Family Characteristics and Mate Selection:
Evidence from Computer-Assisted Dating in Japan

Abstract

Research on mate selection rarely considers singles' preferences for their future partners' family configurations and experiences. Using online dating records from a major matchmaking agency in Japan, a society with a strong emphasis on family and kinship, we examine how singles' responses to date requests correspond to potential mates' family circumstances. Results from fixed-effects logit models are consistent with the argument that singles' preferences for potential partners' family characteristics stem from both a concern about future obligations toward the partner's family and stereotypes associated with certain family traits. Singles, for example, are less likely to accept requests from those from large families, which are seen as traditional, but being from a large family hampers individuals', especially males', dating chances considerably more if they are firstborn and have no brothers, two conditions that make them the designated child to care for elderly parents. We also find that Japanese singles largely seek partners with more of the universally valued family traits, rather than traits similar or complementary to their own.

Research shows that with whom individuals form families has important consequences for their and their children's long-term wellbeing (Schwartz, 2013). The question of how individuals select mates is therefore critical to our understanding of social inequality. Most studies of mate selection patterns focus on singles' preferences related to race/ethnicity, religion, and socioeconomic status (Blossfeld, 2009; Kalmijn, 1994, 1998; Rosenfeld, 2005). Individuals, however, also likely have other preferences when selecting mates. In particular, because marriage requires people to establish ties with and develop obligations toward their partner's family members, they likely take the potential partner's family attributes into account in mate selection. Singles, for example, tend to find those with a child from a prior union less desirable (Goldscheider & Kaufman, 2006; Goldscheider & Sassler, 2006; South, 1991). Singles may similarly have preferences for their mates' natal family compositions (Kojima, 1994; Yu, Su, & Chiu, 2012). Because certain family traits, such as being the only child, signal a greater future care obligation toward elderly parents, they may make one less attractive to potential mates, especially in societies where married children are strongly expected to support their aging parents.

Although understanding how singles' family characteristics create advantages or disadvantages in mating can shed light on the process through which people with different family configurations and experiences diverge in their long-term wellbeing, very few studies directly address preferences for the partner's family characteristics. The closest is research on how sibship traits affect individuals' paces of transitions to marriage (Michael & Tuma, 1985; Yu et al., 2012). Such research, however, cannot separate these traits' associations with singles' eagerness to marry from those with their attractiveness in the marriage market. Being the eldest or only son in Japan, for example, is thought to decrease a man's appeal because of the cultural expectation for this son to coreside with his parents after marriage (Kojima, 1993, 1994; Yasuda et al., 2011). Nevertheless,

men with this sibship position may also feel more parental pressure to continue the family line and hence put more effort into finding mates (Yu et al., 2012). Separating these two processes is not feasible in an analysis of marriage transitions.

The recent proliferation of computer-based matchmaking services, fortunately, provides new avenues to study singles' mating preferences (Curington, Lin, & Lundquist, 2015; Hitsch, Hortaçsu, & Ariely, 2010a, 2010b; Lin & Lundquist, 2013; Skopek, Schulz, & Blossfeld, 2011). Based on records of requests for dates and responses to such requests, researchers can isolate what makes a person attractive. Compared to the small number of studies using self-reported preferences to investigate characteristics contributing to one's desirability to potential partners (e.g. Goldscheider & Kaufman, 2006; South, 1991), studies examining dating records have the advantage of analyzing real-world choices, which are not confounded by respondents' tendency to offer socially desirable answers when facing hypothetical scenarios (Hitsch et al., 2010b). Although research using data from internet dating services is inevitably limited to the behaviors and preferences of those who use such services, understanding dating preferences in cyberspace is argued to be important to our knowledge of mate selection, as internet dating has become an increasingly popular channel for singles to meet romantic partners across industrialized countries (Hitsch et al., 2010b; Lin & Lundquist, 2013).

In this study, we take advantage of unique records from a computer-based matchmaking agency in Japan to examine the rates at which individuals with different family sizes, sibship attributes, marital and childbearing histories, and other family circumstances receive favorable responses to their online date requests. Unlike most dating or matching services in the West, the agency that offered data for this study requires its members to provide detailed information on their family history and composition when contacting others for dates. We can therefore directly

assess Japanese singles' preferences by analyzing their responses to people with different family characteristics.

This study focuses on Japan not only because of its unusual data; understanding mating preferences among users of internet dating services in Japan is important in its own right. Like in other industrial countries, using computer-based matchmaking services to meet romantic partners is increasingly popular in Japan (Farrer & Gavin, 2009). During the 2000s, businesses providing dating or matchmaking services, most of which involve users exchanging profiles and dating requests through computers, more than tripled (Castro-Vázquez, 2016, pp. 40-41). Japan is also well known for its trend of later and less marriage, with much research devoted to explaining this trend (Raymo et al., 2015). As recent research and popular discourse both identify relationship formation (or the lack thereof) as key to understanding marriage transitions in Japan (Yamada & Shirakawa, 2008; Yu & Kuo, 2016), studying which attributes enhance singles' likelihood of forming relationships helps enrich the literature on marriage formation. Finally, Japan exemplifies societies that feature frequent intergenerational exchanges and a deep-rooted cultural emphasis on family and kinship (Raymo et al., 2015). Singles in such contexts are highly likely to weigh potential complications and obligations related to their future partner's family members, thus exhibiting preferences for the potential mate's family traits. An analysis of the roles that family traits play in mate selection in Japan therefore has implications for societies with similar or stronger tendencies of family involvement in both individuals' marriage processes and postnuptial life, such as other Asian societies and countries elsewhere known for strong familism (e.g., Italy).

Theories of Mate Selection

Research on mating patterns often compares the search for a romantic partner with the search for a job (Schwartz, 2013). In the "marriage market," singles are thought to seek the mate

whose qualifications will maximize their wellbeing, and they hold views on the minimum mate qualities below which they will not form a match (Becker, 1973, 1974). Although many researchers on mate selection adhere to the notion of a marriage market, they propose different theories on which traits individuals prefer in their mates. To begin, status exchange theory contends that men and women in the marriage market look for mates whose traits are complementary to their own (Rosenfeld, 2005, pp. 1284-1285). Men with greater economic resources (i.e., income), for example, may want to marry women with especially strong domestic skills. Matches as such are argued to facilitate specialization within the family, thereby maximizing household productivity (Becker, 1993).

Other researchers claim that individuals' mate-selection preferences are, instead, rooted in the theory of homophily; that is, individuals prefer to establish ties with people similar to themselves (McPherson, Smith-Lovin, & Cook, 2001). The matching hypothesis, derived from this theory (Kalmijn, 1994; Schwartz, 2013), maintains that the preference for a partner like oneself leads to positive assortative mating, according to which people with similar social characteristics (such as education level, race/ethnicity, among others) tend to marry each other (Blossfeld, 2009; Kalmijn, 1998; Rosenfeld, 2005). Following the homophily argument, singles may also prefer mates that share similar family compositions and experiences, as such similarities enable them to relate to each other better.

Individuals' tendency to seek partners like themselves, however, is not the only mechanism generating positive assortative mating. Alternatively, the competition hypothesis contends that all individuals in the marriage market prefer partners who have more of the generally favorable characteristics, such as a high income potential and physical attractiveness (Kalmijn, 1994; Schwartz, 2013). Because those with more of the desirable traits more likely win the competition

for partners with more of the same traits, singles end up pairing with partners whose possession of desirable traits is similar to theirs.

Although the matching and competition mechanisms are difficult to separate in studies relying on information about the two parties in marriages (Schwartz, 2013), research using online dating records has a unique advantage in adjudicating between these mechanisms (e.g., Hitsch et al., 2010a). By showing how singles respond to those approaching them online for dates according to the latter's characteristics, we can tell whether they prefer partners with traits similar or complementary to their own, or whether they simply choose those with the most desirable traits among their options. Thus, in this study, not only do we examine whether Japanese singles systematically prefer partners with certain family characteristics, but we also investigate how their preferences for the potential partner's family traits correspond to their own. By doing so, we can shed light on the extent to which the status exchange, matching, and competition hypotheses, respectively, elucidate the ways in which singles consider potential mates' family traits.

Family Attributes and Mate Selection in Japan

Although theories of mate selection have implications for whether singles may seek partners with similar or complementary family traits and experiences, they do not offer a clear indication as to which family traits are more desirable. Research on transitions to marriage links singles' family circumstances, including their number of siblings and birth-order ranks, as well as the existence of a prior marriage or a child, to the pace of such transitions (Ivanova, Kalmijn, & Uunk, 2013; Michael & Tuma, 1985; Poortman, 2007; Yu et al., 2012), but it focuses mostly on how family conditions affect singles' own marital aspirations or chances of meeting partners (e.g. Ivanova et al., 2013; Michael & Tuma, 1985). Only a small number of studies raise the possibility that singles with different family characteristics may have different chances of succeeding in the

marriage market (Goldscheider & Kaufman, 2006; Kojima, 1994; Yu et al., 2012). The argument behind this possibility is that individuals' existing family members and sibship positions suggest to prospective partners the extent to which these members potentially will wield influence and incur obligations, thus shaping the partners' interest. In addition, because internet daters have no direct contact with their potential partners, they especially likely rely on stereotypes to judge the latter (Pettigrew & Tropp, 2006). As a result, singles in cyberspace may prefer partners with family characteristics that are more typical and less commonly associated with negative stereotypes. In the following, we discuss which specific family traits should lead to more future complications and responsibilities, or to elicit prejudice, in the context of Japan.

Sibship Characteristics

Most researchers proposing that singles may prefer romantic partners of certain sibship characteristics link these characteristics with care obligations, including the obligation to live with aging parents, after marriage. Unsurprisingly, this hypothesis is most often considered in research on East Asia (Kojima, 1994, 1995; Yu et al., 2012), where expected responsibilities towards one's elderly parents are relatively great (Raymo et al., 2015) and traditional norms that prescribe which child should live with and care for parents continue to affect intergenerational exchanges (Lee, 2010; Lin et al., 2003). In Japan, although the tradition of children financially supporting their aging parents has been declining (Ogawa & Retherford, 1997), most parents still expect their children to care for them in old age (Takagi & Silverstein, 2006). In practice, relatively high proportions of Japan's elderly indeed coreside with and receive care from their married children (MHLW, 2013; Takagi & Silverstein, 2011).

Despite the social norm for children to live with and care for elderly parents, the younger generation in Japan often takes on the caretaker role with ambivalence, especially when it comes to

caring for parents-in-laws (Lee, 2010; Traphagan, 2003). This ambivalence, along with the fact that not all children must bear the same amount of care burden or coreside with their parents after marriage, makes singles likely to prefer partners whose sibship configuration implies less need for elder care and postnuptial coresidence. To begin, because the cultural tradition in East Asia expects sons and their wives, rather than married daughters, to be responsible for the care of elderly parents (Lee, 2010; Lin et al., 2003; Takagi & Silverstein, 2011), sibship sex composition is directly related to the amount of care burden to be placed on a given child. Specifically, having a brother allows a man to share, and a woman to step aside from, the care responsibility for aging parents. Singles with a brother should therefore be more appealing to potential partners.

By contrast, singles who are the only child in the family may be less desirable, because they have no siblings to share the elder-care burden. Men without siblings face an additional pressure to live with their aging parents. Under Japan's patrilineal family norm, married women rarely coreside with their own parents (Yasuda et al., 2011), whereas married men are expected to do so if their parents are in need. Against the backdrop of Japanese women's increasing reluctance to live with parents-in-law (Takagi & Silverstein, 2011; Traphagan, 2003), being the only child may hurt men's attractiveness more than women's.

Japanese singles' potential distaste for partners who are only children may not just stem from their concern over care responsibilities, however. Although scant research supports it, there is a widespread belief across societies that being the only child shapes one's character in an unfavorable way (Blake, 1981; Poston & Falbo, 1990). Those who are only children are presumed to be more spoiled and egoistic. Such personality traits are especially undesirable in a collectivist society like Japan. The fact that internet daters have limited information about their potential partners may also strengthen their tendency to select based on stereotypes against only children.

Although both reasons why singles may care about potential partners' family characteristics—the characteristics' implications for future care responsibilities and potential mates' unobservable traits—lead us to expect fewer positive responses to date requests from only children, they produce competing hypotheses regarding the reception of individuals from larger families. On the one hand, even though caring for elderly parents is typically sons' and their wives' responsibility in Japan (Takagi & Silverstein, 2011), daughters' involvement in elder care has increased over time (Lee, 2010). To the extent that daughters contribute to their parents' old-age care, having any additional sibling could help reduce a given child's share of the care burden. This consideration leads to the hypothesis that singles will prefer partners with more siblings. On the other hand, both ideal and intended family sizes have been declining in Japan (Kaneko et al., 2008), with a family of two children, one boy and one girl, being the most preferred at present (Fuse, 2013). Singles may extend their notion of ideal families to mate selection: They may consider those from two-child families as having the most ideal upbringing, thus favoring such partners. Moreover, because more recent families tend to be smaller in Japan (Kaneko et al., 2008), a larger sibship size could be seen as an indicator of traditionalism, with people from larger families being stereotyped as holding values less appreciated by current-day standards. We therefore derive an alternative hypothesis that singles will give fewer positive responses to those who grew up in larger families. In addition, more traditional parents are more likely to impose traditional expectations on their children—that is, they may have stronger expectations for financial support and old-age care from their sons and the sons' wives than other parents. A combination of the potential bias against larger families and concern over care burden leads to yet another hypothesis: The tendency to reject potential partners from larger families will be more pronounced when the partners do not have any brothers with whom care obligations can be shared.

Beyond sibship size and sex composition, one's birth-order rank may also affect one's attractiveness to potential mates in Japan, because being the oldest son in the family is traditionally associated with a greater expectation for coresidence with parents in Japan (Kojima, 1993; Matsukura, Retherford, & Ogawa, 2011). Combining being the oldest son with being the most senior in the sibship, which is argued to be associated with a larger share of responsibility for the natal family's wellbeing in East Asian culture (Yu & Su, 2006), men who are firstborn may be under especially great pressure to form multigenerational households with their parents. Therefore, more than women who are firstborn, we would expect men of this birth-order rank to receive fewer positive responses when requesting dates.

Although those who have no brothers, are firstborn, or are the only child are expected to provide more elder care than other individuals, we should note that the same sibship characteristics also enhance individuals' share of inheritance from their parents. If the incentive of inheritance outweighs the concern of care responsibilities, then we should find these sibship characteristics to increase, rather than decrease, individuals' odds of receiving favorable responses from potential mates. In Japan, however, increasing life expectancy has made the elderly less willing and able to save for bequests (Horioka et al., 2000; Horioka & Watanabe, 1997), and it has made the timing of inheritance fairly late for their children (Izuhara, 2002). Both conditions weaken the possibility that singles will take potential partners' future inheritance into account.

Conditions related to other family members

Following the logic that family conditions that imply more obligations are generally undesirable, an existing need to financially support a family member likely makes one less attractive to potential mates. By the same token, singles may prefer partners whose parents are both living. Because spouses of the elderly in need of care constitute the largest group of

caregivers in Japan (MHLW, 2013), those without one must rely more on their children and the children's spouses. Despite the possible preference for the presence of both parents for their potential partners, singles may not appreciate the partners' parents, or other relatives, being in the same household. Once the natal family size is taken into account, the number of relatives one lives with should suggest to others how frequently one must interact with family members. In societies with a tradition of family involvement in singles' marriage processes, such as Japan (Raymo et al., 2015), more daily interactions with family members can indicate a higher potential of family interference in the romantic relationship. The concern about unwanted complications may lead singles to prefer potential partners who live with fewer relatives.

Beyond the reduced possibility that other family members may complicate the relationship, men who live apart from their family may be especially desirable, because this living arrangement suggests less pressure for postnuptial coresidence. In Japan, adult children generally do not leave their parental home before marriage, unless their schools or jobs require them to live far away (Yu & Kuo, 2016). Hence, an independent living arrangement implies that there are practical reasons that one cannot live with parents, making postnuptial coresidence unlikely. Related to how singles may use family conditions to assess personality traits, they may also see independent living as an indicator of competence, as young adults living alone are found more capable in various aspects in life than those living with parents (Kins & Beyers, 2010). The two mechanisms lead to somewhat different predictions, however. If the concern about postnuptial coresidence is the main driving force, independent living will increase men's desirability, but not women's, because married women rarely live with their parents. If the preference for those living alone comes from the association with positive personality traits, then both men and women living independently will receive more positive responses to their date requests than those living among relatives.

Family histories

Beyond natal family characteristics, internet daters may scrutinize potential partners' family history and make inferences about their values and personalities. A history of divorce can be interpreted as a failure to maintain a marriage, especially in Japan, where divorce became common relatively recently (Raymo et al., 2015). Having experienced divorce may also indicate less commitment to the institution of marriage, making one a riskier partner. Previous studies of self-reported mating preferences further show that singles prefer those without children from previous unions (Goldscheider & Kaufman, 2006; South, 1991), perhaps because the presence of a child brings both obligations and complications. We therefore expect that singles with a prior marriage or a child will face greater difficulty securing a date. As Japanese women receive full custody of children after divorce in 83% of cases (Shirahase & Raymo, 2014), women with children can be expected to be less preferred than men with the same condition.

Method

Data

The data for our analysis come from a log of dating requests exchanged between customers of the largest Japanese matchmaking agency from 2006 to 2008, the period to which the agency granted us access. With Japan's steady declines in marriage rates, relying on dating or matchmaking services to find marriage partners has become increasingly common. A survey conducted in 2005 reported that one in five singles had used some type of dating or matchmaking service (METI, 2005), and the number is likely greater today. Being largest in the industry, the agency from which our data come is known for targeting a broad audience; its customer base is not limited to a particular region or social group. Its customers, however, are restricted to those seeking marital, rather than any romantic, partners. In Japan, matchmaking agencies that aim to

facilitate marriages, like this one, have a legal obligation to ensure that their participants seek dates for the purpose of marriage. The specific agency ensures this intention during its initial interviews with customers, a process we detail below. Our data therefore better reflect how singles select marriage partners than most studies using online dating records, as the latter inevitably include the behaviors of individuals with no intention to marry. Given that they are from a single agency and a particular time period, we consider our data as a sample of dating exchanges among Japanese adults seeking marriage partners with the aid of dating services. Although this sample is not randomly selected, it allows us to provide insights about mate selection in ways similar to how case studies of a firm contribute to our knowledge (e.g., Petersen & Saporta, 2004).

Rather than individuals, the unit of our analysis is date requests that occurred between any given male and female customers of the agency (which permits only heterosexual exchanges). Customers can send date requests, accompanied by detailed profiles of themselves, to any other customers of the other sex. Upon reviewing the profiles, receivers of such requests can accept or reject the requests online. The log of date requests we obtained includes information about the sender and receiver, as well as the receiver's response for each request. Because we are interested in how receivers of date requests respond according to senders' family traits, and because older people seeking marriage may be much less concerned about the partner's parents' interferences or the partner having children (as the children tend to have grown up), we exclude date requests of which the receiver was older than age 50 (2.1%). We further exclude requests involving those who began using the agency before 2000 (5.0%), as those unable to find matches after many years are likely to rely more on alternative means to meet marriage partners, making them less serious about their exchanges with other agency customers. A separate analysis, however, showed similar results had we not applied either of these exclusions or limited the requests to those involving individuals

who became agency customers after a more recent time than 2000. As elaborated in a later section, we use fixed-effects logit models to account for unobserved heterogeneity among receivers of date requests (Allison, 2009), and such models require multiple observations for each receiver. Hence, we exclude all requests sent to individuals who were approached only once during the observation period (.9%). We also exclude requests received by those who always accepted or always rejected the requests sent to them (16.0%), as the estimation of fixed-effects logit models requires within-person variation in the outcome examined. In an exploratory analysis, we instead used fixed-effects linear regression models, which did not require us to exclude all these observations, and the results were similar. After all these selections, our sample contains 135,837 requests received by 9,279 men and 406,486 requests received by 11,954 women.

Unlike data from most online dating services, which are subject to participants' lies or exaggerations about themselves (Schmitz, Zillmann, & Blossfeld, 2013), information on senders and receivers of the date requests used in our analysis are highly reliable. Customers of the specific matchmaking service are required to first undergo a lengthy (about two hours) face-to-face interview with an agency employee, who collects information about their demographic characteristics, family composition, sibship configuration, living arrangements, and family history. The interviewer also records customers' preferences (including no preference) for their potential partner's occupation, income, geographic location, physical features (i.e., height, weight, health, and eyesight), and marital and childbearing histories. All customers must provide documentation of their identity, single status, level of education, income, and address. Because individuals are required to produce their family registry (*koseki*) when joining the agency as proof of identity, the data on their own family history and composition are especially accurate.

To provide the context in which the date requests were made, users of the matchmaking

service receive between 6 and 12 recommended partner profiles monthly (based on computer matching of both parties' stated dating preferences at the initial interviews), as well as a monthly agency magazine with brief descriptions of all those who became agency members during the past two months. From these recommendations and magazine publications, individuals may decide to whom to send date requests. Although the recommendations generated from computer matching would have taken into account individuals' preferences for the potential partner's marital and childbearing histories (but not other family characteristics), one who has stated a preference for a never-married person may still receive a date request from a person with a previous marriage, because the latter could have chosen the former from an agency magazine, the channel most commonly used in our sample. The agency also organizes speed-dating sessions and themed parties to provide additional channels for customers to identify potential mates, but such channels facilitated relatively few of the date requests in our data.

Throughout the paper, we refer to the matchmaking process of the agency that provided us data as computer-based matchmaking and draw parallels between it and online dating, because at their core the processes are very similar. Superficially, one difference is the reliance on printed materials (agency magazines), rather than online search when requesting dates. Crucially, however, whether the individuals rely on agency magazines or make dating requests utilizing the agency-generated recommendations, they can request dates or reject date requests without any personal contact, a key difference from traditional dating processes. Because agency customers always initiate dates and respond to proposed dates online, the practice is essentially identical to those of typical Western online dating agencies.

Measures and Analytic Strategy

Our analysis focuses on the decision to accept a date request, with a binary indicator

("accept" coded as 1) as the dependent variable. Although the individuals in our sample also made date selections when first deciding whom to approach, we have no way of telling whose profiles they had reviewed at the time of selection and how much they knew about the people they chose—for example, they would have little information on potential dates' family traits if selecting from the agency magazine. The decision to accept or reject a date request, by contrast, is universally made upon an evaluation of the sender's comprehensive profile, including detailed information on his or her family. In addition, the decision to accept a date request is more consequential according to the agency rules. Specifically, the agency allows customers to send date requests to several people simultaneously. Once a receiver accepts a date request, it is up to the original sender to confirm his or her willingness to proceed with the date (in case the sender faces multiple acceptances). Upon confirmation, the two parties are expected to be in a monogamous dating relationship; neither is allowed to send or receive other date requests until he or she informs the agency that the relationship is terminated. Because accepting a request is highly likely to result in losing opportunities to send or receive other date requests, individuals are likely to think carefully about this decision, making it especially worthy of our attention.

For the independent variables of interest, we create a series of indicators for the family characteristics of the senders of data requests ("senders" hereafter), including their family history, sibship attributes, number of coresiding family members, and need to support family members. To test how the preferences of the receivers of date requests ("receivers" hereafter) correspond to their own family traits, we also create the same variables for the receiver of each request. Specifically, we use a dummy variable for having been married before and another for having a child from a previous union. For sibship attributes, we measure whether one is the firstborn in the family and whether one has no brothers. Moreover, we include sibship size, measured by the total number of

children in the natal family. To test whether there is a special bias against someone who is an only child, other than a general preference for mates from a larger or smaller family, we introduce an additional indicator for being the only child. Based on individuals' reports on whether they financially support any close relatives, we create a binary indicator for existing support obligations for family members other than children. Related to support obligations, we use a dummy variable to indicate having only one living parent. In addition, we measure whether one lives (a) alone, (b) with one to three relatives, or (c) with more than three relatives, to test whether coresidence with family members is associated with one's attractiveness.

In all models, we control for education, age, and annual income, as they tend to affect individuals' marriageability (Kalmijn, 2011, 2013). Because previous research on online dating suggests that one's age, educational, and income preferences for potential dates may be relative to one's own conditions (Hitsch et al., 2010b; Skopek et al., 2011), we include both absolute and relative measures for these three characteristics. To be specific, we divide education into four levels: (a) high school and less, (b) tertiary-level vocational school, (c) junior college, and (d) university and above. We measure age at the time the date request was made, in three categories: (a) age 29 and younger, (b) 30-39 years of age, and (c) age 40 and older. We use a continuous measure of the individual's annual earnings (in one million yen). For the relative measures, we create a series of dummy variables for whether the man in the dating transaction has less, the same, or more education than the woman. We construct the relative measures by comparing the man and the woman, rather than the sender and the receiver, in each observation, to make the results more intuitively interpretable. We similarly measure whether the man is younger, the same age to up to two years older, or more than two years older than the woman. Our exploratory analysis indicated this categorization captured the data the best, perhaps because men up to two years older than

women are generally considered as being a similar age (but being just one year younger is not) as the latter. We include indicators for whether the man's annual income is lower than, similar to, or significantly more than the woman's. Because of the large gender gap in pay in Japan (Yu, 2009), we consider the cases in which the man earns the same or no more than one million yen more than the woman annually as the two having a similar income, whereas those in which the man's income exceeds the woman's by one million yen or more as the man earning significantly more.

We also control for the different channels through which the sender of a request identified the receiver. As mentioned, senders of date requests could have found receivers through the agency's computer matching, print materials, or parties and social events. Given that the computer matching conducted by the agency takes into account both parties' stated preferences, date requests that are made to the agency's recommended partners are likely to have a better chance of being accepted. Using senders' reports on the primary way through which they identified receivers, we divide the date requests into three channels: (a) computer matching, (b) agency print materials, and (c) other. We further control for the number of days the receiver has been with the agency at the time of being approached, as time spent on partner search may affect individuals' willingness to accept offers. Because men and women may have different mate preferences, we estimate models separately for requests from men to women and requests from women to men. The former type of requests informs about how women select dates facing available choices, whereas the latter type demonstrates men's dating preferences when being approached.

Given that our outcome of interest, the acceptance of a date request, is dichotomous, we use logistic regressions with fixed effects for the receiver in the analysis. Unlike regular logistic regressions, the estimation of fixed-effects logit models relies exclusively on within-person variation, rather than between-person differences (Allison, 2009). In this case, the fixed-effects

modeling approach utilizes multiple date requests received by the same people over time and estimates how changes in sender characteristics between the requests correspond to responses from the same receiver, conditional on the receiver making different decisions among those in the choice set. By relying on within-person variation, fixed-effects models are able to net out all unobserved time-invariant characteristics of receivers that may bias the results. To give an example of such bias, people who are more eager to marry may be more likely to receive date requests from singles with children, if their eagerness leads them to not specify a preference for childless partners in their profiles, and they may have higher likelihoods of accepting requests. Without accounting for this eagerness, the estimated effect of the sender's parental status on request acceptance would be biased. Although fixed-effects models cannot control for unobserved changes in receivers' circumstances from one request to the next, the two-year span we observe is short enough for most personality traits and beliefs to be unchanged. We do not include sender fixed effects in the models because the outcome for our analysis is the receiver's, not the sender's, decision. Moreover, the sender characteristics of our interest, such as marital history, number of children, and sibship attributes, are all constant across requests from the same senders; these characteristics would be dropped from the models if sender fixed effects are included.

Another benefit of fitting fixed-effects logit models is that they enhance our ability to compare how men and women respond to the same sender characteristics differently. Group comparisons with logistic regressions are potentially problematic when unobserved heterogeneity between groups is considerable (Mood, 2010). Because our fixed-effects models greatly reduce unobserved heterogeneity among receivers, however, we are far less likely to suffer from this problem. Despite the merits of the fixed-effects technique, in an exploratory analysis, we fitted models with population-averaged estimators, which estimated the average odds for date requests

with a given sender characteristic to be accepted, and the overall patterns were similar.

Results

Table 1 presents descriptive statistics for the analytical sample by the type of requests—woman-to-man or man-to-woman requests—with information for senders and receivers within each type. Because singles receiving date requests are presumably more desirable than those sending requests, comparing senders and receivers by gender provides some insights into what characteristics are relatively desirable within each gender group. As the table shows, female receivers were younger, less likely to have a prior marriage or a child, less likely to be firstborn, less likely to be the only child, less likely to have no brothers, and less likely to have only one living parent than female senders (differences significant at the 0.05 level based on χ^2 tests). Similarly, male receivers were less likely to have a child or a prior marriage, less likely to be the only child, and less likely to be firstborn than male receivers (differences statistically significant). These results suggest that regardless of gender, those having a child or a prior marriage, being firstborn, and being the only child are less desirable to potential mates. Male receivers were also much better educated, had higher incomes, and were more likely to live apart from their natal family ($p < .05$ in all cases). It appears that along with high education and income, living by oneself enhances a man's appeal to women in online dating in Japan.

Turning to the multivariate analysis, Table 2 shows fixed-effects logit models predicting the acceptance of date requests. We present the models by the type of requests and indicate whether the coefficients in the full model (Model 2s) for the two groups differ using Ward tests. In light of the potential bias in comparing logit regression coefficients between groups (Mood, 2010), we also tried Long's (2009) method of group comparisons using predicted probabilities. We found the pattern consistent with the Ward-test results. Starting with woman-to-man requests, a change in

sender characteristics from never-married to ever-married reduces a given man's odds of accepting a request by 21% (exp(-.24) = .79), whereas a change from a sender without children to one with a child decreases these odds by 65% (exp(-1.05) = .35). Changes in marital status and child presence alter a woman's odds of accepting a request in similar directions, according to the models for man-to-woman requests. The sender's parental status is nevertheless less influential on women's decisions: Having a child reduces women's odds of accepting date requests by just 21% (exp(-.23) =.79). This gender difference is consistent with the argument that having a child is seen as affecting divorced men's future partners less than it does divorced women's in Japan.

The sender's sibship characteristics also shape the odds of request acceptance. Based on Model 1s for both types of requests, the sender being firstborn, the only child, and among a larger sibship all reduce a request's odds of being accepted. Consistent with the expectation that being firstborn disadvantages men more than it does women, because of its connection to postnuptial coresidence for men, having a sender who is firstborn decreases women's odds of acceptance more than men's (exp(-.11) =.89 vs. exp(-.05) = .95). Although whether the sender has no brothers barely affects request acceptance in the first model for either group, we add an interaction between this variable and the sender's sibship size to test the hypothesis that the lack of brothers is only detrimental if the sibship size is relatively large (Model 2s). The results show that having no brothers indeed harms more when the sender has more siblings.

To illustrate how changes in the sender's sibship configuration affect a request's likelihood of being accepted, we estimate the predicted conditional probabilities for a woman and a man to accept requests from senders who differ in sibship characteristics based on the full models, holding all other attributes of the requests at the median or mean. Because those who are only children are bound to be firstborn and without brothers, we alter the sender's sibship sex composition and birth-

order rank to calculate the conditional probabilities only when his or her sibship size is more than one. Figure 1 presents the results. It is important to note that because our models are conditional fixed-effects logit models, the predicted probability is not the probability that a request in our sample would be accepted. Rather, it is the probability for a person facing multiple requests to accept a given one, conditional on only one of the choices being selected. Given that the estimated probabilities are conditional probabilities, we focus on how they change with different sender sibship characteristics, rather than their absolute values.

The patterns shown in Figure 1 for male and female senders are generally similar, except the disadvantage of being firstborn is greater for male than female senders. All else being equal, requests whose senders are from two-child families are more likely to be accepted than those with senders from larger or smaller families. This nonlinear effect of sibship size, along with the similar patterns for both gender groups, suggests that rather than concern about care and coresidence obligations, stereotypes against only children and larger families drive singles' preferences for their partner's family size. Other patterns, however, indicate that consideration of the elder-care burden is still relevant. Declines in the conditional probabilities of acceptance with sibship size are much greater when the sender has no brothers, a condition directly related to the sender's share of care responsibilities. Interestingly, despite the sizable harm of having no brothers for men from large families, those from two-child families and without a brother—that is, families with one boy and one girl, the ideal family type for today's Japanese—actually have the highest predicted conditional probability of having their requests accepted. Taken together, these results are most consistent with the argument that singles' preferences for potential mates' sibship characteristics derive from a combination of bias against atypical family types and concerns about the elder-care burden. A potential partner's having no brothers to share care responsibilities becomes a concern

only when his or her sibship size is large enough to suggest traditionalism; to put it another way, the bias against exceptionally large families affects singles' acceptance of date requests much more if the sender's sibship sex composition implies extra care responsibilities.

Table 2 also indicates that women's odds of accepting requests decrease by 30% when facing senders who coreside with 1-3 family members (exp(-.35)=.70), instead of living alone, and by nearly 40% when facing senders who live with more than 3 members (exp(-.50)=.61). By contrast, men's odds of acceptance mainly differ when comparing senders who live with more than 3 family members with those in other living arrangements, and the former condition decreases the odds less than it does women's. These results are consistent with the expectation that women have an especially strong preference for partners who live apart from the family, as it suggests less expectation for postnuptial coresidence. Men's relative indifference between women who live independently and those living with a small number of family members contradicts the hypothesis that the positive personality traits suggested by independent living increase one's appeal. That men merely avoid those living with "too many" family members is congruent with the argument that such living arrangements raise concerns about family members' interference.

Consistent with the expectation that additional family obligations decrease individuals' attractiveness, requests from senders who must financially support family members have lower odds of being accepted by both men and women. Moreover, men's odds of accepting requests from women with a widowed parent, as opposed to having two living parents, are lower, but, surprisingly, women are rather indifferent about whether their potential dates have two living parents. Perhaps daughters' increasing involvement in their aging parents' care has made Japanese men more concerned about their widowed parents-in-law's potential dependence on their wives than women are about the impact of their husband's surviving parent.

Beyond family characteristics, the control variables in the models also provide insights into mating preferences in Japan. Both men and women prefer better-educated partners, as requests whose senders have higher educational levels have higher odds of being accepted. Relative educational status is important as well. Both men and women have higher odds of accepting dating requests in which the man's educational level is the same or higher, as opposed to lower, than the woman's, although the coefficients are larger when women are the decision-makers. Moreover, women have higher odds of accepting requests in which the man has more education, compared to those in which the two parties' educational levels are the same, whereas men's odds of accepting women with lower and the same levels of education are similar. Taken together, these results suggest that women have stronger preferences for educational hypergamy than men in Japan.

Women similarly demonstrate a preference for hypergamy regarding income. Although both men and women have absolute preferences for those with higher incomes, women's odds of accepting a request increase by 75% if the sender earns slightly more, as opposed to less, than they do ($\exp(.56) = 1.75$), and their odds are more than three times as great when the sender's income is significantly higher ($\exp(1.17) = 3.22$). The scenario in which the man earns considerably more than the woman, by contrast, is not the most preferred among male receivers. Men's odds of accepting a request are lower if the woman has a much lower income, as opposed to a slightly lower or higher income, than their own. Men's and women's age preferences also do not coincide. Whereas men have greater odds of accepting requests from women more than two years younger than from those of a similar age or older than themselves, women's odds of acceptance are lower when the sender is more than two years their senior, rather than similar or younger than themselves.

To investigate whether Japanese singles' preferences for family characteristics are absolute or dependent on their own family conditions, we further fit models that include interaction terms

between the sender's and the receiver's family characteristics. Table 3, which includes partial results from these models, indicates that preferences about family history depend somewhat on the receiver's own family history, especially when the receiver is female. Specifically, both men and women who have been married are more likely to accept requests from those with a similar experience; in fact, Wald-test results reveal that the sums of the main and interaction effects are greater than zero for both men and women, indicating that a date request between two ever-married people has higher odds of being accepted than one between two never-married people. Regarding the disadvantage for senders with a child, when the receiver also has a child and is female, the odds of acceptance increase considerably, but the receiver's own parental status is only marginally relevant for male receivers.

In contrast to family history, the effects of natal family characteristics on the acceptance of date requests rarely depend on the receiver's own traits. Regardless of whether the sender and receiver have similar or complementary family traits, the odds of request acceptance barely change. Singles facing a set of partner choices simply prefer those with more family traits that are universally desirable, such as not being the only child, having a brother, and living apart from family members. The only exception is that women who live with more than three family members have higher odds than other women of accepting requests from men living with a similar number of family members. On the whole, however, Japanese singles' preferences for natal family characteristics provide most support for the competition hypothesis.

Conclusions

In spite of a growing literature using online dating records to investigate mate preferences, few existing studies look beyond preferences concerning basic sociodemographic attributes of potential mates, such as their age, race and ethnicity, income, and education (Curington et al., 2015;

Hitsch et al., 2010b; Lin & Lundquist, 2013; Skopek et al., 2011), and even fewer address online dating patterns outside of Western contexts. To our knowledge, this study is the first to demonstrate singles' preferences for potential mates' family circumstances in a society featuring strong familism.

We have proposed that Japanese singles' preferences for partners with certain family characteristics could result from these characteristics' implications for unwanted future complications and obligations, or from social bias against individuals with atypical, less than ideal family experiences. Results from our analysis indicate that the preferences derive from a combination of both mechanisms. On the one hand, traits that clearly indicate greater obligations, such as having a child from a prior union and existing support for a family member, make one less desirable to both men and women. Many gender differences in our findings similarly support the argument about future family obligations. For example, Japanese women are more reluctant than men to accept potential partners who are firstborn or do not live independently, because women may face pressure to live with their spouse's parents, while men do not. On the other hand, a history of prior marriage, which generally triggers bias and unfavorable inferences about an individual's character, also disadvantages singles seeking romantic partners. Our results of how sibship configuration affects individuals' likelihood of receiving positive responses to their date requests, however, best demonstrate a combination of the two mechanisms. Although singles tend to find those from one-child or relatively large families undesirable, which is consistent with the argument about social biases against both types of upbringings, being from a large family hampers individuals', especially males', mating chances much more if they are firstborn and have no brothers, two conditions that make them the designated child to care for elderly parents. At the same time, even though having no brothers typically implies greater future care responsibilities,

this implication tends to be overlooked when the potential partner's family size is considered as ideal—two children—by current standards.

Beyond showing how family characteristics affect singles' desirability to potential mates, this study provides a direct test of mate-selection theories that respectively expect singles to seek partners whose traits are similar or complementary to their own or the best possible by universal standards. Similar to prior research in Western contexts (Hitsch et al., 2010a), we find that different theories apply to different characteristics under consideration. For individuals' family histories, the matching hypothesis, which highlights the homophily tendency, receives some support. Compared to the never-married and childless, those with a previous marriage and a child are more likely to select partners who have been married and have a child, respectively. We should nevertheless note that those with prior marriage or a child are still more likely to accept requests from those who are never-married and childless than those with a similar condition. Thus, for singles with prior marriage or a child, the desire for partners without prior marriage or children still outweighs their affinity toward those with an experience similar to their own.

For natal family characteristics, we find little support that internet daters in Japan seek partners with family circumstances similar or complementary to their own. Rather, the results are generally consistent with the competition hypothesis. When given a choice set, Japanese singles tend to select partners with family characteristics that indicate the most ideal upbringing or the least care obligations, regardless of their own family conditions.

Although our results do not support that individuals seek romantic partners with complementary family traits—for example, that people from very small families prefer partners from large families—we should acknowledge that the original formulation of status exchange theory includes the possibility that the two parties trade advantages or disadvantages from different

broad categories. Hence, for example, those with an extra care burden, such as firstborn sons from large families, may choose women whose educational levels are much lower than their own. Testing such trading patterns would require us to include a large number of interactions between a wide range of traits between senders and receivers of the date requests and thus is beyond the scope of the current paper. Given that future research is needed to test this possibility, we can only reject a limited version of status exchange theory, which assumes that singles would seek mates with complementary traits of the same category.

Another limitation of the study is that like all research using internet dating records (e.g., Curington et al., 2015; Hitsch et al., 2010a, 2010b; Lin & Lundquist, 2013), our sample is restricted to users of a specific matchmaking service. The fact that the agency from which our data come is the largest in Japan, however, makes users in our sample likely to resemble the population using assistance to find marriage partners in that country. Moreover, even though internet daters do not represent all singles, prior research shows that online dating preferences are similar to those outside cyberspace (Hitsch et al., 2010a). With caution, we think that our findings can still inform about the preferences of singles seeking marriage partners in Japan.

If the preferences for family circumstances shown in this study indeed exist outside cyberspace, and these preferences partly stem from singles' aversion to care obligations, then our findings also have important policy implications for Japan. As singles shouldering larger elder-care burdens are less desirable to potential mates, they may have to choose between marrying those who also have a larger care burden and remaining single. Either way, it is likely to heighten the level of inequality in the care burden among households, resulting in a greater disparity in citizens' wellbeing. Policies that help shift the responsibility of elder care from the family to the society are needed to address this disparity. The fact that the concern about care responsibilities plays a role in

mate-selection processes also means that taking away some of the elder-care burden from the family would remove some hurdles that make it difficult for singles to find marriage partners, thereby raising Japan's very low fertility rate.

Because Japan is not unique in the expectation that the younger generation will shoulder elder-care responsibilities, and many of Japan's patrilineal norms, including the pressure for a married son to coreside with elderly parents, are shared by other Asian countries (Yasuda et al., 2011), we think that some of the results from our analysis are generally applicable to other contexts. In other Asian societies, for example, women may also prefer partners whose current living arrangements and sibship compositions imply a lower need for postnuptial coresidence. Even for countries lacking similar patrilineal norms, our overall argument, that singles use potential partners' family characteristics to gauge the latter's share of care burden and take this share into account in mate selection, may still be relevant.

Although we focus primarily on preferences for family characteristics, other findings from the analysis also provide insights into mate selection in Japan. Particularly notable are the discrepancies between men's and women's preferences for their mates' age, income, and education relative to their own. Whereas women prefer men of a similar age, men are much more inclined to date women who are considerably younger. Likewise, women are more interested in men with more education and significantly higher incomes than themselves than men are in women with less education and much lower incomes. To the extent that cyberspace mate preferences are similar to preferences elsewhere, discrepancies uncovered in this study are likely to play a role in explaining the difficulty of union formation among Japanese singles. At the very least, our findings suggest that the effect of the rapid rise in matchmaking services on marriage formation in Japan may be dampened by the fact that men and women using such services have different views on what an

ideal couple's relative statuses should be. Future research, however, is needed to further illuminate how the gap between men's and women's preferred scenarios of matches is linked to the continuous increase of marriage postponement in Japan.

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Table 1: Descriptive Statistics of Senders and Receivers of Date Requests

	Woman-to-man requests		Man-to-woman requests	
	Senders (woman)	Receivers (men)	Senders (men)	Receivers (women)
Acceptance rate	--	30.9	--	11.6
Educational level:				
High school and less	15.0	6.9	26.3	16.3
Vocational school	16.1	5.0	13.3	19.7
Junior college	25.0	1.9	3.2	24.3
University and more	43.8	86.2	57.3	39.6
Age group:				
≤29	27.5	10.0	17.5	41.1
30-39	62.9	69.7	60.6	53.7
40~	9.6	20.3	21.9	5.2
Annual income (in 1 million yen)	3.2 (1.5)	7.3 (4.3)	5.5 (2.8)	3.0 (1.4)
Ever married	12.7	10.1	15.2	7.9
Have a child	4.9	1.0	2.6	2.3
Firstborn	54.2	55.3	55.9	50.4
Only child	12.2	8.8	12.1	9.7
Sibship size	2.2 (.7)	2.3 (.7)	2.3 (.8)	2.3 (.7)
No brothers	48.5	49.2	49.0	44.7
Coresiding family members:				
None	37.4	73.6	56.9	36.5
1-3 members	57.7	24.9	40.3	58.0
>3 members	5.0	1.5	2.8	5.5
Support family members (other than child)	0.5	2.6	3.5	0.7
One living parent	21.4	20.0	24.1	16.3
Channel to identify receiver:				
Computer matching	37.4	--	34.4	--
Agency print materials	50.0	--	53.5	--
Other	12.7	--	12.1	--
Time with agency (month)	7.1 (5.2)	12.0 (15.5)	7.6 (5.3)	13.3 (17.3)
N	135,837		406,489	

Note: Except for income, sibship size, and receiver's time with agency, for which the average and standard deviation (in the parentheses) are presented, all numbers are in percent. The percentages and averages are calculated among all date requests used in the study, not individuals sending or receiving requests.

Table 2: Fixed-Effects Logistic Regressions of Acceptance of Date Requests

	Woman-to-man requests (male decision-makers)				Man-to-woman requests (female decision-makers)				
	Model 1		Model 2		Model 1		Model 2		
	b	*SE*	*b*	*SE*	*b*	*SE*	*b*	*SE*	*Diff.*[a]
Sender characteristics:									
Ever married	-.24**	.03	-.25**	.03	-.34**	.02	-.34**	.02	**
Have a child	-1.05**	.05	-1.06**	.05	-.24**	.04	-.23**	.04	**
Firstborn	-.05**	.02	-.05**	.02	-.11**	.01	-.11**	.01	**
Only child	-.08**	.03	-.24**	.04	-.14**	.02	-.25**	.03	
Sibship size	-.07**	.01	-.03*	.01	-.07**	.01	-.04**	.01	
No brothers	-.02	.02	.36**	.07	.01	.01	.28**	.05	
Sibship size × no brothers			-.17**	.03			-.12**	.02	
Coresident family members (*ref.* none):									
1-3 members	-.03†	.02	-.03†	.02	-.35**	.01	-.35**	.01	**
>3 members	-.26**	.04	-.25**	.04	-.50**	.04	-.50**	.04	**
Support family members (other than child)	-.69**	.11	-.71**	.11	-.30**	.03	-.29**	.03	**
One living parent	-.12**	.02	-.12**	.02	-.01	.01	-.01	.01	**
Education (*ref.* high school and less):									
Vocational school	.12**	.03	.12**	.03	.17**	.02	.17**	.02	**
Junior college	.43**	.03	.43**	.03	.13**	.04	.12**	.04	**
University and more	.52**	.03	.53**	.03	.39**	.03	.39**	.03	**
Age group (*ref.* $\leq$29):									
30-39	-.19**	.02	-.19**	.02	-.16**	.02	-.16**	.02	
40~	-1.05**	.05	-1.05**	.05	-.75**	.03	-.75**	.03	**
Annual income (in 1 million yen)	.07**	.01	.07**	.01	.10**	.00	.10**	.00	**
Relative characteristics									
Relative educational status (*ref.* man's < woman's):									
Same education	.14**	.03	.15**	.03	.39**	.03	.39**	.03	**
Man's > woman's	.16**	.05	.16**	.05	.57**	.03	.57**	.03	**
Relative age status (*ref.* man younger)									
Man 0-2 years older	.42**	.02	.42**	.02	.00	.02	.00	.02	**
Man more than 2 years older	.75**	.03	.75**	.03	-.30**	.02	-.30**	.02	**
Relative income status (*ref.* man's < woman's):									
Man with 0-999,999 more income	.02	.05	.02	.05	.56**	.04	.56**	.04	**
Man with 1 million or more income	-.14**	.05	-.14**	.05	1.17**	.03	1.17**	.03	**
Other features:									
Channel to find receiver (*ref.* computer match):									
Agency print materials	-.61**	.02	-.61**	.02	-.87**	.02	-.87**	.02	**
Other	.06*	.02	.06*	.02	.21**	.02	.21**	.02	**
Receiver's time with the agency (month)	-.01**	.00	-.01**	.00	-.03**	.00	-.03**	.00	**
N	135,837		406,489		406,489		406,489		
Log Likelihood	-53,241.94		-53,226.06		-99,115.57		-99,101.21		

Note: The model includes fixed effects for receivers of date requests.

[a] The column contains test results for the differences between the coefficients in the two Model 2s.

†$p < .10$; *$p < .05$; **$p < .01$.

Table 3: Partial Fixed-Effects Logistic Results of Acceptance of Date Requests

	Woman-to-man requests (male decision-makers)		Man-to-woman requests (female decision-makers)	
	b	*SE*	*b*	*SE*
Sender characteristics[a]				
Ever married	-.37**	.03	-.50**	.02
× receiver ever married	.42**	.06	.75**	.04
With a child	-1.10**	.05	-.46**	.05
× receiver with a child	.26†	.16	.53**	.09
Firstborn	-.03	.02	-.12**	.02
× receiver firstborn	-.03	.03	.01	.02
Only child	-.23**	.04	-.24**	.03
× receiver only child	-.07	.08	-.06	.06
Sibship size	-.08*	.04	-.08**	.03
× receiver sibship size	.02	.01	.02	.01
No brothers	.38**	.07	.29**	.06
× receiver no brothers	-.04	.05	-.02	.04
Sibship size × no brothers	-.18**	.03	-.12**	.02
× receiver sibship size × no brothers	.02	.01	.00	.01
Coresident family members (*ref.* none):				
1-3 members	-.03	.02	-.33**	.02
>3 members	-.24**	.04	-.51**	.07
1-3 members × receiver 1-3 members	-.03	.03	-.03	.03
1-3 members × receiver >3 members	.24*	.12	.04	.05
>3 members × receiver 1-3 members	-.04	.08	-.03	.09
>3 members × receiver >3 members	.16	.22	.31*	.16
Support family members (other than child)	-.70**	.11	-.30**	.03
× receiver support family member	-.05	.55	.33	.31
One living parent	-.12**	.02	-.02	.02
× receiver one living parent	-.01	.04	.04	.03
N	135,837		406,489	
Log Likelihood	-53,188.66		-98,913.40	

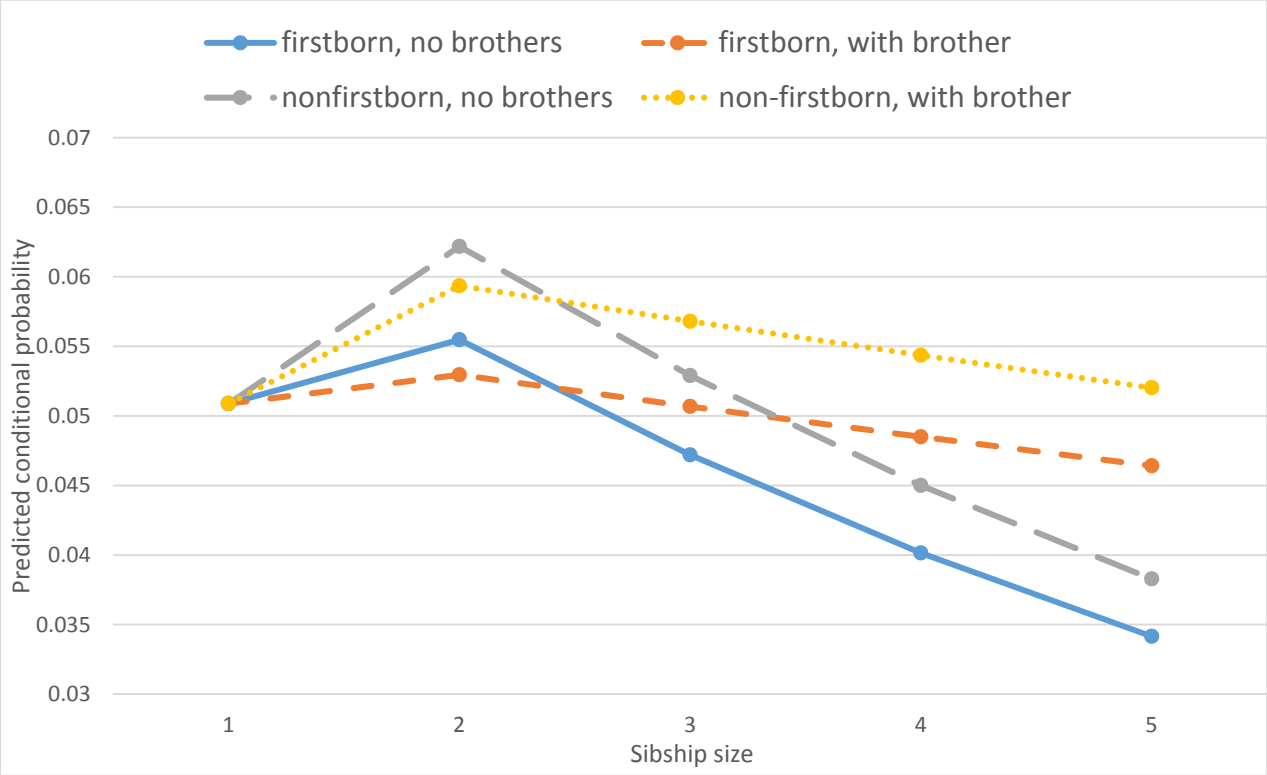
Note: The models include fixed effects for receivers and control for the same variables as in the models in Table 2, including education, age, and income of the senders; relative education, age, and income statuses of the dyads; and the channels through which the senders first became aware of the receivers of their date request.

[a] All the characteristics that are not specified as receiver characteristics are those of the senders. In other words, the non-interaction variables are all sender characteristics, whereas the interaction terms are between sender characteristics and receiver characteristics.

†$p < .10$; *$p < .05$; **$p < .01$

Figure 1: Predicted Changes in Conditional Probabilities According to Sender Sibship Attributes

A. Male senders



B. Female senders