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Is Online Mate Selection Linked to More Egalitarian Marriages in Japan?

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Abstract

Objective: This study explores how online matchmaking in Japan, an emergent way of meeting potential partners substituting for declining traditional structures of mate selection and potentially reinventing courtship rules, could aid the shift towards less gendered marital unions.

Background: In Japan, persistent norms in favor of the male breadwinner model currently co-exist with calls for more gender-egalitarian unions and a rising demand for women's income-earning capacity.

Method: Based on a sample of 2,941 married couples from the Japanese Life Course Panel Surveys (2007-2016), we examine the probability of engaging in an egalitarian division of housework, while also accounting for observed selection into internet dating via entropy balancing methods.

Results: Results show that compared to marriages formed elsewhere, marriages initiated online reported more equal sharing, but only when the wife was university-educated.

Conclusions: Online dating enlarges the field of possibilities, allows for a more gender-disruptive courtship, and affords women, typically in undersupply, a structural mating advantage, which leads to a better negotiation of gender in the dating phase and, as results show, later in marriage.

Implications: Considering recent trends of declining marriage, this study highlights the importance of digital innovations in partner search technology in assisting Japanese adults, especially highly educated women, in making more egalitarian union choices.

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INTRODUCTION

Japan is undergoing significant demographic transformations in the area of marriage, with increasing numbers of people marrying late, marrying less, or retreating from romantic and sexual relationships altogether (Raymo et al., 2015). Japan's late singlehood rate has been recently identified as one of the highest in East Asia (Esteve et al., 2020). Explanations for these trends include a persistent demand for high-earning male partners (Yamada, 2017) in a context of increased precarious employment among men (Piotrowski et al., 2015), but also high opportunity costs of marriage and childbearing for women, who still disproportionately bear the burden of childrearing and domestic work (Kan & Hertog, 2017). Some studies also point out growing discrepancies between men and women in terms of what they expect from a partnership, with women more often demanding more egalitarian relationships (Piotrowski et al., 2019; Yu & Hertog, 2018), or placing more emphasis on emotional compatibility in unions than men (Dalton & Dales, 2016). Despite these mismatches, marriage remains highly desirable among Japanese adults (Miwa, 2019). Although a decline in marriage intentions has been recently observed in the 2021 Japanese National Fertility Survey (compared to the one collected in 2015), the decrease is minimal, with less than a five-percentage point drop; the majority (over 80%) of never-married individuals aged 18-34, including both men and women, still express a desire to get married (National Institute of Population and Social Security Research, 2022). Some argue, in fact, that recent trends are not necessarily driven by an intentional retreat from marriage, but rather by "an unplanned drifting into singlehood" due to limited access to partner options (Raymo et al. 2021, 69).

On the backdrop of these marriage market shortages, the decline of previous structures of mate selection (i.e., family, work), and rising individual preferences towards a less rigid dating culture (Beck et al., 2014), recent years have witnessed the onset of the konkatsu (i.e., spouse hunting) culture (Castro-Vazquez 2016; Dalton and Dales 2016; Miwa and Tanaka 2020) and a general increase in more liberalized marriage markets. The popularity of formal matchmaking services (e.g., through miai parties, where people with strong intentions of getting married can meet potential partners), or more informal group dating (gokon) options, reflects the shift from family-driven and work-related mate selection to more individualistic and agentic ways of searching for partners (Yang, 2017). Online matchmaking sites represent one modality to have emerged within the burgeoning industry of partner hunting in recent years (Farrer & Gavin, 2009; Yu & Hertog, 2018). Digital dating is an important means of searching for partners particularly for singles with reduced time availability or, some argue, limited communication skills (Nemoto et al., 2013). Though we do not yet notice the massive take-up seen in the West, as for instance, in the U.S. (Rosenfeld et al. 2019), recent survey data indicates that internet dating accounts for 13.6% of recent marriages in Japan. In Western contexts, research has already identified the impact of online mate search and selection on various outcomes, such as timing of marriage, the marriage gap or assortative mating (Potarca, 2021; Rosenfeld, 2017; Thomas, 2020). For Japan, research so far has looked at the online dating records and partner preferences of users enrolled on a matchmaking agency (Yu & Hertog, 2018), but no attention has yet been given to how digital mate selection may support the transition towards a more modern dating culture and more gender-progressive marital practices. Given that Japanese families are now undergoing a transitional phase from gender-traditional towards gender-egalitarian arrangements (Esping-Andersen & Billari, 2015; Fukuda et al., 2020), the Internet may be an arena where gender innovation plays out the most (Beck et al., 2014), as recently seen in a study using

German data (Potarca & Hook, 2023). This may occur as a result of a more liberal space of interaction, structural conditions of anonymity, a wider dating pool and male-biased sex ratios (i.e., more men than women), leading to more progressive courtship dynamics and a more assertive expression of preferences, particularly for women with a high level of education. It can be expected that, compared to women with less education, those with a university degree take better advantage of online dating options to more freely revert hierarchy and power in gender relations and create better suited unions, as seen in Germany and Switzerland (Potarca 2020, 2021).

In the context of women's increasing levels of education (Hannum et al., 2019; Ishida, 2022; Kojima, 2013; Nakamura, 2022), and overall changes in the landscape of marriage, the current study investigates how online dating marriage markets shape the division of housework among married couples in Japan. We specifically examine the probability of equally sharing *time spent performing routine household tasks* (e.g., preparing meals, doing laundry, cleaning, grocery shopping). Using random effects logistic regression models and data on 2,941 married respondents from the Japanese Life Course Panel Surveys, we first scrutinize whether couples established via the internet have more egalitarian practices of dividing household labor compared to couples formed offline, while also accounting for observed selection into online dating via entropy balancing weights. To examine if this effect is universal to modern intentional dating or only relevant to online matchmaking, we divide the offline category into two groups and compare couples that met through online dating to both those who met in conventional ways (i.e., labelled as "offline traditional"), and through offline matchmaking (i.e., grouping together both the formal *miai* parties and encounters facilitated by marriage agencies, and the informal *gokon* matchmaking options). Finally, we examine whether patterns differs by wife's level of education. In particular, we assess whether the association between online matching and the egalitarian division of housework is more conspicuous among highly educated women.

This study makes several contributions. First, by examining whether online dating challenges or perpetuates traditional expressions of gender within marriage in Japan, this study adds to current scholarship aiming to understand contemporary partnering in a country paradoxically showcasing both stability and progress (Raymo et al., 2021). Second, as Dalton and Dales (2016) remark, the patterns observed on online dating platforms, typically less constrained by social control, can reveal how masculinity and femininity are currently being (re-)constructed within marriage and families in Japan. The results of this study would then also inform contemporary patterns occurring in other East Asian countries undergoing comparable demographic transitions (Yu & Hara, 2020). Lastly, in the context of below-replacement fertility, a rapidly aging society, and anticipated labor shortages, adding to our understanding of how marriage is experienced by highly educated women, an expanding demographic group, is of utmost importance (Brinton and Oh 2019). This study hence tackles the important and timely issue of gender enactment in the realm of marriage and family in a rarely examined non-Western context.

THEORETICAL BACKGROUND

Division of Unpaid Labor

Similar to other East Asian countries, Japan has long encouraged a traditional patriarchal family model (Krumbein, 2021; Raymo et al., 2015, 2021). Although the male breadwinner model is increasingly unattainable for many men, Japan's enduring pro-work conservatism and adherence to gender essentialist norms (Brinton & Lee, 2016) result in

individuals being rigidly assigned and expected to fulfill specific marital roles based on their gender: men as breadwinners, women as homemakers and caretakers. Japanese men are hence still expected to fully commit to a full-time job (Matsuda, 2019) while women's economic contribution to the household mostly takes the form of a secondary wage (Brinton et al., 2021). Even when encouraged to pursue employment, women are expected to exit the labor market upon marriage and motherhood (Raymo & Lim, 2011), and take up responsibility for both housework and childcare tasks (Kan & Hertog, 2017). Overall, progress towards narrowing gender gaps in both paid and unpaid work has been stagnant, mirroring the situation in Western countries (Kan et al., 2022).

Though some changes in expectations and behaviors are happening, such as men returning home from workplace earlier (Fuwa, 2020), becoming more involved in parenting (Ishii-Kuntz, 2021), or greater priority given to emotional compatibility (rather than just financial security) in unions (Dalton & Dales, 2016), these are not yet substantial or pervasive (Piotrowski et al., 2019). Furthermore, change in individual preferences towards a more progressive division of labor has not been accompanied by change in family-related policies or workplaces (Fuwa, 2020; Piotrowski et al., 2015). Men are not only still reluctant to embrace an egalitarian division of household labor (Piotrowski et al., 2019), but their long hours and after-hour engagements (Fuwa, 2019; Kato et al., 2018) leave little space for housework contributions. In addition to this, housework is rarely outsourced, even in high-income households (Kolpashnikova & Koike, 2021). In comparative terms, Japan, as well as Korea, parallel Southern European welfare regimes, as they heavily rely on family for care support, which hinders women's participation in the workforce (Kan et al., 2022).

The Online Partner Market in Japan

The recent rise in partner search technology, such as dating websites, phone apps or online social networks, however, may have ushered in certain partnering and gender innovations. Traditionally, partner selection in Japan was intermediated by family (Matsuda, 2019) or work (Nemoto et al., 2013). Given the gradual failure of these traditional marriage markets (Raymo et al. 2021; Uchikoshi and Raymo 2021), the internet, as a more efficient and modern dating market, one that provides a wider set of opportunities, easy access or mobility (Finkel et al., 2012), had great potential to displace them, as it did in several Western contexts (e.g., U.S., Switzerland). Why the internet has not yet taken off as leading marriage market in Japan (Miwa & Tanaka, 2020), in the same way as it has in the West, may have to do with several reasons, including online dating not yet being viewed as reliable as traditional intermediaries (Dalton & Dales, 2016), its lingering stigma, and people still holding preconceived notions about the type of singles that resort to digital partner search, and the type of sexual behaviors harbored online (Mantell, 2018).

Nevertheless, some point out that internet dating did reach a fair level of popularity in Japan as well (Yu & Hertog, 2018), and that seeking partners online is representative of a changing culture of dating, the transition towards more agentic, individualized personal choices, and a diversification of intimate needs (Endo 2018, Yang 2017). The decline in traditional marriage markets left no choice to modern-day singles but to seek alternative spaces of interaction and partner selection, which, in the case of digital partner markets, also present a different set of rules and a different ecological structure. In addition to facilitating anonymized encounters with potential partners, allowing singles who work and have no time to search for partners to easily access a large and diverse pool of eligible candidates, the internet has the advantage of also minimizing the social costs of interaction (Farrer & Gavin, 2009), which is often cumbersome for young Japanese adults with poor communication

skills (Nemoto et al., 2013) and limited inter-gender offline interactions (Endo, 2018). But especially by allowing for more personalized choices, that do not necessarily conform with traditional social scripts (Murai, 2018), digital mate selection may have an impact on increasing gender equity in the division of household labor, and assist women in better realizing gender-progressive partner preferences. Internet matchmaking may facilitate the formation of more degendered marriages through several potential mechanisms.

First, dating websites and apps typically attract more men than women (e.g., Potarca, 2020; Skopek et al., 2011). The oversupply of men in digital partner markets may have to do with overall gender digital divides (e.g., men are more likely to have access to and better use digital technologies), but also the experience of dating online itself, which poses more risks of harassment and bothersome contact for women than men (Anderson et al., 2020). More favorable sex ratios online, however, may grant women more power in interactions with men and encourage a more assertive expression of preferences. According to Guttentag and Secord's (1983) theory of imbalanced sex ratios, which is similar to demographic/ macrostructural opportunity theory (South & Trent, 1988) and marriage squeeze theory (Akers, 1967), unequal sex ratios have an impact on the distribution of power between men and women. For example, when there is an undersupply of women in online spaces, it can create a tilt in the gender power balance, giving women an advantage in the negotiation of relationships both at the outset and later in marriage. Conversely, men in oversupply may be motivated to actively engage in these negotiations. Empirical research has indeed demonstrated a connection between imbalanced sex ratios and the bargaining of fertility goals (Ogasawara & Komura, 2021) or division of household responsibilities among couples (Stauder & Röhlke, 2022).

Second, the anonymity, reduced intrusion from family and friends and increased privacy offered by online platforms can foster a greater inclination, particularly among women, for risk-taking and self-affirming in interactions with men. While there is evidence of online replication of gendered ways of relating between men and women, such as men predominantly initiating first contact (Dinh et al., 2022), we contend that internet dating also provides opportunities for deviations from such traditional scripts. Several qualitative studies, for instance, reveal that women perceive greater empowerment and agency in their communication with men as the primary advantages of using digital partner search tools compared to conventional non-digital methods of selecting partners (Cooper & Sportolari, 1997; Dwyer et al., 2020; Lawson & Leck, 2006). Since engaging in more gender-progressive courtship dynamics influences the enactment of gender later in marriage (Lamont, 2020), we believe that the internet may help women set up relationships where they can more successfully communicate and assert preferences, both in the courtship phase and later, during negotiations of housework in marriage.

We therefore put forward our first hypothesis, claiming that *online-formed couples are more likely to report a gender egalitarian division of housework than couples formed offline*, either in traditional ways or via offline dating services such as *gokon*, *miai* parties or marriage agencies (Hypothesis 1). Though matchmaking through *gokon* and *miai* events also represents a non-conventional way of selecting partners, they provide a less dense and less wide dating pool (e.g., *gokon* parties often involve friends of friends) than online dating. More importantly, they do not remove the direct interference of third parties (as friends often mediate *miai* and *gokon* meetings) and subsequent social pressures to conform to traditional courtship rules. Meeting someone through a marriage agency can emulate some of the specificities of online dating (e.g., matching with potential partners from outside one's social circle, less meddling of family and friends). It cannot, however, provide key affordances

such as anonymity or a greater sense of agency over the selection process, which foster greater ease and willingness to innovate and assert non-conventional preferences.

Selection into Internet Matching

We also anticipate that several selection processes may partially explain why couples that formed online might be more egalitarian than those formed elsewhere. First, online dating typically appeals to singles who were previously married and those who are childless (Robnett & Feliciano, 2011; Sautter et al., 2010). As earlier mentioned, it may also interest those with a selectively progressive gender role orientation (Dwyer et al., 2020) and who resort to internet dating services to better meet their demand for more egalitarian partners. Given that these profile characteristics are strong predictors of more equal sharing of housework tasks (Greenstein, 1996; Kleider, 2015; Yavorsky et al., 2015), we need to adjust for this potential covariate imbalance.

Furthermore, one's age, education, employment status, and the area in which singles reside (e.g., urban versus rural, center versus periphery) may impact access to mating opportunities and ultimate partner search strategy (Potârcă & Mills, 2015; Sautter et al., 2010; Yu & Hara, 2020), but also speak of social and normative influences on how individuals approach gender issues in general and the division of household labor in particular (Coltrane, 2000; Kolpashnikova & Koike, 2021; Stauder & Röhlke, 2022). Finally, health difficulties and limited size of one's social network may also motivate both the decision (or necessity) to date online and the way couples share housework tasks (Podor & Halliday, 2012; Rözer et al., 2018). Nevertheless, even though selection on observable socio-demographic, residential and attitudinal characteristics may contribute to anticipated online dating effects, we also expect the association between meeting online and housework to still be significant after adjusting for differences between couples formed through internet dating and couples formed using offline methods (Hypothesis 2).

Wife's Educational Level

Finally, we argue that the *online dating effect may be particularly visible among married couples in which the wife is high-level educated* (Hypothesis 3). Owing to the female educational expansion, the stock of eligible Japanese women with university education in the marriage market has been progressively increasing in recent decades (Nakamura, 2022; Yoshida, 2010). In the past, given the persistence of the male breadwinner model (Piotrowski et al., 2020) and a preference for unions in which men hold the educational advantage, i.e., female hypergamy (Matsuda, 2019), high-educated women used to face poor marriage prospects (Raymo & Iwasawa, 2005). Recent evidence, however, has pointed out the reversal of the previously negative educational gradient in marriage for women in Japan (Fukuda et al., 2020; Miwa, 2022; Uchikoshi & Raymo, 2021). Nevertheless, when it comes to the division of housework, better education does not necessarily guarantee better outcomes. A recent comparative study, for instance, showed that higher levels of education were associated with fewer hours of housework for married women in the U.S. and Taiwan, but not in Japan (Kolpashnikova and Koike 2021). Still subject to strong gender conditioning in offline spaces of interactions, progressively minded women with high-level training may therefore feel compelled to seek out alternative partner markets (i.e., online) to experience couplehood on different terms and establish unions in which the male partner potentially contributes more to domestic tasks. The internet may thus assist highly educated women in better realizing gender-progressive partner preferences. Using data from Germany, Potarca (2021) showed that university-educated women who used

online dating increased their chances of marrying, partly as a result of better matching on egalitarian gender attitudes. For Switzerland, it was also found that highly educated women were more likely to match up with lower educated men if they met on dating apps (Potarca 2020). These findings showcase online dating as an arena where well-educated women manage to a noticeable extent to subvert normative ways of partnering. Beyond selection effects, however, women with a university degree may be better skilled than the less educated at communicating online and setting up more egalitarian relationship dynamics that would ultimately lead to a more equal split of domestic work. In short, the third hypothesis predicts that the online dating effect of promoting an egalitarian division of housework is more conspicuous among highly educated women.

METHODS

Data

We use the Japanese Life Course Panel Surveys of the Youth sample (JLPS-Y) and of the Middle-aged sample (JLPS-M), which are ongoing annual nationally representative panel surveys conducted by the Institute of Social Science at the University of Tokyo. The surveys started in 2007 with a joint sample of 4,800 individuals aged between 20–34 years (JLPS-Y) and 35–40 years (JLPS-M), respectively. A supplement of 963 respondents was added as of the fifth wave in 2011. The response rate for the first wave was 34.5% for the JLPS-Y and 40.4% for the JLPS-M, and then ranged from 76.0% to 80.7% for the JLPS-Y and from 79.0% to 88.0% for the JLPS-M, respectively, in subsequent waves. The response rate for the first wave of JLPS-Y is fairly low, and though a report looking at sample composition indeed revealed an overrepresentation of the highly educated, the extent of the bias was deemed trivial (Miwa, 2008). In both surveys, participants were asked about work, family, socioeconomic status, attitudes, and values. Those who were in a partnership/ marriage were also asked about where they met their partner/ spouse. This study uses ten waves of data (2007-2016) that are publicly available. After eliminating respondents who are unpartnered and those in non-marital unions, those in marriages formed before 1995 (i.e., the post-Internet dating age), cases with missing information, the final analytical sample consisted of 2,689 married respondents with 12,022 observation points.

Measures

Dependent Variable

Time spent doing household labor is evaluated via the question: “How often do you perform the following activities? Prepare meals; Do laundry; House cleaning; Grocery shopping. Respondents could provide answers ranging from: 1) Everyday; 2) 5-6 days per week; 3) 3-4 days per week; 4) 1-2 days per week; 5) 1-3 days per month; 6) Almost never. First, given that these items were not included in wave 2 (2008) and wave 4 (2010), we copied answers from previous waves in most cases, and when that was unavailable, from follow-up waves. Second, similar to Geist (2005), we used information from these variables and partners’ gender to create three-category indicators distinguishing between 1) the female partner spending more time; 2) both partners spending equal time (e.g., they both spend three-four days per week on such tasks); and 3) the male partner spending more time on a specific household labor task. Second, we computed an average score based on all four types of activities, which ranges from 0 to 2. Third, given the left skewed distribution of scores (e.g., 63.1% of respondents have 0 as average score) and an insufficient number of cases for all values across each meeting context sub-group (e.g., there are only 6 observations that

have an average score of 2 for online-formed marriages), we created a binary indicator where value 1 (a progressive or egalitarian division of household labor) includes cases where the average score was equal or higher than 0.75, meaning that there are at least three activities that are equally shared.

Independent Variables

To assess the meeting context of couples, we rely on a measure asking: "How did you first meet your spouse?". Respondents could provide multiple answers from the following list: 1) Introduced by parent/sibling; 2) Introduced by relative other than parent/sibling; 3) Introduced by friend/acquaintance/childhood friend; 4) Introduced by colleague or boss at work; 5) Met at work; 6) Through school classes, groups, and activities; 7) Through a part-time job; 8) Through a hobby class; 9) Through a group dating party (*gōkon*); 10) Through a meeting arranged for finding potential partners (*miai*, or an arranged marriage); 11) Through a party that is arranged to meet somebody for potential partners (*miai* party); 12) Met via the Internet or cellular phone; 13) Met on a street in town or during a trip; 14) Through a marriage consultation service or marriage agency; 15) Other. Given sample limitations, we recoded the measure into a three-category variable, distinguishing between 1) meeting in conventional, nondigital ways (i.e., "offline traditional") in general (n = 2,599 respondents); 2) meeting through a group dating party (n = 244), a *miai* party (n = 91) or the less frequent cases (n = 41) of meeting through a marriage agency (i.e, "offline dating services"); and 3) meeting through online dating services (n = 133). We removed the few cases of overlap between the last two categories, e.g., couples that met both online and through a group dating party.

When investigating the selectivity of couples that formed in non-conventional ways (as described in the Analysis section), we rely on a series of covariates that may have impacted both the probability of being part of an online-formed marriage and an egalitarian distribution of household labor. This includes respondent's gender, age, marital duration (in years), wife's and husbands' education, the presence of resident children, previous marital experience, living in an urban environment, residing in the Kanto region (living in Japan's political and economic urban center, which includes the capital of Tokyo, seen as proxy of less traditional views on family in general, but also as exposure to presumably larger local partner markets), satisfaction with friends (an indicator of social network strength), health status (which, when precarious, could influence the decision to invest in online partner search rather than look offline), and exposure to egalitarian gender values early on. For the latter, instead of using an indicator of respondent's current gender attitudes, which would entail a high risk of endogeneity, we rely on a measure pertaining to a period prior to marriage, more specifically respondents' exposure to how gender was enacted in their family of origin early on. Here, we use information from items asking respondents if, when they were 15 years old (when they graduated middle school), their fathers took part in housekeeping but relied on their mother for childrearing, they took part in childrearing but not housekeeping, or they took part in both housekeeping and childrearing. We synthesized the answers from both items to create a binary indicator of father's participation in housework (irrespective of their involvement in childcare).

For both partners' education, we distinguish between graduates of: 1) middle/ high school education; 2) vocational school/ junior college education; or 3) university or higher. Similar to Raymo and Iwasawa (2005), we adopted the conventional approach of combining junior college graduates and vocational school graduates into one category. To assess whether the couple had any resident children, we use information that was directly provided in waves 2007, 2012-2016, and indirectly from household roosters in remaining waves.

Information on previous marital experience (i.e., whether the respondent was divorced or widowed) was taken from the marital status variable. Acting as proxy for social network density, satisfaction with friends was measured via a question asking respondents to rate how satisfied they were of their relationships with friends on a scale containing the following five options: 1) satisfied, 2) somewhat satisfied, 3) neither satisfied nor dissatisfied, 4) somewhat unsatisfied to 5) unsatisfied. To deal with sample size limitations and a reduced number of cases within certain categories for online-formed couples, we recoded the variable on a three-point scale, grouping the first two answers in a single 'satisfied' category and the last two answers in a single 'unsatisfied' category, while retaining the neutral middle point. Health status is measured via the question "How do you generally feel about your health condition?", with the following possible answers: 1) excellent, 2) good, 3) average, 4) not very good, and 5) poor. As with the previous variable, we recoded health status on a three-point scale as follows: 1) good health, 2) average, 3) poor health.

In addition to accounting for the selectivity of online dating via entropy balancing weights (as explained in the next section), the main analyses of equal sharing of housework includes several basic controls, such as respondent's gender, division of paid work (see below for details), subjective standard of living (based on a question measured on a 5-point scale: "How do you evaluate your household's current standard of living?", which we recoded to differentiate between 1) poor, 2) average, and 3) wealthy), and partners' educational pairing. To measure the division of paid work, we used information on both spouses' employment status and distinguished between: 1) male breadwinner households (where the husband was full-time employed or self-employed and the wife was either working part-time or not at all); and 0) all other arrangements, largely comprised of dual earner couples (in which both spouses are either full-time employed or self-employed), the fewer cases of female breadwinner households (where the husband was either working part-time, was unemployed or other, and the wife was full-time employed or self-employed) and other cases. Given the modest sample size of marriages that started online, we could not operationalize the division of paid work in greater detail. Partners' educational pairing was constructed based on both spouses' education, distinguishing between: 1) hypergamy (the male partner is better educated), 2) homogamy (partners have a similar level of education), and 3) hypogamy (the female partner is better educated). Here, we employed a measure of couples' relative education, rather than solely considering the husband's education, to partially gauge the distribution of (economic) power within the marital relationship. Our assumption is that wives who possess an educational advantage tend to earn more, enabling them to implement a less conventional division of domestic chores.

ANALYSIS

The first analytical step is to check and adjust for differences in observed characteristics between respondents who met their partner through online dating and those who met their spouse in offline traditional ways or offline dating services. Our aim is to minimize the risk of significant differences in the likelihood of equal sharing of housework being attributable to underlying differences (i.e., selection bias) in the characteristics of respondents who met their partner in various ways rather than to the direct effect of meeting context itself. To achieve this goal, we use entropy balancing (EB) (Hainmueller 2012), a multivariate matching technique that reweights the two control groups (i.e., couples that met offline in traditional ways and couples that met via offline dating services) to match the covariate distribution of the treatment group (i.e., couples that met online). As opposed to reweighting

based on propensity scores, which requires a time-consuming iterative process of selecting covariates, weighting, and balance checking, EB directly estimates weights based on a pre-specified set of balance constraints. Especially when dealing with modest-size samples, as is the case in our study, EB also allows us to avoid trimming outliers, such as observations for long duration partnerships, typically over-represented among couples who met in non-digital ways. Using the ebalance command (Hainmueller & Xu, 2013) in Stata 17 (StataCorp, 2021), we generate weights under the constraint of balance in the mean and variance of all variables across the three groups.

The second step in our analysis was the estimation of random-effects logistic regression models using Stata's melogit command. These models allowed us to test whether the probability of having an egalitarian division of housework varies across meeting context and have the advantage of accounting for the nesting of observations within individuals. We first estimated a pre- and post-weighting model for the full sample, and then by wife's education given that the online dating effect – for brevity, used hereafter to denote the association between meeting online and the division of housework, and by no means as indicator of causality – may uniquely affect the allocation of housework of women with different education. The specification of the models took the following mathematical form:

$$logit(p_{ij}) = \beta_0 + \beta_1 \text{meeting context}_{ij} + \beta_2 X_{ij} + \beta_3 Z_i + u_j,$$

where p_{ij} is the probability of respondent i in wave j to experience an egalitarian division of household labor, modelled as a logistic function of meeting context. β_0 is the intercept. β_1 represents the difference in experiences of equal sharing for couples that met through offline dating services or internet dating versus the reference category of having met via offline traditional contexts, adjusted for time-varying controls (vector X_{ij})with coefficient vector β_2), and time-constant controls (vector Z_i with coefficient vector β_3). The specification finally includes a between-individual (u_j) error term. We also considered fixed-effects models, which would have had the advantage of accounting for potential unobserved fixed traits, but we did not have sufficient variation in our main independent variable, with very few changes in treatment (i.e., type of meeting context).

RESULTS

Entropy Balancing

To explore differences in observed characteristics between couples formed offline, in conventional ways versus online-formed unions, Figure 1 (Panel A) plots standardized differences in means for each covariate. Focusing on unadjusted values, particularly those greater than ±0.2, we see that observations for couples who met their partner online (hereafter, for brevity: online observations) were more often associated with shorter marriage duration, younger age, previous marital experience, and dissatisfaction with friendships. Additional differences that were, however, not large also revealed online observations additionally linked to less exposure to progressive gender values (i.e., respondents were less likely to have seen their father involved in housework when they were 15 years old), residence in an urban environment or in the Kanto region, but differences compared to offline observations were not large. Figure 1 (Panel A) also shows that, after weighting, differences shrank to zero, indicating that covariate balance was achieved. Figure 1 (Panel B) further inspect the selectivity of couples who met online compared to those who met via offline dating services, with similar findings.

Descriptive Statistics

We begin by presenting weighted descriptive statistics of dependent and independent variables for the total sample, by meeting context (Table 1A). Married couples who met through online dating in Japan were slightly more likely to report an egalitarian division of housework than couples who met in traditional ways, though, overall, the proportion of equal sharing of housework was small (i.e., not surpassing 16% in either category).

When looking at results by wife's educational level (Table 1B) we see that this contrast was particularly notable among couples where the wife was university-educated. More precisely, when the wife was highly trained, 27.9% of couples reported equal sharing if they met online, compared to only 15.8% if they met offline in traditional ways or 18.2% if they met through offline meeting services. None of these differences, however, were statistically significant. Table 1A and 1B finally indicated that among couples that met online, there was an over-representation of educationally hypogamous couples, especially among couple where the wife was highly educated.

Multivariate Results

We next turn to multivariable analyses to test our first hypothesis stating that married couples who met online are more likely to have an egalitarian division of routine household labor than other couples. Table 2 shows results from a set of random-effects logistic regression models predicting an equal split of housework. We estimate a first model on unweighted data and a second one on weighted data to assess the extent to which selection on observed variables explains the anticipated positive effect of internet dating on equal sharing (Hypothesis 2). We run these analyses for the full sample and then by wife's education separately to test our third hypothesis, which predicted that the online effect would be particularly visible among couples where the wife was highly educated.

First, unadjusted results for the full sample indicate that married couples who met online were 1.74 (=exp[0.55]) times more likely to show equal sharing of housework than couples who met offline, in traditional settings ($p < .10$), confirming Hypothesis 1. Accounting for observed selection into internet dating, however, reduced the meeting online effect by 44.8% (= (1-(0.31/0.55)) and rendered it non-significant. This lends support to Hypothesis 2, which predicted that the selectivity of online daters would explain part of the positive online dating effect.

Results stratified by wife's education further validate Hypothesis 3, by showing a particularly stronger online matchmaking effect among couples in which the wife was university trained. More specifically, online-formed couples in which the wife was highly educated were 3.67 (=exp[1.30]) times more likely to have an egalitarian division of housework than couples who met offline in conventional ways ($p < .05$). For couples in which the wife was not university-educated, results were inconclusive: a small and negative meeting online effect for unions in which the female partner had high school or less; positive but non-significant for unions in which the wife graduated vocational school or junior college only. Even after accounting for various factors that may have selected individuals into internet dating, couples that met online and where the wife was university educated were 2.54 (=exp[0.93]) times more likely to report equal sharing of housework tasks ($p < .05$). As opposed to the general sample, for these couples, controlling for observed selection attenuated the online dating effect to a lower extent (i.e., by 28.4% = (1–(0.93/1.30)]), and the coefficient retained statistical significance. Finally, the effect of meeting via offline dating services rather than via offline traditional methods was small and

nonsignificant across all three educational groups.

Supplementary Analyses

We also ran two secondary analyses. First, though we did not directly hypothesize on how meeting online may impact the educational gap in the division of housework, we aimed to also see whether digital spaces of partner selection generate a higher education dividend of reduced time spent on housework for women in Japan, as seen in other contexts (Kolpashnikova & Koike, 2021). As opposed to the main objective of the paper, which is to examine the association between online dating and the division of housework among couples with varying levels of the wife's education, this analysis shifts its focus to explore the differences in housework allocation among women with different educational backgrounds across meeting contexts. Since previous analyses were stratified by wife's education in order to examine online dating effects and the contribution of selection factors for each educational group separately, to directly assess educational effects across meeting contexts, we ran an additional analysis on the full sample including an interaction between wife's education and meeting context. Figure A1 in the Appendix graphs predicted probabilities of equal sharing based on this model. Results indicate that among couples who met offline, couples where the wife was university educated were not statistically different from couples where the wife was less educated in terms of how gender-imbalanced their division of housework was; among couples formed within the more liberal bounds of digital partner markets, wife's university education was associated with a significantly more egalitarian division of housework compared to the lowest level of education ($p < .10$).

Second, to investigate how the association between online dating and a more egalitarian split of housework for couples in which the wife is highly educated varies across different categories of couple's division of paid work and in so doing verify whether the effect applies to women with high education and working full-time, we constructed a variable distinguishing between male breadwinner arrangements in which the wife worked part-time, male breadwinner couples in which the wife is not working at all, and the rest, labelled 'modern' (largely comprised of dual earner couples). As previously mentioned, sample limitations did not allow us to also distinguish between, for instance, dual earners and female breadwinner households. Predicted probabilities based on a model that includes an interaction between meeting context and the division of paid work are plotted in Figure A2. Results show that the meeting online effect only pertains to male breadwinner couples in which the female partner works part-time, with no effect seen among either more traditional arrangements (i.e., in which the wife is not engaged in any form of employment) or more modern ones. We also notice that the probability of equal sharing among male breadwinner couples where the wife is working part-time is almost at the same level as that among modern couples. In other words, online matching allows women working part-time to achieve the same level of equal sharing of housework as women working full-time.

DISCUSSION

Japan's work and family landscape currently inhabits a transitional space (Fukuda et al., 2020), where long-standing cultural norms prescribing traditional marriage and male-breadwinner arrangements paradoxically co-exist with an undeniable rise in gender-egalitarian preferences and an increasing demand for women's education and income-earning capacity (Brinton et al., 2021). Alongside these trends, there have also been stark changes in partner selection processes, including a decline in previous structures of

matchmaking (e.g., family, workplace) and a concomitant rise in the marriage hunting industry (Castro-Vazquez, 2016; Dalton & Dales, 2016). This study aimed to examine the link between these two trends by looking at the role that internet matchmaking options might play in facilitating de-gendered marital practices. Compared to other modern go-between options such as *miai* parties, marriage agencies or *gokon* gatherings, which often still involve the intermediation of family and friends, online dating not only enlarges the field of possibilities, but also provides conditions of anonymity, limited interference by third parties, and, in the case of women, who are often under-represented on these platforms, a structural mating advantage. Given these particularities, we argue that digital spaces of interaction may allow for a subversion of gender during the dating phase (e.g., women more often claiming power and expressing preferences in interactions with men), which, similar to patterns recently observed for Germany (Potarca & Hook, 2023), may set relationships on course for more gender-egalitarian marriages later on (Lamont, 2020).

To test this claim, we selected a sample of married couples from the Japanese Life Course Panel Surveys. Based on ten waves of data (2007-2016), we performed random effects logistic regression analyses that model the probability of engaging in equal sharing of housework tasks, while also accounting for observed selection into internet dating via EB weighting. Results first indicated that married couples who met online generally had a more egalitarian division of housework than couples who met in either traditional ways or through other modern but non-digital matchmaking options. The results were marginally significant, and the association was partly offset when controlling for the socio-demographic, residential and attitudinal selectivity of online daters. Results stratified by wife's education, however, revealed that, if the female partner was highly educated, the online dating effect was more prominent and more robust. Marriages that started online and where the wife was university-trained were significantly more likely to report an egalitarian allocation of housework compared to other marriages, and the effect was robust beyond any selectivity based on observed characteristics. Further investigations of the four components comprising our index of egalitarian sharing indicate that online-formed couples who adopt an equal division of domestic work tend to show notable changes in the contributions made by male partners. Specifically, there is a marked increase in male involvement when it comes to tasks such as meal preparation and grocery shopping. Additionally, we observe an upturn in male participation for typically less desirable tasks like house cleaning and laundry, while a significant proportion of couples opt for an equal sharing of these chores.

Though not yet mirroring the large-scale popularity witnessed in contexts such as the U.S. (Rosenfeld et al., 2019), digital partner selection emerging as significant component in the Japanese dating culture in recent years does seem to fulfill its promise of facilitating a certain degree of change, especially with regards to gender (Beck et al., 2014), and for a demographic group currently on the rise (i.e., university-educated women). The fact that digital modern dating options create space for change to occur, which is not also visible among couples that met through non-digital modern matchmaking options (e.g., *gokon*, *miai* parties, marriage agencies), confirms that the affordances of digital media (e.g., less interference by third parties, anonymity, a multitude of options) make a significant difference in the process of seeking out more egalitarian partnerships.

The online effect particularly noticeable for marriages in which the wife was high-level education suggests that, to leverage the advantages of online partner selection and be able to establish more egalitarian dynamics in marriage, Japanese women have to possess human capital and some economic resources. Finding a significant online effect among women working part-time but not among already more egalitarian women in dual earner

couples (i.e., the majority in the 'modern couple' category), as additional analyses revealed, indicates the following: first, already advantaged groups engage in similar negotiations both offline and online, and any affordance conveyed by the internet adds little to increasing egalitarianism in the division of housework; second, women holding part-time rather than full-time employment affords economic power that is not too threatening, but sufficient enough to bargain gender in online interactions with men. In alternative social spaces such as digital partner markets, having higher education and some employment is seemingly valued (Brinton et al., 2021) and allows women to somewhat dismantle the 'professional housewife' script rigid societal norms still assign them to. These semi-traditional couple arrangements initiated in the online space (i.e., 1.5 male breadwinner couples with a more egalitarian division of housework) also allow full-time working men to step away from the role of sole provider of financial security and make contributions to domestic work. As men's mate value changes alongside that of women's, especially in the context of increasing difficulty among men to gain regular employment (Piotrowski et al., 2015), our findings signal a relevant shift in patterns that may be observed in the years to come.

We nevertheless acknowledge that our study comes with certain limitations. First and foremost, when computing EB weights, we were not able to observe the characteristics of online daters pre-marriage. We tried to overcome this issue by including time-constant measures or indicators of selectivity pertaining to an earlier stage in life (e.g., father's involvement in housework at age 15 as proxy for pre-marriage gender values that the respondents were exposed to) whenever possible. Nevertheless, we cannot entirely rule out the risk of endogeneity or the potential bias of not accounting for unobserved time-variant traits. Second, the content and size of the data did not allow for a more detailed examination of specific digital dating options or looking at interactions with other factors (e.g., the online effect for university-educated women who are at the same time breadwinners or better educated than their partner).

Despite these limitations, the results presented here already provide a glimpse into the potential that digital instruments of mate selection have to facilitate change in Japan's partnership culture. Similar to research using European data (e.g., Potarca 2021), results also indicate that the internet provides women with university education an advantage that they otherwise would not possess. For this particular group, online dating offers the tools and access to different types of communication and wider dating pools, which open up possibilities for different types of gender dynamics during courtship, that potentially reverberate into a more egalitarian manifestation of gender during marriage. This study adds to previous research (e.g., Potarca 2020; Thomas 2020) by indicating that technological innovations in the process of mate selection play a significant part in demographic transitions, and allow for more individualized and more diversified personal choices (Castells, 2009), even in staunchly traditional contexts. Finally and related, our study suggests that in Japan's case and in line with Ogburn's (1922) cultural lag hypothesis, significant cultural change in marriage and family patterns is more likely to take off when changes in economic and technological conditions, including transformations in partner search and selection technology, occur.

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FIGURE 1. Standardized Differences in Means between Couples Formed via Online Dating Services vs. Offline Traditional (a) or Offline Dating Services (b) for Selected Covariates, Before and After Entropy Balancing.

Note: Positive (negative) values indicate that the mean for online-formed couples is higher (lower) than for offline-formed couples.

TABLE 1A. Weighted sample descriptive statistics (percentages), by meeting context – total sample.

	Offline traditional	*Offline dating services*	*Online dating services*
Egalitarian division of housework	11.3	13.3	15.5
Female respondent	53.7	53.7	53.7
Male breadwinner couple	67.7	62.9	70.6
Household living standard			
Poor	18.6	18.4	19.7
Average	62.1	61.7	58.8
Wealthy	19.3	19.9	21.5
Partners' educational pairing			
Hypergamy	37.7	36.0	40.2
Homogamy	44.9	48.7	36.4†
Hypogamy	17.4	15.3	23.4†
N (observations)	*15,780*	*1,800*	*673*
N (couples)	*2,600*	*371*	*133*

Note: † $p < 0.10$.

TABLE 1B. Weighted sample descriptive statistics (percentages), by meeting context – stratified by wife's educational level.

A. Wife's education: High school or less	*Offline traditional*	*Offline dating services*	*Online dating services*
Egalitarian division of housework	9.6	10.7	6.2
Female respondent	53.4	55.6	63.9
Male breadwinner couple	74.9	74.2	84.6
Household living standard			
Poor	25.4	26.2	21.9
Average	59.4	61.7	60.8
Wealthy	15.2	12.1	17.3
Partners' educational pairing			
Hypergamy	50.5	47.4	61.9
Homogamy	49.5	52.6	38.1
N (observations)	*4,725*	*462*	*260*
N (couples)	*789*	*93*	*49*
B. Wife's education: Vocational school/ junior college			
Egalitarian division of housework	10.8	13.3	18.3
Female respondent	55.2	48.2	47.2
Male breadwinner couple	66.3	58.8	61.6
Household living standard			
Poor	16.0	16.3	24.3
Average	65.9	64.3	54.9†
Wealthy	18.1	19.4	20.8
Partners' educational pairing			
Hypergamy	43.0	42.0	38.7
Homogamy	26.7	28.3	22.9
Hypogamy	30.3	29.8	38.4
N (observations)	*6,933*	*945*	*284*
N (couples)	*1,110*	*189*	*55*
C. Wife's education: University or higher			
Egalitarian division of housework	15.8	18.2	27.9
Female respondent	51.0	61.9	48.1
Male breadwinner couple	56.2	49.2	62.0
Household living standard			
Poor	10.4	7.1	4.7
Average	59.3	56.2	63.6
Wealthy			
Partners' educational pairing	30.3	36.7	31.8
Homogamy	75.9	85.8	62.0*
Hypogamy	24.1	14.2	38.0*
N (observations)	*4,122*	*393*	*129*
N (couples)	*692*	*89*	*28*

Note: † $p < 0.10$; * $p < .05$.

TABLE 2. Results from unweighted and weighted random-effects logistic regression models predicting equal sharing of housework among married couples in Japan, stratified by wife's educational level

	Total Sample		*Wife's education: High school or less*		*Wife's education: Vocational school/ junior college*		*Wife's education: University or higher*	
	Unweighted	*Weighted*	*Unweighted*	*Weighted*	*Unweighted*	*Weighted*	*Unweighted*	*Weighted*
Meeting context (ref.: offline traditional)								
Offline dating services	0.06	0.10	–0.19	0.11	0.12	0.06	0.34	0.19
	(0.20)	(0.16)	(0.39)	(0.31)	(0.30)	(0.23)	(0.37)	(0.24)
Online dating services	0.55†	0.31	–0.26	–0.29	0.74	0.38	1.30*	0.93*
	(0.31)	(0.23)	(0.61)	(0.43)	(0.46)	(0.33)	(0.63)	(0.40)
Female respondent	–1.07***	–0.75***	–1.06***	–0.47	–0.88***	–0.53*	–1.33***	–1.49***
	(0.14)	(0.17)	(0.26)	(0.30)	(0.22)	(0.26)	(0.24)	(0.30)
Male breadwinner couple	–1.78***	–1.51***	–1.15***	–1.06***	–2.02***	–1.60***	–2.00***	–1.95***
	(0.11)	(0.16)	(0.19)	(0.27)	(0.17)	(0.22)	(0.20)	(0.37)
Household living standard (ref.: poor)								
Average	–0.19	–0.40*	–0.29	–0.72**	–0.12	–0.34	–0.33	–0.05
	(0.12)	(0.19)	(0.20)	(0.27)	(0.18)	(0.29)	(0.27)	(0.40)
Wealthy	–0.02	–0.30	0.05	–0.75*	–0.05	–0.53	–0.23	0.07
	(0.15)	(0.22)	(0.28)	(0.38)	(0.24)	(0.37)	(0.30)	(0.39)

Partners' educational pairing (ref.: hypergamy)								
Homogamy	0.86***	0.59**	0.76**	0.72*	0.59*	–0.08	Ref.	Ref.
	(0.16)	(0.19)	(0.26)	(0.29)	(0.28)	(0.31)		
Hypogamy	0.54**	0.67**			0.47†	0.48	–0.63*	–0.45

Supplementary Analyses

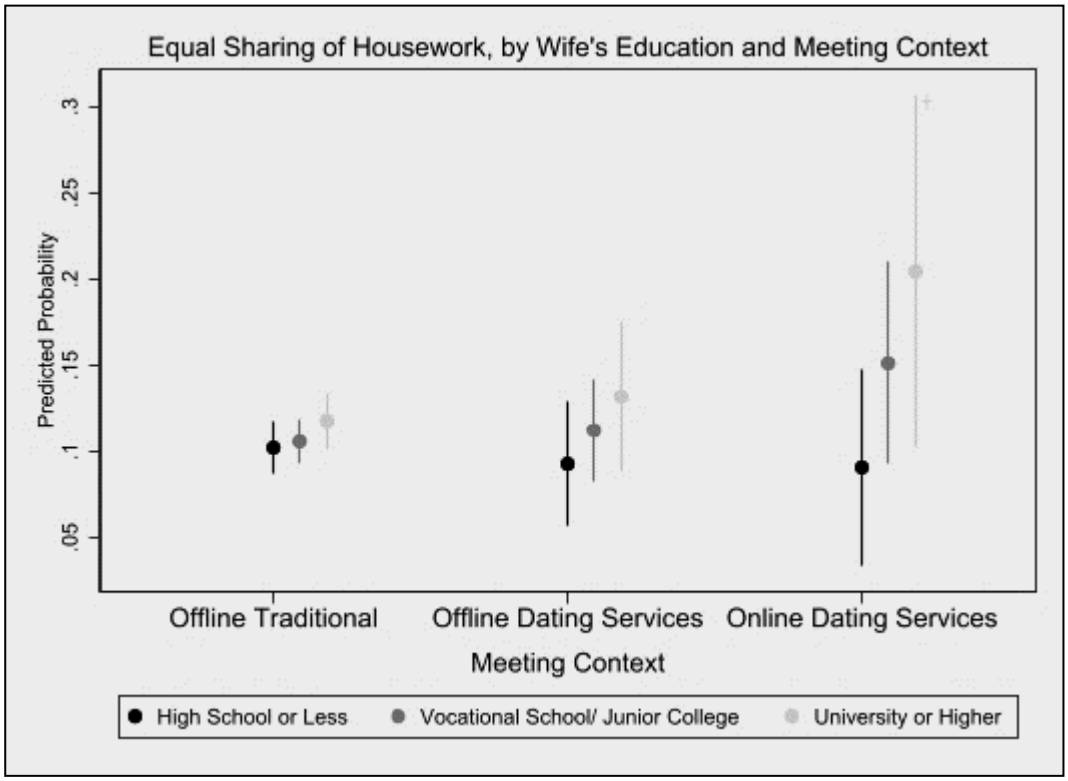

FIGURE A1. Predicted Probabilities of Equal Sharing of Housework, by Wife's Educational Level and Meeting Context.

Notes: Based on an unweighted random-effects logistic regression model including an interaction between meeting context and wife's education, controlling for respondent's gender, whether male breadwinner couple, household living standard, and partners' educational pairing. The star indicates probabilities significantly different compared to the "offline traditional" category: † $p < .10$.

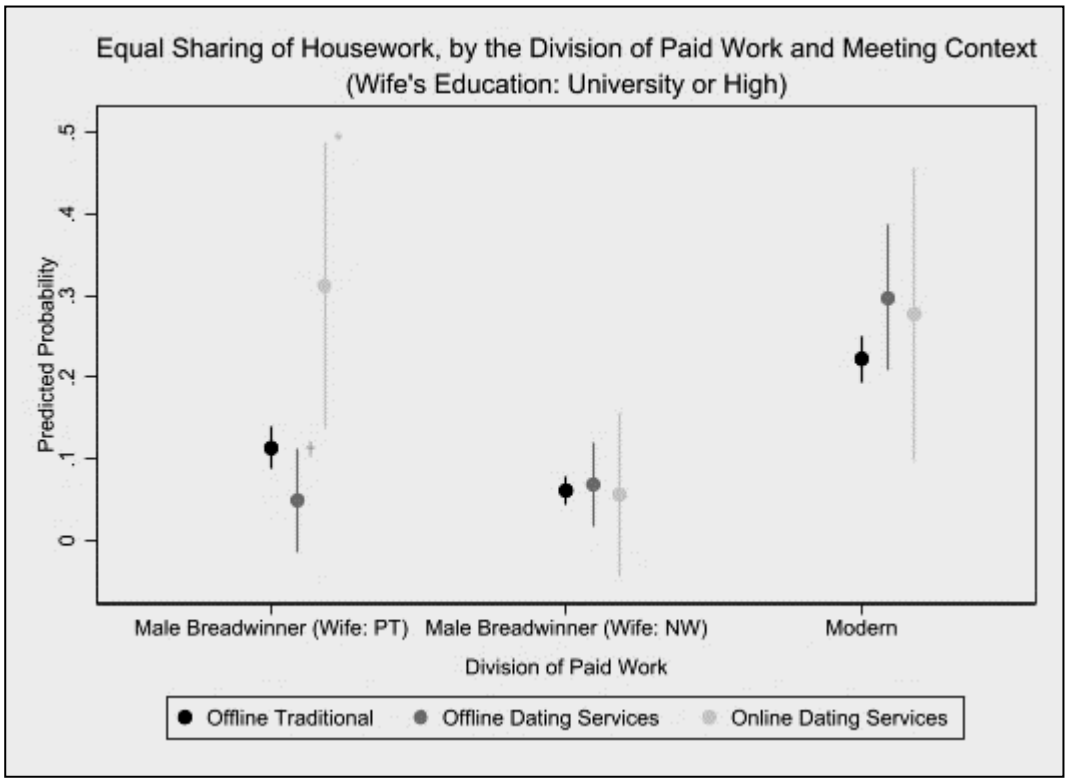

FIGURE A2. Predicted Probabilities of Equal Sharing of Housework among Couples in which the Wife Is Highly Educated, by the Division of Paid Work and Meeting Context.

Notes: PT = part-time, NW= not working. Based on an unweighted random-effects logistic regression model including an interaction between meeting context and the division of paid work, controlling for respondent's gender, household living standard, and partners' educational pairing. The stars indicate probabilities significantly different compared to the "offline traditional" category: † $p < .10$; * $p < .05$.

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労働市場の構造変動、急激な少子高齢化、グローバル化の進展などにともない、日本社会における就業、結婚、家族、教育、意識、ライフスタイルのあり方は大きく変化を遂げようとしている。これからの日本社会がどのような方向に進むのかを考える上で、現在生じている変化がどのような原因によるものなのか、あるいはどこが変化してどこが変化していないのかを明確にすることはきわめて重要である。

本プロジェクトは、こうした問題をパネル調査の手法を用いることによって、実証的に解明することを研究課題とするものである。このため社会科学研究所では、若年パネル調査、壮年パネル調査、高卒パネル調査、中学生親子パネル調査の４つのパネル調査を実施している。

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