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初婚行動のパターンと決定要因 －近世日本と現代日本の比較－

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初婚行動のパターンと決定要因 －近世日本と現代日本の比較－

津谷 典子、黒須 里美

【要旨】

本論文は、18～19世紀の近世日本と1960～2000年の現代日本における男女の初婚行動の決定メカニズムの差異と類似性を比較・検証することを目的とする。特にここでは、初婚行動の主要な決定要因である個人および世帯の社会経済的地位、親および兄弟などの家族関係、地域および社会のコンテクストの年齢別初婚確率への影響を多変量解析モデルを用いて推計する。

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Patterns and Factors of First Marriage:
A Comparative Analysis of Early Modern and Contemporary Japan

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Patterns and Factors of First Marriage:
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This study examines similarities and differences in the determining mechanisms of the likelihood of first marriage in early modern and contemporary Japan, by estimating and comparing the socioeconomic and family factors of first marriage in three rural communities in 18th and 19th century northeastern Japan and Japan as a whole after World War II. Early modern Japan was a society with large local and regional differences in demographic patterns, economic development, and social customs (Cornell and Hayami 1986; Hayami and Kurosu 2001) and, admittedly, the preindustrial rural communities in northeastern Japan under study do not represent early modern Japan as a whole. However, comparing not the size but the directions and statistical significance of socioeconomic and family factors of individual men and women as well as those of local and larger social contexts in our study populations, we seek to discern similarities and differences of the determining mechanisms of the likelihood of first marriage in early modern and contemporary Japan.

Marriage in early modern Japan was primarily a family and household enterprise, based on a long-term planning and negotiations between the two families/households involved. Especially in preindustrial agrarian settings in which households were the primary unit of production as well as that of consumption, people's chances of marriage were determined not only by their individual characteristics but also by status of their household as well as changes in local socioeconomic conditions. In contrast, marriage in contemporary Japan is primarily and much more likely a matter of individual choice of men and women. Nevertheless, given Japan's cultural heritage of the patrilineal, patrilocal, and patriarchal stem family (Taeuber 1958: 100–104; Tsuya and Bumpass 2004), the probability of first marriage is likely influenced not only by demographic and socioeconomic characteristics of individual men and women but also by those of their families and households.

This study conducts two types of empirical analyses: a formal demographic analysis of the age patterns of first marriage, and a multivariate analysis of the factors of first marriage. Since the patterns and causal mechanisms of first marriage differ by gender, we conduct these analyses separately for men and women. In the following section, we explain in more detail the settings of and the data used by this study. We then examine and compare the age patterns of first marriage of men and women in the study villages in early modern Japan and in contemporary Japan. We next explain the models and measures used in our multivariate analyses. Finally, we comparatively examine, in the multivariate context, how socioeconomic and family factors influenced the likelihood of first marriage of men and women in early-modern agrarian communities and in contemporary Japan, simultaneously taking the effects of community and larger social contexts into account. The paper concludes with summary of findings and discussion of their implications.

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Settings and Data

Data on early modern Japan are drawn from the annual local population/household registers called "*ninbetsu-aratame-cho*" (NAC) covering the period from the early 18th to the late 19th century in three rural communities of Shimomoriya, Niita, and Hidenoyama, all of which belonged to the Nihonmatsu domain that governed during the Tokugawa era (1603–1868) the central part of present Fukushima prefecture (see Map 1).[1] Although these study villages were all primarily agricultural, depending mainly on rice farming supplemented by a number of dry crops (Nagata, Kurosu and Hayami 1998), Hidenoyama seems to have been much more urbanized and commercially oriented in its economy than the other two villages, because of its geographical proximity to the growing market town of Koriyama. Located only about 3 kilometers away from Koriyama, Hidenoyama became a sort of suburbia to the market town (Takahashi 2005: 17–20), and residents of the village likely had an easy access to non-agricultural employment opportunities in Koriyama.

In all three study villages, the NAC was enumerated annually at the beginning of the third lunar month. Surviving household registers in Shimomoriya cover the 154 years from 1716 to 1869 with only nine intermittent years missing. In Niita the surviving NAC registers cover the 151-year period from 1720 to 1870, during which there are only five years missing. In Hidenoyama the surviving NAC registers cover the 162 years from 1708 to 1870 with 36 years missing. Thus, although the proportion of missing years in Hidenoyama's registers is somewhat higher than those in the other two villages, there exist largely undisrupted local population registration records in the three study communities, spanning from the early 18th to late 19th century (1708–1870). Because the format and contents of the NAC registers are identical in all three villages, this study pools the records from them together.[2]

From the original NAC register records, we constructed a file for our analysis of first marriage in these villages, using a never-married person year recorded in the registers as the unit of observation. Focusing on never-married males age 10–49 and never-married females age 5–49, our analysis on the age patterns of first marriage in the three early-modern Japanese communities is based on 2,082 males age 10–49 and 1,771 females age 5–49 who were at risk of experiencing first marriage, marched with 1,049 recorded male first marriages and 1,082 female first marriages, respectively.[3] From these records, we constructed a flat file for our analysis of age patterns of first marriage

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[1] For specifics of the village of Shimomoriya, see Narimatsu (1985: 1–3). Narimatsu (1992: 4–6, 53–54) offers detailed explanations on the population and economy of the village of Niita. As for specifics of the community of Hidenoyama, see Shoji, Kobayashi and Yoda (1993: 485–486).

[2] Tsuya and Kurosu (2004) provide detailed explanations of features—including strengths and shortcomings—of the NAC registers of Shimomoriya and Niita.

[3] The youngest age at first marriage recorded in the NAC registers in the study communities was 6 for males and 3 for females, but such cases were extremely rare and seem to require a separate explanation. We therefore exclude these outliers from the analysis.

in early modern Japan, consisting of 27,426 never-married person years (14,024 never-married male years and 13,402 never-married female years).

Data used in our analysis of first marriage behavior in contemporary Japan are drawn from the National Survey on Family and Economic Conditions (NSFEC), a large-scale national survey conducted in 2000. Using a probability sample of Japanese men and women age 20–49 of all marital statuses, the survey collected nationally representative information on major life-course events including first marriage as well as socioeconomic and family/household characteristics of individual men and women.[4] Because one of the major objectives of the survey was to collect data on marriage and family formation, which are major demographic events likely taking place during young adult years, individuals age 20–39 were selected at twice the rate of those age 40–49.

Information was collected through self-administered questionnaires that were distributed to sampled individuals by field workers and then subsequently picked up. A total of 4,482 (2,102 male and 2,380 female) usable responses were obtained, a response rate of 64 percent. Weights were estimated to account for the oversampling of individuals age 20–39 as well as different response rates by age, sex and population size of the community of residence.[5] Among 2,451 ever-married respondents, their first marriages took place between 1968 and 2000. Thus, the data for our event-history analysis of the probability of first marriages in contemporary Japan covers the period from the late 1960s to 2000.

Age Patterns of First Marriage

We first look at the age pattern of first marriage by sex in the three preindustrial northeastern Japanese villages under study. The middle vertical panel of Table 1 shows the percentage never-married by age among males at age 10–49 and females at age 5–49 in the three study villages. We can see from the table the prevalence of early and universal marriage in these communities, and that it was especially the case for females. Around 78 percent of females were ever married (only 22 percent were never-married) at age 15–19 and almost all females were married by age 30. As for males, around 78 percent were ever-married at age 20–24 and roughly 90 percent experienced first marriage by age 30, although 5 percent of men remained never-married in their late 40s.

Existing evidence suggests that in early modern Japan the age patterns of first marriage differed greatly by region although there was a strong tendency toward universal marriage (Kurosu, Tsuya and Hamano 1999). In general, marriage tended to be early in the northeast while it was relatively late in the southwest, with the central being in the middle. The age patterns of first marriage among males and females in our

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[4] Details of the 2000 NSFEC survey can be found in Rindfuss *et al*. (2004).

[5] The NSFEC was based on stratified two-stage sampling, with the first stage on geographic primary sampling units (PSUs). At the second stage, Japan's basic residence registration (*jumin kihon daicho*) was used to draw a probability sample of individual men and women age 20–49. The registration covers the country's entire resident population in terms of current domicile and contains each individual's name, age, sex, and current address.

preindustrial northeastern study villages confirm these regional patterns, as they are characterized by very early and universal marriage with a large majority of men and women marrying by their mid-20s.

<Table 1 about here>

In contrast , the percentages never-married among Japanese men and women age 20–49 in 2000 shows the patterns of much later and less marriage. As shown in the right-side panel of Table 1, roughly 60 percent of women age 25–29 are never-married and roughly one-third of women remain single in their early 30s, although the percentage never-married decreases to mere 4 percent among women age 45–49. Among men, approximately 70 percent are never-married in their late 20s and, even among men age 35–39, nearly one-quarter remain never-married, with 8 percent remaining single at age 45–49.

We next examine and compare the timing of first marriage among those whose first marriages were inferred from the NAC registers in the three early-modern study villages, and also among the ever-married respondents of the 2000 NSFEC national survey. Table 2 shows the mean and quartiles of age at first marriage by sex in the early modern Japanese communities and in contemporary Japan. From the middle vertical panel of the table, we can see that marriage was indeed early in the three preindustrial northeastern villages, with the mean age of men and women at first marriage being 14.8 and 19.3, respectively. In contrast, the timing of marriage is much later in contemporary Japan for both sexes, with the mean age at first marriage for men and women being 27.0—almost 8 years higher than their early-modern counterparts—for men, and 24.5—nearly 10 years higher than their preindustrial counterparts—for women (see the right-side panel of Table 2).

<Table 2 about here>

However, we can see similarities between the early-modern northeastern communities and contemporary Japan. In both populations, first marriages, especially women's first marriages, concentrated on a narrow age band, with the range from the first to third quartile of female first marriages is only 3 years for the preindustrial northeastern Japanese villages, and 4 years for women in contemporary Japan, while the range is 5 years for men in both the early modern and contemporary Japanese populations.

Models and Measures of the Multivariate Analyses

(1) Models and dependent variables

To account for the factors associated with the probability of first marriage of men and women in the three early modern Japanese communities, this study uses a discrete-time event history analysis model (Yamaguchi 1991: 15–71) because the dependent variable of this multivariate analysis is a dichotomous variable measuring whether or not a never-married person experienced first marriage within one year from one NAC registration to the immediately succeeding registration.

Unlike historical Europe in which first marriages were clearly recorded as it was governed strictly by the Christian doctrine, marriages in early modern Japan were largely contextual, and the household registers in the three study villages—like those in other early-modern Japanese communities—did not record the dates of marriages. Consequently, the timing (year) of first marriage had to be inferred from an entry of a new household member between two consecutive registers and concomitant changes in relationships of household members.

Measurement of the year of first marriage is straightforward for individuals who were under constant observation from birth. However, a difficulty arises for those who had already been married when the NAC records began, or for those who first appeared in the registers sometime after birth. The likelihood of staying in one's native community throughout life course was especially low for women in the three study communities because a large proportion of them migrated upon marriage (Tsuya and Kurosu 2014). It is therefore unwise to limit the analysis to those whose entire life course we can observe, as doing so makes the data too small and selective. This study therefore uses a less conservative definition than the usual: if marriages were inferred for the first time for individuals who first appeared in the registers under age 50 with no spouse and no children, they are regarded as 'first' marriages.[6]

Our multivariate analysis of the factors of first marriage in early modern Japan is limited to males and females who themselves were household heads or had kinship ties to head of the household they resided in. In early modern northeastern rural communities including our study villages, households—especially wealthy ones with large landholding—often had a large number of coresident non-kin and servants. Those non-kin and servants tended to be much more mobile than those with kinship ties, often staying for a relatively short period of time (Nagata 2001; Tsuya and Kurosu 2010a). The meanings and effects of socioeconomic and family factors are likely different for non-kin and servants from members with kinship ties to household head. Our multivariate analysis of first marriage in the three early modern villages is therefore based on 1,249 kin males age 10–49 and 1,299 kin females age 5–49, with 693 recorded male first marriage and 711 recorded female first marriages, from which we constructed the data files consisting of 23,762 never-married person years (11,894 female years and 11,868 male years) of those who were household heads or had kinship ties to head.

For contemporary Japan, we use a Cox continuous-time proportional hazard model (Cox 1975), because the dependent variable is a duration (in years) that men and women spend as never-married, i.e., age at first marriage for those ever-married, and age at the time of the survey for those never-married.[7] Among 4,482 (2,102 male and

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[6] We decided to impose no age limit (other than age 50, the end of reproductive years) on those who first appeared in the registers sometime after birth. Such age limits would be arbitrary without any firm theoretical or empirical basis, and that would also introduce selectivity bias toward early age at marriage.

[7] For never-married persons, the event history analysis uses the duration (in years) of exposure to the risk of first marriage, i.e., age at the time of the survey, as the dependent variable.

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2,380 female) respondents, 2,604 individuals (1,114 males and 1,490 females) were ever-married. Of those ever-married, a year of first marriage was measured or identified for 2,528 persons, with 76 respondents (3%) whose information on year of first marriage missing.

The estimated coefficients of factors derived from the two types of event-history analysis models—a discrete-time model and a Cox continuous-time hazard model—are similar in form and comparable in interpretation (Allison 1984).

(2) Socioeconomic factors

To account for the causal mechanisms of first marriage, we construct three sets of comparable/equivalent covariates: socioeconomic factors, family factors, and social and economic contexts of community and society (see Table 3). Measurement of socioeconomic status in our early modern communities consists of two variables: household landholding and household relationship (of an index person). We use landholding (*mochidaka* in *koku*) of household in which men and women resided when they experienced first marriage because the three study villages were primarily agricultural. Household landholding indexes the expected yield (in *koku*) of land owned by household and, according to Hamano (2000), it is the most appropriate and most widely used indicator of socioeconomic status of households and their members in rural communities in early modern Japan.[8] Our model specifies household landholding as a continuous variable.

<Table 3 about here>

Our model also accounts for socioeconomic status of individual men and women (while never-married) in the early modern Japanese communities by using relationship to household head. In rural communities in the 18th and 19th century northeastern Japan, relationship of an individual to his/her household head was an important factor associated with the likelihood of first marriage because the position that each person occupied within the household influenced an access to household resources and also indexed his/her status within the family under the predominance of patrilineal, patrilocal and patriarchal stem family system (Tsuya and Kurosu 2004, 2014). The covariate is categorical, consisting of head, stem kin of head, non-stem kin of head, and unknown. Using stem kin of head (mainly children and grandchildren of head) as the reference category, three dummy variables are constructed.

In our event-history analysis model for contemporary Japan, socioeconomic status of men and women is measured by two widely used variables: education and employment. Education is, if not the most important, one of the most important determinants of socioeconomic status in contemporary developed societies, and existing evidence indicates that, though somewhat different between the sexes in its effect, education influences strongly the likelihood/timing of first marriage in contemporary Japan (e.g., Raymo 1998, 2003a; Tsuya 2006; Tsuya and Mason 1995). Education is

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[8] One *koku* is equivalent to approximately 5 bushels.

measured by a categorical variable, consisting of less than high school, high school, some college or equivalent, and four-year college or higher.[9] Using high school as the reference category, three dummy variables are constructed.

Our model for contemporary Japan also includes employment as another indicator of socioeconomic status. Temporary/part-time employment has been increasing rapidly among young men and women not only in Japan, but also in newly industrializing economies in Asia and also in many industrial societies in the West (International Labour Office 2011; Lee 2010; OECD 2002: 129–169). Studies found that obtaining full-time employment with job security and fringe benefits as his/her first job was associated positively with the likelihood of first marriage, especially male marriage, in contemporary Japan (Tsuya 2009a, 2012).[10] Employment is measured by a dichotomous time-dependent covariate, indicating whether or not an index person held full-time employment in the year before first marriage if he/she is ever-married, and in the year of the survey (in 2000) if he/she is never-married.

(3) Family factors

Our model also accounts for horizontal and vertical family relations by measuring sibling size and gender composition (horizontal family relations) and intergenerational coresidence (vertical family relations). The effects of siblings in the early modern Japanese villages are measured by a series of four dichotomous variables indicating whether or not there was least one: older brother, younger brother, older sister, and younger sister present in the household. Because the household registers in the study communities did not record the survival and other statuses of siblings who did not live with an index individual, we can only measure the effects of siblings present at the household.

For contemporary Japan, the effects of siblings are also measured by a series of four binary variables indicating whether or not an index person has at least one: older brother, younger brother, older sister, and younger sister at the time of the survey. Because the 2000 NSFEC survey did not collect data on living arrangements of siblings of an index person, we cannot measure whether or not siblings lived with an index person in the year before his/her first marriage.[11] Nevertheless, size and gender composition of siblings likely captures the effects of horizontal family relations.

To index the effects of vertical family relations, we use intergenerational

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[9] Some college or equivalent includes junior college, college of technology called "*kōtō-senmon-gakko*", and post-high-school vocational training school called "*senshū-gakko*".

[10] Studies also found that, like in Japan, in Western industrial societies declining marriage is caused, at least in part, by diminishing job security and career prospects associated with increasing temporary employment among young men and women (Oppenheimer 1994; Oppenheimer, Kalmijn and Lim 1997).

[11] The survey did not also collect information on marital statuses of siblings; we are therefore unable to differentiate siblings by their marital statuses.

coresidence. For the early modern Japanese villages under study, it is measured by a variable consisting of 4 categories—both parents present, only father present, only mother present, and no parents present—because the population registers recorded only those living in the household in which an index person lived. Using no parents present as the reference category, we construct three dummy variables. For contemporary Japan, we use a time-dependent dichotomous variable indicating whether or not an index person lived with his/her own parent(s) in the year before first marriage because the NSFEC survey collected data on history of coresidence with parents and, for the ever-married, also history of coresidence with parents-in-law.

(4) Social and economic contexts

In addition to socioeconomic status and family relations of men and women, our analysis also takes into account the effects of social and economic contexts of community as well as larger society. Our model for early modern Japanese communities use two indicators—village of residence and rice price in the local market—to measure the effects of local socioeconomic contexts. Compared to Shimomoriya and Niita that were both almost totally agricultural, Hidenoyama was more urbanized and likely had more commercially-oriented economy, owing to its geographical proximity to the market town of Koriyama. The timing of first marriage is therefore hypothesized to have been later in Hidenoyama than the other two study villages. Village of residence is a categorical variable indicating in which community among the three an index person lived at the beginning of the year of first marriage. With Niita as the reference, two dummy variables are constructed.

As an indicator of local socioeconomic conditions in the early modern study communities, we also use rice prices in the local market of Aizu, the domain neighboring the Nihonmatsu domain in which the three study villages were located.[12] Our model specifies it as logged raw price time-lagged by 3 years, because our earlier studies found that their local economic conditions were best measured by log of raw prices in the Aizu market (Tsuya and Kurosu 2000),[13] and that the probability of first marriage in the three study villages responded most significantly to prices time-lagged by three years (Tsuya and Kurosu 2005, 2006). This study therefore uses the log of raw rice price three years prior to current year to measure the effect of local economic conditions on the likelihood of first marriage.

For contemporary Japan, we use a dichotomous variable indicating whether or not the place of a respondent's upbringing (community in which an index person lived

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[12] Aizu domain was adjacent to Nihonmatsu domain, and the domain capital of Aizu was just 40 kilometers to the west of the domain capital of Nihonmatsu. Since the rice price series in Nihonmatsu are not available, we use rice prices in Aizu.

[13] Tsuya and Kurosu (2000) examined the effects of different rice price series—prices in the local market of Aizu and in the central market of Osaka—using different specifications including raw prices, detrended prices based on moving averages, and detrended pries using the Hodrick-Prescott filter. We found that fluctuations in agricultural output were best captured by raw prices, rather than detrended prices.

until age 12) was primarily urban to index socioeconomic conditions of the community in which he/she grew up.[14]

As a proxy to account for changes in larger social contexts, our multivariate model uses time period for our analysis of the early modern Japanese communities, and birth cohort of an index person when we analyze contemporary Japan. Looking at temporal changes in economic development, industrial transformations, and the government's policy contexts in the Nihonmatsu domain in which our early modern study villages were located and also in preindustrial northeastern Japan as a whole, we can discern the trends of social and economic changes during the 162-year period under consideration (1708–1870). Based on these trends, we specify time period into four sub-periods, consisting of 1708–1759, 1760–1799, 1800–1839, and 1840–1870.[15] Using the earliest sub-period (1708–1759) as the reference, three dummy variables are constructed.

To index larger social contexts in contemporary Japan, we use birth cohort, which is a year of birth of an index man/woman. Existing evidence suggests that, even after controlling for individual socioeconomic status and socioeconomic conditions of community of upbringing, the probability of first marriage in Japan began to decline significantly and almost linearly among men born in the early 1950s and afterwards, and among women born in the late 1950s and afterwards (Tsuya 2009b). Net of community of upbringing (being urban or not), this covariate is thought to index macro social structural changes including economic development, industrial transformations, and changing normative orientations of the society.

Finally, in our analysis of first marriage in the early modern northeastern villages, we also control for current age (age at the beginning of a never-married person year) of males and females because first marriage is to a large degree a function of age. We do not need to include age as a covariate in our multivariate analysis of contemporary Japan because, to measure the duration of exposure to risk of first marriage, the Cox proportional hazard model uses age as a built-in function of the baseline hazard.

Tables 4a and 4b present descriptive statistics (means and standard deviations) of all the covariates used in the two types of event-history analyses of the factors of first marriage in early modern and contemporary Japan, respectively.

<Tables 4a and 4b about here>

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[14] If a respondent's community of residence changed a multiple number of times until age 12, the survey asked to choose the place where he/she lived for a longest duration of time, and to indicate whether it was primarily urban or rural.

[15] For further details on reasons for dividing the 162-year period under study into 4 sub-periods, see Tsuya and Kurosu (2004).

Results of the Event-History Analyses of First Marriage

Using the socioeconomic, family, and contextual variables explained in the previous section, we estimate the effects of these factors on the probability of first marriage of men and women in early modern Japan and in contemporary Japan, using a discrete-time event history analysis model[16] and a Cox continuous-time proportional hazard model, respectively. Tables 5a and 5b present the estimated effects (risk ratios) of these covariates on the probability of first marriage for, respectively, never-married males age 10−49 and never-married females age 5−49 in the three preindustrial northeastern study villages, and for men and women age 20−49 in Japan in 2000. Risk ratios are exponentials of the estimated coefficients of the covariates. Risk ratio of 1.00 means that a covariate in question has no effect on the probability of first marriage. If the risk ratio is above 1.00, the covariate has a positive effect, while the effect is negative if the ratio is below 1.00.

(1) Socioeconomic factors

From the top panel of Table 5a, we can see that socioeconomic status of males and females influenced the probability of first marriage in our three early-modern study villages although different dimensions of socioeconomic status affected the likelihood of first marriage differently by gender. Household landholding significantly increased the likelihood of male first marriages, but the probability of female first marriages was unaffected. With a large majority of marriages in these villages being virilocal (i.e. a man bringing his bride into his parental household) under the predominance of patrilineal, patrilocal and patriarchal stem family system in early-modern northeastern Japan (Aruga 1943; Nakane 1967; Saito 1998), economic resources and financial security that landholding brought enhanced the likelihood of male first marriages. Landholding did not significantly influence the likelihood of female marriages precisely because a large majority of women in these villages married virilocally, either within the community or moving out of it upon marriage.

<Table 5a about here>

Relationships to household head affected the likelihood of first marriage among females but not among males in the three northeastern villages in early modern Japan. Compared to stem kin of head (daughters and granddaughters of head), females who were non-stem kin of head were much more likely to marry earlier and leave the household. These stem-kin members consisted mostly of head's sisters or sisters-in-law (especially younger sisters/sisters-in-law), nieces, and cousins. Under the predominance of the patrilineal, patrilineal and patriarchal stem family system, females who did not belong to the stem line of the family were likely pushed out of the household through marriage at an early age.

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[16] Because the data for the discrete-time event history analysis are constructed using a never-married person year as the unit of observation, an individual is likely to contribute more than one observation. This built-in interdependence of observations derived from a same individual can affect the estimates of standard errors. To correct the problem of inter-correlation, we estimate the model with robust standard errors based on Huber's formula (1967).

For contemporary Japan, we can see from the top panel of Table 5b that attainment of higher education significantly reduces the likelihood of first marriage for both sexes. Compared to those with high school education, persons with college education (education beyond high school) have a significantly lower likelihood of first marriage, and the negative effect of education is stronger among women, than among men.

<Table 5b about here>

Full-time employment— another indicator of socioeconomic status in contemporary Japan—greatly enhances the likelihood of male first marriages, but has little effect on that of female marriages. As shown in the second panel of Table 5b, the likelihood of first marriage among men who hold full-time employment (before first marriage) is almost twice (1.95 times) of that of men who do not. The normative predominance of patrilineal and patriarchal family system has, if not totally disappeared, weakened greatly in contemporary Japan, and marriage has become increasingly a matter of individual choice. Nevertheless, these results suggest economic resources and financial security associated with full-time employment remain important for men's first marriages but not for women's marriages.

(2) Family factors

Turning to family relations, size and gender composition of coresident siblings (horizontal family relations) influenced the likelihood of first marriage for both sexes in a similar manner in the preindustrial northeastern study communities under study (see the second panel of Table 5a). If a person had at least one younger sibling (of either sex) living with him/her, that person was much more likely to marry. Further, a female was less likely to marry if she lived with an older sister. Altogether, these results suggest that, in the context of the normative primacy of the stem family system in rural communities in preindustrial northeastern Japan, there likely was a strict hierarchy by birth order among siblings that significantly affected the time sequence of first marriage.

As for the effects of sibling size and gender composition in contemporary Japan, we can see from the second panel of Table 5b that having at least one older brother or younger sister significantly reduces the probability of men's first marriages while sibling has no effect on the likelihood of women's marriages. The negative effect of an older brother on male first marriage is, in a sense, as expected. However, the negative effect of a younger sister on men's first marriage is difficult to interpret. Further, none of these sibling variables have significant effects on female marriages. Altogether, we interpret these results to imply that the once strong normative orientation of the patrilineal and patriarchal stem family has, if not totally disappeared, been weakening in contemporary Japan, and that siblings size and gender composition do not strongly influence the likelihood of first marriage of men and women.

Turning to vertical family relations, as measured by coresidence with parents, we can see very different (almost contrasting) effects between early modern and contemporary Japan. As shown in the third panel of Table 5a, in early modern

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northeastern study communities, compared to males who had no parents living with them, males who had both parents present at the household had a significantly higher likelihood of first marriage, while intergenerational coresidence did not affect the likelihood of female first marriages. When we focus on (a small minority of) women who married uxorilocally (i.e. a woman bringing her groom into her parental household), however, presence of both parents significantly raised the likelihood of her first marriage (results not shown, see Tsuya and Kurosu 2006). Providing that a large majority of male marriages were virilocal in the context of the predominance of patrilineal and patrilocal stem family in preindustrial northeastern Japan, these findings imply that the presence of both parents likely served to facilitate their son's marriage by helping him find a wife (or by finding a wife for him). Since a large majority of females moved out of their parental home upon marriage, presence of parents did not affect female first marriages.

The estimated effects of intergenerational coresidence on the probability first marriage of contemporary Japanese men and women suggest that the nature and meaning of intergenerational relations in marriage decision-making may have changed almost totally from the past. As shown in the third panel of Table 5b, coresidence with parents (while never-married) greatly reduces the likelihood of first marriage for both men and women. The likelihood of first marriage of men and women living with parents is around one half or less (57 percent less for men and 50 percent less for women) of that of those who do not live with parents. Existing studies indicate that in contemporary Japan coresidence with parents among never-married young adults likely leads to delayed marriage and less marriage in large part because intergenerational coresidence tends to reduce the benefits of marriage, such as improvements in living standards and emotional security, perceived by never-married young men and women (Raymo 2003b; Raymo and Ono 2007; Tsuya, Mason and Bumpass 2004).

(3) Social and economic contexts

Socioeconomic context of community in which men and women lived while growing up or before first marriage affects the likelihood of first marriage both in early modern and contemporary Japan. As shown in the fourth panel of Table 5a, compared to those living in the village of Niita that was almost totally agrarian, never-married men and women living in the more urbanized community of Hidenoyama were much less likely to marry. Among men, the likelihood of first marriage in Hidenoyama was 67 percent less than that in Niita. For women, it was 77 percent less in Hidemonaya than in Niita. In contemporary Japan, men and women who grew up in an urban area are significantly less likely (12 percent less likely for men and 25 percent less likely for women) to marry than their counterparts with rural upbringing (see the fourth panel of Table 5b). Altogether, these results suggest that, net of socioeconomic and family/household characteristics of individual men and women, local socioeconomic contexts in which those individuals lived before marriage affect the probability/timing of first marriage both in early modern and contemporary Japan.

Furthermore, as indexed by log of local rice prices time-lagged by 3 years, variations in local economic conditions significantly affected the likelihood of first marriage of both men and women in the early-modern study villages in northeastern

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Japan. Local economic downturn, indicated by one-unit (one *ryo*) increase in local rice prices three years prior, reduced the probability of first marriage in current year by approximately 25 percent for both sexes.

Larger social context, measured in terms of time period in early modern Japan and by birth cohort in contemporary Japan, also affected the likelihood of first marriage of both sexes. As shown in the second panel from the bottom of Table 5a, the likelihood of male first marriage in the early-modern northeastern communities was significantly lower in the 19th century than in the 18th century. The likelihood of female first marriages declined significantly and as time passed with the decline in the 19th century being especially large. Having discouraged the development of proto-industries during the 18th century, the Nihonmatsu domain government in which the three study communities were located began to encourage locally specialized production of cash crops such as mulberry and lacquer trees (Nagata, Kurosu and Hayami 1998), resulting in the large-scale proto-industrialization in the domain, as seen in growth of silk textiles, sake brewing, and lacquer ware-making (Tsuya and Kurosu 2005, 2006). This proto-industrialization likely delayed the timing of first marriage of young men and women in our early-modern study communities.

To the extent that birth cohort indexes macro social structural changes such as economic growth, industrial transformations, and changing normative orientations, a larger social context also affects the probability of first marriage in contemporary Japan, and the magnitude and direction of the effect is similar between the sexes. As shown in the second panel from the bottom of Table 5b, as birth cohort becomes more recent, the likelihood of first marriage declines significantly and almost linearly for both sexes: a decline of 1.6 percent on average per birth cohort/year for men and a decline of 2.9 percent on average per birth cohort/year for women.

Summary and Discussion

Marriage in our early modern northeastern Japanese villages was early and universal, while men and women in contemporary Japan tend to marry much later and less. As indicated by the strong positive effect of men's household landholding in preindustrial rural Japanese communities and that of men's full-time employment in contemporary Japan, the likelihood of men's first marriages was and still is enhanced greatly by economic resources and financial security that landholding or men's full-time employment likely bring. This implies the persisting importance of economic security for marriage in both early modern and contemporary Japan.

In early modern northeastern Japanese villages women who were non-stem kin (sisters, sisters-in-law, nieces and cousins) of the head were much more likely to marry earlier than women who were stem kin (daughters and granddaughters) of the head. Under the predominance of patrilineal, patrilocal and patriarchal stem family in preindustrial northeastern Japan, non-stem kin women were more vulnerable and marginal members of the household, and they were likely pushed out of the household through early marriage.

In contemporary Japan educational attainment, especially college education

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reduced the likelihood of first marriage and the negative nuptiality effect was especially strong among women. Social and economic imperativeness associated with marriage (especially women's marriage) has been weakening and becoming increasingly a matter of choice of individual young adults in Japan in the recent decades. Under such contexts, college education likely indexes higher level of autonomy and less traditional gender role attitudes, resulting in a lower likelihood of first marriage.

Horizontal family relations, measured by sibling size and gender composition, influenced the likelihood of first marriage of men and women in preindustrial northeastern rural communities, and the effect was stronger and much more consistent than in contemporary Japan. In the early modern northeastern study villages the presence of younger siblings (of either sex) raised the probability of first marriage of an index person regardless his/her gender, and coresident older sister reduced the probability of female marriages. This suggests that under the prevalence of patrilineal and patrilocal stem family system in preindustrial northeastern Japan, there existed a strict hierarchy by birth order that defined the proper time sequence of first marriage among siblings. Residue of the traditional primacy of birth order (eldest son over younger son) can still be seen in the negative effect of an older brother on the likelihood of men's first marriages in contemporary Japan.

Vertical family relations, measured by coresidence with parents, have very different and almost contrasting effects on the probability of first marriage in early modern and contemporary Japan. In preindustrial northeastern villages men whose parents were both present were more likely to marry than men who had no parents present. Given the predominance of patrilineal and patrilocal stem family and a relatively small family size prevalent in these early-modern study villages (Tsuya and Kurosu 2010b), it was likely that many of never-married young men were inheriting sons, and having both parents present in the household clearly helped those sons find a spouse.

In contrast, coresidence with their parents greatly reduces the likelihood of first marriage of never-married men and women in contemporary Japan. Although parents are still important stake-holders in children's life in Japan today, the erosion of social and economic imperativeness of marriage has been making marriage a matter of individual choice. Material and emotional benefits offered by intergenerational coresidence, such as personal care and companionship given by parents, likely reduce the necessity and desires for marriage among never-married young men and women in contemporary Japan.

Socioeconomic conditions in the community in which men and women grew up and lived before marriage influenced the likelihood of first marriage of both sexes in early modern northeastern villages as well as in contemporary Japan. Men and women who grew up in an urban area were less likely to marry than their counterparts who grew up in a rural area in contemporary Japan. Compared to the almost totally agrarian villages of Niita and Shimomoriya, the likelihood of first marriage was much lower and later in Hidenoyama that was more urbanized. Local economic conditions, indexed by local rice prices, also affected the probability of first marriage in early modern northeastern villages, as short-term downturns in local economic conditions

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significantly lowered the likelihood of first marriage of both genders.

Larger regional/social context also affected the probability of first marriage of men and women both in early modern and contemporary Japan. The likelihood of first marriage of men and women in preindustrial northeastern villages became significantly lower in the 19th century during which proto-industrialization occurred and the rigid social stratification of Tokugawa Japan became increasingly slack. Likely reflecting changes in normative orientations toward less traditional directions and post-industrial transformations of economy, men and women born in more recent years are also less likely to marry in contemporary Japan.

Altogether, the results of our empirical analyses suggest that the determining mechanism of first marriage was and still is multi-dimensional both in early modern and contemporary Japan. Further, given large differences between early modern and contemporary Japan in the normative primacy of the patrilineal, patrilocal and patriarchal stem family, the effects of family-relational factors such as siblings and parents were very different, or sometimes even contrasting. Yet, our findings also suggest the importance of economic resources and financial security in facilitating men's first marriages both in early modern and contemporary Japan.

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Table 1. Percentage Never-married by Sex & Age: Males Age 10–49 and Females Age 5–19 in Three Northeastern Japanese Villages 1708–1870, and Men and Women Age 20–49 in Japan 2000

Age	Early modern Japan[a]		Contemporary Japan[b]	
	Male	Female	Male	Female
5– 9	--	98.8	--	--
10–14	97.5	83.5	--	--
15–19	66.8	22.3	--	--
20–24	22.2	5.2	94.1	91.0
25–29	11.6	2.5	69.2	55.9
30–34	7.8	1.4	42.1	27.8
35–39	6.4	0.6	24.7	13.4
40–44	5.8	0.5	10.1	8.3
45–49	5.0	0.7	8.2	3.9
(Base N)	(37,598)	(42.638)	(2,094)	(2,376)

Notes: a—Percentages and the base numbers for the three early modern villages are based on person years recorded in the local population registers, excluding those without kinship to household head.

b—Percentages for contemporary Japan are weighted; the base numbers are individuals surveyed.

Table 2. The Mean and Quartiles of Age at First Marriage by Sex: Ever-Married Males Age 10–49 and Ever-married Females Age 5–19 in Three Northeastern Japanese Villages 1708–1870, and Ever-married Men and Women Age 20–49 in Japan 2000

	Early modern Japan		Contemporary Japan[a]	
	Male	Female	Male	Female
Mean	19.3	14.8	27.0	24.5
S.D.	5.7	4.1	4.1	3.4
(N)	(1,049)	(1,082)	(1,081)	(1,447)
Quartiles:				
First	16.0	12.0	24.0	22.0
Second	18.0	14.0	26.0	24.0
Third	21.0	15.0	29.0	26.0
Range (1st-3rd)	5.0	3.0	5.0	4.0

Note: a–Means, standard deviations, and quartiles for contemporary Japan are weighted.

Table 3. Socioeconomic, Household and Family, and Contextual Covariates Used in the Comparative Analysis of the Probability of First Marriage of Men and Women in Three Northeastern Japanese Villages in 1708–1870 and Japan in 1968–2000

	Early modern Japan	Contemporary Japan
Socioeconomic factors		
1) Socioeconomic status	Household landholding Relationship to household head	Education Employment[a]
Household/family factors		

2) Sib size and gender composition	Presence of at least one:
	    older brother
	    older sister
	    younger brother
	    younger sister
		Having at least one:
		    older brother
		    younger brother
		    older sister
		    younger sister

3) Intergenerational coresidence	Presence of:
	    both parents
	    only father
	    only mother
	    no parents
		Coresidence with parents[a]

Social and economic contexts of community & society		
4) Local socioeconomic conditions	Village of residence Rice price in the local market	Place of upbringing
5) Larger social context	Time period	Birth cohort
Control	Current age	--[b]

Notes: a—Employment and coresidence are both measured as of the year before first marriage for those who are ever married; for those never-married, they are measured as of the year of the survey.

　　b—Age is not included as a covariate in the analysis of first marriage of contemporary Japanese men and women because age is a built-in function of the baseline hazard of a Cox continuous-time proportional hazard model.

Table 4a. Means and Standard Deviations of the Covariates Used by the Discrete-Time
Event History Analyses of the Probability of First Marriage by Sex:
Never-married Males Age 10–49 and Never-married Females Age 5–49 in the
Villages of Shimomoriya, Niita, and Hidenoyama 1708–1870

Covariates	Males		Females	
	Mean	S.D.	Mean	S.D.
Socioeconomic status				
Household landholding (in *koku*)	10.763	7.915	12.338	8.263
Relationship to household head				
Head	0.130	0.337	0.013	0.113
Stem kin of head†	0.775	--	0.895	--
Non-stem kin of head	0.094	0.292	0.088	0.284
Unknown	0.001	0.036	0.004	0.060
Sib size and gender composition				
Presence of at least one:				
Older brother	0.215	0.411	0.268	0.443
Younger brother	0.249	0.432	0.298	0.458
Older sister	0.095	0.294	0.164	0.371
Younger sister	0.225	0.418	0.201	0.401
Intergenerational coresidence				
Presence of:				
Both parents	0.566	0.496	0.716	0.451
Only father	0.120	0.325	0.094	0.291
Only mother	0.161	0.368	0.126	0.332
No parents†	0.154	--	0.064	--
Social & economic contexts				
Village of residence:				
Shimomoriya	0.353	0.478	0.418	0.493
Niita†	0.588	--	0.520	--
Hidenoyama	0.059	0.235	0.062	0.241
Logged rice price time-lagged by 3 yrs	-0.280	0.422	-0.280	0.433
Time period:				
1708-1759†	0.242	--	0.220	--
1760-1799	0.304	0.460	0.280	0.449
1800-1839	0.294	0.456	0.321	0.467
1840-1870	0.159	0.366	0.179	0.384

Control				
Current age:				
Under age 14	--	--	0.809	0.393
14	--	--	0.055	0.228
15†	--	--	0.041	--
16	--	--	0.023	0.149
17–19	--	--	0.033	0.179
20 or above	--	--	0.039	0.193
Under age 16	0.562	0.496	--	--
16	0.072	0.259	--	--
17	0.061	0.239	--	--
18†	0.048	--	--	--
19	0.035	0.183	--	--
20–24	0.089	0.285	--	--
25 or above	0.133	0.339	--	--

Notes: The analysis for the early modern Japanese villages excludes persons who did not have kin relations to household head (i.e. exclude those who were non-kin or servants). A dagger sign (†) indicates the reference category.

Table 4b. Means and Standard Deviations of the Covariates Used by the Cox
Proportional Hazard Model Analysis of the Probability of First Marriage by
Sex: Japanese Men and Women Age 20–49 in 2000

Covariates	Men		Women	
	Mean	S.D.	Mean	S.D.
Socioeconomic status				
Educational attainment:				
Less than high school	0.080	0.272	0.046	0.208
High school†	0.468	--	0.450	--
Some college[a]	0.151	0.358	0.375	0.484
4-year college or higher	0.301	0.459	0.129	0.336
Full-time employment before marriage[b]	0.826	0.379	0.697	0.459
Sib size & gender composition				
Having at least one:				
Older brother	0.330	0.470	0.333	0.471
Younger brother	0.323	0.468	0.324	0.468
Older sister	0.331	0.471	0.338	0.473
Younger sister	0.304	0.460	0.297	0.457
Intergenerational coresidence				
Coresidence with parents before marriage[c]	0.580	0.494	0.546	0.498
Social & economic contexts				
Place of upbringing (urban=1)[d]	0.667	0.471	0.636	0.481
Birth cohort	1967.019	8.087	1966.852	8.197

Notes: A dagger sign (†) indicates the reference category.

    a—Includes junior college, college of technology (*kōsen*), and post high-school vocational training school (*senshū gakko*).

    b—Held full-time employment or not in the year preceding the year of first marriage for those ever-married, and in the year of the survey (2000) for those never-married.

    c—Lived with parents or not in the year preceding the year of first marriage for those ever-married, and in the year of the survey (2000) for those never-married.

    d—Place lived until graduation from elementary school being primarily rural.

Table 5a. The Estimated Effects (Risk Ratios) of the Socioeconomic, Family, and
　　　　 Contextual Factors on the Probability of First Marriage: Never-married Males
　　　　 Age 10–49 and Never-married Females Age 5–49 in the Villages of Niita,
　　　　 Shimomoriya and Hidenoyama 1708–1870

Covariates	Males		Females	
	Risk ratio	p-value	Risk ratio	p-value
Socioeconomic status				
Household landholding (in *koku*)	1.030**	0.000	0.999	0.867
Relationship to household head:				
Head	1.029	0.858	0.619	0.321
Stem kin of head	1.000	--	1.000	--
Non-stem kin of head	1.134	0.437	1.589**	0.002
Unknown	0.718	0.787	0.462	0.267
Sib size & gender composition				
Presence of at least one:				
Older brother	0.926	0.483	1.088	0.346
Younger brother	1.255*	0.020	1.315**	0.007
Older sister	0.834	0.318	0.715*	0.010
Younger sister	1.302**	0.008	1.482**	0.000
Intergenerational coresidence				
Presence of:				
Both parents	1.376*	0.027	0.979	0.911
Only father	1.044	0.801	0.903	0.623
Only mother	1.112	0.479	1.140	0.508
No parents†	1.000	--	1.000	--
Social & economic contexts				
Village of residence:				
Shimomoriya	1.352**	0.001	0.987	0.882
Niita†	1.000	--	1.000	--
Hidenoyama	0.327**	0.000	0.228**	0.000
Logged raw rice price lagged by 3 years	0.749*	0.029	0.746*	0.027
Time period:				
1708–1759†	1.000	--	1.000	--
1760–1799	0.844	0.125	0.426**	0.000
1800–1839	0.652**	0.000	0.291**	0.000
1840–1870	0.678**	0.005	0.245**	0.000
Constant	0.172**	0.000	1.256	0.329
Log-likelihood	-2097.38		-1986.81	
Chi-square (d.f.)	553.78 (23)		884.94 (22)	
Prob > chi-square	0.0000		0.0000	
Person years at risk	8,548		8,689	
Number of events	693		711	
Number of individuals	1,249		1,299	

** Significant at 0.01 level.　　* Significant at 0.05 level.　　 # Significant at 0.10 level.

Notes: A dagger sign (†) indicates the reference category. Estimated standard errors take into
account the effects of contribution of more than one observation from same individuals by using
Huber's formula. The analysis above excludes those without kinship to household head, and
controls for age of index persons.

Table 5b. Estimated Effects (Risk Ratios) of the Socioeconomic, Household/Family, and Contextual Factors on the Probability of First Marriage: Japanese Men and Women Age 20–49 in 2000

Covariates	Men		Women	
	Risk ratio	p-value	Risk ratio	p-value
Socioeconomic status				
Educational attainment:				
Less than high school	1.196	0.110	1.098	0.454
High school†	1.000	--	1.000	--
Some college[a]	0.831#	0.064	0.702**	0.000
4-year college or higher	0.845*	0.017	0.498**	0.000
Full-time employment before marriage[b]	1.953**	0.000	0.945	0.354
Sib size & gender composition				
Having at least one:				
Older brother	0.845*	0.017	0.957	0.467
Younger brother	1.051	0.487	0.976	0.682
Older sister	1.105	0.154	0.962	0.509
Younger sister	0.834*	0.010	1.036	0.561
Intergenerational coresidence				
Coresidence with parents before marriage[c]	0.428**	0.000	0.496**	0.000
Social & economic contexts				
Urban upbringing[d]	0.881*	0.049	0.754**	0.000
Birth cohort	0.984**	0.001	0.971**	0.000
Log likelihood	-7132.68		-9756.40	
Chi-square (d.f.)	290.97 (11)		477.90 (11)	
Prob > chi-square	0.0000		0.0000	
Person years at risk	55,116		57,803	
Number of events	1,068		1,426	
Number of individuals	2,025		2,282	

** Significant at 0.01 level.   * Significant at 0.05 level.   # Significant at 0.10 level.

Notes: A dagger sign (†) indicates the reference category.

   a—Includes junior college, college of technology (*kōsen*), and post high-school vocational training school (*senshū gakko*).

   b—Held full-time employment or not in the year preceding the year of first marriage for those ever-married, and in the year of the survey (2000) for those never-married.

   c—Lived with parents or not in the year preceding the year of first marriage for those ever-married, and in the year of the survey (2000) for those never-married.

   d—Place lived until graduation from elementary school being primarily urban.

Map 1. Northeastern Japan and the Villages of Niita, Shimomoriya, and Hidenoyama