Household Financial Management and Marriage: Evidence from Japan

Ting Chen, Tianzhu Gu*, Yunda Li, Xu Cai

Jiangsu University of Technology, Changzhou, Jiangsu, 213001, China

Abstract

The trend that people in big cities are more likely to get married and have children at a later time has been increasing in recent years, and their willingness to marry and have children is sluggish, the same as China. With the development of urbanization and changes in the needs of family life, family financial constraints and personal financial management capabilities is changing, which also affects the individual's concept of marriage. This paper discusses marriage issues from the perspective of family financial management.

Keywords

Financial Management; Household; Marriage; Urbanization; Risk Aversion.

1. Introduction

This paper believes that marriage is an anti-risk system, and the family is the form of anti-risk organization under this system, which is equivalent to a partnership business. From the perspective of financial constraints, the sum of the salary income of both parties can be regarded as the daily income of the family. In terms of academic qualifications, as is known to all we generally need to learn financial management related knowledge to better allocate our personal daily income and expenditure and the daily income and expenditure of our family. People with higher education tend to have better learning ability. And higher awareness of financial risk aversion. Learning ability is the foundation of financial management ability, higher learning ability means better grasp of financial management-related knowledge in life. Secondly, highly educated people are good at innovation and have systematic thinking. Therefore, when the social and economic environment is constantly changing, highly educated people usually have better system conception ability, financial information integration ability, and financial risk control ability. Thirdly, highly educated people tend to have higher social status, possess better contacts and richer information resources. For this reason, this group of people can process data information more efficiently, so as to make more informed financial decisions and carry out financial control from a global perspective. To sum up, education level can be used as an indicator of financial management ability and financial risk control ability. The higher the education level, the stronger the financial management ability and the stronger the financial risk control ability. In addition, personal salary income can be used as an indicator of personal financial constraints. Different regions and different genders have different financial constraints on future married families, which has also become a major factor affecting personal marriage choices. This paper takes Japan's first-level administrative regions as a unit, and analyzes the influence mechanism of individual marriage choices in the region from two main perspectives: financial constraints and financial management capabilities.

2. Comparison of Late Marriage and Non-marriage Status between China and Japan

The age of first marriage for women in Japan was over 28 years old in 2010, and the age of first marriage for men was over 30 years old. This data is still rising year by year. Meanwhile, according to China's census data, the average age of first marriage in China has also gradually increased since the 1990s. The average age of men rose from 23.57 in 1990 to 25.86 in 2010, and the average age of women at first marriage rose from 22.02 in 1990 to 23.89 in 2010. At present, the average age of first marriage in China has met the criteria for late marriage. The details are shown in Figure 1.
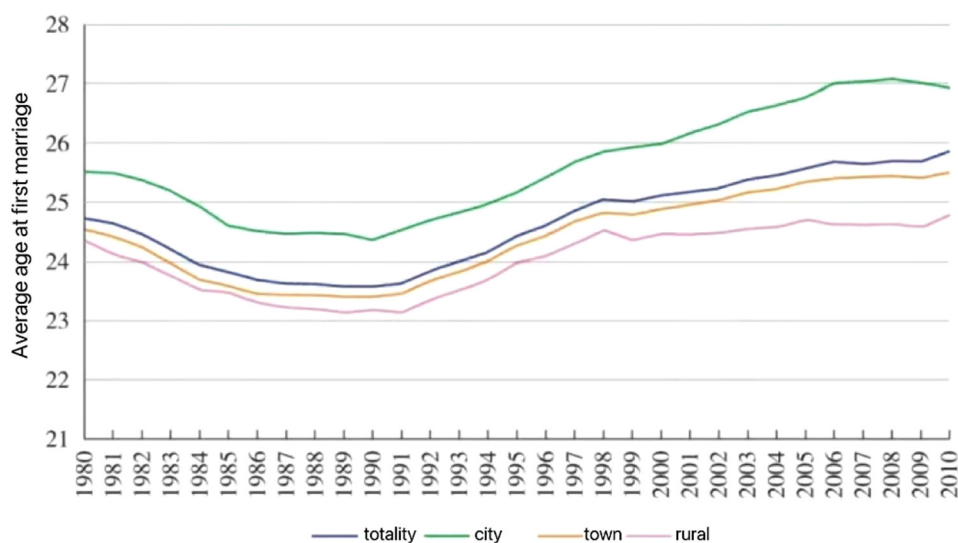

Figure 1. Trend chart of first marriage age in China

In addition, the lifetime unmarried rate in Japan has almost increased in a straight line since 1995. By 2020, the lifetime unmarried rate of women has reached 16.4%, and the lifetime unmarried rate of men has reached 25.7%. Meanwhile, the marriage rate in China in 2020 has reached a record low of only 5.8‰, which also means that the unmarried rate in China is rising. In terms of the never-married rate and the age of first marriage, the demographic situation China faces is very similar to that of Japan after 1995. The marriage rate is constantly decreasing and the age at first marriage is being delayed. Therefore, the research on the influencing factors of the unmarried rate in Japan in this paper is of great reference to China.

3. Ariable Setting and Model Building

3.1. Variable Definitions

The data of this article comes from the data released by the Ministry of Internal Affairs and Communications Statistics Of Japan, and the data years are 1980-2015. The data covers a total of 47 areas in Japan, including 1 capital, 1 province, 2 prefectures and 43 prefectures. The selection of individual data for research needs to be based on the following principles. First and foremost, we need to take the timeliness of marriage into consideration, so we remove the minors from the database, and adopts the marriageable age according to the concentration range of the age of first marriage. The age group from 20 to 39 years was used as the research sample. Secondly, missing samples and national data were eliminated to ensure the validity of the results. The definitions of empirical variables are detailed in Table 1.

<div align="center">**Table 1.** Variable definitions</div>

Variable name	Variable definition
Unmarried_r	Proportion of unmarried people
lnIncome_m	Women's income:10000 yen/month
lnIncome_f	Men's income:10000 yen/month
Highedu	Proportion of people with higher education
Deposit	Deposit Household's current savings.
lnIncome_gap	Gender pay gap:10000 yen/month
Area	Land area of each county:10000 km²
Density	Population density of each county: 10000 people/km²
Gender_r	Female population divided by male population.
Age	Sample age.

3.2. Marriage Model Building under Financial Management

This paper takes the marriageable age group of 20 to 39 years old as the research object, and constructs a simultaneous equation model, which is set as follows:

$$U = \alpha_0 + \alpha_1 E + \alpha_2 W_f + \alpha_3 W_m + \alpha_4 X_U + \varepsilon_U \tag{1}$$

$$E = \beta_0 + \beta_1 X_E + \varepsilon_E \tag{2}$$

$$W = \gamma_0 + \gamma_1 E + \gamma_2 X_W + \varepsilon_W \tag{3}$$

Equation (1) is the marriage selection equation for the age group of 20 to 39 years old. U is the measure of the outcome of marriage selection for the age group of 20 to 39 years old. This paper uses the unmarried rate, which is the ratio of single people in the population as the explained variable. Personal financial risk aversion propensity E and personal financial constraint W are the key explanatory variables. Financial constraints are divided into male personal financial constraints and female personal financial constraints. E and W represent the overall financial management ability of the region and the level of financial constraints of different genders. The equation also includes control variables X_U, such as household and regional characteristics. Equation (3) describes the interaction of personal financial management ability E on the personal financial constraints of men and women. The equation also includes other control variables X_W. Equation (2) describes the financial management capability and X_E are control variables.

The control variables in this paper include family characteristics and urban area characteristics such as the amount of household savings, urban population density, total urban area and urban sex ratio, which are selected as control variables for the unmarried rate. Household savings refers to the balance of household disposable income after deducting current consumption expenditures, which can be collected through banks or other financial intermediaries and loaned to enterprises or the government. By this way the balance can be converted into investment. Hence, family deposit can be used as an indicator of household financial freedom. According to Keynes's absolute income hypothesis, low-income groups have a high consumption propensity and a low savings propensity, while high-income groups have a low consumption propensity and a high savings propensity. Therefore, people with higher household savings face lower financial risk from marriage, which have direct influence on individuals' tendency to choose marriage. Urban population density can describe the dense population of the city. By combining with the urban land area, it can describe the size of the city. The larger the scale of a city, the higher the efficiency of its resource allocation. For this reason,

the overall financial management ability of the population can be better, and the residents' financial constraints will be reduced. The final complete simultaneous equation model is as follows:

$$
\begin{cases}
Income_f = \alpha_0 + \alpha_1 Highedu + \alpha_2 Deposit + \alpha_3 Density + \alpha_4 Area + \alpha_5 Gender\_r + \varepsilon_i \\
Income\_m = \beta_0 + \beta_1 Highedu + \beta_2 Deposit + \beta_3 Density + \beta_4 Area + \beta_5 Gender\_r + \beta_6 X_E + \varepsilon_i \\
Unmarried\_r = \gamma_0 + \gamma_1 Income_f + \gamma_1 Income_m + \gamma_1 Deposit + \gamma_2 Density + \gamma_3 Area \\
\qquad\qquad + \gamma_4 Gender_r + \varepsilon_i \\
Highedu = \lambda_0 + \lambda_1 Deposit + \lambda_2 Density + \lambda_3 Area + \lambda_3 Gender_r + \varepsilon_i
\end{cases}
$$

In the above formula, the core variables just as follows. $Unmarried\_r$ is the ratio of singles in the age group of 20 to 39. $Income\_m$ is the monthly per capita income of men. $Income\_f$ is the monthly income per capita of women plays the role of a financial constraint index, as well as the monthly income of men. The higher the personal income, the lower the financial constraints. "Highedu" is the ratio of the number of people with higher education (college degree or above) in the region to the total number of people in the region, which is an indicator reflecting the ability of financial management and financial risk control. Deposit is household savings funds, and Density is the area per square kilometer, which can be an indicator reflecting the density of the area. Area is the land area and "Gender_r" is the sex ratio in the area. "Gender_r" is calculated by dividing the female population by the male population (demographics define the sex ratio as the male population in a fixed area divided by female population). α, β, r, are variable coefficients, which are the common random disturbance terms of simultaneous equations.

4. Empirical Results and Analysis

4.1. Basic Results

Table 2 shows the regression results of the simultaneous equation model. In Model 1, the proportion of people with higher education in the region and the per capita monthly income of women have a significant positive impact on the unmarried rate, while the impact of male per capita monthly income on the unmarried rate is significantly negative. It indicates that people with the higher the financial management ability and financial risk control ability has the lower willingness to marry, which resulted in higher unmarried rate. The lower personal financial constraints of men, the lower the unmarried rate in the region. And the higher personal financial constraint of women, the higher the unmarried rate in the region. The coefficients of population density and land area are significant and positive, which means that the larger the city, the more people in this age group choose to be single. Besides, the positive and significant coefficient of sex ratio in the region means that the ratio of males and females in the region is more unbalanced, the higher the unmarried rate. The household saving coefficient is not significant here.

In Model 2 and Model 3, the proportion of people with higher education in the region has a significant positive impact on the income of men and women. This means that the level of financial management ability of people in a region is proportional to the income levels of different genders in the region. The household savings has positive and significant impact on monthly income of men and women. It is significant at 10% for women's income and 1% for men's income, which means that the degree of family financial freedom has a greater impact on men's income. The coefficients of population density and land area are both significantly positive, which means that the larger the city scale, the higher the income level of men and women. The sex ratio coefficient is significantly negative in both models, which means that the

population of men and women in the region is more unbalanced, the more negative the impact on men's and women's earnings.

Table 2. Regression results

Variable	Unmarried_r(2039)	lnIncome_m	lnIncome_f	Highedu
	Model 1	Model 2	Model 3	Model 4
Highedu	1.0497*** (0.3442)	2.3994*** (0.4232)	3.0873*** (0.3864)	
lnIncome_m	-0.2945*** (0.0759)			
lnIncome_f	0.3551*** (0.0977)			
lnDeposit	0.0072 (0.0232)	0.1213*** (0.0393)	0.0554* (0.0296)	0.0106*** (0.0040)
lnDensity	0.0205*** (0.0066)	0.0498*** (0.0071)	0.0444*** (0.0067)	0.0074*** (0.0011)
lnArea	0.0094* (0.0056)	0.0213*** (0.0078)	0.0130** (0.0065)	0.0010 (0.0014)
Gender_r	0.3208*** (0.0165)	-0.5009*** (0.1347)	-0.3913*** (0.1043)	-0.0435** (0.0187)
Years_d	Yes	Yes	Yes	Yes
Age	Yes	Yes	Yes	Yes
Constant	-0.4646 (0.3139)	3.7737*** (0.6207)	3.9666*** (0.4502)	-0.0939* (0.0562)
F	159.69	437.67	879.42	299.30
R²	0.9167	0.9477	0.9740	0.9011

In Model 4, the coefficient of household savings is significantly positive, which means that household financial freedom has a positive impact on financial management ability. The coefficient of land area is not significant but the coefficient of population density is significantly positive. It means that the more densely populated the city, the richer educational resources the residents can have, so does the proportion of highly educated people and the level of financial management ability of the population in the region.

4.2. Impact of Financial Constraint Gap on Marriage Choice

Table 3 reports the results of the robustness test using the variable substitution method. In this paper, the variable conditions are relaxed by replacing the main independent variables: the per capita monthly income of male groups and the per capita monthly income of female groups. In Model 1, the average monthly income coefficient of men is significantly negative and that of women is significantly positive, which means that in order to reduce the unmarried rate, it is necessary to reduce the men's personal financial constraints level and increase the women's personal financial constraints level, which will lead to the widening of the income gap between men and women at the same time. In Model 4, the coefficient of monthly income difference between men and women is negative and significant, which means that the greater the gap between the level of personal financial constraints between men and women in a region, the lower the unmarried rate in the region. Meanwhile, there is no significant change in the coefficient results and significance of other explanatory variables in the two models, which verifies the robustness of the results.

At the same time, the unmarried rate between the ages of 20 and 39 is regressed by replacing the main independent variables by gender, and the results of model 2, model 3, model 5 and Model 6 are obtained. It can be seen that there is no significant difference between the significance and the coefficient results, which further verifies the robustness of the regression results.

Table 3. Robustness test

Variable	Unmarried_r (2039)	Unmarried_r_f(2039)	Unmarried_r_m (2039)	Unmarried_r (2039)	Unmarried_r_f(2039)	Unmarried_r_m(2039)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Highedu	1.0497*** (0.3442)	0.9379*** (0.2542)	0.8804* (0.4612)	1.5382*** (0.3107)	1.2188*** (0.2394)	1.5128*** (0.4261)
lnIncome_m	-0.2945*** (0.0759)	-0.2873*** (0.0479)	-0.3135*** (0.0852)			
lnIncome_f	0.3551*** (0.0977)	0.2760*** (0.0599)	0.4125*** (0.1136)			
lnIncome_g				-0.0588** (0.0255)	-0.0832*** (0.0191)	-0.0603** (0.0282)
lnDeposit	0.0072 (0.0232)	-0.0310** (0.0140)	0.0312 (0.0279)	0.0051 (0.0255)	-0.0305** (0.0144)	0.0305 (0.0299)
lnDensity	0.0205*** (0.0066)	0.0197*** (0.0045)	0.0396*** (0.0080)	0.0269*** (0.0059)	0.0237*** (0.0041)	0.0482*** (0.0073)
lnArea	0.0094* (0.0056)	0.0140*** (0.0035)	0.0237*** (0.0074)	0.0114** (0.0056)	0.0155*** (0.0035)	0.0265*** (0.0073)
Gender_r	0.3208*** (0.0165)	-0.0027 (0.0071)	0.4400*** (0.0126)	0.3159*** (0.0167)	-0.0058 (0.0070)	0.4341*** (0.0128)
Years_d	Yes	Yes	Yes	Yes	Yes	Yes
Age	Yes	Yes	Yes	Yes	Yes	Yes
Constant	-0.4646 (0.3139)	0.4948** (0.2062)	-1.2826*** (0.3375)	-0.1344 (0.2860)	0.5937*** (0.1706)	-0.8201** (0.3242)
F	159.69	258.88	265.45	159.32	261.64	298.61
R²	0.9167	0.9302	0.9285	0.9121	0.9275	0.9247

4.3. Different Characteristics of Financial Management Ability and the Impact of Financial Constraints

Table 4 reports the regression results of the unmarried rate by gender within the age group of 20 to 39 years. The proportion of people with higher education in the region has a positive effect on the unmarried rate of women and is significant at 1% and has a positive impact on the unmarried rate of men and is significant at 10%, which means that when the financial management ability and financial risk control ability are stronger, the marriage tendency in the region will significantly decrease. The impact on women is greater than that on men. Men's per capita monthly income has significant and negative impact on women's unmarried rate, which means that women prefer to establishing families with men with high income to avoid economic risks after marriage. The impact on male unmarried rate is also negative and significant, which means that the lower the financial constraints of men, the more inclined they are to get married and establish a family. The per capita monthly income of the female group has a significant positive effect on the unmarried rate of men means that men prefer to raising a family with women who has higher financial constraints. The impact on the unmarried rate of women is

also positive and significant, which means that women with the lower the personal financial constraints has lower willingness to start a family. In conclusion, the results of group regression based on gender characteristics showed that the heterogeneity at the gender level had a significant effect.

Table 4. Grouped regression results of gender characteristics of people aged 20 to 39

Variable	Unmarried_r_f	Unmarried_r_m	Unmarried_r_f	Unmarried_r_m
	Model 1	Model 2	Model 3	Model 4
Highedu	0.9379*** (0.2542)	0.8804* (0.4612)	1.2188*** (0.2394)	1.5128*** (0.4261)
lnIncome_m	-0.2873*** (0.0479)	-0.3135*** (0.0852)		
lnIncome_f	0.2760*** (0.0599)	0.4125*** (0.1136)		
lnIncome_g			-0.0832*** (0.0191)	-0.0603** (0.0282)
lnDeposit	-0.0310** (0.0140)	0.0312 (0.0279)	-0.0305** (0.0144)	0.0305 (0.0299)
lnDensity	0.0197*** (0.0045)	0.0396*** (0.0080)	0.0237*** (0.0041)	0.0482*** (0.0073)
lnArea	0.0140*** (0.0035)	0.0237*** (0.0074)	0.0155*** (0.0035)	0.0265*** (0.0073)
Gender_r	-0.0027 (0.0071)	0.4400*** (0.0126)	-0.0058 (0.0070)	0.4341*** (0.0128)
Years_d	Yes	Yes	Yes	Yes
Age	Yes	Yes	Yes	Yes
Constant	0.4948** (0.2062)	-1.2826*** (0.3375)	0.5937*** (0.1706)	-0.8201** (0.3242)
F	258.88	265.45	261.64	298.61
R^2	0.9302	0.9285	0.9275	0.9247

Table 5 reports the estimated results of the unmarried rate grouped by five-year-old from 20 to 49 years old. Through age grouping, it is found that the influence coefficient of financial management ability factor on the unmarried rate is only significant among the group aged 20 to 34 and it increases with age. The possible reason is that 20 to 34 is the stage of accumulating wealth, and individuals have insufficient ability to resist economic risks. Therefore, they are more cautious in making marital choice, and prefer to avoiding the financial risks brought by marriage. While people over 34 years old have accumulated a certain amount of personal social wealth and social experience and most of them have sufficient anti-risk ability, financial management ability has less influence on their marriage choice. The order of the influence degree of income factors is 20 to 24 years old <45 to 49 years old <30 to 34 years old <40 to 44 years old <35 to 39 years old <25 to 29 years old. Obviously, the group of 25 to 29 years and the group of 35 to 44 years pay more attention to the financial constraints of the married family. In conclusion, the results of group regression based on age characteristics show that the heterogeneity at the age group level is also significant.

Table 5. Group regression results of age characteristics

Variable	Unmarried_r (2024)	Unmarried_r (2529)	Unmarried_r (3034)	Unmarried_r (3539)	Unmarried_r (4044)	Unmarried_r (4549)
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Highedu	0.7028*** (0.1646)	0.8790*** (0.2220)	2.5317** (1.0728)	0.0184 (0.1840)	-0.0321 (0.1689)	0.0224 (0.5600)
lnIncome_m	-0.0242 (0.0351)	-0.2743*** (0.0488)	-0.4015** (0.1968)	-0.2471*** (0.0355)	-0.2060*** (0.0311)	-0.1894** (0.0737)
lnIncome_f	0.0687 (0.0491)	0.3018*** (0.0580)	0.1879 (0.2291)	0.1948*** (0.0410)	0.1538*** (0.0364)	0.2160** (0.1075)
lnDeposit	0.0375*** (0.0124)	-0.0059 (0.0134)	-0.0930** (0.0435)	-0.0224** (0.0094)	-0.0190** (0.0078)	0.0025 (0.0167)
lnDensity	-0.0027 (0.0026)	0.0140*** (0.0037)	0.0795*** (0.0189)	0.0199*** (0.0028)	0.0174*** (0.0024)	0.0312*** (0.0069)
lnArea	-0.0017 (0.0025)	0.0090*** (0.0031)	0.0711*** (0.0169)	0.0145*** (0.0020)	0.0118*** (0.0019)	0.0353*** (0.0055)
Gender_r	-0.0281 (0.0184)	-0.0887*** (0.0329)	0.0294*** (0.0075)	-0.0892*** (0.0252)	-0.0364* (0.0200)	-0.0079*** (0.0010)
Years_d	Yes	Yes	Yes	Yes	Yes	Yes
Age	Yes	Yes	Yes	Yes	Yes	Yes
Constant	0.2434 (0.2028)	0.3243 (0.2148)	0.9019 (0.6488)	0.4906*** (0.1469)	0.4055*** (0.1448)	-0.6484* (0.3582)
F	55.55	457.88	52.64	700.98	601.84	26.14
R^2	0.7651	0.9579	0.7382	0.9674	0.9627	0.6863

5. Conclusions and Recommendations

Based on the perspective of family financial management, this paper explores the impact mechanism on individual marriage choices. The results are as follows. Firstly, people with higher financial management and financial risk control ability have more indifferent desire to marry. Secondly, the income gap between men and women is inversely proportional to the unmarried rate, which means that rationally distribute the roles of men and women in the family can effectively reduce the unmarried rate. For instance, men go out to work and provide stable income for the family while women look after the house and bring up children. At the same time, improving the regional income level can alleviate the financial constraints of the family after marriage and provide sufficient protection for women. Thirdly, as we can see from the gender group regression results that financial management ability has a more significant impact on women's marriage choice. Since women pay more opportunity costs after marriage, women pay more attention to household savings. From the age groups regression results, it can be seen that financial management ability has a more significant impact on the population before the age of 34 and the 20-to 49-year-old age group pays more attention to the income factor. The households with higher household savings tend to take marriage into consideration after the age of 24. The 30 to 44-year-old group pays more attention to the other party's household savings.

The process of urbanization has been accelerated by he development of modern science and technology. The emergence of large-scale machine industry has promoted the concentration of industries and the continuous expansion of the scale of cities, which resulting in changes in cities' nature, structure and function. The high spatial concentration of population, wealth and

economic activity also alleviates many social problems. Theoretically, the agglomeration effect under urbanization promotes the accumulation of production factors and improves the efficiency of resource allocation. Therefore, the closer people are to densely populated cities, the easier it is to obtain high incomes and have more employment opportunities. When the proportion of men with high incomes increases, and more and more men meet women's expectations, the phenomenon of unmarried can be alleviated. However, the regression results of this paper show that the larger the city scale and the higher the population density, the higher the unmarried rate, which means that the cost of marriage under urbanization is too high.

Based on the research conclusions of this paper, the corresponding policy recommendations are as follows. For one thing, take measures to "protect marriage and childbirth" for women. Since women bear the heavy responsibility of giving birth, they should receive extensive attention. It is suggested that women should be given protection methods for marriage and childbirth. Such as going to school and employment without discriminating against marriage and childbearing women. They also should be provided substantive protection. This measure helps to promote the rational distribution of family roles between men and women. For another, implement marriage subsidies related policies. The high marriage cost is one of the factors for the rising unmarried rate of young people. Including housing loans after marriage, high betrothal gifts, wedding banquet arrangements, and high childcare costs. At present, China has not issued any marriage subsidy policy. If given certain marriage subsidies and post-marriage housing subsidies, young people's economic pressure, which brought about by marriage, can be eased. What's more, such a measure will encourage young people to marry and have children early.

Acknowledgments

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