Who Earns, Who Bears: Relative Income, Bargaining Power, and Fertility Decisions

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Abstract

This study investigates how the distribution of income between husbands and wives is associated with fertility decisions. Using panel data from China Family Panel Studies (CFPS), we analyze how absolute and relative spousal incomes are related to the number of children in a household. Results show that higher husband income is positively associated with fertility, while higher wife income and a larger share of wife income are negatively associated with fertility. These asymmetric relationships reflect the unequal costs of childbearing borne primarily by women, where higher female earnings amplify the opportunity cost of motherhood and may strengthen bargaining power within the household. We provide evidence consistent with this mechanism by using spouses' relative time contribution in daily housework as a proxy for intra-household bargaining power and showing that women with higher relative income spend less time on household chores, suggesting greater decision-making power that is associated with lower fertility. Heterogeneity analyses reveal that the negative association between women's income and fertility is stronger among low-income and rural households. The findings highlight the importance of policies aimed at reducing women's childbearing costs, directing fertility subsidies specifically to women, and prioritizing support for low-income and rural families to achieve sustainable fertility outcomes.

Keywords: fertility decisions, bargaining power, gender differences, fixed effects model, fertility subsidy.

JEL Codes: J13, D13, J12.

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1 Introduction

Globally, the slowdown in population growth and the rapid aging of societies have emerged as defining demographic trends across major economies. Population aging inevitably brings a host of socioeconomic challenges, including labor shortages among the working-age population, increasing pressure on pension and social security systems, inadequate healthcare resources for older adults, and the growing fragility of traditional family-based support networks (Dench et al., 2024; Hu and Yang, 2025; Huang et al., 2025b,a; Kearney and Levine, 2025; Lawson and Spears, 2025).

These challenges are particularly pronounced in China. As shown in Figure 1, despite the government's relaxation of the one-child policy and the introduction of various pro-natalist initiatives, the overall trajectory of population aging and fertility decline remains difficult to reverse in the short term. Estimates from *Below replacement fertility in China: Policy response overdue* by the United Nations Population Division indicate that although the total fertility rate may experience a modest rebound in the near future, the effects of these interventions will take at least two decades to meaningfully reshape the structure of China's working-age population.

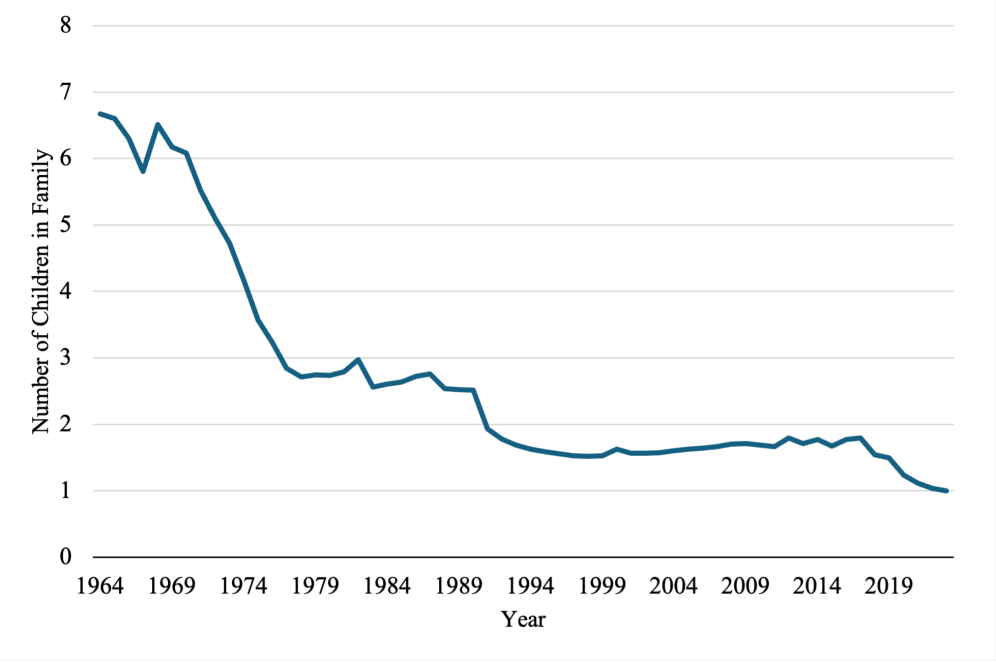


Figure 1: Change in fertility rate (births per woman) in China (data source: World Bank)

A growing body of research suggests that persistently low fertility rates are closely linked to the rising socioeconomic status of women in the public sphere (Atalay et al., 2021; Bashir and Guzzo,

2021; Cesur et al., 2023; De Paola et al., 2021; Desai et al., 2022; Jarosz et al., 2023; Lappegård et al., 2022; Lim, 2021; Liu et al., 2023; Lui and Cheung, 2021; Mussino et al., 2023; Stevenson et al., 2021; Vignoli et al., 2022). Historically, driven by the dual imperatives of national industrialization and enduring cultural norms, the Chinese government has implemented extensive policies to expand educational opportunities and strengthen human capital. These initiatives have substantially improved women's educational attainment and facilitated their entry into the labor market, resulting in a remarkably high female labor force participation rate by international standards, as shown in Figure 2.

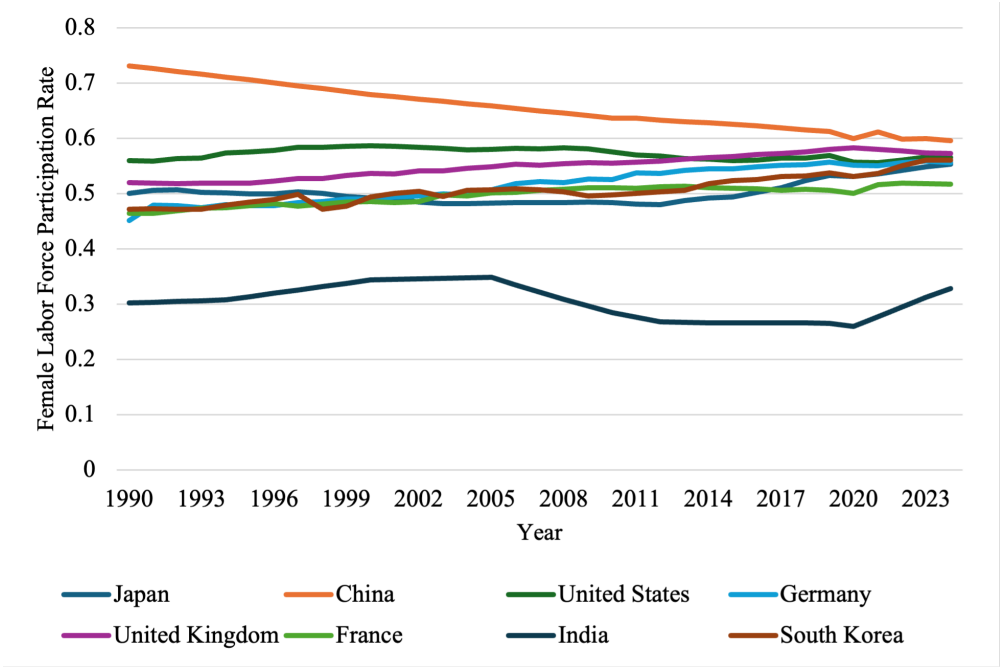


Figure 2: Change in female labor force participation rate (data source: World Bank)

Rising female income has influenced fertility behavior through two key mechanisms. First, higher earnings have enhanced women's bargaining power within households, increasing their autonomy and reinforcing their attachment to the labor market. As women gain greater decision-making power, career advancement and personal development become higher priorities, often leading to delayed marriage and childbearing. Second, the increase in women's income also raises the opportunity cost of childbearing. Given the well-documented "motherhood penalty" (the persistent loss of earnings associated with childbirth and childcare), women face stronger disincentives to interrupt their careers for family formation (Almond et al., 2023; Bose and Chatterjee, 2024; Casarico and

Lattanzio, 2023; Di Bartolo and Torres, 2024; Harrington and Kahn, 2025; Ji and Qi, 2025; Jones et al., 2023; Kang et al., 2024; Kong and Dong, 2024; Meng et al., 2023; Zheng et al., 2024). These dynamics have reshaped intra-household decision-making and contributed to a sustained decline in fertility rates.

Building on these perspectives, this study examines how women's relative economic position within the household is associated with fertility decisions, with particular attention to intra-household bargaining as a potential mechanism. Using longitudinal data from the China Family Panel Studies (CFPS), we measure women's relative economic position by their share of the couple's total income and use spouses' relative allocation of housework as an observable proxy for bargaining power. Since the role of relative income in household bargaining may depend on women's existing economic position and the broader social and institutional context in which fertility decisions are made, we further examine heterogeneity across income groups and between rural and urban households to provide further policy insights.

This study contributes to the literature on intra-household bargaining and fertility in two main ways. First, it connects women's relative economic position to realized fertility through an observable intra-household allocation mechanism. Previous studies have shown that spouses' relative earnings are closely related to household specialization and the division of domestic work (Martínez A., 2013; Bertrand et al., 2015; Siegel, 2017; Zhao and Qu, 2024; Zhang, 2025), while another strand of literature emphasizes the role of intra-household bargaining and disagreement in fertility decisions (Ma et al., 2025; Moeeni and Moeeni, 2021). Building on these two strands, we examine the sequence from the wife's relative income to spouses' housework allocation and subsequently to realized fertility within a unified household-level empirical framework. Second, this study complements the literature on fertility bargaining by focusing on realized fertility using longitudinal household data. Much of the existing evidence emphasizes fertility intentions, desired fertility, or disagreement between spouses over future childbearing (Doepke and Kindermann, 2019; Ma et al., 2025; Riederer and Buber-Ennser, 2019; Suero, 2023). We examine fertility outcomes observed across multiple waves of the CFPS and relate them directly to women's relative economic position and the intra-household allocation of housework.

To the best of our knowledge, our study is particularly related to Bertrand et al. (2015), Doepke and Kindermann (2019), Ma et al. (2025), and Siegel (2017), but differs from each in a distinct

dimension. Bertrand et al. (2015) examine relative earnings and household behavior, including housework allocation, without studying fertility outcomes. Siegel (2017) links female relative wages, household specialization, and fertility in a quantitative macroeconomic model, whereas we provide household-level empirical evidence using observed relative income, housework allocation, and fertility outcomes. Doepke and Kindermann (2019) emphasize spousal agreement and bargaining over fertility, but do not study relative income as the source of bargaining power. Ma et al. (2025) analyze fertility willingness and spousal disagreement in China, whereas we focus on realized fertility and explicitly examine household labor allocation as a potential mechanism linking relative economic position to fertility.

The remainder of this paper is organized as follows. Section 2 presents the theoretical framework, data, and empirical strategy. Section 3 reports the main empirical results, including the baseline estimates, the analysis of intra-household bargaining, heterogeneity analyses, and robustness checks. Section 4 discusses the interpretation of the findings and their relation to broader economic, institutional, and social determinants of fertility. Section 5 presents the policy implications, conclusions, and limitations of the study.

2 Theoretical Framework, Data, and Empirical Strategy

2.1 Model of Intra-household Decision Making

In the existing literature, the intra-household decision-making process between spouses is commonly described using the Nash bargaining framework (Martínez A., 2013; Moeeni and Moeeni, 2021; Munro, 2018; Suen et al., 2003; Wang, 2014). The model assumes that a multi-person household consists of several members who may have different preferences. These members engage in intra-household bargaining so that household decisions move toward outcomes favorable to themselves. The division of household labor between husband and wife is determined by their relative positions in the distribution of household economic resources. For example, women's bargaining power may differ depending on the proportion of income they contribute to the household (Medeiros and Trebat, 2022; Quisumbing, 2025; Rolim et al., 2023).

The collective household model extends this framework by explicitly modeling the utilities of individual household members, each assumed to have a distinct utility function. The household, as

a decision-making unit, maximizes a weighted sum of these individual utilities, where the weights represent the relative bargaining power of each member. Under this framework, the household's optimal demand can be expressed as:

$$\max \ U = \lambda \cdot U_w + (1 - \lambda) U_h$$

where U is the family utility. U_h and U_w are husband and wife utility levels, respectively. λ is the relative bargaining power of wife to husband. A higher λ indicates a greater weight assigned to the wife's utility within the household, implying that the family's decisions are more likely to reflect her preferences.

This study focuses on gender differences within households, particularly the role of income variation in shaping fertility decisions. In the empirical analysis, we use the wife's share of couple income to measure her relative economic position and the wife's share of spouses' total housework time as an observable proxy for intra-household bargaining power. We then examine whether relative economic position is associated with fertility partly through differences in household labor allocation.

2.2 Data

The data used in this study are drawn from the China Family Panel Studies (CFPS), a nationally representative longitudinal survey conducted by Peking University. The CFPS collects comprehensive information on various aspects of Chinese households, including economic activities, family relationships, and household structure, providing rich data on intra-household income distribution, family composition, and individual demographic characteristics. The survey covers 25 provinces, municipalities, and autonomous regions across China. It records detailed information on economic status (such as income, expenditure, assets, and liabilities), demographic characteristics (such as gender, household registration, years of education, health status, and religious belief), and other micro-level attributes through multiple modules, including the economic, family, adult, and child questionnaires. The survey is conducted biennially, with data available for the years 2010, 2012, 2014, 2016, 2018, and 2020.

To focus on populations more actively engaged in both the labor market and fertility behav-

ior, this study restricts the sample to men aged 22–51 and women aged 20–49 from the CFPS population survey. The analysis is conducted at the household level. Individuals unable to work due to schooling, disability, or retirement are excluded. The sample is further limited to married couples whose marital status is recorded as "married" and "first marriage," in which the husband is aged 22–51, the wife is aged 20–49, and the husband is employed with positive income. Observations with missing or abnormal values for key variables, including monthly income, province, education, household urban residence status, and age, are also excluded. To avoid potential effects of the COVID-19 pandemic, we restrict the analysis to the 2010–2018 waves. Finally, by dropping observations with missing variables, the household sample size is 4,927.

The dependent variables in this study are the number of children in the household and the measure of bargaining power between spouses. The core independent variables are spousal income levels and the relative income between husband and wife. Income disparity is measured by the wife's share of the couple's total income. In addition to income, the regressions control for a range of family and individual characteristics that may affect fertility decisions, such as age, household urban residence status, educational attainment, health status, religious belief, and the wife's employment status. Descriptive statistics for these key variables are presented in Table 1.

2.3 Empirical Strategy

To address potential endogeneity arising from reverse causality (for instance, a larger number of children may constrain women's labor market participation and earnings), we follow Zhang (2025) and apply an instrumental variable (IV) approach to estimate the relationship between spouses' relative income and household fertility decisions.

Specifically, to construct the IV, in each survey wave, we first divide individuals in the full sample into cells defined by province of residence, gender, five-year age group, and educational attainment. Age is classified into six intervals: 20–24, 25–29, 30–34, 35–39, 40–44, and 45–49. Educational attainment is grouped into four categories: primary school or below, middle school, high school, and college or above. For each individual in each wave, potential income is calculated as the leave-one-out mean income of all other individuals of the same gender who are observed in

Table 1: Descriptive statistics

Variable	Mean	Std. err.
Number of children in the family	1.48	0.81
Husband annual income (in 10,000 CNY)	3.44	4.09
Wife annual income (in 10,000 CNY)	1.58	2.42
Share of wife income	0.27	0.23
Property income in CNY	901.60	13,035.00
Transfer income in CNY	2,185.00	93,787.00
Husband highest education level	3.16	1.19
Wife highest education level	2.92	1.31
Husband age	37.53	7.17
Wife age	35.99	7.28
Husband is urban resident	0.81	0.41
Wife is urban resident	0.69	0.43
Husband health conditions	2.30	1.12
Wife health conditions	2.47	1.18
Husband has religious beliefs	0.05	0.21
Wife has religious beliefs	0.06	0.23
Wife is employed	0.88	0.32

Note: this table reports the descriptive statistics of the sample. Share of wife income is defined as wife income over spouses' total income. Property income refers to household income from capital assets, and transfer income refers to household income from government aids. Highest education level is coded as 1=uneducated, 2=primary school, 3=middle school, 4=high school, and 5=college or higher. Urban residence, religious beliefs, and wife employment are coded as 0=no and 1=yes. Health conditions are coded as 1=very healthy, 2=healthy, 3=slightly unhealthy, 4=unhealthy, and 5=very unhealthy.

the same province and belong to the same age and education groups as follows:

$$\hat{I}_{it}^{s} = \frac{1}{N_{g(i,t)}^{s} - 1} \sum_{j \in g(i,t) j \neq i} I_{jt}^{s}$$

where $s \in \{w, h\}$ denotes wife or husband. $g(i,t)$ denotes the cell defined by survey wave, province, gender, five-year age group, and educational attainment. $N_{g(i,t)}^{s}$ is the sample size in that cell. $N_{g(i,t)}^{s} - 1$ is to exclude the focal individual i. I_{it}^{s} is the actual observed income. In this way, the potential income measure captures the *average earnings opportunities* faced by demographically comparable individuals in the same local labor market and survey period.

We construct the wife's potential relative income in her household k by:

$$Z_{kt} = \frac{\hat{I}_{it}^{w}}{\hat{I}_{it}^{w} + \hat{I}_{it}^{h}}$$

to instrument for wife's actual share of the couple's total income:

$$R_{kt} = \frac{I_{it}^{w}}{I_{it}^{w} + I_{it}^{h}}$$

In this way, we use the two-stage least squares (2SLS) to obtain the estimates:

$$\text{First stage: } R_{kt} = \pi Z_{kt} + X_{kt}'\gamma + \mu_{pt} + u_{it}$$

$$\text{Second stage: } Y_{kt} = \beta \hat{R}_{kt} + X_{kt}'\theta + \mu_{pt} + \varepsilon_{it}$$

where Y_{kt} is the number of children and the spouses' bargaining power measures in the household k. X_{kt} contains the household and individual controls, including spouses' demographic and socioeconomic characteristics, health, employment, and household income sources. $\hat{R}_{kt}$ is the predicted value of wife's actual share of household income from the first-stage regression. μ_{pt} controls for the province-year fixed effects to absorb time-varying economic, institutional, and policy conditions common to households within the same province and year. u_{it} and ε_{it} are error terms. As a result, β captures the relationship of our interest between wife's relative income and the family fertility decision.

Importantly, the group-average potential income measure captures the earning capacity of demographically comparable individuals in the local labor market. Because the measure is constructed using the incomes of other individuals within the same demographic and geographic cell, it is not directly affected by the focal individual's labor supply adjustments following childbirth. For example, a mother who reduces her working hours after giving birth may experience a decline in her actual earnings, while her assigned measure of potential income remains determined by the earnings of comparable workers. This distinction helps alleviate the reverse-causality concern that fertility decisions directly reduce women's observed earnings.

The IV approach requires two assumptions: instrument relevance and the exclusion restriction. For relevance, we argue that individuals with similar demographic characteristics in the same local labor market tend to face similar earning opportunities. More favorable earning opportunities for women relative to men should be reflected in a higher wife income share. To provide empirical evidence on instrument relevance, we report the corresponding first-stage F-statistics alongside the 2SLS estimates throughout the paper.

For the exclusion restriction, our instrument captures the earning opportunities available to demographically comparable workers rather than resources directly received by the household. Because it is constructed from the leave-one-out earnings of other individuals in the same province, gender, age, and education group, their income does not directly enter the focal household's budget or change its economic resources. Instead, these group-level earning opportunities should matter for fertility only insofar as they affect the husband's or wife's own realized income and thereby change the household's absolute or relative economic position.

A potential violation would arise if group-specific earning opportunities were correlated with other factors that independently affect fertility. We mitigate this concern in two ways. First, province-year fixed effects absorb time-varying observed and unobserved factors at the province level that may jointly affect local earning opportunities and fertility, such as local economic conditions, fertility-related policies, public services, and institutional environments. Second, we directly control for spouses' demographic and socioeconomic characteristics used to define these groups, reducing the possibility that the instrument captures differences in fertility systematically associated with age, education, or other observed characteristics. Conditional on these controls and fixed effects, our identifying assumption is therefore that the earnings of comparable workers affect a household's

fertility primarily by shifting the spouses' realized incomes and relative economic positions.

3 Results

To examine the relationships between male and female income and fertility decisions, this section employs 2SLS while controlling for province-year fixed effects. The analysis proceeds in several steps. First, we examine how household and individual characteristics are associated with fertility decisions. Second, we estimate the relationships between spouses' absolute and relative incomes and fertility outcomes. Third, we examine whether women's relative income is associated with intra-household bargaining by analyzing spouses' relative allocation of housework. Finally, we conduct heterogeneity analyses across women's income groups and rural–urban residence to assess whether these relationships vary across households.

3.1 Baseline Results

Table 2 first examines the relationships between fertility and household and individual characteristics. In Columns (1) and (2), we use the 2SLS specification. We find that higher wife income and a larger wife's income share are negatively associated with the number of children, whereas husband income is positively associated with fertility. Educational attainment of both spouses and urban residence are also negatively associated with the number of children, while most health and religious-belief variables are statistically insignificant. The wife's employment status is negative but statistically insignificant. We also report the 2SLS first-stage F-statistics in Table 2, which are greater than 10, suggesting that the instruments are sufficiently strong and alleviating concerns about weak identification. As a robustness check, Columns (3) and (4) replace the contemporaneous income measures with income variables lagged by one CFPS survey wave using a linear regression specification, and the estimated relationships remain unchanged.

We further separate the absolute and relative income variables of husbands and wives and estimate their relationships with the number of children under each specification. This approach helps to mitigate potential estimation bias arising from the correlation between absolute and relative income measures. Table 3 reports the regression results using 2SLS, with all household and individual characteristics from Table 2 included as controls. Column (1) includes spouses' absolute incomes,

Table 2: Relations between fertility decisions and family characteristics

Dependent variable:	Number of children in family			
	IV		Lagged income	
Independent variable:	Coef.	Std. err.	Coef.	Std. err.
	(1)	(2)	(3)	(4)
Income:				
Husband income	0.011**	0.005	0.017***	0.005
Wife income	-0.008*	0.005	-0.012**	0.005
Wife income share	-0.083**	0.038	-0.124***	0.005
Demographics:				
Family property income	-0.002	0.004	-0.002	0.004
Family transfer income	0.002	0.003	0.002	0.003
Completed primary school (husband)	-0.046	0.041	-0.049	0.040
Completed middle school (husband)	-0.097**	0.041	-0.102**	0.040
Completed high school (husband)	-0.143***	0.044	-0.149***	0.043
Completed college or above (husband)	-0.194***	0.052	-0.200***	0.051
Completed primary school (wife)	-0.116***	0.033	-0.120***	0.032
Completed middle school (wife)	-0.126***	0.033	-0.130***	0.032
Completed high school (wife)	-0.216***	0.043	-0.222***	0.042
Completed college or above (wife)	-0.171***	0.050	-0.176***	0.049
Husband age	0.003	0.004	0.003	0.004
Wife age	0.011***	0.004	0.012***	0.004
Urban resident (husband)	-0.048***	0.018	-0.050***	0.017
Urban resident (wife)	-0.082***	0.018	-0.086***	0.017
Healthy (husband)	-0.009	0.035	-0.010	0.034
Slightly unhealthy (husband)	0.016	0.033	0.017	0.032
Unhealthy (husband)	0.007	0.037	0.006	0.036
Very unhealthy (husband)	0.018	0.043	0.020	0.042
Healthy (wife)	0.076**	0.038	0.080**	0.037
Slightly unhealthy (wife)	0.020	0.034	0.022	0.033
Unhealthy (wife)	-0.016	0.037	-0.017	0.036
Very unhealthy (wife)	0.035	0.041	0.037	0.040
Husband has religious beliefs	0.045	0.035	0.047	0.034
Wife has religious beliefs	0.006	0.033	0.007	0.032
Wife is employed	-0.087	0.091	-0.115	0.083
Province-year fixed effects	Yes			
2SLS first-stage F-statistics	32.647			
R-squared	0.367		0.402	
N	24,635			

Note: Columns (1) and (2) report the coefficient estimates and standard errors using 2SLS and potential incomes as the IV. Columns (3) and (4) use the income variables lagged by one CFPS survey wave. Uneducated and very healthy are omitted as base variables. Standard errors in parentheses are clustered at the county level. $^{*}: p < 0.1$; $^{**}: p < 0.05$; $^{***}: p < 0.01$.

while Column (2) uses the wife's share of couple income as the measure of relative economic position. In Column (1), husband income is positively associated with fertility, whereas wife income is negatively associated with fertility. The estimate in Column (2) for the wife's income share is also negative and statistically significant. The corresponding specifications using lagged income variables in Columns (3) and (4) produce estimates with the same signs and similar magnitudes, providing additional support for the baseline relationships.

Table 3: Regression of the number of children on spouses' income

Dependent variable:	Number of children in family			
	IV		Lagged income	
Independent variable:	Absolute income	Relative income	Absolute income	Relative income
	(1)	(2)	(3)	(4)
Husband income	0.009**		0.013***	
	(0.004)		(0.004)	
Wife income	-0.009*		-0.013**	
	(0.005)		(0.005)	
Wife income share		-0.082***		-0.114***
		(0.026)		(0.007)
Add control variables		Yes		
Province-year fixed effects		Yes		
2SLS first-stage F-statistics	44.683	38.571		
R-squared	0.392	0.385	0.402	0.397
N		24,635		

Note: Columns (1) and (2) report the coefficient estimates and standard errors using 2SLS and potential incomes as the IV. Columns (3) and (4) use the income variables lagged by one CFPS survey wave. Control variables are variables in Table 2 except the income variables. Standard errors in parentheses are clustered at the county level. $^{*}: p < 0.1$; $^{**}: p < 0.05$; $^{***}: p < 0.01$.

3.2 Relative Income and Bargaining Power

We next examine whether intra-household bargaining is associated with the relationship between women's relative income and fertility. Following Bertrand et al. (2015), we use the wife's share of the spouses' total daily housework time as a proxy for intra-household bargaining power. Columns (1) and (2) of Table 4 relate spouses' income measures to the wife's share of housework. Husband income is positively associated with the wife's housework share, while wife income and the wife's income share are negatively associated with it. In particular, the coefficient on the wife's income share is negative and statistically significant.

Column (3) examines the relationship between housework allocation and fertility. To reduce concerns about reverse causality, we use the lagged wife's housework share as the explanatory vari-

able. We find that a higher lagged housework share is positively and significantly associated with the number of children. Following Carlana (2019), Column (4) conducts a mediation test by including both the wife's relative income and the lagged wife's housework share in the fertility regression. The coefficient on the wife's income share declines in magnitude and becomes statistically insignificant after controlling for the housework share, providing evidence consistent with a mediating role of intra-household bargaining in the relationship between relative income and fertility decisions.

Table 4: Spouses' income and bargaining power

Dependent variable:	Share of wife housework		Number of children in family	
	(1)	(2)	(3)	(4)
Husband income	0.001*			
	(0.001)			
Wife income	-0.004**			
	(0.002)			
Wife income share		-0.018**		-0.041
		(0.008)		(0.029)
Share of wife housework (lag)			0.077**	0.073***
			(0.037)	(0.036)
Control for share of wife housework (lag)	No	No	No	Yes
Add other control variables		Yes		
Province-year fixed effects		Yes		
2SLS first-stage F-statistics	44.683	38.571		36.917
R-squared	0.318	0.301	0.350	0.486
N		24,635		

Note: Columns (1) and (2) report the coefficient estimates and standard errors using 2SLS and potential incomes as the IV. Column (3) uses the wife housework share lagged by one CFPS survey wave. Column (4) repeats the 2SLS regression of the number of children in the family on relative income with additional controls for the lagged wife housework share. Control variables are variables in Table 2 except the income variables. Standard errors in parentheses are clustered at the county level. $^{*}: p < 0.1$; $^{**}: p < 0.05$; $^{***}: p < 0.01$.

3.3 Heterogeneity Analysis

Finally, we examine heterogeneity across different types of households by classifying women according to their income levels and place of residence.

Heterogeneity by women's income levels. To examine how the relationship between household income and fertility decisions varies by women's income levels, we divide the sample into low- and high-income groups. Across the five waves, wives whose individual income falls below the sample median in all waves are classified as the low-income group; otherwise, they are classified as the high-income group. This stratification enables an analysis of how changes in women's

income influence fertility behavior. The results are reported in Table 5, with Column (1) presenting estimates for the low-income group and Column (2) showing the corresponding results for the high-income group. We find that the negative coefficient on the wife's income share is considerably larger and statistically significant among low-income households, whereas the corresponding estimate for high-income households is smaller and statistically insignificant.

Table 5: Income heterogeneity

Dependent variable:	Number of children in family	
Group:	Low income	High income
	(1)	(2)
Wife income share	-0.198***	-0.043
	(0.018)	(0.067)
Add control variables	Yes	
Province-year fixed effects	Yes	
2SLS first-stage F-statistics	31.443	28.731
R-squared	0.387	0.391
N	10,330	14,305

Note: this table reports the 2SLS estimates. Control variables are variables in Table 2 except the income variables. Standard errors in parentheses are clustered at the county level. $^{*}: p < 0.1$; $^{**}: p < 0.05$; $^{***}: p < 0.01$.

Urban–Rural Heterogeneity. Table 6 examines heterogeneity by place of residence. The estimate for the wife's income share is negative and statistically significant among rural households, while the corresponding estimate among urban households is substantially smaller and statistically insignificant. These results indicate that the relationship between women's relative income and fertility varies considerably across household economic and residential contexts.

Table 6: Residence place heterogeneity

Dependent variable:	Number of children in family	
Group:	Urban residents	Rural residents
	(1)	(2)
Wife income share	-0.019	-0.215**
	(0.023)	(0.098)
Add control variables	Yes	
Province-year fixed effects	Yes	
2SLS first-stage F-statistics	35.263	21.687
R-squared	0.312	0.367
N	20,365	4,270

Note: this table reports the 2SLS estimates. Control variables are variables in Table 2 except the income variables. Standard errors in parentheses are clustered at the county level. $^{*}: p < 0.1$; $^{**}: p < 0.05$; $^{***}: p < 0.01$.

3.4 Robustness Checks

We conduct the following robustness checks for our main results:

Measurement of bargaining power. To assess the robustness of this interpretation, Table 7 further accounts for two alternative explanations for differences in housework allocation. Columns (1) and (2) regress the wife's share of housework on her relative income, additionally controlling for the wife's share of spouses' total working hours and traditional gender-role attitudes , respectively. Columns (3) and (4) regress the number of children on the lagged wife's housework share, with the same two additional controls, respectively. Columns (2) and (4) use only the 2014 sample in which gender-role attitudes are observed. The coefficient on the wife's income share remains negative and statistically significant in Columns (1) and (2), while the coefficient on the lagged wife's housework share remains positive and statistically significant in Columns (3) and (4). These results remain robust after accounting for relative time availability and observed gender-role attitudes, providing additional evidence consistent with the bargaining mechanism.

Table 7: Robustness checks for the housework measure

Dependent variable:	Share of wife housework		Number of children in family	
Control for	Wife work-hour share	Gender-role attitudes	Wife work-hour share	Gender-role attitudes
	(1)	(2)	(3)	(4)
Wife income share	-0.016**	-0.017**		
	(0.007)	(0.008)		
Share of wife housework (lag)			0.066**	0.057**
			(0.037)	(0.029)
Wife work-hour share	-0.041***		-0.018**	
	(0.003)		(0.008)	
Traditional gender-role attitudes		0.012**		0.019**
		(0.005)		(0.009)
Add other control variables		Yes		
Province-year fixed effects	Yes	No	Yes	No
Province fixed effects	No	Yes	No	Yes
2SLS first-stage F-statistics	37.853	18.941		
R-squared	0.435	0.453	0.426	0.418
N	24,635	4,573	24,635	4,573

Note: this table repeats Columns (2) and (3) in Table 4 with additional controls for two alternative explanations for housework differences. Columns (1) and (3) additionally control for the wife share of spouses' total working hours to account for differences in relative time availability. Columns (2) and (4) use the 2014 sample and additionally control for traditional gender-role attitudes, with higher values indicating stronger adherence to traditional gender roles. We only use province fixed effects in Columns (2) and (4) since they include a one-year sample. Columns (1) and (2) report the 2SLS estimates. Other control variables are variables in Table 2 except the income variables. Standard errors in parentheses are clustered at the county level. $^{*}: p < 0.10$; $^{**}: p < 0.05$; $^{***}: p < 0.01$.

Count outcome variable. Because the number of children is a non-negative count variable, we examine whether the baseline findings are sensitive to the linear specification. Table 8 re-estimates the absolute- and relative-income models using a control-function IV Poisson model. Table 9 further applies a control-function IV negative binomial model to allow for overdispersion in the fertility outcome. We report both coefficient estimates and average marginal effects in these two tables. Across the two count-data specifications, husband income remains positively associated with fertility, while wife's income and the wife's share of spousal income remain negatively associated with fertility. The average marginal effects are also similar in magnitude to the baseline 2SLS estimates, indicating that the main findings are robust to alternative functional forms for the count outcome.

Table 8: Robustness checks using Poisson regression

Dependent variable:	Number of children in family			
Independent variable:	Absolute income		Relative income	
	Coef.	Average marginal effects	Coef.	Average marginal effects
	(1)	(2)	(3)	(4)
Husband income	0.006**	0.010**		
	(0.003)	(0.005)		
Wife income	-0.006**	-0.009*		
	(0.003)	(0.005)		
Wife income share			-0.049**	-0.078**
			(0.021)	(0.034)
Add control variables		Yes		
Province-year fixed effects		Yes		
N		24,635		

Note: this table repeats Columns (1) and (2) in Table 3 using an IV fixed-effect Poisson regression. We use the control-function specification in estimation. Standard errors in parentheses are clustered at the county level. $^{*}: p < 0.10$; $^{**}: p < 0.05$; $^{***}: p < 0.01$.

Alternative fertility outcome. Table 10 examines the sensitivity of the results to alternative definitions of fertility. Columns (1) and (2) use an indicator for whether the family has any children. Columns (3) and (4) focus on changes in fertility and define the outcome as whether the number of children increases relative to the preceding survey wave. These four columns use an IV Probit model for estimation. Columns (5) and (6) return to the number of children as the outcome after excluding families with more than two children, reducing the influence of relatively large families. Across these alternative outcomes and sample restrictions, the estimated coefficients retain similar signs and magnitudes to the baseline estimates, supporting the robustness of the baseline findings.

Table 9: Robustness checks using negative binomial regression

Dependent variable:	Number of children in family			
Independent variable:	Absolute income		Relative income	
	Coef.	Average marginal effects	Coef.	Average marginal effects
	(1)	(2)	(3)	(4)
Husband income	0.007**	0.011**		
	(0.003)	(0.005)		
Wife income	-0.008**	-0.010**		
	(0.004)	(0.005)		
Wife income share			-0.051**	-0.089**
			(0.022)	(0.042)
Add control variables	Yes			
Province-year fixed effects	Yes			
N	24,635			

Note: this table repeats Columns (1) and (2) in Table 3 by using an IV fixed-effect negative binomial regression. We use the control-function specification in estimation. Standard errors in parentheses are clustered at the county level. $^{*}: p < 0.10$; $^{**}: p < 0.05$; $^{***}: p < 0.01$.

Table 10: Robustness checks using alternative fertility outcomes

Dependent variable:	Whether the family has any children		Whether the number of children increased		Number of children in family	
Sample:	Full sample		First-difference sample		Drop families with > 2 children	
Independent variable:	Absolute income	Relative income	Absolute income	Relative income	Absolute income	Relative income
	(1)	(2)	(3)	(4)	(5)	(6)
Husband income	0.006**		0.003**		0.010**	
	(0.003)		(0.001)		(0.005)	
Wife income	-0.005**		-0.003**		-0.009*	
	(0.002)		(0.001)		(0.005)	
Wife income share		-0.039**		-0.026**		-0.076**
		(0.018)		(0.012)		(0.033)
Add control variables	Yes					
Province-year fixed effects	Yes					
2SLS first-stage F-statistics	44.683	38.571	29.817	24.563	41.327	34.781
R-squared	0.214	0.207	0.126	0.119	0.384	0.377
N	24,635		19,708		23,180	

Note: this table repeats Columns (1) and (2) in Table 3 using alternative definitions of fertility decisions. In Columns (1) and (2), the dependent variable indicates whether the household has any children. In Columns (3) and (4), the dependent variable indicates whether the number of children increases relative to the preceding survey wave; observations without lagged fertility information are excluded. Columns (5) and (6) use the number of children as the dependent variable after excluding families with more than two children. Columns (1) to (4) use IV Probit. Columns (5) and (6) use 2SLS. Standard errors in parentheses are clustered at the county level. $^{*}: p < 0.10$; $^{**}: p < 0.05$; $^{***}: p < 0.01$.

Alternative measures of relative economic position. We further examine whether the findings depend on the baseline measure of relative income. Table 11 considers two alternative measures of the wife's relative economic position within the household. Column (1) uses a log-transformed measure of the wife's relative income, while Column (2) uses an indicator for whether the wife earns more than her husband. Both measures yield negative and statistically significant estimates. These results suggest that the negative relationship between women's relative economic position and fertility is not driven by the specific construction of the baseline income-share measure.

Table 11: Robustness checks using alternative measures of relative income

Dependent variable:	Number of children in family	
Independent variable:	Relative income (log)	Whether wife earns more than husband
	(1)	(2)
Wife income share (log)	-0.118***	
	(0.051)	
Wife income > husband income		-0.047**
		(0.021)
Add control variables	Yes	
Province-year fixed effects	Yes	
2SLS first-stage F-statistics	32.473	24.867
R-squared	0.383	0.379
N	24,635	

Note: this table repeats Column (2) in Table 3 using alternative measures of wife relative income. Column (1) replaces the baseline wife income share with its log-transformed measure. Column (2) uses an indicator equal to one when the wife earns more than her husband. This table reports 2SLS estimates using the corresponding potential income measure for each independent variable. Standard errors in parentheses are clustered at the county level. $^{*}: p < 0.10$; $^{**}: p < 0.05$; $^{***}: p < 0.01$.

Multicollinearity diagnostics. Finally, we assess whether correlations among the explanatory variables affect the estimates. Table 12 reports variance inflation factors (VIF) separately for the absolute- and relative-income specifications. The maximum VIFs are 4.51 and 4.49 (wife age), respectively, which might reflect the close age correlation within couples. We also document that the mean VIFs are below 2 in both specifications, which provides little evidence that multicollinearity is driving the estimated income effects.

4 Discussion

We summarize the regression results in Figure 3.

Table 12: Multicollinearity diagnostics

Dependent variable:	Number of children in family	
Independent variable:	Absolute income	Relative income
	(1)	(2)
Income:		
Husband income	1.74	
Wife income	1.81	
Wife income share		1.39
Demographics:		
Family property income	1.03	1.03
Family transfer income	1.02	1.02
Completed primary school (husband)	2.16	2.15
Completed middle school (husband)	2.73	2.72
Completed high school (husband)	2.38	2.37
Completed college or above (husband)	2.05	2.04
Completed primary school (wife)	2.24	2.23
Completed middle school (wife)	2.86	2.84
Completed high school (wife)	2.46	2.44
Completed college or above (wife)	2.12	2.10
Husband age	4.37	4.35
Wife age	4.51	4.49
Urban resident (husband)	1.92	1.90
Urban resident (wife)	1.88	1.86
Healthy (husband)	1.94	1.94
Slightly unhealthy (husband)	2.11	2.11
Unhealthy (husband)	1.72	1.72
Very unhealthy (husband)	1.31	1.31
Healthy (wife)	1.98	1.98
Slightly unhealthy (wife)	2.15	2.14
Unhealthy (wife)	1.76	1.75
Very unhealthy (wife)	1.34	1.34
Husband has religious beliefs	1.04	1.04
Wife has religious beliefs	1.05	1.05
Wife is employed	1.43	1.36
Maximum VIF	4.51	4.49
Mean VIF	1.98	1.94

Note: this table reports VIFs for the explanatory variables in the baseline specifications.

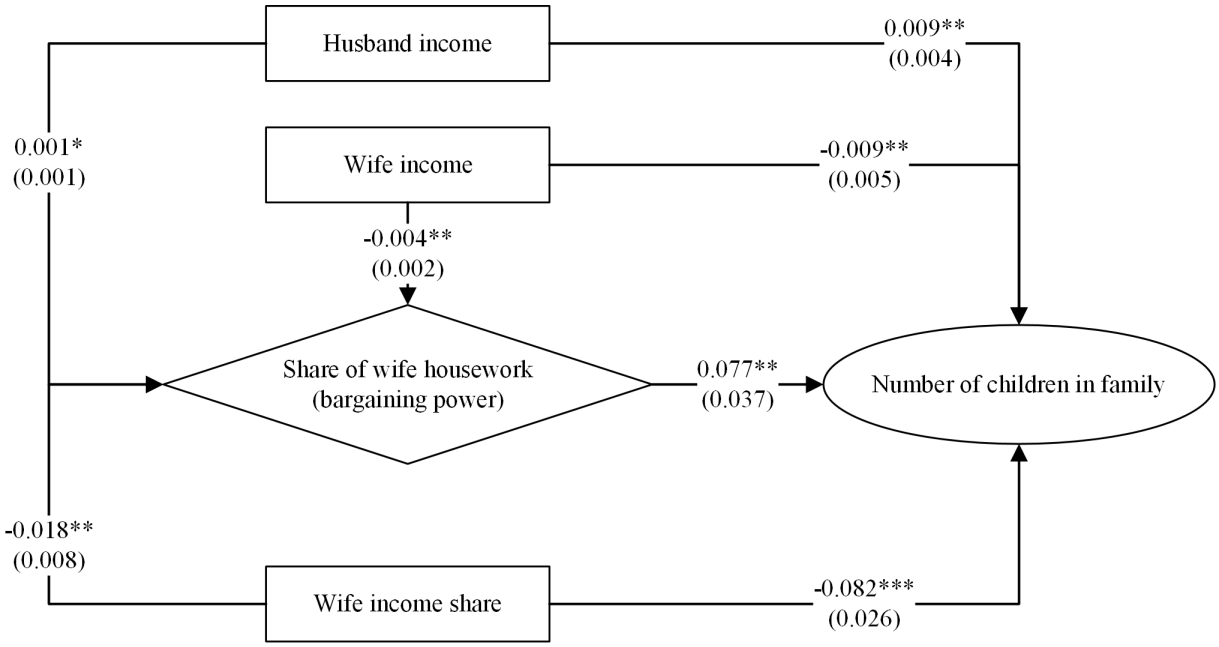


Figure 3: Summary of regression results

Note: this figure summarizes the coefficient estimates reported in Tables 2 to 4.

4.1 Relative Income, Fertility Decisions, and Bargaining Power

The main results suggest that the distribution of economic resources between spouses is relevant for understanding fertility decisions. The negative association between the wife's relative income and fertility is accompanied by a corresponding relationship between relative income and household labor allocation. Women with higher relative income perform a smaller share of housework, while a larger lagged housework share is associated with higher fertility. The attenuation of the relative-income coefficient after controlling for the housework measure further suggests that household labor allocation may constitute one channel linking women's relative economic position to fertility.

This interpretation is consistent with intra-household bargaining models in which economic resources affect the relative decision-making position of household members. When women contribute a larger share of household income, their economic position within the household may strengthen, potentially increasing their influence over the allocation of time and family responsibilities. Because women bear a disproportionate share of the physical, time, and labor-market costs associated with pregnancy and childcare, greater influence over household decisions may also be associated with different fertility choices. The results on housework allocation provide evidence consistent with this

interpretation.

The observed relationships should also be considered within a broader set of determinants of fertility. Childbearing decisions depend on childcare availability, housing and childrearing costs, work-life balance, fertility preferences, and prevailing gender norms. These factors may interact directly with the bargaining mechanism examined in this study. Limited access to affordable childcare, for example, increases the amount of unpaid care work that must be supplied within the household. When this burden falls disproportionately on women, the effective cost of an additional child may increase for women with stronger labor-market attachment. Similarly, difficulties in reconciling employment and family responsibilities may increase the opportunity cost of childbearing even when household financial resources are sufficient.

An alternative explanation for the observed relationship between women's relative income and fertility is the opportunity cost of childbearing. Higher female earning capacity increases the potential income forgone during pregnancy, childbirth, and childcare, which may discourage fertility even in the absence of changes in intra-household bargaining power. This channel may also influence the division of household labor, as couples may allocate domestic responsibilities according to their relative labor-market opportunities. Nevertheless, our findings on housework allocation suggest that the relationship between relative income and fertility extends to the distribution of responsibilities within the household. Moreover, the association between women's relative income and housework allocation remains significant after controlling for spouses' relative working hours and traditional gender-role attitudes. Although these findings are consistent with an intra-household bargaining interpretation, they do not fully distinguish bargaining power from the opportunity cost of childbearing, and both mechanisms may operate simultaneously.

4.2 Heterogeneity Analysis

The heterogeneous results are consistent with the possibility that the importance of relative income varies with women's initial economic position. Among low-income households, women may begin from a weaker economic position, so an increase in relative income may be associated with a larger change in intra-household bargaining. In higher-income households, women may already possess greater economic autonomy, leaving less scope for additional income to substantially alter household decision-making. This interpretation is consistent with the substantially larger negative estimate

for low-income households.

The rural-urban differences may similarly reflect variation in the broader institutional and social environment. Rural and urban households differ in labor-market opportunities, childcare arrangements, family norms, housing and education costs, and historical exposure to family-planning policies. Traditional preferences regarding family size may remain more important in some rural settings, while higher housing and educational costs can place stronger constraints on fertility in urban areas. These differences can alter both the perceived costs of childbearing and the extent to which changes in women's economic position affect household decisions. The larger negative estimate observed among rural households therefore suggests that relative income may matter more where women's economic position and household bargaining relationships are more sensitive to changes in earnings.

4.3 Other Factors Contributing to Fertility Decisions

More broadly, our findings should be interpreted as one component of a multifaceted explanation of fertility behavior. Existing studies have documented the importance of a wide range of economic, institutional, and social factors, including housing conditions and costs (Atalay et al., 2021; Liu et al., 2023; Qiu, 2025), childcare and family policies (Kim et al., 2023), women's labor-market opportunities and the costs associated with motherhood (Huang et al., 2025b; Meng et al., 2023), fertility preferences and expectations (Lappegård et al., 2022; Vignoli et al., 2022), and social and gender norms surrounding family formation (Lui and Cheung, 2021; Zhai, 2025). These factors jointly shape both the benefits and costs of childbearing and the environment in which couples make fertility decisions. Our analysis focuses on one particular dimension of this broader process, namely the distribution of income between spouses and its relationship with intra-household labor allocation. The results provide incremental evidence that, alongside the broader economic and social determinants identified in the literature, the distribution of economic resources within the household may also be relevant for understanding fertility behavior.

5 Policy Implications and Conclusions

5.1 Policy Implicationas

Based on the differing relationships between male and female incomes and fertility, and the heterogeneous patterns across population groups, this study offers the following policy recommendations:

Reducing the direct and indirect costs of childbearing for women. First, reduce the direct costs of childbirth. The government should establish free or low-cost childcare and nursery institutions to help working mothers return to the labor market and reduce the time burden associated with childrearing. Second, reduce the opportunity costs of childbirth. Pregnancy and childcare often interrupt women's earnings and career advancement. Relevant social protection measures and legal safeguards should be introduced to retain women's employment and ensure full or partial pay during maternity periods, thereby lowering both the direct and indirect costs of childbearing (Beach and Hanlon, 2023; Cohen et al., 2013; Dildar, 2022; Sandner and Wiynck, 2023; Shanan, 2023).

Target fertility subsidies directly to women rather than households. From the perspective of spousal income disparities, household decisions are determined by the individual utility functions of family members and the outcomes of intra-household bargaining. Accordingly, fertility subsidies should not be distributed uniformly at the household level but rather targeted toward the individual who bears the greatest costs of childbearing. Such a targeted approach would more effectively enhance fertility outcomes (Danzer and Zyska, 2023; Dupas et al., 2025; Khonje et al., 2022; Kim et al., 2023).

Prioritize low-income and rural households. Because the sensitivity of fertility decisions to income changes varies across groups, low-income and rural households are more responsive to income-related fertility incentives. In these families, fertility tends to increase with higher male income and decrease with higher female income, reflecting a greater elasticity to income fluctuations. Therefore, fertility subsidies should be more precisely directed toward these income-sensitive populations. Enhanced financial support for low-income and rural families would help reduce the perceived and actual costs of childbearing and encourage fertility behavior among these groups.

5.2 Conclusions

This study investigates how spousal income levels and income disparities are associated with fertility decisions in China, using nationally representative data from the China Family Panel Studies (CFPS). The results demonstrate that higher female income and a higher wife income share are significantly associated with lower fertility, with the mechanism analysis providing evidence consistent with a role for intra-household bargaining power. Women with stronger economic positions may place greater weight on career continuity and personal development, which may be associated with delayed or reduced childbearing.

The analysis further reveals important heterogeneity across income and residence groups. The negative association between women's income and fertility is particularly pronounced among low-income and rural households, where women's relative income appears to be more strongly associated with household bargaining and fertility decisions. In contrast, fertility behavior among high-income and urban families is more stable, reflecting stronger institutional constraints, higher childrearing costs, and prevailing small-family norms.

5.3 Limitations and Future Research

Although this study provides new evidence on how spousal income distribution and intra-household bargaining power are associated with fertility decisions, several limitations should be acknowledged. First, the CFPS data used in this study end in 2018, which prevents the analysis from capturing the effects of more recent policy changes such as the two-child and three-child policies. Second, the housework measure serves as an indirect proxy for bargaining power and may suffer from reporting errors or measurement bias. Third, as the analysis focuses on Chinese households under specific cultural and institutional settings, the external validity of the findings may be limited when applied to other countries or contexts.

Finally, another limitation concerns the identification of the underlying mechanisms. Although the analysis provides evidence consistent with intra-household bargaining through the allocation of housework, higher female earning capacity may also affect fertility by increasing the opportunity cost of childbearing. Furthermore, housework allocation may reflect both bargaining arrangements and economic specialization within the household. The available data and empirical framework

do not allow us to fully isolate these channels. Future research using direct measures of spouses' fertility preferences, decision-making authority, or exogenous variation in bargaining power could help distinguish their respective contributions.

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