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Dating Assortativity in Japan: Evidence from a Retrospective Survey

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Abstract

We conduct a series of retrospective surveys to understand the evolution of dating assortativity in Japan. In the surveys, we ask about age, income, and employment type of our respondents and their dating partners. We find that the age assortativity has increased over the past ten years among age groups 25–29 and 30–34. Income assortativity has been stable. We also find an increasing trend for employment-type assortativity among regular employees for ages groups 25–29 and 30–34.

Keywords: — Assortative Mating, COVID-19, Dating, Marriage, Pandemic.

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Introduction

Assortativity in marriage affects our society in various ways. Assortative marriage along the dimension of education, income, or occupation can exacerbate household income inequality. Assortative marriage along the dimension of cultural and social backgrounds can create and amplify cultural and social divides within a society, potentially leading to political divides as well. Cultural, economic, and social divides may lead people to prefer sorting themselves into their own groups, which amplify those divides even further.

In this paper, we analyze assortativity in dating relationships — a domain that has received less attention than marital sorting in part because data on dating are harder to collect. Understanding dating assortativity is of interest in its own right: dating patterns shape how individuals form partnerships, influence partner search behavior, and may reflect broader social stratification. To the extent that many marriages are preceded by dating relationships, trends in dating assortativity may also be informative about the direction of future marital sorting, although we do not empirically establish this connection here. Dating and marriage markets may function differently—not all dating relationships lead to marriage, and

selection into marriage may itself be assortative—, so we caution against a direct mapping from our findings to conclusions about marital sorting.

Specifically, we conducted a retrospective survey in Japan, asking the respondents about the age, income, and employment type of themselves and their partners in their past relationships. From our survey, we compute the odds of same-group matching relative to what would be expected under random matching given the observed group shares in the population. We refer to this odds ratio as our assortativity measure. We then examine whether there is any long-run trend in assortativity and whether the pandemic had any impact on these trends.

We find that the age assortativity has increased over the past ten years for age groups 25–29 and 30–34. The income assortativity has been stable. The employment-type assortativity has increased among regular employees for age groups 25–29 and 30–34. Although the pandemic affected the trend in the number of relationship formation, as shown in (Chiba et al., 2025), we find that it did not affect the trends (or lack thereof) in dating assortativity measures.

Our study contributes to the extensive literature on assortativity. Studies have revealed that people in many countries are coming to co-habit or marry those who share common attributes with themselves in terms of age (Ausubel et al., 2022, Dribe and Nystedt, 2017, Hu and Qian, 2019, McKenzie, 2021, Trimarchi, 2022, Utomo, 2014), education (Blossfeld, 2009, Boertien and Permanyer, 2017, Eika et al., 2019, Fukuda et al., 2021, Greenwood et al., 2015, Mare and Schwartz, 2006, Torche, 2010, Uchikoshi and Raymo, 2021), and occupation (Hout, 1982, Kalmijn, 2011, Schwartz et al., 2021, Smits et al., 1999, Verbakel, 2008).

Most papers focus on assortativity in marriage because data on married couples are available from official statistics. We differ from these papers because we collect new data on dating and analyze assortativity in dating.

Although limited in number, researchers have focused on assortativity in dating by taking advantage of the growing use of online dating tools such as dating apps and online dating services.

They found that the matchings show strong assortativity along key attributes such as age, education, race/ethnicity, political orientation, and perceived desirability (Bruch and Newman, 2018, Hitsch et al., 2010, Huber and Malhotra, 2017, Lewis, 2013, Lin and Lundquist, 2013). We differ from these papers in that we cover relationship formations in various contexts, such as school life, business, and other social networks, without limiting our attention to relationships formed via online dating tools.

The rest of the paper is structured as follows. Section 2 describes our survey. Section 3 describes our methodology. Section 4 discusses the results, and Section 6 concludes.

Survey

We conducted ten surveys from September 13 in 2023 to September 14 in 2023, in collaboration with Cross Marketing Inc., an online market research company based in Japan. The participants register their

attributions and e-mail addresses with the company so that they can receive survey invitations. The respondents who completed the survey received a reward.¹ Each of the ten surveys corresponds to a year of interest from 2014 to 2023. In each survey, we collected respondents who are (i) aged between 25 and 45 at the time of the survey (September 2023) and (ii) unmarried persons with a partner as of January in the year of interest. We received 1,000 responses in each survey, totaling 10,000 responses.² The distributions of gender and age were matched to those in the Population Census.

In each survey, we asked the respondents a set of questions regarding their relationship in the year of interest. We first asked the following information regarding the relationship: when the relationship started, when it ended, and how it ended (married/separated/ still in the relationship currently). We then asked them about the attributes of both respondents and their partners at the time the relationship began, including their age, income, and employment type.³

Table 1 presents the summary statistics on the socio-economic characteristics of our respondents for each year of interest. As described in the previous section, the respondents' gender distributions closely resemble those of the residents in Japan by construction. The employment-

¹This survey was approved by the University of Tokyo's Ethics Review Committee (Application No.23-261)

²We asked two questions to assess the quality of the answers: the year the Great East Japan Earthquake occurred (Answer: 2011) and the name of the Japanese Prime Minister in 2017 (Answer: Shinzo Abe). Among 10,000 respondents, 7,452 correctly answered both of these two questions. Although this subsample is assumed to have clearer memories than the others, its gender balance shows a higher weight on males. Therefore, instead of this subsample, we focus on all samples in the main analysis. We also conducted the analysis using the subsample as shown in Appendix H. The key takeaways of the paper are robust.

³Partner income was elicited using three broad brackets (under ¥4 million; ¥4–8 million; ¥8 million or more), while respondent income was elicited using six finer brackets (under ¥2 million; ¥2–4 million; ¥4–6 million; ¥6–8 million; ¥8–10 million; ¥10 million or more). The coarser brackets for partner income reflect the likelihood that many respondents do not know their partner's income with precision, and are intended to reduce recall error. In the analysis, we aggregate respondent income into the same three broad brackets.

Type distribution in 2023 is close to that from the official statistics. Among those who are aged between 25 and 45, 61.6 percent, 29.5 percent, and 8.9 percent are regular employees, non-regular employees, and not employed/student, respectively, in our survey as of 2023. In contrast, among those who are aged between 25 and 44, 60.8 percent, 26.3 percent, and 12.9 percent are regular employees, non-regular employees, and not employed/students, respectively, according to the Employment Status Survey in 2023. These data suggest that our respondents represent Japanese residents aged between 25 and 45 reasonably well. Given that age and gender distributions were aligned with the Census by construction through quota

sampling, and that the employment-type distribution also closely matches official statistics, no survey weights were applied.

Table 1: Summary Statistics for each Year of Interest

Panel (A): 2014-2018					
Year of Interest	2014	2015	2016	2017	2018
Gender					
Male	509 (50.9%)	509 (50.9%)	509 (50.9%)	509 (50.9%)	509 (50.9%)
Female	491 (49.1%)	491 (49.1%)	491 (49.1%)	491 (49.1%)	491 (49.1%)
Age					
Average	26.9	27.8	28.8	29.8	30.8
Year when dating started					
Average	2011.6	2012.4	2013.3	2014.1	2015.0
Income					
<¥4 mil	754 (75.4%)	742 (74.2%)	732 (73.2%)	687 (68.7%)	655 (65.5%)
¥4 mil. ~¥8 mil.	220 (22.0%)	232 (23.2%)	234 (23.4%)	276 (27.6%)	313 (31.3%)
≥¥8 mil	26 (2.6%)	26 (2.6%)	34 (3.4%)	37 (3.7%)	32 (3.2%)
Employment type					
Regular	462 (46.2%)	466 (46.6%)	504 (50.4%)	549 (54.9%)	552 (55.2%)
Non-regular	233 (23.3%)	254 (25.4%)	236 (23.6%)	254 (25.4%)	263 (26.3%)
Not employed	29 (2.9%)	27 (2.7%)	36 (3.6%)	26 (2.6%)	31 (3.1%)
Student	276 (27.6%)	253 (25.3%)	224 (22.4%)	171 (17.1%)	154 (15.4%)
Total	1000 (100%)	1000 (100%)	1000 (100%)	1000 (100%)	1000 (100%)
Panel (B): 2019-2024					
Year of Interest	2019	2020	2021	2022	2023
Gender					
Male 509 (50.9%)	509 (50.9%)	509 (50.9%)	509 (50.9%)	509 (50.9%)	
Female	491 (49.1%)	491 (49.1%)	491 (49.1%)	491 (49.1%)	491 (49.1%)
Age					
Average	31.7	32.8	33.8	34.8	35.8
Year when dating started					
Average	2015.7	2016.6	2017.0	2017.6	2017.9
Income					
<¥4 mil	636 (63.6%)	664 (66.4%)	622 (62.2%)	640 (64.0%)	639 (63.9%)
¥4 mil. ~¥8 mil.	324 (32.4%)	291 (29.1%)	342 (34.2%)	305 (30.5%)	300 (30.0%)
≥¥8 mil	40 (4.0%)	45 (4.5%)	36 (3.6%)	55 (5.5%)	61 (6.1%)
Employment type					
Regular	583 (58.3%)	601 (60.1%)	609 (60.9%)	615 (61.5%)	616 (61.6%)
Non-regular	258 (25.8%)	262 (26.2%)	267 (26.7%)	268 (26.8%)	295 (29.5%)
Not employed	22 (2.2%)	34 (3.4%)	35 (3.5%)	38 (3.8%)	32 (3.2%)
Student	137 (13.7%)	103 (10.3%)	89 (8.9%)	79 (7.9%)	57 (5.7%)

Total	1000 (100%)	1000 (100%)	1000 (100%)	1000 (100%)	1000 (100%)
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Because we sampled individuals aged 25-45 at the time of the survey and asked them about their past relationship at a particular year in the past, the average age increases by about one year with the year of interest. For instance, those aged 25-45 in 2023 were aged 16-36 in 2014. Reflecting this increasing trend in age over time, the income shares and employment-type shares evolve over time. In particular, for income, as the average age increases, the share of those who earn less than 4 million yen declines over time, whereas the share of those who earn more than 8 million yen increases over time. For employment type, the share of regular workers increases over time, whereas the share of not employed/student declines over time.

To control for the age composition effect, in our main analysis of income and employment-type assortativity, we will focus on age-specific measures to control for these trends arising from our particular survey structure. Even when we focus on narrow age-groups, income and employment-type shares might have changed over time. In interpreting the evolution of assortativity measures, we will consult with official statistics to see whether the time trend in our assortativity measures is driven by time variation in income and employment-type shares in the population.

Methodology

We analyze dating assortativity regarding three attributes: age, income, and employment type. For each of the three attributes, we define the following sub-groups: For age, the subgroups are 20–24; 25–29; 30–34. For income, the subgroups are ¥0-4 million; ¥4-8 million; ¥8+ million per year. For employment type, the subgroups are regular; non-regular; not employed/students.

Let X_t^i be the number of respondents who began dating with a new partner in year t and who are in the group i . Let $X_t^i(j)$ be the subset of X_t^i whose new dating partner was in the group j . We

define a same-group matching rate a_t^i for group i for year when the dating relationship began (t) as follows:

$$a_t^i = \frac{X_t^i(i)}{X_t^i} \quad (1)$$

That is, $X_t^i(i)$ is the fraction of couples in which the partner belongs to the same group as the respondent. For instance, the same-group matching rate for age 20–24 in 2015 is denoted as follows:

$$a_{2015}^{age:20-24} = \frac{X_t^{age:20-24}(age:20-24)}{X_t^{age:20-24}} \quad (2)$$

We select the sample period to ensure that two conditions are met. The first condition is that the sample period contains a sufficiently large number of reports. As described in Figure 8 in Section B, we have more than 300 dating formations from 2010 to 2022 but much less in 2009 and 2023. Thus, we restrict our attention to 2010-2022.

The second condition is that all ages within each age group are represented in a given year. For example, because our respondents are aged from 25 to 45 in 2023, they are aged from 24 to 44 in 2022. Thus, the age group 20–24 in 2022 would not include people aged from 20 to 23. We have to go back to 2018 to have all ages represented in the age group 20–24. This second condition dictates that our sample has to be 2009-2018 for the age group 20–24, 2009-2023 for the age group 25–29, and 2012-2023 for the age group 30–34. Taken together, these two conditions imply that the sample period is from 2010 to 2018 for the age group 20–24, from 2010 to 2022 and 25–29, and from 2012 to 2022 for the age group 30–34.⁴

Although the same-group matching rate a^i captures how likely an individual chooses who

shares the same attributes as themselves, it also reflects the demographic shifts: even when there is no change in underlying preference for people to date a partner in the same group, we would observe a higher probability of someone in that group dating with a partner in the same group if the population share of a group increased (or decreased) over time.

To provide a formal adjustment for changes in group composition over time, we define assortativity measure as the odds of same-group matching relative to what would be expected under random matching given the observed group shares in the population. Let s^i denote the share of group i among survey respondents at time t . The odds ratio OR^i is computed as:

$$OR_t^i = \frac{a_t^i / (1 - a_t^i)}{s_t^i / (1 - s_t^i)} \quad (3)$$

An odds ratio greater than one indicates that same-group matching is more prevalent than would be expected under random matching, given the observed group shares. An increasing trend

in OR^i constitutes evidence of rising assortativity that cannot be attributed to shifts in group

composition alone. The group share references Population Estimates for age distribution, Comprehensive Survey of Living Conditions for income distribution, and Labour Force Survey for employment-type distribution. Since the employment-type distribution of single individuals, which enters the denominator of the odds ratio, is available only from 2013 onwards, the odds ratio for employment-type assortativity is computed starting from 2013. The series s^i are repro-

duced in Appendix E for reference.

One caveat in the computation of OR^i concerns cases where the same-group matching rate reaches its upper bound of one, i.e., $a^i = 1$. This occurs when all respondents in group i in year t chose a partner from the same group, which can happen when the number of observations is very small. In such cases, the numerator of the odds ratio diverges to infinity, and OR^i is undefined. We therefore treat years in which $a^i = 1$ as missing in the odds ratio series. The gaps in the odds ratio plots for small subgroups—in particular, high-income individuals and non-employed individuals in the 20–24 age group—typically reflect this phenomenon rather than a substantive change in sorting behavior.

We estimate a time trend for the assortativity measure OR^i based on the following equation:

$$X_t^i = \beta_0 + \beta_1 t + u_t \quad (4)$$

Our focus is on the statistical and quantitative significance of β_1 .

We note that with only a small number of observations per group, statistical power is lim-

⁴According to these two conditions, the sample period for the age group 35–39 is from 2017 to 2022, which means that we only have six observations for estimating the time-trend. Thus, we exclude the age group 35–39 from our main analysis and focus on age groups 20–24, 25–29, and 30–34.

ited, particularly for groups with small sample sizes such as high-income individuals and non-employed individuals. Findings for these groups should be interpreted with caution. For the main groups—low- and middle-income, regular and non-regular employees—the per-year samples are larger and inference is more reliable.

Results

Age

Figure 1 shows the age assortativity. Each panel plots the odds ratio in the solid line against the year when the relationships began. The dotted line shows the estimated trend based on equation

(4). The estimated value of β_1 is shown inside the panel, with statistical significance indicated by the number of asterisks. The odds ratios for age groups 25–29 and 30–34 show a clear upward trend, indicating that the increase in age assortativity cannot be attributed solely to shifts in the age composition of the single population.

For supplementary analysis, we also estimate a time trend for the same-group matching rate a^i using equation (4) (Figure 9 in Appendix D). Consistent with the odds ratio trends, the same-group matching rate also increased over time in a statistically significant way for age groups 25–29 and 30–34. The group share series s^i , which shows the shares of single individuals in each age group, is reproduced in Appendix E for reference. Taken together, our survey suggests that those aged between 25 and 34 became more

likely to choose a partner whose age is close to their own.

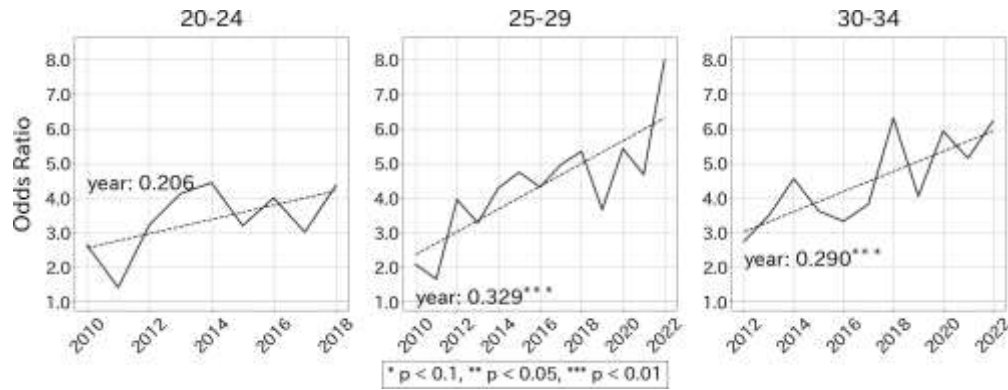


Figure 1: Odds Ratio for Age Assortativity

Note: The group share s^i in the denominator of the odds ratio is computed as a proportion of single individuals in the age group among the pool of single individuals aged from 20 to 49. We approximate the number of single persons in each age group by multiplying the total population in that age group—obtained from Population Estimates (Statistics Bureau of Japan)—by the proportion of unmarried individuals in the same age group—obtained from Population Statistics (National Institute of Population and Social Security Research).

Income

Figures 2, 3, and 4 show the income assortativities for the age groups 20–24, 25–29, and 30–34. For those who earn more than ¥8 million, the odds ratio series contains missing values in some years because the annual sample is very small: the same-group matching rate mechanically equals one, causing the odds ratio to diverge. Even for those subgroups with a sufficiently large number of samples, the odds ratio series do not show any statistically significant increase over time.

For reference, Figures 10, 11, and 12 in Appendix D show the same-group matching rate for age groups 20–24, 25–29, and 30–34, respectively. Most series do not exhibit a statistically significant trend. Although those aged 25–29 who earn more than ¥8 million show a statistically significant increasing trend, this result should be interpreted with caution given the small sample size for this subgroup. The group share series s^i are reproduced in Appendix E.

To summarize, our survey data suggest that the income assortativity has not increased or decreased over time in any age groups.

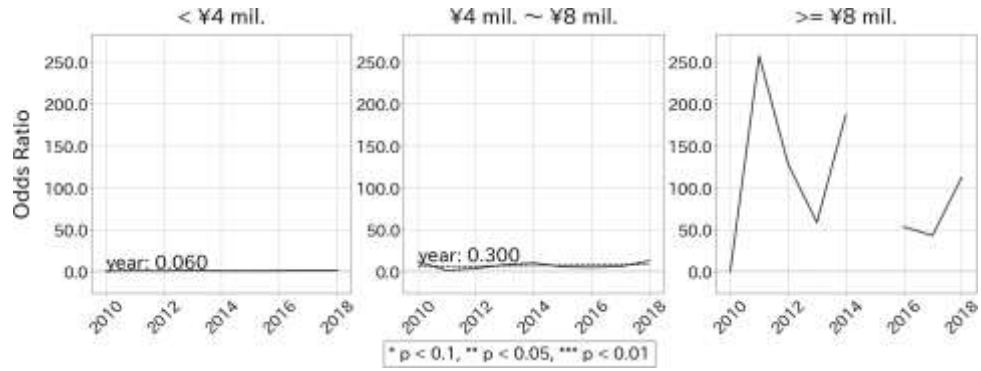


Figure 2: Odds Ratio for Income Assortativity: 20–24

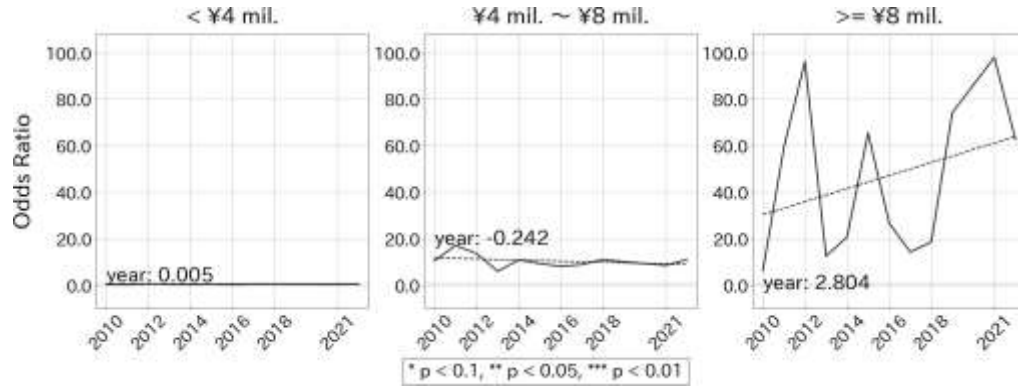


Figure 3: Odds Ratio for Income Assortativity: 25–29

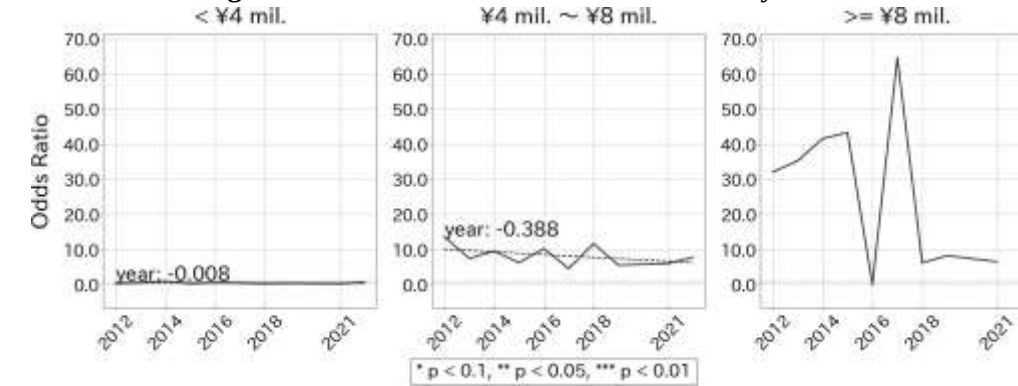


Figure 4: Odds Ratio for Income Assortativity: 30–34

Note: The group share s_i^i in the denominator of the odds ratio is computed as the proportion of single individuals in each of the three income brackets among all single individuals. We obtain the number of single individuals in each income bracket from the Comprehensive Survey of Living Conditions (Ministry of Health, Labour and Welfare). Data for 2020 are unavailable as the survey was not conducted due to the COVID-19 crisis; accordingly, the odds ratio for 2020 is missing and the COVID (2020) dummy is excluded from the regression. For the income bracket $\geq ¥8$ mil. in age group 20–24 in 2015 and age group 30–34 in 2022, the odds ratio is undefined because the same-group matching rate a^i reaches its upper bound of one, causing the odds ratio to diverge.

Employment Type

Figures 5, 6, and 7 show the employment-type assortativity for age groups 20–24, 25–29, and 30–34, respectively. The figures suggest that the odds ratios for regular employees in age groups 25–29 and 30–34 increased in a statistically significant way.

For reference, Figures 13, 14, and 15 in Appendix D show the same-group matching rate for age groups 20–24, 25–29, and 30–34, respectively. Consistent with the odds ratio results, the same-group matching rate for regular employees in age groups 25–29 and 30–34 also increased in a statistically significant way. Although the same-group matching rate for non-employed persons in the age group 30–34 increased in a statistically significant way, this result should be interpreted with caution given the small sample size for this subgroup. The group share series s^i are reproduced in Appendix E. t

To summarize, our survey data provide evidence that regular employees in age groups 25–29 and 30–34 became more likely to choose regular employees as their partner.

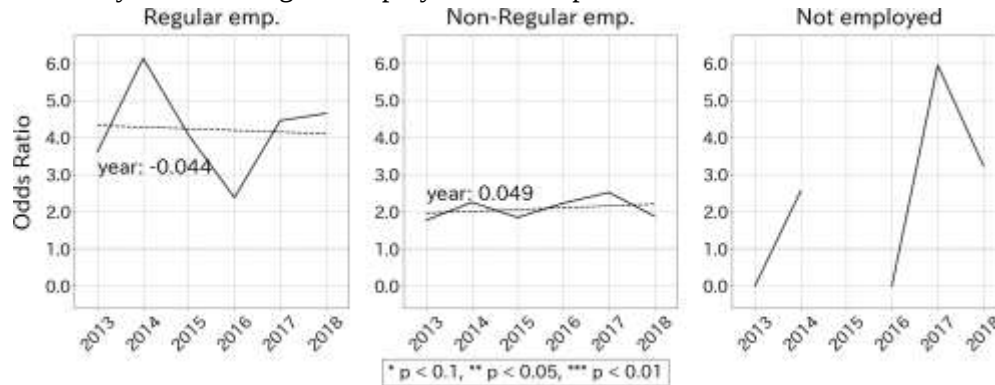


Figure 5: Odds Ratio for Employment-Type Assortativity: 20–24

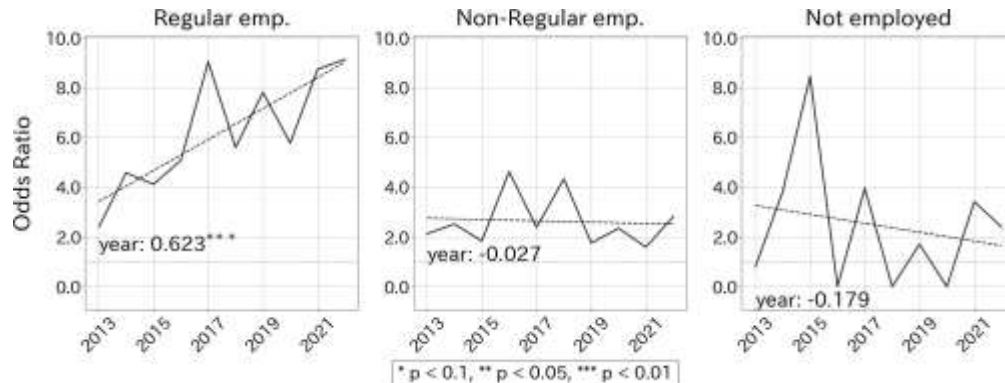


Figure 6: Odds Ratio for Employment-Type Assortativity: 25–29

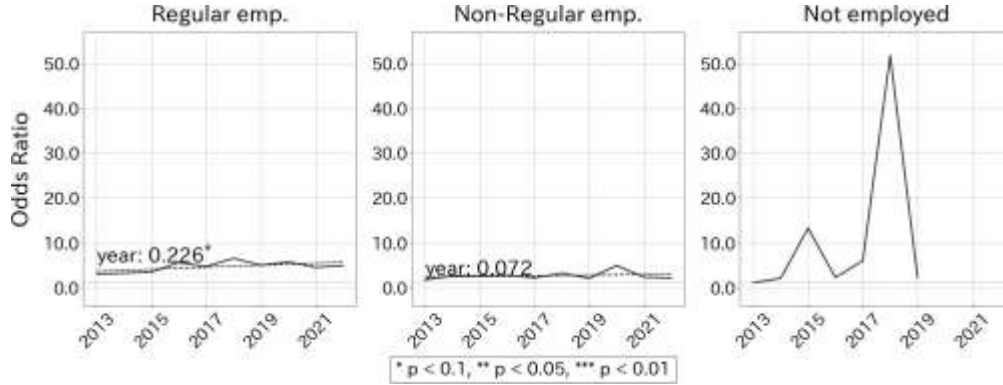


Figure 7: Odds Ratio for Employment-Type Assortativity: 30–34

Note: The group share s^i in the denominator of the odds ratio is computed as the proportion of each employment type among single individuals—those classified as “never married” and “widowed or divorced” in the Labor Force Survey (Statistics Bureau of Japan) aged from 20 to 49. We define non-regular employment as employees except for regular employees, and not employed as unemployed and non-labour excluding students. Data are available from 2013 onwards, as the Survey adopted a different classification system prior to that year. For those who are not employed in the age group 20–24 in 2015 and the age group 30–34 in 2020 and 2022, the odds ratio is undefined because the same-group matching rate a^i reaches its upper bound of one, causing the numerator of odds ratio to diverge.

Discussion

Our baseline analysis focuses on the trends over time, including both before and after the COVID-19 pandemic. Nevertheless, the evolution of assortativity might have been substantially changed by the pandemic for several reasons. First, mobility restrictions and the closure of social venues may have changed the channels through which people meet, with a greater share of new relationships forming online during 2020–2021. Online dating platforms are known to exhibit strong sorting along observable characteristics such as education and income (Hitsch et al., 2010; Bruch and Newman, 2018), which could have amplified assortativity. Second, labor market disruptions during the pandemic may have changed the composition of who was dating: individuals whose employment status or income was disrupted may have been less likely to be in a relationship. Third, uncertainty about the future may have shifted partner preferences toward partners with similar socioeconomic circumstances. Against these potential channels, our results show no statistically significant deviation in assortativity during 2020–2022, suggesting that either these mechanisms did not operate strongly in Japan or that they offset each other.

To examine whether the pandemic had any impact on the evolution of dating assortativity, we estimate the following equation with a set of dummy variables each year after the pandemic as additional explanatory variables:

$$X_y^i = \beta_0 + \beta_1 y + \sum_{y \in \{2020, 2021, 2022\}} \beta_y covid_y + u_t \quad (5)$$

The results are shown in Appendix F. We observe no significant deviations in any assortativity. That is, the pandemic had only a limited impact on dating assortativity. We note that our post-pandemic analysis covers only three years (2020–2022) and that, for many subgroups, the annual sample sizes are small. Our null results should therefore be interpreted as indicating that we do not find evidence of a pandemic effect, rather than as definitive evidence that no effect exists.

Our survey is subject to several limitations. First, our survey may suffer from recall bias because it is retrospective. We asked survey participants to recall their relationship histories going back up to ten years. Memories of such distant past events may not be fully accurate. This concern is particularly acute for partner income and employment status, which might be less salient and less frequently discussed within a relationship than, say, a partner’s age. Recall bias may also be systematic: respondents in certain demographic groups, or those whose relationships ended in marriage versus separation, may recall partner attributes more or less accurately.

As a robustness check against recall bias, we replicate our main analysis in two ways. In the first replication, we restricted the sample to relationships that began between 2018 and 2022, thereby reducing the maximum recall window to approximately five years. The results are qualitatively consistent with our main findings, although some trends lost statistical significance (Appendix G). In the second replication, we restricted the sample to those who correctly answered both of the two quality-control questions, as described in Section 2. The results are also consistent with our main findings (Appendix H).

Second, several features of our sample design warrant comment. (1) Because respondents are sampled conditional on having had a dating partner as of January of the year of interest, individuals who did not form any dating relationship during the relevant period are excluded by design. If the propensity to have a dating partner is correlated with socioeconomic characteristics, our estimates of assortativity reflect patterns among people who date, not the full population of unmarried individuals. (2) Because the survey was conducted retrospectively in 2023, respondents who were aged 25–45 in 2023 were younger during earlier reference years. This introduces a birth-cohort structure into our cross-year comparisons. We partially address this by focusing on age-group-specific measures. (3) Cross Marketing Inc. recruits registered panel members rather than drawing from a probability sample of the population. We compare our sample’s employment distribution to the Employment Status Survey (2023) and find close agreement (Table 1), which provides some reassurance about representativeness along this dimension.

Conclusion

In this paper, we conducted a retrospective survey in Japan, asking the respondents about the age, income, and employment type of themselves and their partners in their past relationships. From our survey, we compute the assortativity measure, the odds of same-group matching relative to what would be expected under random matching given the observed group shares in the population. We then examine whether there is any long-run trend in assortativity and whether the pandemic had any impact on these trends. We find that the age assortativity has increased over the past ten years for age groups 25–29 and 30–34. The income assortativity has been stable. The employment-type assortativity has increased among regular employees for age groups 25–29 and 30–34. Although the pandemic affected the trend in the number of relationship formation, we find that it did not affect the trends in dating assortativity measures.

Appendix

Questionnaire

Introduction

This survey is an academic research project conducted by the Laboratory of Taisuek Nakata, Graduate School of Economics, The University of Tokyo, and commissioned to Cross Marketing Inc.

The purpose of this survey is to understand people's dating history and marriage. It includes questions about when you dated, as well as about the occupation and income of both yourself and your partner (spouse).

All responses will be statistically processed and anonymized so that no individual can be identified. Summary data or raw data may be made public, but never in a way that allows personal identification. Your data will never be used for any purpose other than this research. Please answer each question as you think.

Estimated time to complete: 10 minutes.

Participation is voluntary. You may stop at any time by closing your browser. In that case, no incentive points will be awarded.

If you agree with the above and wish to participate, please select "Next." If you do not wish to participate, you may end the survey here (no incentive points will be given).

Screening Survey

Respondent criteria

- Men and women aged 25-45 who are registered panel members.
- Sampling will match national representative ratios for age and gender.
- If basic demographic data (age, gender, prefecture/municipality) can be provided by the survey company, related questions may be omitted.

Questions

S1. Please indicate your gender. (Single Answer)

- Male
- Female

S2. Please indicate your age. (Pre-coded Data)

S3. Please indicate the prefecture where you currently live. (Pre-coded Data)

S4. For each year YYYY = 2014–2023, as of January of YYYY, were you married? (Yes / No)

S5. For each year YYYY = 2014–2023, as of January of YYYY, did you have a dating partner? (Yes / No)

Main Survey

Respondent criteria

- Respondents who answered S4 = No and S5 = Yes.

Questions

The following questions refer to your dating situation as of January of the selected year.

Q1. Around what year and month did you start dating this person? (Numeric: year and month) Q2. How did you meet this person? Please choose the one that best applies. (Single Answer)

- Neighborhood acquaintance or childhood friend
- School life
- Workplace (including part-time jobs)
- Shared hobbies or clubs
- Group gatherings (such as matchmaking parties)
- Individual introduction by relatives or close friends
- Individual introduction by someone other than relatives/close friends (e.g., arranged meeting)
- Online/SNS encounter not through individual introduction
- Other (free response)

Q3. What was your own occupation/employment status when the relationship began? (Single Answer)

- Student
- Not employed
- Permanent employee (no fixed-term contract)
- Fixed-term contract (contract employee, entrusted employee)
- Part-time or temporary worker
- Temporary staff dispatched from an agency
- Self-employed or freelance (e.g., restaurant, retail/wholesale, farming, medical practice, writer), or family business worker (e.g., family member engaged in restaurant, retail/wholesale, farming)
- Other (free response)

Q4. What was your annual income when the relationship began? If you had no income, select “Under 2 million yen.” (Single Answer)

- Under 2 million yen
- 2–4 million yen
- 4–6 million yen
- 6–8 million yen
- 8–10 million yen
- 10 million yen or more

Q5. How old was your partner when the relationship began? (Numeric)

Q6. What was your partner’s occupation/employment status when the relationship began? (Single Answer) (Same options as Q3)

Q7. What was your partner’s annual income when the relationship began? If they had no income, select “Under 4 million yen.” (Single Answer)

- Under 4 million yen
- 4–8 million yen
- 8–12 million yen

Q8. Which of the following best describes your current relationship with this partner? (Single Answer)

- Married and still married
- Married but later divorced
- Not married but still dating
- Not married and later broke up

Q9. If Q8 = Married and still married or Married but later divorced:

Around what year and month did you register your marriage? (Numeric: year and month) Q10. Was the timing of your marriage registration as originally planned? (Single Answer)

- As planned
- Earlier than planned
- Later than planned

Q11. If Q10 = Earlier than planned or Later than planned:

Why was your marriage registration earlier or later than planned? For each of the following, indicate whether it applies (select from: Applies (unrelated to COVID-19) / Applies (related to COVID-19) / Does not apply):

- Opposition to marriage from relatives/friends
- Concerns about your own or partner's health
- Concerns about your own economic situation
- Concerns about your partner's economic situation
- Greetings to relatives / introductions to friends occurred earlier or later
- Finding or moving into a residence occurred earlier or later
- Need to adjust the wedding ceremony schedule
- Other (free response)

Q12. If Q8 = Not married and later broke up:

Around what year and month did you break up? (Numeric: year and month) Q13. What was the main reason for breaking up? (Choose one)

- Spent less time together
- Either you or your partner developed feelings for someone else
- Domestic violence or moral harassment
- Differences in values (e.g., attitudes toward money, work, marriage)
- Relationship conflict or dissatisfaction with partner
- Other (free response)

Q14. What is your highest level of education completed? (Single Answer)

- Junior high school or elementary school
- High school
- Junior college (including technical colleges)
- University
- Graduate school

Q15. In what year did the Great East Japan Earthquake occur? (Numeric) Q16. Who was Japan's Prime Minister in 2017? (Open-ended)

Sample distribution

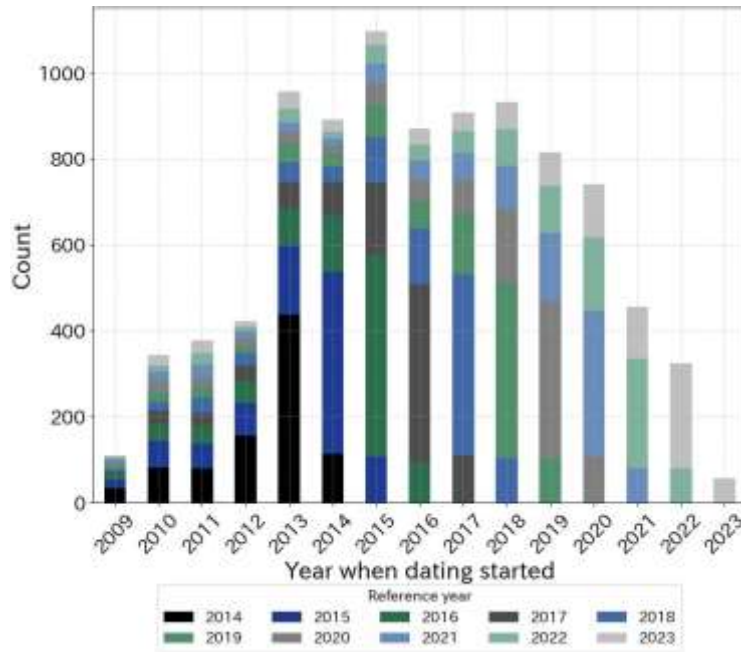


Figure 8: Sample distribution regarding the year when the dating started

Size of Subsamples

Table 2: Sample Sizes by Age Group and Relationship Start Year

Year	20–24	25–29	30–34
2010	83	120	99
2011	168	89	79
2012	115	99	125
2013	200	232	262
2014	217	224	200
2015	238	284	290
2016	200	225	210
2017	219	209	202
2018	234	210	233
2019	146	190	199
2020	97	177	184
2021	53	110	122
2022	24	100	80

Table 3: Sample Sizes by Income Bracket, Age Group, and Relationship Start Year

Year		20–24				25–29				30–34		
		< ¥4M	¥4–8M	≥ ¥8M		< ¥4M	¥4–8M	≥ ¥8M		< ¥4M	¥4–8M	≥ ¥8M
2010	65	18	–		93	22	5		62	35	2	
2011	78	61	29		70	13	6		47	30	2	
2012	81	29	5		61	30	8		79	40	6	

2013	166	28	6		145	77	10		159	92	11	
2014	179	31	7		131	88	5		117	76	7	
2015	200	34	4		173	103	8		165	104	21	
2016	167	27	6		146	77	2		132	75	3	
2017	181	35	3		123	81	5		112	86	4	
2018	189	38	7		129	77	4		113	112	8	
2019	118	25	3		111	71	8		113	82	4	
2020	81	15	1		105	66	6		99	78	7	
2021	40	13	–		65	39	6		66	52	4	
2022	19	5	–		69	27	4		47	32	1	

Table 4: Sample Sizes by Employment Type, Age Group, and Relationship Start Year

Year	20–24			25–29			30–34			
	Reg.	Non-Reg.	Not emp.	Reg.	Non-Reg.	Not emp.	Reg.	Non-Reg.	Not emp.	
2010	39	25	–	62	40	11	59	37	1	
2011	85	44	3	62	23	1	43	20	11	
2012	66	18	1	65	27	6	74	48	3	
2013	87	38	9	152	60	14	159	84	11	
2014	92	47	3	155	56	7	125	65	7	
2015	102	48	9	186	71	13	193	88	7	
2016	77	33	5	146	68	4	144	56	7	
2017	100	37	2	142	58	5	135	61	4	
2018	101	36	6	148	57	1	160	59	9	
2019	74	21	3	131	51	5	142	51	4	
2020	50	16	4	118	53	2	124	51	4	
2021	36	9	1	82	23	3	91	29	2	
2022	19	2	1	62	30	4	64	13	2	

Same-group Matching Rate

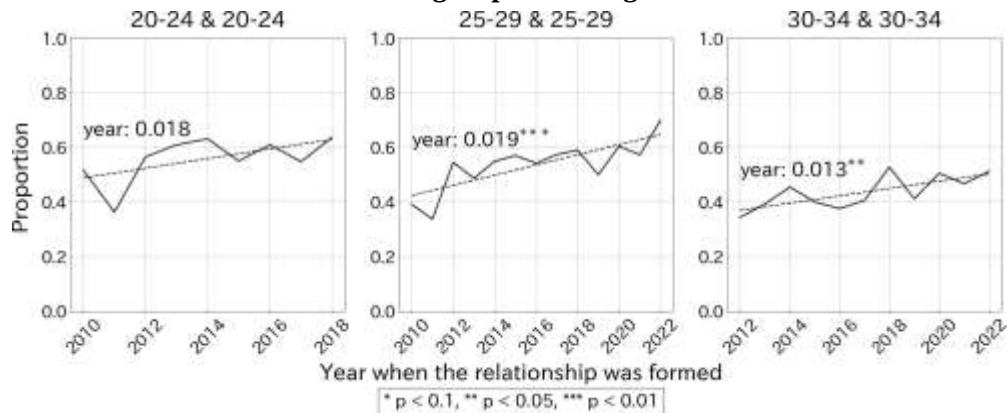


Figure 9: Same-Group Matching Rate in Age

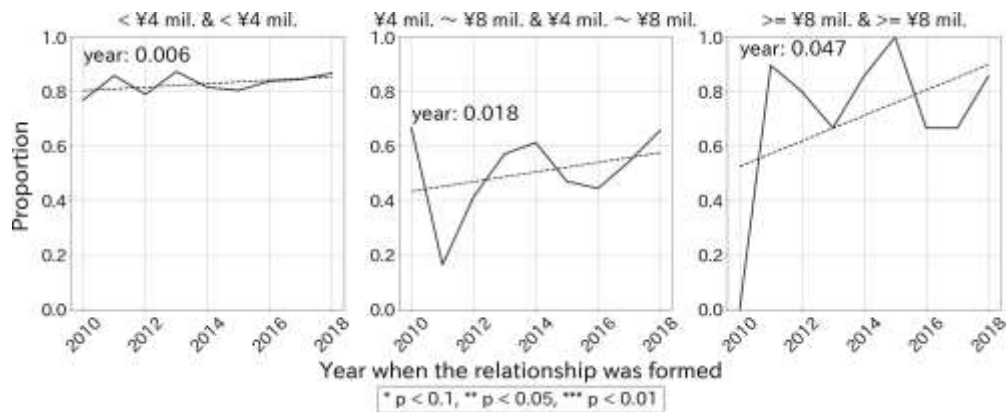


Figure 10: Same-Group Matching Rate in Income: 20–24

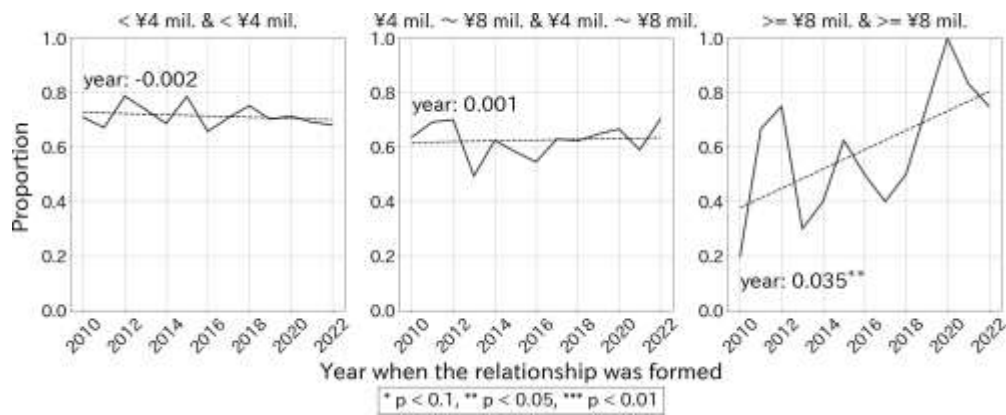


Figure 11: Same-Group Matching Rate in Income: 25–29

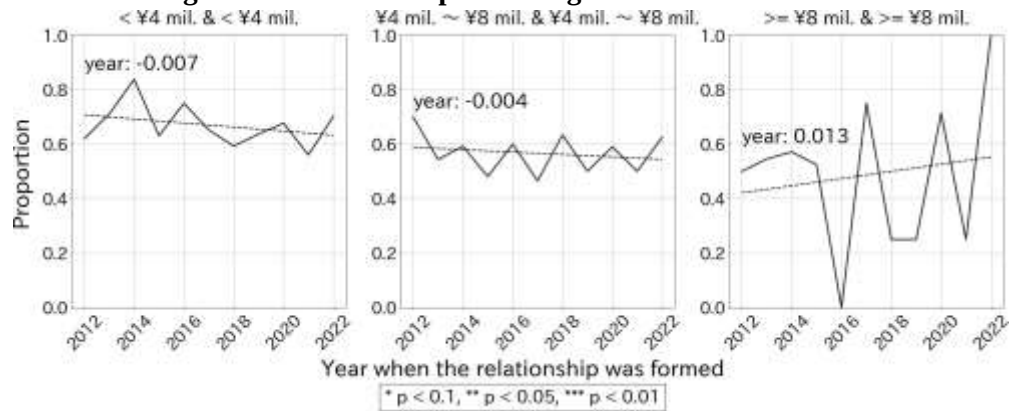


Figure 12: Same-Group Matching Rate in Income: 30–34

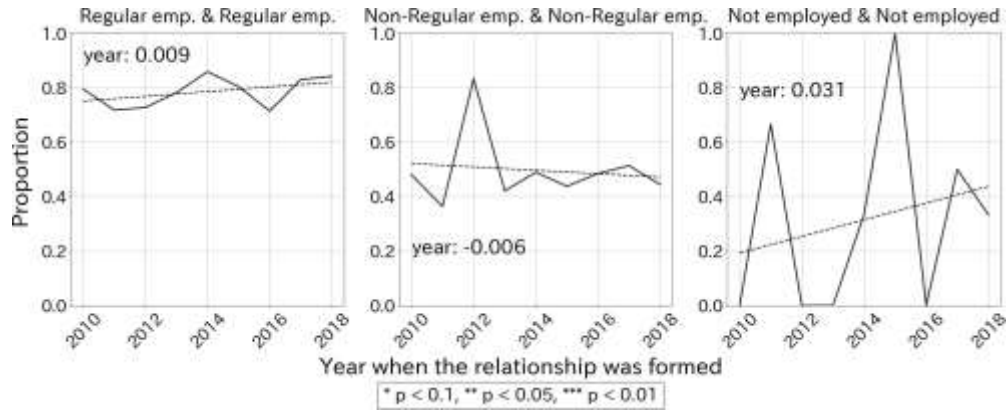


Figure 13: Same-Group Matching Rate in Employment Type: 20–24

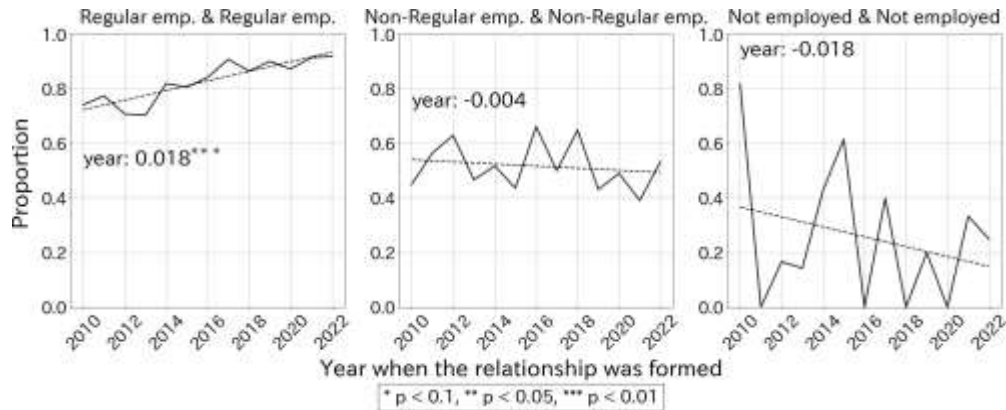


Figure 14: Same-Group Matching Rate in Employment Type: 25–29

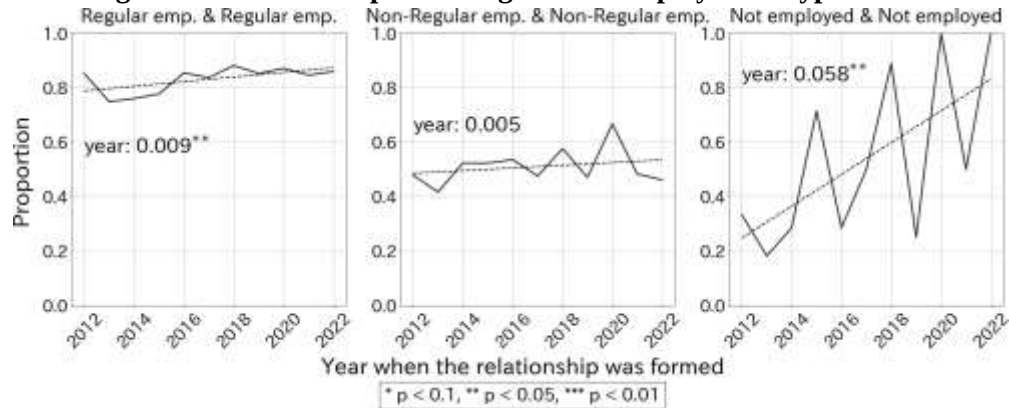


Figure 15: Same-Group Matching Rate in Employment Type: 30–34

Official data

This appendix reproduces the group share series s^i based on official statistics. These figures plot the share of each group (age, income, employment type) among single individuals over time, and are provided for reference when interpreting the odds ratio trends presented in the main text. For income and employment

type, figures are shown separately by age group, with x-axis ranges matching those of the corresponding assortativity and odds ratio plots in the main text.

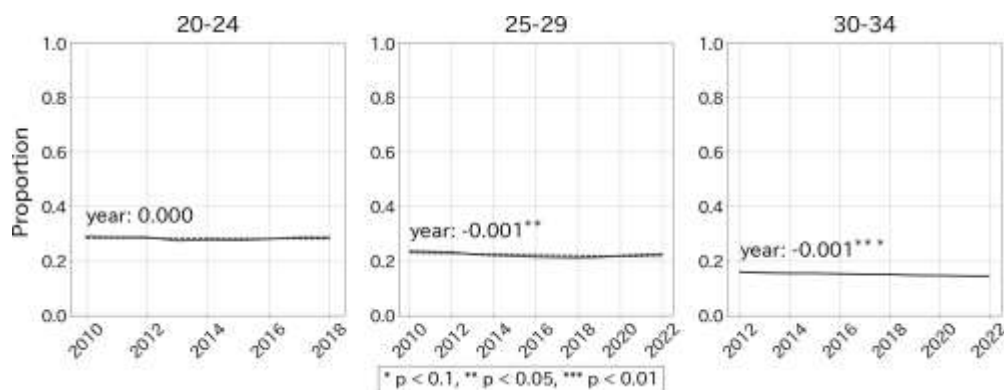


Figure 16: Age-Group Share among the Pool of Single Individuals

Source: Population Estimates (Statistics Bureau of Japan); Population Statistics in Japan (National Institute of Population and Social Security Research).

Note: This figure plots the proportion of single individuals in the age group among the pool of single individuals aged from 20 to 49. Each panel corresponds to an age group, with the x-axis range matching that of the corresponding assortativity and odds ratio plots.

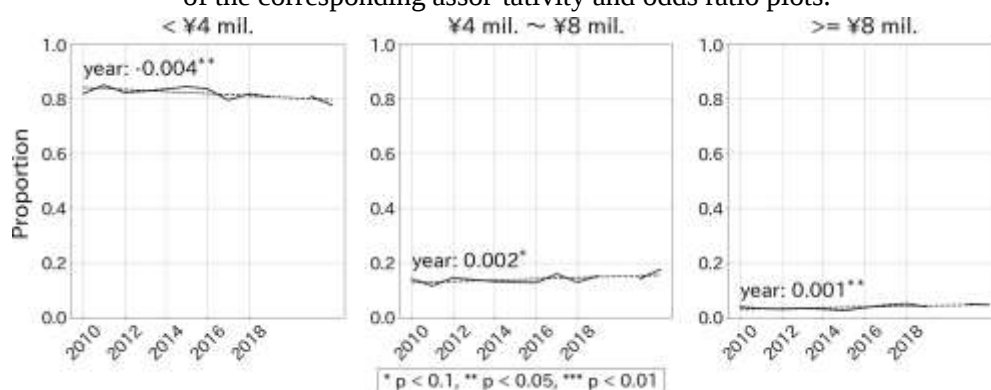


Figure 17: Income-Group Share among Single Households (Age 20-24)

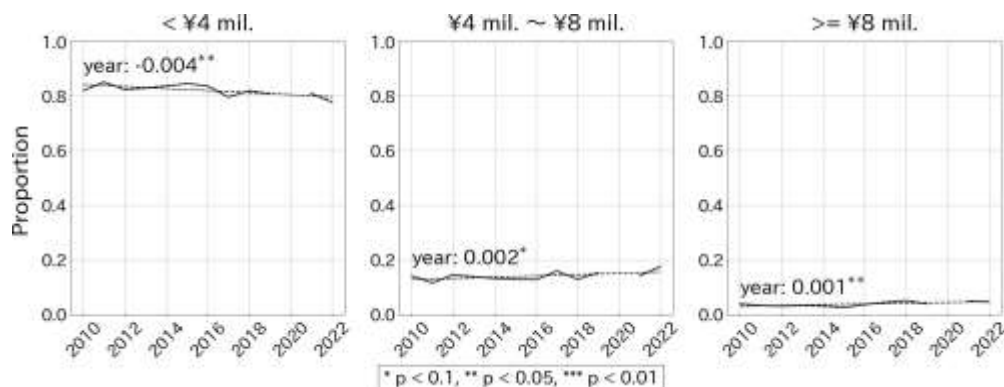


Figure 18: Income-Group Share among Single Households (Age 25-29)

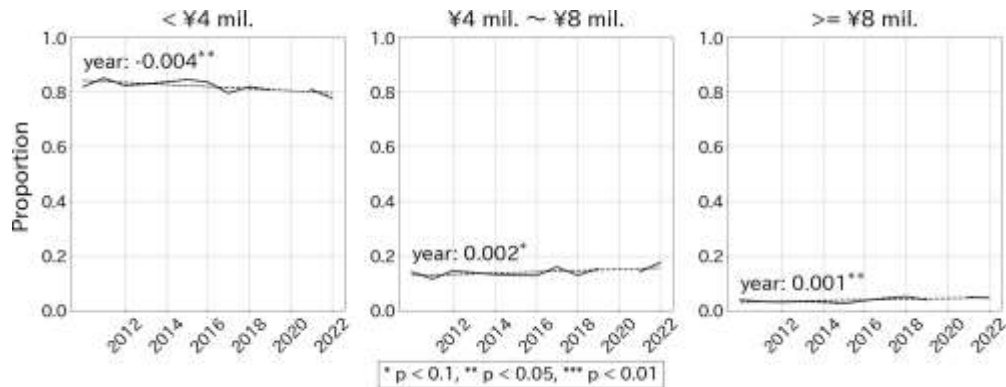


Figure 19: Income-Group Share among Single Households (Age 30–34)

Source: Comprehensive Survey of Living Conditions (Ministry of Health, Labour and Welfare)

Note: This figure plots the proportion of single households in each of the three income brackets among the pool of all single households. We do not have data for 2020 because the survey was not conducted due to the COVID-19 crisis.

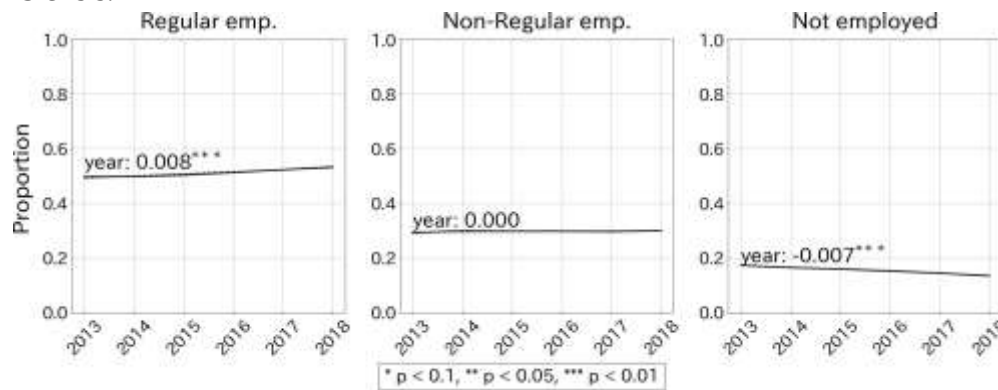


Figure 20: Share of Employment Types among Single Individuals (Age 20–24)

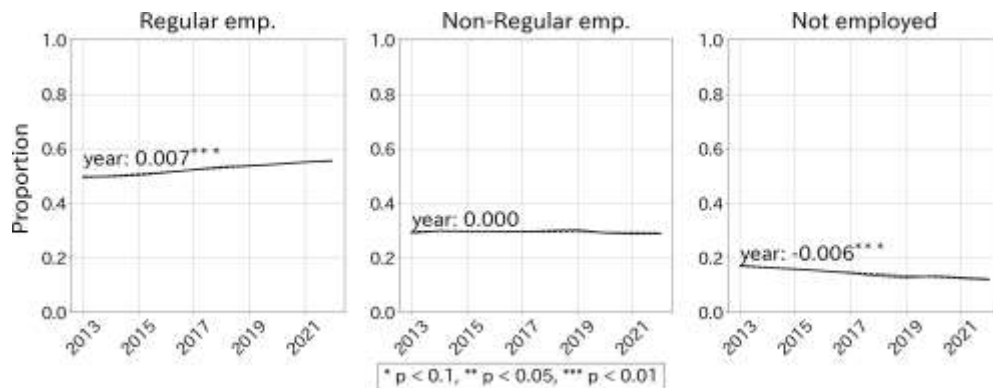


Figure 21: Share of Employment Types among Single Individuals (Age 25–29)

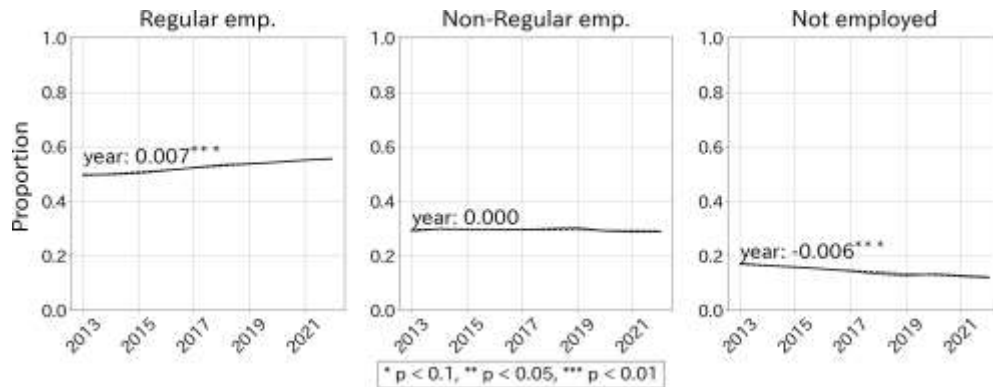


Figure 22: Share of Employment Types among Single Individuals (Age 30–34)

Source: Labour Force Survey (Statistics Bureau of Japan)

Note: This figure plots the proportion of employment type among the pool of single individuals—those classified as “never married” and “widowed or divorced” in the Survey—aged from 20 to 49. We define non-regular employment as employees except for regular employees, and define not employed as unemployed and non-labour excluding students. This figure starts from 2013. Before 2013, we cannot compute this proportion because the Survey adopted a different classification system.

Impact of the Pandemic

Table 5: Effects of the COVID-19 Crisis on Age Assortativity

VARIABLES	25–29	30–34
Covid (2020)	-0.024	0.829
	(1.032)	(1.218)
Covid (2021)	-1.068	-0.202
	(1.082)	(1.305)
Covid (2022)	1.945	0.626
	(1.138)	(1.402)
year	0.295**	0.247
	(0.094)	(0.148)
N	1230	910

Note: Standard errors in paren-theses.

*** p<0.01, ** p<0.05,

* p<0.1

Table 6: Effects of the COVID-19 Crisis on Income Assortativity

VARIABLES	25–29			30–34		
	<¥4 mil.	¥4 mil. ~ ¥8 mil.	>= ¥8 mil.	<¥4 mil.	¥4 mil. ~ ¥8 mil.	>= ¥8 mil.
COVID (2021)	-0.073 (0.184)	0.591 (3.784)	58.354 (42.424)	-0.080 (0.324)	0.487 (4.238)	–
COVID (2022)	-0.001 (0.194)	3.433 (3.978)	22.997 (44.601)	0.312 (0.348)	2.817 (4.554)	–
Year	0.007 (0.016)	-0.393 (0.328)	0.030 (3.679)	-0.021 (0.037)	-0.559 (0.481)	–
N	944	426	40	745	416	32

Note: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. The odds ratio for 2020 is missing for all income groups because the Comprehensive Survey of Living Conditions was not conducted in that year; accordingly, the COVID (2020) dummy is excluded from the regression. For the highest income bracket ($\geq$ ¥8 million), the number of observations is too small to estimate the odds ratio in most years, rendering the COVID dummy coefficients inestimable.

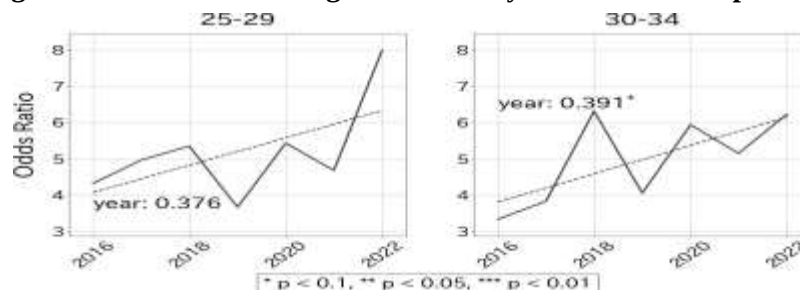
Table 7: Effects of the COVID-19 Crisis on Employment-Type Assortativity

VARIABLES	25–29			30–34		
	Regular emp.	Non-Regular emp.	Not employed	Regular emp.	Non-Regular emp.	Not employed
COVID (2020)	-3.056 (1.961)	-0.886 (1.664)	-1.331 (4.222)	-0.755 (1.123)	2.188** (0.664)	–
COVID (2021)	-0.919 (2.137)	-1.750 (1.813)	2.419 (4.600)	-2.433 (1.224)	-0.436 (0.724)	–
COVID (2022)	-1.352 (2.334)	-0.632 (1.980)	1.740 (5.025)	-2.511 (1.337)	-0.693 (0.791)	–
Year	0.829** (0.283)	0.109 (0.240)	-0.336 (0.609)	0.489** (0.162)	0.062 (0.096)	–
N	1117	272	18	1102	286	29

Note: Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. For the "Not employed" category in age group 30–34, the small sample size is compounded by the fact that the odds ratio is undefined in most individual years due to perfect same-group matching, leaving too few observations to estimate the regression coefficients.

Recently formed Relationships

Figure 23: Odds ratio for Age Assortativity: 2016–2022 Sample



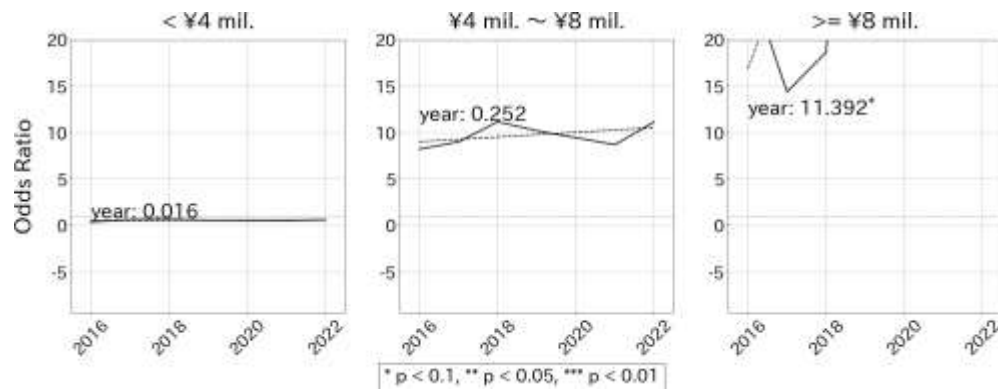


Figure 24: Odds Ratio for Income Assortativity: 2016–2022 Sample (Age 25–29)

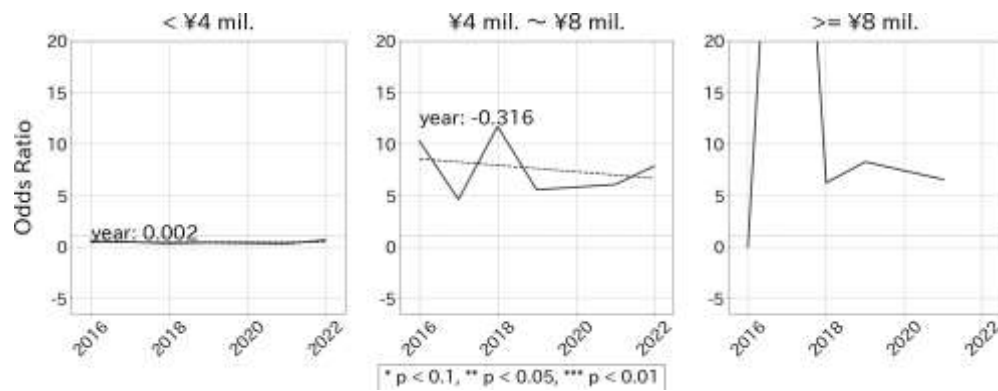


Figure 25: Odds Ratio for Income Assortativity: 2016–2022 Sample (Age 30–34)

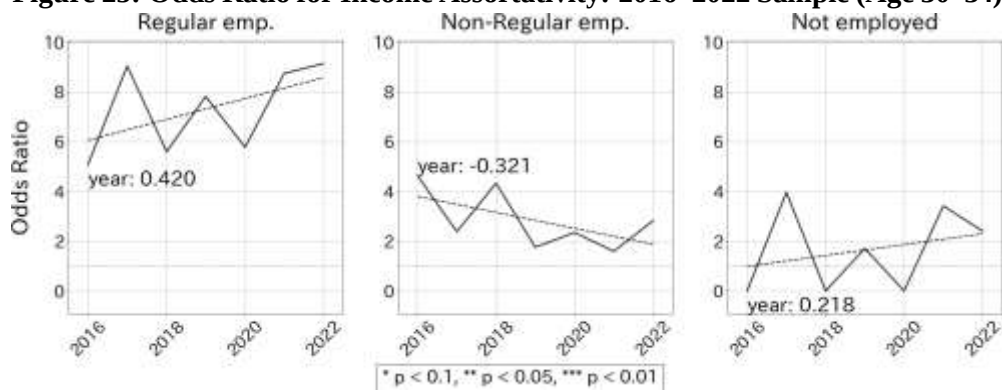


Figure 26: Odds Ratio for Employment-Type Assortativity: 2016–2022 Sample (Age 25–29)

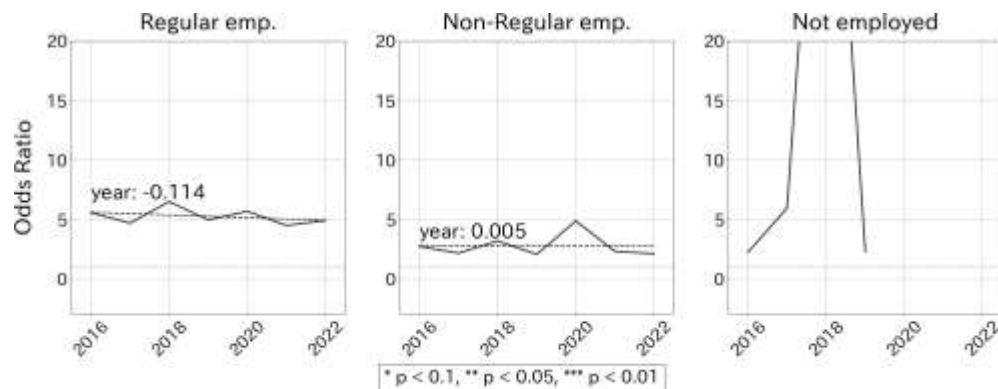


Figure 27: Odds Ratio for Employment-Type Assortativity: 2016–2022 Sample (Age 30–34)

Quality-Controlled Samples

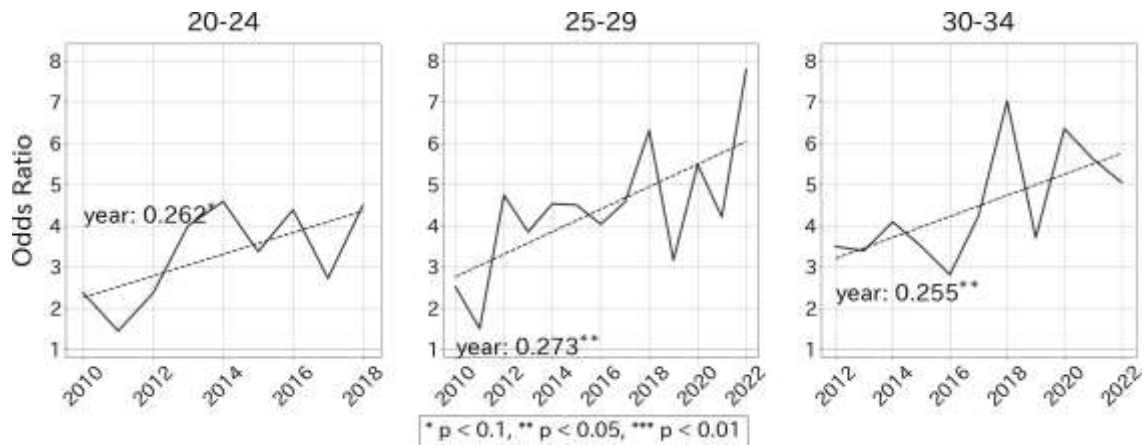


Figure 28: Odds Ratio for Age Assortativity: Quality-Controlled Samples

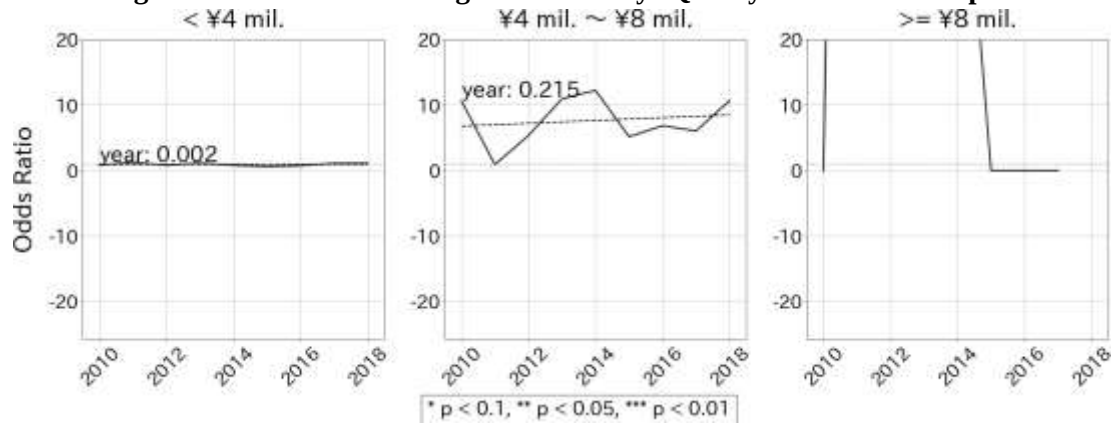


Figure 29: Odds Ratio for Income Assortativity: Quality-Controlled Samples (Age 20–24)

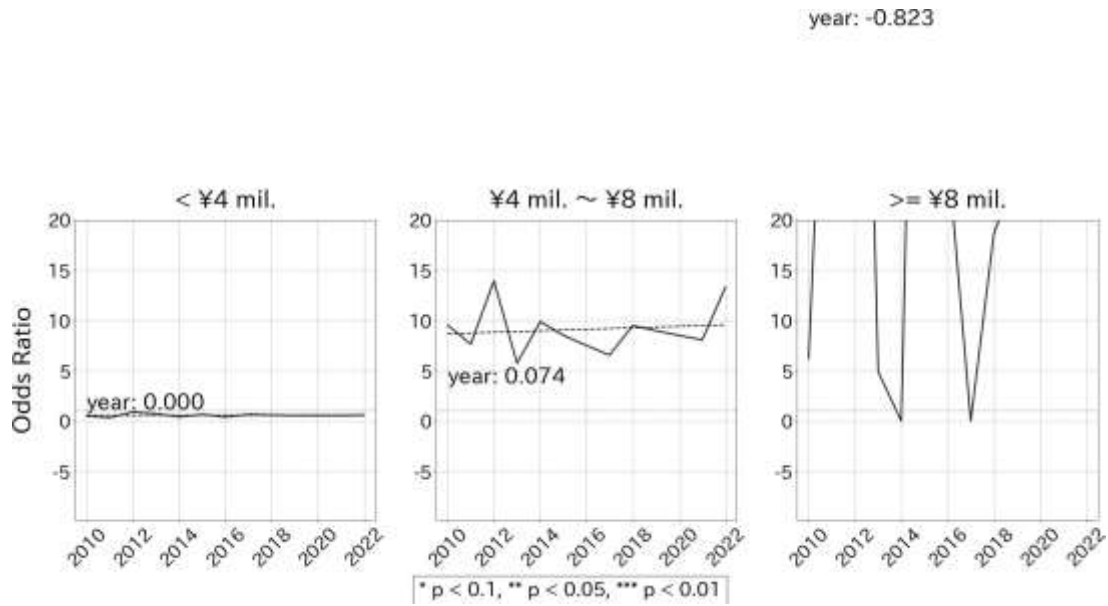


Figure 30: Odds Ratio for Income Assortativity: Quality-Controlled Samples (Age 25–29)

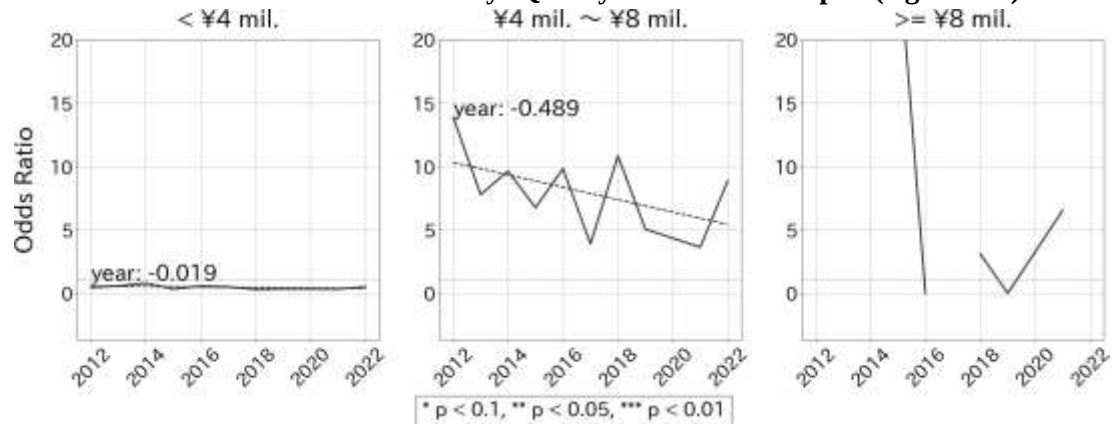


Figure 31: Odds Ratio for Income Assortativity: Quality-Controlled Samples (Age 30–34)

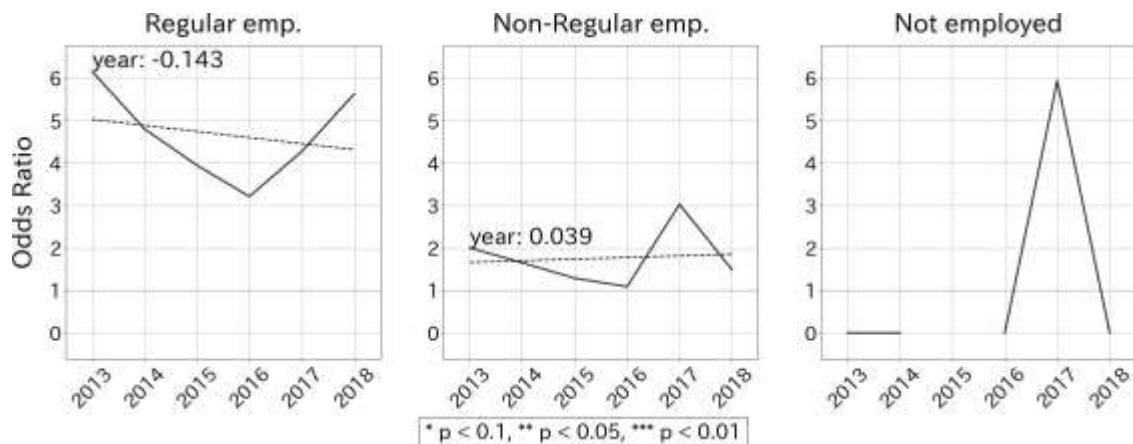


Figure 32: Odds Ratio for Employment-Type Assortativity: Quality-Controlled Samples (Age 20–24)

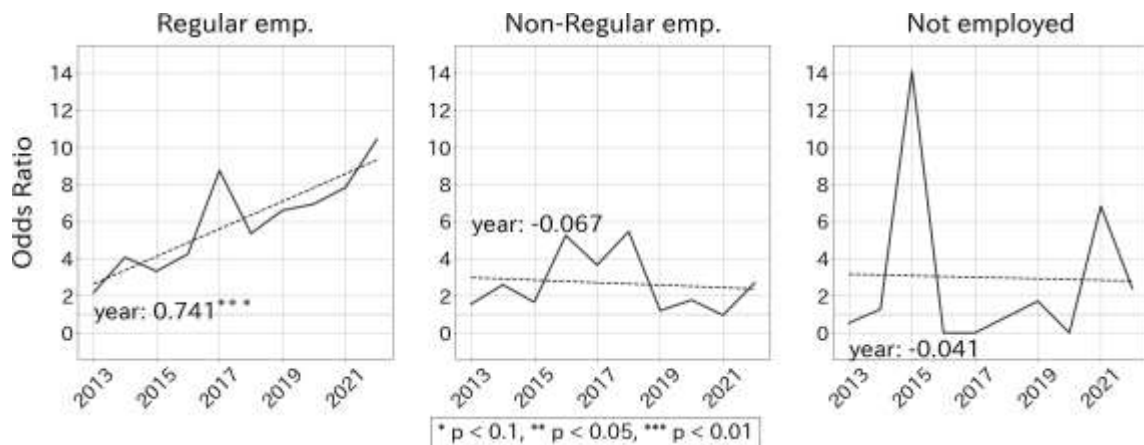


Figure 33: Odds Ratio for Employment-Type Assortativity: Quality-Controlled Samples (Age 25–29)

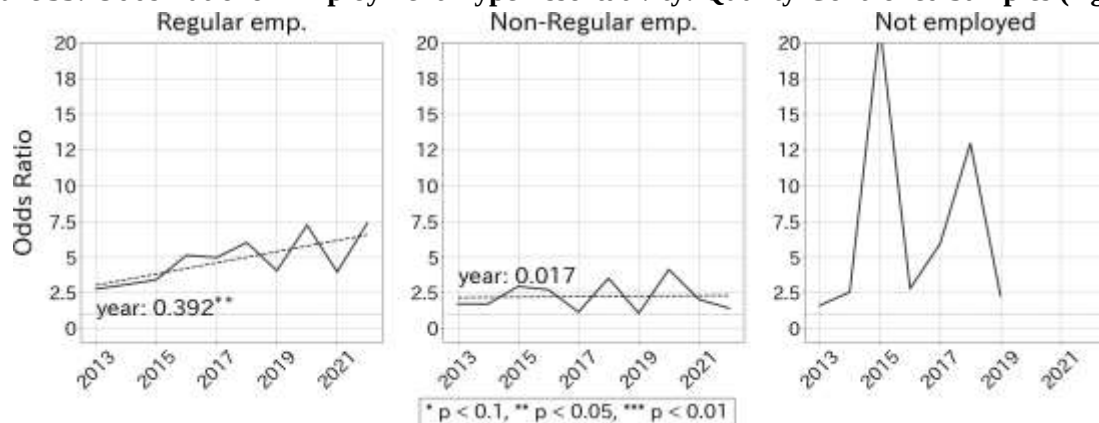


Figure 34: Odds Ratio for Employment-Type Assortativity: Quality-Controlled Samples (Age 30–34)

Statements and Declarations—The authors declare no conflicts of interest. This survey was approved by the University of Tokyo’s Ethics Review Committee (Application No.23-261). Informed consent to participate was written. The data presented in this study are not readily available due to consent agreements for data security as well as IRB approval. Requests to access the data should be directed to Taisuke Nakata (taisuke.nakata@e.u-tokyo.ac.jp).

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