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ABSTRACT

Peer Effects and Fertility Preferences in China: Evidence from the China Labor-Force Dynamics Survey

Despite empirical evidence that individuals form their fertility preferences by observing social norms and interactions in their environments, the exact impact of these peer effects remains unclear. We thus use data from the 2014 and 2016 China Labor-force Dynamics Survey to investigate the association between community-level peer effects and fertility preferences among Chinese women aged 18-49. Whereas our baseline results indicate that 11.96% of these women would prefer 1 or no children, 74.1% would like 2 children, and 13.93% would prefer 3 or more children. A one unit increase in community-level peer fertility reduces the preference of wanting only one child by 14.3%, whereas it increases the probability of preferring three children by 9.3% and four or more children by 4.8%. Hence, overall, we find a relatively strong peer effect on individual fertility preferences in communities characterized by generally low fertility rates, which provides support for the role of social norms in the fertility choices of reproductive-aged Chinese women.

JEL Classification: D10, D71, J13

Keywords: peer effects, fertility, fertility preferences, China

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1. Introduction

Although China's 1979 one-child policy (OCP) boosted economic development by pushing population growth down (Li & Wu, 2013; Song, 2014; Zeng & Hesketh, 2016), it also led to myriad unintended problems, including gender imbalance, an aging population, and a shrinking labor force (Hesketh, Lu, & Xing, 2005; Peng, 2011; Song, 2014; Zeng & Hesketh, 2016). The aging of China's population, in particular, is not only among the most rapid in the world but of the greatest magnitude (Zhao, Smith, & Strauss, 2014) with the 254 million residents (18.1% of total population) aged 60 and over in 2019 ((National Bureau of Statistics of China, 2020) projected to reach 491.5 million (36.5% of total population) by 2050 (United Nations, 2020). Given both the low fertility culture and massive socioeconomic changes in China since the OCP's introduction (Zeng & Hesketh, 2016), even today's two-child policy (TCP) is unlikely to increase fertility substantially, especially given the rising costs of childbearing and childrearing (Ma, 2018; Zheng, Gu, & Gietel-Basten, 2018).[1] The TCP may thus prove an ineffective approach to coping with population aging (Smith, Strauss, & Zhao, 2014).

Although in a simple economic framework, fertility is deemed to be an individual or household decision driven by individual preferences or intentions, in reality it is also shaped by societal norms or perceptions (Mishra & Parasnis, 2017). That is, social decisions, unlike pure economic decisions, are made within social networks whose member interactions may be the key element in choice (Akerlof, 1997). Such social networks are of particular interest to economists because of their inherent *social multiplier effect* by which augmentation of the sum of individual effects by interaction-related peer effects amplifies any shock affecting individual behavior (Fortin & Yazbeck, 2015). A greater understanding of potential peer effects on fertility could thus increase the efficacy of targeted policies and boost the potential benefits of interventions via this social multiplier mechanism.

[1] An analysis of 2014 Chinese Family Survey estimates the direct economic cost of raising a child from 0 to 17 years at 191 thousand yuan (around USD 26.9 thousand), with 273.2 thousand yuan (USD 38.5 thousand) for urban children and 143.4 thousand (USD 20.2 thousand) for rural children (Ma 2018).

The effects of social networks (e.g., peer effects) on individual behaviors and outcomes are already amply documented in the contexts of work time (Collewet, 2015), education (Hanushek, Kain, Markman, & Rivkin, 2003), smoking (Ali & Dwyer, 2009), obesity (Gwozdz et al., 2019), fast food consumption (Fortin & Yazbeck, 2015), crime (Bayer, Hjalmarsson, & Pozen, 2009), financial decisions (Bursztyn, Ederer, Ferman, & Yuchtman, 2014), and agricultural revenue (Songsermsawas, Baylis, Chhatre, & Michelson, 2016). Theories of fertility change and social interactions are also placing greater emphasis on how networks shape childbearing-related norms and schema (Kohler, 2015), resulting in another strand of empirical research on how social networks affect fertility. These studies, which focus primarily on Eastern Asia (Montgomery & Casterline, 1996; Munshi & Myaux, 2006; Sandberg, 2006), Latin America (Rosero-Bixby, 1999), and Africa (Barrett et al., 2020; Kohler, Behrman, & Watkins, 2001; Madhavan & Adams, 2003), examine not only fertility decisions but also such contraception-related issues as the implementation of state birth control programs and the acceptability and use of birth control (Bernardi & Klärner, 2014). Madhavan and Adams (2003), for instance, show that in Mali, not only are network effects on fertility much more pronounced for women aged 30 or older than for younger women, but the effects of social networks on contraceptive use are markedly different for these two groups. Such an association with fertility changes is also documented for Western nations, including Germany (Bernardi, Keim, & Klärner, 2014; Bernardi & Klärner, 2014), the Netherlands (Buyukkececi, Leopold, van Gaalen, & Engelhardt, 2020), Norway (Lyngstad & Prskawetz, 2010) and the US (Balboa & Barban, 2014; Fletcher & Yakusheva, 2016; Yakusheva & Fletcher, 2015). In the US, for instance, a 10 percentage point increase in peer pregnancies is linked to a 2-5 percentage point greater likelihood of an individual becoming pregnant (Fletcher & Yakusheva, 2016). Most such research, however, concentrates on documenting the social network effects on actual fertility decisions or behaviors rather than on fertility intentions or preferences, which are as yet little understood. Yet not only is actual fertility a problematic measure for preference given censuring in the data on incomplete fertility, but focusing on preferences would be particularly informative in societies whose reproduction-related policies or services lead to divergence between actual and desired fertility.

We have in fact only identified two related studies: In the first, Bühler and Fratczak (2005) demonstrate that the personal networks of 758 Polish men and women were especially relevant for their decisions on whether to have a first or second child. The intentions of childless respondents, in particular, appear to have been positively impacted by network partners in a similar stage of their reproductive biographies or who had already taken the step of having a first child. Similarly, Mishra and Parasnis (2017), using data from the 1992/1993–2005/2006 waves of India's National Family Health Survey, finds that a one unit increase in the observed fertility of neighborhood peers reduces the likelihood of preferring 1 child or 2 children by 1% or 6.6%, respectively, but increases the probability of having 3 or 4 children by 1.2% or 3.8%.

To test these observations in the novel setting of China, this study uses data from the 2014 and 2016 waves of the China Labor-force Dynamics Survey (CLDS) to examine the association between the peer effect of observed (actual) fertility and individual fertility preferences. Our contribution to the literature is threefold: first, we focus on China, a country whose dramatically declining fertility during the past few decades (Hou, Zhang, & Gu, 2020) reflects its citizens' low fertility intentions in the current socioeconomic context rather than government fertility policy (Gu, Wang, Guo, & Zhang, 2007). Given our assumption that number of children is a realization of individual childbearing preferences or intentions, understanding fertility preferences since the implementation of China's TCP is especially important. Second, because ours is the first empirical investigation of the effects of community peer fertility on individual fertility preferences in China, it not only fills the knowledge gap on actual versus ideal fertility but also provides an innovative avenue for understanding why individuals (do not) want more children and how to facilitate their reaching replacement goals. In particular, the survey data analyzed provide unique fertility preference information by reporting respondent preferences independent of family planning policies or economic and health conditions. They thus enable assessment of pure peer effects on fertility preferences excluding the potential influence of birth-control policies. Third, because the study explores the nexus between peer effects and fertility preferences, the results are particularly relevant for policies aimed at boosting (below-replacement) fertility rates.

The remainder of the paper is structured as follows: Section 2 documents the changes in China's actual fertility and fertility preferences over time; Section 3 describes the data and methods, and Section 4 reports the results. Section 5 concludes the paper by reviewing the main findings and outlining their primary implications for policy.

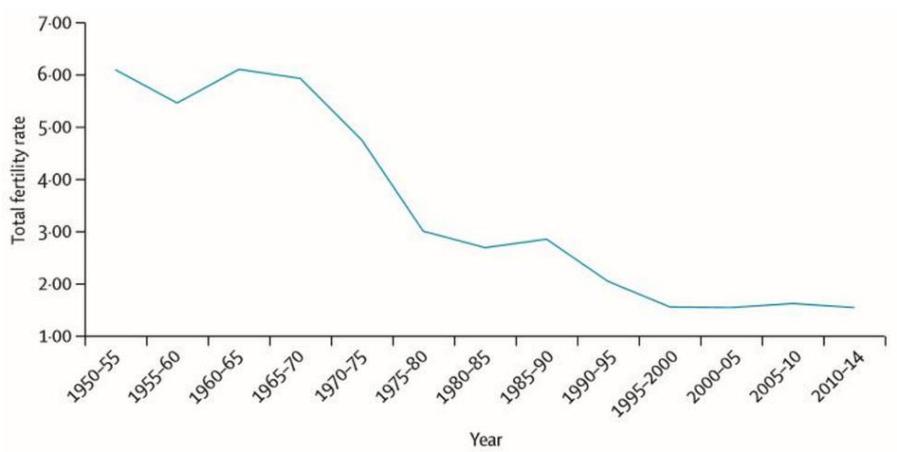
2. Changes in China's actual fertility and fertility preferences over time

2.1 Fertility change in China: 1950-2014

As Figure 1 illustrates, China's total fertility rate (TFR) was relatively stable from 1950 to 1970, with around 6 children per women, creating a population increase from 540 million to more than 800 million over these two decades (Zeng & Hesketh, 2016). In response, the Chinese government implemented the mostly voluntary later-longer-fewer policy (later childbearing, longer spacing between children, and fewer children), which resulted in a sharp decline in the TFR from an estimated 5.9 births per women in 1970 to 2.9 births by 1979. Despite this downward trend, in 1979 the government, fearing persistent overpopulation, introduced the OCP, since when the TFR has continued to decrease but at a less precipitous and relatively stable level (e.g., between 1.5 and 1.7 by the late 1990s).

The reasons for the TFR decline vary in different periods: After an early fertility drop driven mostly by socioeconomic developments and facilitated by access to contraceptive services (Zheng et al., 2018), the OCP then lowered the rate further, particularly in areas less economically developed in terms of industrialization, employment structure, urbanization, educational development, and women's work status (e.g., engagement in paid jobs). Another important determinant of fertility decline since the 1990s has been large scale rural-to-urban migration (Guo, 2010), linked empirically to both sexes marrying later, with nonagricultural employment as a negative predictor for childbearing (see, e.g. Jia & Dong, 2013). Even though the TCP, enacted on January 1, 2016, allows all Chinese couples to have 2 children, its effect on population increase is expected to be unsubstantial (Wang, Zhao, & Zhao, 2016), peaking at about 1.45 billion in 2029 compared with a peak of 1.4 billion under the OCP (Zeng & Hesketh, 2016).

Figure 1 Total fertility rate in China: 1950-2014

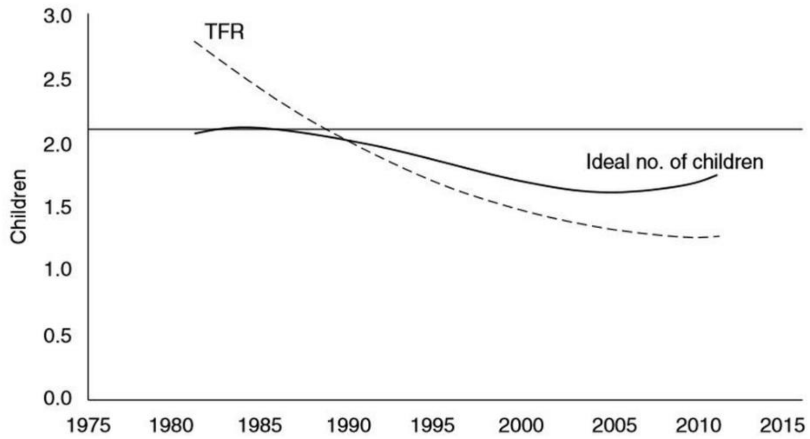


Source: Zeng and Hesketh (2016).

2.2 National-level patterns of fertility preferences: 1980-2011

As outlined in Figure 2, from 1980 to 2011, the average ideal number of children moves in a clear downward trajectory from 2 to about 1.5. Of greater interest, however, is the changing association between ideal number of children and actual fertility (TFR): whereas the latter is much greater than the former during the 1980s, both overlap in 1990, and then the preferred ideal beings to outstrip the TFR with a continually widening gap. The primary driver of this shift is a significant decrease in fertility preferences among rural residents, whose ideal drops from approximately 2.2 in the 1980s to around 1.8 in the 2000s, while that for urban residents remains stable at 1.5 to 1.6 (Hou, Huang, Xin, Sun, & Dou, 2015), somewhat lower than the 2013 average of 1.93 (Zhuang et al., 2014). Nonetheless, fertility preference is often heterogeneous on the provincial level, ranging from 1.61 in Heilongjiang up to 2.23 in Guangdong (Zhuang et al., 2014), with very little desire across the nation for families of 3 or more children ((Zheng et al., 2018).

Figure 2 Average ideal number of children in China: 1980-2011



Source: Hou et al. (2015).

3. Data and methods

3.1 Study design and sample

Our analysis is based primarily on data from the China Labor-force Dynamics Survey (CLDS), a large-scale, nationally representative, longitudinal survey administered by the Center for Social Survey at China's Sun Yat-Sen University. First conducted in 2012 as a baseline survey encompassing 29 of China's 31 provinces or autonomous regions (excluding Hainan and Tibet; (Hao & Liang, 2016), the survey's stratified multistage sampling design employs multilevel (community, household, and individual) sampling frames constructed from 2010 China Census summary tables and an onsite map of dwelling units (Hao & Liang, 2016). We confine our analysis to data from the 2014 and 2016 follow-up interviews because these collected information on the ideal number of children. Given our study focus, we restrict our sample to women in the common reproductive age range of 18–49 (cf., Chen & Wang, 2015; Mishra & Parasnis, 2017) for whom detailed information is available on demographics, household socioeconomics, and the ideal number of children specified by the respondent. The result is a final sample of 3,645 observations, 1,942 for 2014 and 1,703 for 2016. The major advantage of using the CLDS is that it is one of the few surveys in China that contains nationally representative information on fertility preferences among reproductive-aged women.

3.2 Peers

As is common in the peer-effects literature (e.g., Gwozdz et al., 2019; Nie, Sousa-Poza, & He, 2015), we define peers as all women in the same community (c.f. Mishra & Parasnis, 2017) and then derive our community-level peer fertility rate as the ratio of the number of living children in the community to the total number of these peers. In doing so, we use the actual rather than preferred number of children because only the former is observable. Although we could define peers less broadly by focusing on the fertility of friends, our community-level measure relies less on behavioral imitation and more on changes in individual perceptions of the social norms surrounding fertility preferences. It thus offers the methodological advantage of eliminating any concerns about endogeneity based on reverse causality.

3.3 Fertility preferences

In Manski's (2000) conceptual framework of social interactions, agents make choices via three channels − preferences, expectations, and constraints – through which the agent's peer group also influences decisions. In our analysis, similar to Mishra and Parasnis (2017), we focus on preference interactions in which the actions selected by the group affect an agent's preference orderings over the alternatives in her choice set. We base our measure of fertility preferences on responses to the following prompt: "If you do not consider the family planning policy and economic and health conditions, what is your ideal number of children in a family?" By explicitly asking for preferences irrespective of policies or economic status, this question effectively disentangles preferences from constraints.

3.4 Sociodemographic characteristics

Our empirical analysis controls for several sociodemographic and economic characteristics; namely, couple's ages, education, employment status, and marital duration; number of wife's siblings; total household size and economic status; regional location; and whether resident in a rural area. We include education because it is one of the most established socioeconomic predictors for reproductive behavior and usually inversely linked to fertility intentions (Berrington & Pattaro, 2014; Handa, 2000). After initially coding it on a 5-point scale of 1 = illiterate, 2 = primary school, 3 = secondary school, 4 = vocational school, and 5 = university or higher, we convert it to a dummy variable with illiterate as the reference. Like Mishra and Parasnis (2017), we add in marital duration (in years), first as a continuous variable that we recode as 1 = 0-4, 2 = 5-8, 3 = 9-15, 4 = 16-25 and 5 = 26+ and then collapsed into a dummy with 0-4 as the reference. Because employment status is an important predictor of fertility preferences (see, e.g. Del Boca & Sauer, 2009; Hilgeman & Butts, 2009), we use two dummies to indicate whether the wife or husband is employed (1 = yes, 0 = no). Because annual household income determines the household's financial capacity to raise children and thus positively affects both actual and preferred fertility rates (see, e.g. Moav, 2005; Zhou & Guo, 2020), we include total household income, measured on a 5-point Likert scale from 1 = poorest to 5 = richest, as well as household size. To address the existence of spatial heterogeneities in fertility (Hou et al., 2015; Zheng et al., 2018), we also construct a rural dummy (1 = rural, 0 = urban), and a regional dummy (1 = east, 2 = central, 3 = north, and 4 = northeast) with east as the reference.

3.5 Empirical strategy

Our ordered probit estimation employs the following model:

$$FP_{ij} = \beta_0 + \beta_1 \overline{FR}_{ij} + \beta_2 X_{ij} + \beta_3 F_{ij} + \beta_4 R_{ij} + \beta_5 S_{ij} + \beta_6 W_{ij} + \varepsilon_{ic} \quad (1)$$

where FP_{ic} denotes the fertility preferences of individual i in community j, and $\overline{FR}_{ij}$ captures the community-level fertility rate. X_{ij} is a vector of individual characteristics, F_{ij} is a vector of family and husband's characteristics, R_{ij} is a dummy for living in a rural area, and S_{ij} is a vector of regional dummies (with east as the reference). W_{ij} is a year dummy (with 2014 as the reference), ε_{ic} is the individual-specific error term, and β_1 is the coefficient representing the association between community-level peer fertility and fertility preferences. To ease the interpretation of estimated coefficients, we calculate the marginal effects (MEs) for model 1, which measures the probability of having a certain ideal number of children given a unit increase in peer fertility with all other variables kept at their sample means. As a robustness check, we also estimate ordinary least squared (OLS) models, probit models (with fertility preference as a binary variable: 1 = 3 or more children, 0 = otherwise), and panel (random effects) models.

4. Results

4.1 Descriptive statistics

As Table 1 shows, the 2014 and 2016 waves encompass 142 and 91 communities, respectively, with most communities comprising 10-19 households but a mean household number per community of around 14 in 2014 and 18 in 2016. In accordance with other evidence for China (Hou et al., 2015; Jiang, Li, & Sánchez-Barricarte, 2016; Zheng et al., 2018), the mean value of the community-level fertility rate is approximately 1.6 (*SD* = 0.011) (see Table 2). The mean age of the wives is around 38 while that of the husbands is approximately 40. Just over half (51.5%) of the wives have a secondary education compared with 58.6% of the husbands, and 85.9% of them work compared with 96.6% of the husbands. The vast majority of the women reside in rural areas (64.9%), with 34.8% of them belonging to households whose total income categorizes them as poor.

Table 1 Descriptive statistics for community-level peers: CLDS 2014 and 2016

Community-level peers	2014		2016	
	No. of	%	No. of	%
No of households in a community				
10-14	94	49.74%	48	25.40%
15-19	38	20.11%	18	9.52%
20-24	8	4.23%	7	3.70%
25-29	2	1.06%	7	3.70%
31+	0	0.00%	11	5.82%
No. of communities	142	60.94%	91	39.06%
Average no. of households in a community	13.676		18.714	

Note: CLDS= China Labor-force Dynamics Survey. Peers = all women living in the same community.

Table 2 Descriptive statistics: CLDS 2014 and 2016 (adjusted by sampling weight)

Variables	Mean	SD
Fertility rate (%)	1.579	0.011
Wife's age (years)	37.682	0.191
Husband's age (years)	39.965	0.194
Number of wife's siblings	2.859	0.038
Household size	5.041	0.047
Total household income		
Poorest	0.049	0.005
Poorer	0.299	0.010
Middle	0.355	0.011
Richer	0.192	0.009
Richest	0.104	0.007
Marital duration (in years)		
0-4	0.129	0.008
5-8	0.131	0.007
9-15	0.222	0.009
16-25	0.391	0.011
26+	0.127	0.007
Wife's education		
Illiterate	0.053	0.005
Primary school	0.256	0.010
Secondary school	0.515	0.011
Vocational school	0.129	0.008
University or higher	0.047	0.004
Husband's education		
Illiterate	0.016	0.002
Primary school	0.196	0.009
Secondary school	0.586	0.011
Vocational school	0.146	0.008
University or higher	0.056	0.005
Wife's employment status		
Employed	0.859	0.008
Husband's employment status		
Employed	0.966	0.004
Rural	0.649	0.011
Region		
East	0.428	0.011
Center	0.252	0.011

West	0.252	0.009
Northeast	0.068	0.006
Obs.	3645	

Note: Fertility rate = average communal fertility rate (number of living children in the community to number of women in the community). SD= standard deviation.

As regards TFR, the overall fertility rate increased slightly from 1.54 in 2014 to 1.62 in 2016 (see Table 3), possibly driven by the January 2016 implementation of the TCP. Nonetheless, by breaking the mean fertility rates out for the four different regions in both survey years, we reveal regional heterogeneities that range from around 1.32 (1.42) in the northeast to 1.77 (1.71) in the west in 2014 (2016), which is consistent with previous findings for China (Guo, Wu, Schimmele, & Li, 2012; Wang, 2019).

Table 3 Fertility rate by region (adjusted by sampling weight): CLDS 2014 and 2016

Region	2014	2016
East	1.430	1.542
Center	1.544	1.698
West	1.772	1.711
Northeast	1.317	1.420
Total	1.544	1.615
Obs.	1,942	1,703

Note: Average fertility rate = number of living children in the community divided by number of women in the community.

Next, by outlining the fertility preference distribution for the full, urban, and rural samples (Table 4), we demonstrate that, in line with previous studies on Chinese fertility preferences (Hou et al., 2015; Hou et al., 2020; Zheng et al., 2018), a considerable proportion (74.1%) of the reproductive-aged women considered 2 children the ideal family size. Only 11.41% of the women selected 1 child as their ideal number, compared to 13.93% that would have liked 3 or more. Rural women were more likely than their urban counterparts to stipulate 2 or more children as their ideal preference.

Table 4 Distribution of fertility preferences (on a 5-point scale): CLDS 2014 and 2016

Area	Equal to 0	Equal to 1	Equal to 2	Equal to 3	4 or more
Urban[a]	0.27%	5.49%	27.38%	2.94%	0.66%
Rural	0.27%	5.93%	46.72%	6.75%	3.59%

Total	0.55%	11.41%	74.10%	9.68%	4.25%

Note: Ideal number of children as reported by CLDS respondents independent of family planning policy and economic and health conditions.

[a] The urban/rural proportion of the fertility preference distribution is the total fertility preference distribution divided by urban/rural area.

4.3 Community-level peer effect on fertility preferences

According to our ordered probit estimates of the community-level peer effect on individual fertility preferences (Table 5), a one unit increase in the actual fertility of community peers reduces the ideal preference for 0 or 1 child by 1% and 14%, respectively, but increases that for 3 or more children by 9.3% and 4.8%. This probability of having 3 or more children is also inversely associated with the woman's age and positively associated with the number of her siblings and the size of her household. Women with a higher total household income are also more likely than those in the poorest households to have 1 child and less likely to want 3 or more. Thus, although the survey question is intended to elicit preferences independent of financial constraints, income still appears to be associated with desired fertility. Moreover, employed women, in direct contrast to employed men, are less likely to have 3 or more children, although women residing in the northwest are less likely than those in the east to have 2 children or more. Of particular note, women surveyed in the 2016 wave are more likely than respondents from the 2014 wave to have 3 or more children, which may partially account for the increase in actual fertility rate reported in Table 3.

Table 5 Ordered probit estimates of the community-level peer effect on fertility preferences (on a 5-point scale, marginal effects)

	Fertility preference (no. of children)				
	Equal to 0	Equal to 1	Equal to 2	Equal to 3	4 or more
Community-level peer	-0.010***	-0.143***	0.013	0.093***	0.048***
	(0.003)	(0.020)	(0.012)	(0.012)	(0.008)
Wife's age (years)	0.000*	0.004**	-0.000	-0.003**	-0.001**
	(0.000)	(0.002)	(0.000)	(0.001)	(0.001)
Husband's age (years)	-0.000	-0.002	0.000	0.001	0.001
	(0.000)	(0.002)	(0.000)	(0.001)	(0.001)
Number of wife's siblings	-0.001***	-0.013***	0.001	0.009***	0.004***

	(0.000)	(0.003)	(0.001)	(0.002)	(0.001)
Household size	-0.001**	-0.008***	0.001	0.005***	0.003***
	(0.000)	(0.003)	(0.001)	(0.002)	(0.001)
Total household income					
Poorer	0.005**	0.071***	-0.006	-0.046***	-0.024***
	(0.002)	(0.020)	(0.006)	(0.013)	(0.008)
Middle	0.005**	0.069***	-0.006	-0.045***	-0.023***
	(0.002)	(0.022)	(0.006)	(0.015)	(0.008)
Richer	0.005**	0.068**	-0.006	-0.044**	-0.023**
	(0.002)	(0.027)	(0.006)	(0.017)	(0.010)
Richest	0.005**	0.071***	-0.006	-0.046***	-0.024**
	(0.002)	(0.026)	(0.006)	(0.017)	(0.010)
Marital duration (in years)					
5-8	0.000	0.005	-0.000	-0.003	-0.002
	(0.001)	(0.019)	(0.002)	(0.012)	(0.006)
9-15	-0.002	-0.024	0.002	0.016	0.008
	(0.002)	(0.022)	(0.003)	(0.014)	(0.007)
16-25	-0.004	-0.053*	0.005	0.034*	0.018*
	(0.003)	(0.031)	(0.005)	(0.020)	(0.011)
26+	-0.005	-0.076*	0.007	0.049*	0.025*
	(0.004)	(0.042)	(0.007)	(0.028)	(0.015)
Wife's education					
Primary school	0.001	0.013	-0.001	-0.008	-0.004
	(0.001)	(0.021)	(0.002)	(0.013)	(0.007)
Secondary school	0.001	0.019	-0.002	-0.013	-0.006
	(0.002)	(0.021)	(0.002)	(0.014)	(0.007)
Vocational school	0.001	0.019	-0.002	-0.012	-0.006
	(0.002)	(0.026)	(0.003)	(0.017)	(0.009)
University or higher	0.002	0.024	-0.002	-0.016	-0.008
	(0.002)	(0.032)	(0.003)	(0.021)	(0.011)
Husband's education					
Primary school	-0.007	-0.104	0.009	0.067	0.035
	(0.005)	(0.064)	(0.010)	(0.041)	(0.022)
Secondary school	-0.006	-0.093	0.008	0.060	0.031
	(0.005)	(0.059)	(0.010)	(0.038)	(0.020)
Vocational school	-0.005	-0.073	0.007	0.047	0.024
	(0.005)	(0.061)	(0.008)	(0.039)	(0.021)
University or higher	-0.008	-0.110*	0.010	0.071*	0.037*
	(0.005)	(0.064)	(0.011)	(0.041)	(0.022)
Wife's employment status					
Employed	0.002**	0.034**	-0.003	-0.022**	-0.011**

	(0.001)	(0.014)	(0.003)	(0.009)	(0.005)
Husband's employment					
Employed	-0.004**	-0.057**	0.005	0.037**	0.019**
	(0.002)	(0.022)	(0.005)	(0.014)	(0.008)
Rural	0.002**	0.030**	-0.003	-0.019**	-0.010**
	(0.001)	(0.013)	(0.003)	(0.008)	(0.004)
Region					
Center	0.002	0.027	-0.002	-0.017	-0.009
	(0.001)	(0.018)	(0.003)	(0.011)	(0.006)
West	0.002	0.022	-0.002	-0.014	-0.007
	(0.001)	(0.017)	(0.002)	(0.011)	(0.006)
Northeast	0.011***	0.160***	-0.014	-0.104***	-0.053***
	(0.004)	(0.026)	(0.013)	(0.019)	(0.011)
Wave					
2016	-0.002*	-0.025*	0.002	0.016*	0.008*
	(0.001)	(0.013)	(0.002)	(0.009)	(0.005)
Pseudo R^2			0.134		
Obs.			3645		

Note: The controls include wife's age, husband's age, household size, educational level (illiterate, primary school, secondary school, vocational school, and university or higher), marital duration (0-4, 5-8, 9-15, 16-25, 26+), employment status (1=employed, 0=unemployed), number of wife's siblings, and household income quantiles (poorest, poorer, middle, richer and richest, with poorest as the reference), area (1=urban, 0=rural), regional dummies (1=east, 2=center, 3=west and 4=northeast, with east as the reference), and wave dummies (with 2014 as the reference). Robust standard errors are in parentheses. * p<0.1; **p<0.05; *** p< 0.01.

4.4 Robustness checks

As a robustness check, we merge the "equal to 0" and "equal to 1" categories into "equal to 1 or less" and redefine fertility preferences on a 4-point scale. Rerunning the original estimates under this specification reveals that a one unit increase in actual (i.e., observed) community-level peer fertility reduces the ideal preference for 1 or 0 children by 15.3% but increases that for 3 or 4 or more children by 9.2% and 4.8%, respectively (see Table A1). These findings are consistent with those reported in Table 5. In an additional test, we treat fertility preference as a continuous variable and estimate OLS and random effects models using a Hausman test to determine whether to use fixed effects or random effects for the panel estimates. A *p*-value of 0.407 for this latter indicates that the null hypothesis cannot be rejected, making the random effects estimation the appropriate choice. Yet again, we find significantly positive associations between actual community-level peer fertility and fertility preferences, with relatively comparable magnitudes: 0.384 for the OLS and 0.386 for the random effects models (Panels A and C). In a final test, we redefine fertility preference as a dummy equal to 1 if the ideal number of children is 2 or more (0 otherwise) and run separate probit and random logit regressions. These results, like those in Table 5, confirm that a one unit increase in the actual (observed) community-level peer fertility augments the likelihood of wanting 2 or more children by 15.6% in the probit estimations and by 15.2% in the random logit estimation (Panels B and D).

Table 6 OLS/probit/random/random logit estimates of the community-level peer effect on fertility preferences

Panel A: OLS estimation (with fertility preference as a continuous variable)	
Community-level peer effect	0.384***
	(0.048)
Adjusted R^2	0.204
Obs.	3645
Panel B: Probit estimation (with fertility preference as a binary variable) [a]	
Community-level peer effect	0.156***
	(0.025)
Pseudo R^2	0.156
Obs.	3645
Panel C: Random estimation (with fertility preference as a continuous variable)	
Community-level peer effect	0.386***
	(0.022)
Obs.	3645
Panel D: Random logit estimation (with fertility preference as a binary variable)	
Community-level peer effect	0.152***
	(0.011)
Obs.	3645

Note: The controls include wife's age, husband's age, household size, educational levels (illiterate, primary school, secondary school, vocational school, and university or higher), marital duration (0-6, 7-14, 14-22, 22-30, 30+), employment status (1=employed, 0=unemployed), number of wife's siblings, household income quantiles (poorest, poorer, middle, richer and richest, with poorest as the reference), area (1=urban, 0=rural), regional dummies (1=east, 2=center, 3=west and 4=northeast, with east as the reference), and wave dummies (with 2014 as the reference). Robust standard errors are in parentheses. * p<0.1; **p<0.05; *** p< 0.01.

[a] Marginal effects of community-level peer fertility on fertility preferences.

5. Discussion and Conclusions

To explore the nexus between community peer fertility and women's individual fertility preferences in China, we use data from the 2014 and 2016 CLDS to construct community-level rates of actual fertility and then link these measures to fertility preferences among reproductive-aged women in the same community. Our study yields several key findings: First, despite a slight increase from 2014 to 2016, the actual fertility rate overall is quite low, with discernable regional heterogeneities that range from highest rates in the west to lowest in the northwest. Nevertheless, women who are older, live in an affluent family, are employed, reside in a rural area and/or the northwest are less likely to have 3 or more children, while those with larger numbers of siblings and household size – as well as employed husbands in the 2016 wave − are more prone to have 3 or more children. For the majority of women in our sample, however, the ideal preference is exactly 2 children. As regards peer effects, a one unit increase in actual community-level peer fertility reduces the probability of having no children or 1 child by 1% and 14%, respectively, while increasing the desire for 3 or 4 or more children by 9.3% and 4.8%. This latter implies that community peers have a greater impact on the fertility choices of larger households. Moreover, although these results accord with those of Mishra and Parasnis (2017) for India, the magnitude of the associations differs substantially. For example, the marginal effect of actual community-level peer fertility on the preference for 3 children is much larger in our sample than in the Indian sample at 9.3% versus 1.2% (Mishra & Parasnis, 2017).

One important policy implication of our findings is that although China has implemented the TCP to boost its fertility rate, a significant rise in fertility might be unlikely. First, given the low desired fertility in our sample independent of policy or income considerations, any constraints on these preferences will likely lead to even lower fertility preferences, especially in the face of high childbearing and childrearing costs, a lack of accessible childcare, and difficulty in balancing work and family (Wang, 2015; Zheng et al., 2018). The Chinese government thus faces the daunting task of not only having to reform the nation's social security and healthcare systems, but also of creating more family-friendly conditions for young couples who want to pursue careers and start a family (Wang, 2015). Any attempt to increase fertility may also be constrained by fertility-related social norms, which in our study manifest as generally low community fertility rates combined with a strong peer effect on individual fertility preferences. Admittedly, the Chinese government could augment the TCP with pro-natalist policies (e.g., female employment, accessible and affordable childcare, maternal insurance), but given the difficulty of changing societal norms that have evolved over generations, it is unlikely that such policies will have any meaningful effect in the near term.

Overall, then our results support Akerlof (1997) proposition that in making their fertility choices, families act in a conformist manner designed to minimize the social distance between themselves and others, represented in our case by community peers. Nonetheless, given the paucity of long-term longitudinal data on fertility preferences and fertility history, additional research is needed to provide a better microlevel understanding of the dynamics of social interactions as they relate to fertility preferences and behavioral change. In particular, given the probable interactions between the four social mechanisms of social learning, social pressure, social contagion, and social support (Bernardi & Klärner, 2014), valuable information could be gleaned by exploring the multiple pathways through which social interactions operate on both fertility preferences and related behavior.

Conflicts of interest

None.

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Appendix

Table A1 Ordered probit estimates of the community-level peer effect on fertility preferences (4-point scale, marginal effects)

	Fertility preference (no. of children)			
	Equal to 1 or less	Equal to 2	Equal to 3	4 or more
Community-level peer	-0.153***	0.013	0.092***	0.048***
	(0.021)	(0.012)	(0.012)	(0.008)
Wife's age (years)	0.004**	-0.000	-0.002**	-0.001**
	(0.002)	(0.000)	(0.001)	(0.001)
Husband's age (years)	-0.002	0.000	0.001	0.001
	(0.002)	(0.000)	(0.001)	(0.001)
Number of wife's siblings	-0.015***	0.001	0.009***	0.005***
	(0.004)	(0.001)	(0.002)	(0.001)
Household size	-0.009***	0.001	0.005***	0.003***
	(0.003)	(0.001)	(0.002)	(0.001)
Total household income				
Poorer	0.081***	-0.007	-0.049***	-0.025***
	(0.022)	(0.006)	(0.014)	(0.008)
Middle	0.081***	-0.007	-0.049***	-0.025***
	(0.024)	(0.006)	(0.015)	(0.009)
Richer	0.080***	-0.007	-0.048***	-0.025**
	(0.030)	(0.007)	(0.018)	(0.010)
Richest	0.084***	-0.007	-0.051***	-0.026***
	(0.028)	(0.007)	(0.017)	(0.010)
Marital duration (in years)				
5-8	0.007	-0.001	-0.004	-0.002
	(0.021)	(0.002)	(0.012)	(0.006)
9-15	-0.022	0.002	0.013	0.007
	(0.023)	(0.002)	(0.014)	(0.007)
16-25	-0.055*	0.005	0.033*	0.017
	(0.033)	(0.005)	(0.020)	(0.011)
26+	-0.078*	0.006	0.047*	0.024
	(0.045)	(0.007)	(0.028)	(0.015)
Wife's education				
Primary school	0.016	-0.001	-0.010	-0.005
	(0.023)	(0.002)	(0.014)	(0.007)
Secondary school	0.023	-0.002	-0.014	-0.007
	(0.023)	(0.002)	(0.014)	(0.008)
Vocational school	0.024	-0.002	-0.014	-0.007
	(0.028)	(0.003)	(0.017)	(0.009)

University or higher	0.022	-0.002	-0.013	-0.007
	(0.034)	(0.003)	(0.021)	(0.011)
Husband's education				
Primary school	-0.094	0.008	0.057	0.029
	(0.065)	(0.009)	(0.039)	(0.021)
Secondary school	-0.084	0.007	0.051	0.026
	(0.061)	(0.009)	(0.037)	(0.019)
Vocational school	-0.062	0.005	0.037	0.019
	(0.063)	(0.007)	(0.038)	(0.020)
University or higher	-0.099	0.008	0.060	0.031
	(0.066)	(0.010)	(0.039)	(0.021)
Wife's employment status				
Employed	0.036**	-0.003	-0.022**	-0.011**
	(0.016)	(0.003)	(0.009)	(0.005)
Husband's employment				
Employed	-0.066***	0.006	0.040***	0.021**
	(0.025)	(0.006)	(0.015)	(0.008)
Rural	0.033**	-0.003	-0.020**	-0.010**
	(0.014)	(0.003)	(0.008)	(0.004)
Region				
Center	0.030	-0.003	-0.018	-0.009
	(0.019)	(0.003)	(0.012)	(0.006)
West	0.024	-0.002	-0.014	-0.007
	(0.018)	(0.002)	(0.011)	(0.006)
Northeast	0.179***	-0.015	-0.108***	-0.056***
	(0.029)	(0.014)	(0.020)	(0.012)
Wave				
2016	-0.029**	0.002	0.018**	0.009*
	(0.014)	(0.002)	(0.009)	(0.005)
Pseudo R^2		0.139		
Obs.		3645		

Note: The controls include wife's age, husband's age, household size, educational level (illiterate, primary school, secondary school, vocational school, and university or higher), marital duration (0-4, 5-8, 9-15, 16-25, 26+), employment status (1=employed, 0=unemployed), number of wife's siblings, and household income quantiles (poorest, poorer, middle, richer and richest, with poorest as the reference), area (1=urban, 0=rural), regional dummies (1=east, 2=center, 3=west and 4=northeast,, with east as the reference), and wave dummies (with 2014 as the reference). Robust standard errors are in parentheses. * p<0.1; **p<0.05; *** p< 0.01.