage (that is, a husband moved into her household instead of her moving into her husband's household, or more rarely, a new household). Our variables measure the number of siblings a woman had and the status of the woman's parents at the time of her marriage.

### *Variables*

The data for the study include categorical and numerical variables to demonstrate the characteristics of the subjects and their families. The categorical variables are birth cohorts, marriage cohorts, marriage types, the parents' and the siblings' current status at the time of marriage, and the occupations of the household heads. The measures of these variables are straightforward. Birth cohorts and marriage cohorts are categorized into several decades. The marriage cohort refers to the year of the marriage, and the birth cohort refers to the birth year of the woman. There are three marriage types: major, minor, and uxori-local. The categories of the parents' current status at the time of marriage are no parents, father alone in the household, mother alone in the household, and both parents in the household. The four categories of sibling status include no sibling, female sibling only, male sibling only, and brother(s) and sister(s) in the household. Additionally, there are four types of household heads' occupations, including agricultural laborer (or unskilled worker), landlord, manager (or skilled worker), and unemployed.

We include numerical variables for further analyses. At the individual level, we calculate the proportion of family members aged 15–44 to measure the capacity of the family

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<sup>6</sup> Appendix 1 shows the cross-table of birth cohorts and marriage cohorts.

labor force. At the community level, there are three variables that measure the characteristics of the research sites: 1) the prevalence of uxori-local marriage, 2) the proportion of the population that is Hokkien, and 3) the proportion of the population that is Hakka. We measure the first variable as the proportion of first marriages that are uxori-local. The second and third variables measure the ethnic characteristics of the study villages. Although Chuang and Wolf (1995) found no evidence that ethnicity explained the occurrence of uxori-local marriage, we include the last two variables in the analysis for two reasons. First, the time dimension of the present research is different from that of Chuang and Wolf's research, which emphasized first marriages occurring in 1881–1905. Second, the proportions of Hokkien and Hakka in the population function as control variables in our analytical models.

### *Strategies of Statistical Analyses*

Our main intention in the present study is to identify what factors at the *individual* level and at the *community* level are the most powerful in explaining the application of uxori-local marriage. At the individual level, these models include marriage cohorts, parental status, sibling status, occupations of household heads, and the capacity of the family labor force as the predicting factors. At the community level, the models include three variables to examine the effects of community context on the application of uxori-local marriage. Since the measurement of uxori-local marriage is a dichotomous variable, we use seven multi-level logistic regression models to examine our research hypotheses.

Model 1 only includes marriage cohorts as the predicting factor (see Table 3). In Models 2 and 3, we also examine the effects of parental status, sibling status, and their interaction effects on the application of uxori-local marriage. In Model 4, beside the predicting factors used for the previous models, we include the variable measuring the occupations of household headers. The additional predictor in Model 5 is the capacity of the family labor force. In Models 6 and 7, we include the prevalence of uxori-local marriage and the ethnic characteristics of the communities into the models in a step-by-step format. In sum, these models guarantee that we can scrutinize the hypothesis regarding conditional family strategy. These models help us to understand the dynamic effects of predicting factors on the implementation of uxori-local marriage.

## Results

### *The Characteristics of the Subjects and Their Households*

We begin by presenting a description of the population under study. Major marriage was the most common type of marriage among women in our study—more than two-thirds of the marriages were of the major type; this was followed by the minor type, which accounted for 20.0% of all marriages (see Table 1). Uxorilocal marriage accounted for 10.7%, making it the least popular. However, both forms of minor and uxorilocal types became less prevalent in the research sites over time. The proportion of minor marriage dropped from 38.0% in the 1900s to 9.3% at the end of World War II, while uxorilocal marriage decreased from 20.5% to 8.7% during the same period.

Table 1. Marriage Types by Marriage Cohort, 1890–1945

Marriage Cohort	Major		Minor		Uxorilocal		Unknown		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%
1890s	4	0.7	519	86.2	79	13.1	0	0.0	602	100.0
1900s	996	39.9	950	38.0	513	20.5	40	1.6	2,499	100.0
1910s	3,194	61.2	1,224	23.5	665	12.7	135	2.6	5,218	100.0
1920s	4,536	68.2	1,299	19.5	700	10.5	116	1.7	6,651	100.0
1930s	5,661	77.7	916	12.6	630	8.7	77	1.1	7,284	100.0
1940s	3,608	84.4	399	9.3	241	5.6	27	0.6	4,275	100.0
Total	17,999	67.9	5,307	20.0	2,828	10.7	395	1.5	26,529	100.0

Table 2 demonstrates the characteristics of the research subjects. More than 90% of the subjects were born during 1890s–1920s. Additionally, due to our research interests, we illustrate the family structures of the subjects in terms of parental and sibling status and the occupations of the household heads. A total of 50% of female villagers co-habited with both parents at the time of their first marriages, while some 32% of the subjects resided with a single parent. Almost 17% of the female villagers in the 19 research sites lived without any parent when they got married the first time. Among the same group, almost 30% had male and female siblings at home at the time of their first marriages. Those who had only male siblings accounted for 35%. Additionally, those with only female siblings or no siblings accounted for 5.6% and 29.3%, respectively.

Table 2. Characteristics of the Sample

	%		%
<u>Birth cohort</u>		<u>Marriage cohort</u>	
1840s–1860s	0.1	1890s	2.3
1870s	1.6	1900s	9.4
1880s	7.8	1910s	19.7
1890s	19.0	1920s	25.1
1900s	25.4	1930s	27.5
1910s	27.6	1940s	16.1
1920s	18.5		
<u>Parental status</u>		<u>Sibling status</u>	
No parent	17.1	Brother(s) and sister(s)	29.9
Father	12.3	Female sibling	5.6
Mother	19.9	Male sibling	35.3
Both parents	50.7	No sibling	29.3
<u>Occupation of the household head</u>			
Agricultural labor/unskilled worker			21.5
Landlord			46.4
Manager/skilled worker/business owner			19.9
Unemployed			12.3

The occupations of the household heads may represent the socioeconomic conditions of the family. They can also demonstrate the family's modes of production. In the dataset, 21.5% of the subjects resided in households in which family heads had to sell their labor and farmed for a living. About 46% of the subjects lived in households in which the family owned land. In total, about two-thirds of the female villagers lived in agricultural families. Close to 20% of the female villagers lived in non-agricultural families.

#### *Uxorilocal Marriage Factors Among Women in Colonial Taiwan*

We present the results from our logistic regression models predicting uxorilocal marriage in Table 3 and introduce more covariates stepwise from Model 1 to Model 7. Overall, we found a significant marriage cohort effect on the possibility of uxorilocal marriage. Uxorilocal marriage was most prevalent in the first ten years of the 20th century. After this first decade, a woman's odds of stepping into an uxorilocal marriage gradually decreased until the 1940s. As Model 7 (Table 3) shows, the odds of having an uxorilocal marriage at the end of World War II was just 26% of that at the beginning of Japanese occupation in Taiwan. One explanation for the decrease of uxorilocal marriage is that it was simultaneous with the increase of male siblings due to demographic changes (e.g., increasing fertility or decreasing infant mortality). As can be seen in Appendix 2, the proportion of brides without any siblings dropped significantly from 43.3% in the first decade of the 20th century to 20.0% at the end of World

War II. That of brides with both sister(s) and brother(s) dramatically increased from 16.1% to 42.8% in the same period. However, after controlling for the existence of brothers in the family (i.e., demographic change) in our regression models, we found little difference between Model 1 and Model 7, suggesting that demographic factors did not play an important role in uxori-local marriage.

«Table 3 about here -- Multi-Level Logistic Regression Models»

One of the main goals of the study is to investigate whether the adoption of uxori-local marriages is a family strategy to overcome the lack of sons and an example of how family structure constrains marriage choices. We examine the status of parent(s) and siblings at the time of first marriage and the size of the family labor force. We hypothesize that female villagers without any male siblings and those in families with a low family labor force will be more likely to enter into an uxori-local marriage. The results illustrated in Models 2–7 clearly reveal that the status of male siblings was critical. At the time of their first marriage, female villagers without any male siblings were more likely to take an uxori-local form of marriage. Model 2 shows the main effect of the number of siblings at the time of marriage (later models interact this variable with other factors). When we compare female villagers with male and female siblings, those with female sibling(s) only, and those without any siblings; both had higher odds of entering into an uxori-local marriage than women with male and female siblings. The odds ratio for entry into an uxori-local marriage for families with no brothers was very high, at 9.54. That female villagers without male siblings were likely to have married-in husbands is clear evidence that the adoption of an uxori-local marriage was a family strategy to continue the family lineage.

Because discounting family lineage was traditionally viewed as unfilial to ancestors, bridal parents would usually find a called-in husband for one of their unmarried daughters to ensure their family continuity before their death. However, as mentioned previously, uxori-local marriage was seen as a humiliating choice for husbands, and complicated negotiations between the two families were required to straighten-out the husband's obligations. Models 2–7 illustrate that bridal parents' authority played an important role in the process of calling in husbands for unmarried daughters to continue family lineage and/or to overcome the issues of family labor deficiency. The existence of at least one parent being present in the families of our female index enhanced the likelihood of daughters having an uxori-local marriage.

Furthermore, the effects of parents in Model 2 were replaced by the interaction terms that were included in Models 3–7. The five significant interaction terms revealed that the appearance of the parent(s) could enhance the likelihood of calling in husbands for female villagers without any male siblings, including those with female siblings only or without any siblings. For instance, with a father alone at home, the odds ratios were 4.89 and 4.77, respectively (see Model 3 in Table 3). With a mother at the first marriage of the subject without any siblings, the odds ratio of adopting an uxori-local marriage was 2.58. When both parents were alive at the time of the first marriage, the odds ratios for those with female siblings only and without any siblings were 4.41 and 7.08, respectively (see Model 3 in Table 3). The statistical results show the important role that parents played in calling in husbands for their unmarried daughters. On the one hand, these figures reveal that parents preferred to adopt uxori-local marriage as a strategy to enhance the family labor force and to continue family consanguinity. On the other hand, the figures may also indicate that uxori-local marriages were more likely to occur when at least one of the parents was alive. This is because during the process of taking on an uxori-local form of marriage, parents had to negotiate the rights and duties of the married-in sons-in-law. Without any parents in the family, there were no family members with the authority to oversee these complicated negotiations. The parents would not trigger uxori-local marriage until the issue of continuing the family lineage was necessary.

Additional evidence supports the hypothesis that adopting the uxori-local form of marriage is a family strategy to overcome issues of family labor deficiency. We measured the current potential for family labor force as the proportion of family members aged 15–44. We hypothesized that family labor force was negatively associated with the likelihood of calling in husbands or sons-in-law. Women in families with a greater labor force were less likely to call in a husband. Model 5 in Table 3 shows that the odds ratio for this group is 0.78. Please note that the effect of the capacity of the family labor force was quite steady (see Models 5–7 in Table 3). Furthermore, the inclusion of the “family labor force” variable did not significantly modify the effect sizes of the other variables, such as the appearance of parents and male siblings (see the insignificant changes of coefficients and odds ratios between Models 4 and 5). Pasternak’s (1985) research on a village in southern Taiwan illustrated that uxori-local marriage was triggered to increase family labor. Kurosu (1995) found this particular pattern was also related to uxori-local marriage in Japan.

Furthermore, uxori-local marriages were negatively associated with the family’s socioeconomic conditions. In Model 4, we included the occupations of the household heads as a predictor for uxori-local marriage. We assumed that families with household heads working

as agricultural laborers to be the poorest in comparison to families with household heads working as landlords, business owners, managers, or skilled workers. We found that families with better socioeconomic conditions were less likely to adopt uxori-local marriages. The odds ratios of taking the uxori-local form of marriages for landlords' and managers' families were around 0.80 and 0.65, respectively (see Models 4–5 in Table 3). Females from families of agricultural laborers were more likely to have called-in husbands to enhance the family labor force.

Beyond predicting factors at the individual level, we examined the effects of factors at the community level to explain the occurrence of uxori-local marriage. We hypothesized that women living in communities in which uxori-local marriage was more prevalent would be more likely to have married-in husbands. We assumed that in these communities villagers would be more likely to accept the arrangement of uxori-local marriages due to cultural factors. Models 6 and 7 in Table 3 illustrate the positive association between choosing uxori-local marriage and the prevalence of the uxori-local form of marriage in villages. Females who inhabited villages with higher proportions of female villagers calling in husbands were more likely to have an uxori-local marriage. The odds ratio was about 1.07—a 1% higher prevalence of uxori-local marriage in the village increased the likelihood of a woman entering into an uxori-local marriage by 7%.

Our second community variable was the ethnic makeup of the village. We calculated the proportions of the Hokkien population and the Hakka population for all the research sites by marriage cohort. In the final model (Model 7), the proportion of Hakka population revealed a negative association with the likelihood of women taking up uxori-local marriage. This revealed that women in Hakka villages were less likely to enter into an uxori-local marriage.

## **Conclusion and Discussion**

In our study, we examined the prevalence and circumstances in which a family would have their daughter marry a son-in-law who would reside with the bride in the bride's family. We found that uxori-local marriage represented a substantial share of all marriage across our study period. A finding from earlier research on regional variation by Chuang and Wolf (1995) revealed that unlike other marriage forms in Taiwan, uxori-local marriage was spread quite evenly across the island. One explanation for this is that uxori-local marriage was mainly a family strategy to overcome the issues of family labor deficiency and/or to continue family consanguinity (H<sub>1</sub> and H<sub>2</sub>). Wolf (1989) proposed two hypotheses to discuss the occurrence of

uxorilocal marriage: the institutional and the contingent. The former hypothesized the application of uxorilocal marriage was a strategy to overcome the lack of family labor force, while the latter suggested an uxorilocal marriage was adopted to continue a family lineage.<sup>7</sup> However, due to the complicated processes of uxorilocal marriage, “powerful” persons in the family, especially parents, were needed to negotiate the rights and duties of married-in husbands or sons-in-law. This particular family strategy cannot be implemented without parent(s). Therefore, we hypothesize that the application of uxorilocal marriage is a *conditional* family strategy to enhance a family labor force and to continue the family line (H<sub>3</sub>).

Our analyses show that all our hypotheses are supported. Our findings illustrate the significant effect of sibling(s) on the application of uxorilocal marriage; women in families without any siblings or with only female siblings were more likely to adopt an uxorilocal marriage. These findings reflect two Chinese cultural behaviors. First, bearing boys to carry family names has traditionally been a very important family responsibility. Second, an uxorilocal marriage might have been adopted in families without men in the labor force to fulfill the needs of family manpower for farming. Men were necessary for heavy agricultural work in the fields. However, the significant interaction effects of sibling–parent existence on the application of uxorilocal marriage revealed the important role the parent(s) played during the process of implementing this particular family strategy. When parent(s) realized there was no male offspring to carry on the family name or to fulfill manpower needs for farming, they might have started a mechanism to call in husbands for one of their unmarried daughters. The called-in husbands did not have to change their surnames—instead, having at least one child to take the maternal surname was required to continue the family lineage in families where no son could form a marriage with a bride from a different household. Additionally, uxorilocal marriage was more likely to occur in families living in the poorest socioeconomic conditions, especially when household heads did not own land and had to sell their labor for agricultural production.

These findings further imply that the adoption of uxorilocal marriage varied not only from place to place but also from time to time; it was conditioned by the modes and the means of production. The changes in modes of production and the improvement in the means of

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<sup>7</sup> Li and his associates suggested that uxorilocal marriage had “practical” and “preservative” functions (Li et al., 2006). These two terms are the same as the “contingent” and the “institutional” functions that Wolf (1989) used.

production altered family strategies. In other words, as a conditional family strategy, the application of uxori-local marriage may not have happened when agricultural technology reduced the need for laborers for farming. Therefore, the changing economic structure may be one of the factors explaining why uxori-local marriages are rare in Taiwan nowadays.

Our findings are most likely generalizable to a large number of other societies in which parents face demographic hardship that makes family continuity problematic. First, we showed how a non-desirable demographic outcome (no surviving sons) meant that parents adopted a second-best strategy (uxori-local marriage). Second, we showed how instrumentalist economic factors such as labor shortage increased the probability of a non-normative marriage behavior to increase labor supply and meet welfare needs (compared with the problem of labor over the life cycle; Chayanov, 1925 [1966]). A common critique against earlier anthropological and historical studies is that they focused exclusively on normative and prescribed societal patterns. In the current study, we quantitatively illustrated under which circumstances parents adopted an atypical solution to a demographic or socioeconomic problem. This shows the considerable flexibility of kinship systems, even one with such a strong patrilineal prescribed predisposition like that of the Chinese kinship system. We suspect that similar features and solutions exist for many historical social structures, with exceptions to, at first sight, rigid normative rules of kinship, and we encourage further research on this topic.

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Table 3. Multi-Level Logistic Regression Models

	Model 1 <sup>†</sup>		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	Coef. (OR)	Sig	Coef. (OR)	Sig	Coef. (OR)	Sig	Coef. (OR)	Sig	Coef. (OR)	Sig	Coef. (OR)	Sig	Coef. (OR)	Sig
Level 1 (individual level)														
Marriage cohorts [ref: 1890–1899]														
1900–1909	0.52 (1.68)	***	0.49 (1.64)	***	0.43 (1.54)	**	0.41 (1.51)	**	0.40 (1.49)	**	-0.21 (0.81)		-0.18 (0.84)	
1910–1919	-0.06 (0.94)		-0.12 (0.89)		-0.21 (0.81)		-0.23 (0.79)		-0.25 (0.78)		-0.93 (0.40)	***	-0.89 (0.41)	***
1920–1929	-0.34 (0.71)	**	-0.41 (0.66)	**	-0.53 (0.59)	***	-0.57 (0.57)	***	-0.59 (0.56)	***	-1.05 (0.35)	***	-1.03 (0.36)	***
1930–1939	-0.58 (0.56)	***	-0.61 (0.54)	***	-0.73 (0.48)	***	-0.78 (0.46)	***	-0.81 (0.45)	***	-1.10 (0.33)	***	-1.17 (0.31)	***
1940–1949	-1.05 (0.35)	***	-1.01 (0.36)	***	-1.13 (0.32)	***	-1.24 (0.29)	***	-1.27 (0.28)	***	-1.23 (0.29)	***	-1.45 (0.26)	***
Sibling current status [ref: brother(s) and sister(s) appearing]														
Female sibling only			2.26 (9.54)	***	0.89 (2.45)	*	0.88 (2.42)	*	0.89 (2.42)	*	0.86 (2.36)	*	0.86 (2.36)	*
Male sibling only			0.34 (1.40)	***	0.01 (1.01)		0.02 (1.02)		0.03 (1.03)		0.04 (1.04)		0.04 (1.04)	
No sibling			2.26 (9.54)	***	0.69 (1.99)	*	0.68 (1.98)	*	0.69 (2.00)	*	0.72 (2.06)	*	0.73 (2.07)	*
Parental current status [ref: no parents]														
Father alone in house			0.99 (2.68)	***	-0.43 (0.65)		-0.38 (0.68)		-0.40 (0.67)		-0.39 (0.68)		-0.39 (0.68)	
Mother alone in house			1.08 (2.94)	***	0.11 (1.11)		0.11 (1.12)		0.10 (1.10)		0.13 (1.13)		0.13 (1.14)	
Both parents in house			1.57 (4.79)	***	0.04 (1.05)		0.10 (1.10)		0.07 (1.07)		0.10 (1.10)		0.10 (1.11)	
Parent(s)–sibling interactions														
[father alone] X [female sibling]					1.59 (4.89)	***	1.58 (4.85)	**	1.58 (4.83)	**	1.59 (4.92)	***	1.60 (4.96)	***
[father alone] X [male sibling]					0.20 (1.22)		0.18 (1.20)		0.18 (1.19)		0.16 (1.18)		0.17 (1.19)	
[father alone] X [no sibling]					1.56 (4.77)	***	1.55 (4.72)	***	1.55 (4.69)	***	1.50 (4.48)	***	1.50 (4.48)	***
[mother alone] X [female sibling]					0.78 (2.18)		0.77 (2.16)		0.77 (2.15)		0.80 (2.22)		0.79 (2.20)	
[mother alone] X [male sibling]					0.23 (1.25)		0.22 (1.25)		0.22 (1.24)		0.18 (1.20)		0.19 (1.20)	
[mother alone] X [no sibling]					0.95 (2.58)	**	0.94 (2.57)	**	0.94 (2.56)	**	0.90 (2.46)	**	0.89 (2.44)	**
[both parents] X [female sibling]					1.48 (4.41)	***	1.49 (4.44)	***	1.50 (4.46)	***	1.51 (4.51)	***	1.51 (4.51)	***
[both parents] X [male sibling]					0.20 (1.22)		0.19 (1.20)		0.18 (1.20)		0.17 (1.18)		0.17 (1.19)	
[both parents] X [no sibling]					1.96 (7.08)	***	1.97 (7.13)	***	1.97 (7.14)	***	1.92 (6.83)	***	1.92 (6.79)	***
Occupation of household head [ref: agricultural laborer/unskilled worker]														
Landlord							-0.21 (0.81)	***	-0.22 (0.80)	***	-0.22 (0.80)	***	-0.22 (0.81)	***
Manager/skilled worker/business owner							-0.43 (0.65)	***	-0.44 (0.64)	***	-0.45 (0.64)	***	-0.45 (0.64)	***
Unemployed							0.06 (1.07)		0.06 (1.06)		0.03 (1.03)		0.03 (1.03)	
Proportion of family members aged 15–44									-0.24 (0.78)	*	-0.25 (0.78)	*	-0.25 (0.78)	*
Constant	-1.90 (0.15)	***	-4.22 (0.01)	***	-2.71 (0.07)	***	-2.52 (0.08)	***	-2.35 (0.10)	***	-2.93 (0.05)	***	-2.28 (0.10)	***
Level 2 (community level)														
Prevalence of uxori-local marriage [percentage of uxori-local]											0.07 (1.07)	***	0.06 (1.07)	***
Proportion of Hokkien population													-0.44 (0.64)	

Proportion of Hakka population							-1.42 (0.24) *
lnsig2u/_cons	0.45	0.52	0.521	0.50	0.51	-0.08	-0.32
sigma_u	1.25	1.30	1.30	1.29	1.29	0.96	0.85
rho	0.32	0.34	0.34	0.34	0.34	0.22	0.18

† The numbers in the parentheses are odds ratios.

\*\*\* p < 0.001; \*\* p < 0.01; \* p < 0.05

## Appendix 1. Cross-Table of the Birth Cohorts and Marriage Cohorts

Marriage Cohorts	Birth Cohorts								
	1840s–1960s	1870s	1880s	1890s	1900s	1910s	1920s	Total	%
1890s	10	308	284	0	0	0	0	602	2.3
1900s	10	78	1,488	918	5	0	0	2,499	9.4
1910s	7	23	272	3,708	1,206	2	0	5,218	19.7
1920s	1	9	25	375	4,979	1,251	11	6,651	25.1
1930s	1	0	4	41	500	5,548	1,190	7,284	27.5
1940s	0	0	0	3	44	528	3,700	4,275	16.1
Total	29	418	2,073	5,045	6,734	7,329	4,901	26,529	100.0
%	0.1	1.6	7.8	19.0	25.4	27.6	18.5	100.0	

## Appendix 2. The Types of Siblings at Time of Marriage by Marriage Cohorts

Sibling Current Status	Marriage Cohorts													
	1890s		1900s		1910s		1920s		1930s		1940s		Total	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Brother(s) and sister(s)	25	4.2	403	16.1	1,201	23.0	1,924	28.9	2,538	34.8	1,829	42.8	7,920	29.9
Female sibling	8	1.3	116	4.6	298	5.7	379	5.7	457	6.3	234	5.5	1,492	5.6
Male sibling	217	36.0	898	35.9	2,001	38.3	2,398	36.1	2,486	34.1	1,358	31.8	9,358	35.3
No sibling	352	58.5	1,082	43.3	1,718	32.9	1,950	29.3	1,803	24.8	854	20.0	7,759	29.2
Total	602	100.0	2,499	100.0	5,218	100.0	6,651	100.0	7,284	100.0	4,275	100.0	26,529	100.0

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**Demography Unit**