Parental Son Preference and Children's Housework: the Indian Case

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Abstract

Son preference in South Asia results in many unintended consequences, such as girls' under-nutrition. This study focuses on one potential manifestation of son preference----an uneven distribution of housework between boys and girls. "Housework" is not trivial since it accounts for the majority of children's labor in the developing world, and too many hours of housework are likely to crowd out children's opportunity for schooling and leisure.

We choose India as the study case because parental son preference is prevalent and national statistics indicate that child work remains common. We employ the National Family Health Survey of India, 2005. We use several strategies to measure son preference. Results confirm our hypothesis: in the presence of parental son preference, girls, but not boys, perform more domestic chores. In the paper we examine how the effect of parental son preference interacts with other factors such as religion and regional effects.

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Extended Abstract

Introduction

During the family-building process, girls in societies with a traditional preference for sons are frequently exposed to disadvantages that affect their health, survival and access to education. The "discrimination" by parents may be attributable to the female gender's prescribed lower status in these societies, or results from a lower economic or psychological return for parents to raise girls than boys. There are many potential within-family manifestations of parental son preference; in this paper we explore a domain that is rarely canvassed in the literature of son preference----housework.

Housework refers to chores that are necessary to maintain the functioning or quality of living of a family, but are not intended for market exchange[1] nor involved in payment to the children who perform the chores. Examples of housework include cleaning, shopping, collecting firewood, fetching water, or caring for younger children. While housework is generally viewed as the realm of the female gender, in much of the developing world boys are involved with a considerable amount of these household duties due to lack of infrastructure, especially in rural area.

"Housework" is not trivial. First, contrary to the public's perception, household chores accounts for the majority of children's labor in the developing world (International Labour Organization, 2006; Edmonds, 2007). Wage work (including in-kind payment) of children, in contrast, is relatively infrequent, and its prevalence generally decreases as living standards improve (Edmonds, 2007).

Second, the assignment of housework to children, and its analysis, is more subtle than it appears. While poverty is often cited as the main driver for parents to send their children for wage work, the linkage between poverty and domestic work is less straightforward. A high level of domestic work, or an uneven division of household duties between boys and girls, may well persist as family income has crossed the poverty line. This is because, in addition to material conditions, parental attitudes and social customs---for example, whether the society views it as a socialization process for girls/boys to perform certain duties---also plays a role.

Third, there may be developmental consequences associated with housework. While performing these chores is an integral part of many children's life in the developing world, too many hours of work inevitably crowds out their opportunity for leisure and learning. Household chores could be dangerous, too. Children may be forced to use machinery or tools that are designed for adults, or have to carry loads too heavy for their bodies. Unfortunately, few studies have tried to document the burden and consequences of housework of children in the developing world.

In view of the ubiquity of housework in children's life, and the relative insensitivity of the amount of housework to market wage or poverty, we set off to explore the role of parental attitudes in the determination of children's input for housework. A preference for a certain sex of children exists in many

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[1] Thus, the work performed by a young "domestic worker" or "domestic server" does not satisfy our definition for "domestic work". A "domestic worker" typically works in a household of adults other than their own parents, involving explicit or implicit form of market exchange; he or she may receive cash or in-kind payment from the household, or simply work to repay his or her own parents' debt.

societies, which may lead to differential treatments between daughters and sons. In this research we focus on the ramification of parental son preference in the amount of household duties assigned to children.

Theory and Hypothesis

We hypothesize that in the presence of parental son preference, girls perform more hours of domestic chores than if there were no such a preference. We also expect that the gender difference in the amount of housework performed becomes larger in the presence of son preference, because in many societies girls are presumed to be "natural" for housework. Girls may have been assigned with more household duties than boys even though parents do not particularly favor sons over daughters, and the presence of son preference is predicted to enlarge the gap that has prevailed.

Several mechanisms that are brought about by parental son preference lead daughters to undertake more domestic chores. The first of these mechanisms, gender-stereotyping, plays a role because household chores are typically viewed as female duties. Parents with a stronger traditional gender ideology that includes a preference for sons may involve their daughters in domestic work as a socialization process.

Another mechanism that influences daughters' work is the perception that education provides a lower return for girls than for boys. As a result, parents prefer daughters to support the family by providing manual labor, which typically takes the forms of housework, instead of receiving further education in the hope of raising future income and providing old-age supports.

We choose India as the study case, because parental son preference is prevalent and national statistics indicate that child work remains common. We utilize the 2005 National Family Health Survey (NFHS) of India for this study. The NFHS is a household survey with a focus on fertility, reproductive health and children's outcomes.

Sample, Variables and Measures

Following the format of the International Labor Organization's survey on child labor (ILO, 2006), the NFHS administered a "child labor" module in 2005, detailing hours and type of work—including domestic chores—performed by household children during the survey week. The ILO/NFHS module distinguishes between two types of child labor, market work (i.e. working for non-household or household members) and domestic work (i.e. household chores). Our preliminary analysis (not shown) confirms that, consistent with other empirical studies on child labor (see Edmonds (2007) for a review), the majority of child labor in India took the form of domestic work; less than 10% of the sample children were involved in market work.

The unit of analysis is children aged 6-14 in the households; this age range is the age of "children" designated by the child labor module. On average there are 1.1 "eligible women" per household and 3 children per eligible woman; however, only 1.9 out of the 3 children falls into the module's age range. The dependent variable, children's hours of domestic work during the survey week, were reported by

their mothers. Because a basic assumption for this study is that parents' attitudes have considerable influences on children's time use, we exclude children who are not living with their mothers.

Like most other fertility surveys, the NFHS does not explicitly ask about parental preference about children's gender; one can only construct measures for son preference from related survey questions. To do so, we first calculate the ratio of the desired number of sons to the desired number of children (called "ratio" measure thereafter); desiring more sons than girls, and hence a higher ratio, suggests a preference for son (Clark, 2000).

In view of some shortcomings of this measure (see Bankole and Westoff (1998), for example), we employ another measure---whether a woman desires another child (called the "intention" measure thereafter). The intention measure is more aligned with actual fertility behaviors than the ratio measure (Bankole and Westoff, 1998), and arguably reflects the parents' preference better than the ratio measure. The intention measure, however, is applicable to families of certain sex combinations of children (detailed later); therefore, we treat it as a supplement to the ratio measure.

Analysis and preliminary conclusion

We use linear regression to examine whether girls perform more hours of domestic work in the presence of son preference. The standard errors of the parameter estimates are corrected for clustering. We have also utilized fixed- and random-effects models in an effort to control for unobserved within-family differences across siblings. The results are similar to that of the linear regression in terms of statistical significance and magnitude. However, we do not present the results of these multilevel models, because cluster size is small (<2) and the parameter estimates are best seen as tentative.

Below are the parameter estimates for the model using the "ratio" measure. The dependent variable is hours of housework during the survey week undertaken by children. Model (1)-(3) depict the basic pattern of children's time spent on housework that we will detail next; in general, older girl in rural area work more hours than other children. "Son preference" is introduced in model (4), the full model. The full model suggests that in the presence of son presence, girls perform more hours of housework; the interaction between son preference and girl is positive and highly significant. In the full model, the reference group is non-Muslim boys aged 6 living in non-rural and non-Northwestern area of India.

Table 1: son preference (the "ratio" measure) and hours of domestic chores of children aged 6-14, NFHS 2005.

Variable	model 1		model 2		model 3		model 4	
girl	2.469	***	-0.008		-0.283	**	-1.075	***
son pref.							-0.347	*
son pref. * girl							1.904	***
children's age (centered at 6)	0.956	***	0.534	***	0.534	***	0.535	***
rural	0.409	***	-1.032	***	-1.047	***	-0.996	***
children's age*girl			0.483	***	0.483	***	0.482	***
rural*girl			0.471	***	0.499	***	0.410	**

rural*children's age			0.238	***	0.237	***	0.231	***
rural*children's age*girl			0.144	***	0.145	***	0.128	***
Muslim	-0.595	***	-0.581	***	-0.889	***	-0.807	***
Northwestern India	0.992	***	1.004	***	0.782	***	0.759	***
Muslim*girl					0.627	***	0.509	***
NW India*girl					0.463	***	0.411	***
ever attend school in 2005	-1.557	***	-1.481	***	-1.474	***	-1.409	***
hours worked for hh members	0.210	***	0.208	***	0.209	***	0.213	***
hours worked for non-hh mem	0.003		0.007		0.008		0.010	
mom's age	-0.015	**	-0.015	**	-0.015	**	-0.014	*
mom's edu	-0.070	***	-0.074	***	-0.074	***	-0.069	***
dad's edu	0.023	**	0.024	**	0.024	**	0.022	**
# of family members	0.053	***	0.049	***	0.049	***	0.042	***
wealth index	0.000	***	0.000	***	0.000	***	0.000	***
constant	1.024	***	2.918	***	3.049	***	3.121	***
N	84127		84127		84127		80657	
ll	-282894		-282254		-282231		-269938	
rank	14		18		20		22	
r-square	18.4%		19.6%		19.7%		19.7%	

*: p < 0.05, **: p < 0.01, ***: p < 0.001

Model (1) suggests female, older and rural children in works more than male, younger and non-rural children, respectively; girls on average work 2.47 more hours than boys, and a one-year increase in age is associated with 0.96 hours of housework. The positive coefficients of "hours worked for household/non-household members" indicate that different types of work, market or domestic, tend to be positively correlated with each other, rather than substitutes; this is similar to the findings of previous studies. The negative coefficient of school attendance is also consistent with the literature, although it remains unclear whether it is schooling that substitutes work, or simply that the association is spurious. The negative and highly significant coefficient of "wealth" is consistent with the theory that poor living standards drive parents to "capitalize" children's labor; the extra small magnitude is due to scaling of the wealth index.

The simple structure of model (1) may have masked a great deal of heterogeneity in the burden of housework by age, gender and area, and may lead to biased results for the effect of son preference to be estimates next. Therefore, we add several interactions in model (2). We expect girls in rural area need to perform more hours of household duties than others, and the increase in workload with age is sharpest among rural girls.

The results of model (2) support our conjecture. While the coefficient of "girls" becomes indistinguishable from zero, the effect of being female gender is "absorbed" by the interactions that characterize the heterogeneity. For example, among children aged 10 in rural area (note that we centered age at 6 in the equation), the result indicate that there is a significant gender difference in hours of housework (i.e., testing the hypothesis that "b[girl] + b[age*girl]*4 + b[rural*girl]*1 + b[rural*age*girl]*4 = 0"; $p < 0.001$); these girls work 2.98 more hours a week than boys of the same subgroup. The difference between rural girls and non-rural girls/boys of the same age is also significant

(not shown). Regarding the age pattern of workload, for each one-year increase in age, rural girls perform 0.63 (=b[age*sex] + b[rural*age*sex]), 0.38 (=b[rural*age] + b[rural*age*sex]) and 0.86 (=b[rural*age] + b[age*sex] + b[rural*age*sex]) additional hours of housework per week than rural boys, non-rural girls and non-rural boys, respectively; all the differences are significant at the 0.001 level.

In model (3) we add another two interactions to account for the geographic and religious differences in son preference and its ramification in children's time use. Due to the stronger preference for sons in Northwestern India, we expect girls in this region to perform additional hours of housework compared with girls in non-Northwestern area. The results support our claim. In Northwestern region girls perform an additional 1.25 hours (= b[Northwestern India] + b[NW India*girl]; p<0.001) of housework than girls in non-Northwestern region. While gender difference in housework holds up everywhere, girls in Northwestern India seem to "fare worse"; the gender differential in hours of housework in Northwestern India is 0.46 (=b[NW India*girl], p < 0.001) more hours than non-Northwestern area. Similarly, because son preference is typically stronger in Hindu family than in Muslim family, we expect that Muslim girls perform fewer hours of housework per week than Hindu girls. Indeed, the results suggest that Muslim girls undertake 0.26 (=b[Muslim] + _b[Muslim*girl], p = 0.03) fewer hours than non-Muslim (most of which are Hindu) girls.

The results of model (4), the full model, confirm our major hypotheses. First, the effect of son preference on children's housework differs by children's gender. While son preference is associated with 0.35 (= b[son pref]) *fewer* hours of housework among the boys, the presence of parental son preference is associated with an *increase* of 1.56 (= b[son pref] + b[son pref*girl], p < 0.001) hours of domestic chores for the girls. Parental son preference leads to differential treatment between sons and daughters, but the level of difference may be contingent on the degree of the preference. If the preference is mild---for example, "ratio = 0.5" (i.e the mother desires an equal number of boys and girls), the differential treatment at this level of preference is not different from what it would be if there is no son preference at all (i.e. testing "b[girl] + b[son pref*girl]*0.5 =0"; p = 0.25). If the preference is strong, say, "ratio = 1", then the gender difference in hours of domestic chores is 0.83 (= "b[girl] + b[son pref*girl]*0.5", p < 0.001) more hours than if the preference for sons does not exist.

It is certainly possible that the manifestations of parental son preference may grow with girls' age. To capture the age pattern of impact of son preference on girls additional hours of housework, we add "son pref * age" and "son pref * age * girl" to construct a three-way interaction model. The results (not shown) confirm our speculation. In the presence of strong son preference ("ratio" = 1), a one-year increase in year is associated with 0.66 additional hours of domestic chores among girls. The three-way interaction "son pref * age * girl" is also positive and highly significant. This model suffers from the problem of over-parameterization; therefore, we only retain in the full model the two-way interaction between son preference measure and children's gender.

The "Intention" Measure

To check the robustness of the previous, we employ another measure---whether a woman would like to have another child---to gauge the effect of son preference. Fertility preference in India remains predominately masculine; few women want more girls than boys. If a woman desires another child, most

likely the desire is driven by a need of more sons, especially among women who have a fewer number of sons.

We restrict our sample to mothers of two children because it may be problematic to apply this measure to women of other parity; see the appendix for details. While the two-children women constitute only 30% of the NFHS sample, results based on these women should be able to represent a common India family because currently the majority of Indian women desire two or three children.

Among the two-children families, we exclude those who currently have two sons (denoted by (b,b)) because of a measurement issue; hence, the sample that remains is women of one boy and one daughter (denoted by (b,g) and (g,b)) or two daughters (denoted by (g,g)). The intention to have another child in the presence of two boys is likely to be motivated by the desire for a girl, instead of sons; previous studies show that while son preference is prevalent in India, a large majority of women still want a girl for religious and cultural reasons. However, the fact that some women have two sons may have indicated a preference for boys given the high sex-selective abortion rate in India; we will address this issue in future analysis.

Below we present the parameter estimates of the model using the "intention" measure; the unit of analysis is still children aged 6-14, but restricted to two-children families excluding those with two boys. We add another two covariates, number of brother and whether the child is first-born, to indicate the birth order and the family structure of a child. The reference category is a non-Muslim boy at the age of 6 who has an elder sister and lives in non-Northwestern and non-rural area of India.

Table 2: son preference (the "intention" measure) and hours of domestic chores of children aged 6-14 in two-children families (excluding those with two sons), NFHS 2005.

VARIABLES	COEF.	
girl	-0.535	**
intention	0.065	
intention*girl	1.098	*
first-born	0.208	*
number of brother	0.515	***
mother desires >=3 children	0.767	***
children's age (centered at 6)	0.389	***
children's age*girl	0.247	***
rural	-0.544	*
rural*girl	0.076	
rural*children's age	0.077	
rural*children's age*girl	0.289	***
ever attend school in 2005	-0.715	**
hours worked for hh member	0.275	***
hours worked for non-hh mem	0.085	*
mom's age	0.029	
mom's edu	-0.089	***

dad's edu	-0.011	
wealth index	0.000	***
# of family member	0.011	
Muslim	-1.045	***
Muslim*girl	0.397	
Northwestern Indi	1.012	***
NW India * girl	0.387	#
_cons	2.047	***
N	12756	
log-likelihood	-40285	
Rank	25	
r-square	17.2%	

#: p< 0.1, *: p < 0.05, **: p < 0.01, ***: p < 0.001

Overall, the results are qualitative similar to the parameter estimates of the "ratio" model. Consistent with the results of the "ratio" measure, the results of current model indicates parental son preference is associated with an increased level of housework among girls but not boys. Among the girls, the presence of son preferences is associated with 1.16 (= b[intention] + b[intention*girl], p < 0.001) more hours of domestic chores; among the boy, the effect of son preference (=b[intention]) is not significant (p=0.895). Parental son preference is also associated with 1.1 more hours of gender difference in housework performed (=b[intention*girl], p < 0.05).

Regarding regional and religious difference in children's household duties, girls in Northwestern India still "fare worse" than their counterparts in non-Northwestern areas; all other things being equal, the former perform 1.40 (= b[Northwestern India] + b[NW India*girl]; p<0.001) more hours of housework a week than the latter. Similarly, the results suggest that Muslim girls undertake 0.65 (=b[Muslim] + _b[Muslim*girl], p = 0.02) fewer hours than non-Muslim (most of which are Hindu) girls.

Preliminary Conclusion

Our results confirm that parental sex preference is associated with different patterns of children's time use. Both measures indicate that in the preference of son preference, girls, but not boys, perform more hours of domestic chores, and the gender difference in hours of housework performed becomes larger. We have also examined the regional and age variation in the household duties assigned to children. We will further investigate how the impact of son preference on housework differs by children's age.

Reference

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Appendix

We are unable to incorporate into analysis women of other parity, due to concerns of the applicability of the "intention" measure. For families with only one child, it is hard to distinguish whether the intention is driven by a need of more sons, or just a desire for more children. For women with three children, it may be problematic to use "intention" to gauge son preference. Among families of (b,b,b), (b,b,g), (b,g,b) or (g,b,b), the desire for another child may indicate a preference for girls or gender balance, rather than son preference, because there are more sons than daughters. The rest of this subsample (i.e. those with more girls than boys) constitutes less than 45% of the three-children families; it requires a strong argument, which we currently don't have, to select the 45% for analysis but exclude the 55%. Finally, women of higher parity (>=4) accounts for less than 28% of the sample; adding them into analysis may simply create heterogeneity rather than enhance the external validity of the results. For example, among these women, less than 5% of them still wish for another child (compared with 14% among the women "eligible" for the intension measure), and the reason to wish for another child may be quite different between the two subgroups