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Friends, Free time, and Fairness: A Factorial Survey Experiment on Peer Effects, Leisure Constraints, and Gender Asymmetry in Spanish Fertility Intentions

Research questions

Spain has one of the highest maternal ages at first birth in the world, contributing in part, to one of the lowest fertility rates in the world (Sobotka and Beaujouan 2018; Kohler, Billari, and Ortega 2002; Delgado et al. 2009; Alvarez and Marre 2022; Lozano et al. 2024). The reproductive horizon has shifted towards higher maternal age at first birth and an increasing percentage of children are born to mothers 40-44, particularly in low-fertility countries (Sobotka and Beaujouan 2018). Spain and Italy stand out with the highest share of first births to mothers in this age range and this is typically attributed to later emancipation and persistent negative effects from financial crises (Beaujouan 2020).

Indeed, labor market rigidity and high and persistent unemployment contributed to low fertility in Spain (Adsera 2011). At the same time, Spanish culture appears to place a relatively higher importance on economic outcomes. Recent experimental evidence suggests that Spanish individuals strongly penalize below average income in terms of family ideals while at the same time, consider savings to be an ideal family attribute (Aassve et al. 2024). Thus we can find evidence for the role economic factors play in fertility decisions. However, less is known about the influence of non-economic factors and their relative weight in terms of importance when faced with trade-offs in the decision to have the first child in Spain (Lozano et al. 2024).

Researchers have identified several key factors contributing to lowest-low fertility around the world. An important review from 2013 speaks to the importance of micro, meso, and macro-level factors. At the meso-level, peer effects through social influence and social learning can be particularly important, especially in societies where social contact is high, as in Spain (Balbo, Billari, and Mills 2013; Balbo and Barban 2014). Quantitative and qualitative empirical evidence suggest that fertility behaviors spread among social circles. Balbo and Baran use longitudinal data to show that a friend giving birth increases an individual's likelihood to become a parent, especially within a two-year horizon (Balbo, Billari, and Mills 2013; Balbo and Barban 2014). In addition, Bernardi has carried out qualitative studies in which findings suggest that friends' behaviors, particularly the three closest friends, contribute to fertility intentions, although not always through a conscious process (S. K. A. K. Bernardi, n.d.; L. Bernardi 2003). In light of this evidence, we test for peer effects among our sample of Spanish women without children hypothesizing that (h1) *women's fertility intentions increase with the proportion of their three closest friends who have children, with this peer influence being strongest when all three closest friends are parents.*

Secondly, Lesthaeghe and Van de Kaa's 1986 theory of the Second Demographic Transition highlights the growing importance of expressive individualism and leisure in shaping fertility desires and intentions (Lesthaeghe 2010). This would imply that not only career costs, but

leisure costs may also be considered when weighing the costs and benefits of having a child. In fact, scholars have indeed tested this theory in the context of Australia in higher order parity (Jarosz, Matysiak, and Osiewalska 2023). However, we extend this to 0 to 1 parity in Spain. We thus hypothesize (h2) *When childbearing severely constrains women's leisure autonomy (versus moderate or no constraints) fertility intentions will be significantly lower.*

In addition to economic, peer, and leisure effects, couple-level dynamics have emerged as a central theme in contemporary fertility research. Building on theories of the gendered division of labor and reproductive negotiation within couples (Thomson 1997; Iacovou and Tavares 2011; Doepke and Kindermann 2019), the consequences of desire and opportunity cost asymmetries have received increasing empirical and theoretical attention. Research on spousal fertility intentions demonstrates that partner disagreement—where women and men hold different desires about childbearing—tends to lower overall intentions to proceed to parenthood, often shifting the outcome towards non-childbearing (Thomson 1997; Iacovou and Tavares 2011)). We hypothesize (h3a) *when partners' desire for a child is equal, intentions will be significantly higher than when desire is uneven*. However, (h3b) *when the male partner's desire is relatively higher than the female's, fertility intentions will be significantly lower than when the female's desire is relatively higher than her partner's.*

A related asymmetry concerns anticipated opportunity costs, particularly career interruptions. Given the importance of gender egalitarianism for family ideals in Spain (Aassve et al. 2024), we are interested in how the importance placed on these ideals moderates the relationship between asymmetric career sacrifice and fertility intentions. We hypothesize that (h4a) *when either partner sacrifices relatively more than the other, fertility intentions will be significantly lower than when sacrifice is equal for the two.* (h4b) However, *when the female partner must sacrifice more than the male, fertility intentions will be lowest with respect to the reference "equality".*

Although Spain has conducted large, nationally representative surveys focused on fertility, longitudinal and/or experimental data are lacking in order to identify causal mechanisms behind the decision to have children. Furthermore, because Spanish couples are increasingly delaying the transition to parenthood, parity zero to one is of particular importance. This study aims to contribute causal evidence to the body of research on fertility intentions in Spain, a country with sustained lowest-low fertility rates for over thirty years.

Data and research methods

In order to test our hypotheses, we exploit an experimental design through a factorial survey experiment (Auspurg and Hinz 2015). This method, first proposed by Paul F. Lazarsfeld and Peter H. Rossi is particularly useful when exploring human behavior influenced by social norms, feelings, and attitudes. Fertility intentions, and the social influences surrounding them, may be susceptible to social desirability bias. In particular, when exploring non-financial factors, respondents may underestimate or intentionally underreport the influence of normatively charged dimensions such as gendered asymmetries, leisure costs, and peer influence.

Factors were operationally defined over nine dimensions based on theoretical and empirical underpinnings. Below we define the factors, their levels, and the text presented in the vignette:

	Dimension (Factor)	*Level*	*Vignette Text*
1	relationship status	1 2 3	In a relationship with In a domestic partnership with Married to
2	age	1 2 3	27 years old 32 years old 36 years old
3	help	1 2 3	Do not have anyone to count on Have 1 or 2 people to count on Have a wide range of people to count on
4	income	1 2 3	Is below average Is average Is above average
5	savings	1 2 3	have trouble meeting ends meet each month do not have trouble making ends meet but do not save each month do not have trouble making ends meet and save each month
6	leisure	1 2 3	greatly limit her ability to do whatever she wants with her free time somewhat limit her ability to do what she wants with her free time not at all limit her ability to do what she wants with her free time
7	peer	1 2 3	none of them have children one of them has children all three have children
8	gendered career sacrifice asymmetry	1 2 3	she will have to cut back on her work dedication more than her partner she and her partner will have to equally cut back on their work dedication her partner will have to cut back on his work dedication more than her
9	gendered desire asymmetry	1 2 3	her partner desires more to have a child at this time she and her partner equally desire having a child at this time she desires more to have a child at this time

Each factor took on three levels giving us a vignette universe of 19,683 possible combinations of factors across levels (3 x 3 x 3 x 3 x 3 x 3 x 3 x 3 x 3). Given the infeasibility of evaluating each possible combination, we selected a sample of the total vignette universe following a D-

efficient fractional factorial design. In this way, we ensure that factors are orthogonal to each other and balanced.

Following research best practices, we avoid respondent fatigue by presenting them with 9 vignettes each (Auspurg and Hinz 2015). Participants were asked to evaluate from 0 (Definitely no) to 10 (Definitely yes) “If you currently found yourself in the circumstances described, would you decide to have a child?”. 1,009 female participants ages 25 to 36 residing in Spain were recruited using an opt-in quota sampling method with stratification ensuring representativeness by age and geographical location within the country. Therefore, the final data sample consisted of 9,081 vignette-participant outcome responses.

Given the hierarchical nature of the data collected, we employ multilevel linear regression to account for the data structure. Given the experimental design, we ensure exogeneity and test the treatment effect for each factor. Furthermore, we control for person-level demographic variables age, household income, and education.

Preliminary Findings

Peer Parenthood (h1): partially confirmed

In our sample, the effect of peer parenthood on the intention to have children is significant and positive. With respect to the reference category, “none of her three closest friends have children”, “one has children” and “all three have children” are both significant and positive. While the size of the effect is somewhat moderate (0.145 and 0.308, respectively) there is evidence that closest friends’ behavior is influential in fertility intentions. In fact, the effect of the experimental variable is statistically significant even when controlling for the number of the participant’s closest friends with children. This respondent-level characteristic was collected posterior to the vignette experiment in order to avoid priming effects. At the same time, an increase in the number of friends with children at the respondent-level also has a significantly positive effect on the outcome variable in the vignette evaluation. Hence, we find empirical evidence for peer effects in line with previous qualitative studies. While the effects of both categories are statistically significant, their confidence intervals overlap, thus we are unable to distinguish between the two and can not confirm that the effect is strongest when all three have children.

Leisure Costs (h2): confirmed

Holding everything else constants, vignettes in which a child “somewhat limits the ability to do what she wants with her free time” and “greatly limit the ability…” are evaluated significantly lower in the intention to have children under such conditions. Indeed, effect size is quite considerable. A great limitation on free time elicits on average a rating of 0.77 lower compared to the reference of no limitation. Compared to more traditional economic factors, this effect competes with below average income (-0.9) and indeed exceeds the effect of above average income (+ 0.53). This offers additional evidence that women weigh opportunity costs of their free time when considering the conditions for childbearing.

Desire Asymmetry (h3a) & (h3b) confirmed

Data from our experiment confirm both hypotheses related to desire asymmetries' influence on the female's willingness to have a child. Firstly, with respect to the reference category "both equally desire a child", deviation from this balance was strongly penalized. The effect when she desires more than he does was (-0.60). On the other hand, when he desires more than she does, the effect is nearly twice as negative (-1.07). This evidence highlights the importance of non-tangible conditions when considering the decision to have a child. This highly subjective and interpretable condition (desire) clearly bears a strong influence on a female's willingness to have children under the given circumstances. At the same time, the penalty for a deviation away from consensus is gendered. These findings indicate that the females may give more weight to the female's desire to have a child in the transition from parity zero to one.

Career Sacrifice Asymmetry (h4a) confirmed, (h4b) not confirmed

When either partner sacrifices relatively more than the other, intentions are significantly lower than when the vignette couple is in the reference condition: "equal sacrifice". Thus, we are able to confirm h4a. However, while higher relative sacrifice for the woman (-0.27) is more negative than higher relative male sacrifice (-0.13), their confidence intervals overlap, thus we need to perform additional tests in order to confirm h4b.

Taken together, all experimental conditions were highly statistically significant except for category 3, 36 years old, for vignette age. Traditional social markers such as institutionally recognized marriage, social age norms, available support networks, relative income, and ability to save all bear influence on childless women's willingness to have a child. However, we extend the current body of knowledge by introducing experimental measures of socially sensitive factors. We find evidence that peer parenthood, leisure costs, and couple asymmetries in desire and career sacrifice significantly affect willingness to have children in the given circumstances.

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