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Grandparental Effects on Reproductive Strategizing:
Nôbi Villagers in Early Modern Japan

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Abstract

This paper analyzes data from the household registers for two villages in the Nôbi region of central Japan in the late Edo period (1717-1869) to assess how grandparents may have affected reproductive strategizing in stem families. The particulars of the family system fostered a culturally favored set of reproductive goals, in particular, a daughter as eldest child, followed by a son (and heir), coupled with gender alternation in subsequent reproduction and overall gender balance. This reproductive strategy was generally followed during the stem phase of the domestic cycle, when one or both grandparents were present, especially when the family head was in the senior generation. By contrast, a son-first strategy was favored when childbearing began in the conjugal phase of the cycle. This suggests grandparental influence on the junior couple's reproductive decisions in favor of the cultural ideal. I find that the senior couple's decision to marry the heir early or late strongly affects the reproductive strategies followed by him after marriage. I show that when a grandmother is present at the onset of childbearing, especially if she is relatively young, the junior couple ends up with more offspring on average. A controlled analysis of infanticiding behavior is interpreted in terms of conjugal power and coalition formation. It appears that a grandmother gets her way only when she and her son gang up on the daughter-in-law, but such a coalition is likely only when her son dominates the conjugal relationship (which in turn reflects the grandmother's success in binding the son tightly to her emotionally and in delaying his marriage). Otherwise, the grandmother may be shut out from reproductive decision-making by the solidary conjugal coalition.

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1. Introduction

This paper asks how the presence of one or both grandparents in premodern Japanese peasant families might affect reproductive strategizing. It is easy enough to show that strategic reproductive behavior is distinctive when grandparents are present, but rather more difficult to infer the extent to which the senior generation actually participated in reproductive decisions.

In accordance with family systems theory (Skinner 1997; see also Harrell 1997), I hold that reproductive goals are shaped by family system norms. In order to focus meaningfully on grandparental effects, I must first describe the family system that obtained in the communities under analysis and outline the dynamics of reproductive strategizing within families.

2. Stem Family Systems

With respect to the sequence of co-residential arrangements, often referred to as the family cycle or domestic cycle (Note 1), we may distinguish three broad classes of family systems: conjugal, stem, and joint. It is characteristic of conjugal family systems that family formation is equated with marriage, and family extinction with the death of the married partners. Since families do not persist beyond the lives of those who found them, they are not corporations, and the domestic cycle is a rather simple transformation of the life courses of its members. By contrast, in stem and joint family systems a spouse is brought into the family for at least one of the offspring in each generation. It follows directly that in such systems households are potentially corporate -- that is, they may persist indefinitely irrespective of the life spans of particular members -- and that at least a portion of the domestic cycle will be characterized by a family structure comprising two or more conjugal units. Within the more inclusive category of potentially corporate family systems, stem family systems are distinctive in that a spouse is brought in for only one of the offspring in each generation. Succession is to the child who was married within the household or to the married couple, and inheritance, which is unequal, favors the single successor/heir. In the classic stem family systems of Western Europe and Japan, impartible inheritance served to maintain farms/estates intact from one generation to the next.

Another defining feature of classic stem family systems is the alternation between a conjugal phase and a stem phase in which the junior and senior conjugal units co-reside. Let us be clear about our terms. The three elements of an intact conjugal unit are, of course, husband/father, wife/mother, and child(ren), and, in our usage, the analyst counts as a conjugal unit (CU) any co-residing two of these three elements.

Thus, a childless couple, a mother and her children, and a father and his children all count as CUs. With this crucial point clarified, the two family structures of concern here may be defined as follows. A conjugal family (Note 2) contains one and only one CU. A stem family contains two or more CUs, but with no more than one per generation (Note 3). In stem family systems, bringing in a spouse for the single heir transforms a conjugal family into a stem family, and the death of both members of the senior couple transforms a stem family into a conjugal family. Thus, the normal course of the domestic cycle entails an alternation between stem and conjugal structures and, at any point in time, yields both conjugal and stem families on the ground (see Figure 1).

The frequency of stem and conjugal families — or, to rephrase, the relative duration of the stem and conjugal phases of the domestic cycle — is a simple function of demographic rates. A rise in age at marriage delays the transition from the conjugal to the stem phase of the domestic cycle, and a rise in the mortality of mature adults accelerates the transition from the stem to the conjugal phase. As Berkner (1972) has argued with admirable clarity with respect to Europe, under premodern demographic conditions stem-family systems are unlikely to produce a majority of stem families at any point in time. In bad times the proportion stem may be very small indeed; in the wake of the Tempô Famine (1830s) in Japan, for instance, the proportion of families in the stem phase fell to one-sixth in one of the Nôbi-region villages we are analyzing.

With respect to gender bias, stem family systems contrast sharply with joint family systems in that kinship is cognatic or bilateral and unilineal kin groups are normally absent. These structural features alone greatly restrict the scope for gender bias in comparison with joint family systems. Whether in Western Europe, Southeast Asia, or Japan, the kinship terminologies associated with stem family systems group together relatives at the same genealogical distance without regard to patrilaterality or matrilaterality. In the absence of patrilineages or matrilineages, the scope of unilineality is limited to the ongoing corporate family itself. And, in fact, the gender bias of any stem family system is expressed with neat consistency in terms of marital residence and the lineality of the family stem. If the preferred sex of the single heir is female, then marital residence is uxorilocal (whereby the groom moves on marriage to the bride's household) and the family stem is matrilineal. Systems of this kind obtain in particular areas of both mainland and insular Southeast Asia. If the preferred sex of the single heir is male, then marital residence is virilocal and the family stem is patrilineal. Such systems were widespread in early modern Western Europe and Tokugawa Japan. If the normative preference is indifferent as to sex (taking the form, for instance, of primogeniture or ultimogeniture regardless of gender), then marital residence is ambilocal and the family stem is ambilineal. Gender-neutral heirship was the norm in local areas of Western Europe, Southeast Asia, and Japan (Arrizabalaga 1994; Freeman 1958; Suenari 1972).

Family Type

Conjugal

Intact stem

GM-only stem

Conjugal
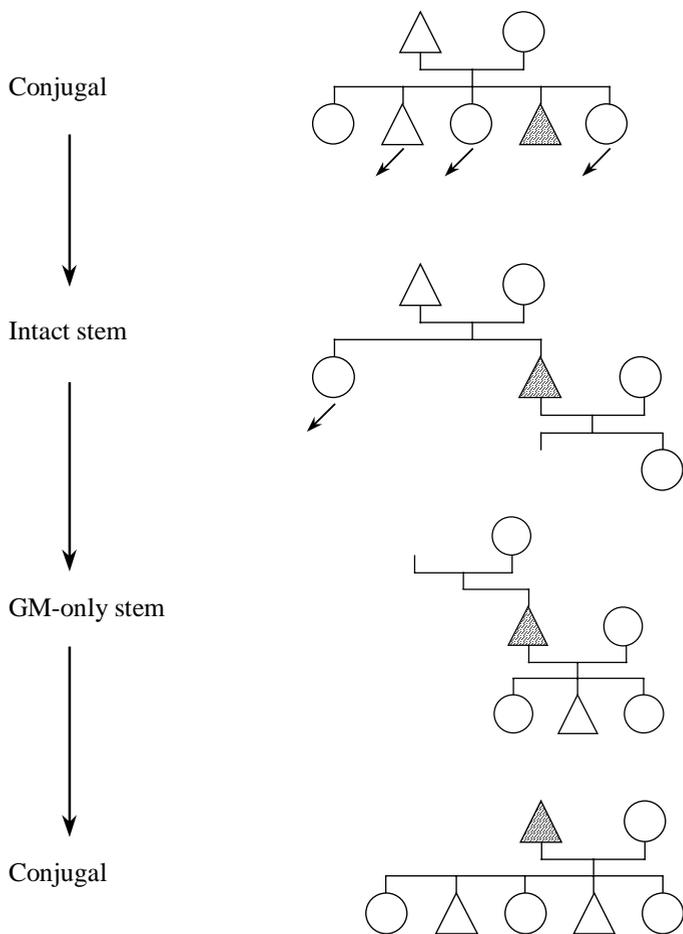
Figure 1: *The Japanese domestic cycle (stylized): Patrilineal stem family system*

Note: Because husbands are on average about eight years older than their wives and age-specific mortality of seniors is higher for men than for women, the usual progression from intact stem to conjugal is via GM-only stem, as shown here. Note that in our analysis this intermediate type is considered a truncated stem family rather than an augmented conjugal family.

How might we expect these generic features of stem family systems to impact reproductive behavior? In general, parents in stem family systems desire relatively few surviving children, and the minimal acceptable set is typically three children: the heir and a spare, plus a third of the opposite sex who will marry another heir in a nearby family. Too many non-heirs are a drain on the estate. The relatively relaxed gender system entails considerable autonomy for both women and men and the possibility that either may seek non-domestic employment, so that neither sex is strongly favored over the other. The lineality of the stem will, of course, mean that parents are likely to aim for two offspring of the favored sex – two girls in the case of matrilineal stem systems, and two boys in the case of patrilineal stem systems, but in general parents prefer balanced offspring sets. Given any significant gender division of labor, gender balance in the family as a whole is more important in stem systems than in joint family systems because families are small, entailing fewer conjugal units and thus fewer adults at any point in time on average. In stem family systems, any given family normally has only one working adult of each sex as offspring are maturing, which puts a premium on gender balance and, indeed, gender alternation of offspring. In comparison with joint family systems, child-care needs are more salient and hence more likely to affect reproductive decisions. Let's turn now to our case study of villagers in premodern Japan.

3. The Stem Family System of Nôbi Villagers

We present here preliminary findings from a project analyzing family demography in eight villages situated in a compact and homogeneous area near the castle town of Ôgaki in central Japan. For each of these villages there survives a long run of annual household registers that provide detailed, accurate records of both family and demographic processes (for details see Cornell and Hayami 1986). This paper is based on data for only two of the eight villages, Nishijo (Hayami 1980, 1985, 1988) and Asakusanaka (Smith 1977), situated on adjacent polders in the delta of the three major rivers that traverse the Nôbi Plain. This area, one of sparsely populated fens at the beginning of the Tokugawa era (1600-1868), was reclaimed in the seventeenth century and, during the eighteenth, transformed through massive water-control projects into productive paddy fields on which cotton, rapeseed, and other cash crops were also cultivated. The database is a reconstructed household-by-household record of life-cycle events that covers uninterrupted periods of 97 years for Nishijo and 114 years for Asakusanaka (Note 4). In this analysis of reproductive behavior, the sample consists of 360 couples for whom the span of years from marriage to the end of the childbearing period is completely covered by the registers.

The family system of this area was characterized by male primogeniture, so that parents strongly desired at least one surviving son. But this concern was muted by the cultural acceptability of, and widespread recourse to adoption and uxorilocal marriage when no biological son survived. Families with more than two surviving sons were pleased to adopt out one to be the heir in another *ie* (corporate household). Bringing in a son-in-law for the eldest daughter was unexceptional practice, despite a degree of social stigma experienced by the *mukoyôshi* or married-in son-in-law. In formal terms the sex of the single heir was irrelevant. That is, the rights and duties extended by the natal family to the family of a son who married out as an adopted husband were the same as those extended to the family of a daughter who married out as a bride (Brown 1988).

Non-heirs normally left their natal household prior to or shortly after the marriage of the heir. Some entered other households as spouses of the heir, and many left the village unmarried to serve as apprentices or servants in nearby villages and towns or to migrate to one of the larger cities. Occasionally the heir's younger son was permitted to marry in the village and establish a new corporate household. Provision for these cadet or *bunke* households was a special feature of the Japanese family system. A cadet household was set up with the blessing of the *honke* or main household, and its establishment usually entailed the grant of a small portion of the *honke*'s land. The head of the *ie* was naturally reluctant to jeopardize its continuity by diverting any sizable portion of its corporate holdings. Thus, cadet households were established more often by wealthy than by poor *ie*. That so many *bunke* were in fact established — they account for about one-fifth of all household-years in our villages — and that some were branches of families with only modest landholdings suggests that, in a cultural setting in which the cadet household was a fully institutionalized possibility, parents found it difficult to resist the demands of a younger son with whom close emotional bounds had developed. This, then, is one reason why prudent parents were eager to limit the number of sons in their offspring set.

In this family system the gender division of labor was fairly rigid. Farm households could not function properly without at least one adult member of each sex, and they functioned best when there was a balance in the gender of adult workers. Since this feature looms as an important one in parental strategizing, we provide a brief ethnographic summary.

It was, of course, virtually universal that child care, food preparation, and the manufacture and care of clothing were all women's work. In addition, women normally managed the household's consumption economy and assumed responsibility for establishing and maintaining relations with kinsmen on both sides (Wakamori 1964:98). In the cultivation of rice, the principal crop in these villages, men were responsible for preparing the paddy fields (including plowing, fertilizing, and irrigation) and for

carrying the bundles of rice seedlings to the paddy fields, but the critical and meticulous tasks of transplanting and weeding were women's work (Kumatani 1970:68; Wakamori 1964:72). Nightwork was common throughout the year, and here, too, chores were strictly gender-linked. In the early fall, men worked at husking rice, women at grinding flour. In the late fall and winter, women spun and men made items of straw and fiber: rope, mats, sacks, sandals, and straw raincoats. Men continued these activities into the spring, while women turned to dyeing, weaving, and sewing (Sakurada 1974:223-24; Andô 1975:215).

Unmarried adolescents in the household performed chores according to gender, assisting and working with the appropriate parent or grandparent. Girls began to learn spinning around age 7 and weaving around age 12, and adult levels of output (e.g., spinning ten *kin* of cotton thread in a three-hour evening) were expected by age 16. Boys began nightwork and field labor at around age 12 and by late adolescence were expected to attain adult levels of productivity (e.g., husking one sack of rice in half a day). Adolescents formed same-gender cooperative work groups (*yui*) that performed the same seasonal tasks in turn for each member's household (Sakurada 1974:224; Wakamori 1964:72). Such groups of unmarried girls were particularly welcomed for transplanting and weeding paddy fields. Households that could not afford to hire servants were reluctant to lose the services of cooperative groups to which their daughters belonged – doubtless one of the reasons why young women in poor families married relatively late (Kumatani 1970:289).

One is left with the impression that throughout the agricultural year both men's work and women's work were essential to the household's well-being, and that necessary labor inputs in the women's sphere were at least as great as those in the men's sphere. The household's need for adult labor of both sexes is apparent from the haste with which marriage was arranged on the premature death of one parent in a conjugal family. In Table 1, which shows data for households with a stem-family structure after the birth of the first child (grandchild), we see in the upper table that most male heirs whose mothers were deceased had been married relatively early – reflecting the urgent need to bring a woman into the household. The lower table indicates that, when the erstwhile grandfather was deceased in families whose offspring included a marriageable daughter but no son (or no grown son), a son-in-law was quickly brought in for the eldest daughter. The tables also show that marriage was delayed when it would "disrupt" the gender balance of a widowed mother and her adult son or a widowed father and his adult daughter. (We may also suspect that a widow would like to keep her son for herself as long as possible, just as a widower might want to put off the day when a son-on-law would have to be brought in for his daughter.)

4. Reproductive strategizing

Our analysis indicates that these villagers were ardent strategizers, using every means possible to shape the size and configuration of their offspring sets. The means at their disposal were contraception, abortion, infanticide and adoption. We have no way to get at the incidence or effectiveness of contraceptive efforts, and we have not yet analyzed patterns of adoption, but we can shed light on abortion and infanticide. Evidence from the Tokugawa period is abundant that both infanticide and abortion were commonplace throughout Japan (Taeuber 1958:21-32; Chiba and Ôtsu 1983; NNS:162-69). Many of the reasons given imply objectives that could be achieved by either means, namely, to terminate illegitimate pregnancies, to space out births in the interests of the mother's health and the quality of child care, to match offspring-set size to household resources, and to annul pregnancies of the senior couple in a stem family after the junior couple have begun childbearing. Although these various objectives could be achieved by abortion as well as infanticide, the latter appears to have been favored. The very term for infanticide – *mabiki*, "thinning"– points to its use in spacing out offspring and limiting their number. The chief apparent reason for preferring infanticide to abortion as a means of annulling pregnancies is that it was less harmful to the mother (NSS:171). A common abortifacient was a mercurial compound that almost certainly had harmful side effects. A technique favored by midwives after the mid-seventeenth century was to insert a stick-like object into the head of the uterus (Hanley and Yamamura 1977:233-34). Not only was infanticide less dangerous to the mother, it was also simpler in its technical requirements and, as Smith (1977:151) has argued, "actually more efficient in controlling fertility owing to the much longer period of sterility associated with a full-term pregnancy."

Other objectives of family planners could be met only by infanticide (or by subsequent adoption out), for they required selection on the basis of observable characteristics of the live infant(s). Literature and lore are explicit about twins. They were an unnatural abomination and one of them had to be killed. The sources agree that the choice was made in terms of sex preference, or if same sex, the relative health the infants (Kuzutani 1977:227; NSS:161). Weak, sickly, and deformed infants appear to have been routinely killed (Muraoka 1972:227; NSS:160). Selection according to sex was, of course, possible only through infanticide. A major advantage of infanticide vis-à-vis abortion, then, was that it could be used to shape the sex configuration of the offspring set as well as its size and spacing (Note 5).

Family system norms lead us to expect that two salient goals of reproductive strategizing in these villages would be gender balance and gender alternation. Table 2, which summarizes data for the two villages combined, documents pervasive intervention to shape offspring sets to these ends. The top panel contrasts sex ratios of

registered births when existing offspring (two or more) are all girls as against all boys. The number of missing boys is about the same as the number of missing girls. In the middle panel, I have grouped cases where most but not all existing offspring are of one sex and the youngest previous surviving child is of the same sex; in this situation, then, parents whose next registered birth is of the opposite sex are achieving both sex alternation and improved balance. Here the sex ratios are still more extreme, but we also see a bit of male bias: interventions to end a string of two or more girls are more frequent than interventions to end a string of two or more boys.

Table 1: *Age at marriage of the heir, by type of stem family and by configuration of the grandparental generation.* Pooled data for two Nôbi villages, 1717-1869.*

All virilocally formed stem households

	Husband's age at marriage						
	-26		27-29		30+		
	No.	%	No.	%	No.	%	
Father's Father only	24	65	7	19	6	16	37
Both Grandparents	37	49	19	24	23	29	79
Father's Mother only	32	39	22	27	28	34	82
	93		48		57		198

All uxorilocally formed stem households

	Wife's age at marriage			
	- 18	19+		
		No.	%	
Mother's Father only	1	5	83	6
Both Grandparents	6	5	45	11
Mother's Mother only	8	5	38	13
	15	15		30

Note:
*Grandparental configuration at the time of the heir's first birth.

Of particular interest are the cases where the two objectives are countervailing. The bottom panel contrasts families with male-heavy offspring sets where the youngest child is female with families whose existing offspring are mostly female but with a male youngest child. It would appear that, when the objectives of gender balance and gender alternation conflict, parents are likely to accept what they are given, and in any case that parents who go for balance are roughly matched in number by those who go for alternation. The apparent (though statistically insignificant) sex ratio difference in the mirror-image categories of births might be interpreted as a soupçon of strategic pro-male bias. When existing offspring are female-heavy a few parents appear to pursue alternation (a son), but when existing offspring are male-heavy parents find a boy or a girl equally acceptable. Still, overall, the male bias is strikingly weak. Despite the ostensible rule of male primogeniture, then, we see that in these villages male infanticide is used almost as frequently as female infanticide to approximate gender balance and alternation.

Perhaps the most surprising finding of this research is that a sizable proportion of all couples, between one-quarter and one-third, had recourse to infanticide at first birth. The very possibility that a first-born child might be "returned," as the euphemism had it, has seemed remote to analysts of Tokugawa demographic history. A sourcebook on Japanese folk customs (NSS:162) tells us that in the Kantô region "parents considered three children as the limit, and the midwife took care of the rest at the time of birth." In her classic study of Japanese population Irene Taeuber (1958:31) concludes: "All the observations of the late Tokugawa and the early Meiji eras indicate that the eldest son was subject to no hazard of willed death; that furthermore, the first two or three children were relatively secure." Thus, it has seemed probable that infanticide and abortion were being used, as contraception so often is in the modern Western world, only to stop childbearing after the couple's size objectives had been attained. Overall sex ratios of first births in most Japanese populations offer no clue that sex-selective infanticide might have been practiced. In our combined sample of two villages, for instance, the percent male at first birth is 51.8 (a sex ratio of 107), well within the normal range for human populations. Thomas C. Smith (1977:65) concluded that "there seems to have been no general sex preference for the first two births."

My analysis suggests otherwise. Sex ratios of first registered children appear normal for the simple reason that couples who killed female infants were roughly balanced in number by other couples who killed male infants. The important question of which couples did which is addressed below. But first, we must ask why, in a population where male primogeniture was customary, would couples deliberately kill first-born males?

Table 2:   *Sex of the next registered birth by gender composition of existing offspring. Summary data for two Nôbi villages 1717-1869.*

1: When existing offspring (2 or more) are all girls as against all boys:

	Next registered birth		
Existing offspring	M	F	Sex ratio
2 or more girls	114	77	148
2 or more boys	106	134	79

2: When most but not all of the existing offspring are of one sex and the youngest previous surviving child is of the same sex:

	Next registered birth		
Existing offspring	M	F	Sex ratio
Mostly F, Youngest F	97	46	211
Mostly M, Youngest M	51	76	67

3: When most but not all of the existing offspring are of one sex and the youngest previous surviving child is of the opposite sex:

	Next registered birth		
Existing offspring	M	F	Sex ratio
Mostly M, Youngest F	38	39	97
Mostly F, Youngest M	34	42	81

Ethnographic data point to a culturally preferred daughter-first strategy that was generally pursued when circumstances minimized its inherent risks. This strategy is sanctioned by a saying that had (and still has) nearly universal currency in Japanese society: *ichihime nitarô* – "first a girl, then a boy" (e.g., Ôto 1950:191; OSS:126,143). What lies behind this well-known bit of folk wisdom? The first consideration has to do with child care. We have seen that in the prevailing gender division of labor child care fell squarely within the domestic sphere, the responsibility of females. Thus, whereas fathers and sons were basically out of the picture, daughters were cast in the role of little mothers. If the firstborn were a girl, the mother could count on some help in

rearing the second and subsequent children, but such help would be postponed several years if the firstborn were male. There is the additional consideration that with their first child mothers lack experience and assurance; if the chances of botching the job are greater with the firstborn, better it should be a girl than a boy. Since we are dealing with a system in which the putative single heir is the eldest son, providing him with an older sister may be seen as improving his "quality" on two counts: not only a less harried mother, assured of help in child care, but also a more experienced mother.

Folkloristic explanations for the preferred initial female-male sequence emphasize dire consequences for the father should the sequence be reversed. If the firstborn is a boy, the infant and his father were said to be in competition such that one or the other would sicken and die early (Ôto 1950:191; NSS:143). This formulation can only be a metaphor for the intergenerational conflict – between father as household head and eldest son as heir presumptive – that is inherent in stem-family systems with male primogeniture (Cornell 1983). In the ideal domestic cycle, the son and heir should be ready to take over management of the farm and begin childbearing at about the time his father is ready to cease heavy farm labor and acquiesce in the transfer of authority. Clearly, with a normative retirement age of 60 *sai* (i.e., a Western age of 59), a son born when his father was still in his twenties might be expected to challenge his father's authority prematurely. If the female-male sequence were pursued via infanticide, the age of the father at the heir's birth would be increased on average not only by the spacing between two normal births, but also by the time lost through killing unwanted male firstborns and unwanted female secondborns. Fathers who married young would thus favor girls as firstborns in the interests of unchallenged authority in middle age.

Before proceeding, let me introduce a set of findings from a comparable study elsewhere in Japan that lends support to my interpretation of *ichihime nitarô*. In the wake of a conference in Japan at which I presented my Nôbi data, two Japanese historical demographers, Noriko Tsuya and Satomi Kurosu, were moved to look at sex ratio of births controlled by the configuration of existing offspring. Their findings, based on pooled data for roughly the same span of time but for a pair of villages in northeastern Japan, are shown in Table 3. The sex ratio of all first births recorded in the household registers over a period of 150 years is 90.7, this without any analytical controls on the domestic cycle. And we may note that many couples who ended up with a daughter first then strategized for a son second (sex ratio 124.9). Indeed, coupled with the high rate of uxorilocal marriage in these villages, these data suggest that some young fathers might even prefer bringing in a son-in-law of their own choosing over a son who would offer a premature challenge to his father's authority.

We may conclude that the daughter-first strategy was generally pursued insofar as the risk could be minimized that among subsequent births no son would survive. Our data generally support the specific hypotheses that may be derived from this

proposition. (1) The daughter-first strategy was more likely to be followed when the wife married early, for the risk involved was minimized by the long prospective period of childbearing. Conversely, when the wife married exceptionally late, in her early thirties, say, the couple might be prepared to kill a daughter in order to hasten the arrival of a son. (2) The daughter-first strategy was more likely to be followed by the rich than by the poor, in part because couples strategized to match offspring-set size to resources (so that couples in rich households planned to, and did, have relatively large offspring sets, thereby minimizing the risk of missing out on a male heir) and in part because the consequences of sonlessness were less than drastic for households with the resources to attract a high-quality son-in-law. (3) The daughter-first strategy was favored by men who married young, presumably in order to postpone the birth of the first son and thereby avoid a premature challenge to paternal authority. Conversely, men who married exceptionally late, in their late thirties, say, would likely desire a son as soon as possible both to ensure an heir and to relieve themselves of heavy farm work before old age overtook them.

Table 3: *Sex ratio of registered births by configuration of existing offspring. Pooled data for two villages in Tôhoku, 1716-1870.*

Existing children		Sex ratio of registered births
M	F	
0	0	90.7
1	0	96.5
0	1	124.9
2	0	94.2
1	1	129.7
0	2	204.7
3+	0	—
2+	1	103.0
1	2+	126.7
0	3+	—

Source: Tsuya and Kurosu, 1999.

These considerations suggest that households opt for a female firstborn when childbearing begins relatively early in the life cycle and the odds are good that the process of offspring-set formation will not be cut short. And, in empirical fact, the completed offspring sets of those whose registered firstborn is female are significantly larger than those whose registered firstborn is male. In addition, our analysis shows that those who end up with a female "firstborn" are far more likely than those who begin with a son to pursue the additional family-planning objectives of every-other alternation of the sexes and overall gender balance. In short it appears that certain households sought to approximate an offspring set that was headed by a daughter, characterized by regular alternation of the sexes, and numbered between 5 and 6 altogether. At the other extreme, households opting for a male firstborn were less concerned with overall gender balance and ended up with significantly smaller offspring sets. The first appears as an optimizing strategy, designed to ensure a high-quality heir, promote the efficient functioning of the household, and enhance the future prosperity of the *ie*; the second appears as a survival strategy, designed to avoid the *ie*'s extinction. The first strategy takes risks in the interests of a better future; the second avoids risk to ensure that there <u>is</u> a future.

If we ask how these reproductive strategies map onto the grid of household structures, it is not difficult to deduce a set of principled predictions. The cultural expectation, of course, was that the heir's marriage would be arranged by his parents when they are still vigorous, so that childbearing would begin in the context of an intact stem family headed by the groom's father. Any departure from this most auspicious circumstance suggested a degree of demographic or social impairment. A widow or widower was at some disadvantage in seeking a daughter-in-law for the heir-designate, while an orphaned young man was at a distinct disadvantage on the marriage market. Thus the quality of brides presumably varied across family types. Since husbands on average were eight years older than their wives and women were somewhat longer lived than men in any case, the expected and most common form of the domestic cycle was that which proceeded from intact stem to GM-only stem to conjugal (as depicted in Figure 1), and the mean ages of the bride in these three household types, progressing from 19.5 to 20.4 to 22.2, suggesting that intact couples took their pick of young girls as they came on the marriage market, leaving the dregs for the orphaned men who would form conjugal families on marriage.

A not unrelated contingency is the association between household structure and landholdings at the time of the couple's first registered birth. From Table 4 (which excludes the rather anomalous *bunke* stem households as well as all uxorilocal cases) it can be seen that better-off households were likely to be in the stem phase of the domestic cycle at the onset of the couple's childbearing, whereas poor households were more likely to be in the conjugal phase.

An early devolution of headship from grandfather to father may also flag difficult straits. In the case of a widow, it was customary for the heir to assume the household headship on marriage if not before. But in the case of a widower or an intact senior couple, the devolution of headship to the heir on marriage typically implied that the senior man was infirm or senile. In fact, the mean age of the senior men in such households was 71. Intact stem households headed by the Fa might offer the advantage of a still-active GM, but GF-only stem households headed by the Fa were, other things equal, worse off than conjugal families because of the added dependency burden.

Table 4: *Household structure by size of household landholding at the time of the couple's first registered birth. Pooled data for two Nôbi villages, 1717-1869.*

Household structure	Household landholdings*						Total	
	Poor		Interm.		Rich		Total	
	No.	%	No.		No.	%	No.	%
Stem: GF only	4	10	15		16	46	35	100
Stem: Both GP	24	28	24		38	44	86	100
Stem: GM only	30	45	16		21	31	67	100
Conjugal: Bunke	23	48	12		13	27	48	100
Conjugal: Ord.	28	52	18		8	15	54	100
Total	109	37	85		96	33	290	

Note:
* The poor category is dominated by landless households, but also includes those with less than 0.5 *koku* of land – which would have been devoted largely to the homestead and a garden plot; most were tenants. Intermediate refers to households with holdings of 0.5 to 12.9 *koku*, and rich to households with 13.0 *koku* and more.

Finally, it should be made clear that *bunke* (cadet or branch) households were in a less precarious position than their structural counterparts in ongoing *honke* households. Most of the cadet or branch households were established by the brothers of heirs, typically, of course, younger brothers, with the approval of the main household (*honke*). Thus, a couple married at the establishment of a conjugal *bunke* could fall back on their *honke* in bad times, a possibility not open to an ordinary conjugal household. As for *bunke* stem families, it turns out to have been customary in the Nôbi region for the

mother of the younger son who established a *bunke* to move in with him and his bride. The *bunke* head assumed responsibility for health care, funeral arrangements and ancestral rites, and the mother's tablet became the focus of ancestor worship for the new *ie* (Takeda 1964: 426). Thus, unlike the ordinary GM-only stem family, a *bunke* GM-only stem family would not imply the prior death of the GF, and the *honke* headed by that GF would be expected to provide assistance as needed to the family in which his wife now lived.

These details must suffice by way of justification for the ordering, shown in Table 5, of all occurring varieties of virilocal households along the range from a favorable/auspicious structural situation to one that is vulnerable/precarious. For purposes of presenting statistical data, the categories with fewer than 15 cases have been grouped with neighbors along the conceptual continuum to yield five classes shown in Table 6.

Table 5: *Virilocal households classified according to structural position from favorable/auspicious (top) to vulnerable/precarious (bottom).*

Headship	Grandparents	Bunke or Ordinary?	N	Table 6 groupings
GF	Both	Ordinary	74	1
GF	GF only	Ordinary	28	2
GM	GM only	Ordinary	3	
Fa	GM only	Bunke	12	3
Fa	GM only	Ordinary	65	
Fa	Both	Ordinary	13	
Fa	Neither	Bunke	55	4
Fa	Neither	Ordinary	54	
Fa	GF only	Bunke	1	5
Fa	GF only	Ordinary	8	
	Total		313	

Table 6: *Mean duration from marriage to last birth, Pct. male of first registered births, Mean no. of female births per couple, and Mean no. of all registered births, by household structure. All virilocally formed conjugal units*

Family type Groupings	Years from marriage to last registered Birth	Pct. male first reg. Births	Mean no. registered F Births	Mean no. all reg. births	N
1 Both GPa, GF head	16.1	38.9	2.71	5.44	74
2 GF only, GF head	15.2	46.2	2.66	4.83	28
3 GM only	15.2	53.5	2.17	4.44	80
4 Bunke conjugal & Both GPa, Fa head	13.8	59.7	1.86	4.10	68
5 Ord. conjugal & GF only, Fa head	12.3	60.3	1.56	3.73	63

The focus of Table 6 is on the reproductive behavior of couples situated in households of the specified structures at the onset of childbearing. The first column shows the mean duration of marriage at the time of the last registered birth, that is, the number of years that elapsed from marriage to the end of childbearing. This variable may be interpreted as the degree of reproductive play enjoyed by couples beginning their childbearing in different household structures. The progression from a high of 16.1 years to a low of 12.3 years provides a rough validation of our ordering of household structures along the dimension from auspicious to precarious. The remaining columns provide evidence that the incidence of couples pursuing the daughter-first strategy declines as predicted along the same dimension. The proportion male of first registered births increases from under 39 percent in the most favorable of the household structures to over 60 percent in the most vulnerable. The average number of daughters registered per couple declines steadily from 2.71 to 1.56. And mean completed fertility declines along the same continuum of household structures from 5.44 to 3.73.

In short, what my analysis shows is that when the heir couple begin childbearing in the intact stem phase of the cycle, with both grandparents present, they tend to follow the optimizing daughter-first strategy, but when the couple begin childbearing in the conjugal phase, i.e., after the death of both grandparents, they are more likely to follow the survival son-first strategy.

To rephrase, during the stem phase of the domestic cycle, when the grandfather is family head, the junior couple hews more closely to the cultural norms: daughter first, gender balance and every-other-alternation. Is this simply a function of rational calculation on the part of the parents, who size up the objective situation of the stem family and extrapolate its prospects accordingly, or is it because grandparents, and in particular the senior family head, directly influence reproductive decisions? I have no data that bear directly on this question. However, one suspects that so long as the headship remains in the senior generation, grandparents would have made their views known; in some cases, no doubt, their advice was decisive.

5. An Indirect Role for Grandfathers?

I am on firmer ground in pointing to an <u>indirect</u> role of grandparents on reproductive strategizing via the decision they make with respect to the heir's marriage. The age at which the heir marries is critical, and this is determined by the senior couple so long as they retain the headship; and even when the headship has devolved on the heir, arrangements for his marriage may still be made by the parents. We have already seen clear evidence (Table 1) of family strategizing with respect to marriage of the heir (or heiress) when the need for gender balance of adults motivates early marriage in some situations and delayed marriage in others. In this regard let me introduce an intriguing intergenerational pattern (first called to my attention by Thomas C. Smith). If in one generation the father married late, then his son would usually be married at an early age; his son in turn, having been born when his father was young, would not be married until a relatively late age, and so on – yielding an alternating shift in nuptiality between the generations. It will be seen in Table 7 that father's age at marriage is indeed inversely related to the age difference between him and his father. We might ponder the differential experience of fathers who fall in the various cells of the table. Young fathers in the upper-right cells would have slipped easily into their succession, whereas those in the upper-left cells would have wrested authority prematurely and demanded an early marriage from their fathers. My argument is that while all young fathers might be motivated to avoid an early-born son, those whose own fathers were young would be even more so in order to prevent their heirs doing to them what they had done to their own fathers. A similar logic operated for the fathers who married late: All would likely desire a son early in the marriage to ensure an heir and to relieve themselves of heavy farmwork before old age overtook them, but the personal experience of those at lower right was likely to have intensified the desire to have a male firstborn. For in these cases the very continuity of the *ie* would have been endangered by the father's failure to

Table 7: *Father's age at marriage by age difference between father and his father. Ordinary virilocal stem families with GF present at the time of the first registered birth.*

Age difference in years between Fa and FaFa	Father's age at marriage						Total	
	- 23		24 - 30		31 +			
	No.	Pct.	No.	Pct.	No.	Pct.	No.	Pct.
- 29	2	10	8	40	10	50	20	100
30 - 39	8	13	38	60	17	27	63	100
40 - 45	5	20	12	48	8	32	25	100
46 +	7	41	8	47	2	12	17	100
Total	22		66		37		125	

have his son early enough and his inability to provide a daughter-in-law in good time. Men with such a background might well be strongly motivated to have a son as soon as possible.

Table 8 shows, as we might expect from the argument in the preceding section, that father's age at marriage is not unrelated to his subsequent choice of reproductive strategy. So we are led to posit that a man's decision as to when to marry his son and heir indirectly shapes the reproductive strategizing of the heir. The data in Figure 2 lend substance to this idea. In the upper panel, men whose fathers were relatively young and who married at a relatively young age were prone to kill a male firstborn (registered births 64% F), whereas men whose fathers were relatively old and who themselves married late were prone to kill a female firstborn (registered births 82% M). In these families, where the senior man was still alive at the onset of his son's childbearing, it would have been the grandparents' decision as to when the son would marry. Interestingly enough, the pattern is replicated for virilocally formed conjugal families (meaning that the grandparents had died before childbearing of the junior couple was under way), as shown in the lower panel. The younger "grandfathers" were most likely still in charge and making decisions at the time of their sons' marriage. Even though many of the older "grandfathers-to-be" had already died before the marriage of the heir, their decision not to marry him earlier would still be relevant. Thus, "grandfathers'" decisions regarding their sons' nuptiality strongly influenced the reproductive strategizing of the junior couple in their *ie.*

Perhaps this intergenerational dialectic could keep going without a lot of conscious decision-making, but in fact, howsoever predetermined by structural sequences, fathers made decisions that strongly shaped the reproductive strategies of their heirs, which is to say, the gender configuration of their grandchildren.

Table 8: *Sex of the first registered child by father's age at marriage.*

Husband's age at marriage	Male	Female	Total	% Male of first registered births
- 23	30	37	67	*44.8*
24 - 27	37	40	77	*48.1*
28 - 35	74	62	136	*54.4*
36 -	31	21	52	*59.6*
Total	172	160	332	*51.8*

A. Ordinary virilocal stemfamilies with GF only, by GF-Fa age difference.
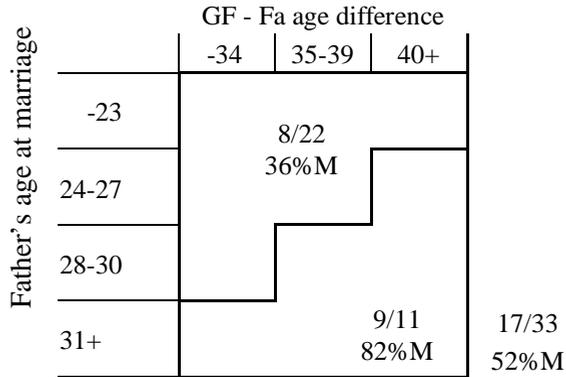
B. Ordinary virilocal conjugal families only, by (deceased) GF-Fa age difference.
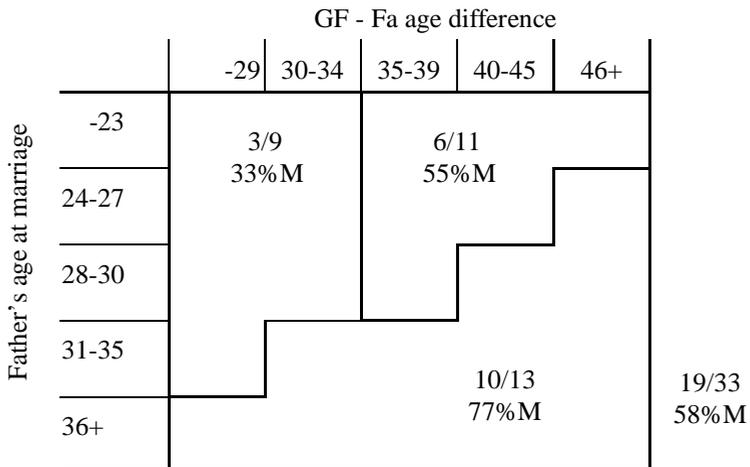
Figure 2: *Sex of first registered child by father's age at marriage and the age difference between the father and his father.*

6. Grandmothers and the Number of Surviving Grandchildren

Quite apart from reproductive strategies, we might ask if the presence of grandparents affects the number of the junior couple's offspring. In our villages at least, the answer is a dubious maybe for grandfathers but yes for grandmothers. Table 9 presents relevant findings for four classes of couples specified according to household structure at the time of their first registered birth: those in 1) conjugal families, 2) GF-only stem families, 3) intact and GM-only stem families where the senior woman is 60 years or older at the time of first registered birth, and 4) intact and GM-only stem families where the senior woman is under 60 years of age. (The mean age of grandmothers in the third category is 67.2 years as against 50.9 years for those in the fourth category.) The data shown in Table 9 are limited to couples formed in the standard fashion, that is, by bringing in a daughter-in-law for the male heir of an ongoing ie. It will be seen in the first column that the total fertility rate (net infant mortality) is lowest for couples in conjugal households, somewhat higher for couples in truncated stem households lacking a grandmother, higher still for couples in stem households with grandmothers who were already quite old at the time of the first birth, and highest of all for couples in stem households with grandmothers who were relatively young at the onset of childbearing. This regular progression is upheld when the data are controlled by the households' landholdings (not shown). When the total marital fertility rate (net infant mortality) is decomposed into age-specific rates (Figure 3), we see that for a dichotomized sample the association between fewer grandchildren and the absence of a grandmother holds throughout the childbearing span.

Table 9:   *Total marital fertility net infant mortality and mean intervals between registered births, by household structure and GM's age.*

Family type	Total marital fertility rate (net infant mortality)*	Mean intervals between registered births (years)^
Conjugal	5.98	3.55
GF-only stem	6.24	3.27
Other stem, GM 60+	6.56	3.26
Other stem, GM -59	7.38	2.64

Notes:

* At-risk years are specified as those when the woman is living with her husband in the same household.

^ The average length of intervals over the entire series of registered offspring, including that from marriage to the first registered child.
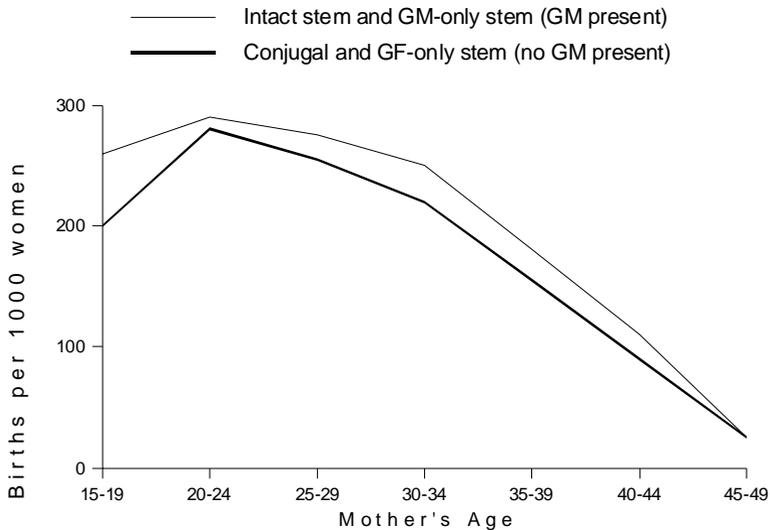
Figure 3: *Age-specific marital fertility rates (net infant mortality), by the presence or absence of the grandmother.*

The details of these findings point to child care as the major motivating factor in the differential number of offspring in families with and without grandmothers. The burden of child care, which falls heavily on parents in a conjugal family, can be shared with grandparents in a stem family. Since child care in Tokugawa society fell squarely on the female side of a rather rigid gender division of labor, we are really talking about mothers and their mothers-in-law. In the absence of the senior woman at the onset of childbearing, a young couple might well be more strongly motivated to space out births and possibly limit their number. Such motivation would, however, be muted in the case of stem households in which the senior woman was relatively young at the time of the couple's first birth.

Of course we must recognize that a woman's childbearing may not be limited to a single phase of the domestic cycle. In fact, a couple whose household is already in the conjugal phase at the onset of childbearing would normally experience all their childbearing in the conjugal phase, that is, prior to the heir's marriage, which ushers in the stem phase. In the Japanese case, it was considered both shameful and dangerous for the senior couple to continue procreation after the marriage of the heir, and in fact no such births are revealed in the registers for the villages under analysis. However,

those who begin childbearing in stem households may well experience the transition to the conjugal phase before the completion of their childbearing. In this regard, the results of the control on mother's age support the hypothesis that the primary motivation here is child care.

As already mentioned, it is intuitively obvious that mothers in households lacking a senior woman would be motivated to space out births so as to lighten their child-care burden, and, indeed, in the final column of Table 9, we see that spacing behavior is almost certainly the major mechanism behind the differential rates shown in column 1. In conjugal households the intervals between registered births were abnormally long, 3.55 years on average, declining steadily in the predicted order to 2.64 years in stem households with young grandmothers. One could say that in the absence of grandmotherly assistance, couples took steps to space out their offspring. Another take would suggest a more pro-active role for grandmothers, in keeping with their proverbial role as "conservators of tradition." As we have seen, when grandmothers are present, whether in intact stem families or GM-only stem families, reproductive strategies appear to favor gender balance, gender alternation, and larger surviving offspring sets. It is possible that grandmothers, more committed to traditional family system norms, urged the younger couple to risk more pregnancies in hopes of a closer approximation to the cultural ideal.

7. Nuptial Configuration and Conjugal Power

This section sets the stage for an effort to ascertain in what circumstances grandmothers may play a direct role in reproductive decision-making. To do so we must look at the relative power of adults within the family, and critical in this regard is conjugal power, the relative power of husband and wife within the conjugal unit. In an earlier treatment of this topic (Skinner 1993), based on historical ethnographic data as well as analyses of household registers, I concluded that in Edo-period village families, the conjugal relationship was relatively egalitarian:

> To sum up, within the *ie*, women controlled the domestic sphere of activity, which was essential to the household's production as well as its reproduction and continuity. In the later phases of the life cycle, husbands were more likely to be dependent on their wives than the other way around. Moreover, wives no less than husbands enjoyed *de facto* sexual autonomy, and their alternatives outside a particular marriage were very nearly as good as their husbands'. For these and other reasons, the bargaining power of women within marriage should have been considerable and their domestic power potentially on a par

with that of their husbands. It is less certain whether the forms and rhetoric of male dominance that also characterized village society should be seen as tipping the balance of conjugal power in favor of men or as providing a culturally acceptable framework whereby the wife realized her power potential by allowing her husband to be the overt decision-maker. (p.347)

The most important structural determinant of conjugal power is the relative age of the spouses at marriage. A pattern whereby husbands are normally older by a sizeable margin is, of course, congruent with patriarchal authority, and (as Japanese informants are quick to point out) brides are more readily socialized to the ways of the household when they are young. The distribution of marriage ages in our two villages is instructive in this regard. In general men married at considerably older ages than women, and the variance in marriage age was far greater for men than for women. Both patterns are characteristic of Japan as a whole (Hayami 1987) and of virtually all of the developing counties covered by the World Fertility Survey (Casterline, Williams, and McDonald 1986) (Note 6). The mean ages at marriage, 20.6 for women and 28.4 for men, indicate that on average husbands were seven to eight years older than their wives. In less than 6 percent of the couples were women as old or older than their husbands, whereas in over a third of all couples men were at least ten years older than their wives.

Nuptiality can be viewed as a customary norm in any society; it can be shown, in fact, that cultural preferences operate not only with respect to the ages at which men and women ought to marry but also to the acceptability of certain age differences (Casterline, Williams, and McDonald 1986). However, the variation of concern here is not among societies but rather among couples within the same society. The factors influencing marriage age are many and varied, with specifically cultural norms playing only a part, but whatever the complex of causes that determine the marriage ages of the couple, the effect of the marriage-age configuration is systemic. I would argue, in fact, that the configuration of spousal ages is such a strong and systemic determinant of conjugal power that the former can be taken, within limits, as an index of the latter. The rationale for such an index is worth spelling out in detail.

Conjugal power is likely to vary systematically according to both the wife's absolute age at marriage and the age difference between her and her husband. A 16-year-old girl is, almost by definition, shy, self-effacing, and inexperienced by comparison with a 26-year-old woman (Note 7). In the context of a Tokugawa village, moreover, a 16-year-old will have had few occasions to leave her natal village, whereas any woman marrying as late as 26 is likely to have worked for a time outside the village as a servant or weaver or waitress. Holding the absolute age difference between the spouses constant (at six years, say, so that the 16-year-old marries a man of 22 and the

26-year-old marries a man of 32), it is clear that the former is more likely than the latter to be dominated by her husband in the early years of marriage.

At the same time, varying the age difference between the spouses also has an independent effect. If each of our two brides confronts a groom of 26 (so the 16-year-old marries a man ten years her senior and the 26-year-old marries a man of the same age), then the contrast between the couples would be sharpened, for the authority of the husband would be further enhanced in the eyes of the younger bride but considerably diminished in the eyes of the older bride. Thus, in couples formed through the marriage of absolutely young women to men relatively much older, the husband is likely to overpower his wife. But in couples formed through the marriage of absolutely older women to men of roughly the same age, the wife is likely to stand up for her own interests and defend her preferences.

A reference to Figure 4 will situate this argument and point us toward the weighting to be used in constructing an index. The marriage-age matrix shows wife's age at marriage in rows and husband's age at marriage in columns. The first component of the proposed index, the absolute age of wife at marriage (WAGEMAR), is displayed at the top. The second component, the age difference between the spouses (DIFAGE), is displayed at the bottom. These dimensions represent only two of the many possible ways of slicing the marriage-age matrix. The various cuts that might be made intermediate between DIFAGE and WAGEMAR would represent different weightings of the two components, and two of these are diagramed in Figure 4. With DIFAGE specified as H-W (husband's age minus wife's age), the dimension H-2W will be seen as exactly halfway between DIFAGE and WAGEMAR, and, indeed, H-2W gives equal weight to the two components. The dimension formalized as H-3W gives greater weight to the wife's age at marriage (WAGEMAR) then to spousal age difference (DIFAGE). I have used both of these indexes in my initial analyses, and it is clear that the empirical data "favor" the latter (Note 8). That is, the statistical associations between conjugal power and reproductive (and other) behaviors are higher when conjugal power is indexed by H-3W, which I call HUSPOWER rather than, say, CONPOWER, so that its directionality will be clear: high values indicate that the husband is likely to be dominant, low values that the wife is likely to be dominant (Figure 4).

It is probably correct to say, echoing an earlier formulation, that in couples high on the HUSPOWER index the husband's domination in practice conforms fully to the patriarchal rhetoric, whereas in couples intermediate on the index the wife would carry her weight without arousing her husband's anxiety about his authority. In couples still lower on the HUSPOWER index, we might expect the actual power of the wives to match or even exceed that of their husbands despite the public façade of male dominance. In this range of the index Rogers' notion of a "probably unconscious"

Figure 4: *Dimensions of the marriage age matrix: HUSPOWER in relation to WAGEMAR and DIFAGE.*
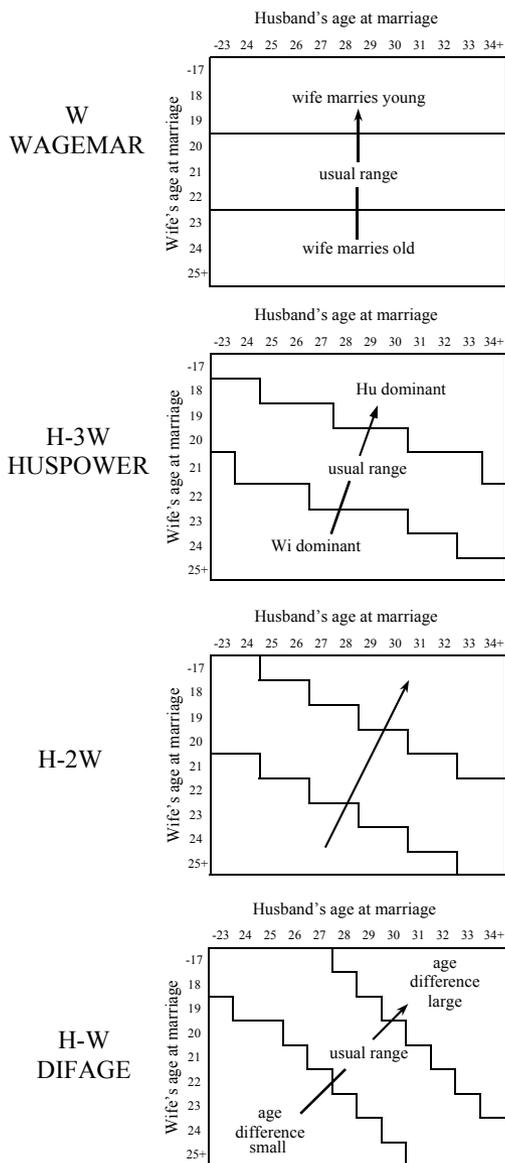
exchange between power and image would be particularly apt: "I'll give you credit for making decisions here, if you'll make the ones I tell you to" (Rogers 1975:747). Couples in which husbands are not allowed even the façade of authority would, presumably, fall at the low extreme of the HUSPOWER index.

A number of contingencies compound the significance of the HUSPOWER dimension. On the demographic side, for instance, women with husbands much older than themselves are more likely to be widowed, and to be widowed at an early age, than are women married to men of nearly the same age. On the side of social dynamics, spouses close together in age are more likely to be solidary *vis-á-vis* other members of the household than are those separated by many years. On the psychological side, since mothers tend to encourage the emotional dependence of eldest sons in particular, we may expect men who marry late to have been closely bound emotionally to their mothers, whereas men who marry young may have signified their independence of their mothers by insisting on an early marriage. While these are strictly speaking concomitants of DIFAGE, they cannot be overlooked in explaining variation along the closely related HUSPOWER dimension of the marriage-age matrix.

8. Grandmothers in Coalition

We are now positioned to understand how conjugal power affects the decision to keep or return a newborn child – the critical reproductive decision in village families. I essay here a comparative analysis of couples in two different phases of the domestic cycle at the onset of childbearing and focus on registered first births. To bring out the role of grandmothers, I contrast GM-only stem families with virilocal conjugal families. The only difference in household composition between the two family types, then, is the presence of the widowed grandmother. Figure 5 displays data on the sex of first registered births in the marriage-age matrix for couples in conjugal families (the charts to the left) and for those in GM-only stem families (the charts to the right). Both categories are limited to cases where the marriage form was virilocal; thus, the grandmother is always the father's mother. Because women's nuptiality is inversely related to her family's SES, we control on landholdings. The data shown in Figure 5 are summarized in Table 10, and the implied findings with respect to infanticide at first birth are schematized in Table 11. Focusing first on virilocal conjugal families (the left-hand charts), we see that high-HUSPOWER couples apparently practice female infanticide when needed to get a male "firstborn," whereas low-HUSPOWER couples apparently practice male infanticide when needed to get a female "firstborn." This inference from the unnatural sex ratios, summarized in Table 10, is supported by an analysis of preceding intervals (not shown here).

Figure 5:   *Sex of first registered birth by HUSPOWER, controlling landholdings and comparing two household types: virilocal conjugal vs. grandmother-only stem.*

VIRILOCAL CONJUGAL

Poor (0-0.4 *koku*)

GM-ONLY STEM

Poorer (0-4.9 *koku*)

Intermediate (0.5-12.9 *koku*)

Richer (5.0 *koku* or more)

Rich (13.0 *koku* or more)
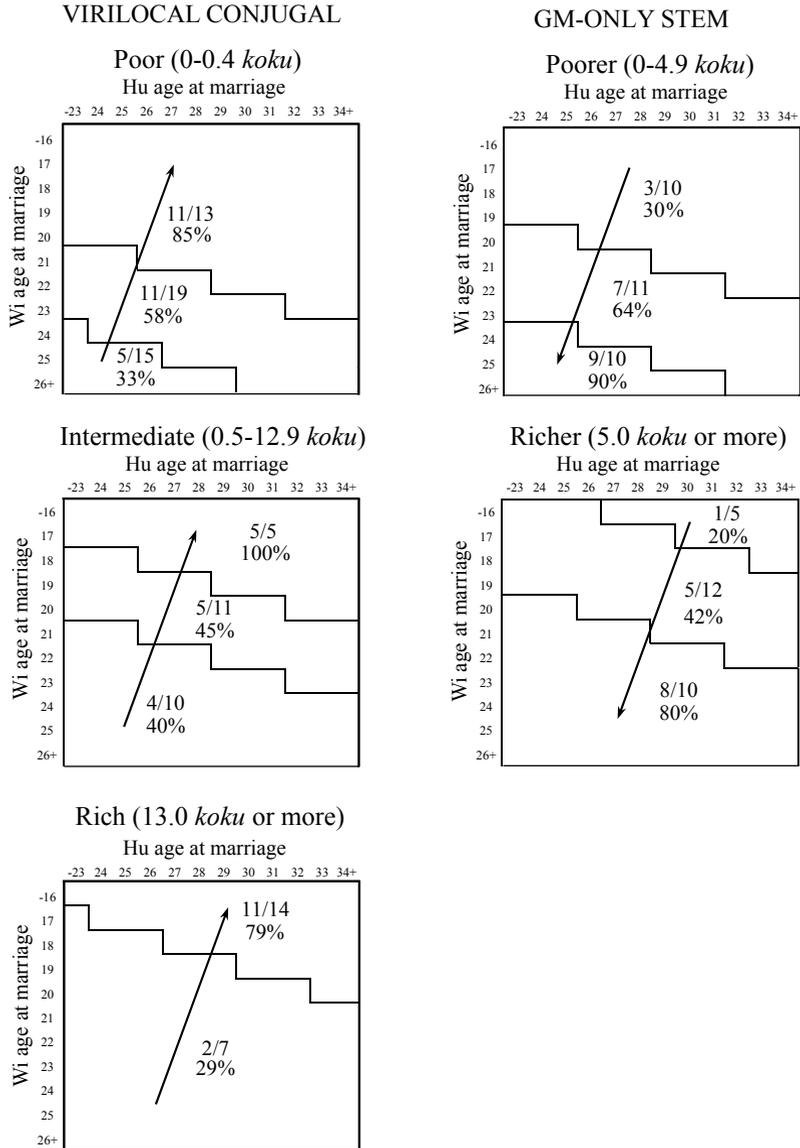
Table 10:   *Summary of the data presented in Figure 5*

VIRILOCAL CONJUGAL						GM-ONLY STEM				
Sex of first registered child						Sex of first registered child				
HUSPOWER	M	F	T	%M		HUSPOWER	M	F	T	%M
Low	11	21	32	*34*		Low	17	3	20	*85*
Intermediate	16	14	30	*53*		Intermediate	12	11	23	*52*
High	27	5	32	*84*		High	4	11	15	*27*
Total	54	40	94			Total	33	25	58	

Table 11:   *Schematic summary of inferred infanticide at first birth*

HUSPOWER	Conjugal families	GM-only stem families
Low (Wi dominant)	M infanticide	F infanticide
Intermediate	Little / none	Little / none
High (Hu dominant)	F infanticide	M infanticide

The presumed dynamic within conjugal families is straightforward. With only two "players," there is no scope for coalition formation, and the results can be interpreted as a simple outcome of the respective desires and power of husband and wife. Husbands prefer a son, and they prevail when HUSPOWER is high; wives prefer a daughter, and they prevail when HUSPOWER is low; when neither prevails, parents apparently accept what they are given.

Why, in this context, do husbands prefer sons and wives prefer daughters? First of all, in the absence of grandparents, the force of the daughter-first logic outlined above is strengthened for wives but weakened for husbands. The anxiety of a young bride concerning her inexperience as a mother would be sharpened by the absence of anyone with child-care experience. Her need for help in child care sooner rather than later could be met only through rearing a daughter. Hence, for the bride the attractiveness of the daughter-first strategy is enhanced by her isolation. At the same time, the husband's fear of a precocious challenge from an early-born heir, though still present, would be

less salient than in stem households since the issue had been experientially muted through his own father's early death. Second, the constraints of the gender division of labor take on particular salience in a household consisting solely of a conjugal couple. Just as daughters would eventually lighten mothers' domestic chores, so sons could eventually relieve some of their fathers' back-breaking field work. Since men were generally much older than their wives, it would seem only fair that help in their domain should come first. By virtue of their greater age, husbands more than wives would be concerned to ensure a surviving son (and heir) soon and less inclined to run the risk in this regard of pursuing the female-first strategy. It is telling that both of these considerations would weigh more heavily on husbands high in HUSPOWER (that is, on those who succeeded in forcing female infanticide), for by definition such husbands were both absolutely old and relatively much older than their wives.

Let us now contrast the findings for virilocally formed conjugal families with those for virilocally formed stem families in which the grandfather has died. "First-birth" data for such households, set out on the right side of Figure 5, contrast diametrically with those for conjugal households: High-HUSPOWER couples, who annul girls to attain male "firstborns" in conjugal families, annul boys to attain female "firstborns" in grandmother-only stem families. Low-HUSPOWER couples practice male infanticide in conjugal families but female infanticide in grandmother-only stem families. Why?

When three "players" are present, as in the grandmother-only stem family, three coalitions are theoretically possible, but a coalition between the father's mother and her daughter-in-law is improbable given the psychodynamics of the situation in the first few years of marriage. My argument is that the conjugal coalition (the husband and wife contra the husband's mother) prefers a first-born male, and that it prevails when HUSPOWER is low, whereas the filial coalition (the mother and the son contra the daughter-in-law) prefers a first-born female, and that it prevails when HUSPOWER is high. Why might coalition formation be expected to vary systematically in this way? First, spouses are close together in age when HUSPOWER is low but far apart when HUSPOWER is high, which circumstance favors conjugal solidarity in the former but not the latter. Second, in low-HUSPOWER couples the bride is older and more mature and thus better positioned to stand up to her mother-in-law. Third, since the widowed mother would have had a major say in the timing of her son's marriage, high-HUSPOWER (late-marrying) husbands are likely to have been closely bound emotionally to their mothers, whereas low-HUSPOWER (early-marrying) husbands may have been self selected for emotional independence.

The situation in a grandmother-only stem family is different from that in a conjugal family on two counts. First, the presence of the grandmother to assist in the domestic sphere and to help rear the heir serves to reduce the mother's reasons for desiring a girl. Second, with two adult women but only one adult male in the household,

the gap to be filled first should logically be on the male side of the division of labor. These circumstances resolve the conflicting interests of the spouses that obtain in conjugal families so that solidary couples in grandmother-only stem families can readily agree that their best interests would be served by a son. Note that in households with low-HUSPOWER couples, the grandmother is likely to be relatively young at the time of marriage (for her son married early), so that the couple could reasonably expect her to remain active in the domestic sphere until a female secondborn would be old enough to take on domestic chores.

9. Summary Conclusion

I have shown that in these Nôbi villages, not atypical for central and northern Japan during the later part (1700-1868) of the Edo period, the particulars of the prevailing stem family system fostered a culturally favored set of reproductive goals, in particular, a daughter as eldest child, followed by a son (and heir), coupled with gender alternation in subsequent reproduction and overall gender balance. This reproductive strategy, sanctioned by the mantra *ichihime nitarô,* was generally followed during the stem phase of the domestic cycle, when one or both grandparents were present, especially when the family head was in the senior generation. By contrast, a son-first strategy was favored when childbearing began in the conjugal phase of the cycle. This suggests grandparental influence on the junior couple's reproductive decisions in favor of the cultural ideal. I have argued that the senior couple's decision to marry the heir early or late strongly affects the reproductive strategies followed by him after marriage. I have demonstrated that when a grandmother is present at the onset of childbearing, especially if she is fairly young, the junior couple ends up with more offspring. For the junior couple, the key factor must be that the grandmother can mitigate the child-care burden of a larger offspring set; for the grandmother, the larger offspring set may reflect her efforts to encourage the younger couple to risk more pregnancies in hopes of attaining a closer approximation of the ideal offspring set. My final example (of infanticiding behavior) suggests that such summary generalizations may obscure the actual operative dynamics of reproductive strategizing. A grandmother gets her way only when she and her son gang up on the daughter-in-law, but that coalition is likely only when her son dominates the conjugal relationship, which in turn reflects the grandmother's success in binding the son tightly to her emotionally and in delaying his marriage. Otherwise, the grandmother may be shut out from reproductive decision-making by the solidary conjugal coalition.

Notes

1. Meyer Fortes (1949, 1958) provided the initial conceptualization of the domestic cycle. He insisted that the family be analyzed as a process, and observed that the various family types found in a population at any point in time are normally phases in a normative developmental cycle.

2. Also known as nuclear family, elementary family, and simple family.

3. It goes without saying that in all family types that include CUs in adjacent generations, one of the spouses in each junior CU will also be a member of the senior CU (or one of the senior CUs). This linking or overlapping member is, of course, normally a son or daughter of the senior couple.

4. I am indebted to Akira Hayami and Thomas C. Smith for generously providing access to their datasets.

5. The methods used to detect infanticide cannot be fully described here. It should be emphasized that infanticide can only be inferred from data in the *shūmon-aratame-chō*. Vital events were recorded once a year at a fixed time, so that a child born and put to death during an elapsed year would never be entered into the record. Nor is it possible to determine sex-selective infanticide for any particular couple; whatever the combination of births by sex and interval, it could not be said to fall outside the expected range of variation. My strategy, therefore, is to work with homogeneously defined subsets of registered births. The assumption is that couples whose objective circumstances are similar in crucial respects (form of marriage, nuptial configuration, household structure, and household landholdings) are likely to follow similar reproductive strategies. If we then analyze registered births subset by subset (each defined homogeneously in terms of number and configuration of preceding siblings and mother's age at time of birth), evidence of sex-selective infanticide is revealed. An unnatural sex ratio is, of course, the critical evidence of sex-selective infanticide, but I accept a skewed sex ratio as reliable evidence only when the patterning of intervals for those births is compatible with infanticide of the sex that would have produced the skewing.

6. It is no less true of Tokugawa Japan than of contemporary developing countries that "observed distributions of the age difference are not simply the coincidental by-product of the random matching of separately determined distributions of men's and women's ages at marriage. Certain age differences are avoided; others chosen more frequently" (ibid., p. 374). It would appear that demographic determinants of spousal age difference (age structure constraints on the pool of possible matches)

are less important in explaining variation among societies than sociocultural factors, particularly family system norms and gender ideology.

7. Writing about the first Japanese village studied by Western anthropologists, Smith and Wiswell (1982:xviii) observe that in Suye-mura in the 1930s "girls and young women, especially new brides, exhibited paralyzing degrees of shyness."

8. This suggests, of course, that the absolute age of the wife at marriage is more salient in shaping conjugal power, which in turn implies that the conjugal patterns established in the initial year or two of marriage have considerable staying power.

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