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The Relationship between Urban Population Size and Divorce Rates in China in 2020

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Abstract: *Based on data from the Seventh National Population Census of 2020, this study constructs an indicator of the divorce rate and categorizes cities into four groups—megacities/ super-large cities, large cities, medium-sized cities, and small cities—to calculate and compare the rates by gender. The study found the following: First, the divorce rate exhibits a gradual increase as city size expands; second, gender differences in the divorce rate undergo a systematic reversal—from positive to negative—with city size, such that in megacities and super-large cities, the divorce rate among women is higher than that among men, whereas in small cities, the rate among men is significantly higher than that among women. This reversal also holds true for the divorce-to-marriage ratio, indicating that the inflection point is not caused by age structure but rather by genuine gender differences in marital stability. These findings suggest that city size influences both the level of divorce and its gender composition; therefore, cities of different sizes should adopt differentiated social policy interventions.*

Keywords: *Divorce rates, Urban population size, Gender differences, Proportion of divorces, China*

1. Introduction

Since the launch of reform and opening-up, China's crude divorce rate has risen from 0.18‰ in 1978 to 3.36‰ in 2019 [1]. During the same period, the level of urbanization has also undergone a significant increase, progressing from an initial stage to a phase of rapid development [2], with the two trends showing a high degree of synchronization. City size, as an important indicator of urbanization, and its impact on marital stability have become a central focus of academic research.

The theoretical basis for the impact of city size on divorce rates follows two main lines of reasoning. First, theories such as the "marriage market" theory argue that as city size increases, the pool of alternative partners expands, thereby raising the risk of marital dissolution [3]. Lichter et al. constructed a "synthetic husband" model and found that imbalances in supply and demand within the marriage market reduced matching quality, providing micro-level evidence for this mechanism [4]. Second, Lesthaeghe's "Second Demographic Transition" theory emphasizes that cities, as the vanguard of modernization, feature more relaxed social norms and a lower stigma attached to divorce [5]. Chiang and Park tested this mechanism using the Taiwan Social Change Survey and found that urban residents' attitudes toward divorce had become increasingly open, with college-educated women exhibiting more open attitudes than men [6].

Focusing on the Chinese context, Zhang Chong et al. found that for every 1 percentage point increase in the urbanization rate, the crude divorce rate rises by approximately 0.03‰; however, provincial-level data mask heterogeneity within cities [3]. Becker et al. incorporated divorce into a utility-maximization framework, pointing out that uncertainty regarding marital outcomes is a core cause of divorce—when the actual benefits of marriage fall short of expectations, dissolution may occur [7]. This theory also predicts that the rise in female labor force participation is both a result of and a cause of increased marital instability, as economic independence reduces women's financial dependence on marriage, thereby diminishing the "lock-in effect" of marriage. Garcia-Hombrados and Özcan pointed out that the association between age at first marriage and the risk of divorce may be driven by unobservable factors, and caution that the relationship between city size and divorce rates also requires more rigorous identification [8]. Yu Jia et al. noted that the risk of divorce among Chinese residents remains low compared to other countries, but they do not conduct an in-depth analysis of the differentiation across city size dimensions [9].

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In summary, existing research largely remains at the provincial or urban-rural dichotomous level, lacking a systematic analysis of divorce rates across a continuous gradient of city size; furthermore, few studies have examined how city size moderates gender differences in divorce.

2. Data and Methods

2.1 Data Sources

The data used in this study are primarily derived from the Seventh National Population Census conducted in 2020. The Long Form of the census employed a sampling method, with approximately 10% of all households selected for registration. To ensure that the Long Form data could be consistently calculated in conjunction with the total population from the Short Form, this study used the ratio of the total population in the Long Form sample for each district or county to the total population in the Short Form population as the specific sampling ratio for that district or county. The reciprocal of this ratio was used as the weight to extrapolate the various marital indicators from the Long Form to the population level.

2.2 Classification of City Sizes

Based on the State Council's 2014 "Notice on Adjusting the Standards for Classifying City Sizes" (Guo Fa [2014] No. 51), this study classifies cities into five categories and seven tiers according to their urban permanent resident population:

For the sake of analysis, this study combines "megacities" and "super-large cities" into "megacities/super-large cities", Type I large cities and Type II large cities into "large cities"; and Type I small cities and Type II small cities into "small cities." The final categories for analysis are megacities/super-large cities, large cities, medium-sized cities, and small cities.

2.3 Construction of the Divorce Indicator

$$\frac{\text{Divorced population}}{\text{Total population aged 25 and older}} \times 100\% \quad (1)$$

The "divorced population" refers to all individuals who were divorced (i.e., divorced but not yet remarried) as of the census reference date; it is a stock concept [1]. The proportion of the divorced population refers to the share of the divorced population within the total population aged 25 and older, reflecting the proportion of people in that age group who are divorced. It is used to describe differences in the size of the divorced population across different regions or by gender and serves as a basic indicator for measuring marital stability. This indicator is hereinafter referred to as the "divorce rate" — a stock-based measure, distinct from the conventional crude divorce rate that captures annual divorce events (a flow-based indicator). The age threshold of 25 and older was selected because, given the current trend of late marriage in China [6], the share of unmarried individuals among those under 25 is relatively high; including them in the denominator would bias the indicator downward.

2.4 Analytical Methods

This study first calculated the divorce rates for cities of different sizes using descriptive statistical analysis. It then grouped cities by size category for comparison to analyze the gradient characteristics of divorce rates. Building on this, the study further compared data by gender to reveal the urban size gradient of gender differences in divorce rate.

3. Results

3.1 Divorce Rates and Gender Differences by City Size

Table 1 presents divorce rates by gender across cities of different sizes. Overall, the divorce rate increases as city size increases. Super-large and large cities have the highest divorce rates, followed by medium-sized cities, with small cities having the lowest rates. This indicates that the larger the city, the greater the relative number of divorces and the greater the instability of marriages.

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Table 1: Percentage of Divorces by Gender in Cities of Different Sizes(%).

City Size	Percentage of Divorces (Total)	Percentage of Divorces (Men)	Percentage of Divorces (Women)	Gender Gap (Women - Men)
Megacities/Super-Large Cities	3.33%	3.03%	3.64%	+0.61%
Large Cities	3.01%	2.89%	3.12%	+0.23%
Medium-Sized Cities	2.91%	3.00%	2.82%	-0.18%
Small Cities	2.73%	3.05%	2.41%	-0.64%

When broken down by gender, the gender gap in the proportion of divorces changes systematically with city size. In megacities and large cities, the proportion of women getting divorced is higher than that of men, with gender gaps of +0.61 and +0.23 percentage points, respectively; in medium-sized cities, the proportion of men getting divorced begins to exceed that of women, with a gender gap of -0.18 percentage points; and in small cities, the proportion of men getting divorced is 0.64 percentage points higher than that of women.

The rapid increase in the proportion of women getting divorced is closely linked to women's rising educational attainment, greater economic independence, and society's growing tolerance for divorce [1]. Women in megacities and super-large cities, who tend to have higher levels of education and greater economic independence, face lower social costs associated with divorce; consequently, a higher proportion of them remain in a divorced status after divorce. In contrast, women in small cities and at the county level have higher remarriage rates after divorce, and are more likely than men to remarry, resulting in a relatively low proportion of women among those who remain in a divorced status.

3.2 Distribution of the Divorced Population by City Size and Gender

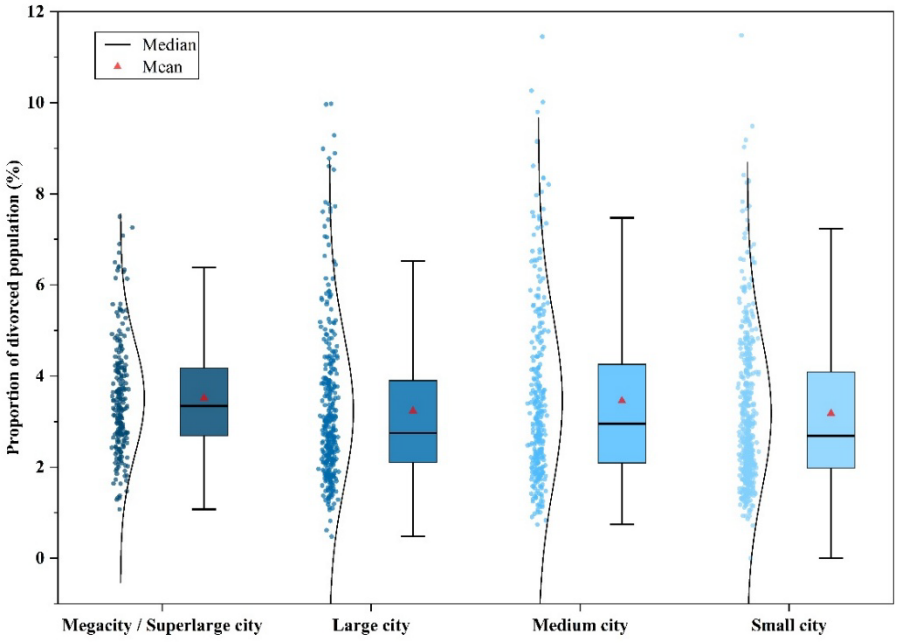


Figure 1: Proportion of Divorced Population by City Size.

Figure 1 further illustrates the distribution of the proportion of divorced population across different city sizes. The width of the boxes reflects the degree of dispersion in the proportion of divorces within each city. The data show that medium-sized and large cities exhibit the greatest internal heterogeneity, followed by megacities and super-large cities, with small cities showing the least; the degree of dispersion follows an inverted "U" shape rather than a monotonically increasing trend as city size changes, and the degree of differentiation in medium-sized cities actually exceeds that of megacities; in terms of central tendency, the median proportion of the divorced population across all city sizes falls between that of megacities and that of small cities. Furthermore, the median for large cities is significantly lower than that of megacities, medium-sized cities, and small cities. The mean for each

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city category is below the median, indicating that the proportion of divorce remains at a relatively low level in most cities, with a few cities with high values skewing the overall mean upward.

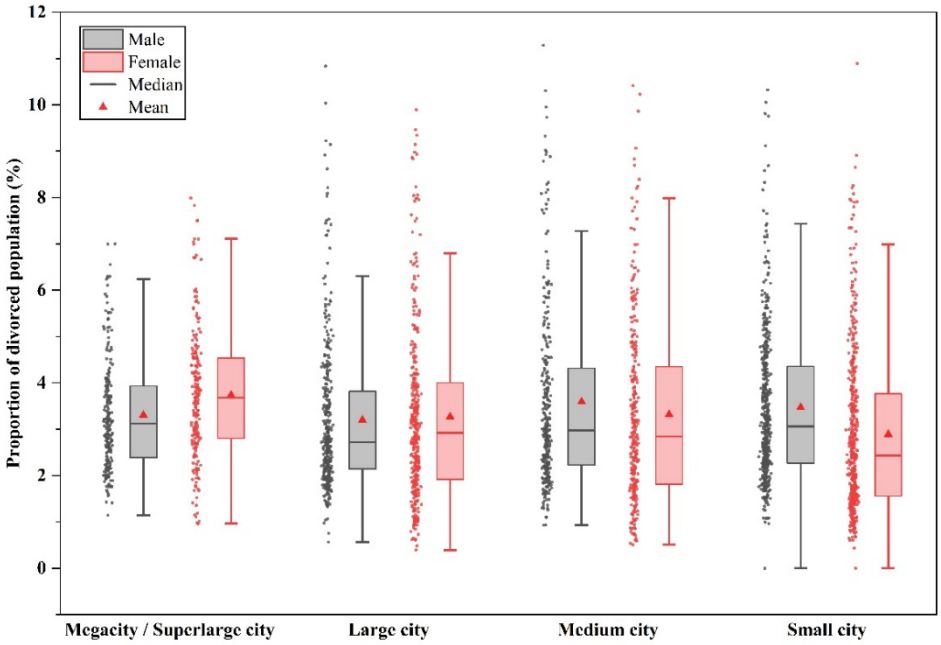


Figure 2: Proportion of Divorced Individuals by Gender and City Size.

As shown in Figure 2, in megacities, super-large cities, and large cities, the box plots for the proportion of divorced women are generally higher than those for men, and the data for women exhibit greater dispersion, indicating that the divorce status of women in large cities is more heterogeneous. In small cities, however, the box plots and dispersion for men exceed those for women, consistent with the reversal of gender differences observed in Table 1. There are isolated cities with exceptionally high proportions of women in divorced status; in some of these cities, the proportion approaches 12%, far exceeding the median level for cities of the same category. In contrast, the distribution of outliers for the proportion of men in divorced status is relatively scattered and lower in magnitude. This suggests that the proportion of women in divorced status in a few cities is at extreme levels, which may be influenced by the economic structure, population mobility characteristics, or sociocultural environment of specific cities, warranting further attention in subsequent analyses.

4. Discussion

4.1 Explanations for the Positive Gradient Between City Size and Divorce Rate

The positive gradient between city size and divorce rate can be understood through three mechanisms.

First, social norms serve as a core mechanism. Social attitudes in large cities are more open, and the stigma associated with divorce is lower. In traditional societies, divorce is viewed as a family failure and a sign of personal moral failing, whereas in large cities, it is increasingly seen as a personal choice and a lifestyle adjustment. The relaxation of social norms reduces the psychological and social costs of divorce for individuals.

Second, economic independence functions as a key driving mechanism. Large cities offer women more employment opportunities and higher income levels. Becker et al. point out that the rise in female labor force participation is both a result of and a cause of marital instability; economic independence reduces women's financial dependence on marriage, thereby diminishing the "lock-in effect" of marriage [7]. Economic independence means women no longer view marriage as the sole path to financial security; when marriage fails to meet their expectations, they are more likely to choose divorce. This mechanism is particularly important in explaining female divorce rates.

Third, legal systems and public services act as a supporting institutional mechanism. Legal service systems in large cities are better-developed, and divorce procedures are more standardized and

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accessible. At the same time, public services such as childcare, elder care, and psychological counseling reduce the cost of living for individuals after divorce, making divorce a more viable option.

4.2 Explanations for Why the Proportion of Women Divorcing Exceeds That of Men in Megacities

This study found that in megacities and large cities, the proportion of women getting divorced exceeds that of men. This "gender reversal" can be explained by two mechanisms.

First, economic independence exerts the most prominent explanatory effect. Megacities have a higher concentration of highly educated, high-income women. Economically independent women are more likely to choose divorce rather than struggle to maintain an unsatisfactory marriage [8]. Both the female labor force participation rate and average income levels in megacities and large cities are significantly higher than in small cities, providing the economic foundation for independent living after divorce.

Second, social norms play a critical complementary role. Social attitudes in large cities are more open; the stigma associated with divorce is lower, and women face less social pressure after divorce. When a marriage fails to meet their expectations, they are more likely to choose divorce and remain single, rather than stay in a marriage against their will due to social pressure in small cities or remarrying quickly after divorce.

These two mechanisms together result in the following: in large cities, divorced women are more likely to remain single rather than remarry; consequently, the "retention rate" of divorced women in the population is higher.

5. Conclusion

5.1 Key Findings

Based on data from the Seventh National Population Census conducted in 2020, this study systematically examines the differences in divorce rates across Chinese cities of varying sizes and the patterns of gender differentiation. The key findings are as follows:

First, the divorce rate increases as city size grows, and an increase in city size is accompanied by a decline in marital stability. Second, the gender difference in divorce rates reaches a "positive-to-negative" inflection point as city size increases. In megacities and super-large cities, the divorce rate for women is higher than that for men; whereas in small cities, the divorce rate for men is higher than that for women. This "gender reversal" also holds true for the divorce-to-marriage ratio, indicating that the reversal is not driven by population age structure but rather reflects gender differences in marital stability itself. These findings suggest that there are structural differences in marital stability across cities of different sizes, and the formulation of relevant social policies must take these distinctions into account.

5.2 Limitations of the Study

This study uses cross-sectional data and is therefore unable to track dynamic changes in individual marital status. City-level differences in divorce rates may stem in part from selective migration patterns. Furthermore, by simplifying marital status into a binary classification of "divorced" and "not divorced," the study does not account for complex marital statuses such as separation or remarriage.

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