Marriage, Remarriage and the Stem Family Household:
Evidence from Northeastern Town and Villages in Japan, 1716-1870

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INTRODUCTION

In many traditional societies, marriage has been important to secure reproduction and the stability and well-being of the household. It guaranteed specific rights to the offspring, and maintained kin networks, thereby making the transmission of property and human and social capital possible (Lundh and Kurosu 2014). In early modern Japan, where strong adherence to a stem family organization is observed, marriage was a matter of households and villages, rather than of just two individuals; marriage was crucial in order to ensure an heir, and as a way to secure a source of labour supply in family farming.

Using the local population registers called "*ninbetsu-aratame-cho*," 1716-1870, we analyze the patterns and covariates of first marriage and remarriage in two different socioeconomic settings---two rural villages of Shimomoriya and Niita, based exclusively on family farming, and one local post town, Koriyama. The contrasts among these communities make the study of nuptiality particularly interesting as they provide different patterns of population trends during the observation period: Two rural villages of Shimomoriya and Niita suffered from population decline without being able to recover from the damages caused by a series of famines; while the local post town of Koriyama managed its stabilized expansion throughout the observation period. How marriage responded to these different population and economic contexts, and how the family wealth and kin affect the individual chance of marriage and remarriage, are important and interesting questions that can be addressed by the use of rural and urban population registers.

We apply the analytical approach of a recent comparative work of the Eurasia project of family and population history (EAP) to the context of northeastern communities in early modern Japan. In *Similarity in Difference*, Lundh, Kurosu, et al. (2014) made use of rich individual- and household-level longitudinal data from 18-19th century to compare marriage and remarriage in a variety of communities in southern Sweden, eastern Belgium, northern Italy, northeastern Japan, and northeastern China. Going beyond the East-West binary views based on aggregate level comparison (e.g. early and universal marriages in the East and later and selective marriages in the West), their results uncovered similarity in individual and family behaviors that has previously been neglected in comparative studies of pre-modern marriage in Europe and Asia. It is now time to accumulate more detailed comparisons within East and West to attempt to produce new grand social theories at a global scale (Dong, et al. forthcoming). In this paper, we extend our analysis of the two villages used

in the EAP analysis and compare it to an urban community, focusing, in particular, on the effects of *property* (socioeconomic status of household) and *power* (within-household relations), two important variables in the series of EAP analysis (Bengtsson, Campbell, Lee, et al 2004; Tsuya, Wang, Alter, et al. 2010; Lundh, Kurosu, et al. 2014).

The approach of this study, following that of EAP (Lundh and Kurosu 2014: 18), stands out from previous comparative studies in at least three ways. First, following the analytical model of the Eurasia project, we take a sequential approach in that individuals are seen as repeatedly exposed to potential partners and therefore making successive decisions in response to opportunities and constraints (Kurosu and Lundh 2014: 66). The sequential approach is made possible by the use of the longitudinal individual-level data and the use of event-history analysis with determinants of marriage and remarriage at individual household and community levels. Second, we examine not only the first stage of marriage but the outcome of the first marriage. We can only understand the relationship between household and marriage by including the outcome of marriage in what is called, a high divorce/remarriage society (Goode 1993). Third, we compare the determinants of marriage and remarriage in two marriage patterns---virilocal and uxorilocal marriages. Only by looking into these patterns, will we understand the logic of a stem family household organization. In addition, this study is one of the first attempts to systematically compare the nuptiality in rural and urban settings in the Japanese historical demography. This is also one of the first studies to examine marriage and remarriage in historical urban area with multivariate analysis. Although the results are still preliminary as some parts of urban data are still being processed, they provide promising and interesting implications for the studies of marriage in its relation to household at various stage of local economic and population development.

The paper starts with a discussion of nuptiality in early modern Japan, and source and measurement, followed by life table analysis as well as descriptive analysis of first marriages and its outcomes contrasting rural and urban data. Discrete-time event history analysis is then applied to demonstrate how individual demographic characteristics as well as familial and socioeconomic context influenced the likelihood of first marriage and remarriage comparing rural and urban communities.

MARRIAGE AND FAMILY IN EARLY MODERN JAPAN

Marriage in early modern Japan was not recognized primarily as a union of two individuals nor did it mean the formation of a new household. From the point of individuals, marriage was imperative as a means of procreation, and for survival by securing a proper position in a household as well as in a village. From the point of households, marriage was crucial in order to ensure an heir, and as a way to secure a source of labour supply in family farming or business.

Studies on nuptiality of eighteenth- and nineteenth-century peasants have shed light on marriage in pre-industrial Japan, particularly on the ways it differed from the western European model of late marriage and celibacy (Hajnal 1965, 1982). Japanese peasants married earlier than their European contemporaries. Regional variation, however, was large: the age at first marriage ranged from 14 to 25 for women and 17 to 28 for men (e.g. Mosk 1980, Hayami 1973). Northeastern Japan was at the lower end of this distribution. Moreover, both men and women married virtually universally by age 30 as long as they survived (Kurosu, Tsuya and Hamano 1999). However, early and universal marriage did not provide any guarantees of longevity, fecundity, or harmony as marriage often ended with the death of one of the spouse or terminated by divorce (Kurosu 2007b). Flexible attitudes and practices of divorce and remarriage were behind this early and universal marriage system. It is thus important to consider both first marriage and remarriage, to fully appreciate the institution of marriage.

With the use of multivariate analyses, recent studies have further revealed the importance of roles of household in accelerating and delaying marriage and remarriage (Tsuya and Kurosu 2014, 2005a; Kurosu 2007b; Kurosu et al. 2014). Marriage in preindustrial agrarian society was primarily a family and household enterprise, based on a long-term planning and negotiations between the two parties involved. While remarriage had an important bearing on the survival of widowed and divorced individuals, remarriage is also considered vital for household as a way to replace members for labor and reproduction. Especially in the context of normative prevalence of stem family system in preindustrial northeastern Japan, power and resources that household socioeconomic status entailed played a crucial role in determining the likelihood of securing a suitable partner for an inheriting child.

In contrast to studies on nuptiality among rural peasants, those among urban population are limited (Hayami 1990, Nagata and Hamano 2002, Miura 2004, Takahashi 2005, Hamano 2007, Sasaki 2005). This is due to the lack of population registers in urban areas as well as the high volume of in and out migration which makes the studies of individual life courses difficult. These studies suggest that the age at marriage was later than those of rural peasants and that the celibacy rates were higher particularly among men. Some studies suggest the prevalence of nuclear family households in urban areas while some others emphasize the difference in the nature of household formation and marriage between permanent residents (with tax obligation) and temporary residents (Saito and Tomobe 1988; Minami 1978; Hamano 2007). However, the mechanism at which marriage was postponed among males and females in urban areas is not well examined. The attempt of our study is to utilize one of the best remaining population registers of an urban area in the northeast and to compare patterns and timing of first marriage and remarriage to those in the rural settings.

In both rural and urban communities during the period of our concern, there were no legal or religious restrictions to divorce and remarriage. No cultural stigma was attached to remarriage of

both widows and widowers, either. Compared to societies where there were cultural or state sanctions against divorce and female remarriage, for example, in traditional China (Qing) and Italy (Kurosu, Lundh, and Breschi 2014), commoners in eighteenth and nineteenth century Japan appeared to have shared a very flexible attitude towards marriage, divorce and remarriage although with regional variations (Kurosu, Tsuya and Hamano 1999; Saito and Hamano 2006; Kurosu 1998, 2007; Okada 2007; Takahashi 2005).

Just like Western counterparts, the state of being married was desired and sought as the economic theories of remarriage assumes (Griffith 1980). Indeed, widowed population was much more vulnerable than married population in both Europe and Asia (Tsuya and Nystedt 2004). Husband's death had the most serious and pervasive effect on the survival of adult married women in pr-industrial Japanese agrarian household (Tsuya and Kurosu 2002). Remarriage, therefore, was certainly an option to stay out of this vulnerability in physical, psychological and economic sense (Kurosu, Lundh, and Breschi 2014; Derosas and Oris 2002). The cost and benefits of remarriage were also influenced by the range of alternatives provided in each particular society (Kurosu 2007a). Since there was no welfare or provisions for widows provided by the state in modern sense, the role of household was extremely important in many traditional societies including these communities under study. Household was a unit of production as well as consumption. Household was also an important institution for social welfare to provide childrearing, security and care in old age (Mitterauer and Sieder 1982).

Particular family system sets a range of choices individuals can take (Das Gupta 2005; Saito 2000). Families and households in early modern Japan formed themselves into stem families, a type of household organization not addressed in Hajnal's (1982) classification of "simple" or "conjugal" versus "joint" household. Cornell (1987) clarified the rule of the Japanese stem family, that the household could contain any number of married couples, but it could have only one in each generation. Adjustment of household size and composition was a key to the integrity and survival of the households and to achieve the overriding aim of family continuity. Recent studies reveal strategies taken by the farm households for its survival upon economic and demographic constraints, for example, by controlling number and composition of children, and adopting sons (Tsuya and Kurosu 2010; Kurosu 2011); and the crucial factor of being head or immediate members of the stem family was also found important in explaining the mortality as well as divorce risk of individuals (Tsuya and Kurosu 2004; Kurosu 2011).

In a family system of exclusive succession, where only one from each generation takes the helm of the family, marriage is the culminating event in determining the succeeding generation. The inheriting child brings in the new spouse---bride (virilocal marriage) or groom (uxorilocal marriage), and non-inheriting child leaves the home (Smith 1977; Cornell 1987). Although we need to wait for a detailed examination, the local town of Koriyama, still carrying aspects of family farming,

appeared to have shared the rules of stem family organization, at least among permanent residents (*takamochi*) who shouldered tax payment (Takahashi 2005). Household was an economic unit whose survival was important to the whole villages and communities, where lives were structured around farming and/or where the tax burden was shared. Taxes were imposed on an entire village, and the households of titled peasants were responsible for shouldering these village-based taxes according to the expected yields of land they held (Tsuya and Kurosu 2004). Thus, in Japan, given the high mortality of the times, marriage and remarriage offered a safer and less expensive means to achieve the optimal household size and the gender balance of labor for family farming (Smith 1972, Tsuya and Kurosu 2014).

SOURCE AND MEASUREMENT

Source and Setting

(1) Data

This study draws the data from the local population registers called '*ninbetsu-aratame-cho*' (NAC) in the northeastern villages of Shimomoriya, Niita, and local post town of Koriyama. In all three communities, the NAC was enumerated annually at the beginning of the third lunar month. Surviving NAC registers in Shimomoriya cover the 154 years from 1716 to 1869 with only nine years missing (1720, 1729, 1846, 1850, 1858, and 1864-67).   In Niita, the surviving NAC registers cover the 151-year period from 1720 to 1870, during which there are only five years missing (1742, 1758, 1796, and 1857-58). The data of Koriyama consists solely of Koriyama Kami-machi. Koriyama consisted of two areas—Kami-machi and Shimo-machi. They were separate economic and political organizations operated by two different village officers. The population registers of the two areas were also compiled independently. The data of Shimo-machi also exists but there are too many missing years to operate similar types of analysis with Kami-machi. Therefore, we restrict our analysis to Kami-machi in this study. Therefore, Koriyama hereafter refers to Koriyama Kami-machi. The surviving Koriyama NAC registers cover 142 years from 1729 to 1870 with 20 years missing.[1] Thus, although the proportion of missing years Koriyama NAC is substantially higher than those in the other two villages, the population registers of the three communities provide vital information spanning the latter half of the Tokugawa era. The format and contents of the NAC registers are almost identical in all three communities.

In addition to the long span of the existing records, the NAC registers in the three communities

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1 The missing years of Koriyama are 1732, 1733, 1739, 1741, 1742, 1746, 1754, 1757, 1762, 1763, 1765, 1771, 1784, 1792, 1798, 1800, 1819, 1859, 1865, and 1869.

have other advantages as demographic data. First, the registers were compiled using the principle of current domicile; thus, the NAC data are all *'de facto.'* Registers compiled this way give far more exact demographic information than those based on the principle of legal residence although the latter *'de jure'* principle seems to have been much more prevalent (Cornell and Hayami 1986). Second, the dates (month and year) of births and deaths were annotated as far as these events occurred during the period of observation in the NAC registers of the three villages. The dates of occurrence of these events were not usually given in local population registers in Tokugawa Japan (Saito 1997; Smith 1977: 19), and this provides another evidence for the high quality of the population registers of these communities. Third, exits from the records due to unknown reasons are rare in the population registers in the three villages. In most cases, we can therefore determine the timing of entrance to the 'universe' of observation (due to birth or immigration) as well as the timing of death and other exits, although the three communities experienced considerable in- and out-migration (Narimatsu 1985: 101-20; 1992: 32-8; Takahashi 2005).

The original annual NAC records were first transcribed and linked into time-series data sheets called 'basic data sheets (BDS)' for all households. The BDS were then entered into machine-readable form, from which a relational database was created (for specifics, see Hayami 1979; Ono 1993). We constructed a rectangular file from the relational database using a never-married person year recorded in the local population register as the unit of observation.

(2) Setting

During the Tokugawa period, all three communities belonged to the Nihonmatsu domain that governed the central part of the prefecture (see Maps 1). Located at the foot of a mountain range, Shimomoriya was susceptible to cold summers and poor harvests resulting from chilly gusts off the Abukuma Mountains (Narimatsu 1985: 1-3). Because the village was located in a hilly area with severe winter weather, most of its agricultural land was not fertile and unfit to grow cash crops such as mulberry trees.[2]

[Maps 1]

Located in a plain between the capital town of Nihonmatsu and Koriyama, two major population centers in the domain at that time, Niita enjoyed a better climate for agriculture (Narimatsu 1992: 4-6). Though situated north to Shimomoriya, Niita had more fertile agricultural land fit to be cultivated as rice paddies and mulberry fields.[3] Nonetheless, lying on the banks of the

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2 Sericulture became popular in the region at that time, and mulberry leaves were major cash crops. Existing historical records show that several neighbouring villages located in flat land had much higher proportions of fields used for growing mulberry trees (Narimatsu 1985: 53-4).
3 According to a survey by the domain government in 1828 on the use of agricultural land, around 30

Gohyaku River, the village was vulnerable to frequent floods.

Though different in their topographical conditions, these two villages were primarily agricultural. They all depended heavily on rice agriculture, supplemented by a number of dry crops (Nagata et al. 1998; Narimatsu 1985: 152-80, 1992: 6). Given the non-mechanized agricultural technologies of the time, the northeastern region, in which the villages were located, was the northernmost boundary of rice farming in Tokugawa Japan. These circumstances often put the villagers at the mercy of fluctuations in harvest yields.

Koriyama, being a post town of Sendai-Matsumae-do (street), had quite different social and demographic settings from theses three villages. With the increase of population and development of commercial sectors, Koriyama was formally designated as a town (*machi*) in 1824.[4] While agricultural and commercial residents were in principle segregated by the Tokugawa government, Koriyama showed a unique development keeping both agricultural and commercial residents, and therefore, carrying both natures of village-ship and township. It was quite common that people of Koriyama engaged both in farming and running inns, for example. According to a record of local economy (Koriyma-shi shi 1981b: Table 46), variety of shops existed including *kimono*-shops, pawnshops, *sake*-stores, *miso* and *shoyu* stores, and so on. There were also labor demands for carrying baggage and for prostitutes. Koriyama served as both economic and political center of the Asaka County. It hosted domain's official's houses and tax rice storehouses, as well as markets (*rokusai-ichi*) 6 times a month.

Figure 1 shows the population size of the three communities over the span of observation. Just like the differences in socioeconomic settings, the change of population size shows stark differences among the three communities. At the beginning of the observation, the population size of Shimomoriya was 419 in 1716, and Niita 538 in 1720. As shown in Figure 1, the populations of both villages were relatively stable in the first 35 years for which the records are available until it started to decline at around the time of Horeki famine in the mid-1750s. Both villages were hit hard by the great Tenmei famine in the mid-1780s. Shimomoriya's population was restored somewhat during the 1790s-1820s, it again took a dramatic downturn during the Tenpo famine in the late 1830s, marking a lowest figure of 238 in 1840. Although the population recovered gradually afterwards to 328 in 1869, it did not recover the 1716 level. Niita's population decreased again in the early 1800s. Reaching the all-time low of 367 in 1820, the village population started a gradual upturn afterwards. The population size of Niita was not as seriously affected as Shimomoriya by the Tenpo famine, recovering, and even surpassing, the 1720-level by the late 1860s.

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percent of the dry field in Niita was cultivated as mulberry field whereas only 5-10 percent of the dry field in Shimomoriya was used to grow mulberry trees (Nihonmatsu-shi 1982: 581).
4 This was achieved with the request of Koriyama merchants in their wish for the development of the business (Takahashi 2005).

[Figure 1]

Koriyama was a local market town with the population of 793 in 1729, the beginning year of observation. Owing to in-migration and natural increase, the population of Koriyama continuously increased under surveying years. Koriyama also experienced slight population decrease at the time of two great famines (Tenmei famine of 1780s and Tenpo famine of 1830s). However, unlike its village counterparts, it soon recovered the original level. By the end of the observation in 1870, the population of Koriyama was 2,606.

In summary, the population trends show extremely different patterns between the two villages and Koriyama. In Shimomoriya and Niita, both almost exclusively agricultural villages, except for the first few decades of the records in which their population sizes were stable, and for the last few decades in which they showed upturns, the population sizes in the two villages were in overall decline. On the other hand, the local market town of Koriyama experienced stable increase of population. These findings imply two sides of a coin in the northeastern population dynamics: on one side, low fertility and out migration played roles in the decline of rural population being affected seriously by food shortages caused by widespread crop failures; on another side, moderate fertility and in migration from rural villages contributed to the population gain in Koriyama (Tsuya 2000, Takahashi 2005).

Definition and measurements

Marriage and its registration in preindustrial Japan were largely contextual, being influenced by local customs and socioeconomic developments. The population registers did not record the dates (month and year) of marriage. Thus, the timing (year) of marriage is inferred from the record of a new household member (one not in the previous year's register) along with concomitant changes in the relationships of household members to the head.

Following the previous study, the analysis also distinguishes three types of marriage based on individual movements annotated in the NAC records (Tsuya and Kurosu 2014): intra-village virilocal marriages (called 'virilocal marriages' hereafter); intra-village uxorilocal marriages ('uxorilocal marriages' hereafter); and marriages accompanying out-migration from the villages (called 'marry-out' marriages). Since marriage did not mean a formation of a new household, men and women in these records by definition came to live in one of their (parental) households upon marriage. When a woman remained at her natal home and her husband joined the household, she was recorded in the register as having married an adopted son (*muko-yoshi*): an 'uxorilocal' marriage. When a man remained at his natal household and brought his wife there, upon marriage, the marriage is 'virilocal'. In case of first marriage, therefore, these are determined solely in term of postnuptial residential patterns after marriage. Yet another type of marriage can be identified:

marriages accompanying out-migration from the villages (called 'marry-out' marriages hereafter). In principle, they are uxorilocal marriage for men and virilocal marriage for women. However, since we can only determine that these individuals left the communities for marriage elsewhere, we distinguish these marriages from uxorilocal and virilocal marriages that took place within the communities. Unlike some observations in bigger urban towns including Kyoto where numerous neolocal marriages were found in early nineteenth century (Nagata and Hamano 2008), the post town of Koriyama shared the rural feature of virilocal or uxorilocal marriages.

The word 'age' refers to the age measured in terms of the timing of the NAC registration. A note is necessary regarding the measurement. The timing of first marriage is measured by taking the difference between the year of birth and the year of marriage as defined above. Following previous studies on nuptiality, we use a less conservative definition than the usual notion of first marriage: if marriages were observed for the first time for individuals who first appeared in the population registers under age 50 with no spouse and no children, they were regarded as 'first' marriages. Non-insubstantial number of marriage took place for females under age 10 in all communities. Although they may appear very early in contemporary standard, we include them as noted in NAC. Our multivariate analysis is also confined to individuals who were born and/or reside in the villages prior to first marriage. Considerable number of males and females migrated into the communities upon first marriage during the observation period. These individuals had to be excluded from the multivariate analysis because there was no information on characteristics of their households and communities during their life course before migrating into the communities. Our analysis for Koriyama also excludes servants. We know based on village migration patterns that a considerable number of servants who migrated into Koriyama were already married. However, since their marital status is not recorded in the population registers, we had to exclude them from analysis of first marriage.

The numbers of never-married person years of the three communities used in the analyses of first marriage are as follows:

Village	Males age 10-49	Females age 5-49	Total
Shimomoriya&Niita			
Person years	9,632	8,552	18,184
Individuals	1,294	1,465	2,759
Events	805	814	1,619
Koriyama			
Person years	18,464	12,584	31,048
Individuals	2,677	2,212	4,889
Events	1,132	1,187	2,319

Second, a difficulty of the study of the outcomes of marriage lies in defining the risk population.

If we stick to individuals who were under constant observation from birth, our data will be too small and selective. It is not possible to follow individuals over time once they exited from the observation in the two villages. On the one side, there were those who came to live in the villages upon marriage from outside. Some of these individuals were inclined to return to their home villages once their marriage ended. Some others chose to migrate for service or work or to remarry. Others who remained in the villages remarried or died without having the chance to remarry. Thus, it should be kept in mind that upon any marital dissolution, one had a risk to remarry, to migrate out, or to die. Since remarriage is a process of competing risks, the choice and speed of remarriage can be affected by the changes in mortality and migration patterns over time.

For the entire observation period, the youngest recorded age at remarriage in these communities was 13 for men and 10 for women. Remarriage started extremely early in these populations that were quite young at their first marriage. Since the majority of men and women married before reaching age 35, the proportion of those staying single was extremely low after this age (less than 7 percent for men and less than 2 percent for women). The maximum age at remarriage of men was 72, of women 74. In this study, we limit our observation to those who were ages 15-64 when marriage ended. By restricting our analysis to age 15-64, we are also controlling the effect of mortality which can be a function of remarriage in the older ages (Tsuya and Nystedt 2004: Table 13.3). This is to control for the unknown biases among remarriages at both very young or old ages. The numbers of widowed and divorced person years of the three communities used in the analyses of remarriage are as follows:

Village	Males age 15-64	Females age 15-64	Total
Shimomoriya&Niita			
Person years	3,859	4,637	8,469
Individuals	1,505	1,654	3,159
Events	436	354	790
Koriyama			
Person years	6,515	10,646	17,161
Individuals	5,663	6,305	11,968
Events	663	539	1,202

PATTERNS OF FIRST MARRIAGE AND REMARRIAGE

In this section, we will examine the patterns of marriage and remarriage in three steps: (1) life table analysis, (2) outcome of marriage, and (3) types of marriages. Our earlier study showed that the Singulate Mean Age at Marriage (SMAM) for Shimomoriya, Niita, and Koriyama respectively, were 18.1, 18.2 and 21.8 for males and 14.3, 13.1 and 17.9 for females (Kurosu and Takahashi 2007). We

also found that the proportions never married at age 45-49 were, in the same order, 3.2%, 5.2% and 5.4% for males and 0.3%, 0.8%, and 1.8% for females. Although SMAM and proportion never-married appear higher in Koriyama for both males and females, they are still at the lower end of the observed distribution of age at first marriage in preindustrial Japan. The low celibacy rates particularly stand out compared to the Western counterparts of the time. Thus we suggested that the early and universal marriage was practiced also in the local town of Koriyama.

(1) Life table analysis of first marriage and remarriage

To see the dynamics of marriage patterns, we first look at the age pattern of first marriage and remarriage using Kaplan-Myer method of life table analysis. This analysis allows us to understand the process of first marriage by incorporating all individuals who are at risk of marrying for the first time (i.e. never-married individuals) or at risk or remarrying (i.e. divorced and widowed individuals). First, Figure 2 shows proportions of males and females who have not married up to a particular age. As the number gets too small to show stable patterns, the figures only include up to age 30. The process of marriage started very earlier and proceeded drastically among females in Shimomoriya and Niita. Their first marriage was concentrated in ages 12-15. By age 14, more than 50% of females are married. Almost all women at risk were married before reaching age 23. Interestingly, females in Koriyama and males in Shimomoriya and Niita demonstrated similar patterns having age 18-19 as mean age at first marriage according to the life table analysis. Compared to these three sub populations, Koriyama males started to marry much later and their speed was much slower. It was not until age 26 that 50% of them got married.

[Figure 2]

Second, Figures 3A and 3B show proportions of males and females who have not remarried up to a particular year after the end of previous marriages. Since the patterns of remarriage varied strikingly by the age of individuals (Kurosu 2007b), we compared three age categories for both men and women following a previous comparative study of remarriage among widows (Kurosu, Lundh, and Breschi 2008). This exercise will allow us to see which gender-age specific group was more inclined to stay in the sate of widowhood/divorcehood, or leave the state by remarrying. Although the speed and magnitude of remarriage vary, several interesting features come out from Figures 3A and 3B.   We found a tendency that the remarriage of youngest men (and women for Koriyama) occurred the quickest and the most drastically ---half of them remarried in the first six years, and that of older women, the slowest and smallest in both two villages and Koriyama. All the other groups fall in-between these two lines. Considering the male nature of remarriage in Western counterparts (Corsini 1981; Kurosu et al. 2014), the similar patterns found for both Koriyama males and females

age below 35 are striking.

[Figures 3A and 3B]

(2) Marriage outcomes

One of the reasons why remarriage rates are high in Japan compared to other societies of the time is due to the prevalent practice of divorce. It is thus important to examine the outcome of marriage. While marriage tended to be early and universal in northeastern Japan, it did not guarantee the protection of life afterwards. Or rather, because of the early and universal nature, marriage in northeastern Japan appeared to have dissolved quickly and easily. For example, only 26.8% of first marriage continued until women reached age 50 in Shimomoriya and Niita, in contrast to 43.8 in Nishijo, an agricultural village in central Japan, and 49.1 in Nomo, a fishing village in southwestern Japan (Kurosu, Tsuya and Hamano 1999). The northeastern marriages therefore were not only early and universal, but were also broken shortly. In Table 1, we compared how marriage ended in observed period in the three communities. The figure includes all marriages (first and higher order marriages) observed in the population registers.

[Table 1]

Table 1 reveals that outcomes of marriages were very similar among three communities. Roughly about 60 percent of marriages ended when one of the partners died. Divorce was also a common reason for marital dissolution in all three communities: 30-35 percent of the males' and the females' marriages ended in divorce. A small proportion of marriages ended when a spouse absconded. The mean duration of marriages ended by divorce was extremely short---4 to 5 years, while the mean duration of those ended by death of spouse was four times longer. Consequently, the mean age at marital dissolution was in the 20s for divorced persons and in the 40s for widows and widowers. Further, among cases observed, around one third of men and women got remarried within a short period. The mean years from marital dissolution to remarriage were only 2 to 4 years in most cases of marital dissolution.

(3) Types of marriage

In the Tables below, we show two important features of marriage in these communities. First, we look at the proportion of first marriage by marriage type. The majority of males (73-82%) married virilocally. Among females, proportion who married out was the largest in all communities except Shimomoriya where the largest proportion of marriage was uxorilocal. There also exist differentials among the study villages in age at first marriage by type of marriage (table now shown). The timing

of marriage tended to be considerably earlier among men (and women) who married within their residing community, compared to those who moved out of the community upon marriage. The spread of ages at first marriage for men who migrated out of the community in association of marriage was much wider than that of the counterparts who married within the community.

First marriage by marriage type

	Shimomoriya		Niita		Koriyama	
	male	female	male	female	male	female
Events(%)						
virilocal marriage	73.9	30.8	78.9	27.6	81.0	29.0
uxorilocal marriage	19.3	41.9	10.4	29.1	10.8	38.4
marry-out	6.8	27.3	10.7	43.3	6.7	30.7

Yet another interesting feature of first marriage is found when examining the combination of marriage partners (first or remarriage) during the observation period. Among the total number of marriages during the observation periods, both partners were identified in 502 cases (41.8%) in Shimomoriya and Niita. Among these figures, first marriage of both men and women account for 57.2%. This proportion of first marriages is extremely low compared to other communities of EAP ---81.3% in Scania (Sweden), 84.0% in Sart (Belgium), and 77.6% in Casalguidi (Italy), as well as the number of studies in England, France, and Belgium have found that the percentage of remarriages to all marriages until early nineteenth century fell between 15% and 30% (e.g. Griffith 1980, Corsini 1981, Mattijs 2003). The proportion of first marriages is extremely low in Shimomoriya and Niita due to the fact that the remarried population includes quite large numbers of divorcees. These results suggest in considering marriage market in early modern Japan, it is important to take into account both first and higher order marriages; further, to understand the individual and familial choices upon marriage, it is essential to take into account which type of marriage pertains in marriage.

Combination of marriage partners: all marriages in Shimomoriya and Niita, 1716-1870

male and female	Shimomoriya&Nita	
	N	%
1st mar & 1st mar	287	57.2
remar & 1st mar	39	7.8
1st mar & remar	50	10.0
remar & remar	126	25.1
Total identified	502	100.0
Total observed	1,202	

(excerpt from Kurosu et al. 2014, Table 6.2)

EVENT HISTORY ANALYSIS

Definitions and Measurements of the Covariates

To reveal the mechanism leading to first marriage and remarriage, we conduct discrete-time event history analysis, using a series of logistic regression models which relate the probability of first marriage and remarriage in the next year to economic and household circumstances of individual men and women. The dependent variable for first marriage is a dichotomous variable measuring whether or not a never-married man/woman had a recorded marriage within one year from a registration to the immediately succeeding registration. The population at risk includes males aged 10-49 and females aged 5-49 who were born and/or resided in the two villages prior to their first recorded marriages. Since many of servants in Koriyama were in-migrants, we could not determine their marital status (ever-married or not). We therefore excluded servants from the analyses. The dependent variable for remarriage analysis is a dichotomous variable measuring whether or not a man or woman at risk remarried within one year from a registration to the immediately succeeding registration. The population at risk includes males and females aged 15-64 who were once married but whose marriage ended and who resided in the communities.

The models are a modification of the EAP analyses (Kurosu and Lundh 2014). The discrete-time event history analysis model has three general groups of covariates: (1) socioeconomic factors, (2) family and household contexts, and (3) demographic variables. First, socioeconomic factors consist of local rice prices and household landholding. Variations in local economic conditions are measured by the logged rice prices in the local market of Aizu, which indicate annual fluctuations in agricultural output in the local area. Although they may not be the most accurate indicator of local economic conditions, annual variations in rice price in Aizu were found to reflect fairly well crop failures in the area (Tsuya and Kurosu 2004). Following earlier studies (Tsuya and Kurosu 2005, 2014) we use prices to which the probability of first marriage most significantly responded. For first marriage, we use the log of raw rice price three years prior to current year for the two villages, and two and one years for Koriyama males and females respectively. For remarriage, we use the log of raw rice price of the same.

Household socioeconomic status is measured by household landholding (*mochidaka* in *koku*[5]). Landholding is recorded in the population registers as a continuous variable indicating the productive capacity (expected yield) of the land held by each household. This variable is thought to measure the amount of household income and economic resources available and a proxy of the wealth and socioeconomic status (SES) of household. We constructed three categories---"high",

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5 One *koku* is equivalent to approximately 5 bushels.

"middle" and "low" statuses, simply by the distribution of landholding size. Low category consists of landless. Middle category consists of those who belong to household with more than 0 *koku* to less than 16 *koku*. High category consists of those who belong to household with 16 and more *koku*. In the villages, households with 7-8 koku were considered independent peasants (Narimatsu 1992). 16 *koku* and above includes about 15 percent of all households in Shimomoriya and Niita. The average size of landholding in Koriyama was much smaller than those in the other two villages. In particular, the proportion of Koriyama men and women who belong to landless were much larger than the other villages (Table 2). The distribution of SES and social status vary a lot among the communities reflecting their social and economic settings. In Shimomoriya and Niita, the majority of peasants held land. They were permanent residents of the villages who shouldered tax payment. In Koriyama, being a local town, the majority (70 percent) of the population belonged to the lowest SES. There were a considerable number of landless (permanent) and temporary residents who were not responsible for tax payment.[6] Those involved in urban business are categorized as low SES since they did not own any land. However, they should not be considered "poor". SES of these non-farming populations cannot be measured by household landholding. Nevertheless, Takahashi (2005) found a high correlation between landholding size and the physical size of the house in Koriyama. Thus we believe that household landholding, the most used (and often, only available) indicator, is a good proxy for household socioeconomic status in all these communities.

Second, family context is measured by presence of parents for first marriage and relationship to household head for remarriage. Presence of parents in household consists of four categories: both parents present; only father present; only mother present; and no parent present (reference). Parents facilitated a child's first marriage by helping/encouraging him/her to recruit a spouse into their household (Tsuya and Kurosu 2014), and children were less likely to experience divorce and leave home for service when both parents were present (Kurosu 2004, 2011). For remarriage analysis, we include relationship to household head as a way to show household status. The household relationship of the index individual is an important variable affecting the chances of survival in previous societies because the position that each individual occupied within the household strongly influenced the degree of access to household resources and the statuses and roles assigned to him or her (Tsuya and Kurosu 2004). Previous studies using Shimomoriya and Niita found that the risk of mortality (Tsuya and Kurosu 2004) and divorce (Kurosu 2004), varied by whether one was household head or not. Following a mortality analysis using Shimomoriya and Niita (Tsuya and Kurosu 2004: 273-274), this variable consists of seven categories: head, spouse of head, stem kin, spouse of stem kin, nonstem kin, nonkin or servant, or unknown. Stem kin members are mostly inheriting sons or daughters. Spouses of stem kin for women are mostly wives of head's sons.

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6 We also analyzed household socioeconomic status indicated by residency and tax payment and found similar results to those using household landholding (Kurosu and Takahashi 2007).

Nonstem kin members are those who are related to the head by blood, marriage, or adoption but are not stem kin. Non-kin and servants include all others unrelated by blood or marriage/adoption. The reference is stem kin of household head.

Finally we include demographic variables as control variables. They are current age, time period, residing village (only for the two villages as their data are pooled), and migration status (for Koriyama) for both first marriage and remarriage, and years since previous marriage and whether previous marriage ended by divorce or death of spouse for remarriage. Marriage and remarriage are often considered a function of age. For first marriage, continuous variable for current age as well as its square are used. For remarriage, age is a categorical variable consisting of four groups to see some threshold: below age 35, 35-49, and 50 and above. Using the youngest group as reference, three dummy variables were constructed. The reference group represents age of reproduction. For remarriage, time (in years) since the most recent dissolution of marriage is included in order to index the duration of exposure to risk of remarriage. This is a categorical variable consisting of 3 groups: less than 3 years, 3-9 years, and 10 and more years. Using the first group as the reference (omitted category), three variables were constructed.

Three other control variables are time period, residing village, and migration information. There are four time periods: 1716-1759, 1760-1799, 1800-1839, and 1840-1870. Using the earliest period of 1716-1759 as the reference, three dummy variables were constructed. As the records from the two villages are pooled for the village analysis, a dichotomous variable is also included to control for the possible village effect. If an individual was residing in Shimomoriya, the value of the covariate is 1; 0 if he/she was a resident of Niita. Migrant status is controlled for Koriyama where numerous migrants are included in the population at risk. The variable consists of migrant, native, and migrant status unknown. Migrant is used as the reference.

Given the sex differentials in the patterns of first marriage and remarriage, we conduct separate analyses for males and females. Considering possible differences in the causal structure between the three different types of first marriage (uxorilocal, virilocal, and marry-out), we also conduct the analysis separately for each type. Table 2 shows the means of the variables used in the analysis.

[Table 2]

Results of the discrete-time event history analysis

First Marriage

Tables 3A and 3B present the effect of socioeconomic factors and familial context on the probability

of male and female first marriages by differentiating them into three marriage types: intra-village virilocal marriages, intra-village uxorilocal marriages, and marriages associated with migration out of the village ("marry-out" marriages). Four interesting features emerge. First, the probability of first marriage decreased significantly for both sexes when local rice prices went up. This was the case in all type of marriage in both rural and urban communities. In both rural and urban settings, it was virilocal marriages (both males and females) that were affected most strongly by changes in the local economic conditions. Uxorilocal marriages were not affected. This in turn implies that the arrangements for virilocal and uxorilocal marriages were done probably via different venue and that the marriage market for virilocal marriage was more susceptible to local economic conditions.

Second, household SES significantly increased the likelihood of male first marriages in both rural and urban settings. Overall, compared to men belonging to low SES, those in middle or high SES were 1.4 to 2.4 times more likely to marry. This result therefore suggests that economic resources of their household strongly enhanced chances of first marriage among males. SES showed positive and significant effects on female first marriage but only in Koriyama. Closely looking at the results by marriage type, we found that household SES promoted the likelihood of male virilocal marriages and female uxorilocal marriages, but not the other types of marriages. Both in rural villages and in Koriyama town as well, the enhancing effect of household economic resources, as measured by landholding, concentrated largely on male virilocal marriages in which men brought in their brides into their parental households or on female uxorilocal marriage in which women brought in their groom into their parental households.

There is a notable difference between the two villages and Koriyama. Household SES seems to affect differently on marriage related migration. SES decreased the likelihood of males marrying out in Shimomoriya and Niita. However, higher SES was associated with increased chance of female marriage migration in Koriyama. Compared to those in low SES, females in high SES households were 1.3-1.7 times more likely to marry outside Koriyama. The geographical marriage market of Koriyama women in higher socioeconomic status might have been larger than their counterparts in the villages.

[Tables 3A and 3B]

Third, presence of both parents had positive and significant effects on only overall male first marriage. Looking into marriage types presence of both parents enhanced a great deal the probability of male virilocal marriages. The likelihood of virilocal marriage of men who had both parents living with them in the two villages was 3.4 times higher than that of men who did not have any parents living with them. Presence of both parents also facilitated female uxorilocal marriages but was associated negatively with female virilocal marriages. These findings suggest that parents served to

facilitate their inheriting children's marriage probably by helping/encouraging him/her to find a partner.

Fourth, there is a clear temporal threshold in the likelihood of first marriage for both sexes. As shown in Tables 3A and 3B, the probability of male first marriages became lower in the 19th century, relative to the earliest period of 1716-1759. This pattern was clearer and significant among males in Koriyama. There were very strong and clear temporal trends in the probability of female first marriages. The likelihood of female first marriages declined significantly and almost linearly as the time passed in both the two villages and Koriyama. This result suggests the increasing delay of female first marriage in both rural and urban settings towards the end of the nineteenth century.

Remarriage

We next look at the factors of remarriages of men and women in the two villages---Shimomoriya and Niita, and the local town---Koriyama. Table 4 presents the odds ratios of the covariates of remarriage, separately for divorced and widowed males and females.

[Table 4]

First, controlling for age and time since marital dissolution, the probability of remarriage decreased for both sexes when local rice prices went up in both areas. Socioeconomic status of household worked significantly for male and female remarriage. But men and women were affected by SES differently. The positive effect of SES was found among men in both two villages and Koriyama. Higher socioeconomic status probably meant the bargaining power for men in remarriage market, and also the necessity of obtaining labor power replacement to maintain their large land. On the contrary, the negative effect of the SES for women suggests that women in high household SES had the lower risk of remarriage compared to those in the low SES. Households at the higher SES could afford to support divorced and widowed women. Alternatively, one can speculate that women in households of lower socioeconomic status had easier attitudes towards remarriage and thus remarried more (Goode 1963, 1993) or that remarriage was vital for their survival in low SES.

Second, risk of remarriage varied by position in the household, and whether they resided in the two agricultural villages or in local town. So far, the findings were very similar in direction in both urban and rural areas. However, when it comes to household context, remarriage in the two settings seem to work somewhat at different mechanisms. In both settings, compared to stem members (both inheriting sons and daughters), spouse of stem members were much less likely to remarry, and non-stem female members (non-inheriting daughters) were more likely to remarry (probably by way of remarrying-out). The rest of the patterns are more complex. Compared to stem members, both

male and female non-kin and servants in Shimomoriya and Niita were 44-76% less likely to remarry. It is possible that they resort to another alternative---service migration. The sign is opposite for Koriyama males. Non-kin or servants in Koriyama were 3.4 times more likely to remarry than the reference group.

Female heads in Koriyama was 1.3 time more likely to remarry than the reference group. Once they attain headship, widowed and divorced women in Koriyama were able to find partner in the urban setting. Alternatively, they were eager to remarry to survive in the urban setting. However, if they were wives of household head, they were significantly less likely to remarry. The fact that they were still "spouse of" either diseased or divorced head suggest that they were still in the process of changing their household status right after the end of previous marriage. Neither of these statuses responded significantly in the two villages probably because female headship was extremely rare and if at all, temporary in Shimomoriya and Niita (Okada and Kurosu 1998).

Finally, there is a clear temporal threshold in the likelihood of first marriage for all females. The probability of female remarriages declined linearly by period in both rural and urban areas just like first marriage. We need to examine further whether this goes in line with the postponement of female first marriage and the general improvement of living standard as well as female status.

SUMMARY AND DISCUSSION

The attempt of this paper was to compare the patterns and timing of first marriage and remarriage in rural and urban settings---Shimomoriya and Niita, two agricultural villages, and Koriyama, a large local post town. The two areas were different not only in its socioeconomic development but also in terms of population size and development. Both Shimomoirya and Niita suffered from the population loss due to damages caused by constant crop failures and famines until 1840s while Koriyama demonstrated overall population expansion. While surrounding villages suffered from low fertility and out migration, Koriyama gained population with its moderate fertility and in-migration.

Our descriptive analyses revealed clear community differentials in the age at first marriage. The Singulate Mean Age at Marriage (SMAM) ranged between 18.1 of Shimomoriya and 21.8 of Koriyama for men and 13.1 of Niita and 17.9 of Koriyama for women. Life table analysis supported that marriage, particularly of females in rural villages, started extremely early and occurred within a narrow age bound. Early and universal marriage was imperative for households in Shimomoriya and Niita where the livelihoods of the villagers depended primarily on small-scale family farming. On the other hand, the development of sericultural work and local commercial sectors in Koriyama might have made marriage less imperative for many households and individuals as they could easily obtain jobs in the town. Nevertheless, the highest SMAM in Koriyama for both males and females

were still at the lower side of the observed distribution of age at first marriage in early modern Japan. Also, proportion never-married at ages 45-49 were 5.6 percent for males and 1.8 percent for females. Thus, in reference to European pre-industrial societies as well as other regions of Japan of the time, the prevalence of the northeastern characteristics of early and universal marriage was confirmed even in the post town of Koriyama.

Although marriage was universal, it did not last long. Marital dissolution due to divorce, death of spouse, and absconding of spouse was a common experience in early modern Japan, particularly so in the northeastern area. Life table analysis identified interesting similarities as well as differences in the rural and urban communities. In both rural and urban settings, the risk of remarriage declined sharply by age and by duration since the end of previous marriage. Remarriage took place within a short period after marital dissolution and for both divorced and widowed men and women. The speed and proportion of remarriage were always quicker and higher for men than for women just as the studies in western societies have found. However, behind these patterns, there were complex gender differences resulting from that socioeconomic and family context that may not have been present in Western Europe.

The multivariate analysis identified several factors that were associated with the probability of first marriage and remarriage. While the age at first marriage was later in the local post town of Koriyama than that in the rural villages of Shimomoriya and Niita, there were more similarities in the way how marriage and remarriage were affected by local conditions and household economic status, as well as household contexts in both rural and urban settings. Therefore, many of the previous findings in the village studies (Tsuya and Kurosu 2014, 2006; Kurosu 2007b) were confirmed also in Koriyama.

Local economic downturn significantly reduced the likelihood of first marriage and remarriage of both men and women. When times were bad, both men and women's chance of first marriage (particularly virilocal marriage of men) and remarriage reduced. Household economic resources enhanced men's first marriages, especially male virilocal marriages, implying the importance of household economic resources in the recruitment of a mate for inheriting sons. The same logic goes for remarriage of men but not for women. Women of higher socioeconomic status were much less likely to remarry compared to their counterparts in lower status. Marriage of women in higher socioeconomic status probably was stable and their propensity to remarry was low even after marital dissolution. Also, households at the higher SES could afford to support divorced and widowed women.

Controlling for demographic and economic factors, family context exerted a significant power in determining the choice of marriage or remarriage among men and women, whether it to be parents, or position in the household (measured by relationship to household head). Presence of parents facilitated the likelihood of male virilocal and female uxorilocal first marriages.[7] This suggests that the stability of households enhanced by the presence of parents and the network for mate recruitment that parents provided were important for formation of children's marital unions. As for remarriage, position in the household mattered in complex ways. Compared to stem members (i.e. inheriting sons and daughters) who had access to household resources and were expected to succeed households, non-stem members (including spouse of stem members, non-stem and non-kin members) were either much less likely to remarry or more likely to remarry. It is possible that in the former cases, they resorted to other alternatives---service migration, remarrying outside the communities. We can also speculate in the latter case that non-inheriting members of the household were "remarried-out" as a way of reducing the economic burden of the household.

Over the course of the 154-year period, women, and to a lesser extent, men as well, were less and less likely to marry (particularly virilocally) and remarry in both rural and urban settings. A rise in the age at marriage is observed in various regions of Japan in the nineteenth century (Hayami 1992). The time trend in marriage and remarriage needs to be considered together with other trends including the improvement in women's status, and in relation to the proto-industrialization thesis, according to which rural industrialization was supposed to precipitate a fall in the age of marriage for women (Saito 1983: 34).

Overall, while the social and demographic contexts diverged, and the age at fist marriage varied, we found amazing similarities in the patterns and determinants of first marriage and remarriage in Shimomoriya and Niita, and Koriyama. Gender and gender asymmetries of marriage and remarriage were embedded in the socio-cultural context of the rural and urban communities. *Property* (socioeconomic status of household) AND *power* (within-household relations) were important in both rural and urban settings. In that sense, this study supports the claim of *Similarity in Difference* (Lundh, Kurosu, et al. 2014) that there may be much more similarity in individual and family behaviors than revealed by aggregate rates, once we study determinants of marriage and remarriage with systematic comparisons. Clearly, more study is needed to fully account for these similarities as well as the nature of marriage system in early modern Japan. Our next step would be to extend this study taking into account the presence of siblings and children, two types of coresident important in the explanation of the timing of marriage and remarriage.

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7 Presence of parents as well as children mattered a lot in remarriage even after controlling for demographic and socioeconomic factors in Shimomoriya and Niita (Kurosu 2007b). These variables are not yet included in the present study as the data for Koriyama are still being constructed.

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Map1. Map of the Study Locations: Northeastern Japan and the three communities---Shimomoriya, Niita, and Koriyama
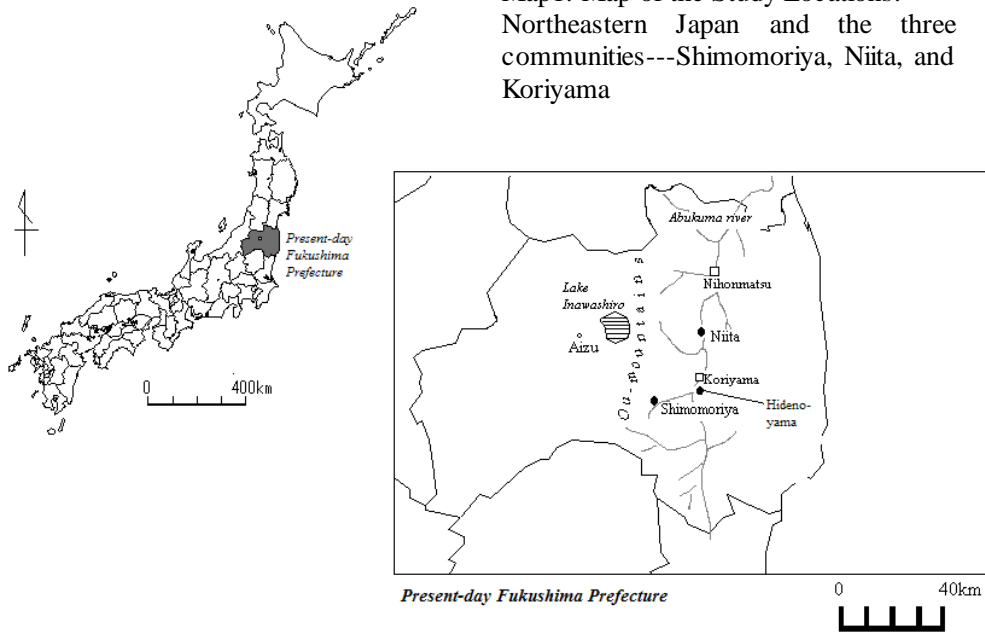
Table 1. The percentage distribution of outcomes of marriage by sex: Shimomoriya&Niita and Koriyama 1716-1870

Shimomoriya & Niita	N	%	Mean Duration of Marriage	Age at the End of Marriage	N remar	%remar	Yr. from Marital Dissolution
MALE							
Death of spouse	361	29.2	18.3	45.9	193	53.5	3.0
Own death	408	33.0	22.7	45.9	--	--	--
Divorce	437	35.3	4.2	27.6	275	62.9	3.0
Absconding	24	1.9	10.4	37.4	13	54.2	3.8
Unknown	7	0.6	--	--	--	--	--
Total	1237	100.0	14.5	29.3	492	39.8	3.1
FEMALE							
Death of spouse	433	32.8	24.7	48.6	133	30.7	2.4
Own death	400	30.3	21.6	42.8	--	--	--
Divorce	413	31.3	4.6	23.8	222	53.8	2.6
Absconding	56	4.2	11.6	32.2	30	53.6	5.7
Unknown	17	1.3	--	--	--	--	--
Total	1319	100.0	16.6	38.1	408	30.9	2.8
Koriyama	N	%	Mean	Age at the	N remar	%remar	Yr. from
MALE							
Death of spouse	546	24.7	16.7	43.7	251	46.0	2.5
Own death	717	32.4	20.0	50.3	--	--	--
Divorce	784	35.4	5.1	29.5	375	47.8	2.4
Absconding	158	7.1	6.9	34.2	23	14.6	3.8
Unknown	7	0.3	--	--	--	--	--
Total	2212	100.0	12.9	40.1	653	29.5	2.4
FEMALE							
Death of spouse	709	32.0	20.1	43.9	143	20.2	2.3
Own death	555	25.0	16.8	38.9	--	--	--
Divorce	783	35.3	5.1	24.7	246	31.4	3.0
Absconding	162	7.3	6.9	29.0	61	37.7	4.7
Unknown	10	0.5	--	--	--	--	--
Total	2219	100.0	12.9	34.7	515	23.2	3.1

Note: This table is taken from Table 3A of Kurosu, Takahashi and Okada (2008). The calculation includes males and females age 15-74 whose end of marriage were observed.

Table 2. Means of the Covariates Used for the Discrete-Time Event History Analyses of the Probability of First Marriage and Remarriage by Sex: in Shimomoriya&Niita and Koriyama 1716-1870

	First Marriage				Remarriage			
	Shimomoriya&Niita		Koriyama		Shimomoriya&Niita		Koriyama	
	Male	Female	Male	Female	Male	Female	Male	Female
Age								
current age	17.410	10.393	18.189	12.207	--	--	--	--
age square	369.600	131.969	394.575	192.120	--	--	--	--
< 35 (reference)	--	--	--	--	0.336	0.277	0.353	0.309
35-49	--	--	--	--	0.289	0.216	0.309	0.274
50+	--	--	--	--	0.375	0.507	0.338	0.417
Duration since end of marriage								
< 3 yr (reference)	--	--	--	--	0.417	0.401	0.547	0.419
3-9 yrs	--	--	--	--	0.333	0.369	0.291	0.335
10+ yrs	--	--	--	--	0.249	0.229	0.162	0.246
Log of rice price	-0.244	-0.229	-0.185	-0.169	-0.222	-0.203	-0.177	-0.174
Household socioeconomic status								
low (no landholding) (reference)	0.120	0.075	0.688	0.660	0.138	0.112	0.644	0.614
middle (>0, <16 koku)	0.684	0.679	0.231	0.220	0.685	0.670	0.249	0.264
high (16 koku and above)	0.196	0.246	0.081	0.120	0.178	0.219	0.107	0.122
Household Context								
presence of paretns								
both present	0.576	0.717	0.461	0.597	--	--	--	--
only father	0.094	0.067	0.114	0.106	--	--	--	--
only mother	0.130	0.111	0.181	0.155	--	--	--	--
no parent	0.200	0.105	0.244	0.142	--	--	--	--
household status (relationship to head)								
head	--	--	--	--	0.530	0.127	0.575	0.224
spouse of head	--	--	--	--	0.003	0.087	0.007	0.125
stem (reference)	--	--	--	--	0.300	0.647	0.287	0.512
spouse of stem	--	--	--	--	0.041	0.050	0.064	0.076
non-stem	--	--	--	--	0.047	0.038	0.029	0.033
non-kin&servant	--	--	--	--	0.075	0.046	0.037	0.0268
unknown	--	--	--	--	0.003	0.005	0.001	0.004
Time period (ref: 1716-1759)	0.301	0.257	0.056	0.034	0.314	0.185	0.094	0.070
1760-1799	0.281	0.256	0.165	0.168	0.288	0.303	0.219	0.200
1800-1839	0.259	0.289	0.374	0.381	0.253	0.305	0.364	0.350
1840-1870	0.159	0.198	0.405	0.417	0.145	0.207	0.322	0.380
Residing vilalge (ref: Shimomoriya)	0.378	0.447	--	--	0.498	0.261	--	--
Migration status								
native	--	--	0.737	0.811	--	--	0.522	0.440
unknown	--	--	0.017	0.008	--	--	0.039	0.042
Previous marriage ended by divorce	--	--	--	--	0.451	0.446	0.420	0.209

Notes: Local rice prices which best fit to the analysis are used: for first marriage of Shimomoriya and Niita, local rice price time-lagged by 3 years, and for Koriyama males time-lagged by 2 years, and Koriyama females time-lagged by 1year are used; for remarriage, local rice price of the observation year is used. Servants are excluded from the analysis of first marriage in Koriyama.

Table 3A. Estimated Odds Ratios of the Covariates from Discrete-Time Event History Analysis of the Probability of First Marriage by Type of Marriage: Males Aged 10-49 and Females Aged 5-49 in Shimomoriya and Niita 1716-1870

| | Male First Marriages | | | | | | | | Female First Marriages | | | | | | | |
| | All | | Virilocal | | Uxorilocal | | Marry-Out | | All | | Virilocal | | Uxorilocal | | Marry-Out | |
Covariates	*exp(b)*	*p*	*exp(b)*	*p*	*exp(b)*	*p*	*exp(b)*	*p*	*exp(b)*	*p*	*exp(b)*	*p*	*exp(b)*	*p*	*exp(b)*	*p*
Logged local rice price	**0.673**	**0.013**	**0.697**	**0.046**	0.747	0.420	0.521	0.272	**0.716**	**0.050**	0.614	0.118	0.772	0.333	0.886	0.611
Household Socioeconomic Status																
Low (reference)	1.000		1.000		1.000		1.000		1.000		1.000		1.000		1.000	
Middle	**1.371**	**0.062**	**1.856**	**0.003**	1.381	0.371	**0.383**	**0.003**	0.992	0.965	0.657	0.100	1.571	0.126	1.013	0.961
High	**1.791**	**0.002**	**2.374**	**0.000**	1.582	0.256	0.698	0.352	0.858	0.442	0.741	0.285	1.078	0.822	0.957	0.879
Presence of parents																
both present	**2.392**	**0.000**	**3.408**	**0.000**	0.820	0.461	1.074	0.818	1.201	0.270	0.664	0.076	**2.944**	**0.000**	0.910	0.678
only father	**1.424**	**0.045**	**1.828**	**0.004**	0.994	0.987	0.489	0.233	0.832	0.376	0.522	0.066	0.773	0.587	1.204	0.513
only mother	**1.558**	**0.008**	**1.859**	**0.002**	0.811	0.563	1.522	0.259	1.167	0.468	1.018	0.953	1.691	0.148	0.982	0.951
no parent	1.000		1.000		1.000		1.000		1.000		1.000		1.000		1.000	
Time period																
1708-1759	1.000		1.000		1.000		1.000		1.000		1.000		1.000		1.000	
1760-1799	0.872	0.238	0.881	0.330	**0.620**	**0.062**	1.580	0.217	**0.381**	**0.000**	**0.375**	**0.000**	**0.527**	**0.002**	**0.407**	**0.000**
1800-1839	**0.754**	**0.021**	**0.791**	**0.082**	**0.539**	**0.021**	1.134	0.756	**0.253**	**0.000**	**0.217**	**0.000**	**0.472**	**0.000**	**0.266**	**0.000**
1840-1870	0.823	0.172	0.810	0.195	0.660	0.203	1.637	0.277	**0.229**	**0.000**	**0.138**	**0.000**	**0.431**	**0.000**	**0.306**	**0.000**
Log-likelihood	-2147.8		-1749.7		-516.8		-360.1		-801.9		-769.2		-899.9		-934.6	
Chi-square (d.f.)	364.77(12)		338.40(12)		81.57(12)		77.10(12)		445.27(12)		242.96(12)		216.00(12)		279.7(12)	
Prob > chi-square	0.000		0.000		0.000		0.000		0.000		0.000		0.000		0.000	
Number of observations	8,530		8,530		8,530		8,530		8,384		8,384		8,384		8,384	
Number of events	805		613		117		75		814		239		276		299	
Number of individuals	1,294		1,294		1,294		1,294		1,465		1,465		1,465		1,465	

Notes: Estimated with person year recorded in local population registers as a unit of observation. Estimation of standard errors takes into account the effects of contribution of more than one observation from same individuals by using Huber's formula. The analysis above controls for age, residing village for the pooled data of Shimomoriya and Niita, and native or not for Koriyama. Letters in bold are significant at 0.05 level.

Table 3B. Estimated Odds Ratios of the Covariates from Discrete-Time Event History Analysis of the Probability of First Marriage by Type of Marriage: Males Aged 10-49 and Females Aged 5-49 in Koriyama, 1729-1870

| | Male First Marriages | | | | | | | | Female First Marriages | | | | | | | |
| | All | | Virilocal | | Uxorilocal | | Marry-Out | | All | | Virilocal | | Uxorilocal | | Marry-Out | |
Covariates	exp(b)	p	exp(b)	p	exp(b)	p	exp(b)	p	exp(b)	p	exp(b)	p	exp(b)	p	exp(b)	p
Logged local rice price	**0.698**	**0.006**	**0.694**	**0.011**	0.899	0.736	0.481	0.122	**0.657**	**0.000**	**0.579**	**0.007**	**0.554**	**0.001**	0.942	0.731
Household Socioeconomic Status																
Low (reference)	1.000		1.000		1.000		1.000		1.000		1.000		1.000		1.000	
Middle	**1.382**	**0.000**	**1.449**	**0.000**	1.038	0.884	0.969	0.920	**1.255**	**0.015**	0.962	0.807	**1.340**	**0.022**	**1.363**	**0.026**
High	**2.396**	**0.000**	**2.499**	**0.000**	**1.854**	**0.073**	1.299	0.609	**1.395**	**0.006**	1.161	0.421	1.199	0.284	**1.738**	**0.001**
Presence of parents																
both present	**1.485**	**0.000**	**1.694**	**0.000**	0.841	0.477	0.784	0.435	1.138	0.256	**1.381**	**0.056**	0.963	0.806	1.120	0.522
only father	**1.419**	**0.011**	**1.589**	**0.002**	1.231	0.480	0.503	0.159	1.077	0.580	1.084	0.708	0.982	0.923	1.229	0.309
only mother	0.911	0.437	0.988	0.927	0.715	0.238	0.603	0.151	0.861	0.261	0.710	0.128	0.853	0.370	1.318	0.153
no parent	1.000		1.000		1.000		1.000		1.000		1.000		1.000		1.000	
Time period																
1708-1759	1.000		1.000		1.000		1.000		1.000		1.000		1.000		1.000	
1760-1799	**0.896**	**0.506**	**0.888**	**0.501**	1.916	0.196	0.657	0.332	**0.464**	**0.000**	**0.548**	**0.046**	**0.536**	**0.014**	**0.458**	**0.003**
1800-1839	**0.637**	**0.004**	**0.634**	**0.006**	1.305	0.589	**0.467**	**0.057**	**0.251**	**0.000**	**0.320**	**0.000**	**0.291**	**0.000**	**0.301**	**0.000**
1840-1870	**0.628**	**0.004**	**0.626**	**0.006**	1.410	0.496	**0.411**	**0.035**	**0.166**	**0.000**	**0.232**	**0.000**	**0.229**	**0.000**	**0.162**	**0.000**
Log-likelihood		-3506.7		-3035.1		-653.6		-424.1		-3333.0		-1384.3		-1718.8		-1538.4
Chi-square (d.f.)		670.56(13)		560.31(13)		132.43(13)		94.19(13)		750.87(13)		401.41(13)		416.05(13)		386.97(13)
Prob > chi-square		0.000		0.000		0.000		0.000		0.000		0.000		0.000		0.000
Number of observations		16,606		16,606		16,606		16,606		18,844		18,844		18,844		18,844
Number of events		1,132		919		124		80		1,206		356		463		391
Number of individuals		2,677		2,677		2,677		2,677		2,212		2,212		2,212		2,212

See notes in Table 3A.

Table 4. Estimated Odds Ratios of the Covariates from Discrete-Time Event History Analysis of the Probability of Remarriage: Males and Females Aged 15-64, Shimomoriya and Niita, and Koriyama, 1716-1870

| | Shimomoriya&Niita | | | | Koriyama | | | |
| | male | | female | | male | | female | |
Covariates	exp(b)	p	exp(b)	p	exp(b)	p	exp(b)	p
Log of rice price	0.732	0.071	0.717	0.103	0.993	0.957	**0.729**	**0.030**
Household Socioeconomic Status								
Low (reference)	**1.000**		1.000		1.000		1.000	
Middle	**1.486**	**0.027**	1.113	0.586	**1.250**	**0.035**	**0.732**	**0.002**
High	**1.789**	**0.005**	**0.616**	**0.033**	**1.457**	**0.005**	**0.566**	**0.000**
Household Relationship								
head	0.904	0.430	0.986	0.940	1.202	0.070	**1.316**	**0.035**
spouse of head	--	--	0.789	0.242	--	--	**0.378**	**0.000**
stem (reference)	1.000		1.000		1.000		1.000	--
spouse of stem	**0.454**	**0.001**	0.747	0.157	**0.630**	**0.011**	**0.626**	**0.003**
non-stem	0.732	0.221	**1.901**	**0.005**	0.817	0.491	1.437	0.068
non-kin&servant	**0.235**	**0.000**	**0.559**	**0.036**	0.702	0.178	1.221	0.388
unknown	--	--	0.334	0.070	--	--	0.551	0.425
Time period (ref: 1716-1759)								
1760-1799	0.794	0.110	**0.523**	**0.000**	**1.410**	**0.039**	**0.974**	**0.904**
1800-1839	**0.578**	**0.000**	**0.339**	**0.000**	1.086	0.611	**0.663**	**0.050**
1840-1870	0.896	0.506	**0.226**	**0.000**	0.933	0.701	**0.494**	**0.001**
Previous marriage ended by death of spouse	**0.758**	**0.026**	1.021	0.889	0.837	0.066	1.071	0.149
Migrant status								
native	--	--	--	--	**1.277**	**0.020**	1.153	0.151
unknown	--	--	--	--	0.643	0.154	1.017	0.935
Log-likelihood	-1193.6		-1000.0		-2025.4		-1804.1	
Chi-square	249.4		416.2		311.5		393.7	
(d.f.)	(16)		(18)		(17)		(17)	
Prob > chi-square	0.000		0.000		0.000		0.000	
Number of observations	3,859		4,637		7,176		11,279	
Number of individuals	1,505		1,654		2,303		2,817	
Number of events	436		354		712		590	

Notes: Estimated with person year recorded in local population registers as a unit of observation. Estimation of standard errors takes into account the effects of contribution of more than one observation from same individuals by using Huber's formula. The analysis above controls for age, time since marital dissolution, residing village for the pooled data of Shimomoriya and Niita, and native or not for Koriyama. Letters in bold are significant at 0.05 level.
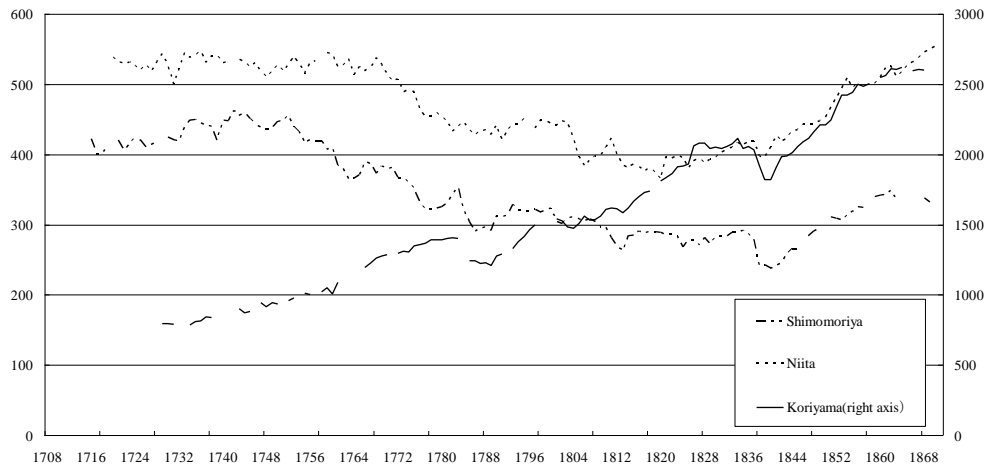
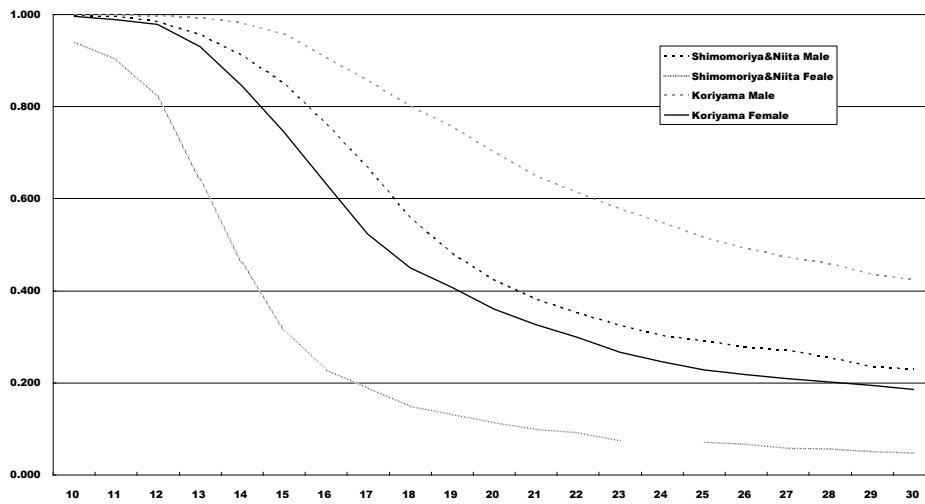Figure 1. Pupulation size of Shimomoriya, Niita, and Koriyama, 1716-1870

Figure 2. Life table (Kaplan-Myer) analysis of first marriage (remaining not married) by sex : Shimomoriya&Niita and Koriyama 1716-1870
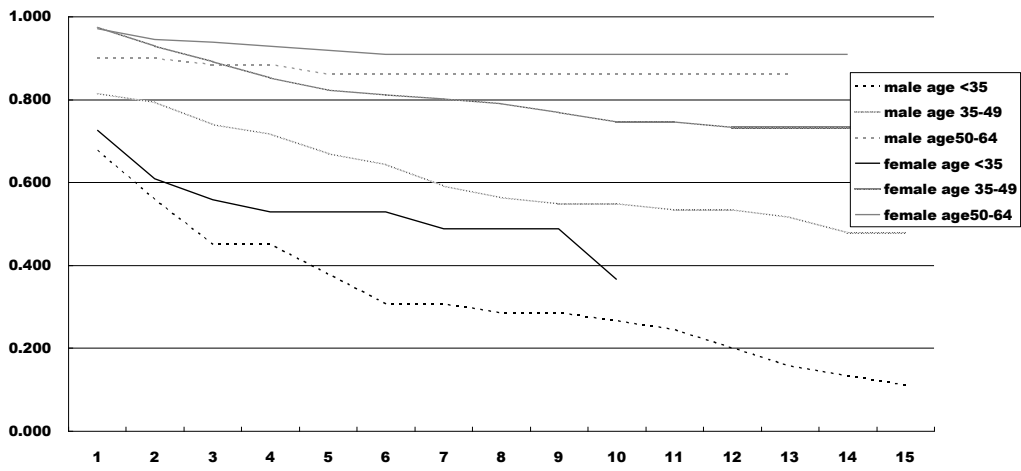
Figure 3A. Life table (Kaplan-Myer) analysis of remarriage (remaining not remarried) by age at the end of previous marriage (widowed and divorced): Shimomoriya and Niita 171-1870
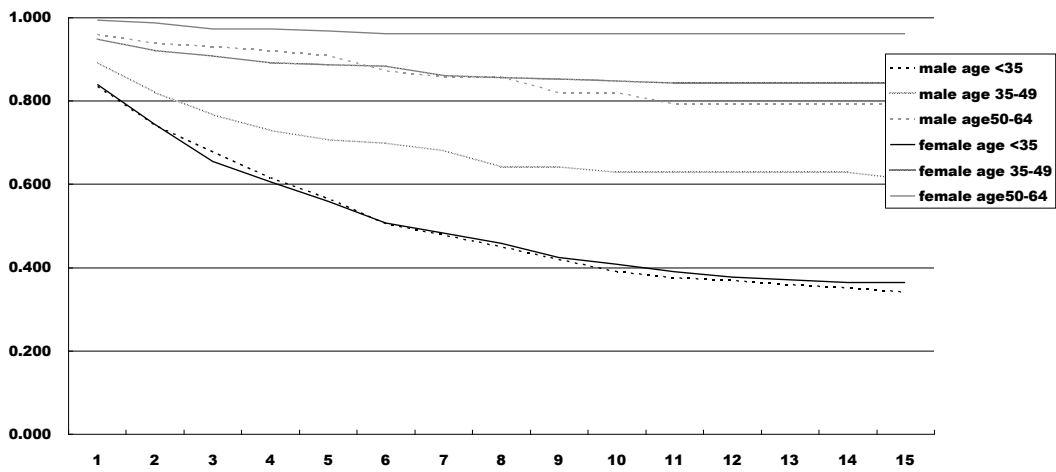

Figure 3B. Life table (Kaplan-Myer) analysis of remarriage (remaining not remarried) by age at the end of previous marriage (widowed and divorced): Koriyama 1729-1870