Competition in Sibling Fertility? An Analysis of South Asian Joint Households

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Abstract

Approximately 20% of households in India have at least one co-residing daughter-in-law. In this research, I examine the hypothesis that the social status of women in joint Indian households is determined by both their husband's relative age, as well as the gender of their children. Women who marry the elder co-resident son (first rank) have greater decision making power and mobility as a result of being the elder daughter-in-law, compared to women who marry the younger co-resident son (second rank). Thus, first ranking women should have less pressure to bear a son to improve their autonomy. Women who marry the younger co-residing son cannot improve their autonomy using rank, and instead have a greater incentive to birth sons. Using the Demographic and Health Survey for India, I provide preliminary evidence that first ranking women increase birth spacing by a magnitude of 16 percent, upon the entrance of the second rank, even if they have not already borne sons. This delay in births is not explained by a change in early childhood investments. Furthermore, second ranking women reduce their marriage-to-first birth interval by approximately 4.7 percent if the first ranking woman in the household already has a son. Taken together, the results provide suggestive evidence for fertility rivalry within a household, as a means to improve social status.

Keywords: Family Structure, Fertility, Household, South Asia
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I Introduction

Economists have documented that in almost every sphere of a woman's life, she has fewer opportunities and lower autonomy compared to her male counterparts. These gaps are particularly apparent in developing countries. In India, only 26 percent of women participate in the labor force, compared to 78 percent of men. Approximately 1 in 3 women in the country have faced a less severe form of intimate partner violence and only 11 percent have complete decision making power over their own health care. Low levels of female empowerment are further linked to poorer child and maternal health outcomes, as well as less say over fertility decisions.

Researchers and policy makers continue debating which interventions and policies are successful in improving female autonomy. For example, legislation of equal inheritance rights for women in India encouraged female foeticide and did not increase the likelihood of women inheriting property, although investment in female education and dowry increased (Bhalotra, Brule, and Roy 2018; Roy 2015). Evidence suggests that women also invest in methods to improve their own autonomy after marriage. A prominent example is the effort to birth a son, as male offspring provide old age security, a claim to household property, and improved short term decision making power (Das Gupta 2003; Lambert and Rossi 2016; Zimmermann 2018).

Yet, female autonomy is also dependent on the presence of other women in the household. This fact is especially notable in joint or extended households which are characterized by adult sons co-residing with their parents, wives, and children. Das Gupta (1995) notes that a women's autonomy changes during her life cycle; a young bride is subservient not only to the male members of the household, but to older women as well. Thus, Indian joint households follow gender as well as age hierarchy. A woman's status rises with the birth of a son, and with age.

In this research, I explore the hypothesis that the social status of women in joint Indian households is determined by both their husband's relative age, as well as the gender of their children. Theoretically, women who marry the elder co-resident son (first rank) should have greater empowerment as a result of being the elder daughter-in-law, compared to women who marry the younger co-resident son (second rank). Upon the entrance of the second rank, first rank women are no longer at the bottom of the age hierarchy and should therefore have less pressure to bear sons as a means to improve their position in the household. Second ranking women cannot compete across ranks without exiting the household, which can come at a significant economic cost. Thus, the incentive to bear a son to improve their status in the household should be higher for younger co-resident daughter-in-laws.

Focusing on households with only two co-residing sons, I utilize data from the Demographic and Health Survey (DHS) to test this hypothesis. First, I show that second ranking women are significantly less likely to have any say in decisions relating to their own healthcare, large household purchases, visits to their natal family, and disposal of their partner's income, compared to first ranking women. Women married to the elder son are effectively higher in the age hierarchy upon the entrance of their younger sister-in-law, allowing them to exhibit greater mobility and decision making power. Exploiting the entrance of the younger son's wife into the household, I show that first ranking women increase birth spacing by 9.1 percent on average, even if they have not birthed a son. This increase is not explained by changes in early childhood investments, such as breastfeeding. On the other hand, women who marry the younger co-residing son cannot improve their autonomy using rank, and instead have a greater incentive to birth a son. On average, second ranking women reduce their marriage to first birth interval by approximately 4.8 percent, if the first ranking woman already has a son. Taken together, the results provide evidence for co-dependencies of female autonomy in joint households.

To my knowledge, there is no quantitative study analyzing the possible co-dependency of fertility behavior in joint patrilocal households. Coffey, Reetika, and Spears (2016) study the effect of a woman's rank within joint households in India and find that women married to the younger brother have lower empowerment and higher child mortality. In contrast, my paper focuses on the impact of the social status of women within a household on their fertility behavior. Most closely related to my paper, Rossi (2018) studies polygamous households in Senegal and finds that first wives lengthen birth spacing with the entrance of a competitor, but this effect is smaller if the co-wife has a longer reproductive period. The results suggest the existence of a natural reduction in total fertility in polygamous households (the husband must now spend time with each wife), as well as a competition effect which pushes fertility upwards. This research relates to the literature studying competition within joint households but differs for several reasons. First, I study fertility behavior among women who live in the same household, but are not co-wives. Thus, my setting does not imply a natural reduction in fertility as husbands split time between wives. Also, women in polygamous households are competing for resources provided by the partner. In contrast, while some resources in joint households are considered pooled, the women in my sample should theoretically have access to separate assets or income from their individual husbands. Thus, that the results of fertility rivalry from earlier work should naturally extend to a joint family household are not a priori clear.

The remaining paper is structured as follows. In Section II, I provide a background of joint household structures in India and describe the data. Section III provides the empirical

methodology, while Section IV discusses the results.

II Context and Data

A Context

There are two characteristics of South Asian culture that are relevant to our understanding of the context of this research-patrilocality and joint family household structures.

The institution of patrilocality refers to a kinship system whereby women join their husband's household upon marriage. This tradition explains why the most common reason for migration of Indian women is marriage; on average, a woman migrates 3.6 hours away from her natal home once she is married.[2] Patrilocality is strongly associated with family lineage, land, and property being passed down through male heirs. Productive assets such as agricultural land require the physical presence of sons, who must gradually take over control and management of the resources from the patriarch.

Patrilocality implies that it is usually one or more adult sons who reside with their parents, their wives and children. While nuclear households entail a couple and their children co-residing, extended or joint households can involve other couples, grandparents, or in-laws who live in the same residence. Adult daughters move out upon marriage. Table 1 shows that approximately 20 percent of households in India have atleast one co-residing daughter-in-law. The corresponding number is 35 and 9 percent for Pakistan and Bangladesh, respectively.

Prior literature suggests there exist both benefits and disadvantages for women residing in joint versus nuclear households. Using South Asian household data, Khalil and Mookerjee (2018) find that women residing in joint households are significantly less likely to face domestic abuse compared to women living in nuclear residences. With more members in the household, the chances of someone intervening to impede physical abuse are greater. However, women in joint households are less likely to make decisions concerning large household purchases, health care, fertility, or visits to their natal family (Khalil and Mookerjee 2018). They must defer to elders, including their mother-in-law, who is often in control of their mobility and fertility decisions (Herrera-almanza et al. 2019).

B Data

Demographic and Health Survey: For the main analysis in this paper, I employ the 1992, 1998, 2005 and 2015 Demographic and Health Surveys (DHS) for India. The nationally representative survey samples all women in the household aged 15-49. The DHS contains

[2]India Health and Development Survey 2005.

Table 1: Percentage of Co-Residing Daughter-in-Laws by Country

Daughter-In-Laws	India (%)	Pakistan (%)	Bangladesh (%)
0	79.77	66.75	91.17
1	17.45	23.45	7.79
2	2.38	7.24	0.90
≥ 3	0.39	2.56	0.14
Total (%)	100	100	100
Households	612,102	21,192	45,698

Note: Daughter-in-laws are defined using the relationship to the household head. The table displays the proportion of households in the sample with the number of co-residing daughter-in-laws. Data is accessed from the Indian Demographic and Health Survey years 1992, 1998, 2005, and 2015.

data on a woman's complete birth history, fertility preferences, and decision making power. The advantage of the DHS is that each woman in the eligible age group is interviewed, allowing me to compare women within a household, using household fixed effects.[3] However, the survey does not allow me to track women who split away from their patrilocal residence.

India Human Development Survey: To obtain information on household formation, I access the India Human Development Survey (IHDS) for the years 2005 and 2012. The IHDS is a nationally representative survey of 42,152 households which are followed and 82 percent of which are successfully re-interviewed in 2012. The advantage of the IHDS data is that most households are observed twice, allowing me to track households which restructure their residence type by splitting. However, only one woman per residence is interviewed in detail for birth history, marriage and empowerment variables. Thus, I cannot compare women within a household, as with the DHS.

The DHS defines a household as a collection of individuals who eat from the same pot. To construct a sample of joint family structures, households with a co-resident daughter-in-law, as defined by her relationship to the head of the household, are identified. The sample is then further reduced to only those households where two daughter-in-laws reside; this is the primary study sample. Each woman is ranked in order of the age of her husband; wives of the older son are ranked as first order, while wives of the younger son are given a second order rank. Note that there are other residence structures that can be categorized as joint households with two co-residing sister-in-laws. For example, the older brother may be the head of household with a co-residing younger brother and sister-in-law. These cases are fewer

[3]Only ever-married women are surveyed in the 1992 and 1998 DHS.

in the data and are not included in my sample.[4]

There are several outcomes studied in this paper. To determine the effect of rank on female empowerment in the household, I separately study decision making power and domestic violence patterns. To understand changes in fertility behavior, the outcome variable used in the main specifications is birth spacing. I explain the construction of these variables in detail below.

Fertility: The main outcome of interest is birth spacing. Birth spacing is measured in months. For the first child, the marriage to birth interval is used to measure spacing.

Decision Making Power: The DHS asks each interviewed woman whom in the household usually makes decisions concerning her healthcare, major household purchases, visits to her natal family, and how to spend her husband's income. The responses are categorized as the respondent alone, her husband alone, the two jointly, another household member alone, or the respondent with another household member jointly making the decision. I create separate indicators equal to 1 if a woman has atleast some decision making power in each of these categories, and 0 otherwise.

Domestic Violence: The DHS survey asks respondents if they believe it is acceptable for a husband to beat his wife if she goes out without telling him, neglects the children, argues, refuses sexual relations, or cooks poorly. I code these questions as separate indicator variables equal to 1 if the respondent finds the physical abuse acceptable, and 0 otherwise.

III Methodology and Identification

A Empirical Methodology

To understand fertility co-dependencies, I delineate three testable hypotheses. First, I test whether a higher rank is associated with improved empowerment outcomes. Second, I measure the fertility response of the first rank to the entrance of the second rank into the shared residence. Lastly, I estimate the fertility response of the second rank upon entrance, if the first rank already has a son.

To test for differences in empowerment outcomes, I run the OLS regression

$$Y_{ih} = \alpha \ \textit{Second Rank}_{ih} + \beta X_i + \gamma_h + \phi_r + \epsilon_{ih} \tag{1}$$

where Y_{ih} includes measures of decision making power and domestic violence incidence for a woman i, residing in household h. *Second Rank* is an indicator variable equal to 1 if a woman

[4]Only 0.9 percent of women are categorized as the sister-in-law of the head of the household.

is married to the younger co-resident son, and 0 if she is married to the elder co-resident son. X_i is a vector of woman-level characteristics including education (in years), partner's education, and age at marriage. γ_h are household fixed effects, ϕ_r are religion fixed effects, and ϵ_{ih} captures any idiosyncratic variation.

The household fixed effects γ_h control for those characteristics within a household which might affect the outcomes of both daughter-in-laws. This might include shared household wealth, geography, household head characteristics, presence of a mother-in-law, disease environment, and the availability of labor market opportunities. Conditional on controlling for household level variation, I interpret α as the difference in empowerment outcomes Y_{ih}, that can be attributed to a lower ranking. If a higher rank is correlated with greater social status or empowerment, I should expect α to be negative.

To measure the fertility response of the first rank upon the entrance of the second rank into the household, I estimate the equation

$$\begin{aligned} \textit{Birth Interval}_{i,j,m} = \alpha \textit{After}_{i,j} + \beta \textit{No Sons}_{i,j} + \delta \textit{After*No Sons}_{i,j} + \theta X_{i,j} + \gamma_m \\ + \lambda_b + \epsilon_{i,j,m} \end{aligned} \tag{2}$$

where *Birth Interval* is measured in months, for child i born after child j to mother m. For the first child, I substitute birth interval with the marriage to first birth interval. *After* is a dummy equal to 1 if child i was born after the second ranking daughter-in-law was married, and 0 otherwise. *No Sons* is a dummy equal to 1 if the mother does not have any sons when child i is born, and 0 if she already has at least one son. The vector X includes the age and age squared of the mother at the birth of child i. γ_m and λ_b are mother and birth order fixed effects. Lastly, $\epsilon_{i,j,m}$ captures any idiosyncratic variation. If the entrance of the second ranking woman is associated with reduced pressure on the first rank to bear children, I would expect α and δ to be positive.

Finally, to estimate the fertility response of the second rank I run the regression

$$\textit{Birth Interval}_m = \alpha \textit{Number of Sons}_m + \beta X_m + \mu_s + \phi_r + \upsilon_z + \epsilon_m \tag{3}$$

where *Birth Interval* is measured as the number of months from marriage to first birth for a second ranking woman m. *Number of Sons* is the number of sons already born to the first rank woman, at the time of entrance of the second daughter-in-law. I also use other measures of the first rank's fertility, such as a dummy equal to 1 if she has a son, and a measure for the proportion of sons. The vector X includes the age, age squared, education, and partner's education for the second rank woman m. μ_s, ϕ_r, and υ_z are state, religion, and survey fixed effects. As before, ϵ_m captures any idiosyncratic variation.

B Identification Strategy

My identification strategy exploits the rank of each daughter-in-law, defined using the age of her husband, as well as the timing of the entrance of the second ranking daughter-in-law into the residence.

A major identifying assumption necessary for causal inference is that high and low ranking women are not significantly different prior to marriage. In other words, women should not be selecting into marriage based on the birth order of potential matches. In their research, Coffey, Reetika, and Spears (2016) experimentally vary potential partner characteristics using hypothetical matrimonial ads in India to show that arranged marriages do not respond to the birth ranking of grooms. While I cannot offer similar causal evidence against selection into rank, in Table 2 I provide a summary of baseline characteristics for first and second rank women.

As expected, the baseline characteristics for a respondent's current age and partner's current age vary significantly across rank. Higher ranking women and their partners tend to be approximately five years older than lower ranking women and their husbands. Height- a partial measure of early health-, religion and partner's education are not significantly

Table 2: Selection into Rank: Characteristics by Rank of Daughter-in-law

Statistic	Rank 1	Rank 2	Difference
Current Age	30.43	25.35	-5.08***
	(6.28)	(5.12)	
Partner's Current Age	35.32	29.63	-5.69***
	(6.43)	(5.50)	
Education (Years)	6.52	7.08	0.56***
	(5.19)	(5.18)	
Partner's Education (Years)	9.11	9.02	-0.09
	(4.52)	(4.52)	
Age at Marriage	18.45	18.64	0.19**
	(3.56)	(3.53)	
Height (cm)	1527	1528	1
	(58.58)	(61.11)	
Hindu = 1	0.79	0.79	0
	(0.41)	(0.41)	
N	4327	4327	-

Note: Data is accessed from the DHS 2015, 2005, 1998 and 1992 survey years for India. *Rank 1* refers to the wife of the elder co-resident son. *Rank 2* refers to the wife of the younger co-resident son. For differences: *p<0.1; **p<0.05; ***p<0.01

different across ranks. However, the statistics do suggest that second rank daughter-in-laws tend to have half a year more education and marry three months later than their elder sister-in-laws, on average. To ensure that the results are not driven by differences in age at marriage or education, I will control for both in the estimated regressions.

Another identification assumption is that women do not select into nuclear or patrilocal households at marriage. I compare women within a household, rather than across households of differing types, and am therefore less concerned about selection based on residence type.

IV Results

In Table 3, I show that a higher rank is associated with higher decision making power. The table shows that after controlling for differences in own and partner's education, as well as age at marriage, women who marry the younger co-resident son have less decision making say over large household purchases, visits to health-care facilities, visits to their natal family, and spending over their partner's income. In column (3), the results suggest that marrying the second ranking co-resident son is associated with a 2.4 percent lower likelihood of visiting natal family. The estimate translates to a 5.7 percent magnitude reduction relative to the mean outcome. Similarly, women marrying the younger co-resident son are 3.7 percent less likely to have a say in accessing health-care, relative to the average. The results are statistically significant for all outcomes.

Interestingly, a lower rank is not associated with a higher likelihood of facing domestic violence. In Table 4, I show that women who marry the younger co-resident son are not significantly more likely to be beaten if they go out, neglect childcare, argue, refuse sexual relations, or cook food poorly. These results are in line with earlier research suggesting women in joint household residences are less likely to face domestic abuse because of the presence of potential mediators.

Next, in Table 5 I show the main results for the fertility response of the first rank upon the entrance of the second rank into the residence. The results in column (1) suggest that first ranking women increase birth spacing by 3.25 months with the entrance of the second daughter-in-law in the household, conditional on the birth order of the child and age of the mother. In column (2), I also include mother fixed effects to control for variation at the individual level which remains fixed across births, such as education. While the coefficient size decreases significantly with the inclusion of mother fixed effects, the results still indicate that first ranking women significantly increase spacing by 1.1 months on average, after the entrance of the second rank. The coefficient translates to a 3.6 percent increase in birth spacing, relative to the average birth interval of 30.76 months.

Table 3: Effect of Rank on Empowerment/Decision-Making

	Atleast Some Decision-Making Power On:			
	1(=Healthcare Access)	1(=Large Purchases)	1(=Family visits)	1(=Partner's Income)
	(1)	(2)	(3)	(4)
No Controls				
1(= Second Rank)	−0.014	−0.014	−0.021**	−0.039***
	(0.008)	(0.009)	(0.008)	(0.015)
With Controls				
1(= Second Rank)	−0.017**	−0.017*	−0.024***	−0.043***
	(0.009)	(0.009)	(0.009)	(0.015)
Education (years)	0.005**	0.005**	0.004*	0.006*
	(0.002)	(0.002)	(0.002)	(0.004)
Partner's Education	−0.0004	−0.001	−0.0003	−0.001
	(0.001)	(0.001)	(0.001)	(0.002)
Age at Marriage	0.001	0.002	0.002	−0.005
	(0.003)	(0.003)	(0.002)	(0.004)
Religion FE	✓	✓	✓	✓
Household FE	✓	✓	✓	✓
Mean Outcome	0.45	0.39	0.42	0.61
Observations	12,084	12,084	12,084	6,041
R^2	0.780	0.763	0.780	0.714
Adjusted R^2	0.561	0.527	0.561	0.396

Note: Data is accessed from the 1992, 1998, 2005, and 2015 DHS India survey. The sample is restricted to households with two co-residing daughter-in-laws. *Second Rank* is an indicator equal to 1 if the respondent is married to the younger brother in the household. *Healthcare Access*, *Large Purchases*, *Family Visits*, and *Partner's Income* are indicator variables equal to 1 if the respondent has some say in the usual decision making over accessing healthcare for herself, making large household purchases, visiting relatives or family, and spending partner's earned money, respectively. Standard errors are clustered at the household level, and results are robust to clustering at the PSU level.*p<0.1; **p<0.05; ***p<0.01

Table 4: Effect of Rank on Empowerment

	Beating Justified if Wife:				
	1(=Goes Out)	1(=Neglects Childcare)	1(=Argues)	1(=Refuses Sex)	1(=Cooks Poorly)
	(1)	(2)	(3)	(4)	(5)
No Controls					
1(= Second Rank)	−0.004	0.002	0.005	0.007	−0.004
	(0.012)	(0.013)	(0.013)	(0.010)	(0.011)
With Controls					
1(= Second Rank)	0.003	0.008	0.011	0.012	0.001
	(0.012)	(0.013)	(0.013)	(0.010)	(0.012)
Education (years)	−0.007**	−0.005*	−0.007**	−0.006**	−0.005*
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Partner's Education	−0.002	−0.001	−0.001	0.0001	0.0003
	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
Age at Marriage	−0.001	−0.003	−0.0004	0.002	−0.0001
	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)
Religion FE	✓	✓	✓	✓	✓
Household FE	✓	✓	✓	✓	✓
Mean Outcome	0.21	0.26	0.23	0.11	0.16
Observations	5,522	5,522	5,522	5,522	5,522
R^2	0.713	0.707	0.693	0.672	0.688
Adjusted R^2	0.415	0.404	0.376	0.333	0.365

Note: Data is accessed from the 1992, 1998, 2005, and 2015 DHS India survey. The sample is restricted to households with two co-residing daughter-in-laws. *Second Rank* is an indicator equal to 1 if the respondent is married to the younger brother in the household. Standard errors are clustered at the household level. *p<0.1; **p<0.05; ***p<0.01

Table 5: Birth Spacing for First Rank Daughter-in-Laws

	Birth Interval (months)			
	(1)	(2)	(3)	(4)
After	3.248***	1.100*	1.993***	−0.956
	(0.490)	(0.638)	(0.588)	(0.727)
Age	1.601***	16.547***	1.594***	16.466***
	(0.169)	(0.657)	(0.165)	(0.653)
Age^2	0.023***	−0.166***	0.023***	−0.165***
	(0.003)	(0.012)	(0.003)	(0.012)
No Sons			−1.606***	−2.125***
			(0.603)	(0.708)
After*No Sons			2.483***	4.953***
			(0.874)	(1.014)
DHS Cluster FE	✓		✓	
Survey FE	✓		✓	
Birth Order FE	✓	✓	✓	✓
Mother FE		✓		✓
Mean Outcome	30.76	30.76	30.76	30.76
Observations	16,108	16,108	16,108	16,108
R^2	0.389	0.630	0.389	0.632
Adjusted R^2	0.224	0.411	0.225	0.413

Note: *After* is an indicator equal to 1 if the child is born after the entrance of the second daughter-in-law, and 0 otherwise. *No Sons* is an indicator equal to 1 if the first rank does not have any sons prior to the birth, and 0 if she already has at least one son. Result is robust if sample is restricted to only those households where both daughter-in-laws have resided in the residence since marriage (no migration in or out). For columns (1) and (3), clustering is at the PSU level and for columns (2) and (4), clustering is at the mother level. *p<0.1; **p<0.05; ***p<0.01

Next, I test whether first ranking women change their birth spacing behavior, if they already have sons. In columns (3) and (4) of Table 5, I include a control for whether a woman has any sons from previous births interacted with *After*. The results in column (4) suggest that women are likely to increase birth spacing by 4.95 months on average after the entrance of the second rank, if they do not already have sons. The coefficient translates to an approximately 16 percent increase from the average birth interval. In columns (2) and (4) of Table 8 of the appendix, I show that the change in birth intervals is not explained by a significant change in early childhood investments, as measured by the number of months a child is breastfed. Taken together, the results provide suggestive evidence that first ranking daughter-in-laws increase birth spacing after the entrance of the second rank if they do not

already have sons, but this increase is not accompanied by a change in health investments for their children.

Finally, to estimate the fertility response of the second rank, I run regression equation (3). The sample is restricted to second ranking daughter-in-laws, and the outcome of interest is a woman's marriage to first birth interval. The results in Table 6 suggest that second ranking women do change their first birth interval conditional on the fertility of the first daughter-in-law. Yet, what matters is the number of sons; each additional son born to the first rank is associated with 1.04 fewer months to the birth of the second rank's child on average. This estimate from column (6) corresponds to a 4.7 percent decrease at the average marriage to first birth interval. Interestingly, the proportion of children that are male or the total number of kids by the first rank do not have a significant association with the first birth interval of the second rank.

Table 6: Second Rank: Marriage to First Birth Interval

	Marriage to First Birth (months)					
	(1)	(2)	(3)	(4)	(5)	(6)
Rank 1: Number of Kids	-1.262^{***}					
	(0.382)					
Rank 1: Prop. Sons		-1.251				
		(1.964)				
Rank 1: No Son			3.575^{***}	1.720		
			(1.254)	(1.226)		
Rank 1: Number of Sons					-1.851^{***}	-1.039^{*}
					(0.572)	(0.539)
Age at Marriage	-1.333^{***}	-1.158^{***}	-1.345^{***}	-2.349^{***}	-1.362^{***}	-2.352^{***}
	(0.246)	(0.300)	(0.242)	(0.307)	(0.242)	(0.306)
Education	-0.299^{*}	-0.113	-0.291^{*}	-0.140	-0.295^{*}	-0.140
	(0.168)	(0.206)	(0.169)	(0.175)	(0.169)	(0.175)
Partner's Education	0.197	0.072	0.193	0.077	0.189	0.073
	(0.180)	(0.198)	(0.180)	(0.172)	(0.178)	(0.171)
PSU Cluster FE	✓	✓	✓	✓	✓	✓
Survey FE	✓	✓	✓	✓	✓	✓
Religion/Caste FE	✓	✓	✓	✓	✓	✓
Mother Birth-Year FE				✓		✓
Mean Dep.	22.05	22.05	22.05	22.05	22.05	22.05
Mean Indep.	1.46	0.54	0.47	0.47	0.77	0.77
Observations	3,112	2,175	3,112	3,112	3,112	3,112
R^2	0.593	0.620	0.592	0.647	0.593	0.648
Adjusted R^2	0.169	0.157	0.169	0.259	0.169	0.259

*p<0.1; **p<0.05; ***p<0.01

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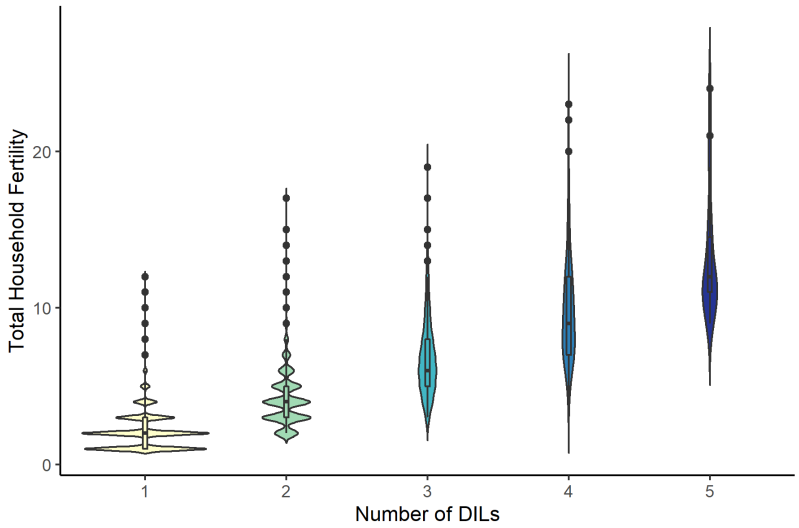
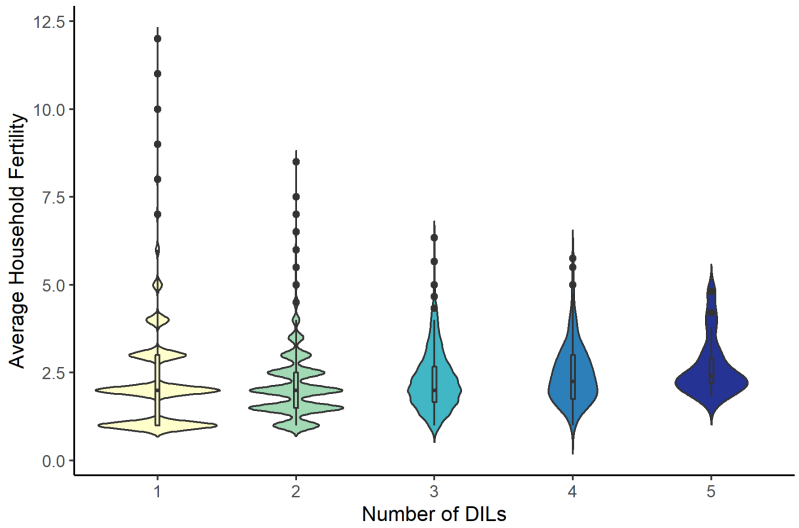
V Appendix

Figure 1: India Total Fertility by Co-Resident Sons



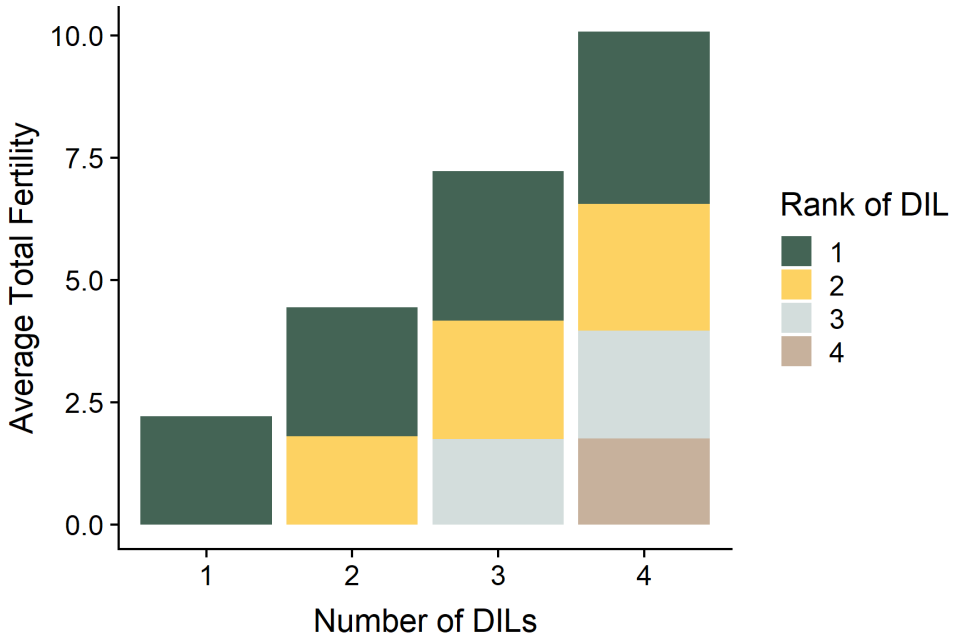
Note: Data is accessed from the 2015, 2005, and 1998 India DHS. The sample consists of households with a maximum of 5 daughter-in-laws co-residing. The figure displays the distribution of total fertility for households with varying numbers of daughter-in-laws (DILs).

Figure 2: India Average Fertility by Co-Resident Sons

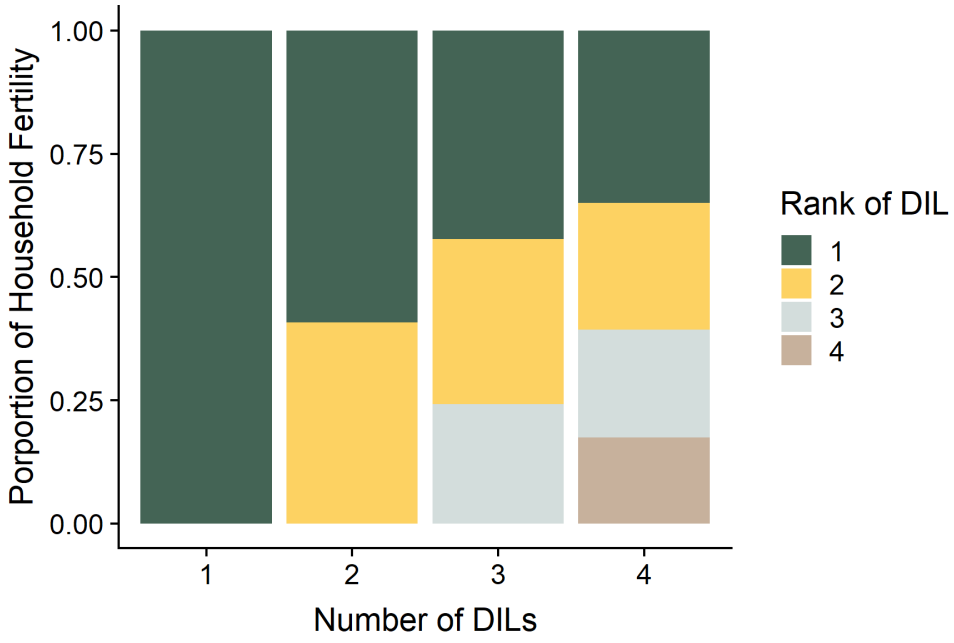


Note: Data is accessed from the 2015, 2005, and 1998 India DHS. The sample consists of households with a maximum of 5 daughter-in-laws co-residing. The figure displays the distribution of total fertility for households with varying numbers of daughter-in-laws (DILs).

Figure 3: Proportion of Total Fertility by Co-residing Sons



(a)



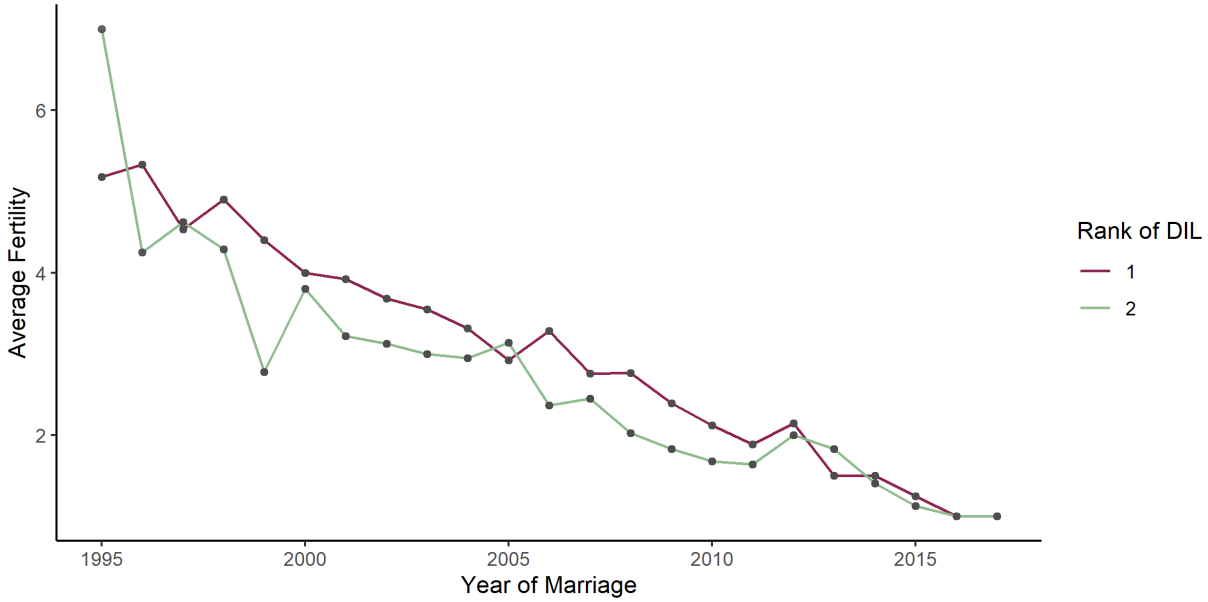
(b)

Note: In panel (a), the figure displays the average total household fertility for residences with different numbers of co-residing sons and their partners. The shading represents the total average fertility that is attributed to the differently ranked sons. In panel (b), the figure depicts the same pattern but now the y-axis represent the proportion of household fertility that can be attributed to differently ranked sons. Data is accessed from the DHS 2015, 2005 and 1998 years, for India.

Figure 4: India

Note: Data is accessed from the 2015, 2005, and 1998 India DHS. The sample consists of households with two daughter-in-laws only. The figure displays the average total fertility for women who are the first daughter-in-law (married to the elder co-residing son) and second daughter-in-law (married to the younger son).

Figure 5: Pakistan

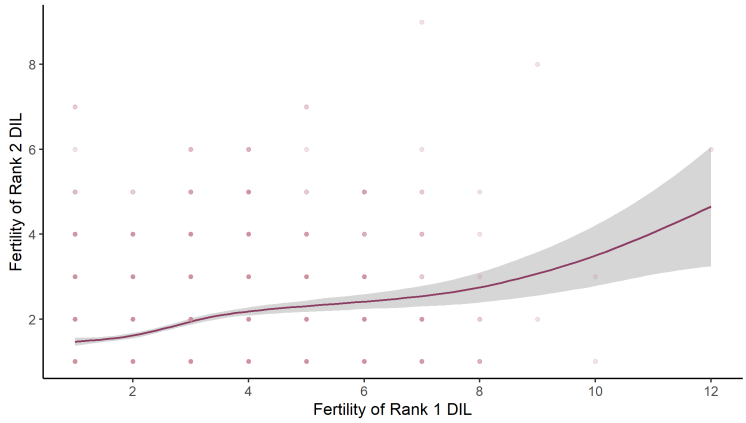


Note: Data is accessed from the 2017 and 2012 Pakistan DHS. The sample consists of households with two daughter-in-laws only. The figure displays the average total fertility for women who are the first daughter-in-law (married to the elder co-residing son) and second daughter-in-law (married to the younger son).

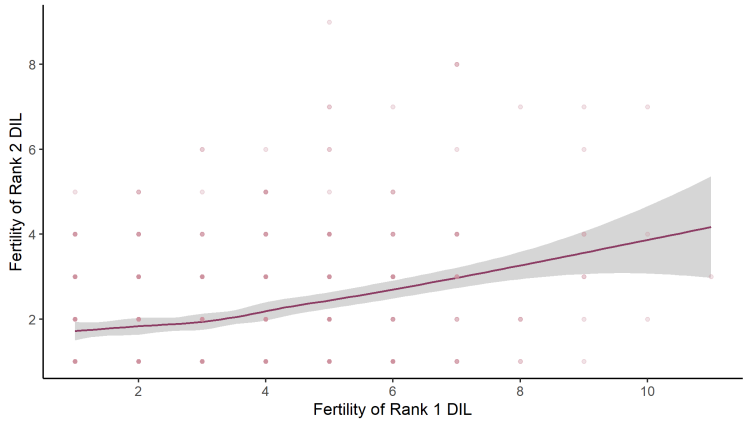
Figure 6: Bangladesh

Note: Data is accessed from the 2014, 2011, 2007, and 2004 Bangladesh DHS. The sample consists of households with two daughter-in-laws only. The figure displays the average total fertility for women who are the first daughter-in-law (married to the elder co-residing son) and second daughter-in-law (married to the younger son).

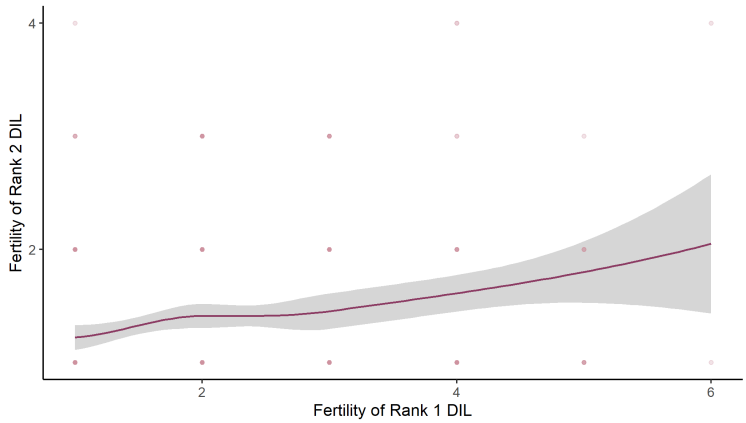
Figure 7: Fertility Correlation Across Ranks



(a) India



(b) Pakistan



(c) Bangladesh

Note: Data is accessed from the DHS for India, Pakistan and Bangladesh. The x-axis measures the total fertility of the higher ranking woman (married to the elder co-residing son). The y-axis measures the total fertility of the lower ranking woman (married to the younger co-residing son) within the same residence.

Table 7: Fertility Differences Within Household

	Number of Children	
	(1)	(2)
Second Rank = 1	-0.807^{***}	-0.545^{***}
	(0.046)	(0.058)
Education (years)	-0.055^{***}	-0.046^{***}
	(0.012)	(0.016)
Partner's Education	-0.005	-0.007
	(0.005)	(0.008)
State/Survey FE	✓	✓
Household FE	✓	✓
Observations	4,175	1,844
R^2	0.696	0.739
Adjusted R^2	0.385	0.467

Note: The sample is restricted to India only. Data is accessed from the DHS 2015, 2005, and 1998 survey years. `Second Rank = 1` if the respondent is the wife of the younger co-resident son. Column (1) includes the full sample. Column (2) includes a sample of households where both women have completed their fertility. Standard errors are clustered at the DHS cluster (village) level. *p<0.1; **p<0.05; ***p<0.01

Table 8: Early Investment Changes

	Breastfeeding (months)			
	(1)	(2)	(3)	(4)
After	−4.709***	−2.492	−5.457***	−3.096
	(1.070)	(2.575)	(1.444)	(3.318)
Age	−0.092	−5.114	−0.095	−4.995
	(0.076)	(4.011)	(0.076)	(4.020)
Age^2	−0.004***	−0.017	−0.004***	−0.019
	(0.001)	(0.074)	(0.001)	(0.074)
1(=Male)	0.436	−0.448	0.462	0.148
	(0.737)	(1.348)	(0.756)	(1.608)
No Sons			−1.237	−2.794
			(1.951)	(4.525)
After*No Sons			1.465	0.966
			(2.000)	(4.046)
SU Cluster FE	✓		✓	
Survey FE	✓		✓	
Birth Order FE	✓	✓	✓	✓
Mother FE		✓		✓
Mean Outcome	15.24	15.24	15.24	15.24
Observations	3,592	3,592	3,592	3,592
R^2	0.680	0.917	0.681	0.918
Adjusted R^2	0.243	0.528	0.243	0.529

Note: The sample is restricted to the first ranking woman, within households with two co-residing daughter-in-laws. Data is accessed from the Indian DHS survey years 1992, 1998, 2005, 2015. Result is robust if sample is restricted to only those households where both daughter-in-laws have resided in the residence since marriage (no migration in or out). For columns (1) and (3), clustering is at the PSU level and for columns (2) and (4), clustering is at the mother level. *p<0.1; **p<0.05; ***p<0.01