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Siqi Shao
Ningbo University of Technology
Enlin Cao
Anhui University of Finance & Economics
Deshui Zhou
zhoudeshui86@163.com

Anhui University of Finance & Economics

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Effects of Eldercare-Childcare Integration Services on the Fertility Intentions of Women of Childbearing Age:

Based on a survey in Ningbo China*

Siqi Shao[1] Enlin Cao[2] Deshui Zhou[3]*

Abstract

Objective: To discuss and conduct an empirical investigation of the influence of eldercare-childcare integration services on the fertility intentions of women of childbearing age because strengthening women's fertility intentions is a fundamental way of facilitating the long-term balanced development of the population.

Methods: Based on demographic census data of women of childbearing age in Ningbo China in 2023, the study employed a logit model and the KHB decomposition method.

Results: Eldercare-childcare integration services have significant positive effects on the fertility intentions of women of childbearing age, particularly women from non-only-child families and working outside the civil service. According to mechanism analysis, positive expectations for marriage and health improvement are internal mechanisms for the eldercare-childcare integration services to promote the fertility intentions of women of childbearing age. The standard regression results remained true after overcoming endogeneity by a robustness test and PSM (propensity score matching).

Conclusion: The study recommends optimising fertility-support policies, strengthening the systematic supply of eldercare-childcare integration services, and facilitating long-term balanced populations based on well-being guarantees for women of childbearing age.

Keywords: eldercare-childcare integration services; women of childbearing age; fertility intentions

1.Siqi Shao:PH.D, School of Humanities International Communication, Ningbo University of Technology,Ningbo China;Email:125648660@qq.com.

2.Enlin Cao:School of Finance and Public Management,Anhui University of Finance & Economics,Bengbu,China;Email:caoenlin137088@163.com.

3.Deshui Zhou（*Corresponding author）:Ph.D, Associate Professor，School of Finance and Public Management,Anhui University of Finance & Economics,Bengbu,China;Email:zhoudeshui86@163.com;Address: 962 caoshan road,bengbu,anhui ,233030, China.

1. Introduction

Fertility is the basis for the continuation and development of all human societies.**Error! Reference source not found.** China currently has the second-biggest population in the world after India, but its population is ageing, which means it is in decline. In 2024, the newly born population in China was 9.54 million, compared to 16.04 million in 2010 (National Bureau of Statistics of China, 2025). At 1.18 births per woman, China's total fertility rate (TFR) is lower than Japan's (1.26 births), though higher than Taiwan's (0.87) and South Korea's (0.75). Among East Asian countries, its fertility rate ranks among the lowest.[1] At present, many women of childbearing age in China delay having children due to career development, family burdens or the cost of care.**Error! Reference source not found.** Lack of childcare is the primary factor discouraging women of child-bearing age from bearing children.**Error! Reference source not found.**

To relieve the child-rearing burden and promote fertility, the government of China is making great efforts to develop its childcare service system. How to strengthen the fertility intentions of women of childbearing age has become a hot topic in both Chinese and international academic circles. Nevertheless, market-oriented infant care services are not readily available to ordinary families in China; consequently, mothers usually undertake childcare responsibilities directly.**Error! Reference source not found.** Given that "Women hold up half the sky,"[2] promoting female employment and realising female economic independence are inherent in social justice and equity. However, the continuing imbalance between female employment and child-rearing responsibilities means that women come under huge financial and mental stress, thus making women of childbearing age reluctant to give birth to children.**Error! Reference source not found.**

Meanwhile, the low fertility rate in China is accompanied by an ageing population. By the end of 2024, the population over 50 had reached 310 million, accounting for 22% of the total population (China National Bureau of Statistics, 2025).[3] Given the superposed effect of an ageing population and sub-replacement fertility, childcare by grandparents is still the predominant child-rearing mode in

[1] National Health Commission of the People's Republic of China, National Development and Reform Commission, etc. *Guidelines on Further Improving and Implementing Measures to Support Active Childbearing*. Website of the Central People's Government of the PRC (http://www.gov.cn).

[2] Phrase attributed to Mao Zedong.

[3] Topic Team of National Health Commission. *A Report on Childcare Service Status for Infants under the Age of 3* [R]. Beijing: National Health Commission, 2018:10.

China, with the proportion of families with grandparents involved in childcare reaching 60%–70% in 2014.[5] However, it is difficult to meet the diversified fertility service needs of women of childbearing age with the coexistence of an ageing population and a low fertility rate. The caring mode for both the elderly and children has gradually become a widely discussed topic in the field, as well as in academic circles in China.

By combining care for the elderly with childcare, eldercare-childcare integration services represent a service mode that brings together learning activities, intergenerational communication, and interaction in shared spaces.**Error! Reference source not found.** In China, eldercare and childcare in the same care service centre have become a new parenting concept**Error! Reference source not found.** that could lessen family burdens, strengthen family relationships, relieve economic pressures, and improve the expectations of women of childbearing age for marriage and childbearing, thus strengthening their fertility intentions. Women's confidence in "work–family" balance would also grow with increased accessibility to eldercare-childcare integration services.

But can eldercare-childcare integration services strengthen the fertility intentions of women of childbearing age, and if so, how? This study has investigated these questions systematically by using the logit model and other methods based on specific survey data gathered in Ningbo, China, in 2023. It discloses the critical effects of eldercare and childcare accessibility on the fertility intentions of women. More importantly, it provides empirical references and policy enlightenments for making precise and differentiated fertility-supporting policies that are conducive to exploring more effective policies for improving population fertility.

Lois and Becker suggested in their 2014 study on family fertility behaviours that child-rearing benefits parents, but fertility needs presented an inverted V-shaped nonlinear variation pattern with increases in family income.[11] The whole process, from fertility needs to actual fertility behaviours, has to be divided into four critical links—motivation, intention, planning, and implementing—emphasising the core effects of fertility intention in connecting psychological motivations and actual behaviours.**Error! Reference source not found.** Among them, the transformation from fertility motivation to intention is affected by two major factors. One is the attitude of husbands and other significant social relationships; the other is actual conditions like employment, income, and living environment.**Error! Reference source not found.Error! Reference source not found.** Additionally, some academic studies on determinants of the fertility intentions of women of childbearing age were carried out from the perspective of the social

network,[Error! Reference source not found.] social interaction,[Error! Reference source not found.] father's participation in child-rearing, and family income,[Error! Reference source not found.] whether couples live with parents after getting married,[Error! Reference source not found.] and so on. However, no systematic attention in academic circles has been paid to eldercare-childcare integration services.

As a valuable intergenerational support mode, the eldercare-childcare integration service is not only a common cooperation mode in families but also in socialised childcare, where it is an innovative mode that integrates intergenerational cooperation with socialised care, continuing the support functions of a family and expanding the supply of socialised services.[Error! Reference source not found.] Countries worldwide have gradually developed this diversified eldercare-childcare integrated public service mode based on the two-way need to cope with the global challenges caused by sub-replacement fertility and ageing populations.[Error! Reference source not found.Error! Reference source not found.] These practices effectively improve the overall level of social support by meeting emotional support, strengthening family resilience, and promoting social cognition. In particular, optimising intergenerational resource allocation can relieve the structural conflicts women of childbearing age experience when they feel compelled to choose between career development and bearing children in the context of incomplete coverage of an inclusive care service system.[Error! Reference source not found.]

The community is the major space for the daily activities of the elderly and children. Given the superposed effects of an ageing population and sub-replacement fertility,[Error! Reference source not found.] the eldercare-childcare integration mode in communities not only meets the demands of the elderly but also relieves the childcare pressure on families with infants. Bühler and Philipov believe that care supply services may affect fertility intentions and decisions.[Error! Reference source not found.] Some developed countries have explored eldercare-childcare integration services. For instance, by 2017, Germany had set up more than 540 "multi-generation houses".[Error! Reference source not found.] As a pioneer in coping with sub-replacement fertility and an ageing population, Japan has been exploring eldercare-childcare integration services since the 1990s.[Error! Reference source not found.Error! Reference source not found.] Specifically, Japan's Ministry of Health, Labour and Welfare has pointed out that the existing "cooperative care service" system has the following characteristics: 1) a dynamic mutual support network involving the participation of multiple subjects; 2) a service mode that is small-sized and family-based; and 3) high attention to physiological/psychological and social demands of the elderly and children.[Error! Reference source not found.]

In contrast, eldercare-childcare integration services in China are still underexplored, and whether they can influence the fertility intentions of women of childbearing age still needs empirical testing. On this basis, this study makes two contributions: 1) It explores the fertility intentions of women of childbearing age from the perspective of eldercare-childcare integration services using field survey data in Ningbo, China, the results providing insights into how to improve well-being and the ability to cope with the two-pronged challenge of an ageing population and negative population growth; 2) It builds mechanisms concerning marriage expectations and health status to analyse the internal factors influencing how eldercare-childcare integration services affect the fertility intentions of women of childbearing age, the results providing insights into long-term, balanced population development.

3. Data source and variable setting

3.1 Data source

The data in this study came from a joint survey by Zhejiang University, Peking University, the Chinese Academy of Social Sciences, and Ningbo Ningbo University of Technology on marriage and the fertility of women of childbearing age in Ningbo, China, as of June 2023. The survey adopted the random sampling method and covered all six districts and four counties (including two county-level cities) in Ningbo. Hence, the data were representative to some extent. The survey can provide government departments with more data support and real-life references to formulate population policies that encourage and support fertility. Specifically, for this study, women aged 20–45 were chosen as respondents, with the initial sample size reaching 5,719. After data screening and deletion of unqualified samples, the study used 3,089 samples, see Supplementary File 1.

3.2 Variable setting

The explanatory variable in this study was eldercare-childcare integration services, valued according to the question: “Are you using eldercare-childcare integration services?” The dichotomy applied was as follows: used = 1; unused = 0. The service utilisation rate was 10.87%.

The explained variable, fertility intentions, was assessed by respondents’ answers to: “Do you have fertility intentions?” Yes = 1; otherwise = 0. A total of 29.21% of respondents had fertility intentions.

A series of control variables were introduced. For demographic characteristics, age was the continuous variable, and the average age of respondents was 33.48. For education background, higher

education was determined as the threshold (university or higher = 1; other = 0). The proportion of respondents with high education reached 82.13%. For marriage, first marriage was used as the standard (first marriage = 1; other = 0). The proportion of first marriages accounted for 65.14%. For census registration, the urban-rural dual division was adopted (urban = 1; rural = 0). Urban respondents accounted for 55.45% of respondents

Among family characteristic variables, the average number of children per family was 0.80. Respondents' family housing area averaged 4.0151 square metres. Housework division was measured by the time husbands spent on housework; the average was 8.63 hours (standard deviation = 22.3110), with great individual differences. For social insurance, the coverage rate of pension insurance for workers reached 93.12%. Family economic conditions were characterised by the logarithm of income. For policy cognition, awareness of maternity leave policy was measured by the Likert 5-point scale (1 = completely unknown to 5 = completely known), with a mean of 2.39 (standard deviation = 2.3939), indicating the policy cognition level was moderate and lower. Definitions and descriptive statistics of specific variables are listed in Table 1.

Table 1 Descriptive statistics of major variables (N = 3089)

Variables	Definitions	Mean	Standard deviation
Fertility intentions	Yes = 1; Otherwise = 0	0.2921	0.4548
Eldercare-childcare integration services	Used = 1; Unused = 0	0.1087	0.3113
Age	Age of respondents	33.48	6.4707
Education	University or higher = 1; Other = 0	0.8213	0.3831
Marriage	First marriage = 1; Other = 0	0.6514	0.4766
Census registration	Rural = 0; Urban = 1	0.5545	0.4971
Number of children	Number of existing children	0.7995	0.7368
Family housing area	Family housing area	104.82	85.51
Husbands' time on housework	Hours that husbands spend on housework per week	8.6300	22.3110
Pension insurance for workers	Yes = 1; No = 0	0.9312	0.2531
Family income	Family income of respondents (logarithm)	4.0555	3.2989
Maternity leave policy	Completely unknown = 1; Know little = 2; Moderate = 3; Know much = 4	2.3939	1.0606

3.3 Measurement model

Fertility intentions in this study belong to a dichotomous variable. Firstly, the study used the logit model to investigate the effects of eldercare-childcare integration services on the fertility intentions of women. The formula was:

$$\ln\left(\frac{P(fertility=1)}{1-p(fertility=1)}\right)=\alpha_0+\alpha_1 service_i+\alpha_2 X_i+\gamma_i \quad (1)$$

where *fertility* represents the fertility intentions of respondents; *service* refers to the explanatory variable (i.e. using eldercare-childcare integration services or not); x_i represents control variables, such as personal characteristics, family characteristics, and socioeconomic characteristics; α_1 and α_2 are parameters for estimation; γ_i expresses the random error; and α_0 is the intercept.

Secondly, to further explore the influencing mechanism of eldercare-childcare integration services on the fertility intentions of women of childbearing age, the mediation effects of positive expectations for marriage and health level were decomposed by using the Karlson-Holm-Breen (KHB)**Error! Reference source not found.** method. Firstly, the model was simplified to only involve a binary relationship between the dependent variable ($Fertility_i$) and independent variable ($Service_i$), as shown in Eq.(2). Secondly, the model was completed, including effects of independent variable on dependent variable, through the mediating variable (M), as shown in Eq.(3). Thirdly, the model was differentiated, which referred to changes in the independent variable relative to the dependent variable after adding M. Fourthly, the mediating effect was measured by the differential model coefficient. Fifthly, the "hybrid effect" was calculated after calculating changes in the control scale—that is, the indirect effect of the independent variable on the dependent variable through the mediating variable, as well as its proportion.

$$\text{Logit}\,(P(\text{Fertility}=1))=\alpha_0+\alpha_1\text{Service}_i+\alpha_2 X_i+\gamma_i \quad (2)$$

$$\text{Logit}\,(P(\text{Fertility}=1))=\beta_0+\beta_1\text{Service}_i+\beta_2 M+\beta_3 X_i+\gamma_i \quad (3)$$

4. Empirical analysis

4.1 Standard regression results

Table 2 lists the standard regression results in this study. Eq.(1) only involved the explanatory variable of eldercare-childcare integration services, and the results showed that it has significantly positive effects on fertility intentions. In Model (2), when personal characteristics and family characteristics were added, eldercare-childcare integration services still improved fertility intentions. In Model (3) and Model (4), which controlled family income, policy cognition, and regional characteristics, the conclusions still presented the positive effects of eldercare-childcare integration services on fertility intentions. In short, fertility intentions increased significantly at the 5% statistical level by increasing one unit of the eldercare-childcare integration services.

According to the results of the control variables (as shown in Table 2), age shows a significantly negative correlation with fertility intentions, conforming to naturally declining fertility with

physiological age. The negative effects of education background and urban registration reflect that women with high human capital have decreased fertility intentions because of career development. The strongly negative correlation with marriage might be related to the actual care responsibilities of married women. The number of existing children was negatively related to fertility intentions. This might be because existing child-rearing costs (e.g. education, medical services and daycare) make parents aware of resource constraints, thus further weakening their fertility intentions.

Table 2 Standard regression results of effects of eldercare-childcare integration services on fertility intentions

	(1)	(2)	(3)	(4)
Eldercare-childcare integration services	0.6599***	0.6546***	0.6011***	0.5873***
	(0.1117)	(0.1192)	(0.1239)	(0.1251)
Age		-0.0526***	-0.0542***	-0.0560***
		(0.0084)	(0.0087)	(0.0088)
Education		-0.2642***	-0.2863***	-0.2935***
		(0.1008)	(0.1075)	(0.1115)
Marriage		-0.7274***	-0.7148***	-0.6962***
		(0.2142)	(0.2196)	(0.2233)
Census registration		-0.2496***	-0.2765***	-0.2198**
		(0.0841)	(0.0873)	(0.0900)
Number of children		-0.7448***	-0.7319***	-0.7598***
		(0.0959)	(0.0991)	(0.1012)
Housing area		-0.0659**	-0.0785**	-0.0760**
		(0.0289)	(0.0307)	(0.0312)
Husbands' time on housework		0.0022	0.0030*	0.0030*
		(0.0018)	(0.0018)	(0.0018)
Pension insurance for workers			-0.1127	-0.0661
			(0.2146)	(0.2176)
Family income			0.0071	0.0057
			(0.0120)	(0.0120)
Maternity leave policy			0.0704*	0.0791**
			(0.0388)	(0.0391)
Characteristics of districts and counties				Control
Constant	-0.9646***	3.1829***	3.2066***	3.2797***
	(0.0402)	(0.4335)	(0.4887)	(0.5099)
Observations	3,468	3,290	3,089	3,089

Notes: ***, ** and * indicate significance at the statistical levels of 1%, 5% and 10%. Numbers in the brackets below the coefficient values are robust standard deviation. Respondents were aged from 20 to 45 years.

4.2 Robustness test

4.2.1 Replacement of the explanatory variable

In this study, "the use of eldercare-childcare integration services" was replaced with "intention to use care services" and estimated again. The intention to use care services reflects the potential demand for organisational child-rearing support. This is similar to the decreasing family support pressure reflected by eldercare-childcare integration services. Regression results are listed in Model (1) in Table 3. The intention to use care services has a significant influence on the fertility intentions of women at the 1% level, indicating that it can improve fertility intentions significantly. This is consistent with the influence results of the eldercare-childcare integration services on fertility intentions.

4.2.2 Control survey time

To ensure the seriousness of respondents' answers and the quality of the data, questionnaires finished within 600 seconds were eliminated (accounting for 25.5% of total samples). This is because, based on experimental evidence of behaviours, answering in an excessively short time might reflect random answers or indicate distraction, thus resulting in measurement errors of the core variable.

Results are shown in Column (2), Table 3. After low-quality samples were deleted, the positive effect of the eldercare-childcare integration services was still highly significant, and the coefficient absolute increased to some extent compared to the standard model, indicating that correcting measurement errors might be able to capture the real effect more clearly. Although the sample size decreased to 2,300, the significance level of key variables showed no substantial changes, supporting the robustness of the standard results. Additionally, directions of control variables and magnitudes of coefficients were highly consistent with the master model, further proving that systematic error was not introduced during sample screening.

4.2.3 Control age interval

To determine whether the core conclusions were interfered with by the age structure of the samples, respondents were further restricted to women aged between 20 and 35 (the population in the peak period of childbearing). Since fertility intentions might decrease significantly due to physiological or social factors, women aged 36–45 were deleted from the study. Regression results are shown in Column (3) of Table 3. The positive effect of eldercare-childcare integration services was still significant at the 1% level, but the coefficient absolute declined by about 17% compared to the all-age model. This result verified the robustness of the core conclusion for the population in the peak period of childbearing and also implied that age might adjust the effect intensity of policies. Young women rely less on intergenerational care resources or are more likely to use market-oriented care services, explaining the marginal influences of eldercare-childcare integration services on fertility intentions.

Table 3 Robustness test of effects of the eldercare-childcare integration services on fertility intentions

	Replace explanatory variable	Control survey time	Control age interval
	(1)	(2)	(3)
Intention of using care services	0.3327***		
	(0.0663)		
Eldercare-childcare integration services		0.6524***	0.4878***
		(0.1627)	(0.1685)
Other variables	Control	Control	Control
Constant	2.6464***	3.3780***	4.0535***
	(0.5205)	(0.5904)	(0.7546)
Observations	3,089	2,300	1,931

Notes: ***, ** and * indicate significance at the statistical levels of 1%, 5% and 10%. Numbers in the brackets below the coefficient values are robust standard deviation.

4.3 Endogenous discussion

To relieve endogenous problems caused by sample self-selection, the treatment group and control group were balanced by the propensity score matching (PSM) method. Results based on nearest-neighbour matching in the scale (radius = 0.01), kernel matching (bandwidth = 0.06), and radius matching are listed in Table 4. Specifically, the fertility intentions of women using eldercare-childcare integration services were generally 0.1253~0.1371 units higher than those of women who did not use the services. Although the specific values varied with matching methods, they all passed the T-test. This was consistent with logit regression results and further verified the significant effects of eldercare-childcare integration services on the fertility intentions of women.

Table 4 Selective bias handling: PSM

	Treatment group	Control group	ATT	Standard deviation	T-test
Nearest-neighbour matching					
Before	0.4141	0.2794	0.1347	0.02656	5.07
After	0.4123	0.2869	0.1253	0.03176	3.95
Radius matching					
Before	0.4141	0.2794	0.1347	0.02656	5.07
After	0.41230	0.27517	0.1371	0.02923	4.69
Kernel matching					
Before	0.4141	0.2794	0.1347	0.02656	5.07
After	0.41230	0.2818	0.13048	0.02656	4.53

4.4 Heterogeneity analysis

Based on the above analysis, the study concluded that eldercare-childcare integration services could strengthen the fertility intentions of women of childbearing age significantly. In this section, the study verified whether there were individual differences in such an effect. A regression analysis based on the grouping of only-child identity and employment within the civil service system was carried out and found significant group differences (Table 5).

The positive effect of non-only child was more significant than only-child, indicating that women from multi-children families rely more on external care support to strengthen their fertility intentions. This might be caused for two reasons. On the one hand, women from non-only-child families who have experienced resource dilution during their formative years prefer public services instead of intergenerational support to relieve child-rearing pressure. On the other hand, women from only-child families have rich family supports, thus decreasing the marginal effect of eldercare-childcare integration services.

Eldercare-childcare integration services could strengthen the fertility intentions of women

employed in the civil service significantly at the 5% level. Moreover, these services could strengthen the fertility intentions of women employed outside the civil service significantly at the 1% level. This reflects that eldercare-childcare integration services affect the fertility intentions of women outside the civil service more significantly, and they affect the fertility intentions of women in the civil service less so. The reasons are as follows. Women employed in the civil service enjoy fertility-friendly policies provided by the system, such as fertility subsidies and childcare facilities in the work unit. Hence, the eldercare-childcare integration services were only supplementary rather than core support. On the contrary, other women face stricter "work-family" conflict in the labour market, so eldercare-childcare integration services in communities provide more remarkable compensation for their childbearing decisions.

Table 5 Heterogeneity analysis of effects of eldercare-childcare integration services on fertility intentions

	Only-child or not		Employment in the civil service	
	Yes	No	Yes	No
Eldercare-childcare integration services	0.1434	0.8449***	0.4277**	0.6969***
	(0.2164)	(0.1547)	(0.1970)	(0.1962)
Other variables	Control			
Constant	4.0265***	3.0907***	2.8249***	3.5177***
	(0.9602)	(0.6247)	(0.8729)	(0.8233)
Observations	1,098	1,991	1,370	1,292

Notes: ***, ** and * indicate significance at the statistical levels of 1%, 5% and 10%. Numbers in the brackets below the coefficient values are robust standard deviation.

4.5 Mechanism test

This study also tested the influencing mechanisms of eldercare-childcare integration services on women's fertility intentions. The positive expectations for marriage and health were chosen as the mechanism variables. The study found that eldercare-childcare integration services affect fertility intentions at the childbearing age significantly by promoting positive expectations for marriage and health. The mechanism test results are shown in Table 6. In view of the data, it can be seen from analysis based on the KHB model that the expectation effect for marriage has a significantly positive effect on women's fertility intentions. The expectation effect for marriage is 0.5870, and it is statistically significant. This further demonstrates that stability and future expectations of marriage play an important role in women's fertility decisions. The health promotion effect is 0.5884, which is also significant, revealing that improved health conditions can strengthen women's fertility intentions.

In sum, eldercare-childcare integration services can strengthen the fertility intentions of women by improving their expectations of marriage and their health level, thus offering social support. Firstly,

women usually perceive stable economic and emotional support when they have expectations of a stable marriage, thus strengthening their confidence in child-rearing. Secondly, eldercare-childcare integration services decrease women's worry about health risks during pregnancy and child-rearing by improving their health level, further strengthening their fertility intentions.

Based on the above data and theory, eldercare-childcare integration services play an important role by fostering the expectation of stable marriage and improved health and encouraging women of childbearing age to make more positive fertility decisions. This mechanism is not only conducive to optimising the social population structure but also can improve the quality of life and fertility intentions.

Table 6 Mechanism analysis based on KHB model estimation

	Expectation of marriage effect	Health promotion effect
Reduced	0.5870***	0.5884***
	(0.1256)	(0.1254)
Full	0.5420***	0.5637***
	(0.1262)	(0.1258)
Diff	0.0450***	0.0247**
	(0.0157)	(0.0124)
Other variables	Control	Control
Observations	3,089	3,089

Notes: ***, ** and * indicate significance at the statistical levels of 1%, 5% and 10%. Numbers in the brackets below the coefficient values are robust standard deviation.

5. Discussion

The relationship between the use of eldercare-childcare integration services and the fertility intentions of women of childbearing age was analysed based on demographic survey data gathered in Ningbo, China, in 2023. The study found that after controlling variables such as age, educational background and income, eldercare-childcare integration services had significantly positive effects on women's fertility intentions. The conclusion remained robust after replacing the explanatory variable and controlling the survey time and age interval.

This finding discloses the critical role of social support in fertility decisions. Eldercare-childcare integration services establish a more favourable fertility environment for women by easing child-rearing stress. Existing studies have demonstrated that the coverage rate of inclusive care services in communities shows a significantly positive correlation with the fertility intentions of women.[27] For families beyond the coverage of official care services, family support often plays an important role in family decisions about childbearing.[28] However, most families in urban areas of China have "four grandparents, two parents and one child" due to the obligatory one-child policy in a specific historical

period.[29] In worrying about childbearing pressures, women may delay their fertility planning or refuse to give birth to more children.

The community realises facility sharing through the "eldercare-childcare integration" mode (co-construction of kindergartens and nursing homes for the elderly) to lower the comprehensive cost of child-rearing and eldercare. Associated studies have demonstrated that family economic pressure will weaken the fertility intentions of women.[30-31]

The "eldercare-childcare integration" mode lowers family-care costs, relieves family economic burdens, and strengthens women's confidence in bearing children. Moreover, intergenerational support strengthens family cohesion, and grandparents caring for grandchildren relieves women's anxiety about child-rearing.[32] According to social support theory,[33] social support can help individuals cope with pressure and uncertainty in their daily lives and relieve their anxiety and insecurity, thus encouraging them to make more positive decisions. Social support is an important factor that influences women's decision to have children. The core of eldercare-childcare integration services is to provide social support across age groups and to meet "eldercare and childcare" needs simultaneously. In other words, professional care services lower the child-rearing pressure and relieve eldercare burdens through community support for the elderly. Stable social supports can offer emotional and economic guarantees to women when making decisions about child-rearing and boost their confidence in child-rearing, significantly strengthening their fertility intentions.[34-35]

The study further demonstrated that eldercare-childcare integration services more significantly influence the fertility intentions of women who are from non-only-child families and are employed outside the civil service system. According to existing studies, the fertility intentions of women from only-child families are significantly weaker than those of women from non-only-child families, and it is easier to keep the low fertility mode under the influence of the original family structure.**Error! Reference source not found.** Such a difference can be interpreted from their different growth experiences. Non-only-child families have siblings who can share housework and care for parents. Eldercare-childcare integration services form the "complementary effect" with the existing family support network by providing systematic intergenerational support, further lowering the marginal cost of child-rearing. Moreover, non-only children have to fight for resources in the family,**Error! Reference source not found.** and they face limited intergenerational support from parents and unavoidable eldercare pressure. Hence, eldercare-childcare integration services can relieve family pressure more significantly.

Women employed outside the civil service experience remarkable fertility inhibition pressures due to career instability and the lack of social insurance. According to data from the Dynamic Survey on Labor Forces in China in 2023, the labour contract signing rate and maternity benefit replacement rate of women outside the civil service are far lower than those of women inside the civil service. They also have to work longer hours a day (average 9.1 hours) and risk involuntary unemployment. Their childbearing behaviours are characteristic of "high-cost and high-risk". Under the dual pressure of career interruption and a postpartum pay cut, the fertility rate of the second child is significantly lower among women outside the civil service than those inside it. Women of childbearing age are more likely to have fewer children as a result of the double pressure of career and family responsibilities,[38] especially in situations without external support. Eldercare-childcare integration services reconstruct the fertility support network through institutional intervention, lower the comprehensive time cost of families for child-rearing and eldercare, and help decrease women's anxiety and pressure over child-rearing, thus strengthening their fertility intentions. This conclusion proves the effectiveness of the "social investment strategy" proposed by Esping-Andersen:**Error! Reference source not found.** eldercare-childcare integration services build "institution-like" guarantees for women outside the civil service system through the reallocation of public services, shifting some fertility responsibilities from families to the social support system and thus breaking the traditional individual handling framework in work-family conflict theory.**Error! Reference source not found.** This offers a structural solution to optimise the childbearing policy.

Additionally, the study demonstrated that eldercare-childcare integration services can strengthen the fertility intentions of women of childbearing age by improving their expectations for marriage and physical health. Moreover, it can relieve the responsibility conflicts of a couple in child-rearing and eldercare through intergenerational assistance and strengthen cooperation in the marriage relationship, thus improving women's positive expectations of the duration of marriage. Existing studies have demonstrated that a higher degree of satisfaction with marriage can improve the fertility intentions of women significantly.**Error! Reference source not found.** A good expectation for marriage can give women better emotional support and greater confidence in their childbearing decisions. Eldercare-childcare integration services combine child-rearing services and eldercare services, which can free women from fussy care tasks and relieve any physical conditions (e.g. musculoskeletal strain) from childcare and eldercare. Hence, improving the physical health of women can encourage them to choose to have

children.[Error! Reference source not found.] From the perspective of psychological health, eldercare-childcare integration services can lower the sense of helplessness of women of childbearing age and allow them more time for self-care, thus promoting their psychological recovery, improving their self-efficacy, and increasing their sense of happiness. Furthermore, happiness is conducive to strengthening the confidence of women of childbearing age and helps them make positive decisions about childbearing.[Error! Reference source not found.]

This study has some limitations. Firstly, it cannot capture the long-term effects (e.g. effects of continuous service participation on willingness to have a second child) of eldercare-childcare integration services and the dynamic adjustment process of the childbearing decision since it is based on cross-section data. Secondly, positive expectations of marriage and health were based on self-assessment. Since both variables depend on the subjective answers of respondents, there may be subjective measurement bias.

Despite the limitations, this study has some advantages. Firstly, the data are taken from a survey of women of childbearing age, and the variable of eldercare-childcare integration services was included in the survey data for the first time, thus assuring innovativeness and foresight on data and variable setting. Secondly, fertility intentions can be transformed into fertility ability to some extent. Faced with the dual pressure of an ageing population and a declining fertility rate, discussing the effects of eldercare-childcare integration services on the fertility intentions of women of childbearing age can provide theoretical references, practice directions, and decision references to build a fertility-friendly society and formulate relevant policies. Fertility intention is a core index to predict actual childbearing behaviours.

6. Conclusions and recommendations

Given the dual challenge of a declining fertility rate and an ageing population, an empirical study of the effects of eldercare-childcare integration services on the fertility intentions of women of childbearing age and the relevant action mechanisms was carried out based on special survey data gathered in Ningbo, China, in 2023. The results show that the use of eldercare-childcare integration services in communities strengthens the fertility intentions of women of childbearing age significantly, and the conclusions are still robust after a strict robustness test. According to the heterogeneity analysis, such an effect is particularly prominent in women from non-only-child families who work outside the

civil service system. This discloses the policy sensitivity of populations without intergenerational support and poor career welfare. A further mechanism test disclosed that eldercare-childcare integration services strengthen fertility intentions by improving expectations for marriage quality and relieving physical health loss, providing microscopic evidence for population development theory based on eldercare-childcare integration services.

This study recommends the following:

Comprehensive standardisation and universalisation of eldercare-childcare integration services should occur. The study found that eldercare-childcare integration services have had a significantly positive effect on the fertility intentions of women of childbearing age. However, the utilisation rate of eldercare-childcare integration services in the data is only 29.21%, indicating that there is considerable room for improvement. Projects like community-based childcare, daycare for the elderly, and intergenerational interaction are included in the fundamental public service list. Comprehensive service centres should be set up in demand-dense areas, such as industrial parks, migrant settlement areas, and so on. The sustainability of service supply would be assured through special fiscal transfer payments. In particular, the government must expand the purchase proportion of private organisational services to relieve use barriers caused by high market-oriented service prices of women working outside the civil service system.

Policy emphasis should be on the differential needs of groups to establish a systematic support framework. The study found that eldercare-childcare integration services more significantly strengthen the fertility intentions of women from non-only-child families who work outside the civil service. Their potential should be activated by offering internal mutual assistance through institutional innovation, integrating community resources to provide intergenerational guidance on child-rearing, and relieving the child-rearing resource exhaustion caused by the pressure of scattering the eldercare of multi-children families. For women out of the civil service system, key attention should be paid to compensate for the fertility inhibition effect caused by absent social guarantees and career instability and lower their marginal cost and opportunity cost of fertility by replacing market-oriented high-cost services (e.g. embedded care centres in industrial parks) with public service supply, protection of flexible employment rights (e.g. exemption of social insurance during child-rearing) and fertility health management (e.g. free progestation examination and psychological support).

Policy design should focus on both social relationship motivation and the accumulation of health

capital. This study found that eldercare-childcare integration services strengthen fertility intentions by improving expectations for marriage quality and health insurance level. Policy design should optimise women's cognition for marriage through intergenerational interaction projects in communities and family development consultation services and build a fertility-friendly social support network. At the same time, it should integrate maternal and child hygiene resources with eldercare service facilities to form a closed health management loop covering progestation, delivery, child-rearing and eldercare. Policy implementation should pay attention to synergistic interaction through these two paths. For example, satisfaction assessment of marriage is included in the health service archives to realise deep coupling between social psychological support and psychological health intervention, thus systematically strengthening the confidence of women to bear children.

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None

Authors' contributions:

Siqi Shao and Deshui Zhou designed the study and conducted the Data collection.Enlin Cao and Deshui Zhou 、Siqi Shao contributed to the Data analysis and interpretation、Drafting the article and Critical revision of the article. all authors approve the paper to submission,and All authors contributed to the revisions.

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Availability of data and meterials

Upon request to the corresponding author

Declarations

This survey study was provided by the School of Humanities and International Communication, Ningbo University of Technology, and was approved by the Review Committee of the School of Humanities and International Communication, Ningbo University of Technology (Approval No. *NBUTSHIC202603180003*). The study was conducted in strict accordance with the ethical principles of the Declaration of Helsinki. All questionnaire participants were informed about the study and

provided their consent to participate. The survey was developed specifically for this research. Data were collected anonymously, without any personally identifiable information, and the survey did not involve any sensitive topics.

Consent for publication

Not Applicable

Competing interests:

The authors confirm that there are no conflicts of interest.

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File 1

Questionnaire on Marriage, Relationships, and Childbearing Among Women of Reproductive Age in Ningbo

School of Humanities International Communication, Ningbo University of Technology

June 2023

Translator's Note

This English version faithfully translates the source questionnaire. Original question numbering, question types, option structures, skip instructions, and dependency notes have been retained as they appear in the Chinese source. The source document contains duplicate numbering for Questions 97 and 103, as well as a small number of dependency references that appear internally inconsistent. These have been preserved rather than silently corrected.

Introductory Statement

Dear Madam,

Hello. In order to understand the current situation of women of reproductive age in Ningbo with respect to marriage and intimate relationships, childbearing, childrearing, and children's education, and to provide reference material for the Ningbo Municipal Party Committee and Municipal Government in formulating relevant policies that encourage and support fertility, we are conducting a sample survey on the marriage and childbearing situation of women of reproductive age in Ningbo.

There are no standard or correct answers to any question in this questionnaire. You only need to provide your own circumstances and views. We will strictly comply with relevant national regulations on survey statistics, anonymize your personal information, and will not disclose any of your personal information. The survey results will be used only for research and policy reference.

Please select the option you consider most appropriate for each question in this questionnaire, or fill in the relevant figures or other information as requested.

Thank you sincerely for your participation and cooperation!

Joint Survey Team

June 2023

Section I. Respondent Background, Employment, and Housing

1. Year of birth: _____ Month of birth: _____ *[Open-ended]* *

Please use the Gregorian calendar.

2. What is your highest level of education at present? *[Single choice]* *

○ Never attended school
○ Compulsory education (including primary school and junior secondary school; please specify the total number of years of schooling): _____
○ Secondary vocational education [vocational high school, regular secondary specialized school, adult secondary specialized school, technical school (including technician colleges)]
○ General high school
○ Junior college / associate degree
○ Bachelor's degree
○ Graduate degree

3. What is your ethnicity? *[Single choice] **

○ Han
○ Zhuang
○ Manchu
○ Hui
○ Miao
○ Uyghur
○ Tujia
○ Yi
○ Mongolian
○ Tibetan
○ Other ethnic minority group (please specify): _____

4. What is your current hukou registration type? *[Single choice] **

○ Agricultural hukou
○ Non-agricultural hukou
○ Resident hukou (previously non-agricultural hukou)
○ Resident hukou (previously agricultural hukou)
○ Other (please specify): _____

5. Which category best describes the location of your current hukou registration? *[Single choice] **

○ Ningbo Municipality
○ Another prefecture-level city in Zhejiang Province
○ A county / county-level city in Zhejiang Province
○ Another municipality directly under the central government
○ A provincial capital city in another province
○ A prefecture-level city in another province
○ A county / county-level city in another province
○ Outside mainland China / overseas

6. Before age 18, in which city did you primarily live? *[Open-ended] **

_____

7. What type of area do you currently live in within Ningbo? *[Single choice] **

○ Central urban district of a city / county seat
○ Peripheral urban district of a city / county seat
○ Urban-rural fringe of a city / county seat
○ Town outside the urban district of a city / county seat
○ Rural area
○ Other (please specify): _____

8. Do you intend to obtain household registration (hukou) in Ningbo? *[Single choice] **

Source dependency note: Question 5, options 2; 3; 4; 5; 6; 7; 8

○ Yes

○ No

9. How well have you adapted to life in Ningbo? *[Single choice]* *

Source dependency note: Question 5, options 2; 3; 4; 5; 6; 7; 8

○ Very well adapted
○ Relatively well adapted
○ Average
○ Relatively poorly adapted
○ Very poorly adapted

10. How would you rate your own health status? *[Single choice]* *

○ Very healthy
○ Healthy
○ Relatively healthy
○ Average
○ Unhealthy

11. Are you an only child? *[Single choice]* *

○ Yes
○ No; I have ___ siblings: _____

12. What is your current employment status? *[Single choice]* *

○ Agricultural work / farming
○ Non-agricultural employment
○ Currently studying
○ Housework / homemaking
○ Retired
○ Other (please specify): _____

13. What is the nature of your current employer / work unit? *[Single choice]* *

○ Party or government agency / people's organization
○ State-owned public institution
○ State-owned enterprise
○ Collective enterprise / institution
○ Foreign-funded / joint-venture enterprise
○ Private enterprise
○ Self-employed business
○ Social organization
○ Grassroots self-governance organization
○ No work unit / employer

14. What industry do you currently work in? *[Single choice]* *

○ IT / software and hardware services / e-commerce / internet operations
○ Fast-moving consumer goods (food / beverages / cosmetics)
○ Wholesale / retail

○ Apparel / textiles / leather
○ Furniture / handicrafts / toys
○ Education / training / scientific research / academic institutions
○ Home appliances
○ Communications / telecom operations / network equipment / value-added services
○ Manufacturing
○ Automobiles and auto parts
○ Catering / entertainment / tourism / hotels / personal services
○ Office supplies and equipment
○ Accounting / auditing
○ Law
○ Banking / insurance / securities / investment banking / venture capital
○ Electronic technology / semiconductors / integrated circuits
○ Instrumentation / industrial automation
○ Trade / import and export
○ Machinery / equipment / heavy industry
○ Pharmaceuticals / biotechnology / medical equipment / devices
○ Medical care / nursing / health care / public health
○ Advertising / public relations / media / arts
○ Publishing / printing / packaging
○ Real estate development / construction engineering / decoration / design
○ Property management / commercial centers
○ Intermediation / consulting / executive search / certification
○ Transportation / transit / logistics
○ Aerospace / aviation / energy / chemicals
○ Agriculture / forestry / animal husbandry / fishery
○ Other industry

15. What is your current occupation? *[Open-ended] **

Please provide your specific job duties + position / type of work (+ any other occupation-related explanation). Example: Driver responsible for transporting goods.

_____

16. On average, approximately how many hours per day do you work / perform labor? *[Open-ended] **

Source dependency note: Question 14, options 1; 2; 4

_____

17. In all of 2022, what was your total after-tax comprehensive income (including wages and salaries, labor remuneration, author's remuneration, etc.)? *[Open-ended] **

If the respondent is unwilling to provide an exact figure, the interviewer should record: 0 = no income; 1 = RMB 1-50,000; 2 = RMB 50,001-100,000; 3 = RMB 100,001-150,000; 4 = above RMB 150,000; 99999 = do not know; 99998 = refuse to answer; 99997 = newly employed and unable to calculate full-year income.

_____

18. In all of 2022, what was the total amount of individual income tax you actually paid? (That is, the amount actually paid after all special deductions and tax refunds.) *[Open-ended] **

If the respondent is unwilling to provide an exact amount, the interviewer should record: 0 = no tax paid; 1 = RMB 1-3,000; 2 = RMB 3,001-5,000; 3 = RMB 5,001-10,000; 4 = above RMB 10,000; 99999 = do not know; 99998 = still unwilling to answer.

_____

19. Are you enrolled in the Basic Pension Insurance for Urban Employees in Ningbo? *[Single choice] **

○ Yes
○ No

20. Excluding time spent caring for family members, under normal circumstances, approximately how many hours per week do you spend on household chores in your own home (including cooking, laundry, house cleaning, etc.)? *[Open-ended] **

_____

21. How many family members currently live with you (that is, share meals from the same kitchen), including yourself? *[Open-ended] **

Minimum value: 1

_____

22. What is the source of your current housing? *[Single choice] **

○ Purchased on the market
○ Renting a privately owned dwelling
○ Renting public rental housing
○ Living in parents' home (or parents-in-law's home)
○ Staying in borrowed accommodation
○ Self-built house on a homestead plot
○ Living in employer-provided dormitory / accommodation
○ Other (please specify): _____

23. What is the gross floor area of your current residence (square meters)? *[Open-ended] **

_____

24. How many bedrooms does your current residence have? *[Open-ended] **

"How many rooms" refers to the number of bedrooms.

_____

25. Do you find living here convenient in terms of daily life and commuting to work? *[Single choice] **

○ Very convenient
○ Relatively convenient
○ Average
○ Not very convenient
○ Very inconvenient

26. What type of housing is the home you purchased? *[Single choice] **

Source dependency note: Question 22, option 1

○ Commercial housing
○ Economically affordable housing
○ Price-capped housing
○ Shared-ownership housing
○ Resettlement housing after demolition / relocation
○ Other (please specify): _____

27. In what year was this home purchased? *[Open-ended] **

Source dependency note: Question 22, option 1

_____

28. How much did this home cost when purchased? (Unit: RMB 10,000) *[Open-ended] **

Source dependency note: Question 22, option 1

_____

Section II. Marital / Cohabitation Status and Partner Information

29. What is your current marital / cohabitation status? *[Single choice] **

○ Never married (please skip to Question 53)
○ First marriage
○ Remarried
○ Divorced (please skip to Question 53)
○ Widowed (please skip to Question 53)
○ Unmarried and cohabiting
○ Divorced and cohabiting
○ Widowed and cohabiting

30. Year of birth of your spouse / cohabiting partner: _____ Month of birth of your spouse / cohabiting partner: _____ *[Open-ended] **

Please use the Gregorian calendar.

31. What is the current highest level of education of your spouse / cohabiting partner? *[Single choice] **

○ Never attended school
○ Compulsory education (including primary school and junior secondary school; please specify the total number of years of schooling): _____
○ Secondary vocational education [vocational high school, regular secondary specialized school, adult secondary specialized school, technical school (including technician colleges)]
○ General high school
○ Junior college / associate degree
○ Bachelor's degree
○ Graduate degree

32. What is the ethnicity of your spouse / cohabiting partner? *[Single choice] **

○ Han
○ Zhuang
○ Manchu
○ Hui
○ Miao
○ Uyghur
○ Tujia
○ Yi
○ Mongolian
○ Tibetan
○ Other ethnic minority group (please specify): _____

33. What is the current hukou registration type of your spouse / cohabiting partner? *[Single choice]* *

○ Agricultural hukou
○ Non-agricultural hukou
○ Resident hukou (previously non-agricultural hukou)
○ Resident hukou (previously agricultural hukou)
○ Other (please specify): _____

34. Which category best describes the location of the current hukou registration of your spouse / cohabiting partner? *[Single choice]* *

○ Ningbo Municipality
○ Another prefecture-level city in Zhejiang Province
○ A county / county-level city in Zhejiang Province
○ Another municipality directly under the central government
○ A provincial capital city in another province
○ A prefecture-level city in another province
○ A county / county-level city in another province
○ Outside mainland China / overseas

35. How would you rate the health status of your spouse / cohabiting partner? *[Single choice]* *

○ Very healthy
○ Healthy
○ Relatively healthy
○ Average
○ Unhealthy

36. Is your spouse / cohabiting partner an only child? *[Single choice]* *

○ Yes
○ No; he/she has ___ siblings: _____

37. What is the current employment status of your spouse / cohabiting partner? *[Single choice]* *

Source dependency note: Question 31, options 2; 3; 6; 7; 8

○ Agricultural work / farming

○ Non-agricultural employment
○ Currently studying
○ Housework / homemaking
○ Retired
○ Other (please specify): _____

38. What is the nature of the current employer / work unit of your spouse / cohabiting partner? *[Single choice] **

Source dependency note: Question 37, options 1; 2

○ Party or government agency / people's organization
○ State-owned public institution
○ State-owned enterprise
○ Collective enterprise / institution
○ Foreign-funded / joint-venture enterprise
○ Private enterprise
○ Self-employed business
○ Social organization
○ Grassroots self-governance organization
○ No work unit / employer

39. What industry does your spouse / cohabiting partner currently work in? *[Single choice] **

Source dependency note: Question 37, option 2

○ IT / software and hardware services / e-commerce / internet operations
○ Fast-moving consumer goods (food / beverages / cosmetics)
○ Wholesale / retail
○ Apparel / textiles / leather
○ Furniture / handicrafts / toys
○ Education / training / scientific research / academic institutions
○ Home appliances
○ Communications / telecom operations / network equipment / value-added services
○ Manufacturing
○ Automobiles and auto parts
○ Catering / entertainment / tourism / hotels / personal services
○ Office supplies and equipment
○ Accounting / auditing
○ Law
○ Banking / insurance / securities / investment banking / venture capital
○ Electronic technology / semiconductors / integrated circuits
○ Instrumentation / industrial automation
○ Trade / import and export
○ Machinery / equipment / heavy industry
○ Pharmaceuticals / biotechnology / medical equipment / devices
○ Medical care / nursing / health care / public health

○ Advertising / public relations / media / arts
○ Publishing / printing / packaging
○ Real estate development / construction engineering / decoration / design
○ Property management / commercial centers
○ Intermediation / consulting / executive search / certification
○ Transportation / transit / logistics
○ Aerospace / aviation / energy / chemicals
○ Agriculture / forestry / animal husbandry / fishery
○ Other industry

40. What is the current occupation of your spouse / cohabiting partner? *[Open-ended] **

Please provide the specific job duties + position / type of work (+ any other occupation-related explanation). Example: Driver responsible for transporting goods.

_____

41. On average, approximately how many hours per day does your spouse / cohabiting partner work / perform labor? *[Open-ended] **

Source dependency note: Question 37, options 1; 2; 4

_____

42. In all of 2022, what was your spouse's total after-tax comprehensive income (including wages and salaries, labor remuneration, author's remuneration, etc.)? *[Open-ended] **

If the respondent is unwilling to provide an exact figure, the interviewer should record: 0 = no income; 1 = RMB 1-50,000; 2 = RMB 50,001-100,000; 3 = RMB 100,001-150,000; 4 = above RMB 150,000; 99999 = do not know; 99998 = refuse to answer; 99997 = newly employed and unable to calculate full-year income.

_____

43. In all of 2022, what was the total amount of individual income tax actually paid by your spouse / cohabiting partner? (That is, the actual amount paid after special deductions and tax refunds.) *[Open-ended] **

If the respondent is unwilling to answer, the interviewer should record: 0 = no tax paid; 1 = RMB 1-3,000; 2 = RMB 3,001-5,000; 3 = RMB 5,001-10,000; 4 = above RMB 10,000; 99999 = do not know; 99998 = still unwilling to answer.

_____

44. Is your spouse / cohabiting partner enrolled in the Basic Pension Insurance for Urban Employees in Ningbo? *[Single choice] **

Source dependency note: Question 37, options 1; 2

○ Yes
○ No

45. Over the past 12 months, on average, how much time per week has your spouse / cohabiting partner spent on housework? *[Open-ended] **

Source dependency note: Question 29, options 2; 3; 6; 7; 8

Unit: hours per week

_____

46. Overall, how satisfied are you with your current marriage / cohabiting life? *[Single choice] **

Source dependency note: Question 29, options 2; 3; 6; 7; 8

○ Very dissatisfied
○ Dissatisfied
○ Average
○ Satisfied
○ Very satisfied

47. Approximately what was your household's total income in 2022 (among those sharing meals from the same kitchen), including business income, wage income, rental income, government subsidies, and financial support from others? _____ *[Open-ended] **

Unit: RMB 10,000

48. Approximately what was your household's total expenditure in 2022 (among those sharing meals from the same kitchen), including daily expenses such as clothing, food, housing, and transport, as well as education, medical care, culture and leisure, and gift / ceremonial expenditures? _____ *[Open-ended] **

Unit: RMB 10,000

Section III. Marriage and Relationship Attitudes

49. How familiar are you with the following Ningbo policies? *[Matrix - single choice] **

Response options: Completely unfamiliar / Not very familiar / Fairly familiar / Very familiar

- Maternity leave is 158 days for the birth of a first child, and 188 days for the birth of a second or third child.
- Before a child reaches age three, each parent may enjoy 10 days of childcare leave per year.
- During the woman's perinatal period and maternity leave, the husband may enjoy a total of 15 days of spousal care leave.

50. Has the three-child policy affected your marital choices and fertility plans? *[Single choice] **

○ It has had a major impact
○ It has had some impact
○ It has had basically no impact

51. At what age did you first marry? *[Open-ended] **

Source dependency note: Question 29, options 2; 3; 4; 5; 7; 8

_____

52. Do you think marriage is a necessary part of life? *[Single choice] **

○ Yes, marriage is very necessary
○ Not necessarily; marriage is optional
○ No, people do not need marriage

53. Do you need any of the following forms of marriage / relationship support? *[Multiple choice] **

Select up to 4 items.

□ Official matchmaking / dating platform

□ Official dating / matchmaking events

□ Training and guidance on marriage and intimate relationships

□ Popularization of reproductive health knowledge

□ Consultation on marriage and childbearing laws and regulations

□ Guidance on maintaining intimate relationships

□ Other: _____

□ None needed

54. To what extent do you approve of the following marriage- and relationship-related behaviors? Please rate each item. *[Matrix - single choice]* *

Scale: 1 = Completely disapprove; 2 = Relatively disapprove; 3 = Neutral; 4 = Relatively approve; 5 = Completely approve.

- Remaining unmarried
- Premarital cohabitation
- Premarital sexual relations
- Childbearing outside marriage
- Abortion
- Voluntary childlessness (the DINK lifestyle)
- "Flash marriage" (marrying within six months of starting the relationship)
- Extramarital sexual relations
- Same-sex sexual relations

55. In your view, what are the main reasons for getting married? *[Ranking]* *

Please rank the following in order of importance, where 1 = most important, 2 = second most important, and so on.

[ ] Pressure from peers

[ ] Pressure from parents

[ ] Physical / sexual needs

[ ] Wanting children

[ ] Material security

[ ] Emotional and spiritual needs

[ ] Other (please specify)

56. For each of the following statements, please rate the extent to which you agree. *[Matrix - single choice]* *

Scale: 1 = Completely disagree; 2 = Relatively disagree; 3 = Neutral; 4 = Relatively agree; 5 = Completely agree.

- Men should focus mainly on careers, and women should focus mainly on family.
- Husbands and wives should share housework equally.
- Men are innately more capable than women.
- In times of economic downturn, female employees should be laid off first.
- For a woman, marrying well is better than doing well in her own career.

57. In your view, has your parents' marital relationship influenced your own views on marriage and family? *[Single choice]* *

○ A very large negative influence

○ A relatively large negative influence

○ Basically no influence

○ A relatively large positive influence

○ A very large positive influence

58. What is your parents' current marital status? *[Single choice] **

○ Married

○ Divorced

○ Widowed

59. What is your current romantic relationship status? *[Single choice] **

Source dependency note: Question 29, options 1; 6

○ Single

○ Have a romantic partner but are not cohabiting (please skip to Question 74)

○ Cohabiting with a romantic partner (please skip to Question 74)

60. Do you plan to be in a romantic relationship? *[Single choice] **

Source dependency note: Question 59, option 1

○ Definitely not

○ Probably not

○ Not sure

○ Probably yes

○ Definitely yes

61. What are the main reasons you do not plan to be in a romantic relationship? *[Ranking] **

Source dependency note: Question 60, options 1; 2

Please rank the following in order of importance, where 1 = most important, 2 = second most important, and so on.

[ ] Focusing on my studies and career

[ ] I am young and do not want a relationship for the time being

[ ] Lack of time to socialize

[ ] Cannot find a suitable partner

[ ] Do not know how to interact with the opposite sex

[ ] Heavy financial pressure

[ ] Afraid of entering a romantic relationship

[ ] Do not plan to marry and enjoy being single

[ ] Other (please specify)

62. What factors do you think lead to your being single / hinder you from entering a romantic relationship? Please rank them (select up to 3). *[Ranking] **

Source dependency note: Question 60, options 3; 4; 5

[ ] Busy with work; no time for a relationship

[ ] No channels / opportunities to meet the opposite sex

[ ] Income is insufficient; being in a relationship is expensive

[ ] My standards for the opposite sex are relatively high, so I often feel no one is suitable

[ ] My personality / appearance is not very attractive to the opposite sex

[ ] I do not know how to get along with the opposite sex

[ ] Other

63. Do you plan to get married in the future? *[Single choice] **

Source dependency note: Question 29, options 1; 4; 5; 6; 7; 8

○ Definitely not

○ Probably not

○ Uncertain

○ Probably yes

○ Definitely yes

64. What criteria do you use when choosing a dating / cohabitation / marriage partner? Please rank them (select up to 3). *[Ranking] **

Source dependency note: Question 63, options 3; 4; 5

[ ] Educational attainment

[ ] Appearance

[ ] Income

[ ] Occupation

[ ] Personality and interests

[ ] Personal character

[ ] Feelings / affection

[ ] Family approval

[ ] The other person's family has favorable conditions / a harmonious family atmosphere

[ ] Other

65. What is your ideal age at first marriage? *[Open-ended] **

Source dependency note: Question 63, options 4; 5; and Question 31, options 1; 6

_____

66. What are the main reasons you do not want to marry? *[Ranking] **

Source dependency note: Question 74, options 1; 2; 3

Please rank the following in order of importance, where 1 = most important, 2 = second most important, and so on.

[ ] The economic cost of marriage is too high

[ ] Afraid of having to take responsibility for caring for family members after marriage

[ ] Afraid of family conflict

[ ] Enjoy being single

[ ] Work pressure is too great

[ ] Have other emotional attachments

[ ] It is difficult to find a suitable partner

[ ] Do not want children

67. Through what channel did you meet your current dating / cohabiting / marriage partner? *[Single choice] **

Source dependency note: Question 29, options 2; 3; 6; 7; 8; and Question 69, option 2

○ Internet (games, dating apps, and other platforms)
○ Schoolmate relationship
○ Colleague relationship
○ Matchmaking company
○ Introduced through arranged matchmaking (previously strangers; excluding schoolmate or colleague relationships)
○ Other: _____

68. Which of the following factors affect your marriage and fertility intentions, and to what degree? (A positive influence means increasing your intention to marry and have children.) *[Matrix - single choice]* *

Response options: Very large negative influence / Some negative influence / No influence / Some positive influence / Very large positive influence

- Family guidance
- School education
- Government publicity / advocacy
- Friends' experiences
- Internet use and public opinion

69. To what extent do you agree with the following statements? *[Matrix - single choice]* *

Scale: 1 = Strongly disagree; 2 = Somewhat disagree; 3 = Average / neutral; 4 = Somewhat agree; 5 = Strongly agree.

- At marriage, the groom must provide a bride price; if it is insufficient, the marriage should not take place.
- There is serious gender discrimination and gender inequality in today's society.
- Marriage and childbearing benefit only men and not women.
- Having children take the father's surname is discrimination against women.
- For the same position, women are less likely to be hired and are paid less than men.

Section IV. Fertility Ideals, Intentions, and Support Needs

70. In your opinion, how many children is ideal for a family to have? *[Single choice]* *

○ 0
○ 1
○ 2
○ 3
○ 4
○ 5 or more; please specify the exact number: _____

71. Of these, ___ would be boys and ___ would be girls. *[Open-ended]* *

_____

72. How many children do you currently have? (Including adopted children; excluding children placed for adoption, children whose whereabouts are unknown, and current pregnancies.) *[Single choice]* *

○ 0
○ 1
○ 2
○ 3

○ 4 or more

73. Date of birth of your first child: _____ year ___ month Sex of your first child: ___ *[Open-ended] **

Source dependency note: Question 72, options 2; 3; 4; 5

Your first child refers to the child who is currently the oldest. Please use the Gregorian calendar.

74. Date of birth of your second child: _____ year ___ month Sex of your second child: ___ *[Open-ended] **

Source dependency note: Question 72, options 3; 4; 5

Please use the Gregorian calendar.

75. Date of birth of your third child: _____ year ___ month Sex of your third child: ___ *[Open-ended] **

Source dependency note: Question 72, options 4; 5

Please use the Gregorian calendar.

Additional source dependency note appearing immediately after Question 75: Question 72, option 5.

76. How many children would you like to have in the future? *[Single choice] **

Source dependency note: Question 29, options 1; 6; and Question 85, option 1

○ 0
○ 1
○ 2
○ 3
○ 4 or more

77. If you choose to have children, when do you think it is ideal to have your first child? *[Single choice] **

Source dependency note: Question 76, options 2; 3; 4; 5

○ Age 20-24
○ Age 25-29
○ Age 30-34
○ Age 35-40
○ Above age 40

78. What do you see as the benefits of childbearing? *[Ranking] **

Source dependency note: Question 76, options 2; 3; 4; 5

Please rank the following in order of importance, where 1 = most important, 2 = second most important, and so on.

[ ] Increase family happiness
[ ] Help share future old-age support pressure
[ ] Obtain policy support
[ ] Increase future household income
[ ] Meet the expectations of elders
[ ] Other (please specify)

79. Why do you not want to have children? *[Ranking] **

Source dependency note: Question 76, option 1

Please rank the following in order of importance, where 1 = most important, 2 = second most important, and so on.

[ ] Do not intend to marry, or prefer voluntary childlessness (DINK)
[ ] Not conducive to personal career development
[ ] Would reduce personal quality of life
[ ] Personal physical reasons / difficulty conceiving
[ ] High costs of childbearing, childrearing, and education; heavy financial pressure
[ ] No one in the family can help care for children
[ ] Competition in school choice and employment is too intense, and I do not want children to be drawn into it
[ ] Housing would become crowded; there would be no room for another child, and a new home would be unaffordable
[ ] Public space for children is limited, and public facilities are inadequate
[ ] Concern that childbirth may be harmful to women's health
[ ] Other (please specify)

80. Considering your actual circumstances, how many children do you plan to have? *[Single choice] **

Source dependency note: Question 29, options 2; 3; 7; 8; and Question 85, option 1

○ 0
○ 1
○ 2
○ 3
○ 4 or more

81. Why do you not want to have children? *[Ranking] **

Source dependency note: Question 80, option 1

Please rank the following in order of importance, where 1 = most important, 2 = second most important, and so on.

[ ] Not conducive to personal career development
[ ] Would reduce personal quality of life
[ ] Personal physical reasons / difficulty conceiving
[ ] High costs of childbearing, childrearing, and education; heavy financial pressure
[ ] No one in the family can help care for children
[ ] Competition in school choice and employment is too intense, and I do not want children to be drawn into it
[ ] Housing would become crowded; there would be no room for another child, and a new home would be unaffordable
[ ] Public space for children is limited, and public facilities are inadequate
[ ] Voluntary childlessness (DINK)
[ ] Poor marital relationship between spouses
[ ] Concern that childbirth may be harmful to women's health
[ ] Other (please specify)

82. How many more children do you plan to have? *[Single choice] **

Source dependency note: Question 72, options 2; 3; 4; 5

○ Definitely no more
○ Probably no more
○ Have not decided yet

○ One more child

○ Two more children

○ Three or more additional children

83. If you plan to have multiple children, what interval between the next child and the previous child do you think is more appropriate? *[Single choice] **

Source dependency note: Question 80, options 3; 4; 5; Question 90, options 3; 4; 5; and Question 96, options 3; 4; 5; 6

○ Within 1 year

○ 2-5 years

○ 6-10 years

○ More than 10 years

84. What are the reasons you do not want to have another child? *[Ranking] **

Source dependency note: Question 82, options 1; 2; 3

Please rank the following in order of importance, where 1 = most important, 2 = second most important, and so on.

[ ] Not conducive to personal career development

[ ] Would reduce the household's current quality of life

[ ] Physical reasons of husband and wife / difficulty conceiving

[ ] Poor marital relationship between spouses

[ ] Existing children do not want another sibling

[ ] High costs of childbearing, childrearing, and education; heavy financial pressure

[ ] No one in the family can help care for children

[ ] Competition in school choice and employment is too intense, and I do not want children to be drawn into it

[ ] Housing would become crowded; there would be no room for another child, and a new home would be unaffordable

[ ] The current number of children is already enough

[ ] Other (please specify)

85. If you choose to have another child, please rank the types of support you would most like to receive in order of importance. *[Ranking] **

Source dependency note: Question 82, options 4; 5; 6

[ ] Economic support (housing purchase subsidies, inclusion of assisted reproduction services in medical insurance, childbirth subsidies, childcare allowances, tax reductions / exemptions, etc.)

[ ] Strengthened workplace protections (gender equality in the workplace, maternity leave / paternity leave, etc.)

[ ] More medical resources per capita (more hospitals, mother-and-baby rooms, and other childcare facilities, etc.)

[ ] More public educational resources per capita (better kindergartens, schools, and educational facilities; sufficient teaching staff, etc.)

[ ] Stronger protection within marriage (personal protection, personal property, etc.) and protection of the reproductive rights of single women

[ ] Other (please specify)

86. How do you assess the current level of reimbursable medical expenses for childbirth? *[Single choice] **

Source dependency note: Question 72, options 2; 3; 4; 5

○ Far too low
○ Relatively low
○ Appropriate
○ Relatively high
○ Very high

87. In which aspects would you like maternity medical benefits to be improved? *[Ranking] **

Source dependency note: Question 72, options 2; 3; 4; 5

[ ] Increase the reimbursement ratio for prenatal examinations
[ ] Increase the reimbursement ratio for inpatient delivery
[ ] Include all basic prenatal examination items in maternity insurance reimbursement
[ ] Include self-paid items such as newborn genetic screening in maternity insurance reimbursement
[ ] Include labor analgesia in maternity insurance reimbursement
[ ] Include assisted reproductive technologies in maternity insurance reimbursement
[ ] Other

88. How do you assess the current length of maternity leave (158 days)? *[Single choice] **

Source dependency note: Question 72, options 2; 3; 4; 5; and Question 14, option 2

○ Far too long
○ Relatively long
○ Appropriate
○ Relatively short
○ Far too short

89. How do you assess the current level of maternity allowance? *[Single choice] **

Source dependency note: Question 72, options 2; 3; 4; 5; and Question 14, option 2

○ Far too low
○ Relatively low
○ Appropriate
○ Relatively high
○ Very high

90. In which aspects would you like maternity / childbirth leave benefits to be improved? (Select up to 3 items.) *[Ranking] **

Source dependency note: Question 12, option 2; and Question 72, options 2; 3; 4; 5

[ ] Extend maternity leave so that women can care for newborns at home as much as possible
[ ] Maternity leave should be of a moderate length (around 128 days); if it is too long, it will affect women's career development
[ ] Childcare leave should be made mandatory; otherwise it is difficult to enjoy in practice
[ ] Set up paternity / fathers' childcare leave to increase men's participation in childcare
[ ] Encourage flexible working hours
[ ] Other

91. How long after childbirth do you think one can resume labor / work? *[Single choice] **

Source dependency note: Question 12, options 1; 4; and Question 72, options 2; 3; 4; 5

○ Within 1 month

○ 1-2 months

○ 2-3 months

○ 3-6 months

○ More than half a year

Section V. Childcare, Education, and Family Support Services

92. Do you have any children aged 0-6 years (born between May 1, 2017 and April 30, 2023)? *[Single choice] **

Source dependency note: Question 72, options 2; 3; 4; 5

○ Yes: _____ Please fill in the number of children born within this date range.

○ No

93. For the birth of this child, how many days in total did you rest before and after childbirth? *[Open-ended] **

Source dependency note: Question 92, option 1; and Question 14, options 1; 4

If you have more than one child aged 0-6, this refers to your youngest child.

_____

94. During your childbirth-related leave / rest period, what were your main sources of income? (Please rank them by proportion.) *[Ranking] **

Source dependency note: Question 12, options 1; 4; and Question 106, option 1

[ ] Support from family members

[ ] Personal savings

[ ] Maternity insurance

[ ] Government childbirth subsidies

[ ] Property income (such as rent, land rent, stock dividends, etc.)

[ ] Other

95. For this child, how many days of maternity leave did you actually take? *[Open-ended] **

Source dependency note: Question 92, option 1; and Question 14, option 2

If you have more than one child aged 0-6, this refers to your youngest child.

_____

96. During your maternity leave for this child, what was your average monthly income (RMB)? Of this, how much was maternity allowance (RMB)? *[Open-ended] **

Source dependency note: Question 92, option 1; and Question 12, option 2

If you have more than one child aged 0-6, this refers to your youngest child.

_____

97. Within one year before or after taking maternity leave for this child, did you leave your original employer? *[Single choice] * [first Question 97 in source]*

Source dependency note: Question 92, option 1; and Question 14, option 2

○ Yes (please skip to Question 113)

○ No

97. Within one year before or after taking maternity leave for this child, were you reassigned to a different position within the same employer? *[Single choice] * [second Question 97 in source]*

Source dependency note: Question 92, option 1; and Question 111, option 2

○ Yes

○ No (please skip to Question 98)

98. What was your average monthly wage income during the three months before maternity leave, and during the three months after maternity leave (or after reassignment)? *[Open-ended] **

Source dependency note: Question 92, option 1; and Question 14, option 2

If you left your job, please enter 0.

Average monthly wage income in the three months before maternity leave: _____ RMB

Average monthly wage income in the three months after maternity leave (or after reassignment): _____ RMB

99. Has your child ever used the services of a childcare institution? *[Single choice] **

Source dependency note: Question 92, option 1

○ Never

○ Rarely

○ Sometimes

○ Usually

○ Always

100. What are the reasons for not enrolling the child in childcare? *[Ranking] **

Source dependency note: Question 99, options 1; 2

[ ] I want to accompany the child's growth personally

[ ] Concern about the quality of care and education

[ ] The cost is too high

[ ] Concern that the child may not adapt

[ ] Concern about infant / toddler safety incidents

[ ] Childcare service hours do not meet my needs

[ ] Cannot find a childcare institution close to home

[ ] Other

101. Over the past year, what were the average monthly expenses for all of your children aged 0-6 for childcare / preschool enrollment, early education or enrichment classes, and caregiving (domestic helper / nanny) respectively? *[Open-ended] **

Source dependency note: Question 92, option 1

If none, please enter 0.

Monthly childcare / preschool enrollment expense: _____ RMB

Monthly early education / enrichment class expense: _____ RMB

Monthly caregiving (domestic helper / nanny) expense: _____ RMB

102. Over the past year, on average, how many hours per day were spent caring for the child(ren) by the mother, the father, and grandparents / older-generation family members respectively? *[Open-ended] **

Source dependency note: Question 92, option 1

If none, please enter 0.

Average daily hours of care provided by the mother: _____

Average daily hours of care provided by the father: _____

Average daily hours of care provided by grandparents / older-generation family members: _____

103. Are you receiving the special additional individual income tax deduction for the care of children under age three? *[Single choice] * [first Question 103 in source]*

Source dependency note: Question 106, option 1

○ Yes

○ No

103. In total, how much in various childbirth subsidies or rewards (from government departments or collective organizations) did both spouses receive after having this child? (Unit: RMB) *[Open-ended] * [second Question 103 in source]*

Source dependency note: Question 92, option 1

_____

104. Have you benefited from any preferential housing purchase or rental policy for having a second or multiple children? *[Single choice] **

Source dependency note: Question 92, option 1

○ Yes

○ No

105. Do you have any children aged 7-18 years (born between May 1, 2005 and April 30, 2017)? *[Single choice] **

Source dependency note: Question 72, options 2; 3; 4; 5

○ Yes: _____ Please fill in the number of children born within this date range.

○ No

106. Have you enrolled your child(ren) in this age group in off-campus interest / tutoring / competition training classes? *[Single choice] **

Source dependency note: Question 105, option 1

○ Yes

○ No

107. For how many children in this age group did you enroll in off-campus interest / tutoring / competition training classes, and what was the total expenditure on such classes in 2022? *[Open-ended] **

Source dependency note: Question 106, option 1

Number of children enrolled in such classes: ___

Total expenditure on off-campus interest / tutoring / competition training classes in 2022: _____ RMB

108. Do the economic expenditures on children's education and the effort you devote to children's education make you feel pressure? *[Single choice] **

Source dependency note: Question 105, option 1

○ Yes, the financial cost of children's education is the greater pressure
○ Yes, the effort devoted to children's education is the greater pressure
○ No

109. Have you heard of the 'points-based school admission' policy? *[Single choice] **

Source dependency note: Question 5, options 2; 3; 4; 5; 6; 7; 8

○ Yes, and I have used it
○ Yes, but I have not used it
○ No, I have not heard of it

110. Are you satisfied with the points-based school admission policy? *[Single choice] **

Source dependency note: Question 109, options 1; 2

○ Satisfied
○ Average
○ Dissatisfied

111. Have you or your family members ever received an intergenerational integrated service program for older adults and young children? *[Single choice] **

Source dependency note: Question 72, options 2; 3; 4; 5

○ Yes
○ No (please skip to Question 129)

112. After receiving the relevant services, what effects do you think they had on your family? *[Multiple choice] **

Source dependency note: Question 72, options 2; 3; 4; 5

□ No obvious effect
□ Community service institutions helped care for family members, reducing caregiving responsibilities and freeing up time for work, thereby increasing household income
□ Older adults and children shared care resources, reducing household expenditure
□ Reduced the physical burden caused by caring for both older adults and children
□ Reduced psychological anxiety; older adults and children could look after one another, bringing greater peace of mind
□ Reduced personal caregiving time, leaving more time for socializing and relaxation and helping maintain physical and mental health
□ The vitality of young children helped meet the emotional needs of older adults
□ Expanded older adults' social networks and increased their level of activity
□ Improved intergenerational communication and helped children learn life skills from older adults
□ Helped cultivate children's good moral character in respecting older adults
□ Close day-to-day interaction between older adults and children helped children build a sense of security in life

□ Children in community service institutions provided a peer play environment, improving children's social development

□ Other: _____

113. Would you be willing for the older adults and children in your household to receive care services or participate in activities in an intergenerational integrated institution? *[Single choice] **

Source dependency note: Question 72, options 2; 3; 4; 5

○ Willing

○ Unwilling

○ I am still unclear about the service information and would need to learn more before making a judgment

114. If the community were to carry out intergenerational integrated development services to promote communication and interaction across generations, what kinds of recreational activities do you think could be provided? *[Multiple choice] **

Source dependency note: Question 72, options 2; 3; 4; 5

□ Educational activities: older adults serve as "teachers" and engage in reading and learning

□ Language activities: including storytelling and poetry recitation

□ Arts activities: such as paper-cutting, painting, and calligraphy

□ Games: including tr

aditional games and playing with toys

□ Life-skills education: such as cooking, folding clothes, and knitting

□ Sports activities: such as volleyball and table tennis

□ Gardening activities: planting or observing plant growth

□ Other (please specify): _____

115. How do you view the community-based intergenerational integrated development model for older adults and children? *[Single choice] **

Source dependency note: Question 72, options 2; 3; 4; 5

○ A good idea with strong prospects

○ A very good idea, but its prospects are worrisome

○ It remains to be seen

End of Questionnaire