

Study on Factors Influencing Women's Willingness to Marry in China

Huashuai Tan¹, Jing Jin^{2,*}

¹ School of Statistics and Applied Mathematics, Anhui University of Finance and Economics, Bengbu, Anhui, 233030, China

² School of Accountancy, Anhui University of Finance and Economics, Bengbu, Anhui, 233030, China

* Corresponding author: Jing Jin (Email: 12081547@aufe.edu.cn)

Abstract: In recent decade, the marriage rate of young males and females in China has been declining. The declining marriage rate and the rising postponement of marriage and childbearing result in China's low fertility rate and ageing, which pose challenges to the country. Using data from the China General Social Survey, this paper performs Random Forest to explore the factors influencing women's willingness to marry. The results suggest that objective factors are more important than subjective factors in influencing women's intention to marry in China.

Keywords: Low Fertility; Low Marriage Rate; Random Forest; Willingness to Marry.

1. Introduction

In recent decade, the marriage rate of men and women of marriageable age in China has shown a declining trend. The number of registered marriages has grown from about 13.5 million in 2013, to 6.8 million in 2022 (Textor 2023). The marriage rate in China dropped to a historic low of 4.8 new marriages per 1,000 people in 2022, down from more than double that a decade earlier (Richter 2023). The decline in the marriage rate and the postponement of marriage and childbearing has become an important social issue, for example, low fertility and population ageing. Therefore, we need to examine the marital behavior of women of childbearing age to provide a basis for decision-making regarding policy and practice.

Using data from the China General Social Survey (CGSS), this paper performs Random Forest to explore the influencing factors on women's willingness to marry. The results suggest that objective factors are more important than subjective factors in influencing women's intention to marry in China. We also discuss the suggestions for improving marriage and childbearing rates to cope with the increasingly serious problem of low fertility and population aging.

2. Literature Review

To our knowledge, existing studies on the factors influencing the willingness to marry fall into two categories. One focus on subjective factors, and the other focus on objective factors.

Regarding subjective factors influencing marital behavior, marital behavior is mainly influenced by attitude towards marriage. Since the 1990s, the lifestyles of ordinary people in China are changing with extraordinary speed. Globalization, Internet access, with the recent explosion of new media, and freedom of movement, including massive rural-urban migration, are affecting many aspects of everyday life, including sexual attitudes and marriage behavior (Zheng et al. 2011; Carmichael 2011). The rise in women's labor force participation rate result in that there is difficult for women to balance between family and work. The opinion of "late marriage and late childbearing" are gradually accepted by the

public, and people begin to think that marriage is not indispensable element in their pursuit of happiness. Moreover, quality should be secured before quantity of marriage (Chang 2021). Elderly people should not rely on spouses or children, but pension and themselves. The abandonment or reconfiguration of the socio-cultural traditions has reshaped people's marital behavior (Zhang et al. 2023).

In terms of objective factors influencing marital behavior, scholars focused on the impact of education level, economic situation, and housing prices on marriage. First of all, from the viewpoint of education level, a large number of literatures indicate that the improvement of education level will delay the age of people's first marriage and reduce the marriage rate. With the rapid progress of society, women's education levels have experienced a significant increase, and their marriage and childbearing are postponed. As a result, education has a positive impact on the age of first marriage and narrows the age gap between spouses (Mahdavi et al. 2019). Nation (2010) argued that in developing countries, one of the main reasons for the postponement of marriages was the increase in the level of education of the population, which led to more time spent in school and marriage is delayed. Secondly, in terms of economic situation, which can be categorized into socio-economic situation and individual economic situation, it has been argued that an increase in women's income and economic independence significantly result in a delay in the age of first marriage and reduces the marriage rate (Goni and Rahman 2012). Finally, there are many diversified views on the association between house prices and marital behavior. Farzan Egan and Gholipour (2016) argue that the increase in house prices is an important cause for the increase in divorce rates. Wrenn and Zhang (2019) argue that rising house prices make people feel that "marrying well" is more important than "working well", which may have an impact on marital behavior. The effect of house prices on marital behavior varies, with rising house prices making marriages less stable for lower-income groups such as renters but having a significant effect on landlords.

Existing literature mainly consider subjective and objective factors, with several influence factor. Based on the data of China General Social Survey (CGSS) in 2017, 2018 and 2021, this paper first extracts many factors from the questionnaire

that may affect women's willingness to get married, and then adopts the Random Forest to select features and screen out the factors with higher importance ratings.

3. Data Sources and Method

The Chinese General Social Survey (CGSS) launched in 2003, is the earliest national representative continuous survey project run by academic institution in China mainland. CGSS is aimed to systematically monitor the changing relationship between social structure and quality of life in both urban and rural China. Social structure refers to dimensions of social group and organization as well as networks of social relationships. Quality of life is the objective and subjective aspects of the people well-being both at the individual and aggregate levels.

In this paper, we perform Random Forest to explore the factors influencing women's willingness to marry. First, by manual selection and extraction, 102 features were obtained from the questionnaire, which cover women's demographic characteristic, social and family environment and emotional situation. To find the features that have a significant impact on marriage intention, reduce the computation of the model, and improve the generalization ability, this paper employs Random Forest feature selection method for the 102 manually selected features, and keeps the features that have a significant impact among them. Univariate feature selection tests each feature and the response variable to measure the relationship between the feature and the response variable. However, univariate feature selection does not consider the relationship among features and is prone to redundant features, which affects the performance of the prediction model. Redundant features can be well eliminated by a random forest based on feature selection algorithm (Chen et al. 2012).

Random forest is an integrated algorithm based on decision

trees, consisting of multiple decision trees (Genuer et al., 2010). During training stage, different decision trees are trained by randomly selecting samples and features through the Bagging method; during classification stage, each tree "votes" on the category to decide the final classification result. Random forest feature selection process is to generate random forest through iteration, after each round of iteration on the importance of the features to rank, remove the unimportant features, until the end conditions are met.

4. Empirical Results

Women's willingness to marry tends to change dynamically over time and in response to life circumstances. There is no clear answer to the question of which factors have a significant impact on women's willingness to marry and which factors have an insignificant impact. Different studies often have different results and sometimes even reach opposite conclusions, so it is necessary to find out the factors that have a significant impact on women's willingness to get married.

Women's willingness to marry is jointly influenced by their own characteristics, social and family environment. Using Random Forest Feature Selection Analysis, we have identified the factors that have the most significant impact on women's willingness to marry, as shown in Figure 1, the top 11 factors areas follows: age, weight, housing area, annual personal income, political profile, total annual household income, height, education level, whether they own property, socialization frequency, and the view of choosing a spouse (it is better to work well than to marry well). The results suggest that objective factors, the first ten variables, are more important than subjective factors, the last variable, in influencing women's intention to marry in China.

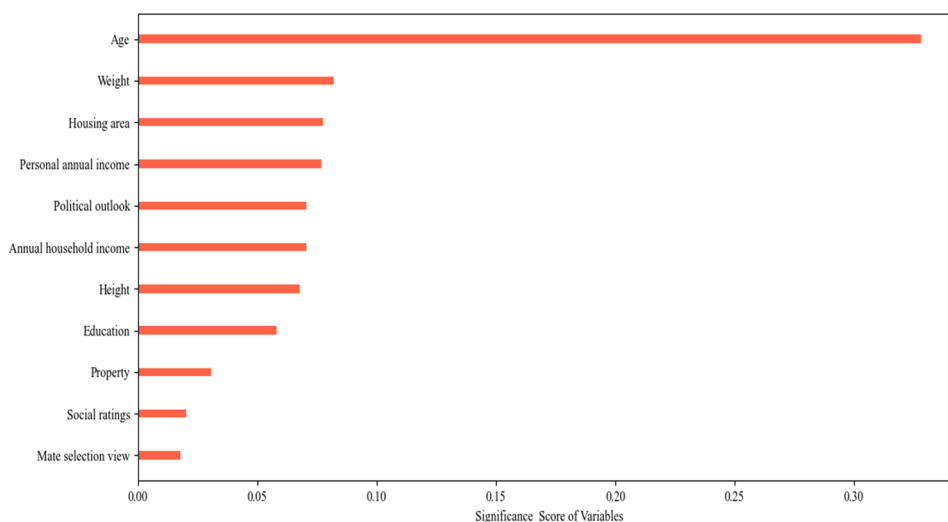


Figure 1. Random forest feature importance ranking

5. Conclusion

Currently, China's birth rate has been below replacement level for several decades, and the decline in the marriage rate between men and women of marriageable age is the key cause of fertility decline. Prolonged low fertility and low marriage rates can lead to high levels of ageing and demographic

decline, thus posing multiple socio-economic challenges. China has become one of the countries with the lowest fertility rates in the world. The government gradually relaxed of the population policy, from two-child policy for both couples are only child, two-children policy for either couple are only child, the universally two-child policy, and the universally three-child policy. Therefore, it is important to formulate relevant welfare policies to enhance women's

willingness to marry.

Family policy is the main social policy instrument used by developed countries to address the problems of low fertility and ageing. The situation in China is much more complicated than developed countries. China is lack of the prerequisites to establish a welfare state, such as high-speed development, full employment, and a relatively young population; On the contrary, it must cope with the challenges of economic stagnation, polarization of the labor market, low fertility and rapidly aging population, etc. It is only possible to choose more directed policy instruments and targeted population, for example, family policy biased to fragile population for whom public policies can have a fertility effect. Our results are helpful to recognize such fragile population.

Acknowledgments

This work is supported by the Ministry of Education Humanities and Social Sciences Project (19YJCZH069), Anhui University Humanities and Social Sciences Research Key Project (SK2020A0020), Anhui Province University Research Plan Project (2022AH050572), Anhui University of Finance and Economics Teaching Research General Project (acjyyb202041), and Anhui University of Finance and Economics Graduate Education Innovation Plan Project (cxjhalyb1905).

References

- [1] Carmichael S. 2011. Marriage and power: Age at first marriage and spousal age gap in lesser developed countries. *The History of the Family*, 16(4): 416-436.
- [2] Chang S. 2020. Chinese Women, Marriage and Gender: exploring the idea of women and marriage over time in the context of China. University of Windsor Working Paper.
- [3] Chen T, Ma J, Huang S H, et al. 2012. Novel and efficient method on feature selection and data classification. *Journal of Computer Research and Development*, 49: 735-745.
- [4] Farzanegan M R, Gholipour H F. 2016. Divorce and the cost of housing: evidence from Iran. *Review of Economics of the Household*, 14: 1029-1054.
- [5] Genuer R, Poggi J M, Tuleau-Malot C. 2010. Variable selection using random forests. *Pattern recognition letters*, 31(14): 2225-2236.
- [6] Goni A, Rahman M. 2012. Age at first marriage in Bangladesh: socioeconomic differentials and determinants. *Middle East Journal of Age and Ageing*, 9(3): 28-34.
- [7] Mahdaviyazad H, Malekmakan L, Sayadi M, et al. 2019. Trends in age at first marriage in women and related factors: A population-based study in southwestern Iran. *Women & health*, 59 (2): 171-180.
- [8] Nation M L. 2010. Understanding women's participation in irrigated agriculture: a case study from Senegal. *Agriculture & Human Values*. 27(2): 163-76.
- [9] Richter F. Not Married, No Kids (Nov 10, 2023) [https:// www.statista.com/chart/31238/marriage-and-birth-rate-in-china/](https://www.statista.com/chart/31238/marriage-and-birth-rate-in-china/).
- [10] Textor C. Number of marriages in China 2005-2022 (2023-10-27). <https://www.statista.com/statistics/279445/number-of-registered-marriages-in-china/>.
- [11] Wrenn D H, Yi J, Zhang B. 2019. House prices and marriage entry in China. *Regional Science and Urban Economics*, 74: 118-130.
- [12] Zhang S, Wang Q, et al. 2023. Internet exposure during adolescence and age at first marriage. *Journal of Asian Economics*, 84: 101569.
- [13] Zheng, W., Zhou, X., Zhou, C., Liu, W., Li, L., & Hesketh, T. (2011). Detraditionalisation and attitudes to sex outside marriage in China. *Culture, health & sexuality*, 13(05), 497-511.