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ABSTRACT

This paper attempts to investigate how differences of height, education and age within a couple influence evaluation about partner. Further, this paper explore the effect of differences changed before and after marriage. For this purpose, monthly web-site surveys were conducted to collect the individual level data of unmarried persons who having plan to get married with boy/girl friends. Based on the collected data covering the period from March 2012 to March 2015, through the Panel data analysis, we found as; (1) gaps of height and education reduced quarrel with partner after the marriage. (2) Further, quarrel lowered the evaluation about the partner. Hence, there is indirect positive effect through quarrel on evaluation about partners. (3) However, after controlling the indirect effect through quarrel, gaps of height and education lowered the evaluation about partner which is considered as the direct negative effect on the evaluation. (4) considering these results jointly indicated that effect of 1 year difference of education on the evaluation is equivalent to that of 4.27 cm difference of height. Assuming that gap of height and education enhanced division of labor within a household, combined results implied that the division of labor reduce interaction between wife and husband and so avoid the quarrel. This in turn improve evaluation about partner. However, reduction in interaction between husband and wife increased psychological distance between them, resulting in lowering the evaluation about the partner. The negative effect of the gap on the evaluation is far larger than the positive one.

JEL classification: J16; D74;

Keywords: Gap within a couple, Conflict, Evaluation about the partner, Height, Years of schooling.

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1. Introduction

Single men and women have only limited information about their partner and then make decision on marriage. At least, married persons judged their partner suitable to themselves and so get married at the time when they made a decision about marriage. After the marriage, they obtain a greater information about their partner and so possibly change evaluation about the partners. Here, several questions arise naturally as; what type of couple can improve their relation after marriage? Does girl make success in the marriage when she get married with boy friends with similar characteristics? Do people with different characteristics maintain the harmonious marital life? These questions about marital quality can be scrutinized by considering how similarity within a couple affect evaluation about one's partner after the marriage.

According to the seminal work of Becker (1991), comparative advantage of husband (wife) leads marital couple to increase household productivity and so economic gains by gender division of labor within a household. If one has a comparative advantage in housework, and so is specialized in housework. In this case, one's partner becomes full-time breadwinners in the labor market. Comparative advantage within a couple comes from the difference of schooling years because schooling years increases human capital, leading to increase marginal product of labor and so wage level in the labor market. Apart from education captured by schooling years, researcher found that height is positively associated with wage level and so there is height premium in the labor market (e.g., Case & Paxson 2008; 2009; Gao & Smyth 2010; Yamamura et al., 2015). The height premium in the labor market is also found not only for male but also for female (Tao 2014). Naturally, gap of schooling years and height within a couple leads to division of labor within a household after the marriage. Then, marital quality is expected to be improved through increase in economic gains by the division of labor.

Once household income level is controlled after the marriage, we can consider effect of the gaps on marital relation from the non-monetary point of view. There is the argument that marital quality improves when husband and wife plays a similar role and so share works jointly within a household (Simpton & England 1981; Mueller et al., 1979). On the other hand, the classical work of Parsons and Bales (1955) argued that sharing works possibly leads to marital competition, which decrease marital quality. Hence, even if we control economic gains from marriage, it is unknown whether gaps within a couple influences evaluation about the partner. However, with the exception of Sohn (2016), few works considered the effect of gaps within a couple on marital quality. Further, it is difficult to directly observe how married persons consider their partners even though researchers used the marital satisfaction to consider marital quality (e.g., Fan, & Lui, 2004; Chen & Li 2012; Oshio et al., 2013; Minnotte et al. 2015). Further, it is valuable of considering events which seem to temporary influence the evaluation about partner.

The division of labor becomes far more important after the marriage than before marriage. Therefore, comparing before and after the marriage is very critical to explore the division of labor within a household. We conducted monthly surveys to follow up the same respondents for three years in order to originally and purposefully constructing the individual level panel data. The surveys covered the period the pre-marriage and the post-marriage period for the same person. Hence, the data enables us to comparing the respondent's evaluation about partner between pre and post marriage periods. The data provides the occurrence of quarrel within a couple and evaluation about one's partner not only in the post-marriage period but also in the pre-marriage period. Based on the novel data, we have the advantage that we investigated how difference of schooling years and height within a couple on evaluation about partner change after the marriage in compare with before the marriage. Major findings are: in compared with the pre-marriage period, gap within a marital couple reduced the probability of quarrel and then improve the evaluation about partner. However, this positive effect is smaller than the direct negative effect of the gap on the evaluation. The contribution of this paper is to use the original data to provide the new evidence on marital relation.

The remainder of this paper is organized as follows; Short review of existing works is presented in Section 2. Section 3 proposes the testable hypotheses. In Section 4, an overview of

the data and statistical method are exhibited. In Section 5, we interpret the estimation results and discuss its implication. Our conclusions are presented in Section 6.

2. Brief literatures review

Income level of household increases if couple practice division of labor within a household assuming that there is gap between husband and wife gives marital. Apart from the economic gains, researchers explored the relation between division of labor and the subjective well-being. In the United States, men's happiness level increases if his wife does not work, or if he financially depend on his wife (Lee and Ono 2008). This indicates that the height premium of husband leads to division of labor, increasing the wife's happiness. On the other hand, according to Oshio et al. (2013), in China, dual earning is welcome by both husbands and wives. Accordingly, in China, marital couple relatively prefer an egalitarian division of labor in terms of both market work and housework, implying that the wife's disadvantageous social position is less remarkable. The outcomes of division of labor within a household is thought to be interpreted in a various way. Different norm and institutional factor caused the different effect of the division of labor among countries (Lee and Ono 2008; Oshio et al., 2013).

The externality of the division of labor within the household possibly reduced the positive effect of division of labor within a household. Role balance is defined as "the tendency to become fully engaged in the performance of every role in one's total role system, to approach every typical role and role partner with an attitude of attentiveness and care" (Marks and MacDermid 1996, 421). The role balance-oriented individuals have developed problem-solving skills to deal with conflict (Kashdam & Rottenberg, 2010). In the family, husband's/wife's role balance positively is positively related to their marital satisfaction (Marks et al. 2001). Role balance is thought to make a contribution to maintain the harmonized interpersonal relations. In the existing works, the height effect on marriage is explored (e.g., Baten & Murray, 1998; Harper 2000, Herpin 2005, Belot & Fidrmuc 2010; Manfredini et al. 2013; Sohn 2015a; 2015b; Yamamura & Tsutsui 2017). However, the effect of height gap with partner on marital relations has not been investigated.

2. Testable Hypotheses

In Figure 1, framework of this paper is illustrated. A lot of existing works found that not only education level but also some physical characteristics such as height increased earnings (e.g., Steckel, 1995; Schultz, 2002; Heineck 2005; Dinda et al., 2006; Case & Paxson 2008; 2009; Gao & Smyth 2010; Lundborg et al., 2014; Yamamura et al., 2015). The comparative advantage between husband and wife leads to division of labor within a household (Becker 1991). To put it in another way, the similar characteristics between them reduces incentives to do division of labor within a household. Therefore, in this paper, we assume that the gaps of education and height caused the division of labor within a couple. Then, the gaps are treated as proxy for division of labor between them. As explained in the following section, the data used in this paper includes the data about occurrence of quarrel with partner. In this paper, the occurrence of quarrel is considered to be that of conflict.

Sociologists argued that husband and wife share works jointly within a household, which has a positive effect on marital quality (Simpton & England 1981; Mueller et al., 1979). However, once "transaction cost" to work together is taken into account, the sharing work is thought to have a negative influence on evaluation about the partner. If husband and wife do and share same works together, they need to arrange and coordinate their works. For instance, when husband and wife do house-works, it is important to reach the consensus about how they do it. Disagreement about it increase time to coordinate each other. Further, quarrel is more likely to occur quarrel with one's partner. That is occurrence of quarrel can be considered as "transaction cost" for joining housework within a marital couple. Therefore, the larger the gaps of education and height reduce the possibility of quarrel. Further, effect of the gaps become larger because coordination within a

couple become more important especially after the marriage than before the marriage. Here, we propose the following Hypothesis 1:

Hypothesis 1: Gaps of education and height within a couple are more likely to reduce the probability of quarrel after the marriage than before the marriage.

Naturally, occurrence of the quarrel with partner is predicted to reduce the evaluation about one's partner. As is illustrated as two thin arrows in Figure 1, through channel in which the gaps reduce the probability of quarrel, the gaps indirectly improve evaluation about one's partner. This is considered as the indirect positive effect of the gaps on evaluation about one's partner. On the other hand, the gaps leads to division of labor within a couple, which results in reduction in intimate interaction with partner. In the end, love and passion for one's partner cooled off. Accordingly, the gaps reduce the evaluation, which is considered as the direct negative effect of the gaps on the evaluation about one's partner. This channel is expressed as thick arrow in Figure 1. In summary, we postulate the following Hypothesis 2:

Hypothesis 2: Gaps of education and height within a couple directly reduce the evaluation about one's partner, while the gap indirectly improve the evaluation through its effect on quarrel.

3. Data and methods

3.1. Data

In this paper, we attempt to examine how the gender gap within a couple influence their relation before and after the marriage. For this purpose, the targets of the survey were limited to men and women who planned to get married in the future at the initial time point of the surveys. Participant ages were between 17 and 51 years. We gathered individual-level panel data covering all regions of Japan via internet surveys.

To put more concrete, a market research company, INTAGE Communications Inc. has great experience of conducting academic surveys. So, we commissioned the INTAGE to conduct the research under the direction of the authors. Relationship within a couple does not so persist and because the relation seems to depend on various events in the life. For instance, negative effect of quarrel with one's partner is temporary. In order to capture the effect of quarrel, monthly surveys were carried out for 3 years, from March 2012 to March 2015, a total of 37 surveys during this period. Totally, 1,049 individuals are were included in the first survey. However, during the 3-year survey period, other individuals were included. Therefore, in total, 1,855 participants participated in the survey during the survey period.

Some participants failed to respond and others dropped out of the surveys, giving a response rate of 60.1%. Finally, the sample size was reduced to 10,492 completed surveys. Questionnaires included items querying respondent's individual socioeconomic characteristics such as educational level, height, age, sex, household income. Information about respondent's partner's educational level, height, age are also obtained. What is more, every month participants were asked what events had occurred during the previous month such as quarrel during the survey period. What is more, subjective evaluation about respondent's partner is also obtained. Using the monthly panel surveys, we can explore how the gaps within a couple on evaluation about one's partner changed between before and after the marriage.

Table 1 presents definitions of the variables used in this research and their mean values, standard deviation, maximum and minimum values. Man value of *Quarrel* is 0.03, implying that probability of occurrence of quarrel within a month is 3 %. The largest gap of height within a couple is 40 cm. The largest gap of schooling year is 9 years. To take an example of 9 years gap, wife's final educational background is to graduate from junior high school while husband's one is to graduate from university. Average value of married is 0.16. This shows that, during the period March 2012 to March 2015 (37 months), respondents have been married in 16 % of survey periods.

That is, in the initial period in March 2012, respondents have only plan to get married. Averagely, it takes 31.1 months to actually get married. Figure 2 illustrated the distribution of evaluation about one's partner. It is clear that marking 6 points are about 48 % and most frequently observed. This suggests that, respondents tend to evaluate highly their partner.

In Table 2(a), sample is divided into large gap of height with a couple and others. Group of large gap of height is defined to be those whose height gap is larger than average gap (13.6 cm). Further, these groups are further divided into group before married and after married. In the similar way, in Table 2(b) sample is divided into large gap of schooling years with a couple and others. In Table 2(c) sample is divided into large gap of ages with a couple and others. Then the mean difference test of evaluation about partner between groups are conducted. Table 2 (a) suggest that, before marriage, mean value for those with large height gap is 5.49 which is significantly larger than 5.35, mean value of others. After marriage, it is interesting to observe that mean value for those with large height gap reduced to 5.47, while mean value for others increased to 5.59. The difference is statistically significant. Hence, those with large height gap more highly evaluate partners than others before marriage, but more others more highly evaluate after marriage. This tells that role of height gap changed from pre-marriage period to post-marriage period. Turning to gap of schoolings, in Table 2 (b), before marriage, mean value for those with large gap is 5.40 which is significantly smaller than 5.48 of means of others. This relation is persistent even after the marriage. What is more, the difference between them increased to 0.35 after married. In Tables 2(a) and (b), for others, mean values of others significantly increased from pre-marriage period to post-marriage period while for large gap group, there is not significant difference between periods. In contrast to Table 2(c), as for gap of ages, mean values for group with the large gap increased significantly after marriage.

3.2. Methods

To test the hypothesis 1, we firstly explore how effect of the gap within a couple on the conflict between them changes between before and after the marriage. Here, the quarrel between them within a month is used as proxy for conflict. The estimated function takes the following form:

$$\begin{aligned}
 \text{Quarrel}_{it} &= \alpha_1 \text{Gap of height}_{it} * \text{Married}_{it} + \alpha_2 \text{Gap of schooling years}_{it} * \text{Married}_{it} \\
 &+ \alpha_3 \text{Gap of ages}_{it} * \text{Married}_{it} + \alpha_4 \text{Gap of height}_{it} + \alpha_5 \text{Gap of schooling years}_{it} + \alpha_6 \text{Gap of ages}_{it} \\
 &+ \alpha_7 \text{Married}_{it} + \alpha_8 \text{Income}_{it} + k_i + e_t + u_{it}
 \end{aligned} \tag{1}$$

where Quarrel_{it} represents occurrence of quarrel with partner within a month for individual i and time period t , and α represents the marginal effect of independent variables. Key variables are cross term of the gap with partner and dummy for getting married such as $\text{Gap of height} * \text{Married}$, $\text{Gap of schooling years} * \text{Married}$, $\text{Gap of ages} * \text{Married}$. If these variables shows the statistical significance, the gap within a couple changed after the marriage in compare with before the marriage. As argued by Becker (1991), economic gains from division of labor influenced the relation within a couple. Income is included to control for economic gains from division of labor to avoid the omitted variables bias. Once Income is controlled, we extract non-monetary effect of division of labor and put focus on it. Further, the feature of panel data allow us to control time-invariant individual fixed effect, k_i , and time period effect e_t . Various factors can be control by these k_i , and e_t .

To test the hypothesis 2, we decomposed the direct and indirect effect of gap on evaluation about partner. The estimated function is:

$$\begin{aligned}
 \text{Evaluation}_{it} &= \alpha_1 \text{Quarrel}_{it} + \alpha_2 \text{Gap of height}_{it} * \text{Married}_{it} + \alpha_3 \text{Gap of schooling years}_{it} * \text{Married}_{it} \\
 &+ \alpha_4 \text{Gap of ages}_{it} * \text{Married}_{it} + \alpha_5 \text{Gap of height}_{it} + \alpha_6 \text{Gap of schooling years}_{it} + \alpha_7 \text{Gap of ages}_{it}
 \end{aligned}$$

$$it + \alpha_8 \text{Married}_{it} + \alpha_9 \text{Income}_{it} + k_i + e_i + u_{it}, \quad (2)$$

Here, *Evaluation* is dependent variable while *Quarrel* is included to consider the temporary effect of quarrel. Other control variables are equal to function (1). Inclusion of *Income* as independent variables enables us to consider the effect of division of labor on the evaluation when income level is equal for all respondents. After controlling for *Quarrel*, we can explore the direct effect of the gaps within a couple.

Considering results of Functions (1) and (2), we calculate the indirect effect of the gap on *Evaluation* through quarrel.

4. Results and discussion

Table 3 reports the results of estimation where quarrel is the dependent variable. Tables 4 and 5 exhibits the results where evaluation about one's partner is the dependent variable. Table 5 includes quarrel as the set of independent variable. For robustness check, we reports the results when the time-period dummies are included and those when the dummies are not included. In these tables, the Random effects model is used for estimations if results of the Hausman test shows that results of the Random effect model are not systematically different from those of the Fixed effects model. This is because the Random effect is more efficient than the Fixed effects so that the Random effects model is preferable (Balitagi 2013). Therefore, we can obtain the results the time invariant variables such as the gaps of Height, schooling years and ages within a couple. If the results of Hausman test shows the systematic difference of results between the Random and the Fixed effects model, the Fixed effects model is preferred. Therefore, results of the fixed effects model are reported. In this case, the time-invariant variables such as *Gap of Height*, *Gap of schooling years*, *Gap of ages* are not reported because these effects are completely captured by the fixed effects.

First, we begin by interpreting the results in Table 3 to test the *Hypothesis 1*. Cross terms of gaps within a couple and marriage dummy are key variables. *Gap of Height*Married* and *Gap of schooling years*Married* produced the negative sign and statistically significant in all columns. This suggests that larger the gaps of height and ages within a couple decrease the occurrence of quarrel with partner after the marriage in compared with the period before marriage. This is consistent with the *Hypothesis 1*. However, concerning *Gap of ages*Married*, its coefficient is not statistically significant in any columns and so it does not influence the occurrence of the quarrel. Therefore, role played by gaps of height and education level becomes more influential than that of ages after the marriage.

Turning to Table 4, with the exception of *Gap of Height*Married* in column (2), *Gap of Height*Married* and *Gap of schooling years*Married* produced the negative sign and statistically significant. We can interpret it as implying that gap of height and education level reduce the evaluation about one's partner after the marriage in compared with the period before marriage. On the other hand, similar to Table 3, *Gap of ages*Married*, does not indicate statistical significance in any columns. Now let use switch our attention to Table 5¹, coefficient of *Quarrel* show the negative sign and statistically significant at the 1 % level in all columns, suggesting that occurrence quarrel reduce the evaluation about one's partner. Occurrence of quarrel is considered to capture the temporary effect on the evaluation, which is in line with intuition. As for cross terms, with the exception of *Gap of Height*Married* in column (1), *Gap of Height*Married* and *Gap of schooling years*Married* show the negative sign and its statistical significance. That is, the results about these variables do not change even when occurrence of quarrel is added to the set of independent variables. So, negative effect of the gaps within a couple on evaluation about one's partner is robust in alternative specifications. All in all, combined results of Tables 3-5 tells

¹ When quarrel is incorporated into the set of dependent variables, results of random effect about model without cross terms are not preferable because of result of Hausman test. However, we cannot obtain the results of the gaps within a couple in the Fixed effects model. Therefore, in Table 5, result of the specification without the cross term is not presented.

that the gaps of height and education level reduces the quarrel and in turn improve the evaluation about one's partner, which is considered as the indirect positive effect through occurrence of quarrel. On the other hand, these gaps directly reduces the evaluation, which is considered as the direct negative effect. These support the *Hypothesis 2*.

Table 6 summarize the degree of influence of the gaps within a couple. This is calculated based on results of (6) of Table 3 and (5) of Table 5 because these are results of the full-model. As is shown Table 6(a), the indirect effect of the gap of height on the evaluation is 0.001 while the direct effect is -0.007 . That is, the direct negative effect is 6 times larger than the indirect positive effect. Inevitably, total effect of the gap of height is -0.006 on the 7 point scale. According to Table 6(b), the indirect effect of the gap of schooling years on the evaluation is 0.002 while the direct effect is -0.028 . That is, the direct negative effect is 14 times larger than the indirect positive effect. Accordingly, total effect of the gap of schooling is -0.026 on the 7 point scale. Considering Tables 6 (a) and (b) together leads us to suggest that total effect of a year increase in schooling year on the evaluation about one's partner is equivalent total effect of a 4.27 cm increase in height.

5. Conclusion

We tried to tackle with the question about whether husband and wife having a lot in common improve marital life. In the classical theory of economics, couple with different characteristics improve their relations by practicing division of labor within a household. On the other hand, couple with similar characteristics is likely to share various works and interact each other to improve their relations. We used the purposefully collected panel data to examine it.

In this paper, we consider how and the extent to which the gaps of education, height and age in the couple influence the occurrence of quarrel and evaluation about one's partner. Key findings are; (1) gaps of height and education reduced quarrel with partner after the marriage. (2) Further, quarrel lowered the evaluation about the partner. The gaps reduced the occurrence of quarrel, which in turn improve the evaluation. (3) However, after controlling the indirect effect, the gaps lowered the evaluation about partner. Reduction in interaction between husband and wife increased psychological distance between them, resulting in lowering the evaluation about the partner. Further, effect of 1 year difference of education on the evaluation is equivalent to that of 4.27 cm difference of height. Accordingly, the negative effect of the gap on the evaluation is far larger than the positive one.

In this paper, on the assumption that gap of height and education between marital couple leads to division of labor, we argue that the gap reduced evaluation about partner. However, it is unknown about how the gap influences division of labor within a household. So, we should examine empirically the relation between the gap and the division of labor. Furthermore, it is unknown that the gaps within a couple is related to Happiness level through the evaluation about one's partner. Even though the gaps within a couple reduce the evaluation, the gaps possibly increase happiness level by increasing the economic gains through division of labor. There is possibility that the positive economic effect by the gaps is larger than the negative effect of low evaluation about the partner on the happiness. So, we should explore it. These are the remaining issues to be addressed in the future work.

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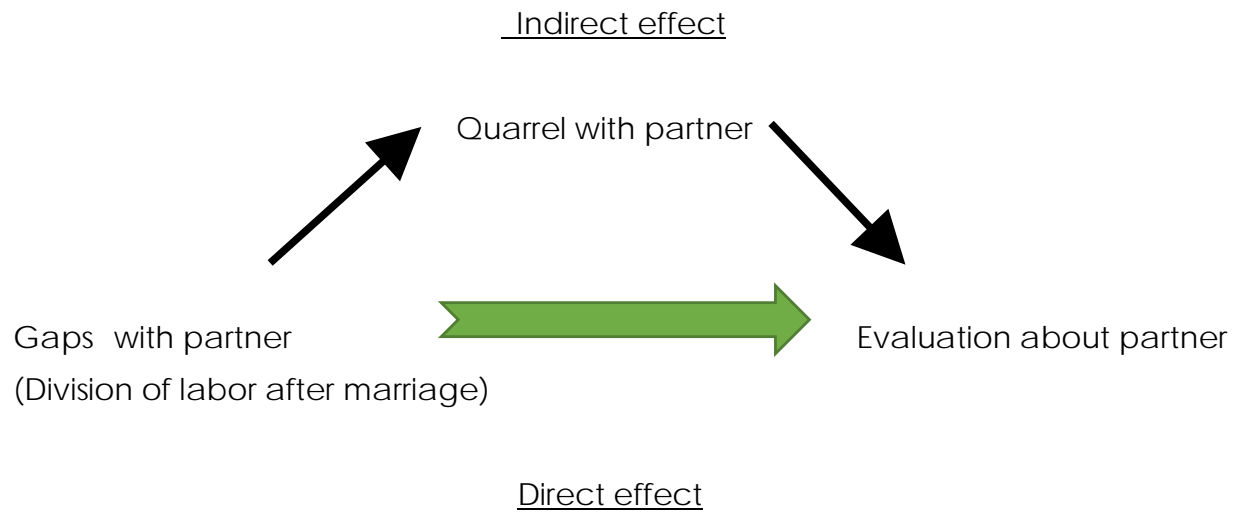


Fig. 1. Difference of effect of gap with partners between before and after the marriage and its direct and indirect channels.

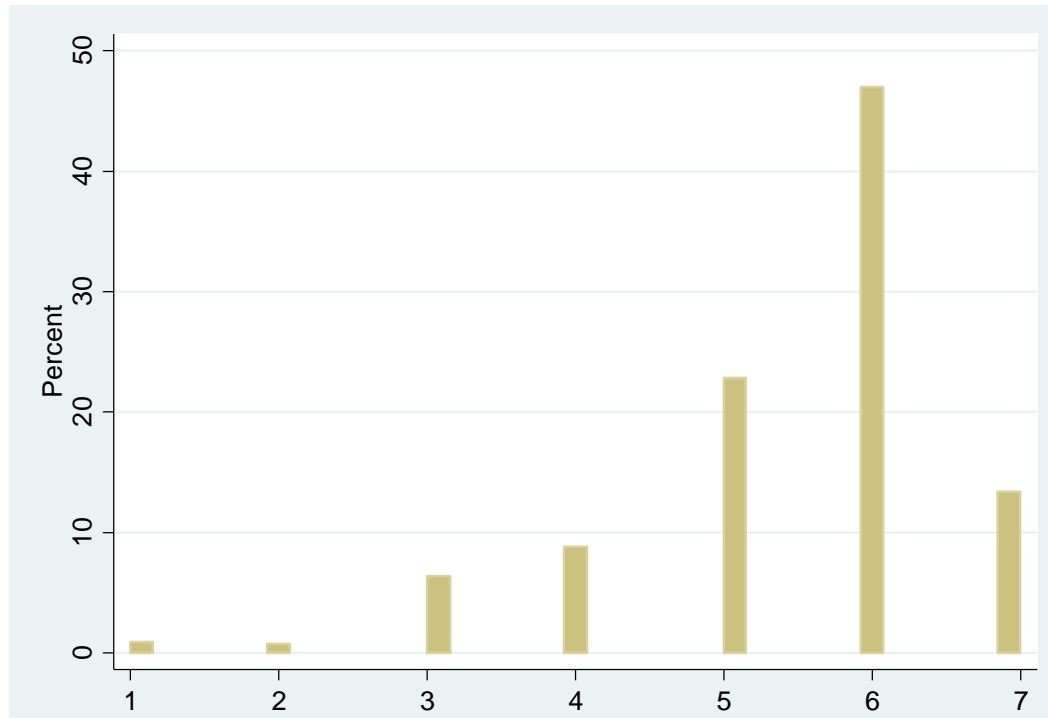


Fig. 2. Distribution of Evaluation about one's partner.

Table 1
 Basic statistics of variables used in the estimation and the mean values and standard deviations.

Variables	Definition	Mean	S.D	Max	Min
Evaluation	Question “how do you evaluate your partner?” There are 7 choices; 1(one cannot be worse as partner) -7(one cannot better as partner)	5.46	1.11	7	1
Quarrel	It takes 1 if respondents have a big quarrel with your partner within a month, otherwise 1.	0.03	0.16	1	0
Gap of height	Absolute value of (respondent’s height – partner’s height)	13.6	7.03	40	0
Gap of schooling years	Absolute value of (respondent’s schooling years– partner’s schooling years)	1.54	7.03	9	0
Gap of ages	Absolute value of (respondent’s ages– partner’s ages)	5.17	6.51	45	0
Income	Annual income (Hundred thousand yens)	41.3	159.5	8000	0
Married	1 if one currently get married, otherwise 0	0.16	0.37	1	0

Table 2(a)

Mean difference test for the evaluation about partner between those with large gap of height and others.

	Large gap of height (1)	Others (2)	Difference of (2)–(1)	Absolute t-values
Before married (I)	5.49	5.35	-0.13	4.26***
After married (II)	5.47	5.59	0.11	2.38**
Difference of (II)–(I)	-0.02	0.23		
Absolute t-values	0.33	5.03***		

Note: ** and *** significant at the 5% and 1% levels.

Table 2(b)

Mean difference test for the evaluation about partner between those with large gap of schooling years and others.

	Large gap of schooling years (1)	Others (2)	Difference of (2)–(1)	Absolute t-values
Before married (I)	5.40	5.48	0.08	2.48**
After married (II)	5.43	5.69	0.25	5.25***
Difference of (II)–(I)	0.13	0.21		
Absolute t-values	0.85	4.79***		

Note: ** and *** significant at the 5% and 1% levels.

Table 2(c)

Mean difference test for the evaluation about partner between those with large gap of ages and others.

	Large gap of ages (1)	Others (2)	Difference of (2)–(1)	Absolute t- values
Before married (I)	5.43	5.43	–0.001	0.05
After married (II)	5.61	5.48	–0.13	2.63**
Difference of (II)–(I)	0.18	0.05		
Absolute t-values	3.71***	1.37		

Note: ** and *** significant at the 5% and 1% levels.

Table 3 Determinants of the frequencies of quarrel with one's partner (Panel model).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Gap of height		-0.003***	-0.001*			-0.003***	-0.002***		
*Married		(-3.37)	(-1.95)			(-3.57)	(-2.67)		
Gap of schooling years		-0.009***		-0.007**		-0.009***		-0.008***	
*Married		(-3.09)		(-2.57)		(-3.09)		(-2.84)	
Gap of ages		0.001			0.001	0.001			0.001
*Married		(1.13)			(1.13)	(1.15)			(0.94)
Gap of height	-0.0001		0.0001						
	(-0.19)		(0.24)						
Gap of schooling years	0.002			0.004					
	(1.00)			(1.58)					
Gap of ages	-0.0004				-0.0007				
	(-0.48)				(-0.99)				
Income	0.050***	0.049***	0.049***	0.049***	0.048***	0.049***	0.049***	0.049***	0.048***
	(5.56)	(5.35)	(5.46)	(5.44)	(5.45)	(5.29)	(5.30)	(5.29)	(5.28)
Married	-0.024***	0.025	-0.037***	-0.035***	-0.030***	0.043***	0.019	0.006	-0.016*
	(-4.41)	(1.55)	(-3.90)	(-3.75)	(-3.97)	(2.62)	(1.48)	(0.72)	(-1.84)
Time-period dummies	No	No	No	No	No	Yes	Yes	Yes	Yes
Hausman-test	P=0.28	P=0.09	P=0.18	P=0.29	P=0.49	P=0.002	P=0.004	P=0.006	P=0.018
Random effects	Yes	No	Yes	Yes	Yes	No	No	No	No
Observations	9,855	9,855	10,492	9,882	10,733	9,855	10,492	9,882	10,733
Within R-squared	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Note: Numbers in parentheses are t-statistics calculated using robust standard errors clustered. *, **, and *** indicate significance at the 10%, 5%, and 1% levels. Line of "Random effects" is "Yes", if the Random effects results are preferred and so reported because Hausman-test does not show systematic difference of coefficients between Random and the Fixed model. Line of "Random effects" is "No", if the Random effects results are not preferred. Constant is included but not reported when the Random effect model is used. Gap of Height, Gap of ages and Gap of ages are cannot be reported because they are completely controlled by the individual fixed effects if the Fixed effects model is used. Coefficient of Income is multiplied by 1000.

Table 4. Determinants of the evaluation about one's partner (Panel model).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Gap of height		-0.006	-0.006*			-0.006*	-0.007*		
*Married		(-1.57)	(-1.71)			(-1.69)	(-1.84)		
Gap of schooling years		-0.028**		-0.027**		-0.027**		-0.026**	
*Married		(-2.19)		(-2.10)		(-2.13)		(-2.03)	
Gap of ages		0.005			0.005	0.006			0.006
*Married		(0.93)			(0.86)	(1.06)			(1.10)
Gap of height	0.011*	0.013**	0.013**			0.012**	0.013**		
	(1.90)	(2.09)	(2.14)			(2.12)	(2.22)		
Gap of schooling years	-0.025	-0.019		-0.019		-0.021		-0.019	
	(-1.19)	(-0.88)		(-0.86)		(-0.97)		(-0.89)	
Gap of ages	-0.008	-0.009			-0.007	-0.002			-0.001
	(-1.17)	(-1.30)			(-1.03)	(-0.30)			(-0.13)
Income	0.022	0.019	0.028	0.020	0.030	0.020	0.030	0.022	0.031
	(0.47)	(0.40)	(0.61)	(0.42)	(0.63)	(0.43)	(0.65)	(0.46)	(0.66)
Married	-0.035	0.080	0.046	0.015	-0.056	0.143*	0.106*	0.038	-0.012
	(-1.28)	(1.14)	(0.83)	(0.40)	(-1.52)	(1.96)	(1.81)	(0.45)	(-0.31)
Time-period dummies	No	No	No	No	No	Yes	Yes	Yes	Yes
Hausman-test	P=0.24	P=0.63	P=0.60	P=0.44	P=0.26	P=0.39	P=0.33	P=0.25	P=0.39
Random effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,667	6,667	7,135	6,667	7,166	6,667	7,135	6,667	7,166
Within R-squared	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Note: Numbers in parentheses are t-statistics calculated using robust standard errors. *, **, and *** indicate significance at the 10%, 5%, and 1% levels. Line of "Random effects" is "Yes", if the Random effects results are preferred and so reported because Hausman-test does not show systematic difference of coefficients between Random and the Fixed model. Line of "Random effects" is "No", if the Random effects results are not preferred. Constant is included but not reported. Coefficient of Income is multiplied by 1000.

Table 5. Determinants of the evaluation about one's partner when quarrel is included as independent variable (Panel model).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Quarrel	-0.17*** (-3.68)	-0.19*** (-4.28)	-0.16*** (-3.42)	-0.18*** (-4.11)	-0.17*** (-3.81)	-0.20*** (-4.43)	-0.16*** (-3.59)	-0.19*** (-4.21)
Gap of height	-0.006 (-1.55)	-0.006* (-1.71)			-0.007* (-1.72)	-0.007* (-1.89)		
*Married								
Gap of schooling years	-0.029** (-2.22)		-0.027** (-2.10)		-0.028** (-2.15)		-0.027** (-2.03)	
*Married								
Gap of ages	0.005 (0.91)			-0.005 (-1.56)	0.006 (1.11)			0.006 (1.11)
*Married								
Gap of height								
Gap of schooling years								
Gap of ages								
Income	0.024 (0.52)	0.034 (0.74)	0.020 (0.48)	0.037 (0.76)	0.025 (0.52)	0.036 (0.75)	0.025 (0.53)	0.037 (0.76)
Married	0.074 (1.03)	0.035 (0.62)	0.003 (0.08)	-0.059 (-1.56)	0.146* (1.96)	0.113* (1.89)	0.080* (1.89)	-0.010 (-0.25)
Time-period dummies	No	No	No	No	Yes	Yes	Yes	Yes
Hausman-test	P=0.0007	P=0.0001	P=0.0001	P=0.0001	P=0.022	P=0.003	P=0.0006	P=0.004
Random effects	No	No	No	No	No	No	No	No
Observations	6,667	7,135	6,667	7,166	6,667	7,135	6,667	7,166
Within R-squared	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01

Note: Numbers in parentheses are t-statistics calculated using robust standard errors clustered. *, **, and *** indicate significance at the 10%, 5%, and 1% levels. Line of "Random effects" is "Yes", if the Random effects results are preferred and so reported because Hausman-test does not show systematic difference of coefficients between Random and the Fixed model. Line of "Random effects" is "No", if the Random effects results are not preferred. Constant is included but not reported when the Random effect model is used. Gap of Height, Gap of ages and Gap of ages are cannot be reported because they are completely controlled by the individual fixed effects if the Fixed effects model is used. Coefficient of Income is multiplied by 1000.

Table 6.

(a) Decomposition of gap of height on evaluation about partner.

Difference of effect of height gap between before and after marriage.	On quarrel	On evaluation
Effect of a 1 cm increase in gap of height (A)	-0.003	
Effect of quarrel occurrence on evaluation (B)		-0.176
Indirect effect of a 1 cm increase in gap of height (C) =(A)*(B)		0.001
Direct effect of a 1 cm increase in gap of height on evaluation (D)		-0.007
Total effect of a 1 cm increase in gap of height on evaluation (C)+(D)		-0.006

(b) Decomposition of gap of schooling years on evaluation about partner.

Difference of effect of schooling years gap between before and after marriage.	On quarrel	On evaluation
Effect of a 1 year increase in gap of schooling years (A)	-0.009	
Effect of quarrel occurrence on evaluation (B)		-0.176
Indirect effect of a 1 year increase in gap of schooling years (C) =(A)*(B)		0.002
Direct effect of a 1 year increase in gap of schooling years on evaluation (D)		-0.028
Total effect of a 1 year increase in gap of schooling years on evaluation (C)+(D)		-0.026

Notes: Values are calculated based on results of (6) of Table 3 and (5) of Table 5.