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Stability and Relevance of Marriage Desires: Importance of Age Norms and Partnering Opportunities

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Abstract

Objective: This study investigates shifts in marriage desires during singlehood and the potential consequences associated with these shifts in Japan, a country epitomizing later and less marriage without substantial increases in nonmarital childbearing.

Background: Despite researchers' long-standing interest in values potentially motivating demographic changes, few have systematically examined marriage desires among unmarried adults. Even fewer have considered how marriage desires may change during adulthood and how relevant such changes are to marriage and family behavior.

Method: The analysis uses 11 waves of the Japan Life Course Panel Survey, which tracks singles' marriage desires yearly. Fixed effects models are estimated to demonstrate factors associated with within-person changes and account for unobserved heterogeneity.

Results: Japanese singles' marriage desires decline with age but are stronger when they perceive greater opportunities to form romantic relationships or marriage. Singles experiencing an increase in the desire to marry are more likely to take actions to seek partners and to enter a romantic relationship or marriage subsequently. The associations between marriage desires and the various behavioral changes strengthen with age and feasibility of marriage. Increases in marriage desires also correspond to increases in single men's parenthood desires and ideal numbers of children, and the link between marriage desires and fertility preferences is stronger as they age.

Conclusion: Marriage desires are not always stable or equally relevant throughout singlehood. Our study suggests that age norms and partnering opportunities both contribute to the fluctuation of marriage desires and affect when such desires would have behavioral implications.

Keywords

Marriage; dating; family formation; longitudinal research; international

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The share of never-married adults and age of first marriage have been increasing across industrialized countries (e.g., Bloome & Ang, 2020; Jones, 2007). One prominent explanation for the widespread trend of later and less marriage concerns value change. The theory of second demographic transition, in particular, maintains that increases in postmaterialist values that weaken the belief in the institution of marriage and dissociate marriage from fertility lead to growth of nonmarital unions and childbirths within these unions, ultimately encouraging marriage delays and declines (Lesthaeghe, 2010, 2014; Zaidi & Morgan, 2017). Other research also shows that singles with a favorable view of marriage are more likely to marry (Sassler & Schoen, 1999), suggesting that value orientations may help explain marriage trends.

Despite the intuitive appeal of linking marriage-related values to behavior, scholars have debated on the validity of a value-based explanation for marriage shifts in East Asian countries, which are often among those with the highest age of first marriage in the world (Jones, 2007; Raymo et al., 2015). In Japan, for example, survey data continue to indicate that the vast majority of singles want and intend to marry in spite of the trend toward later and less marriage (Miwa, 2019; Raymo et al., 2021), leading to skepticism about the importance of values (e.g., Atoh, 2001; Atoh et al., 2004). At the same time, proponents of the second demographic transition theory show that Japan and other Asian countries are similar to Western countries in that individuals holding postmaterialist values, including a weakened belief in social institutions (e.g., marriage), tend to exhibit less traditional family behavior (Lesthaeghe, 2010).

Part of the difficulty reconciling the evidence about the applicability of value-based explanations for marriage formation in East Asia is rooted in the scarcity of systematic analyses of marriage-related values, especially the desire for marriage, which presumably has the most direct implications for marriage behavior. Unlike for fertility desires (Bachrach & Morgan, 2013; Beaujouan & Berghammer, 2019; Yeatman et al., 2020), researchers rarely examine how stable marriage desires are and whether shifts in marriage desires predict actions throughout individuals' lives in any countries (for exceptions, Yu & Hara, 2020). One possibility why a high level of marriage desire in society can coexist with later and less marriage is that structural barriers, such as shortages of financial and employment stability, prevent singles from realizing their desires (Edin, 2000; Gibson-Davis et al., 2005). Alternatively, expressed marriage desires may merely reflect socially desirable views and have little bearing on actual decision-making, especially in collectivist societies (e.g., Japan). In the latter scenario, people may still vary in their expressed desires, as their backgrounds could cultivate differing views on what is socially desirable, but their expressed desires would not drive their behavior. In turn, singles' reports of marriage desires would be fairly stable and frequently inconsistent with their partnering behavior over time. With few analyses observing the stability and relevance of marriage desires during singlehood, it is difficult to adjudicate between the two possibilities and shed light on the debate about the value-behavior connection in East Asia.

Beyond illuminating existing debates, an improved understanding of marriage desires is also important because it enables us to assess the extent to which the trend of later and less marriage requires policy interventions. If expressed marriage desires are closely tied to

individuals' circumstances and decision-making, then a low marriage rate in a society where most report a strong desire for marriage would suggest systematic obstacles obstructing individuals' pursuit of marriage. In such a case, policies to reduce the obstacles are necessary. Conversely, we need not be concerned about an inconsistency between marriage desires and behavior in society if singles' expressed marriage desires mainly reflect their perception of socially desirable answers.

To better understand marriage desires, in this study we use 11 waves of panel data from a nationally representative sample of never-married adults in Japan to address three questions: (1) How stable is the desire for marriage throughout singlehood and why does it change, if at all? (2) When singles experience increases in the desire for marriage, are these increases likely followed by behavioral changes, including taking actions to find romantic partners and entering romantic unions? (3) Beyond partnering behavior, are singles' marriage desires also relevant to their fertility considerations? Unlike prior research (e.g., Raymo et al., 2021; Sassler & Schoen, 1999), we adopt a fixed effects modeling approach to better account for unobserved individual characteristics that could simultaneously explain the value placed on marriage and the actual marriage rate (e.g., a conservative upbringing). We ask how Japanese singles' marriage desires are relevant to their fertility preferences because the dissociation between marriage and fertility is thought to be a key value orientation explaining marriage declines (Lesthaeghe, 2014; Zaidi & Morgan, 2017). In the Japanese context, examining the link between marriage desires and fertility preferences is especially meaningful because researchers frequently argue that marriage and childbearing are considered jointly there, with parenthood viewed as both the reason for and the inevitable outcome of marriage (Rindfuss et al., 2004). Yet systematic evidence that Japanese singles alter their views on marriage and fertility simultaneously is absent.

This study focuses on Japan because its apparent discrepancy between marriage desires and behavior has long been used to challenge explanations of family changes that center on value orientations, such as the second demographic transition theory (Atoh, 2001; Atoh et al., 2004; Lesthaeghe, 2010). Moreover, Japan exemplifies low-fertility countries where the retreat from marriage is the primary contributor to the rapid fertility decline (Raymo et al., 2015). Studying how marriage desires are related to marriage behavior and childbearing considerations in Japan can help elucidate fertility trends in various Asian countries with similar demographic traits (Jones, 2007; Raymo et al., 2015). By using longitudinal data from Japan to illustrate factors relevant to the stability and importance of marriage desires during singlehood, this study also deepens our knowledge about marriage-related values in general.

MARRIAGE DESIRES AND THEIR STABILITY AND CHANGE

A number of studies have examined the formation and variation in attitudes and expectations about marriage. Parents' divorce experience and attitudes toward marriage, for example, are found to be associated with the extent to which young adults hold positive views about marriage (Axinn & Thornton, 1996; Cunningham & Thornton, 2006). Religiosity also plays a role; those who are religious are more likely to expect to marry or express support for

the institution of marriage (Gubernskaya, 2010; Manning et al., 2007). Among adolescents, those with more education and better grades tend to have stronger marriage expectations and place greater importance on marriage, although higher educational aspirations are linked to relatively weaker emphasis on marriage compared to career (Manning et al., 2007; Willoughby, 2010). In addition, having dating experiences increases adolescents' expectation to marry (Manning et al., 2007), while adults with the experience of marriage are more likely to endorse marriage (Axinn & Barber, 1997; Gubernskaya, 2010).

Despite the interest in marriage-related values, few previous studies examine marriage desires. The desire for marriage differs from the attitudes or expectations about marriage in that it directly indicates what people want for themselves and has the potential to become concrete intentions that shape behavior, as suggested by the literature on fertility desires and intentions (Bachrach & Morgan, 2013; Miller, 2011; Rackin & Bachrach, 2016). Marriage desires are also arguably more closely tied to individuals' own wish than marriage expectations in collectivist societies like Japan, where individuals can expect themselves to comply with social pressure and marry, without actually wanting to. Thus, singles' expressed desire for marriage, if truly reflecting their feelings, could be more meaningful than marriage attitudes or expectations in certain contexts. Specifically, people could be more dissatisfied when their realities are incongruent with their desires than with their expectations or attitudes. For this reason, a discrepancy between marriage desires and behavior at the society level, as in Japan's case, is potentially more indicative of diminished social wellbeing than a disconnect between marriage attitudes or expectations and behavior.

Because individuals' assessment of what is for their best interest may vary with their specific context and experience, their desire for marriage may also change accordingly. Thus, unless singles' expressed desires merely reflect their perception of social norms, these desires should be rather dynamic, possible to fluctuate through singlehood. Although research has documented shifts in fertility desires and intentions in people's lives (Hayford, 2009; Liefbroer, 2009), systematic evidence on stability and change in singles' marriage desires, or any other marriage-related values, is scarce. The handful of existing analyses of marriage desires mostly use comparisons across age groups to infer changes over time, failing to uncover long-term within-person shifts and reasons for such shifts (Mahay & Lewin, 2007; Raymo et al., 2021).

One reason for marriage desires to shift during young adulthood is that individuals develop careers and gain a sense of their economic future in this period. Because economic prospects are likely to affect singles' options of marriage partners (Oppenheimer, 1988; Oppenheimer et al., 1997), marriage may become more or less appealing as young adults' jobs and career prospects are more settled. Indeed, one study using longitudinal data shows that Japanese men's aspiration to marry increases as their job prospects become more promising, although the same relationship is not observed among women (Yu & Hara, 2020).

Individuals' marriage desires may also evolve as they age. Research on fertility intentions shows that with age, young adults tend to adjust their intended family size downward, as they become more aware of the difficulties in achieving certain life-course goals (Liefbroer, 2009). Although people can possibly adjust intentions without altering desires, the process

of learning about the obstacles to their goals could be disheartening enough to dampen their desires as well. Following this logic, singles may lower their desire to marry with age, especially after passing the typical age of marriage, as they become increasingly discouraged by their fruitless search for marriage partners. Alternatively, they may desire marriage less because they gain appreciation of singlehood with time. Studies of U.S. and Japanese adults both find that older single adults express a weaker desire to marry than younger ones (Mahay & Lewin, 2007; Raymo et al., 2021). Because existing studies rarely examine within-person changes in marriage desires, however, it is unclear whether the lower marriage desire among older single people is due to that those desiring marriage more have been married by that age or that singles do lose their interest in marriage over time.

The partnering opportunities singles face may further alter their marriage desires over time. Although research on shifts in marriage desires in individuals' lives is rare, studies of fertility intentions suggest that individuals may form or modify their desires or preferences in response to the presence of situations that prohibit or allow the realization of their values (Bachrach & Morgan, 2013; Iacovou & Tavares, 2011). For example, women who are never-married after a certain age tend to revise their intended fertility downward, as the lack of marriage at that point makes a larger family size less feasible (Hayford, 2009). Because lowering the desire for something seemingly unobtainable is a possible coping mechanism against the disappointment anticipated, we can also expect singles to adjust their marriage desires according to their perceived chances of marriage. In this sense, Manning and colleagues' (2007) finding that adolescents with dating experiences have greater marriage expectations could reflect the influence of perceived opportunities, as those having been able to find dating partners could see marriage as more feasible. However, marriage expectations do not necessarily reflect marriage desires, and these researchers' cross-sectional analysis cannot show whether singles' marriage-related views indeed change as they gain dating experience. Further evidence is needed to establish the link between singles' perceived feasibility of marriage and desire to marry.

LINKING MARRIAGE DESIRES TO BEHAVIORAL AND OTHER CHANGES

For expressed marriage desires to be meaningful, they should not only reflect singles' changing circumstances with time but also bear relevance to partnering behavior and other family considerations. Related to the issue of relevance, a few studies on young adults in the United States indicate that those with more positive views about marriage are more likely to transition to marriage in the following years (Sassler & Schoen, 1999; Willoughby, 2012). Similarly, Japanese singles who express a stronger desire to marry enter marriage at a faster pace (Miwa, 2019; Motegi & Ishida, 2019; Raymo et al., 2021; Yu & Kuo, 2016). Nearly all previous findings, however, are derived from between-people comparisons, which cannot account for unobserved individual characteristics that affect both the desire for marriage and likelihood to marry. Being raised by happily married parents, for example, could make one both desire marriage more and have better knowledge about healthy relationships, and the latter, not the former, enhances one's chance of marriage. Better evidence on the behavioral relevance of marriage desires therefore requires an investigation of whether increases in marriage desires in singles' lives are followed by actions to pursue marriage partners (e.g., using internet dating sites more frequently) and form romantic unions.

The implications of marriage desires for demographic trends, especially those pertaining to fertility, also depend on how closely these desires are linked to fertility preferences. In societies where nonmarital childbearing is rare, such as Japan, considerations about marriage have long been assumed to be closely tied to views and intentions regarding childbearing (Rindfuss et al., 2004). Many suspect that the delay of marriage in Japan, as well as other Asian countries, reflect a declining desire for children (Raymo et al., 2015). The rarity of nonmarital childbearing by itself, however, is no evidence that the desires for marriage and fertility are inseparable. It is possible that singles who are unenthusiastic about marriage still want children—they simply do not act on their fertility desires when there are strong social norms against nonmarital childbearing. Although the context is different from Japan, ethnographic research on low-income U.S. women has shown that the unmarried can very well separate their views on marriage from those on fertility. Such women see marriage as something worth pursuing only under the right circumstances, while childbearing is a natural and integral part of life (Edin, 2000; Edin & Kefalas, 2005; Gibson-Davis et al., 2005). Systematic evidence on whether singles alter their marriage desires and fertility preferences together or separately, however, is rare in Japan or elsewhere.

Aside from lacking rigorous evidence on the link between marriage desires and family behavior and considerations, the existing literature also sheds insufficient light on *when* marriage desires may likely have demographic implications. The theory of reasoned action posits that whether individuals' beliefs and attitudes cause behavior depends on their perception of the consequences of the behavior and others' approval or disapproval (Ajzen & Fishbein, 1980), suggesting that a strong marriage desire may not always be associated with related partnering behavior. The cognitive-social model proposed to explain the predictive power of fertility preferences more specifically contends that for a desire to trigger behavior, a person must develop a certain level of commitment. Such a commitment is more likely when the context or situation motivates individuals to form an explicit intention based on existing but somewhat hidden values, including their desires (Bachrach & Morgan, 2013; Rackin & Bachrach, 2016). Moreover, both the theory of reasoned action and cognitive social model would expect people not to act on their desires when they think that their circumstances would obstruct any action plans to realize their desires. Consistent with this argument, ethnographic studies find that U.S. women, especially those with low income, frequently cite the lack of financial stability as the reason not to marry, even when they are partnered and express a desire for marriage (Edin, 2000; Gibson-Davis et al., 2005; Smock et al., 2005). Empirical analyses of Japanese singles, however, offer little support that economic insecurity serves as a critical barrier to the realization of marriage desires. Specifically, Raymo and colleagues (2021) show that the extent to which marriage desires are associated with the likelihood of transitioning to marriage hardly depends on singles' educational attainment or employment status, both strong indicators of economic prospects. Yu and Hara (2020) also find that Japanese men with a strong desire to marry are likely to seek partners actively regardless of their income levels.

To our knowledge, there is no research on noneconomic circumstances that may increase individuals' likelihood to develop partnering behavior or fertility preferences that are consistent with their desire to marry. Nevertheless, just like singles' marriage desires may evolve with age, their perception of marriage as an abstract or realistic life-course event

may also vary by age. Prior research shows strong norms about the appropriate or ideal age to marry in a number of Asian countries (Allendorf et al., 2017; Brinton, 1993; Buitenheim & Nobles, 2009; Maertens, 2013). Because of such norms, singles in Japan may only consider the act of marriage formation realistic and socially desirable after they have reached the “ideal marriage age.” The belief that the act of marrying is appropriate could serve as a situation that motivates singles to commit to their desires and ultimately take actions. That is to say, a strong desire for marriage may be more likely followed by active partner search, entering romantic relationships, or actual marriage when those holding such a desire perceive themselves as being in the right age for marriage (and could miss the window if they fail to marry soon). Similarly, because singles are likely to view childbearing as the subsequent phase to marriage in their life course (Liefbroer, 2009) and give the former a serious thought only when marriage seems realistic, marriage desires may be more closely connected to fertility preferences when they are in the age range deemed proper for marriage.

An increase in the feasibility of marriage is another condition that could motivate singles to commit to their marriage desires and take actions. Just like having the opportunity to form a romantic union may lead singles envision and desire marriage more, having the opportunity to actually marry may make singles more likely develop explicit plans and behave according to their desires. Being in a romantic relationship, which turns marriage from an abstract concept to a real possibility, can therefore be expected to amplify the chance that a strong marriage desire will be followed by a transition to marriage.

To summarize, prior research offers insufficient evidence on how marriage desires change during singlehood and whether (or when) the changes are relevant to partnering behavior and fertility preferences. Moreover, existing studies mainly focus on how economic conditions shape the stability and relevance of marriage desires (e.g., Raymo et al., 2021; Yu & Hara, 2020). We propose to pay attention to noneconomic factors such as age norms and available partnering opportunities. We expect that on the whole, Japanese singles will desire marriage less as they age and spend more time in singlehood, but an increase in their desire to marry will be more closely tied to partnering behavior and fertility preferences after they reach the normative age of marriage. We also anticipate that an increase in perceived feasibility of marriage, which could result from having more dating opportunities or entering a romantic relationship, will be associated with both a stronger desire to marry and a closer connection between the desire and actual marriage.

METHOD

Data

The data for this study came from Waves 1-11 of the Japanese Life Course Panel Survey (JLPS) of young and middle-aged adults, which were collected from 2007-2018, with a representative sample of Japanese men and women between ages 20-40 in 2007. The JLPS is conducted by the University of Tokyo and has been used in many studies of Japan (Miwa, 2019; Motegi & Ishida, 2019; Raymo et al., 2021; Yu & Hara, 2020; Yu & Kuo, 2016). The survey has followed its respondents annually and asked the unmarried about their desire to marry each year. Such yearly records of marriage desires are rare in surveys in Japan

or elsewhere. The JLPS also asked unmarried respondents to report annually whether they were romantically involved with someone and whether they were taking any actions to meet romantic partners. In many waves the JLPS further asked respondents' fertility preferences and perceived opportunities to meet the other sex and potential dating partners. All these questions make the JLPS ideal for studying the stability and relevance of marriage desires.

We pooled the 11 waves of the JLPS together to create a person-year data set. In this data set, we also included the refreshment sample that the JLPS added from Wave 5 onward, as such an addition can help remedy sampling bias caused by attrition in longitudinal surveys (Deng et al., 2013). For the statistical analysis, we selected person-years when respondents were never-married (35.5%). Although both never-married and previously married single people reported considerations about marriage in the JLPS, the factors associated with the latter' marriage desires (e.g., the actual experience during their previous marriage) may differ from those with the former's. Because the JLPS recorded only a small number of divorces and remarriages (4.1% of the person-year sample), we are unable to conduct a separate analysis about marriage desires for the previously married. Despite our focus on never-married singles, for convenience we refer to them as singles hereafter.

Because JLPS did not ask respondents' sexual orientation, we are unable to restrict the data to different-sex oriented people only. This inability constitutes a limitation because same-sex marriage is still illegal in Japan. However, given the impossibility to marry, same-sex oriented people are likely to express no desire for marriage throughout the observation period, if they assume marriage is only for different-sex couples. In such a case, our findings would be unaffected, as our estimates are based on changes in marriage desires over time (more details below). Alternatively, same-sex oriented respondents may show a disconnection between their marriage desires and behavior; they want to marry but cannot follow through. If so, our results about any relevance of marriage desires would be conservative ones, because the lack of practical implications of marriage desires among same-sex oriented people would only weaken our estimates. Moreover, although there is no valid data on the proportion of same-sex oriented people in Japan, a study using a representative sample from Osaka, a major city in Japan, finds just 2.1% of the respondents who identified themselves as gay, lesbian, or bisexual (Hiramori & Kamano, 2020). This number is somewhat comparable to the percentages of same-sex couples reported in Britain, United States and Taiwan, which range from 2-5% (Lin et al., 2019). The fact that the proportion of same-sex oriented people in our sample is likely to be small also makes us think that our inclusion of them would not affect the study's conclusions.

After eliminating a handful of observations with invalid values for key variables (< 2%), the total number of never-married person-years from the JLPS is 14,440, with 7,533 person-years deriving from 1,447 men and 6,907 person-years from 1,288 women. Because some parts of the analysis rely on information collected only in certain waves, the statistical models presented vary slightly in the number of person-years included. We discuss the sample selections for different models as we describe the variables and analytic strategy in the next section.

Variables and Analytic Strategy

We begin the analysis by examining factors associated with shifts in marriage desires, with the entire sample of never-married observations. The dependent variable for this part of the analysis is the strength of desire for marriage. The JLPS asked unmarried respondents each year how they feel about marriage, with the following response options: (1) I do not want to marry; (2) I am fine with either marrying or not marrying; (3) if possible, I'd like to marry; (4) I definitely want to marry; and (5) I am not thinking about marriage currently. Although we can easily differentiate the strength of marriage desire among responses (1) to (4), response (5) is somewhat ambivalent. A previous study using the same data shows that those answering (5) had a higher tendency to move to the most negative answer—response (1)—in the following year than to all other answers (Miwa, 2019), suggesting those “not thinking about marriage” are somewhat negative about marriage, likely more so than those choosing “fine either way.” Likewise, Raymo and colleagues’ (2021) descriptive statistics about the JLPS respondents suggest that compared to those being fine either marrying or not, those not thinking about marriage is more similar to those expressing no desire to marry. Given these research findings, we coded the 5 response categories about marriage desires from 0 to 4, with not wanting to marry as 0, absolutely wanting to marry as 4, and not thinking about marriage as 1, between not wanting to marry and being neutral about marrying or not. Our exploratory analysis found consistent results when we instead coded those not thinking about marriage together with those being neutral about marriage. We treated the strength of marriage desire as a continuous variable in order to fit linear fixed effects models (more details below), which utilize data more efficiently than ordered logit fixed effects models (Allison, 2009). Our additional analysis indicated that the overall patterns were unchanged if we treated marriage desires as an ordinal variable and estimated ordered logit fixed effects models instead.

The second part of the analysis addresses the question of whether shifts in marriage desires have behavioral implications. That is, we estimate models in which the strength of marriage desire is an independent variable and a concurrent or subsequent behavior as the outcome variable. The first behavior we investigate is taking actions to seek marriage partners. The JLPS asked single respondents whether they had recently utilized any of the 13 listed methods for the sake of finding a romantic partner. The examples of such methods include asking parents, relatives, friends, or coworkers to introduce potential partners, using matchmaking services, taking part in arranged dates (i.e., dates typically arranged by the two parties’ parents, with marriage as the goal), attending hobby meetings, taking enrichment lessons, joining social clubs, and using the internet. Based on the responses to this question, we created three outcome variables. The first is the total count of partner-seeking activities participated. The second and third dependent variables are, respectively, the counts of formal and informal partner-search channels used. We divided partner-seeking activities into formal and informal ones because taking part in the two types of activities has different implications; the formal channels require much more commitment to dating, and possibly marrying, the partners identified through the channel. Following prior research (Yu & Hara, 2020; Yu & Kuo, 2016), we considered participating in arranged dates, using matchmaking agencies, attending matchmaking parties, and asking parents or close relatives to introduce potential partners as the formal methods, while the other activities are the informal ones.

Because taking actions to seek romantic partners does not guarantee forming actual romantic relationships or entering marriage, in the second part of the analysis we also investigate whether singles reporting stronger marriage desires are more likely to be partnered or married in the subsequent year. We examine the partnering transition occurred after the current interview to alleviate the concern about reverse causality. While most existing studies only examine how marriage desires affect the transition to marriage (Motegi & Ishida, 2019; Raymo et al., 2021), we expand the outcomes to any romantic involvement, given that being in a romantic relationship is a key predictor of marriage formation (Yu & Kuo, 2016). For the models about becoming partnered, we selected all person-years when respondents were unpartnered (unmarried and not romantically involved). We coded the dependent variable as 1, otherwise as 0, if respondents reported to be in a romantic relationship or have transitioned to first marriage in the following year. For the models predicting marrying by the subsequent year, we coded the dependent variable as 1, otherwise as 0, if respondents were never married in the year but reported to be married at the next year's interview. We selected never-married person-years for the models about marrying, but the analytic sample is smaller than the full never-married sample, because we had to eliminate all person-years for which we lacked information for the subsequent year (i.e., observations from the last available wave or observations followed by a skipped wave by the respondent). The analytic sample for the models predicting entering romantic unions the next year also excluded the observations without information for the subsequent year.

The third part of the analysis addresses the question of how marriage desires are tied to fertility preferences. We constructed two dependent variables. The first one is the desire to be a parent, based on respondents' responses to whether they wanted to have a child. Those answering "not wanting a child" were coded as 1, "not sure about whether to have a child" as 2, and "wanting to have a child" as 3. This question was not given to never-married respondents in Waves 2 and 3, making the analytic sample smaller. The second dependent variable is the ideal number of children. Respondents were asked to report their ideal number of children at Waves 1, 4, 6, 8, and 10. Hence the analytic sample contains never-married observations from these 5 waves. In coding the ideal number of children, we combined all those answering 3 and more, because only about 3% of the observations reported 4 or more; capping the value at 3 helps avoid the outliers driving the results. Using the original number reported nonetheless yielded similar findings.

In each part of the analysis, we included age to capture social norms about the appropriate age range for marriage. We measured age in 4 categories: 20-27, 28-33, 34-39, and 40 and older. Because the recent median age of first marriage in Japan was around 28 years old, with the 75th percentile at 33 years old (MHLW Japan, 2020), the four age categories roughly represent before, within, just past, and way past the normative age range for marriage, respectively. In an earlier analysis, we divided age categories in a few different ways and the general patterns remained.

To assess how changes in respondents' partnering opportunities may be relevant to their marriage desires, marriage transitions, and fertility preferences, we also created a binary variable indicating that respondents had a romantic partner at the time, based on their own reports. Because having the opportunities to meet potential marriage partners may

also make marriage more realistic, which could strengthen the desire to marry, we also included two additional variables pertaining to such opportunities in the models predicting marriage desires. The JLPS asked respondents how frequently they met people who they could potentially date, with the following response categories: (1) almost never, (2) not so frequently, (3) somewhat frequently, and (4) frequently. Respondents also reported whether they interact with (1) very few, (2) not many, (3) some, or (4) a lot of people of the other sex. We created a series of dummies from the responses to these two questions. Because the questions about chances to meet dating partners and the other sex were not asked in Wave 2, the models containing these two variables have a smaller sample.

All models controlled for a series of time-varying variables, including education, employment status, income, and the location's urbanization level. Education is measured as the level of schooling completed (i.e., high school or less, junior college, and university and more). To differentiate those still pursuing a higher level of education from those stopping at a given level, we also included a dummy variable to indicate that respondents were enrolled in school during the year of observation. Employment status was introduced because being in nonstandard employment is a crucial indicator of job insecurity in Japan. Lacking job security is found to dampen Japanese men's marriage desires and delay their marriage (Piotrowski et al., 2015; Yu & Hara, 2020). We divided observations into 4 employment status categories: (1) regular and full-time employment, (2) nonstandard and part-time employment, (3) family or self-employment, and (4) nonemployment. To further capture respondents' economic conditions, we included income, based on respondents' self-reports of annual income, measured in the unit of 1,000,000 yen. About 6% of the observations had no reports of income. We used a dummy variable indicating missing income to preserve the observations with invalid values. We controlled for the level of urbanization because it may affect singles' opportunities to meet marriage partners and social norms related to marriage. The JLPS provides information on whether respondents lived in a (1) major population center, (2) large city, (3) small to medium city, or (4) town or village, using the official government definitions. To provide more details, we present descriptive statistics for all the variables included in the analysis in Table A in the online supplement.

Throughout the analysis we used fixed effects models, which rely exclusively on within-individual variation for estimations (Allison, 2009). Because prior research using JLPS has found considerable variation in self-reported marriage desires between any given two adjacent years for each respondent (Miwa, 2019; Raymo et al., 2021), using a within-person estimator is appropriate in this case. We used linear fixed effects models even when the outcome variable is dichotomous (e.g., transition to marriage by the following year) because such models are more accurate than fixed effects logit models when less than majority of the sample experience changes in the outcome (Timoneda, 2021). For the models where the dependent variables are based on count data (e.g., number of partner-search activities or children), we also tried fixed effects Poisson models as an alternative in an earlier analysis. We found the patterns to be similar and therefore decided to stick to linear fixed effects models to be consistent with the rest of the analysis.

Because fixed effects models use the deviations from individual means of both independent and dependent variables to estimate, we can interpret the results as how shifts in individual

circumstances are associated with changes in the outcome of interest over time. This modeling approach enables us to show how our outcomes of interest, such as marriage desires and the probability of entering marriage, actually vary with increases in singles' age or dating opportunities, rather than relying on comparisons between people of different ages or dating opportunities to infer any changes. Although our approach substantially improves upon prior research concerning marriage desires, which predominately relies on between-people comparisons (Motegi & Ishida, 2019; Raymo et al., 2021; Yu & Kuo, 2016), we cannot definitively assert causal relations, as fixed-effects models cannot rule out the possibility of reverse causality. The aim of our analysis is therefore to establish associations consistent with the mechanisms suggested by the related literature. We also discuss the possibility of alternative causal explanations in greater detail after presenting the results.

Although both formation and implications of marriage desires could vary by gender, our exploratory analysis indicated that gender differences in the coefficients presented in our models are largely nonsignificant. Therefore, we used the combined sample of men and women in most of the models. Only for the models about parenthood desires and ideal fertility we present the results separately for men and women, because age-based biological limitations may play a greater role in women's fertility considerations than men's, and age is a key predictor in our analysis.

RESULTS

Shifts in Marriage Desires during Singlehood

To assess the stability of marriage desires throughout singlehood, we begin with Figure 1, which shows the average strength of marriage desire by age and gender. The figure indicates that older Japanese singles tended to express a lower desire to marry. Single women in their 20s expressed a stronger desire for marriage than single men of their age, but the gender gap virtually disappeared among those in their 30s. In their 40s, single men seemed to have a slightly stronger desire to marry than single women.

Because the descriptive results may have to do with who remain single at each age, they cannot definitively answer how stable marriage desires are during singlehood. To shed more light on this question, Table 1 presents fixed effects models predicting the strength of marriage desire. Results from Model 1 indicate that singles' desire to marry indeed declined with age. While the decline in desire from ages 20-27, when the majority of Japanese people are unmarried, to ages 28-33, when most marriages are expected to have occurred, was small and statistically nonsignificant, singles' desire for marriage weakened considerably as they grew older, especially after 40 years old. The rather drastic declines during singles' late 30s and 40s suggest that their desire for marriage somewhat depends on whether they can achieve it within the socially approved age for marriage. It is possible that passing the normative age of marriage decreases both the perceived utility—less useful for gaining social approval—and feasibility of marriage, making singles' desire for marriage fall rapidly from that point onward.

Because Figure 1 suggests gender differences in marriage desires at various ages, in a separate analysis not presented here, we added interactions between gender and age

categories to Model 1. We did not find any significant interaction effect. Thus, although Japanese men and women in their 20s expressed different levels of desire for marriage, their desires declined to similar extents as they age. There was no gender gap in how marriage desires changed with age.

The models in Table 1 also provide support for the argument that singles' desire for marriage varies with their perceived feasibility of marriage. Singles expressed stronger marriage desires when they were involved with a romantic partner than when they were not. Results in Model 2, in which we add indicators of potential dating opportunities, further show that increases in the opportunities to meet potential dating partners were associated with increases in the strength of marriage desire. Having the opportunities to interact with the other sex, however, only mattered a little. Having almost no interaction with the other sex was negatively associated with the desire for marriage, but this desire did not grow proportionally as one interacted with more people of the other sex. This is perhaps because interacting with many members of the other sex would not help one's marriage prospect if most of them are not single or in a suitable age range for dating. Meanwhile, rarely interacting with the other sex is certain to detriment heterosexual people's likelihood of finding a marriage partner.

In addition to age and available opportunities to marry, singles also expressed a stronger desire for marriage when they received higher income. Somewhat surprisingly, shifts in employment status, which near a half of respondents have experienced, were not associated with changes in marriage desires. It appears that income, rather than job security indicated by employment status, corresponds to singles' marriage desires more.

Relevance of Marriage Desires to Partnering Behavior

We next examine whether changes in marriage desires bear relevance to singles' behavior. Table 2 presents fixed effects models predicting the number of partner-search activities engaged. The table also shows models predicting the numbers of formal partner-search methods and informal partner-search methods used. Starting from Model 1, an increase in the desire to marry was associated with participating in more partner-search activities, suggesting that singles do link their marriage desires to partner-seeking actions. Increases in age reduced singles' engagement in partner search, even after accounting for potential declines in marriage desires with age. Unsurprisingly, being romantically involved reduced singles' participation in partner-search activities, as they would have no such need. Model 2 adds the interactions between age categories and strength of marriage desire to test whether the association between marriage desires and partner-seeking actions strengthens as singles reach or pass the normative age of marriage. None of the coefficients are statistically significant, indicating no change in the association with age.

In Models 3-6 we distinguish the engagement in formal partner-search activities from that in informal activities. The strength of marriage desire was positively associated with both numbers of formal and informal partner-seeking methods used. When examining how the link between marriage desires and partner-seeking actions varies by age, as in Models 4 and 6, the separation between formal and informal methods leads to an interesting contrast. Whereas the association between marriage desires and the use of formal partner-seeking

methods became stronger after singles entered the normative age of marriage, the connection between marriage desires and the use of informal partner-seeking methods was somewhat weaker with age, especially after singles reached their 40s. That is to say, when it comes to the use of formal partner-search channels, the general tendency to utilize fewer such channels with age is curtailed when a person has a strong desire to marry. Conversely, the tendency to participate in fewer informal partner-search activities after a certain age is more pronounced when one is more eager to marry. The fact that the coefficients for the interactions between marriage desires and age categories have the opposite signs in Models 4 and 6 explains why the association between marriage desires and the total count of partner-seeking activities engaged does not vary by age (Model 2). The contrasting results from Models 4 and 6 suggest that instead of informal methods, singles eager to marry increasingly switch to formal ways of finding partners as they become older. It is likely that singles with strong marriage desires perceive informal partner-search methods as less direct and less effective. As they reach and pass the socially preferred age of marriage, they become more likely than those with weak marriage desires to make changes and adopt the methods they perceive to be more effective.

Turning to the actual formation of unions, Table 3 presents fixed effects models predicting entering a romantic union (if not in one currently) and marriage by the following year, respectively. As discussed earlier, we consider self-reported romantic involvement and marriage both as forms of romantic unions. Model 1 shows no significant association between the strength of marriage desire and entering a romantic union. Model 2 adds interactions between the desire for marriage and age categories. As indicated by the main effect of marriage desire in this model, the strength of marriage desire was irrelevant to the probability of entering a romantic union before the normative marriage age (20-27 years old). A stronger desire was nevertheless associated with a higher likelihood to form a romantic union when singles are in their mid-30s or older. This result suggests that as far as the behavioral implications are concerned, a stronger marriage desire is more meaningful when a single person is older, especially when they are just past the socially prescribed age of marriage (i.e., mid- to late 30s).

Models 3-5, in which we narrow the dependent variable to entering first marriage by the subsequent year but expand the sample to all never-married person-years, show similar patterns. Model 3 demonstrates a positive relationship between the strength of marriage desire and probability of entering marriage. Model 4 adds interactions with age categories, which makes the coefficient for the strength of marriage desire represent its effect during singles' early to mid-20s. Based on this coefficient, marriage desires had virtually no relevance to the probability of marriage before singles entered the typical age of marriage. A strong desire to marry, however, was increasingly likely to be followed actual marriage as singles grow older, into their late 20s and 30s.

Because Models 3-5 include person-years when respondents reported to be romantically involved, we also add the indicator of romantic involvement in the models. Unsurprisingly, those currently in a romantic relationship were more likely to be married by the next year. Model 5 further shows that the association between romantic involvement and the subsequent entry into marriage was stronger when a person was more eager to marry. That is

also to say, an increase in the desire for marriage was more likely to be followed by actual marriage if a romantic partner was present. In this sense, the chance of marriage is a function of both individuals' desires and opportunities.

We do not test the interactions between marriage desires and economic conditions in the models in Tables 2-3 because a couple of studies have already shown that economic prospects largely do not alter the behavior of Japanese singles with strong marriage desires (Raymo et al., 2021; Yu & Hara, 2020). In an analysis not presented here, we added the interactions between employment status or income and marriage desires to the models in Tables 2-3. We found few significant coefficients for the added interactions and that the addition barely affected the results reported so far. We also included respondents' reported opportunities to meet potential dating partners and to encounter the other sex and interacted these opportunities with marriage desires in a separate analysis. We found rather weak associations between these perceived opportunities with the probability of forming a romantic union or marriage. Perhaps because opportunities to meet potential dating partners or the other sex often fail to translate into actual relationships, we also found the association between marriage desires and union formation not to depend on whether singles have many such opportunities.

Relevance of Marriage Desires to Fertility Preferences

To address how closely Japanese singles' marriage desires are tied to fertility preferences, Table 4 presents results from fixed effects models predicting singles' desire to have a child and their ideal number of children, respectively. According to Model 1, singles' desire to be a parent tended to strengthen with increases in their desire for marriage. Interestingly, being romantically involved was not relevant to the desire to have a child. In an analysis not shown here, we found that the association between marriage and parenthood desires hardly changed regardless of whether romantic relationship status was included in the model, and that the association did not depend on romantic relationship status. Altogether, these findings suggest that Japanese singles rarely connect romantic relationships with childbearing, while their interest in marriage is tied to the desire for children. In addition, the model indicates that singles' desire for children changed little from their early 20s to late 30s, but it declined drastically after they turn 40 years old. Our further examination showed this decline was mostly driven by women; single women were far more likely than men to express a decreased desire for parenthood after age 40. Biological feasibility of childbearing appears to play a role in women's adjustments of parenthood desires.

Model 2 demonstrates that the association between marriage and parenthood desires depended somewhat on age. Singles' desires for marriage and parenthood were increasingly linked as they entered and grew slightly past the normative marriage age, which is also the socially prescribed age for childbearing. The patterns in Models 3 and 4, which present results for men and women, respectively, are generally similar: the connection between marriage and parenthood desire was relatively weak before singles entered the socially preferred age of marriage (20-27 years old) and was especially strong when they were just past the typical age, but perhaps not "too old," for marriage and childbearing (33-39 years old).

Model 5 indicates that the desire for marriage was also positively associated with the ideal number of children reported by Japanese singles. Similar to the results for the desire for parenthood, being romantically involved did not raise singles' ideal number of children, and singles tended to adjust the ideal number downward as they aged. Differing from the results for the desire to be parent, Model 6 shows no significant effects for the interactions between age categories and strength of marriage desire. The separate models for men and women make it clear that the association between marriage desires and the ideal number of children did depend on age for men, even though it did not for women (Models 7 and 8). For single men in Japan, an increase in the desire to marry was associated with an especially greater ideal number of children when they were in their mid-to-late 30s and 40s instead of an earlier age, when they were still before or just entering the normative age of marriage. The fertility implication of marriage desires is thus greater as Japanese men age.

Because both singles' desire for being a parent and their ideal number of children declined rapidly with age, another way to interpret the interaction results between age categories and marriage desires in Table 4 is that the age-based declines in parenthood desire and ideal fertility were less pronounced when a person had a stronger desire for marriage. Using Model 7 as an example, single men with no desire to marry (marriage desire = 0) would reduce their ideal number of children by 0.57 from their early to mid-20s to their 40s, whereas those who definitely wanted to marry (marriage desire = 4) would experience virtually no change in their ideal fertility during the same time (0 vs. $[-0.574 + 0.153 \times 4] = 0.038$). In this sense, Japanese singles' marriage desires are also relevant to the persistence of their fertility preferences; for those ambivalent or reluctant to marry, the desires for parenthood and children can easily dwindle as they move farther away from the "proper" marriage age. The exception for single women—namely, the age-based decline in their ideal fertility is unaffected by marriage desires—is perhaps due to the biological limitations they face. Single women with differing marriage desires might all feel compelled to adjust their ideal number of children based on the most they can realistically expect to have at their age.

DISCUSSION

Previous research has shed insufficient light on how stable singles' expressed marriage desires are over time and how shifts in such desires may have implications for marriage and family behavior. With fixed effects models that account for time-invariant unobserved characteristics, our analysis has shown that changes in Japanese singles' circumstances often correspond to modifications of their marriage desires, suggesting that they do not just express marriage desires based on abstract, socially endorsed ideals. Specifically, singles' desire for marriage weakens considerably after they pass the typical age of marriage, possibly because both the perceived benefit and feasibility of marriage decline at that point. Interestingly, the extent of loss in the desire for marriage with age is similar for men and women, suggesting that they are equally affected by the age norms in society. Singles' marriage desires also change with marriage-related opportunities provided for them. Single individuals are more eager to marry when they experience increases in the opportunities to meet potential dating partners, when the number of different-sex people they interact with is not extremely small, and when they are in a romantic relationship with someone.

Although the modifications in marriage desires based on personal circumstances suggest that singles' expressed desires are likely truthful to their feelings, the connection between marriage desires and partnering behavior is not guaranteed. As our analysis has shown, before singles enter the normative age of marriage—in their early to mid-20s—shifts in marriage desires bear low or almost no relevance to their partner-seeking actions, likelihood of forming romantic unions, or actual transition to marriage. As singles grow older, a strong marriage desire becomes increasingly likely to be accompanied by the use of formal channels to seek dating partners and a subsequent transition to a romantic relationship or marriage. With respect to fertility preferences, our models have indicated that shifts in marriage desires are linked to changes in these preferences in general, confirming the close link between marriage and fertility considerations in Japan. At the same time, we have shown that this link also strengthens as singles, especially males, age. On the whole, the associations between marriage desires and the various actions and preferences are particularly strong in singles' mid- to late-30s, when they have just passed the normative age of marriage but perhaps yet to see the window for marriage as closed.

Just like the results about the stability of marriage desires, the implications of marriage desires vary with not only age but also available opportunities. Our analysis has demonstrated that being romantically involved and having a strong desire for marriage together lead to an extra boost to the chance of entering marriage, beyond the sum of both factors' independent contributions. That is to say, the likelihood that a strengthening marriage desire would be followed by actual marriage increases considerably when a person has the opportunity—in this case, has someone—to marry. Seemingly contrary to the argument about the importance of available opportunities, we found that neither the link between marriage and fertility desires nor singles' fertility desires alone strengthen with having a romantic relationship, even though having a romantic partner should make childbearing more feasible. We suspect that this is because the bar for perceived feasibility to have children is relatively high in Japan. Because childbearing outside of marriage is still highly stigmatized in Japan, having a romantic partner by itself is perhaps insufficient to lead singles to see childbearing as a genuine possibility and adjust their fertility desires accordingly. Only having a partner in the context of marriage may be considered as a realistic opportunity.

By uncovering how age norms and available opportunities shape the relevance of marriage desires to partnering behavior and fertility preferences, this study contributes to our understanding of the importance of value orientations in explaining demographic changes in society. Rather than finding marriage desires to be always relevant or irrelevant, we have shown that in Japan, a strong desire for marriage mainly has demographic implications when the circumstances are right—specifically, when a person has reached the socially approved age of marriage and have the opportunity to marry. For this reason, at the society level, the link between shifts in marriage desires and changes in marriage and family behavior can be loose; yet, at a proper timing the extent to which a single person desires marriage can be predictive of behavior.

Our findings further suggest that a discrepancy between marriage desires and behavior at the society level does not necessarily indicate systematic obstacles obstructing singles'

pursuit of marriage. As illustrated by the Japanese case, singles prior to or just entering the normative marriage age may not commit to their desires enough to take actions. Thus, the inconsistency between their expressed desires and partnering outcomes could result from their passiveness rather than actual encounters of impediments against their desires or actions. By adding nuances to how marriage desires are tied to behavior, this research helps family scholars and policy makers better assess the meaning of any discrepancies between marriage desires and behavior in society, as well as the need for policy interventions based on the discrepancies.

For the specific case of Japan, our findings about the importance of age norms also sheds light on the puzzling fact that singles there consistently express strong marriage desires amid the trend toward less and later marriage. Because the link between Japanese singles' marriage desires and partnering actions depends on whether they have entered the normative age for marriage and family, so long as the age deemed appropriate for marriage has risen, we can observe increasing delays in marriage without any waning of singles' desire to marry. The ideal age of marriage has indeed increased in Japan. While young women and men reported 25.6 and 28.4 years, respectively, as their desired age of marriage in 1987, their ideals became 28.6 and 30.4 years old in 2015 (National Institute of Population and Social Security Research, 2016). Thus, the values essential to explain Japan's marriage delay and decline are not limited to views on marriage or family; the norms about which age to achieve certain life course objectives are just as critical.

Although our longitudinal analysis provides more rigorous evidence than prior research, we must acknowledge that fixed effects models do not enable us to rule out the possibility of reverse causality. In particular, although we interpret the finding that singles report a stronger marriage desire when frequently meeting potential dating partners (Table 1) as a reflection of perceived feasibility of marriage, it is possible that the association between marriage desires and partnering opportunities is due to those with stronger desires actively creating more opportunities. In an additional analysis, however, we found that the positive association between perceived opportunities to find dates and marriage desires remained significant, with only a slight decrease in magnitude, after controlling for the actions that singles have been taking to seek romantic partners. It thus seems unlikely that individuals' actively seeking dating opportunities explains why those reporting to have more such opportunities desire marriage more.

Beyond understanding the role of marriage desires in Japan and similar contexts, this research enhances our general knowledge about the process that links individuals' values to family behavior. Our findings suggest that the cognitive-social model for understanding the complex relations between individuals' fertility desires, intentions, and behavior could apply to those between marriage desires and partnering behavior as well (Bachrach & Morgan, 2013; Rackin & Bachrach, 2016); having a situation or context conducive to commitment appears to help individuals develop explicit intentions, plans, or actions consistent with their passively existing values, including their desire for marriage. Even though marriage desires do not always correspond to behavior, their potential relevance makes it important for future researchers to pay at least as much attention to these desires as they do fertility desires (or intentions), especially when studying societies where nonmarital fertility is rare. At the

same time, our study underscores the need to uncover the contexts and situations under which individuals' family-related aspirations would translate into intentions and behavior. In particular, future studies should examine beyond economic prospects as one such situation and focus more on the normative expectations and courtship opportunities surrounding individuals.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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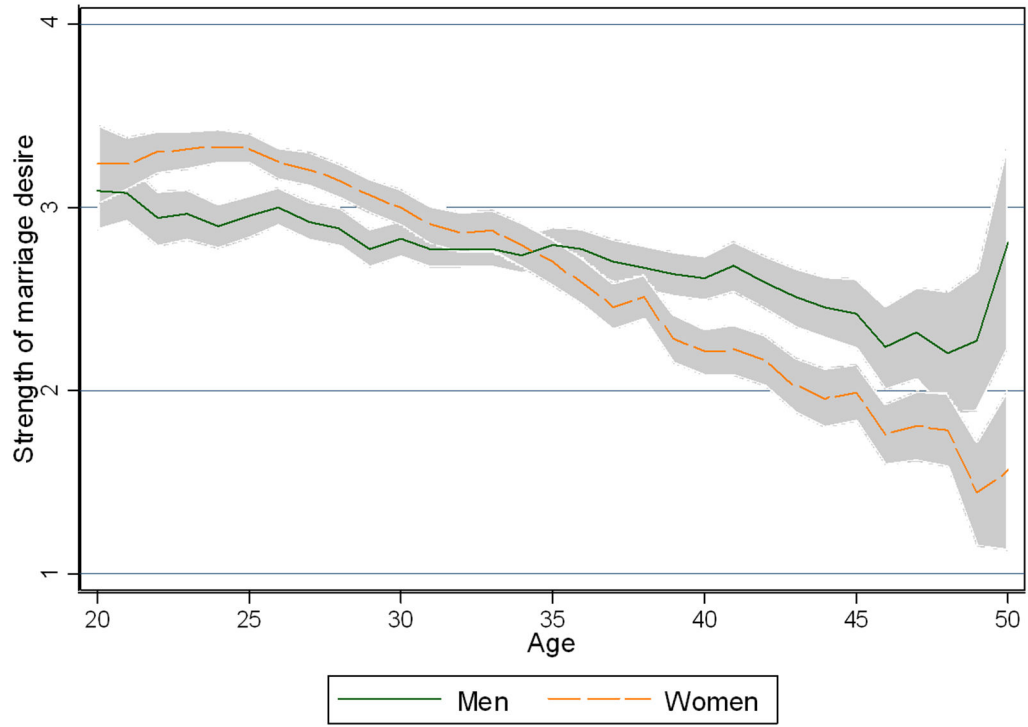


Figure 1: Strength of marriage desire among singles, by gender and age

Source: The Japan Life Course Panel Survey, Waves 1-11

Note: The shaded area surrounding each data point represents the 95% confidence interval.

Table 1:

Fixed effects models predicting the strength of marriage desire

| | Model 1 | Model 2 |
|---|---------------------------------|---------------------------------|
| Age (<i>ref.</i> 20-27): | | |
| 28-33 | -0.013 (0.029) | -0.033 (0.029) |
| 34-39 | -0.090 [*] (0.040) | -0.123 ^{**} (0.041) |
| 40 and older | -0.231 ^{**} (0.051) | -0.266 ^{**} (0.051) |
| Romantically involved | 0.177 ^{**} (0.023) | 0.181 ^{**} (0.025) |
| Frequency meeting potential partners (<i>ref.</i> almost never): | | |
| Not so frequently | | 0.077 ^{**} (0.020) |
| Somewhat frequently | | 0.137 ^{**} (0.036) |
| Frequently | | 0.221 [*] (0.099) |
| Number of different-sex people interacted with (<i>ref.</i> very few): | | |
| Not many | | 0.072 ^{**} (0.027) |
| Some | | 0.054 [†] (0.031) |
| A lot | | 0.088 [†] (0.052) |
| Education (<i>ref.</i> high school or less): | | |
| Junior college | -0.041 (0.065) | -0.018 (0.080) |
| University or higher | 0.015 (0.060) | 0.015 (0.067) |
| Enrolled in school | 0.061 (0.043) | 0.039 (0.050) |
| Employment status (<i>ref.</i> regular full-time employment): | | |
| Nonstandard employment | -0.016 (0.029) | -0.032 (0.032) |
| Family/self-employment | -0.037 (0.055) | 0.021 (0.060) |
| No job | -0.061 [†] (0.037) | -0.041 (0.040) |
| Income (in 1,000,000 yen) | 0.019 ^{**} (0.006) | 0.020 ^{**} (0.006) |
| Missing income | -0.043 (0.038) | -0.052 (0.041) |
| Location (<i>ref.</i> major population center): | | |
| Large city | 0.118 [†] (0.060) | 0.142 [*] (0.063) |
| Small to median city | -0.057 (0.067) | -0.049 (0.068) |

| | Model 1 | Model 2 |
|-------------------|---------------------|---------------------|
| Town/village | 0.052 (0.102) | 0.067 (0.107) |
| Constant | 2.758 ** (0.065) | 2.677 ** (0.071) |
| N of person-years | 14,440 | 12,578 |
| N of individuals | 2,735 | 2,726 |

Note: Values in parentheses are robust standard errors.

**
 $p < .01$

*
 $p < .05$

†
 $p < .10$

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Table 2:

Fixed effects models predicting the number of partner-seeking activities participated

| | All activities | | Formal activities | | Informal activities | |
|--|----------------------|----------------------|---------------------|---------------------|----------------------|----------------------|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
| Strength of marriage desire | 0.154 ** (0.015) | 0.136 ** (0.025) | 0.035 ** (0.005) | 0.003 (0.008) | 0.120 ** (0.013) | 0.133 ** (0.022) |
| Age (<i>ref.</i> 20-27): | | | | | | |
| 28-33 | -0.105 ** (0.040) | -0.213 ** (0.081) | 0.083 ** (0.016) | -0.028 (0.029) | -0.188 ** (0.034) | -0.185 ** (0.071) |
| 34-39 | -0.314 ** (0.057) | -0.455 ** (0.096) | 0.128 ** (0.025) | -0.039 (0.037) | -0.443 ** (0.048) | -0.416 ** (0.082) |
| 40 and older | -0.744 ** (0.071) | -0.688 ** (0.108) | 0.023 (0.032) | -0.094 * (0.042) | -0.767 ** (0.057) | -0.594 ** (0.093) |
| Marriage desire × ages 28-33 | | 0.036 (0.028) | | 0.038 ** (0.010) | | -0.001 (0.024) |
| Marriage desire × ages 34-39 | | 0.049 (0.033) | | 0.058 ** (0.013) | | -0.009 (0.027) |
| Marriage desire × ages 40+ | | -0.028 (0.036) | | 0.040 ** (0.015) | | -0.067 * (0.030) |
| Romantically involved | -0.276 ** (0.036) | -0.278 ** (0.036) | -0.031 * (0.014) | -0.033 * (0.014) | -0.245 ** (0.030) | -0.245 ** (0.030) |
| Education (<i>ref.</i> high school or less): | | | | | | |
| Junior college | -0.396 ** (0.092) | -0.396 ** (0.091) | 0.011 (0.029) | 0.010 (0.029) | -0.407 ** (0.083) | -0.406 ** (0.084) |
| University or higher | -0.505 ** (0.094) | -0.504 ** (0.094) | 0.021 (0.022) | 0.022 (0.022) | -0.526 ** (0.088) | -0.526 ** (0.088) |
| Enrolled in school | -0.044 (0.065) | -0.044 (0.065) | -0.029 (0.020) | -0.028 (0.020) | -0.016 (0.058) | -0.016 (0.058) |
| Employment status (<i>ref.</i> regular full-time employment): | | | | | | |
| Nonstandard employment | 0.009 (0.044) | 0.010 (0.044) | -0.018 (0.016) | -0.018 (0.016) | 0.027 (0.037) | 0.028 (0.037) |
| Family/self-employment | 0.005 (0.079) | 0.005 (0.079) | -0.026 (0.027) | -0.026 (0.027) | 0.031 (0.068) | 0.030 (0.068) |
| No job | -0.101 † (0.055) | -0.102 † (0.055) | -0.024 (0.020) | -0.025 (0.020) | -0.078 † (0.046) | -0.077 † (0.046) |
| Income (in 1,000,000 yen) | 0.015 (0.013) | 0.015 (0.013) | 0.011 * (0.005) | 0.011 * (0.005) | 0.004 (0.010) | 0.004 (0.010) |
| Missing income | -0.081 † (0.048) | -0.080 † (0.048) | -0.006 (0.018) | -0.007 (0.018) | -0.074 † (0.041) | -0.073 † (0.041) |
| Location (<i>ref.</i> major population centers): | | | | | | |
| Large city | 0.153 † (0.082) | 0.153 † (0.081) | -0.007 (0.033) | -0.004 (0.033) | 0.160 * (0.069) | 0.158 * (0.069) |
| Small to median city | -0.016 (0.077) | -0.017 (0.077) | -0.017 (0.031) | -0.017 (0.031) | 0.000 (0.068) | -0.000 (0.068) |
| Town/village | -0.005 (0.127) | -0.010 (0.126) | 0.008 (0.046) | 0.003 (0.046) | -0.013 (0.114) | -0.013 (0.114) |
| Constant | 0.927 ** (0.096) | 0.983 ** (0.109) | -0.047 (0.034) | 0.974 ** (0.084) | 0.934 ** (0.099) | 0.974 ** (0.084) |

| | All activities | | Formal activities | | Informal activities | |
|-------------------|----------------|---------|-------------------|---------|---------------------|---------|
| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 |
| N of person-years | 14,440 | 14,440 | 14,440 | 14,440 | 14,440 | 14,440 |
| N of individuals | 2,735 | 2,735 | 2,735 | 2,735 | 2,735 | 2,735 |

Note: Values in parentheses are robust standard errors.

**
 $p < .01$

*
 $p < .05$

†
 $p < .10$

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Table 3:

Fixed effects models predicting partnering and marrying within a year

| | Partnered at <i>t</i> 1 (if no partner at <i>t</i> 0) | | | Marrying by <i>t</i> 1 | | |
|---|---|-------------------------------|--|------------------------|--------------------|---------------------|
| | Model 1 | Model 2 | | Model 3 | Model 4 | Model 5 |
| Strength of marriage desire | 0.005 (0.005) | -0.011 (0.009) | | 0.024** (0.003) | 0.000 (0.005) | -0.022** (0.005) |
| Age (ref. 20-27): | | | | | | |
| 28-33 | 0.063** (0.013) | 0.049 [†] (0.026) | | 0.092** (0.008) | 0.013 (0.015) | -0.005 (0.015) |
| 34-39 | 0.128** (0.017) | 0.028 (0.029) | | 0.168** (0.012) | 0.051** (0.017) | 0.024 (0.016) |
| 40 and older | 0.125** (0.020) | 0.053 [†] (0.032) | | 0.194** (0.013) | 0.090** (0.018) | 0.054** (0.017) |
| Marriage desire × ages 28-33 | | 0.005 (0.009) | | 0.027** (0.006) | 0.031** (0.006) | 0.031** (0.006) |
| Marriage desire × ages 34-39 | | 0.037** (0.010) | | 0.040** (0.006) | 0.047** (0.006) | 0.047** (0.006) |
| Marriage desire × ages 40+ | | 0.027* (0.011) | | 0.036** (0.007) | 0.046** (0.007) | 0.046** (0.007) |
| Romantically involved | | | | 0.131** (0.009) | 0.130** (0.009) | -0.112** (0.024) |
| Marriage desire × romantically involved | | | | | 0.076** (0.008) | 0.076** (0.008) |
| N of person-years | 8,463 | 8,463 | | 11,971 | 11,971 | 11,971 |
| N of individuals | 1,742 | 1,742 | | 2,269 | 2,269 | 2,269 |

Note: All models control for education, school enrollment, employment status, income, and location, same as models in Table 2, but the coefficients are omitted to conserve space. Values in parentheses are robust standard errors.

***p* < .01

**p* < .05

[†]*p* < .10

Table 4:

Fixed effects models predicting fertility desires/ideals among the never-married

| | Desire to have children | | | | Ideal number of children | | | |
|------------------------------|-------------------------|---------------------|--------------------|---------------------|--------------------------|---------------------|---------------------|--------------------|
| | All | Men | Women | | All | Men | Women | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Strength of marriage desire | 0.180** (0.010) | 0.153** (0.016) | 0.139** (0.022) | 0.164** (0.023) | 0.194** (0.017) | 0.179** (0.026) | 0.151** (0.036) | 0.207** (0.036) |
| Age (ref. 20-27): | | | | | | | | |
| 28-33 | -0.000 (0.019) | -0.081 (0.056) | -0.018 (0.074) | -0.189* (0.084) | -0.066* (0.028) | -0.003 (0.099) | -0.034 (0.130) | 0.019 (0.155) |
| 34-39 | 0.015 (0.025) | -0.113† (0.061) | -0.063 (0.079) | -0.197* (0.095) | -0.206** (0.042) | -0.316** (0.113) | -0.486** (0.151) | -0.069 (0.162) |
| 40 and older | -0.115** (0.032) | -0.215** (0.069) | -0.067 (0.090) | -0.408** (0.103) | -0.318** (0.055) | -0.475** (0.136) | -0.574** (0.180) | -0.335† (0.198) |
| Marriage desire × ages 28-33 | | | | | | | | |
| | | 0.027† (0.016) | 0.021 (0.023) | 0.048* (0.023) | | -0.021 (0.029) | 0.008 (0.039) | -0.042 (0.043) |
| Marriage desire × ages 34-39 | | 0.044* (0.018) | 0.047† (0.024) | 0.051† (0.027) | | 0.040 (0.033) | 0.130** (0.045) | -0.073 (0.046) |
| Marriage desire × ages 40+ | | 0.034 (0.021) | 0.028 (0.028) | 0.041 (0.032) | | 0.061 (0.042) | 0.153** (0.056) | -0.057 (0.059) |
| Romantically involved | 0.014 (0.018) | 0.013 (0.018) | 0.038 (0.027) | -0.006 (0.024) | -0.013 (0.029) | -0.012 (0.029) | -0.057 (0.037) | 0.020 (0.043) |
| Constant | 1.830** (0.058) | 1.911** (0.070) | 1.869** (0.097) | 1.976** (0.097) | 1.472** (0.088) | 1.517** (0.109) | 1.576** (0.154) | 1.494** (0.149) |
| N of person-years | 10,328 | 10,328 | 5,319 | 5,009 | 6,597 | 6,597 | 3,430 | 3,167 |
| N of individuals | 2,154 | 2,154 | 1,102 | 1,052 | 2,613 | 2,613 | 1,371 | 1,242 |

Note: All models control for education, school enrollment, employment status, income, and location, same as models in Table 2, but the coefficients are omitted to conserve space. Values in parentheses are robust standard errors.

** $p < .01$

* $p < .05$

† $p < .10$