Discussion Paper Series – CRC TR 224

Discussion Paper No. 747
Project A 03

Low Fertility Around the World: The Role of Social Norms

Kanato Nakakuni[1]
Michèle Tertilt[2]
Minchul Yum[3]

May 2026

[1] Department of Economics, University of Mannheim, L7 3-5, D-68131
Mannheim Email: kanato.nakakuni@uni-mannheim.de
[2] Department of Economics, University of
Mannheim, L7 3-5, D-68131 Mannheim Email: tertilt@uni-mannheim.de
[3] Department of Economics,
Virginia Commonwealth University, 301 W. Main St., Richmond, VA 23284, USA Email: yumm@vcu.edu

Support by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) through CRC TR 224 is gratefully acknowledged.

Low Fertility Around the World: The Role of Social Norms*

Kanato Nakakuni Michèle Tertilt Minchul Yum

March 2026

Abstract

This chapter examines how social norms shape fertility behavior. We first present cross-country evidence linking fertility to norms regarding family size, childcare, gender roles, parenting, and sexual behavior. We also review empirical studies showing substantial fertility spillovers within families, workplaces, and social networks. To interpret these patterns, we present a series of models to clarify the mechanisms through which norms and fertility decisions interact. We organize the theories by type of norm: norms about ideal family size, norms governing the use of market childcare, gender norms within the household, parenting norms related to educational investment and social comparison, and norms surrounding birth control. We discuss how changes in social norms over time may have contributed to fertility decline. Finally, we highlight promising directions for future research.

Keywords: Fertility, Social Norms, Externality, Pro-natal Policies

*This manuscript is prepared for a chapter in the volume, *New Frontiers in Fertility*, edited by James J. Heckman. We thank Jisoo Hwang, Zainab Iftikhar, Almudena Sevilla, Romain Wacziarg, David Weil, Junjian Yi, Anson Zhou, and Hosny Zoabi for their helpful comments and suggestions. We gratefully acknowledge funding from the German Research Foundation (through the CRC-TR-224 project A3 and the Gottfried Wilhelm Leibniz Prize, Tertilt). Nakakuni: Department of Economics, University of Mannheim, L7 3-5, D-68131 Mannheim (email: kanato.nakakuni@uni-mannheim.de). Tertilt: Department of Economics, University of Mannheim, L7 3-5, D-68131 Mannheim (email: tertilt@uni-mannheim.de). Yum: Department of Economics, Virginia Commonwealth University, 301 W. Main St., Richmond, VA 23284, USA (email: yumm@vcu.edu).

1 Introduction

World fertility is currently at a historic low, with fewer than 2.5 children per woman in 2025, nearly half its level in the 1960s. Roughly half of all countries today have fertility rates below the replacement rate of 2.1, and more than 80% experienced a decline in the past year alone (Mahler, Tertilt, and Yum 2025). Persistently low fertility rates have raised concerns among policymakers, particularly regarding the sustainability of pension and other transfer systems. While pro-natalist policies in its various forms seem to work, the effect appears quantitatively modest (Olivetti and Petrongolo 2017; Hart et al. 2024; Gauthier and Gietel-Basten 2025).

To design appropriate policies that address fertility decline, it is essential to understand the reasons behind low birth rates. As Doepke et al. (2023) argue, traditional fertility theories are no longer sufficient for understanding current fertility patterns.[1] They emphasize that four new factors are key for maintaining stable birth rates in a world where mothers aspire to combine careers and family life, much like fathers: family policy, cooperative fathers, labor-market flexibility, and social norms. This last factor is the focus of our chapter. But exactly how do social norms play a role in shaping fertility choices? Which norms matter most and how are norms formed? What is the empirical evidence on the role of norms? To date no comprehensive survey answering these questions exists.

Before reviewing the evidence and theoretical frameworks, it is useful to clarify what we mean by social norms. The Oxford Dictionary of Media and Communication defines a *social norm* as a "common standard within a social group regarding socially acceptable or appropriate behavior in particular situations, the breach of which has social consequences." Norms are closely related to peer pressure, defined as the "psychological and social influence exerted by a group to encourage conformity to shared behavioral standards."[2] The literature also sometimes uses the term culture with a similar meaning; for a broader discussion of the concept of culture in demographic analysis, see Hammel (1990). For the purpose of this chapter, we adopt a broad definition of social norms and include work analyzing how norms, peer effects, and culture shape fertility decisions.[3]

In economic models, norms often arise from the behavior of others—such as peers or pre-

[1] Hannusch and Yum (2026) review economic models explaining historical fertility patterns such as the demographic transition, the baby boom, and the baby bust.

[2] Source: Oxford Reference, accessed online February 26, 2026.

[3] See also Elster (1989) for an influential and distinct perspective on social norms.

vious generations—and may generate externalities. For example, a couple choosing to have only one child may contribute to the emergence of a one-child norm within their social network. If such effects are not internalized, fertility may be below the optimal level chosen by a planner who accounts for these spillovers, creating scope for policy intervention. In this chapter, we thus distinguish between exogenous and endogenous social norms.[4] With exogenous norms, parents incur a utility cost from deviating from a prescribed benchmark, such as a socially accepted family size. The second approach models norms as endogenous equilibrium objects arising from social interactions, so that other people's choices directly enter a parent's maximization problem. When utility depends on fertility relative to the population average—an outcome jointly determined by individual decisions—the mechanism resembles a classical externality. In this case, the decentralized equilibrium is generally inefficient.[5]

The theoretical literature implements these ideas in several distinct ways. The most direct approach introduces a norm over family size itself—for example, a two-child norm that enters household utility directly. Yet, norms concerning related dimensions of behavior are also important for fertility decisions. These include norms about the division of labor within the household, the outsourcing of childcare, child outcomes, and sexual behavior. In such frameworks, fertility responds indirectly to norms governing related choices rather than to an explicit norm about the number of children. While norms regarding family size and gender roles have received considerable attention, parenting norms—such as intensive parenting and status competition over child investment—remain relatively underdeveloped and have only recently begun to receive attention in formal economic models of fertility.

We begin by documenting systematic cross-country associations between fertility and a range of social norms. Fertility is strongly correlated with norms concerning family size, childcare, gender roles, parenting, and sexual behavior. Importantly, these relationships are not uniform across countries. In several domains, the sign and strength of the association differ between high-income and lower-income countries, suggesting that the economic and institutional environment mediates how norms translate into fertility behavior. This heterogeneity underscores the need for theoretical frameworks that explicitly model the interaction

[4] Durlauf and Walker (2001) emphasize the importance of this distinction for policy evaluation.

[5] While Pareto efficiency is not defined for models with endogenous population size, one can circumvent this by focusing on the parent generation only, which works well in static models. Golosov, Jones, and Tertilt (2007) propose concepts for dynamic models. For a broader discussion of efficiency concepts in models with endogenous fertility, see also Doepke et al. (2023).

between norms and economic incentives. We also organize a growing empirical literature documenting substantial fertility spillovers within families, neighborhoods, workplaces, and social networks. The magnitude of these spillovers suggests that social norms likely play an important role in explaining persistently low fertility in many contemporary settings.

Because empirical studies often remain silent about both the origins of norms (exogenous versus endogenous) and the channels through which spillovers operate, theoretical frameworks are essential for clarifying the underlying mechanisms. We describe a sequence of simple models to explain five different channels linking social norms to fertility outcomes. The first model shows how norms about ideal family size can anchor fertility outcomes. Depending on the reference level, such a mechanism can amplify or dampen intrinsic fertility desires. The second model relates norms about purchased childcare to fertility outcomes. We show how social norms that stigmatize market-based childcare can depress fertility rates. Third, we show how gender norms relate to fertility outcomes. While in our simple model traditional gender norms depress fertility, we also show that egalitarian gender norms may have a non-monotonic effect on fertility. The fourth model connects parenting norms about educational investments with fertility outcomes. We show that when social comparisons among parents are strong and the benchmark is formed endogenously, fertility outcomes are sub-optimally low. Our fifth model shows how social norms stigmatizing birth control keep fertility artificially high. The disappearance of such norms may thus have contributed to fertility declines. We argue that several of these channels may indeed be relevant in explaining the extremely low fertility rates in several high-income countries today. In the last part of the chapter, we build on the theoretical frameworks of different social norms to discuss how changes in social norms over time may have contributed to the fertility decline and outline promising directions for future research.

The idea that social norms, aspirations, and reference groups influence fertility dates back more than half a century (Easterlin 1968; Wachter 1972; Easterlin 1973; Leibenstein 1974; Wachter 1975; Crook 1978; Easterlin, Pollak, and Wachter 1980). A growing body of economic research formalizes the role of social norms in fertility decisions, beginning with the seminal contributions of Akerlof (1997) and Akerlof and Kranton (2000). There is also a large literature in demography analyzing the role of societal interaction in spreading new norms and attitudes toward fertility during the demographic transition (Coale and Watkins 1986; Preston 1986; Rindfuss, Brewster, and Kavee 1996; Bongaarts and Watkins 1996). For example, David and Sanderson (1987) emphasize the emergence of the two-child norm in the U.S. during the 19th century. In contrast to this earlier literature with its focus on the demographic transition, the focus of our chapter is on understanding the role of norms in the extremely low fertility rates observed in many countries today.

Our focus is specifically on the connection between fertility choices and social norms. For broader surveys of the economics of fertility, see Hannusch and Yum (2026) and Doepke et al. (2023) and earlier reviews by Jones, Schoonbroodt, and Tertilt (2010), Greenwood, Guner, and Vandenbroucke (2017), and Hotz, Klerman, and Willis (1997). Bau and Fernández (2023) provide a comprehensive survey of culture and the family that extends beyond fertility to institutions such as matrilineality, polygyny, brideprice and dowries, and son preference. While son preference has historically influenced fertility behavior, evidence suggests that it has weakened substantially in recent decades, particularly in low-fertility contexts such as the United States and Korea (Blau et al. 2020; Choi and Hwang 2020). Because our focus is on contemporary low-fertility settings where son preference appears less salient, we do not emphasize this mechanism. Field, McKelway, and Voena (2026) provides a related survey on the relevance of family norms throughout the development process. Similarly, Gobbi, Hannusch, and Rossi (2026) surveys the literature analyzing family institutions (including norms) for the global fertility transition. There is also a large literature on gender norms and the labor market; see Cortes et al. (2025) for a recent survey.

We begin in Section 2 by documenting cross-country evidence linking fertility to norms about family size, gender roles, childcare, parenting, and sexual behavior, highlighting that these relationships differ across income groups. In Section 3 we review empirical evidence on fertility spillovers within families, workplaces, and social networks. In Section 4, we present theories that formalize how norms, whether exogenous or arising from social interactions, shape fertility decisions. We discuss how changes in norms over time may have contributed to fertility declines in Section 5. Directions for future research are outlined in Section 6.

2 Cross-Country Evidence on Norms and Fertility

We begin by examining the empirical relationship between social norms and fertility outcomes using cross-country data. Specifically, we document how total fertility rates (TFR) are associated with measures of social norms spanning multiple dimensions, including (1) family size, (2) childcare, (3) gender roles, (4) parenting norm, and (5) sexual behavior. To capture these norms, we primarily draw on the World Values Survey (WVS, Wave 7, 2017–2022) and supplement it with the Demographic and Health Surveys (DHS, 2000–2009). These surveys ask respondents to what extent they agree or disagree with statements capturing their attitudes in each domain. We compute the country-level average of each response, rescale it so that higher values indicate more traditional social norms, and use it as proxies for a country's prevailing norms in each domain.

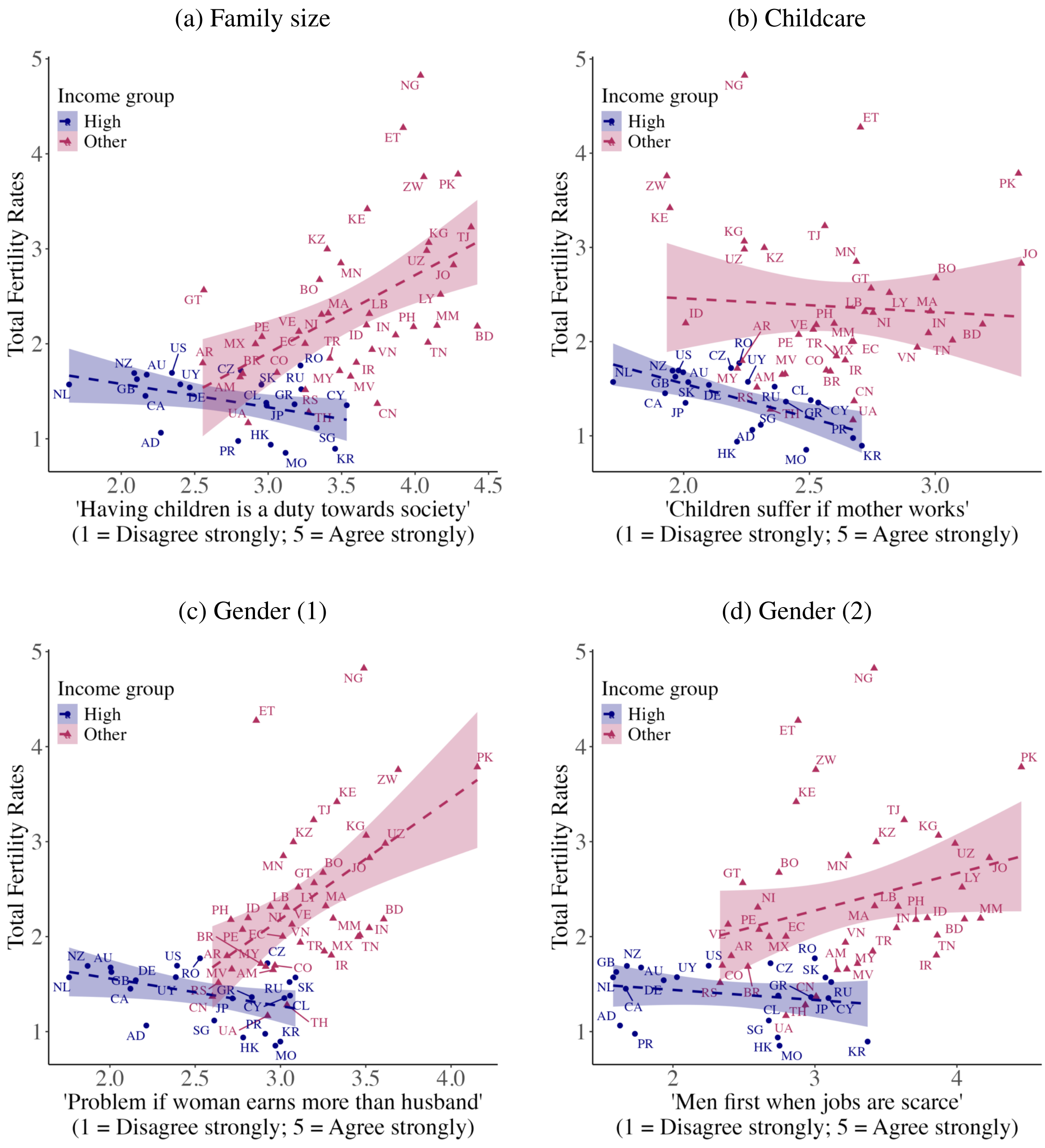
Figure 1a shows the relationship between TFR and a proxy of family-size norms, which captures the extent to which respondents agree that having children is a duty toward society. The figure suggests a substantial difference in the mean of this measure between high-income and non–high-income countries (see also Table A1).[6] Together with differences in fertility across the two groups, this generates a negative global relationship between TFR and family-size norms. Respondents in countries such as Tajikistan, with a TFR of 3.22, tend to strongly agree that having children is a duty toward society, whereas those in countries such as the Netherlands, with a TFR of 1.57, tend to strongly disagree. Despite the negative global relationship, the pattern differs markedly once the sample is disaggregated by income group: among high-income countries, more traditional countries tend to exhibit lower fertility rates, whereas among non–high-income countries they tend to exhibit higher TFRs.

Following a similar procedure, Figure 1b illustrates the cross-country relationship between TFR and a measure of childcare norms, which captures the extent to which respondents agree that pre-school children suffer if their mother works for pay. Countries such as Jordan, with a TFR of 2.83, exhibit more traditional norms that place greater emphasis on maternal childcare, whereas countries such as Canada, with a TFR of 1.45, display less traditional attitudes along this dimension. The figure also shows that among high-income countries, TFR is negatively associated with the degree of conservatism regarding childcare, whereas the relationship is nearly flat among non–high-income countries.

Figures 1c and 1d illustrate the relationship between TFR and measures of social norms regarding gender roles, capturing the extent to which respondents believe that men should have priority over women in economic roles. Developing countries such as Pakistan, with a TFR of 3.79, exhibit strong agreement with traditional gender-role views, whereas countries such as New Zealand, with a TFR of 1.69, display stronger disagreement. The figures also show that, among non–high-income countries, more traditional gender norms are strongly

[6] Income classification follows the World Bank definition.

Figure 1: Fertility and Social Norms Across Countries: Family Size, Childcare, and Gender



Source: WVS (2017–2022) for norm measures; World Bank for TFR.
Note: The statements to which respondents indicate the extent of their agreement is as follows: Panel a: “It is a duty towards society to have children.” Panel b: “When a mother works for pay, the children suffer.” Panel c: “If a woman earns more money than her husband, it is almost certain to cause problems.” Panel d: “When jobs are scarce, men should have more right to a job than women.” Higher values indicate more traditional or stronger norms. The shaded area represents the 95% confidence interval. TFR are averaged over the corresponding sample period. Income groups are defined based on the World Bank’s classification.

associated with higher TFR. In contrast, among high-income countries the relationship is negative, with countries exhibiting more traditional norms tending to have lower TFR. These patterns resemble the U-shaped relationship between TFR and measures of gender norms documented by Arpino, Esping-Andersen, and Pessin (2015). We return to the theoretical interpretation of these empirical relationships in Section 4.3.

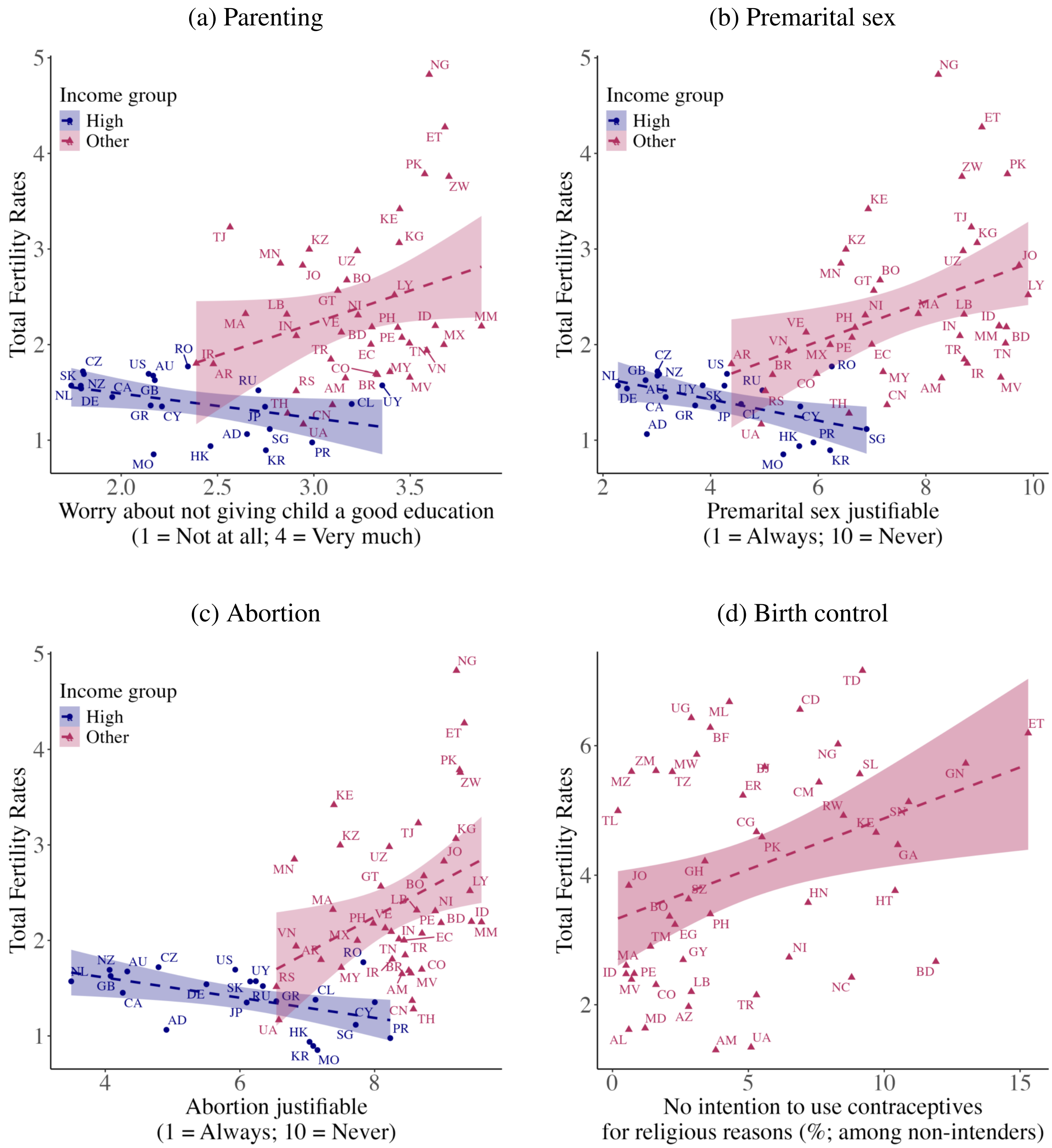
Next, Figure 2a plots the relationship between TFR and a measure of norms regarding parenting practices with a focus on education. This measure captures the extent to which parents worry about not being able to provide their children with a good education, reflecting the importance they attach to children's education.[7] The figure shows that respondents in low-income (high-fertility) countries such as Zimbabwe, with a TFR of 3.76, tend to express greater concern, whereas those in high-income (low-fertility) countries such as Germany, with a TFR of 1.54, report less concern about not being able to provide their children with a good education. Yet, the figure also shows that in high-income countries greater concern about children's education is associated with lower fertility, whereas the association is positive in non–high-income countries.

Lastly, Figures 2b–2d present the relationship between TFR and norms surrounding sexual behavior. Figures 2b and 2c measure the perceived justifiability of premarital sex and abortion, respectively. As in the other figures, we again observe substantial mean differences between high-income and non–high-income countries, as well as slopes of opposite sign across the two groups. Figure 2d captures social norms against the use of contraceptives and shows a positive association with TFR, suggesting that TFR tends to be higher in countries where norms discourage contraceptive use. Ethiopia, for example, exhibits traditional norms with a TFR of 6.19, whereas Albania exhibits less traditional norms with a TFR of 1.62.

To examine these patterns more systematically, we regress TFR on all social-norm proxies from the WVS along with GDP. As Tables A2–A5 show, many norms become statistically insignificant once other norms and income are controlled for, while some—such as childcare and gender norms—tend to remain significant. One reason is that many of these norms are correlated with one another, as illustrated in Figure A1. This may imply not only that standard errors in the multivariate regressions tend to be larger due to multicollinearity, but also that some of the relationships between TFR and individual social-norm proxies may

[7] Of course many other dimensions of parenting norms and parenting styles exist. We focus on this question as we will later describe a theory that is specifically related to parents' role in educating their children. Moreover, questions about other dimensions of parenting styles are only available for smaller subsets of countries.

Figure 2: Fertility and Social Norms Across Countries: Education and Sexual Behavior



Source: WVS (2017–2022, Panels a–c); DHS (2000–2009, Panel d); World Bank for TFR.
Note: The questions underlying each panel are as follows. "To what degree are you worried about the following situations?" Item: "Not being able to give my children a good education." (Panel a) "Please tell me for each of the following actions whether you think it can always be justified, never be justified, or something in between." Items: "Sex before marriage" (Panel b) and "Abortion" (Panel c). For Panel d, we use the DHS measure defined as the "Percentage of currently married or in union women who are not using a contraceptive method and who do not intend to use in the future due to religious prohibition." The shaded area represents the 95% confidence interval. TFRs are averaged over the corresponding sample period.

be driven by other correlated norms. More broadly, the observed associations—either in the figures or in the regressions—are silent about causality and its direction. While it is plausible that norms influence fertility choices, fertility outcomes may also shape norms, or both may be jointly driven by other norms or economic factors such as technological change. Theoretical frameworks are therefore essential for investigating the mechanisms underlying these associations, to which we return in Sections 4 and 5.

3 Evidence on Fertility Spillovers

We now turn to a different empirical perspective: fertility spillovers. There is a sizable literature by now that tries to causally identify how an individual's fertility behavior responds to the fertility choices of others. This literature typically exploits exogenous variation in reference-group fertility to identify social interactions. We review these studies organizing them by the reference group they consider—country of origin, mothers and siblings, neighborhood, friends, or co-workers and discuss the magnitude of spillover effects they find.[8]

3.1 Country of Origin

Several papers show that fertility rates in individuals' countries of origin affect fertility behavior among immigrants and their descendants. Fernández and Fogli (2009) focus on second-generation American women whose parents were born abroad. Using U.S. Census data from 1970 and the 1950 total fertility rate (TFR) in the parents' country of origin, they find that a one-unit increase in TFR in the father's country of birth is associated with approximately 0.2 additional children among women aged 30–40. Cygan-Rehm (2014) implement a similar strategy using survey data from the German Socio-Economic Panel (1991, 1999, and 2007) and focus on women aged 45 or older to study completed fertility. They find even larger effects: a one-point increase in the TFR in the country of origin is associated with an increase of about 0.5 children in immigrants' completed fertility.

More recently, Stichnoth and Yeter (2016) argue that a standard identifying assumption in this literature—that all immigrants face an identical environment in the host country—may

[8]For a comprehensive survey of social networks and fertility in other disciplines, such as demography and sociology, see Bernardi and Klärner (2014).

be too strong. They therefore include country-of-origin fixed effects and exploit variation within countries of origin over time. Using German Microcensus data from 2008 and 2012 and focusing on women aged 45 or older to measure completed fertility, they find that a one-point increase in the home-country TFR is associated with a 0.15 increase in completed fertility, roughly half the size of estimates obtained without country-of-origin fixed effects.

While most papers focus on the number of children, Chabé-Ferret (2019) examines the timing of fertility as well. Focusing on second-generation migrant women in the U.S. and France, the author estimates separate hazard models for first, second, and third births. The estimates imply that a one-standard-deviation increase in the TFR in the country of origin is associated with 12.4% and 22% higher hazard rates of having a third child in the U.S. and France, respectively.[9] However, the TFR in the country of origin does not predict earlier transition to first birth. The author interprets this result as indicating that cultural norms do not influence the timing of the first birth.[10]

3.2 Mothers and Siblings

An intergenerational correlation in fertility has long been documented across disciplines (Johnson and Stokes 1976; Thornton 1980). A recent study by Guo et al. (2024) examines the causal relationship by exploiting the staggered rollout of China's One-Child Policy as a quasi-experiment. The authors find that mothers who were more strongly exposed to the policy had fewer children, and that their daughters—observed after the policy was abolished—also exhibit significantly lower fertility, measured at ages 41–50. Their estimates indicate that a one-unit reduction in maternal fertility leads to a 0.67 reduction in daughters' fertility.

Cools and Kaldager Hart (2017) study the causal effect of sibship size on completed fertility using Norwegian administrative data for cohorts born in the 1960s. Employing a same-sex instrument—where parents whose first two children are the same sex are more likely

[9] The author does not report these numbers explicitly; we compute them using the reported estimates and the formula provided in the paper. First, in the full specification with all control variables included, the estimated coefficient on the TFR in the country of origin in the hazard model for third birth is 0.12 for France and 0.071 for the United States. Second, the standard deviation of the country-of-origin TFR in the sample is 1.65. Finally, following the author's approach in another example, we compute the effect of a one-standard-deviation increase as $e^{\beta \times 1.65} - 1$, where β denotes the estimated coefficient.

[10] While not directly focusing on fertility spillovers, Badolato, Billari, and Liefbroer (2024) show a positive association between parents' socioeconomic background and norms regarding fertility timing, with the strength of this association varying across countries.

to have another child—they find that the effect of sibship size is asymmetric by gender: having an additional sibling during childhood causes men to have 0.26 more children, while it causes women to have 0.23 fewer children. The authors argue that girls may become less inclined to have many children in adulthood after observing their mothers become more time-constrained as family size increases.

Several other papers examine how the number of siblings is associated with a woman's fertility without aiming for causal identification.[11] Fernández and Fogli (2006) use the U.S. General Social Survey (1977–1982) and their results indicate that a one-child increase in sibship size is associated with approximately 0.04 additional children among second-generation American women aged 29–50. Similarly, Gould and Lichtinger (2024) find that a one-child increase in a mother's sibship size is associated with approximately 0.06 additional births among women aged 22–45 in Israel during 1990–2005.

Several studies also estimate hazard models and examine the likelihood of having a child following births to other kin, such as siblings. Lyngstad and Prskawetz (2010) show that a sibling's birth increases the log hazard of having a first child by 0.07 within one year, using Norwegian administrative register data. Buyukkececi et al. (2020) use siblings' colleagues' fertility as an instrument and find that a sibling's birth increases the log odds of having a child by 0.076 during the 24–36 months following the sibling's birth event in the Netherlands. Kolk (2014) uses Swedish register data and shows that fertility spillover effects from non-parental kin, such as parents' siblings and grandparents, are more modest than those from parents. While having a mother with four to five children (rather than two) is associated with a 0.38 increase in the number of children at age 37, the corresponding increases linked to grandparents' and parents' siblings' fertility are only 0.10 and 0.06, respectively.

3.3 Neighborhood

Some studies examine how the fertility behavior of geographically proximate individuals affects individual fertility decisions. The causal evidence in this literature largely exploits China's unique population policies, using spatial variation in policy exposure or rollout to identify how exogenous changes in average fertility at the community level affect individual fertility behavior.

[11] These studies do not aim to identify a causal effect of sibship size per se, but rather use sibship size to control for family experience when estimating a country-of-origin effect.

Li and Zhang (2009) study the One-Child Policy introduced in China in 1979 and exploit the fact that the policy initially applied to Han Chinese but not to ethnic minorities. In their analysis, reference groups are local communities, such as villages in rural areas. Using community-level variation in fines for second children as an instrument, they find that a one-percentage-point increase in the proportion of second children in the community is associated with a 0.5–0.9 percentage point increase in a household's probability of having a second child.

More recently, Rossi and Xiao (2024) exploit fertility restrictions under China's "Later, Longer, Fewer" (LLF) campaign, implemented in the 1970s prior to the stricter One-Child Policy. They define the reference group as women residing in the same prefecture, with the same *hukou* (household registration), and belonging to the same birth cohort. Leveraging the staggered implementation of the policy and large census samples, they show that a one-child reduction in the reference group's completed fertility leads to a 0.63-birth reduction in an individual woman's completed fertility.

Outside the Chinese context, evidence on neighborhood-based fertility spillovers is more indirect, often relying on neighborhood characteristics and documenting associations with fertility intentions or outcomes (South and Baumer 2000; Meggiolaro 2011). Focusing more directly on social norms yet not directly studying fertility effects, Warner et al. (2011) construct a census-tract–level measure of neighborhood "sexual normative climate" in the U.S. and show that a one-unit increase in permissive normative climate is associated with a 24% increase in the odds of sexual debut.

3.4 Friends

A related literature studies how fertility-related behaviors of close peers, such as friends, shape individual fertility-related behaviors.[12] Balbo and Barban (2014) examine whether high-school friends' fertility behavior affects an individual's transition to parenthood. Using panel data from the U.S. National Longitudinal Study of Adolescent Health (Add Health), they follow individuals from age 15 in 1995 to approximately age 30 in 2008–09. Estimates from a discrete-time event-history model imply that a friend's first birth is associated with

[12] Olivetti, Patacchini, and Zenou (2018) study peer effects in the context of labor supply decisions and interestingly find no effect on desired fertility.

an increase of about 5.5 percentage points in the probability of one's own first birth.[13]

While not directly studying fertility behavior, Fernández-Villaverde, Greenwood, and Guner (2014) examine the roles of peer effects and perceived shame in the initiation of premarital sex using Add Health data. They find that both shame toward premarital sex—constructed from survey responses—and peer behavior are significantly associated with girls' sexual behavior. Quantitatively, a one–percentage-point increase in the school-level share of peers who had sex raises the probability of engaging in premarital sex by about 0.068 percentage points.

Lois and Arránz Becker (2014) use the Bamberg Marital Couples Panel (1988–2002) in Germany to examine how childless couples are affected by the share of parents in their social circle—including friends, acquaintances, and siblings. Their estimates, based on discrete-time event-history models, suggest that a larger share of people in one's social network with young children is associated with higher fertility. Specifically, a one-unit increase in the measure capturing how many network members have children is associated with an approximately 11 percentage-point increase in the probability of giving birth among women younger than 28.[14]

3.5 Co-workers

Several papers also examine fertility spillovers within the workplace. Positive fertility spillovers in the workplace have been documented in several countries, with studies typically finding effects at the extensive margin. For example, Hensvik and Nilsson (2010) use Swedish data and find that individuals are 10.9% more likely to have their first child 13–24 months after a co-worker gives birth. Using Dutch data and a colleague's sibling's birth as an instrument, Buyukkececi et al. (2020) find that a colleague's fertility increases the log odds of having a first child by 0.069 during the 24–36 months following the colleague's birth event.

[13] The authors do not report this probability interpretation directly. We compute it as an approximation based on the following information: (i) they estimate a probit model; (ii) the estimated coefficient on a friend's first birth is 0.137; and (iii) they report that 820 out of 1,726 respondents become parents during the sample period, which we interpret as a baseline probability of 0.475 (=820/1,726). Evaluating the probit marginal effect at this baseline yields an implied increase of roughly 5.5 percentage points.

[14] The measure is categorical: respondents indicate whether none, some, or many of their network members had children. A one-unit increase therefore reflects a shift between these categories rather than the addition of one network member.

More recently, De Paola, Nisticò, and Scoppa (2025) exploit exogenous variation in co-workers' fertility generated by a 2015 labor market reform in Italy that substantially weakened job protections for workers on open-ended contracts and led to a decline in fertility among affected workers. Their estimates indicate that a one–percentage-point reduction in the share of co-workers who had a birth in the previous year reduces an individual's fertility in the current year by about 10%.

Estimates of workplace fertility spillovers should be interpreted with caution. First, studies often rely on data that do not span the full fecund period, making it difficult to distinguish changes in the timing of births from effects on completed fertility. Second, workplace peer effects may operate not only through social norms but also through economic channels, such as competition for promotions or diseconomies of scale when multiple workers take parental leave simultaneously. These mechanisms can generate negative spillovers. Indeed, Ciliberto et al. (2016) find negative peer effects in Danish administrative data. They estimate a fertility game model and find that accounting for peer effects in their specification reduces the share of individuals who have a child by 5 percentage points, corresponding to roughly 21% of average fertility during the sample period.

3.6 Taking Stock

In sum, the empirical literature consistently finds significant and sizable spillover effects in fertility decisions. Typical estimates for the increase in an individual's fertility in response to a one-child increase in reference-group fertility range between 0.1 to 0.6 children. Table 1 summarizes this literature, highlighting the empirical contexts, quantitative magnitudes, and identification strategies.

4 Theories: Linking Social Norms and Fertility

In Section 2, we have shown that different types of social norms are systematically related to fertility in a cross-section of countries, and in Section 3, we have discussed empirical evidence on spillover effects in fertility across groups. While these estimates suggest significant spillovers, identifying exact mechanisms remains challenging, as such patterns could emerge

Table 1: Overview of the Empirical Literature on Fertility Spillovers

Papers	Magnitude[a]	Sample (country, cohort, period)	Notes on method (model, variation, event, instrument)
Country of Origin			
Fernández and Fogli (2009)	0.2	US (1977, 78, 80, 82), women aged 30–40	Variation of TFR by country of origin
Cygan-Rehm (2014)	0.5	Germany (1991, 99, 2007), women aged 45 $\leq$	Variation of TFR by country of origin
Stichnoth and Yeter (2016)	0.15	Germany (2008, 12), women aged 45 $\leq$	Variation of TFR by country of origin, with country-of-origin fixed effects
Mothers and Siblings			
Cools and Kaldager Hart (2017)	0.26 (male)	Norway, women born in 1960s	Same-sex instrument
	-0.23 (female)		
Guo et al. (2024)	0.67	China, women born in 1970s	Staggered rollout of China's One-Child Policy (OCP)
Neighborhood			
Li and Zhang (2009)	$0.5 - 0.9$[b]	China (1989)	Variation in OCP enforcement across ethnicities/communities
Rossi and Xiao (2024)	0.63	China, women born in 1926–45	Staggered implementation of LLF campaign
Friends			
Balbo and Barban (2014)	0.055[c]	US (1995–2009), women aged 15-30	Discrete-time event-history model
Lois and Arránz Becker (2014)	0.11[c]	Germany (1988–2002), women aged $\leq$ 35 in 1988	Discrete-time event-history model
Co-workers			
Ciliberto et al. (2016)	-0.21	Denmark (2002-05)	Estimating a fertility game at work
De Paola, Nisticò, and Scoppa (2025)	0.1	Italy (2016–2020)	Co-workers' exposure to weakened job-protections

Note: This table summarizes a selected subset of studies to facilitate comparison across estimates by focusing on studies that report effects in terms of the number of children and that examine completed fertility. Some exceptions are included for completeness in the Friends and Co-workers sections.

[a] "Magnitude" indicates the increase in an individual's number of children in response to a one-child increase in reference-group fertility.
[b] The magnitude here refers to a percentage change in the probability of having a second child in response to an increase in the proportion of households with a second child in the community.
[c] The magnitude here refers to the change in the probability of birth in response to friends' births.

from different economic and social forces. To better understand the underlying sources of these observations, economic theory can provide a framework for interpreting these patterns.

We now review how social norms have been linked to fertility choices in the theoretical literature, focusing on explicit models that capture five types of norms related to family size, childcare arrangements, gender roles, parenting and education, and sexual behavior. We distinguish between exogenous and endogenous social norms.In both cases, utility costs arise from deviations of individual behavior from a reference benchmark; the key difference is whether this reference is exogenously given or determined endogenously by others' behavior, giving rise to classic externality mechanisms. In the latter case, inefficiencies may emerge (Durlauf and Walker 2001), and multiple equilibria may arise (Akerlof 1997). Whether multiple equilibria exists depends on the strength of the externality (Durlauf and Walker 2001). In the series of models we present in this section, equilibria are generally unique. Nonetheless, exploring the potential role of multiplicity may be important for understanding episodes of lowest-low fertility.

4.1 Family Size

We begin with the social conformity pressure associated with family size norms. This theoretical approach is motivated by long-standing sociological observations, such as the emergence of the "two-child norm" during the U.S. demographic transition (David and Sanderson 1987) and more recent survey evidence from Europe suggesting that falling ideal family sizes are driven by a societal shift toward low-fertility norms (Goldstein, Lutz, and Testa 2003).

A common approach in this body of work dating back to Akerlof (1997) is to specify a utility function of the following form:

$$U = u(c, n) - \chi \, \mathcal{P}(n, \tilde{n}) \,, \qquad (1)$$

where $\tilde{n}$ denotes the fertility level of a reference group, and $\chi \geq 0$ captures the strength of conformity pressure or the payoff penalty incurred from deviating from this reference. While this general utility structure is adopted in various papers, they differ in how the reference point $\tilde{n}$ is determined. The literature considers reference points based on contemporaneous averages (Palivos 2001; Bhattacharya and Chakraborty 2012), previous generations (De Silva and Tenreyro 2020; Guo et al. 2024; Iftikhar 2025), professional networks (Ciliberto et al. 2016) or other group-specific averages (Manski and Mayshar 2003).[15]

How do such norms affect fertility choices within the family? To illustrate this mechanism, we consider a simple model belonging to the class of utility functions in equation (1), based on Chabé-Ferret (2019). A household chooses consumption c and the number of children n by solving

$$\begin{aligned} \max_{c,n} \quad & c + \nu n - \frac{\chi}{2}(n - \tilde{n})^2 \\ \text{s.t.} \quad & c + \lambda n^2 = w, \\ & c > 0,\ n \geq 0, \end{aligned}$$

where w denotes earnings and λn^2 is a quadratic cost that increases in the number of children. Taking the reference fertility level $\tilde{n}$ as given, optimal fertility is

$$n^* = \frac{\nu + \chi\tilde{n}}{2\lambda + \chi}.$$

This can be rearranged as $n^* = (1 - \theta(\chi))\, n_{\chi=0} + \theta(\chi)\, \tilde{n}$, where $n_{\chi=0} \equiv \nu/2\lambda$ denotes the privately optimal fertility level in the absence of the family size norm and $\theta(\chi) \equiv \chi/(2\lambda + \chi) \in (0, 1)$, which increases with χ. In this model, optimal fertility is a weighted average of $n_{\chi=0}$ and the reference fertility level $\tilde{n}$. As the strength of conformity χ (and therefore θ) increases, fertility choices place greater weight on the social norm.

Importantly, whether norms raise or depress fertility depends on the position of $\tilde{n}$ relative to $n_{\chi=0}$. If $n_{\chi=0} < \tilde{n}$, norms increase fertility by shifting choices toward a higher reference level. This mechanism was likely historically relevant when large families were the norm. It is also consistent with the cross-country pattern among the low income countries that those in which a larger share of individuals view having children as a duty toward society tend to exhibit higher fertility rates (see Figure 1, panel (a)). Conversely, if $n_{\chi=0} > \tilde{n}$, norms depress fertility by pulling choices below the privately optimal level. This mechanism may be relevant in today's lowest-low fertility countries, where social environments are often perceived as less accommodating to families with children.[16] In such settings, an increasingly

[15] One could also interpret $\tilde{n}$ as an upper bound on fertility implied by full adherence to religious social norms (Iyer, de mesa Moyano, and Moorthy 2025), which we discuss in more detail in Section 4.5.

[16] It may appear puzzling that, among high-income countries, fertility is lower in countries where a larger share of respondents agree that having children is a duty to society. However, social norms are highly correlated across domains (see Table A1), so the negative association in panel (a) of Figure 1 may be spurious. As

relevant dimension of family-size norms concerns the social acceptance of childlessness, which can itself be interpreted as a benchmark outcome for certain groups of people.

The non-conformity penalty term $\mathcal{P}(n, \tilde{n})$ provides a reduced-form representation of social norms. While $\tilde{n}$ is taken as exogenous in simpler models, it is often endogenized as a function of the aggregate choices made by the rest of the population. For example, social norms may evolve over time as a function of previous generations' behaviors. We discuss dynamic mechanisms of norm formation and transmission in greater detail in Section 5. Endogenous norms create a classic social externality: each household's choice of n shifts the societal benchmark $\tilde{n}$, imposing a "conformity cost" on others that is not internalized, thereby potentially justifying government intervention. Moreover, with endogenous norms, pro-natal policies that increase fertility for some groups may generate spillover effects on others by shifting the reference level. Whether such policy amplification effects indeed exist in practice warrants further research.

4.2 Outsourcing Childcare

Reservations about institutional childcare exist in many countries with parents often believing that parental care is preferable, especially for young children (Fagnani 2002; Lee 2023; Yu 2025). Such beliefs are often rooted in prevailing social norms regarding appropriate caregiving arrangements. Following Doepke et al. (2023), let s denote the amount of purchased childcare, expressed as a fraction of total childcare requirements, and let $\tilde{s}$ denote the socially accepted norm for purchased childcare.[17] The utility penalty associated with deviations from this norm when a child is born is given by

$$\mathcal{P}(s, \tilde{s}) = \chi(s - \tilde{s})^2, \tag{2}$$

where χ governs the strength of the social norm. When $\tilde{s}$ is close to zero, this formulation captures a traditional view in which purchased childcare is socially discouraged and childcare is expected to be provided by parents—typically mothers. Doepke et al. (2023) show that as norms shift in favor of market-based childcare (i.e., as $\tilde{s}$ increases), the relationship

Tables A2 and A3 show, when fertility is regressed on multiple norms simultaneously, the negative association is no longer present among high-income countries.

[17] See also Bettio and Villa (1998) for an early version of this idea.

between fertility and income becomes flatter.[18]

To illustrate how this norm affects fertility, consider the following variant of their model. A household's utility depends on consumption c, the number of children n, and a disutility or "penalty" associated with the level of market-based childcare s.[19] The maximization problem is given by:

$$\begin{aligned}\max_{c,n,s,t}\ & \ln(c) + \nu\ln(n) - \chi\ln(s)\\ \text{s.t.}\ & c + sp = w(1-t)\\ & \phi n = s^{\alpha}t^{1-\alpha}.\end{aligned}$$

Here, $\phi n = s^{\alpha}t^{1-\alpha}$ represents the childcare production requirement, where $t \in (0,1)$ denotes the fraction of time parents spend in childcare given a unit time endowment. The parameter $\alpha \in (0,1)$ governs the relative importance of external versus parental time in satisfying the childcare needs of n children.

Closed-form interior solutions for optimal outsourcing and fertility are given by:

$$s^* = \frac{w}{p}\cdot\frac{\nu\alpha-\chi}{1+\nu-\chi}, \quad n^* = A\cdot\left(\frac{w}{p}\right)^{\alpha}\cdot\frac{(\nu\alpha-\chi)^{\alpha}}{1+\nu-\chi} \tag{3}$$

where $A = \frac{1}{\phi}(\nu(1-\alpha))^{1-\alpha}$. These expressions deliver several key comparative statics that clarify the impact of the degree of the social norm χ on household allocation. First, an increase in χ leads to a reduction in optimal outsourcing s^*, which simultaneously necessitates an increase in the optimal amount of parental childcare time t^* instead.

Second, the solution for n^* demonstrates that a more severe social norm against outsourced-childcare results in a decrease in fertility (i.e., $\frac{\partial n^*}{\partial \chi} < 0$). This occurs because the effective cost of raising children rises when households are socially constrained from utilizing external services. This is in line with the evidence in Figure 1 (Panel b), which shows that societies that believe children suffer when mothers work have lower fertility rates. This effect is likely muted in countries where few women work for pay and hence this norm has less bite which may explain why the relationship is less pronounced in low-income countries. In reality, norms about childcare arrangements are closely related to gender norms, to which

[18] Bar et al. (2018) explores a related mechanism in which outsourcing childcare affects the shape of the fertility–income relationship, though without explicitly modeling social norms.

[19] The penalty function here is $\chi\ln(s)$, which fits the framework of equation (2) with $\tilde{s} = 0$.

we turn to in Section 4.3.

The solution in (3) also provides insight into policy implications. While a decrease in the childcare price (p)—for example, through a childcare subsidy—increases fertility (i.e., $\partial n^*/\partial p < 0$), this effect is weaker when social norms (χ) are stronger (i.e., $\partial^2 n^*/\partial p \partial \chi > 0$), because stronger norms hinder households from benefiting from more affordable childcare to raise more children. At the same time, such policies may also affect norms if they are endogenously determined by households' choices. As more households use purchased childcare in response to the policy, the associated social stigma may decline, thereby increasing fertility. Whether and to what extent policy effects operate through such changes in social norms requires further research.

4.3 Gender Norms

The importance of explicitly considering mothers and fathers has been long recognized as important in understanding fertility choices. As women's wages increase and the gender wage gap narrows, fertility typically falls (Galor and Weil 1996). The reason behind this result is the assumption that only women's time is relevant for childcare. Even though on average mothers provide more childcare than fathers, fathers have been catching up and the gender gap in childcare time has narrowed in many countries (Doepke and Zilibotti 2019). Thus, father's opportunity cost of time has also become relevant for fertility choices in modern times.

How exactly couples split childcare and other household responsibilities is governed not only by relative wages, but also by social norms capturing society's expectations about women's roles in childcare (Akerlof and Kranton 2000; Hochschild 2012; Bertrand, Kamenica, and Pan 2015). These norms then affect not only the division of labor but also how efficient the division of labor is and, with limited commitment, who bears the cost of the division (e.g., in terms of reduced human capital accumulation on the job). The implicit cost of these norms can thus affect fertility choices as well. The literature has followed one of two different paths here. Papers either model (1) an optimal allocation of mother vs. father time in childcare with a utility penalty of deviating from a specific division of labor prescribed by social norms or (2) the norm directly prescribes a specific division of labor. Since the latter can be viewed as a special case of the former (if the penalty is high enough, no one deviates from the prescribed norm), we start with the first approach.

To illustrate how a gender norm can shape the division of childcare between spouses and thereby affect fertility, consider the following analytically tractable model where households must agree on an allocation of domestic time between mothers (t_f) and fathers (t_m), subject to a social norm that penalizes fathers for spending time in childcare. Specifically, the household solves

$$\begin{aligned} \max_{c,n,t_f,t_m} \quad & \ln(c) + \nu \ln(n) - \chi \ln(t_m) \\ \text{s.t.} \quad & c = w_f(1-t_f) + w_m(1-t_m) \\ & \phi n = t_m^{\alpha} t_f^{1-\alpha}, \end{aligned}$$

where $\chi \geq 0$ represents the degree of social pressure against male childcare involvement, which enters the household utility function as a non-conformity penalty.[20] The last equation represents the childcare production technology, where the parameter $\alpha \in (0,1)$ governs the relative importance of paternal versus maternal time in satisfying the childcare requirements associated with raising n children.[21] An interior solution requires $\alpha\nu > \chi$.

The closed-form solutions for optimal time allocation and fertility are:

$$t_m^* = \frac{\alpha\nu - \chi}{1+\nu-\chi}\left(1 + \frac{w_f}{w_m}\right), \quad t_f^* = \frac{\nu(1-\alpha)}{1+\nu-\chi}\left(1 + \frac{w_m}{w_f}\right), \quad n^* = B\frac{(\alpha\nu-\chi)^{\alpha}}{1+\nu-\chi}$$

where $B \equiv \frac{w_m + w_f}{(w_m)^{\alpha}(w_f)^{1-\alpha}} \frac{(\nu(1-\alpha))^{1-\alpha}}{\phi}$. While in standard theories, only relative wages matter for the ratio of parental to maternal childcare time, here the gender norm also becomes an important factor.

$$\frac{t_m}{t_f} = \left(\frac{w_f}{w_m}\right)\frac{\nu\alpha - \chi}{\nu(1-\alpha)}. \tag{4}$$

This expression shows that while a rise in female wages relative to male wages encourages a more equal division of labor, the social penalty χ acts as a barrier to male involvement.

The strength of the gender norm produces several useful comparative statics results: an increase in the penalty χ leads to a reduction in optimal paternal childcare time t_m^* and a corresponding increase in the time mothers must spend on childcare t_f^*. Second and importantly, a stronger gender norm results in lower optimal fertility n^* (i.e., $\frac{\partial n^*}{\partial \chi} < 0$), as the

[20] Formally, this formulation can be interpreted as the social norm prescribing fathers to spend zero time in childcare and thus already penalizing minimal childcare involvement.

[21] For example, Del Boca, Flinn, and Wiswall (2013) find that both parents' time inputs are essential for child human capital development.

effective cost of children increases when households are socially constrained from utilizing paternal time efficiently.

The point that traditional gender norms depress fertility has been emphasized in a series of recent studies (De Laat and Sevilla-Sanz 2006; Feyrer, Sacerdote, and Stern 2008; De Laat and Sevilla-Sanz 2011; Doepke and Kindermann 2019; Bertrand et al. 2020; Myong, Park, and Yi 2021; Xi and Zhou 2025; Goldin 2025a; Goldin 2025b). While these papers differ in the details of how norms are modeled, many of them fit a preference-based framework in which deviations from socially prescribed childcare arrangements generate utility penalties. This can be written as a household deriving utility from consumption and fertility but incurring an additional disutility depending on how childcare is arranged:

$$U = u(c, n) - \mathcal{P}(t_f, t_m; \tilde{s}), \tag{5}$$

where the penalty function $\mathcal{P}(t_f, t_m; \tilde{s})$ captures how the norm $\tilde{s}$ affects the perceived utility cost of childcare arrangements, allowing the cost of childcare time (beyond the opportunity cost of time) to depend on $\tilde{s}$, potentially asymmetrically across spouses. In our model above, we had implicitly assumed a very simple penalty function of the form $\mathcal{P}(t_f, t_m; \tilde{s}) = \chi \ln(t_m)$.

De Laat and Sevilla-Sanz (2006) use a more elaborate penalty function of the following form which in turn delivers more nuanced results:[22]

$$\mathcal{P}(t_f, t_m; \tilde{s}, L) = g(L)v(t_f) + f(\tilde{s})v(t_m), \tag{6}$$

along with the child production function that depends on parental time inputs: $n = t_f + t_m$. Here, L and $\tilde{s}$ represent two distinct social norms related to the division of childcare time within the family. Specifically, $g(L)$ governs the disutility of childcare time for women as a function of egalitarian gender attitudes L, while $f(\tilde{s})$ scales the disutility of fathers' childcare time, with $\tilde{s}$ denoting the social norm governing male involvement in childcare. The function $v(\cdot)$ captures the disutility from time spent on childcare. The authors take L as exogenously given but endogenize the social norm $\tilde{s}$ by assuming that it equals the societal average share of housework performed by fathers. They further assume that $f'(\tilde{s}) < 0$, so that the father's marginal disutility of childcare declines as male childcare participation

[22] See De Laat and Sevilla-Sanz (2011) for the published version of the paper which contains more empirical evidence but less theory.

becomes more prevalent in society. Under this formulation, social norms operate through an externality: while individual households take $\tilde{s}$ as given, aggregate male childcare reduces the effective cost of men's childcare time, thereby raising fertility and reallocating time toward male childcare and female market work.

A non-trivial insight of their framework is that more egalitarian gender norms need not have a monotonic effect on fertility.[23] Countrywide gender norms, summarized in L, can generate opposing forces. On the one hand, a higher L directly reduces fertility by increasing the disutility associated with maternal childcare time (i.e., $g'(L) > 0$), thereby reducing the time allocated to this activity—an input to child production. On the other hand, it induces greater male participation in childcare, which shifts the social norm $\tilde{s}$ and lowers the disutility of fathers' childcare time, thereby raising fertility. Depending on which force dominates, more egalitarian gender norms can therefore increase or depress fertility. The authors further show that which effect prevails is governed by female wages. When female wages are low, the equilibrium features strong household specialization, so a higher L leads to lower fertility.[24] The opposite is the case when female wages are relatively high. They use this interaction between norms and economic incentives to explain the changing relationship between female employment and fertility across countries. This insight may also explain why the relationship between gender norms and fertility differs across groups of countries. As Figure 1 (panels c and d) shows, more egalitarian norms are positively associated with fertility only in high-income countries, whereas other countries exhibit higher fertility rates precisely when gender norms are more traditional.

Xi and Zhou (2025) introduce social norms through a penalty for deviating from a socially prescribed ratio of female-to-male childcare time. Their norm can be represented by a

[23] Lappegård and Kornstad (2019) use fathers' parental leave take-up as a proxy for prevailing gender norms and find that higher paternal leave participation (i.e., more egalitarian gender norms) is associated with increased fertility in Norwegian administrative data, which is consistent with our simple model's implication. However, González and Zoabi (2023) find that the introduction of paternity leave reduced the probability of having another child among couples with an intermediate gender wage-gap in Spain. The ambiguous connection between gender norms and fertility is also discussed in demography (McDonald 2000; Myrskylä, Kohler, and Billari 2011; Kravdal 2016).

[24] The positive effect of L on fertility depends on how strongly the norm governing men's participation in childcare responds to a decline in women's childcare time. This is captured by

$$\frac{\partial \tilde{s}}{\partial t_f} = -\frac{t_m}{(t_f + t_m)^2} < 0,$$

showing that when the equilibrium exhibits strong household specialization (e.g., $t_m \to 0$), this effect becomes quantitatively weak.

quadratic penalty:

$$\mathcal{P}(t_f, t_m; \tilde{s}) = \chi \left(\frac{t_f}{t_m} - \tilde{s} \right)^2 , \tag{7}$$

where $\tilde{s}$ represents the prevailing social norm about relative childcare responsibilities and χ captures its strength. Unlike in De Laat and Sevilla-Sanz (2011), norms here penalize deviations from a target allocation. The authors incorporate this penalty function in a quantitative model applied to the fertility transition in South Korea. In particular, they show that endogenizing the social norm by relating it to childcare practices of past cohorts can amplify fertility declines driven by structural transformation.[25]

While the papers discussed so far model the division of childcare as the outcome of an optimization problem in which social norms enter through specific preference channels, a number of recent studies instead treat the division of childcare as exogenously given and study its implications. The interpretation here is that a social norm dictates the division of labor in the household, which is costly if it differs from the optimal division. For example, Doepke and Kindermann (2019) consider a limited-commitment model in which childcare responsibilities are assigned exogenously to women, leading endogenously to disagreement between spouses over fertility choices. Assuming that children are born only if spouses agree, this in turn depresses fertility. Myong, Park, and Yi (2021) take social norms as exogenously determined divisions of labor between spouses for South Korean cohorts born in the 1940s–1960s and compare these allocations to the counterfactual outcomes that would arise in the absence of such norms. The main finding is that traditional norms of unequal division of childcare play a significant role in the low fertility rates observed in Korea, especially among educated women.

Several recent papers also incorporate gender norms into childcare production technologies in an exogenous manner while embedding them within otherwise rich structural environments. For instance, Kim and Yum (2025) construct a structural life-cycle model in which infant childcare production depends on parental time inputs shaped by gender-specific societal expectations regarding the allocation of childcare relative to non-working time. Their analysis of recent Korean cohorts centers mostly around the effects of recent parental leave reforms on fertility and gender gaps in the labor market. In one counterfactual exercise, egalitarian gender-related social norms are found to have a small negative effect on fertility,

[25] The authors model the evolution of norms as an elaborate process. Norms are a weighted average of the opinions of older cohorts, with the opinions themselves changing endogenously over time based on previous choices and changing economic conditions.

with more discernible effects on closing gender gaps. Ho and Wang (2025) also develop a structural model of fertility in Korea. Key in their set-up is the assumption that child quality depends on mothers' and fathers' time inputs with fixed, gender-specific weights that capture prevailing norms.[26] The paper derives a quantitative model to understand low birth rates in Korea. More egalitarian gender norms depress fertility in their context. This is in line with the analysis in De Laat and Sevilla-Sanz (2006) showing that more egalitarian norms depress fertility at low levels of female labor force participation where the effect of increasing female labor supply dominates. This effect is reinforced in the model of Ho and Wang (2025) by a child quality norms that leads women to choose to work to generate more income to invest into their children's education while simultaneously having few children.

In sum, there is a sizable literature on gender norms and fertility pointing to a complex relationship. More egalitarian norms can increase fertility if they reduce the cost of child-bearing for women. Yet they can also depress fertility by raising female labor force participation and thus the opportunity cost of time. We will come back to this in Section 5.

4.4 Parenting and Education

Social norms about parenting have been emphasized particularly in the East Asian context, but similar developments are evident in many advanced economies. Doepke and Zilibotti (2019) document the rise of intensive parenting norms, characterized by increasing expectations regarding parental time, supervision, and educational investment. In East Asia, this phenomenon is often described as "education fever" (Seth 2002) and has been linked to status concerns (e.g., Sorensen (1994)). Demographers have argued that such competitive parenting norms raise the socially perceived cost of raising children and contribute to low fertility in South Korea and East Asia more generally (Anderson and Kohler 2013; Gauthier 2015), as well as in Western countries as well (Gauthier et al. 2021; Ruckdeschel 2024).

Kim, Tertilt, and Yum (2024) formalize these mechanisms in a quantitative model in which competitive parenting norms arising from status concerns intensify the quantity–quality trade-off and shape fertility choices.[27] To illustrate the mechanism, consider a utility function:

$$U = u(c) + \omega_n \, v(n) + \omega_q \, \mathcal{P}(q, \tilde{q}), \tag{8}$$

[26] Their model also includes a fixed cost of labor force participation for married women, which the authors also interpret as a gender norm.

[27] See Shenk, Kaplan, and Hooper (2016) for a model of status competition and fertility in anthropology.

where $\mathcal{P}(q, \tilde{q})$ allows utility from child quality to depend both on own children's quality q and on a benchmark $\tilde{q}$. The term $\tilde{q}$ can be interpreted as a parenting norm related to a socially expected standard of child quality. It may be set exogenously or arise endogenously. When it is endogenized based on other parents' behaviors, as is done in Kim, Tertilt, and Yum (2024), there is an *externality* since reference-group parenting behaviors affects individual utility. The ultimate driver of the parenting norm may include status externalities (Kim, Tertilt, and Yum 2024; Gradstein 2026) as well as competition for college entry (Ramey and Ramey 2010).

For example, Kim, Tertilt, and Yum (2024) consider a specification:

$$\mathcal{P}(q, \tilde{q}) = \ln(q - \chi\,\tilde{q})\,, \tag{9}$$

where $\chi \geq 0$ measures the strength of status concerns or comparison motives, and $\tilde{q}$ denotes the benchmark level of quality (e.g., peer-group quality or, under upward-looking comparison motives, the human capital of children from higher-socioeconomic status families), which arises endogenously in equilibrium through other parents' choices. A higher equilibrium $\tilde{q}$ lowers perceived relative quality and thus reduces parents' utility about their children.

To illustrate the theoretical mechanism, consider the analytically tractable setting in Mahler, Tertilt, and Yum (2025), in which a household maximizes:

$$U = \ln(c) + \omega_n \ln(n) + \omega_q \ln(q - \chi\tilde{q}), \tag{10}$$

subject to the constraints:

$$\begin{aligned} c &= (1 - \lambda n - xn)w \\ q &= x \\ \lambda n + xn &\in [0, 1], \quad c, n, x > 0. \end{aligned}$$

Here, $\lambda > 0$ denotes a fixed time cost per child, and child quality q is produced via parental time investment x. The total time endowment and the wage w are normalized to one.

Taking the benchmark quality $\tilde{q}$ as given, each household maximizes utility, which yields the individually optimal fertility choice:

$$n^* = \frac{\omega_n - \omega_q}{(1 + \omega_n + \omega_q)(\lambda + \chi\tilde{q})}. \tag{11}$$

Equation (11) demonstrates that a higher perceived quality of peer children or an increased comparison motive χ reduces individual fertility.

After imposing the equilibrium condition that the child quality implied by optimal choices is consistent with the perceived child quality, $\tilde{q} = q^*$, we obtain the equilibrium fertility:

$$n^{eq} = \frac{\omega_n - \omega_q/(1 - \chi)}{(1 + \omega_n)\lambda}. \tag{12}$$

As χ intensifies, households engage in a status-driven escalation of time investment per child, which increases the effective price of children and leads to a decline in the equilibrium number of children. This mechanism is consistent with the cross-country evidence shown in Figure 1 (panel a), which documents a statistically significant negative association between education-related concerns and fertility in developed countries.[28] Because individual parents do not internalize the externalities created by this status competition, the resulting equilibrium features excessive investment in child quality and inefficiently low fertility. Kim, Tertilt, and Yum (2024) and Mahler, Tertilt, and Yum (2025) show that such a comparison-driven equilibrium reduces welfare for the parental generation. They further demonstrate that corrective policies—such as taxing status-driven investments in children and rebating the proceeds through pro-natal transfers—can move the economy closer to the socially efficient allocation. In practice, such interventions could take the form of taxes or regulatory limits on private education expenditures, tutoring, or other competitive child investments.[29]

The formulation above makes explicit the mechanism through which social norms affect fertility and endogenizes the emergence of the benchmark level of child quality within the model. Several recent papers, while otherwise embedding these forces in rich structural

[28]The positive association among non-high-income countries is likely not driven by education norms but rather by reverse causality. In poor countries with many children, parents may be particularly worried about being unable to provide a good education for their children simply because fertility is high and incomes are low.

[29]Ho and Wang (2025) study a ban on private tutoring and a cap on education expenditures in a heterogeneous-agent model with endogenous marriage and fertility, and find that these policies increase fertility.

environments, take a reduced-form approach by assuming that the relative importance of child quality over quantity increases with parental education (Ho and Wang 2025; Kim and Yum 2025).

In this section, we have focused on parenting norms related to children's educational outcomes, which have received much attention lately in the literature on lowest-low fertility in East Asia. Yet, comparison motives among parents may also operate along other dimensions of parenting—such as parental time spent with children per se, elaborate home-cooked meals for children, or organizing the "best" birthday party for one's child. While these activities may partly contribute to improving educational outcomes, and parents may of course enjoy them, societal norms likely also play an important role. Some of these investments are mostly driven by a parent's desire to outperform (or at least keep up with) their peers. Comparison motives along these lines then lead to over-investment in such activities, increasing the cost of children and thereby depressing fertility. We hypothesize that these non-education-related comparison motives may be particularly important in some European countries. Further analysis to test this hypothesis would be highly valuable.

4.5 Birth Control, Abortions, and Premarital Sex

Many norms surrounding sexual behavior exist (see Figure 2, panels b–d). Such norms can either encourage or discourage fertility. While norms stigmatizing the use of birth control and abortions are generally expected to increase fertility, norms discouraging pre-marital sex could plausibly depress fertility. We now turn to theories that relate fertility outcomes to norms governing sexual behavior.

Birth Control and Abortions Historically, in many cultures, the use of birth control was strongly discouraged, most prominently though not exclusively, by the Catholic Church.[30] The influence of religion on birth control, and consequently fertility, has been documented in several empirical studies, including fertility increases following papal visits in Brazil (Bassi

[30] Haredi Judaism is another example of religion that discourage the use of contraceptive and encourage fertility (Manski and Mayshar 2003). De Silva and Tenreyro (2017) provide a thorough discussion of cultural inhibitions and religious opposition to birth control. See also Blanc (2024) who provides evidence that the waning influence of the Catholic Church played an important role in triggering the demographic transition in France. There is also a literature in public health and demography on the role of religion (Agha 2021; Mishra and Parasnis 2017).

and Rasul 2017) and across Latin America more broadly (Iyer, de mesa Moyano, and Moorthy 2025).

To illustrate how norms surrounding birth control affect fertility choice, consider the setup in Spolaore and Wacziarg (2021). Utility from fertility is shaped by a social norm as follows:

$$U = u(n) - \chi(\tilde{n} - n), \tag{13}$$

where $\tilde{n}$ denotes the natural fertility level in the absence of fertility control. To reduce fertility below this natural level, agents must incur a cost, governed by the parameter $\chi \geq 0$. One interpretation of this cost is limited information about or access to birth control. Another interpretation, emphasized by the authors, is the presence of social norms that stigmatize the use of birth control. A higher χ therefore reflects stronger norms against fertility control, making it more costly to reduce fertility below $\tilde{n}$.

To further illustrate how these birth control norms affect fertility outcomes, we follow Spolaore and Wacziarg (2021) and introduce a quadratic utility cost of bearing children, $(c/2)n^2$, while assuming linear utility benefits from fertility, $u(n) = bn$, where $c > 0$ and $b > 0$ are parameters. Optimal fertility is then a function of both the natural fertility rate $\tilde{n}$ and the strength of norms discouraging birth control, χ:[31]

$$n^* = \min\{\frac{b + \chi}{c}, \tilde{n}\}.$$

With strong norms, fertility is pinned at the natural rate. As societal acceptance of birth control increases, fertility moves away from this corner solution: weaker norms (lower χ) lead to lower fertility. In the limit, as the social norm vanishes (χ = 0), n^* converges to b/c, which is determined solely by the economic costs and benefits of having children. This is in line with the cross-country evidence in Figure 2 (panel d) that countries with stronger norms against the use of birth control exhibit higher fertility rates. In many high-income countries, the stigma associated with contraception has essentially disappeared by now, which is likely an important factor in the low fertility rates observed today. Similarly, norms against abortion are also positively associated with high fertility rates in most parts of the world (see

[31] A closely related formulation with a quadratic disutility from deviating from the natural fertility rate is used in Chabé-Ferret (2019). The qualitative comparative statics are the same, while the quadratic formulation avoids corner solutions. In that case, equilibrium fertility is $n^* = \frac{b+\chi\tilde{n}}{c+\chi}$.

panel c).[32]

Cavalcanti, Kocharkov, and Santos (2023) introduce this type of norm into an overlapping-generations growth model with a quantity-quality trade-off. In their model, $\tilde{n}$ is endogenously determined by the societal average, generating reproductive externalities. They show that family-planning policies are more effective when such norms are stronger.[33] A different modeling approach is taken in Munshi and Myaux (2006), who explicitly model the choice to use birth control as being shaped by a social norm that itself depends on others' behavior.[34] Both Munshi and Myaux (2006) and Spolaore and Wacziarg (2021) use their respective frameworks to study how social norms evolve endogenously over time and across space. We return to such norm dynamics in Section 5.[35]

Premarital Sex Many cultures also exhibit strong norms discouraging premarital sex. More broadly, norms governing sexual behavior are closely linked to norms about marriage formation and family structure, and therefore play an important role in shaping the timing and context of childbearing. As Figure 2b shows, countries with strong norms against premarital sex tend to have higher fertility rates. Yet, within the group of high-income countries, the opposite pattern emerges.

Fernández-Villaverde, Greenwood, and Guner (2014) and Greenwood, Guner, and Vandenbroucke (2017) explicitly model social norms in the context of premarital sex.[36] They develop a model of teenage sexual behavior in which norms are shaped by parents (and reli-

[32] The negative relationship between abortion norms and fertility in high income countries is similar to the negative relationship between family size and fertility for the same set of countries. As discussed above, the relationship is likely spurious, as when fertility is regressed on multiple norms, the negative association is no longer present in high-income countries (see Tables A2 and A3).

[33] Prettner and Strulik (2017) similarly develop a growth theory with a quantity–quality trade-off and contraceptive choice, where the focus is on contraceptive use that reduces the utility of individuals with traditional or religious norms.

[34] Munshi and Myaux (2006) also document such spillovers empirically using data from rural Bangladesh. Specifically, they find that a 1% increase in contraceptive prevalence among other women in the village is associated with a roughly 0.2% increase in the probability of own contraceptive use.

[35] Several papers interpret costs of contraceptive use based on social norms. Choi (2017) develops a rich life-cycle model in which both contraception and abortion entail utility costs that can be interpreted as stigma associated with social norms. The study finds that policies shaping awareness, such as sex education at early ages, are more effective in influencing abortion and fertility choices than income subsidies. Cavalcanti, Kocharkov, and Santos (2021) likewise introduce contraceptive use and abortion into fertility models and study their implications for economic growth. They find that the removal of fertility risk would raise education and income per capita.

[36] Akerlof, Yellen, and Katz (1996) and Myong, Park, and Yi (2021) also model norms that stigmatize out-of-wedlock births and study their implication in the context of the U.S. and Korea, respectively.

gious institutions) as well as peer effects operating through friendship networks. Teenage girls choose their sexual behavior optimally, trading off the utility from sex against the risk of pregnancy and the social stigma associated with an out-of-wedlock birth. This stigma is influenced by parental norms and mitigated by peer-group effects, which depend on the aggregate number of other girls engaging in premarital sex.

While these models deliver closed-form solutions for the prevalence of premarital sex and the incidence of out-of-wedlock births, it remains open how the completed fertility rate would be affected by such norms. On the one hand, weaker norms may raise fertility through an increase in teenage births. On the other hand, early childbearing may reduce subsequent marital fertility if teenage mothers face lower marriage prospects. Further research is needed to connect social norms about premarital sex and teenage pregnancies to the total fertility outcomes. Such ambiguity may perhaps help explain why the relationship between sexual norms and fertility differs between high- and low- income countries (recall Figure 2, panel b).

5 Changes in Norms over Time

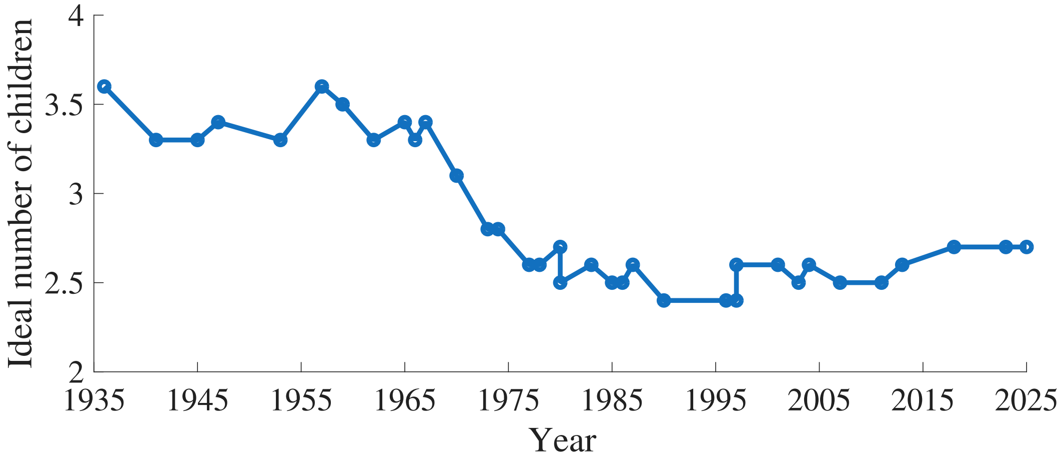
We now discuss how changes in different norms over time may have contributed to fertility declines. We start with norms related to family size and birth control in Section 5.1 and then turn to norms related to childcare and gender equality in Section 5.2.

5.1 Family Size and Birth Control Norms

Social norms about family size and the use of birth control have clearly changed over time (Munshi and Myaux 2006; Costenbader et al. 2017). For example, Figure 3 shows the time trend in the ideal number of children in the U.S. over the past 90 years (1936–2025), based on Gallup Surveys. Although the ideal number of children can, in principle, reflect various factors, including economic costs, it may also be shaped by prevailing social norms about family size. The reported number was 3.6 in 1936 but has declined over the course of the twentieth century to 2.4, after which it has remained relatively stable.

As we argued in Section 4, these norms can affect fertility outcomes. So have changes in norms contributed to the fertility decline over time? Or have declining fertility rates changed

Figure 3: Time Trends in Social Norms Related to Family Size in the U.S.



Source: Gallup Surveys (1936–2025).

the norms? Several papers argue that changes in norms have indeed contributed to falling birth rates. Some of these papers also posit a theory of why the norms themselves are changing. To endogenize norms, often the norms are expressed as a function of the behavior of others, typically either of the previous generation or contemporaneous people who are socially or geographically close.[37] If so, then norms can either accelerate or slow down fertility declines. A common theme in the literature is that an external impetus (such as an external birth control program) slowly diffuses to amplify fertility declines (Munshi and Myaux 2006; Baudin 2010; Spolaore and Wacziarg 2021; De Silva and Tenreyro 2020). It may also be technological progress that changes norms. For example, Alesina, Giuliano, and Nunn (2011) argue that plough agriculture eliminated the need for weeding, a task typically done by children, which led to a preference for fewer children.[38]

For example, De Silva and Tenreyro (2020) model norms about family size evolving endogenously over time as

$$\tilde{n}_t = \phi n_r + (1 - \phi) n_{t-1}, \tag{14}$$

where the reference family size $\tilde{n}_t$ is determined as a weighted average of the replacement level n_r and the fertility of the previous generation n_{t-1}. The reference family size then

[37]Typically, endogenous norms lead to externalities, as discussed in Section 4. Yet, this literature is mostly interested in positive theories of fertility not optimality, and these externalities are therefore usually not discussed.

[38]Other papers that argue that social norms such as gender roles or sexual attitudes are driven by technology or technological progress include Alesina, Giuliano, and Nunn (2013) and Greenwood and Guner (2010).

changes over time in response to changes in behavior (lower fertility of the previous cohort), but also because of exogenous policies (in particular family planning programs) that increase the weight on replacement fertility (i.e., a higher ϕ). The model is calibrated to data from developing countries in 1960. The main finding in the paper is that the standard quantity-quality trade-off can only explain a small part of the fertility declines observed between 1960 and 2010. The endogenous change in norms amplifies the decline, but by itself is still not large enough to account for the data. Only once the policy-induced change in norms (an increase in ϕ) is added can the model account for the entire decline observed in the data.

Some papers take the evolution of norms a step further and let optimizing households choose the norm. Baudin (2010) explicitly model the transmission of fertility preferences from parents to children in a model with two types of families.[39] Traditional families have high fertility norms, while modern families have lower fertility norms. Preferences are formed through costly parental socialization and cultural transmission based on the proportion of modern families in the economy. The model points to the mutual reinforcement between economic and cultural forces in driving the fertility decline over time. Economic shocks in the form of technological innovation change not only the direct costs and benefits of having children but also the socialization incentives of parents.

In Spolaore and Wacziarg (2021), it is not the reference level that changes endogenously, but instead the social stigma associated with deviating from the natural fertility rate. Specifically, the paper assumes a penalty function $\mathcal{P} = \chi(\tilde{n} - n)$, where the reference level $\tilde{n}$ is fixed at the natural rate, but the cost of deviating from it, χ, changes endogenously. In their model, households choose whether to adopt the new social norm (lower χ) as a function of the norms they observe around them. This creates a threshold dynamic: societies that are culturally closer to the innovator respond earlier. The authors use the model to explain the diffusion of social norms during the onset of the demographic transition in Europe.[40] In their context, France receives the initial exogenous shock that lowers χ, and this change gradually spreads to culturally closer regions first and then to more distant regions over time.

[39] The transmission across cohorts is based on Bisin and Verdier (2001), who propose an explicit theory of preference transmission from parents to children, albeit not in the fertility context. Similar models of parental socialization appear in the context of premarital sex and the effects of advances in contraceptive technology (Fernández-Villaverde, Greenwood, and Guner 2014; Greenwood, Guner, and Vandenbroucke 2017).

[40] Delventhal, Fernández-Villaverde, and Guner (2021) also document "demographic contagion" meaning that fertility transitions are correlated across countries that are geographically close and share similar legal systems. In contrast to the papers discussed in this section that focus on the diffusion of norms, the driving force behind their contagion is the diffusion of technological progress from a frontier country to the other locations.

This prediction is confirmed in historical data.

A similar diffusion process is investigated empirically in Beach and Hanlon (2023), who show that culturally British populations around the world experienced a sharp, synchronized fertility decline starting in 1877. The initial impetus here was the Bradlaugh–Besant trial, a UK court case in 1877 over publishing a book providing information on contraceptive techniques. The authors document plausible evidence that this UK court case also contributed to fertility declines in countries socially close to the UK, such as Canada, the US and South Africa, by changing fertility norms disseminated through newspapers.

While the model in Spolaore and Wacziarg (2021) can be interpreted as changing norms about either family size or contraceptive use, Munshi and Myaux (2006) explicitly model contraceptive decisions. Contraceptive use evolves over time in response to an endogenous social norm driven by learning about who else uses contraception. One interesting result from their model is that an external intervention (e.g., an information campaign) can generate multiple equilibria where either everyone or no one adopts modern contraception. The model also shows how external interventions can lead to very slow and highly heterogeneous responses depending on initial conditions. The importance of this channel is confirmed using evidence from Bangladesh. As in Spolaore and Wacziarg (2021), the authors find that individuals respond more strongly to changes in contraceptive behavior within socially close groups, defined in the Bangladesh context by religion.

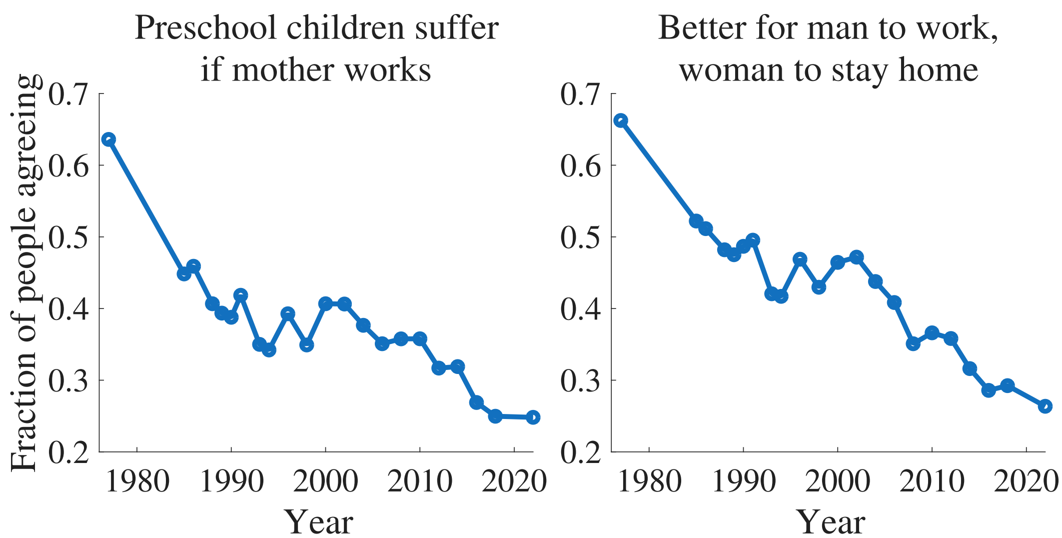
In sum, the literature points to an important role for social norms in understanding historical fertility declines. The diffusion of modern norms can accelerate fertility declines, while the persistence of traditional norms can slow them. If the ideal family size changes over time based on the observed low fertility rates of previous cohorts, this mechanism can lead to downward-spiraling fertility or, in the words of Lutz, Skirbekk, and Testa (2006), a "fertility trap." It is indeed conceivable that the transmission of low (or even no) fertility norms has contributed to the low fertility rates observed today. This perspective also raises the possibility that policies aimed at influencing social norms, such as marketing campaigns promoting larger families, might have the potential to reverse this trend, analogous to the population control programs of the 20th century, but operating in the opposite direction. Whether such interventions can be effective remains an open question.[41]

[41] Indeed, low fertility norms could be an absorbing state, implying that increasing fertility through norm-based policies could be much harder than reducing it.

5.2 Gender and Childcare Norms

There is extensive cross-country evidence suggesting a global, albeit uneven, transition toward more egalitarian gender norms as societies undergo economic development and structural transformation. For example, Figure 4 displays changing norms regarding gender roles and childcare in the U.S. over the past decades, measured by the fraction of individuals who agree with traditional views of the gender division of labor—namely, statements such as that men should earn money while women should take care of the family. Clearly, the figure shows a trend toward less traditional and more egalitarian attitudes.[42]

Figure 4: Trends in Norms about Gender Norms and Childcare in the United States



Source: General Social Survey (1977–2022). *Note:* The survey questions corresponding to the left and right panels are: "A preschool child is likely to suffer if his or her mother works" and "It is much better for everyone involved if the man is the achiever outside the home and the woman takes care of the home and family."

A sizable empirical literature across disciplines finds that shifts in gender norms and the expansion of female empowerment are associated with declines in fertility (Upadhyay et al. 2014). For instance, research on the diffusion of social norms through media—such as the exposure to soap operas, telenovelas, and radio programs in Brazil, India and Japan, which change attitudes and behaviors related to women's status—illustrates how empowering women can lead to fertility decline (Jensen and Oster 2009; La Ferrara, Chong, and Duryea 2012; Rusche 2025; Okuyama 2026).[43] These findings suggest that female empowerment,

[42] Kim, Tertilt, and Yum (2024) provide related evidence from South Korea documenting how norms regarding the division of housework have changed over time.

[43] Similar negative effects have been documented regarding the impact of cable TV and media exposure on

often characterized by increased educational attainment and autonomy, typically exerts a downward pressure on fertility.

Based on these findings, one might conclude that the trajectory toward egalitarianism is inherently associated with lower fertility. However, a growing literature emphasizes that in developed economies with high female labor force participation, greater gender equality within the household may instead be a prerequisite for sustaining or even increasing fertility. For instance, Doepke and Kindermann (2019) suggest that when fathers do not share domestic responsibilities, the shadow cost of children borne by mothers remains prohibitively high, discouraging additional births. In this setting, more egalitarian norms—particularly those governing childcare and housework—can raise fertility by lowering the effective cost of childbearing for women.

Similarly, Goldin (2025a) argues that today's "lowest low" fertility countries experienced rapid income growth over the past decades yet values and traditions (fertility and gender norms) have changed only slowly, pushing fertility even lower. Therefore, as in Doepke and Kindermann (2019), it is the traditional norms that depress fertility. Within this framework of gender misalignment and generational conflict, Xi and Zhou (2025) develops a model where gender-specific fertility desires arise endogenously through intra-household bargaining and the norm-driven frameworks discussed in Section 4.3. Their results suggest that societies with more traditional gender norms experience more rapid and deeper fertility declines when faced with technological progress.[44]

To reconcile these two perspectives, it is useful to return to the theory with the social-norm penalty function (equation (6)), based on De Laat and Sevilla-Sanz (2006), and our discussion in Section 4.3. As those authors show, egalitarian gender norms can have a non-monotone effect on fertility because opposing forces push in different directions. In this context, it is important to distinguish between female empowerment and egalitarian gender norms in childcare, which are related but conceptually distinct. Female empowerment encompasses broad changes—such as higher education, improved labor market prospects, and increased autonomy—that generally raise the opportunity cost of time and tend to reduce fertility (Phan 2013). In contrast, norms governing the division of childcare and housework primarily shape how the costs of children are shared within the household, interacting

teen childbearing (Kearney and Levine 2015), although their mechanism is likely through the increased use of contraceptive use and abortion, related to the discussion in Section 5.1

[44] These seemingly contradictory effects of gender equality on fertility have also been recognized by demographers and are sometimes labeled the "the feminist paradox," (e.g., McDonald (2000)).

closely with women's relative wages and labor supply decisions.

This distinction is central to the literature on the changing relationship between female employment and fertility. Several studies point to a U-shaped relationship over the course of economic development (De Laat and Sevilla-Sanz 2006; Feyrer, Sacerdote, and Stern 2008; Myrskylä, Kohler, and Billari 2009; De Laat and Sevilla-Sanz 2011; Bertrand et al. 2020). In the first phase, low female wages combined with traditional gender norms lead to women's specialization in home production and high fertility. In the second phase, rising female wages increase labor force participation, but persistent norms keep childcare responsibilities concentrated on women, sharply raising the opportunity cost of children and driving fertility down. In the final phase, further increases in women's relative wages and labor force participation may gradually induce changes in gender norms, increasing male participation in childcare and partially offsetting the fertility decline.[45]

However, this rebound in fertility is unlikely to be quantitatively large. While shifting some of the burden of childcare to men may increase women's desired fertility, it may simultaneously reduce men's desired fertility. Indeed, González and Zoabi (2023) show, in the context of a Spanish parental leave reform, that although paternity leave encouraged more egalitarian behavior within households, the resulting adjustments still lowered the probability of having another child among some couples.[46]

Taken together, the literature highlights that changes in gender norms affect fertility through multiple, and sometimes opposing, channels. Broad shifts toward female empowerment tend to raise women's opportunity costs and are associated with lower fertility, while more egalitarian norms governing the division of childcare can mitigate these costs by reallocating them within the household. Whether fertility declines or stabilizes therefore depends not only on the direction of norm change, but also on which dimensions of gender relations adjust, such as labor supply or the division of childcare. Understanding these mechanisms is essential for interpreting cross-country patterns and for assessing the fertility effects of policies such as parental leave reforms.

[45] Several authors present explicit models of endogenous cultural change and study their implications for female labor supply and parental leave take-up (Fogli and Veldkamp 2011; Fernández 2013; Albrecht et al. 2026). These mechanisms are likely equally relevant for fertility choices.

[46] Farré and González (2019) also document a negative effect of parental leave on fertility. Moreover, Avdic and Karimi (2018) find that a similar parental leave reform in Sweden increased separation rates, suggesting that greater paternal involvement in childcare can also lead to more conflict between spouses, which could in turn contribute to lower fertility.

6 Conclusion and Directions for Future Research

This chapter has reviewed the role of social norms, culture, and peer influences—often operating in the form of classical externalities—in shaping fertility behavior. Across countries and over time, fertility is strongly associated with norms about family size, childcare, gender roles, parenting, and sexual behavior. While such correlations do not establish causality, there is a large empirical literature that documents substantial fertility spillovers within families, neighborhoods, workplaces, and social networks. Overall, the evidence suggests that fertility decisions are considerably influenced by others. We have also reviewed theoretical models that formalize how social norms and fertility interact. In this context, we have explicitly distinguished norms regarding family size, childcare, gender roles, parenting and education, and sexual behavior. These frameworks help interpret the empirical evidence on spillovers and clarify the mechanisms likely operating behind these estimates.

How quantitatively important are social norms for today's low fertility rates? It is difficult to provide a precise answer, but the literature suggests that their role is unlikely to be minor. Estimated spillover coefficients are often economically large. Quantitative models that incorporate gender norms, parenting norms, or norms about contraception can account for sizable portions of observed fertility declines, especially when norms evolve endogenously. At the same time, norms are not the only force at work. Economic incentives, female wages, housing costs, and family policies clearly matter. Several of the structural approaches emphasize two-way interactions between social norms and fertility outcomes, where often endogenous social norms amplify fertility declines driven by economic forces. In some contexts, such as East Asia or Southern Europe, gender norms appear to contribute significantly to low fertility outcomes. In recent decades, as concerns about child quality have intensified, perhaps due to increasingly competitive environments in college admission and labor market entry, education and parenting norms have become particularly important in Asia and are becoming increasingly relevant globally.

Several open questions remain. First, we still know relatively little about the relative importance of different norms. Much of the literature focuses on gender norms, especially the division of childcare. While this channel is clearly important, parenting norms—particularly intensive parenting ideals and status competition over children's education—may be at least equally relevant in contemporary low-fertility societies. These norms likely interact: if the prevailing standard requires high parental time investment and mothers are expected to provide most of it, low fertility becomes a predictable outcome. More work is needed to model and empirically test the joint role of gender and parenting norms. More generally, testing mechanisms remains a key challenge. Many empirical studies identify spillovers but struggle to disentangle the specific channels through which they operate. Better data on attitudes, social networks, and expectations would allow sharper tests of competing theories.

Second, future research should quantify the importance of norms relative to other forces, such as family policy, labor market flexibility, or housing constraints. Do policies work primarily by relaxing individuals' economic constraints, or by shifting social expectations? Addressing this question requires richer structural models combined with credible identification strategies. At the same time, some policy episodes may lend themselves to more direct reduced-form evaluation. A particularly interesting case concerns propaganda-based family policies that explicitly targeted family size norms—for example, campaigns stigmatizing large families in Korea beginning in the 1960s and in China in the 1970s. These interventions coincided with sharp and persistent fertility declines. Carefully measuring their quantitative effects, as well as their persistence through intergenerational transmission, would substantially improve our understanding of norm-based policy tools. More broadly, if social norms can be shifted through policy, similar approaches may also be relevant for contemporary pro-natal strategies in low-fertility societies.

From a policy perspective, the presence of norm-based externalities implies that fertility outcomes may be socially inefficient, as individuals do not internalize the effects of their fertility choices on others such as neighbors, friends, or future generations. This provides a rationale for government intervention. The design of pro-natal policies could benefit from explicitly accounting for these externalities by identifying the most relevant target groups and the most effective policy tools for improving social efficiency, in addition to traditional considerations such as budgetary costs and redistribution. In contrast, many current policy efforts focus primarily on raising birth rates, without explicitly addressing the underlying distortions. A clearer and better understanding of how social norms generate externalities in fertility decisions would therefore be essential for designing policies that are not only effective, but also welfare-improving.

References

Agha, S., Morgan B. Archer H. et al. 2021. "Understanding How Social Norms Affect Modern Contraceptive Use." *BMC Public Health* 21 (1): 1–11.

Akerlof, George A. 1997. "Social Distance and Social Decisions." *Econometrica* 65 (5): 1005–1027.

Akerlof, George A., and Rachel E. Kranton. 2000. "Economics and Identity." *The Quarterly Journal of Economics* 115 (3): 715–753.

Akerlof, George A., Janet L. Yellen, and Michael L. Katz. 1996. "An Analysis of Out-of-Wedlock Childbearing in the United States." *The Quarterly Journal of Economics* 111 (2): 277–317 (05).

Albrecht, James, Per-Anders Edi, Raquel Fernández, Jiwon Le, Peter Skogman Thoursie, and Susan Vroman. 2026. Parental Leave: Economic Incentives and Cultural Change. Unpublished Manuscript, New York University.

Alesina, Alberto, Paola Giuliano, and Nathan Nunn. 2011. "Fertility and the Plough." *American Economic Review* 101 (3): 499–503 (May).

———. 2013. "On the Origins of Gender Roles: Women and the Plough *." *The Quarterly Journal of Economics* 128 (2): 469–530 (05).

Anderson, Thomas, and Hans-Peter Kohler. 2013. "Education Fever and the East Asian Fertility Puzzle: A Case Study of Low Fertility in South Korea." *Asian Population Studies* 9 (2): 196–215.

Arpino, Bruno, Gøsta Esping-Andersen, and Léa Pessin. 2015. "How Do Changes in Gender Role Attitudes Towards Female Employment Influence Fertility? A Macro-Level Analysis." *European Sociological Review* 31 (3): 370–382 (02).

Avdic, Daniel, and Arizo Karimi. 2018. "Modern Family? Paternity Leave and Marital Stability." *American Economic Journal: Applied Economics* 10 (4): 283–307 (October).

Badolato, Luca, Francesco C Billari, and Aart C Liefbroer. 2024. "Stratified Fertility: Age Norms, Ideals, Behaviors, and the Role of National Contexts." *European Journal of Population* 40 (1): 36.

Balbo, Nicoletta, and Nicola Barban. 2014. "Does Fertility Behavior Spread among Friends?" *American Sociological Review* 79 (3): 412–431.

Bar, Michael, Moshe Hazan, Oksana Leukhina, David Weiss, and Hosny Zoabi. 2018. "Why Did Rich Families Increase their Fertility? Inequality and Marketization of Child Care." *Journal of Economic Growth* 23 (4): 427–463.

Bassi, Vittorio, and Imran Rasul. 2017. "Persuasion: A Case Study of Papal Influences on Fertility-Related Beliefs and Behavior." *American Economic Journal: Applied Economics* 9 (4): 250–302.

Bau, Natalie, and Raquel Fernández. 2023. "Culture and the Family." In *Handbook of the Economics of the Family*, Volume 1, 1–48. Elsevier.

Baudin, Thomas. 2010. "A Role for Cultural Transmission in Fertility Transitions." *Macroeconomic Dynamics* 14 (4): 454–481.

Beach, Brian, and W Walker Hanlon. 2023. "Culture and the Historical Fertility Transition." *The Review of Economic Studies* 90 (4): 1669–1700.

Bernardi, Laura, and Andreas Klärner. 2014. "Social Networks and Fertility." *Demographic Research* 30:641–670.

Bertrand, Marianne, Patricia Cortes, Claudia Olivetti, and Jessica Pan. 2020. "Social Norms, Labour Market Opportunities, and the Marriage Gap Between Skilled and Unskilled Women." *The Review of Economic Studies* 88 (4): 1936–1978 (12).

Bertrand, Marianne, Emir Kamenica, and Jessica Pan. 2015. "Gender Identity and Relative Income within Households." *The Quarterly Journal of Economics* 130 (2): 571–614.

Bettio, Francesca, and Paola Villa. 1998. "A Mediterranean Perspective on the Breakdown of the Relationship between the Participation and Fertility." *Cambridge Journal of Economics* 22 (2): 137–171.

Bhattacharya, Joydeep, and Shankha Chakraborty. 2012. "Fertility Choice under Child Mortality and Social Norms." *Economics Letters* 115 (3): 338–341.

Bisin, Alberto, and Thierry Verdier. 2001. "The Economics of Cultural Transmission and the Dynamics of Preferences." *Journal of Economic Theory* 97 (2): 298–319.

Blanc, Guillaume. 2024. "The Cultural Origins of the Demographic Transition in France." Unpublished Manuscript, University of Manchester.

Blau, Francine D, Lawrence M Kahn, Peter Brummund, Jason Cook, and Miriam Larson-Koester. 2020. "Is There Still Son Preference in the United States?" *Journal of Population Economics* 33 (3): 709–750.

Bongaarts, John, and Susan Cotts Watkins. 1996. "Social Interactions and Contemporary Fertility Transitions." *Population and Development Review* 22 (4): 639–682.

Buyukkececi, Zafer, Thomas Leopold, Ruben Van Gaalen, and Henriette Engelhardt. 2020. "Family, Firms, and Fertility: A Study of Social Interaction Effects." *Demography* 57 (1): 243–266.

Cavalcanti, Tiago, Georgi Kocharkov, and Cezar Santos. 2021. "Family Planning and Development: Aggregate Effects of Contraceptive Use." *The Economic Journal* 131 (634): 624–657 (06).

———. 2023. "A Note on Contraception, Social Norms, and Growth." *Macroeconomic Dynamics* 27 (3): 869–878.

Chabé-Ferret, Bastien. 2019. "Adherence to Cultural Norms and Economic Incentives: Evidence from Fertility Timing Decisions." *Journal of Economic Behavior Organization* 162:24–48.

Choi, Eleanor Jawon, and Jisoo Hwang. 2020. "Transition of Son Preference: Evidence from South Korea." *Demography* 57 (2): 627–652.

Choi, Sekyu. 2017. "Fertility Risk in the Life Cycle." *International Economic Review* 58 (1): 237–259.

Ciliberto, Federico, Amalia R Miller, Helena Skyt Nielsen, and Marianne Simonsen. 2016. "Playing the Fertility Game at Work: An Equilibrium Model of Peer Effects." *International Economic Review* 57 (3): 827–856.

Coale, Ansley J., and Susan C. Watkins. 1986. *The Decline of Fertility in Europe: The Revised Proceedings of a Conference on the Princeton European Fertility Project*. Princeton: Princeton University Press.

Cools, Sara, and Rannveig Kaldager Hart. 2017. "The Effect of Childhood Family Size on Fertility in Adulthood: New Evidence from IV Estimation." *Demography* 54 (1): 23–44.

Cortes, Patricia, Jisoo Hwang, Jessica Pan, and Uta Schoenberg. 2025. "Gender Norms and the Labor Market." Technical Report, Econometric Society Monographs, forthcoming.

Costenbader, Elizabeth, Rachel Lenzi, Rebecca B Hershow, Kim Ashburn, and Donna R McCarraher. 2017. "Measurement of Social Norms Affecting Modern Contraceptive Use: A Literature Review." *Studies in Family Planning* 48 (4): 377–389.

Crook, Nigel R. 1978. "On Social Norms and Fertility Decline." *The Journal of Development Studies* 14 (4): 198–210.

Cygan-Rehm, Kamila. 2014. "Immigrant Fertility in Germany: The Role of Culture." *Journal of Contextual Economics–Schmollers Jahrbuch* 134 (3): 305–340.

David, Paul A., and Warren C. Sanderson. 1987. "The Emergence of a Two-Child Norm among American Birth-Controllers." *Population and Development Review* 13 (1): 1–41.

De Laat, Joost, and Almudena Sevilla-Sanz. 2006. "Working Women, Men's Home Time and Lowest-Low Fertility." ISER Working Paper 2006-23.

———. 2011. "The Fertility and Women's Labor Force Participation Puzzle in OECD Countries: the Role of Men's Home Production." *Feminist Economics* 17 (2): 87–119.

Del Boca, Daniela, Christopher Flinn, and Matthew Wiswall. 2013. "Household Choices and Child Development." *The Review of Economic Studies* 81 (1): 137–185 (10).

Delventhal, Matthew J., Jesús Fernández-Villaverde, and Nezih Guner. 2021. "Demographic Transitions across Time and Space." Technical Report. National Bureau of Economic Research Working Paper No. 29480.

De Paola, Maria, Roberto Nisticò, and Vincenzo Scoppa. 2025. "Workplace Peer Effects in Fertility Decisions." Technical Report, Centre for Studies in Economics and Finance (CSEF), University of Naples, Italy.

De Silva, Tiloka, and Silvana Tenreyro. 2017. "Population Control Policies and Fertility Convergence." *Journal of Economic Perspectives* 31 (4): 205–228.

———. 2020. "The Fall in Global Fertility: A Quantitative Model." *American Economic Journal: Macroeconomics* 12 (3): 77–109.

Doepke, Matthias, Anne Hannusch, Fabian Kindermann, and Michèle Tertilt. 2023. "The Economics of Fertility: A New Era." In *Handbook of the Economics of the Family*, Volume 1, 151–254. Elsevier.

Doepke, Matthias, and Fabian Kindermann. 2019. "Bargaining over Babies: Theory, Evidence, and Policy Implications." *American Economic Review* 109 (9): 3264–3306.

Doepke, Matthias, and Fabrizio Zilibotti. 2019. *Love, Money, and Parenting: How Economics Explains the Way We Raise Our Kids*. Princeton and Oxford: Princeton University Press.

Durlauf, Steven N., and James R. Walker. 2001. "Social Interactions and Fertility Transitions." In *Diffusion Processes and Fertility Transition: Selected Perspectives*, edited by Casterline JB. National Academies Press (US).

Easterlin, Richard A. 1968. *Population, Labor Force, and Long Swings in Economic Growth: The American Experience*. New York: National Bureau of Economic Research.

———. 1973. "Relative Economic Status and the American Fertility Swing." In *Family Economic Behavior: Problems and Prospects*, edited by Eleanor B. Sheldon, —. Philadelphia: J. B. Lippincott.

Easterlin, Richard A., Robert Pollak, and Michael L. Wachter. 1980. Pages 81–150 in *Toward a More General Economic Model of Fertility Determination: Endogenous Preferences and Natural Fertility in Population and Economic Change in Devloping Countries*. University of Chicago Press.

Elster, Jon. 1989. "Social Norms and Economic Theory." *Journal of Economic Perspectives* 3 (4): 99–117 (December).

Fagnani, Jeanne. 2002. "Why do French women have more children than German women? Family policies and attitudes towards child care outside the home." *Community, Work & Family* 5 (1): 103–119.

Farré, Lídia, and Libertad González. 2019. "Does Paternity Leave Reduce Fertility?" *Journal of Public Economics* 172:52–66.

Fernández, Raquel, and Alessandra Fogli. 2006. "Fertility: The Role of Culture and Family Experience." *Journal of the European Economic Association* 4 (2-3): 552–561.

———. 2009. "Culture: An Empirical Investigation of Beliefs, Work, and Fertility." *American Economic Journal: Macroeconomics* 1 (1): 146–177.

Fernández-Villaverde, Jesús, Jeremy Greenwood, and Nezih Guner. 2014. "From Shame to Game in One Hundred Years: An Economic Model of the Rise in Premarital Sex and its De-Stigmatization." *Journal of the European Economic Association* 12 (1): 25–61.

Fernández, Raquel. 2013. "Cultural Change as Learning: The Evolution of Female Labor Force Participation over a Century." *American Economic Review* 103 (1): 472–500.

Feyrer, James, Bruce Sacerdote, and Ariel Dora Stern. 2008. "Will the Stork Return to Europe and Japan? Understanding Fertility within Developed Nations." *Journal of Economic Perspectives* 22 (3): 3–22 (September).

Field, Erica, Madeline McKelway, and Alessandra Voena. 2026. "Gender Norms and Development." Unpulished Manuscriped, prepared for Handbook of Development Economics.

Fogli, Alessandra, and Laura Veldkamp. 2011. "Nature or Nurture? Learning and the Geography of Female Labor Force Participation." *Econometrica* 79 (4): 1103–38.

Galor, Oded, and David N. Weil. 1996. "The Gender Gap, Fertility, and Growth." *The American Economic Review* 86 (3): 374–387.

Gauthier, Anne H. 2015. "Social Norms, Institutions, and Policies in Low-Fertility Countries." In *Low Fertility and Reproductive Health in East Asia*, edited by Naohiro Ogawa and Iqbal H. Shah, 11–30. Dordrecht: Springer Netherlands.

Gauthier, Anne H., and Stuart Gietel-Basten. 2025. "Family Policies in Low Fertility Countries: Evidence and Reflections." *Population and Development Review* 51 (1): 125–161.

Gauthier, Anne H, Caroline Bryson, Luisa Fadel, Tina Haux, Judith Koops, and Monika Mynarska. 2021. "Exploring the Concept of Intensive Parenting in a Three-Country Study." *Demographic Research* 44:333–348.

Gobbi, Paula E., Anne Hannusch, and Pauline Rossi. 2026. "Family Institutions and the Global Fertility Transition." *Journal of Economic Perspectives* 40 (1): 47–70 (February).

Goldin, Claudia. 2025a. "Babies and the Macroeconomy." *Economica* Volume 93:1–26.

———. 2025b, September. "The Downside of Fertility." Working paper 34268, National Bureau of Economic Research.

Goldstein, Joshua, Wolfgang Lutz, and Maria Rita Testa. 2003. "The Emergence of Sub-Replacement Family Size Ideals in Europe." *Population Research and Policy Review* 22 (5): 479–496.

Golosov, Mikhail, Larry E. Jones, and Michèle Tertilt. 2007. "Efficiency with Endogenous Population Growth." *Econometrica* 75 (4): 1039–1071.

González, Libertad, and Hosny Zoabi. 2023. "Does Paternity Leave Promote Gender Equality within Households?" Unpublished Manuscript, Barcelona School of Economics.

Gould, Eric D., and Guy Lichtinger. 2024. “Child Penalties, Child Outcomes, and Family Culture.” *IZA Discussion Paper Series No. 17455*.

Gradstein, Mark. 2026. “Education Fever: Inequality, Fertility, and Growth, with Application to China.” *Journal of Population Economics* 39 (1): 6.

Greenwood, Jeremy, and Nezih Guner. 2010. “Social Change: The Sexual Revolution.” *International Economic Review* 51 (4): 893–923.

Greenwood, Jeremy, Nezih Guner, and Guillaume Vandenbroucke. 2017. “Family Economics Writ Large.” *Journal of Economic Literature* 55 (4): 1346–1434.

Guo, Rufei, Lin Lin, Junjian Yi, and Hanyu Zhu. 2024. Intergenerational Impact of Birth-Control Policies on Fertility: The Role of Norms. Exploring Population Change: Individual Resources and Socioeconomic, Cultural, and Biological Conditions, University of Chicago 2025.

Hammel, Eugene A. 1990. “A Theory of Culture for Demography.” *Population and Development Review* 16 (3): 455–485.

Hannusch, Anne, and Minchul Yum. 2026. “Economic Theories of Fertility Choices.” Unpulished Manuscriped, prepared for the Oxford Handbook of Fertility and Reproductive Health Economics.

Hart, Rannveig Kaldager, Janna Bergsvik, Agnes Fauske, and Wookun Kim. 2024. “Causal Analysis of Policy Effects on Fertility.” *Handbook of Labor, Human Resources and Population Economics*, pp. 1–25.

Hensvik, Lena, and Peter Nilsson. 2010. “Businesses, Buddies and Babies: Social Ties and Fertility at Work.” Technical Report, IFAU-Institute for Evaluation of Labour Market and Education Policy.

Ho, Christine, and Yutao Wang. 2025. “Social Institutions and Low Birth Rates.” Unpublished Manuscript, Singapore Management University.

Hochschild, Arlie. 2012. *The Second Shift: Working Families and the Revolution at Home*. Penguin Books.

Hotz, V. Joseph, Jacob Alex Klerman, and Robert J. Willis. 1997. “The Economics of Fertility in Developed Countries.” Chapter 7 of *Handbook of Population and Family Economics*, edited by M.R. Rosenzweig and O. Stark, Volume 1A, 275–347. Elsevier.

Iftikhar, Zainab. 2025. “How Much Do Norms Matter for Quantity and Quality of Children?” *World Development* 195:107079.

Iyer, Lakshmi, Paloma Lopez de mesa Moyano, and Vivek Moorthy. 2025. “Religion and Demography: Papal Influences on Fertility.” Working paper 2025-001.

Jensen, Robert, and Emily Oster. 2009. “The Power of TV: Cable Television and Women’s Status in India.” *The Quarterly Journal of Economics* 124 (3): 1057–1094.

Johnson, Nan E, and C Shannon Stokes. 1976. "Family Size in Successive Generations: The Effects of Birth Order, Intergenerational Change in Lifestyle, and Familial Satisfaction." *Demography* 13 (2): 175–187.

Jones, Larry E., Alice Schoonbroodt, and Michèle Tertilt. 2010. "Fertility Theories: Can They Explain the Negative Fertility-Income Relationship?" In *Demography and the Economy*, edited by John Shoven, 43–100. University of Chicago Press.

Kearney, Melissa S, and Phillip B Levine. 2015. "Media Influences on Social Outcomes: The Impact of MTV's 16 and Pregnant on Teen Childbearing." *American Economic Review* 105 (12): 3597–3632.

Kim, Daisoon, and Minchul Yum. 2025. "Parental Leave Policies, Fertility, and Labor Supply." CEPR Discussion Paper No. 19951.

Kim, Seongeun, Michèle Tertilt, and Minchul Yum. 2024. "Status Externalities in Education and Low Birth Rates in Korea." *American Economic Review* 114 (6): 1576–1611.

Kolk, Martin. 2014. "Multigenerational Transmission of Family Size in Contemporary Sweden." *Population Studies* 68 (1): 111–129.

Kravdal, Øystein. 2016. "Not So Low Fertility in Norway—A Result of Affluence, Liberal Values, Gender-Equality Ideals, and the Welfare State." In *Low fertility, Institutions, and Their Policies: Variations Across Industrialized Countries*, 13–47. Springer.

La Ferrara, Eliana, Alberto Chong, and Suzanne Duryea. 2012. "Soap Operas and Fertility: Evidence from Brazil." *American Economic Journal: Applied Economics* 4 (4): 1–31 (July).

Lappegård, Trude, and Tom Kornstad. 2019. "Social Norms about Father Involvement and Women's Fertility." *Social Forces* 99 (1): 398–423 (11).

Lee, Youngcho. 2023. "Norms about childcare, working hours, and fathers' uptake of parental leave in South Korea." *Community, Work & Family* 26 (4): 466–491.

Leibenstein, Harvey. 1974. "An Interpretation of the Economic Theory of Fertility: Promising Path or Blind Alley?" *Journal of Economic Literature* 12 (2): 457–479.

Li, Hongbin, and Junsen Zhang. 2009. "Testing the External Effect of Household Behavior: The Case of the Demand for Children." *Journal of Human Resources* 44 (4): 890–915.

Lois, Daniel, and Oliver Arránz Becker. 2014. "Is Fertility Contagious? Using Panel Data to Disentangle Mechanisms of Social Network Influences on Fertility Decisions." *Advances in Life Course Research* 21:123–134. Fertility over the Life Course.

Lutz, Wolfgang, Vegard Skirbekk, and Maria Rita Testa. 2006. "The Low-Fertility Trap Hypothesis: Forces that May Lead to Further Postponement and Fewer Births in Europe." *Vienna Yearbook of Population Research* 4:167–192.

Lyngstad, Torkild Hovde, and Alexia Prskawetz. 2010. "Do Siblings' Fertility Decisions Influence Each Other?" *Demography* 47 (4): 923–934.

Mahler, Lukas, Michèle Tertilt, and Minchul Yum. 2025. "Policy Concerns in an Era of Low Fertility: The Role of Social Comparisons and Intensive Parenting." *Brookings Papers on Economic Activity*. Forthcoming.

Manski, Charles F., and Joram Mayshar. 2003. "Private Incentives and Social Interactions: Fertility Puzzles in Israel." *Journal of the European Economic Association* 1 (1): 181–211 (03).

McDonald, Peter. 2000. "Gender Equity in Theories of Fertility Transition." *Population and Development Review* 26 (3): 427–439.

Meggiolaro, Silvia. 2011. "Do Neighbourhoods Have an Influence on Reproductive Intentions? Empirical Evidence from Milan." *Regional Studies* 45 (6): 791–807.

Mishra, Ankita, and Jaai Parasnis. 2017. "Peers and Fertility Preferences: An Empirical Investigation of the Role of Neighbours, Religion and Education." *Social Indicators Research* 134 (1): 339–357.

Munshi, Kaivan, and Jacques Myaux. 2006. "Social Norms and the Fertility Transition." *Journal of Development Economics* 80 (1): 1–38.

Myong, Sunha, JungJae Park, and Junjian Yi. 2021. "Social Norms and Fertility." *Journal of the European Economic Association* 19 (5): 2429–2466.

Myrskylä, Mikko, Hans-Peter Kohler, and Francesco C Billari. 2009. "Advances in Development Reverse Fertility Declines." *Nature* 460 (7256): 741–743.

Myrskylä, Mikko, Hans-Peter Kohler, and Francesco C. Billari. 2011. "High Development and Fertility: Fertility at Older Reproductive Ages and Gender Equality Explain the Positive Link." *MPIDR Working Paper Series ´WP 2011-017*.

Okuyama, Yoko. 2026. "Empowering Women Through Radio: Evidence from Occupied Japan." *Journal of Development Economics* 179:103620.

Olivetti, Claudia, Eleonora Patacchini, and Yves Zenou. 2018. "Mothers, Peers, and Gender-Role Identity." *Journal of the European Economic Association* 18 (1): 266–301 (12).

Olivetti, Claudia, and Barbara Petrongolo. 2017. "The Economic Consequences of Family Policies: Lessons from a Century of Legislation in High-Income Countries." *Journal of Economic Perspectives* 31 (1): 205–230.

Palivos, Theodore. 2001. "Social Norms, Fertility and Economic Development." *Journal of Economic Dynamics and Control* 25 (12): 1919–1934.

Phan, Ly. 2013. "Women's Empowerment and Fertiltiy Changes." *International Journal of Sociology of the Family* 39 (1-2): 49–75.

Preston, Samuel H. 1986. "Changing Values and Falling Birth Rates." *Population and Development Review* 12:176–195.

Prettner, Klaus, and Holger Strulik. 2017. "It's a Sin—Contraceptive Use, Religious Beliefs, and Long-run Economic Development." *Review of Development Economics* 21 (3): 543–566.

Ramey, Garey, and Valerie A Ramey. 2010. "The Rug Rat Race." *Brookings Papers on Economic Activity* 2010 (1): 129–176.

Rindfuss, Ronald R., Karin L. Brewster, and Andrew L. Kavee. 1996. "Women, Work, and Children: Behavioral and Attitudinal Change in the United States." *Population and Development Review* 22 (3): 457–482.

Rossi, Pauline, and Yun Xiao. 2024. "Spillovers in Childbearing Decisions and Fertility Transitions: Evidence from China." *Journal of the European Economic Association* 22 (1): 161–199.

Ruckdeschel, Kerstin. 2024. "Ready for Parenthood? On Intensive Parenting Ideals and Fertility." *Journal of Family Issues* 45 (12): 2985–3008.

Rusche, Felix. 2025. "Broadcasting Change: India's Community Radio Policy and Women's Empowerment." *MPI Collective Goods Discussion Paper, No. 2025/5,*.

Seth, Michael J. 2002. *Education Fever: Society, Politics, and the Pursuit of Schooling in South Korea*. University of Hawaii Press.

Shenk, Mary K, Hillard S Kaplan, and Paul L Hooper. 2016. "Status Competition, Inequality, and Fertility: Implications for the Demographic Transition." *Philosophical Transactions of the Royal Society B: Biological Sciences* 371, no. 1692.

Sorensen, Clark W. 1994. "Success and Education in South Korea." *Comparative Education Review* 38 (1): 10–35.

South, Scott J, and Eric P Baumer. 2000. "Deciphering Community and Race Effects on Adolescent Premarital Childbearing." *Social Forces* 78 (4): 1379–1407.

Spolaore, Enrico, and Romain Wacziarg. 2021. "Fertility and Modernity." *The Economic Journal* 132 (642): 796–833 (11).

Stichnoth, Holger, and Mustafa Yeter. 2016. "Cultural Influences on the Fertility Behavior of First and Second Generation Immigrants." *Journal of Demographic Economics* 82 (3): 281–314.

Thornton, Arland. 1980. "The Influence of First Generation Fertility and Economic Status on Second Generation Fertility." *Population and Environment* 3 (1): 51–72.

Upadhyay, Ushma D, Jessica D Gipson, Mellissa Withers, Shayna Lewis, Erica J Ciaraldi, Ashley Fraser, Megan J Huchko, and Ndola Prata. 2014. "Women's Empowerment and Fertility: A Review of the Literature." *Social Science & Medicine* 115:111–120.

Wachter, Michael L. 1972. "A Labor Supply Model for Secondary Workers." *The Review of Economics and Statistics* 54 (2): 141–151.

———. 1975. "A Time-Series Fertility Equation: the Potential for a Baby-Boom in the 1980's." *International Economic Review* 16 (3): 609–624.

Warner, Tara D, Peggy C Giordano, Wendy D Manning, and Monica A Longmore. 2011. "Everybody's Doin'it (Right?): Neighborhood Norms and Sexual Activity in Adolescence." *Social Science Research* 40 (6): 1676–1690.

Xi, Xican, and Anson Zhou. 2025. "The Fertility Race Between Technology and Social Norms." *Available at SSRN 5256519*.

Yu, B., Zhang D. Sun Y. et al. 2025. "Exploring the impact of social influence on parents' intention to use institutional childcare: a cross-sectional study." *BMC Health Serv Res* 25, no. 198.

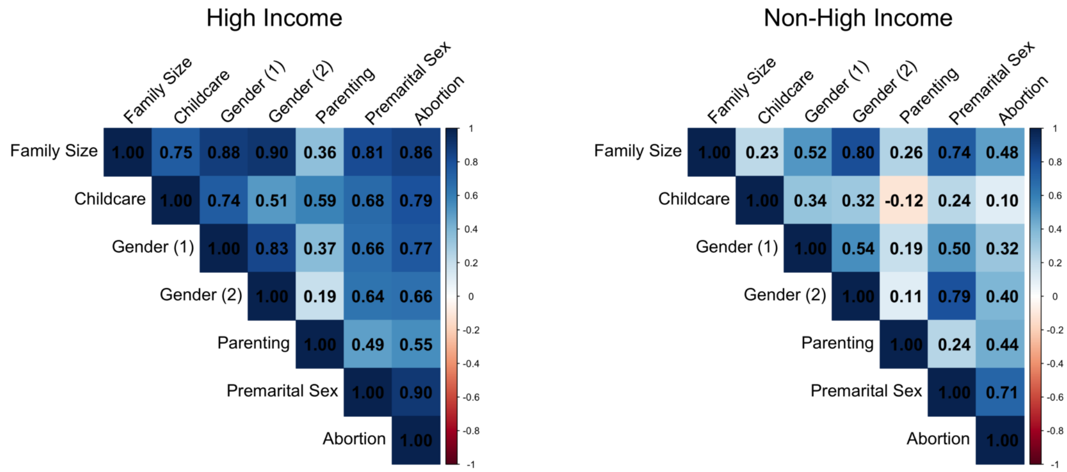
A Additional Material for Section 2

Table A1: Average Social Norm Measures by Income Group

Income Group	Family	Childcare	Gender1	Gender2	Parenting	Sex	Abortion
Panel A: Raw Means							
High	2.74	2.22	2.56	2.41	2.36	6.04	4.28
Non-high	3.57	2.60	3.15	3.25	3.22	8.33	7.62
Panel B: Standardized Means							
High	−0.83	−0.67	−0.81	−0.75	−0.96	−0.98	−0.96
Non-high	0.45	0.37	0.44	0.41	0.53	0.54	0.53

Source: WVS (2017–2022).
Note: "High" and "Non-high" indicate countries' income groups as classified by the World Bank. Panel A reports raw means of each norm measure within each income group. The values indicate the extent to which respondents agree with a given statement drawn from the WVS and are rescaled so that higher values correspond to more traditional norms. Panel B reports standardized values, where each measure is standardized to have mean zero and unit standard deviation in the full sample pooling both income groups. The standardized mean therefore indicates the deviation from the overall mean; positive values correspond to more traditional norms and negative values correspond to less traditional norms relative to the full-sample average.

Figure A1: Correlation Coefficients Across Social Norm Measures



Source: WVS (2017–2022).

Note: Entry (i, j) represents the correlation between norm i and norm j. The names of each column and row indicate the domain of the social norm and correspond to those shown in Figures 1a–2c.

Table A2: Regression of Fertility on Norms: High-Income Group (With GDP Control)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Family Size	−0.277**							0.172
	(0.103)							(0.437)
Childcare		−0.830***						−0.726*
		(0.153)						(0.401)
Gender (1)			−0.389***					−0.227
			(0.120)					(0.255)
Gender (2)				−0.150				−0.017
				(0.098)				(0.271)
Parenting					−0.351***			−0.145
					(0.111)			(0.133)
Premarital Sex						−0.105**		0.009
						(0.038)		(0.088)
Abortion							−0.115***	0.009
							(0.035)	(0.102)
Observations	22	22	22	22	22	22	22	22

Source: WVS (2017–2022) for norm measures; World Bank for TFR.
Note: Each row corresponds to a domain of social norms, as shown in Figures 1a–2c. All measures are standardized to have mean zero and unit standard deviation, and higher values indicate more traditional or stronger norms. Columns (1)–(7) report coefficients from regressions of TFR on each norm proxy separately, while column (8) includes all proxies jointly. All specifications control for GDP. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A3: Regression of Fertility on Norms: High-Income Group (No GDP Control)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Family Size	−0.160**							−0.084
	(0.073)							(0.352)
Childcare		−0.264***						−0.218
		(0.069)						(0.184)
Gender (1)			−0.136**					−0.078
			(0.063)					(0.151)
Gender (2)				−0.077				0.174
				(0.074)				(0.237)
Parenting					−0.148*			−0.006
					(0.072)			(0.092)
Premarital Sex						−0.243**		−0.258
						(0.088)		(0.216)
Abortion							−0.162**	0.149
							(0.060)	(0.191)
Observations	22	22	22	22	22	22	22	22

Source: WVS (2017–2022) for norm measures; World Bank for TFR.
Note: Each row corresponds to a domain of social norms, as shown in Figures 1a–2c. All measures are standardized to have mean zero and unit standard deviation, and higher values indicate more traditional or stronger norms. Columns (1)–(7) report coefficients from regressions of TFR on each norm proxy separately, while column (8) includes all proxies jointly. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table A4: Regression of Fertility on Norms: Non-High-Income Group (With GDP Control)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Family Size	0.231							0.384
	(0.244)							(0.410)
Childcare		−0.413						−0.595*
		(0.283)						(0.302)
Gender (1)			0.619*					0.882**
			(0.317)					(0.373)
Gender (2)				0.089				−0.296
				(0.181)				(0.384)
Parenting					0.230			0.010
					(0.287)			(0.309)
Premarital Sex						0.048		0.014
						(0.073)		(0.142)
Abortion							0.075	0.026
							(0.135)	(0.191)
Observations	39	39	39	39	39	39	39	39

Source: WVS (2017–2022) for norm measures; World Bank for TFR.
Note: Each row corresponds to a domain of social norms, as shown in Figures 1a–2c. All measures are standardized to have mean zero and unit standard deviation, and higher values indicate more traditional or stronger norms. Columns (1)–(7) report coefficients from regressions of TFR on each norm proxy separately, while column (8) includes all proxies jointly. All specifications control for GDP. * $p < 0.1$, ** $p < 0.05$.

Table A5: Regression of Fertility on Norms: Non-High-Income Group (No GDP Control)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Family Size	0.533***							0.620**
	(0.145)							(0.234)
Childcare		−0.052						−0.201*
		(0.140)						(0.118)
Gender (1)			0.594***					0.548***
			(0.156)					(0.176)
Gender (2)				0.283*				−0.494*
				(0.154)				(0.265)
Parenting					0.391*			0.020
					(0.204)			(0.190)
Premarital Sex						0.458**		0.119
						(0.171)		(0.332)
Abortion							0.577**	0.117
							(0.229)	(0.311)
Observations	40	40	40	40	40	40	40	40

Source: WVS (2017–2022) for norm measures; World Bank for TFR.
Note: Each row corresponds to a domain of social norms, as shown in Figures 1a–2c. All measures are standardized to have mean zero and unit standard deviation, and higher values indicate more traditional or stronger norms. Columns (1)–(7) report coefficients from regressions of TFR on each norm proxy separately, while column (8) includes all proxies jointly. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.