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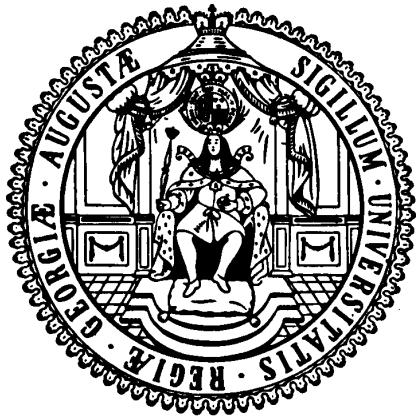

Diskussionsbeiträge · Documentos de Trabajo · Discussion Papers

Nr. 177

Intrahousehold Health Care Financing Strategy and the Gender Gap: Empirical Evidence from India

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Juni 2008

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INTRAHOUSEHOLD HEALTH CARE FINANCING STRATEGY AND THE GENDER GAP: EMPIRICAL EVIDENCE FROM INDIA

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June 2008

Abstract

The "missing women" dilemma in India has sparked interest in investigating gender discrimination in the provision of health care in the country. No studies, however, have directly examined this discrimination in relation to household behavior in health care financing. We hypothesize that households who face tight budget constraints are more likely to spend their meager resources on hospitalization of boys rather than girls. We use the 60th Indian National Sample Survey and a multinomial logit model to test this hypothesis and to shed some light on this important but overlooked issue. The results reveal that while the gap in the probability of boys' and girls' hospitalization and usage of household income and savings is relatively small, the gender gap in the probability of hospitalization and usage of scarce resources is very high. *Ceteris paribus*, the probability of boys to be hospitalized by financing from relatively scarce sources such as borrowing, sale of assets, help from friends, etc., is much higher than that of girls. Moreover, the results indicate that the gender gap deepens as we move from the richest to poorest households.

KEY WORDS: gender discrimination, health care finance, hospitalization, India.

JEL Codes: I12, O15, J71.

Acknowledgements

We would like to thank Pranab Bardhan, Monica Das Gupta, Michael Grimm, Emily Oster, Amartya Sen, Elisabeth Sadoulet, Joachim Winter, and participants at workshops in Berkeley and Göttingen for helpful comments and discussion. Funding from the German Research Foundation in support of this work is gratefully acknowledged.

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1. INTRODUCTION

In India, as in several other countries in South and East Asia, female mortality rates relative to male rates are extremely high; this is particularly the case among children. This occurrence has sparked a growing interest in policies and policy instruments to reduce excess female mortality in the country. As a result, there has been a proliferation of papers focusing on gender discrimination in the region (e.g., Miller, 1981; Sen, 1990; Coale, 1991; Muhuri and Preston, 1991; Klasen, 1994; Klasen and Wink, 2003; Croll, 2001; Das Gupta, 2005). Authors have concentrated their research on gender discrimination in nutrition, labor markets, education and other opportunities (Das Gupta, 1987; Behrman, 1988; Basu, 1989; Kurz and Johnson-Welch, 1997; Hazarika, 2000; Choudhury et al., 2000; Pande, 2003). Recently, researchers have focused on sex-selective abortion in India (Booth, et al., 1994; Khan et al., 1996; Sudha & Arnold, 1999; Arnold, et al., 2002). Several researchers have also examined gender discrimination in the provision of health care services in the region (Chen et al., 1981; Miller, 1981; Ganatra & Hirve, 1994; Hill and Upchurch, 1995; Rajeshwari, 1996; Das Gupta, 1987; Harriss, 1989; Sood and Nagla, 1994; Hill and Upchurch, 1995; Rajeshwari, 1996; Kurz and Johnson-Welch, 1997; Ellen and Hunt, 2000; Gangadharan and Maitra, 2000; Jatrana, 2003).

In a separate literature, numerous authors have also examined the health care financing strategies and coping mechanisms of households in developing countries (Chen et al., 1981; Jayawardene et al., 1993; Haddad and Reardon, 1993; Klasen, 1996; Seeley et al., 1995; Sauerborn et al., 1996; Wilkes et al., 1997; Konradsen, et al., 1997; Adams et al., 1998; Fabricant et al., 1999; Lucas and Nuwagaba, 1999; Mutyambizi et al., 2002; Skarbinski et al., 2002; Chuma, 2007). To our knowledge, however, there are no studies linking the two literatures, i.e., investigating intra-household gender discrimination in health care financing strategies.

In this study, we examine how of household strategies for health care financing varies by gender in India. The study focuses on infants and children (aged from 1 day to nine years) for three reasons. First, excess female mortality is particularly high in this age group. Second, compared to adults and teenagers, children's medical care depends

entirely on their parent's decisions. This circumstance helps us to examine clearly intrahousehold gender bias in health care financing mechanisms. Third, focusing on children also reduces differences in medical need due to biology and exposure to risks (occupation, pregnancy, gender violence, old age, etc.) that potentially affect the chances of hospitalization. Additionally for children under ten years, the disparity in differential income augmentation roles between boys and girls might affect the health care decision of households. Very few children (0.14 percent of boys and 0.11 percent of girls), however, were involved in income-generating activities and the difference between boys and girls was not statistically significant. Furthermore, we focus explicitly on hospitalization expenses because inpatient treatment is more expensive than outpatient treatments in India. For instance, in our sample the average inpatient cost per person was nearly 17 times higher than the average outpatient cost.

Our hypothesis is that households are more likely to discriminate against girls under tightened resource constraints than under normal conditions. Among various financial sources available to cover children's inpatient costs, using households' own income or savings is assumed to be least expensive. Other sources of finance—borrowing, selling assets such as draught animals, ornaments and other physical assets, and asking for help from relatives and friends—are considered as more expensive or scarce financial resources. In India, particularly in the rural areas where the credit market is not well developed, borrowing money has huge transaction costs. Still today, as Ramachandran and Swaminathan (2001: 1) point out, "the Indian peasant is born in debt, lives in debt and dies in debt." The short- and long-term implications of selling assets are apparent; the moral price and the future indirect costs of financial help from friends and relatives pose serious problems. We, therefore, hypothesize that parents are less likely to use expensive or scarce resources to finance the inpatient health expenses of girls rather than boys.

The paper is organized as follows: section 2 sketches the analytical approach and the econometric specification of the study; section 3 illustrates the data set used and the measurement issues involved; section 4 presents the results of the study; and section 5 concludes.

2. ANALYTICAL APPROACH

In this study, we hypothesize that there is gender discrimination in the health care financing strategies of Indian households and that this discrimination is more distinct when households face tight resource constraints. In other words, we hypothesize that parents dig more deeply into their pockets (including sale of assets) and all other available sources (despite their long term costs) to hospitalize their sons rather than their daughters.

The theoretical basis for this hypothesis can be derived from a normally behaved utility function. Our objective seeks the insights that the model provides into gender bias in the health care demand behavior of households under tight budget constraints. Assume a utility function,

$$U(x_b) = \frac{\sigma}{\sigma - 1} x_b^{\frac{\sigma-1}{\sigma}} \quad \text{for } \sigma > 1 \tag{1}$$

$$U(x_g) = \gamma \frac{\sigma}{\sigma - 1} x_g^{\frac{\sigma-1}{\sigma}} \quad \text{for } \sigma > 1, \tag{2}$$

where *U(.)* is a well-behaved utility function (differentiable, strictly quasi-concave, and strictly monotonic) and x_b and x_g represent health expenditure for boys and girls, respectively.

Since we are dealing with children under the age of ten, we reasonably assume that both boys and girls have similar health status, i.e., the probability of being sick, hospitalized, etc., is comparable. In India, due to economic, cultural and other factors, parents seem to prefer boys to girls (see Hazarika, 2000; Arnold et al., 2002; Das Gupta, 2005; and the literature cited there). This preference implies that parents' utility of investing in boys' health is higher than the utility of investing in girls $(U(x_b) > U(x_g))$. This preference holds if $\gamma < 1$. The marginal utility functions are given by $\partial U(x_b)/\partial x_b = x_b^{-\frac{1}{\sigma}}$ and $\partial U(x_g)/\partial x_g = \gamma x_g^{-\frac{1}{\delta}}$ for boys and girls, respectively.

Figure I plots these marginal utility functions. Consistent with the diminishing marginal utility theory, the slope of both curves are negative and the marginal utility from investing in boys' health is higher than that of girls for every level of health expenditure,

but the gap declines as the level of health care spending increases. This can be seen from the slope of the marginal utility curve. For any value of $\gamma < 1$,

$$|\partial^2 U(x_b)/\partial x_b{}^2| = \frac{1}{\sigma} x_b^{-\frac{1+\sigma}{\sigma}} > |\partial^2 U(x_g)/\partial x_g{}^2| = \gamma \frac{1}{\sigma} x_g^{-\frac{1+\sigma}{\sigma}} \quad (3)$$

Figure I. Marginal utility from health care expenditure for boys and girls

If the resource constraint is not binding, parents are more likely to spend additional money on health care expenditure for both boys and girls up to the point where the marginal benefit equals the marginal cost and (depending on the slope of the budget constraint) points such as *A* and *B* can be chosen. The gender gap under a non-binding resource constraint, therefore, is given by the difference between x_b^{nbc} and x_g^{nbc}. Under this condition, the gender gap in health expenditure still exists (because $\gamma < 1$), but its magnitude is relatively small. In contrast, under a binding budget constraint condition, health care expenditure would be less than expenditure under a non-binding constraint, and points such as *C* and *D* can be chosen by parents (again depending on the new budget line). Under this situation, the gender gap in health expenditure will be given by the line $x_b^{bc}\ x_g^{bc}$ which is greater than $x_b^{nbc}\ x_g^{nbc}$. Households who face tight budget constraints, therefore, are more likely to spend the meager resource on boys rather than girls. This result implies that resource constraints can exacerbate the gender gap in household health care expenditure, which holds true as long as $\partial U(x_b)/\partial x_b > \partial U(x_g)/\partial x_g$ *and* $|\partial^2 U(x_b)/\partial x^2{}_b| > |\partial^2 U(x_g)/\partial x^2{}_g|$. Different scenarios, however, could be observed if the slope of the marginal utility curve for girls is steeper than that of boys.

Estimating the relationship between gender and the health care financing strategy of households is very complex. Parents first decide whether or not a child is sick and, given sickness, whether or not to take him or her to a health care provider. Based on the

recommendation of the health care provider, parents then decide whether or not to hospitalize the child. Therefore, the probability of observing health care financing option j ($j = 1,...,J$) for child i ($i = 1,...,I$) can be expressed as

$P(y_{ij}=1) = P(sick_i=1) \times P(hosp_i=1/sick_i) \times P(y_{ij}=1/hosp_i)$, where y_{ij} is health care financing option *j*, $P(sick_i)$ is the probability of child *i* is sick, $P(hosp_i)$ is the probability that child *i* will be hospitalized. Each factor represents the path towards observing health care financing option *j* and gender discrimination can be observed at *P(sick), P(hosp/sick)* or at both paths.

Various issues, nonetheless, should be considered in examining these relations. First, there can be serious bias in the probability of household reporting of children's health status. Pokhrel (2007) and Pokhrel and Sauerborn (2004) have shown that different factors can affect parental behavior in reporting children's illnesses. Second, the health care financing outcome *j* can be observed only for hospitalized children, and therefore, sample selection may be an issue. If there is a systematic difference between hospitalized and non-hospitalized children, studying household decisions on health care financing based on only hospitalized children may lead to a sample selection bias. Presumably given sickness, parents are more likely to hospitalize boys (as is the case in India, see Asfaw et al. 2007b); consequently the observed children may not be random. This means factors that affect the decision of parents to hospitalize children can be correlated with factors that affect household strategies for health care financing. In fact, regression results based on hospitalized children alone can be biased and inconsistent (Greene, 2003, 2006; Wynand et al., 1981). Some authors try to overcome this problem by assuming that factors affecting the health status of individuals are not correlated with factors affecting their health care demand behavior. Others address this problem by jointly estimating the illness and the health care demand functions (Akin, et al, 1998; Rous and Hotchkiss, 2003). One of the basic problems of this method is finding valid identifying instruments to estimate the health status/illness equation.

In this study, we assume a relationship between the variables affecting the households' financing decision and their health status or hospitalization decision. Our data set does not have information on whether or not a child was sick before hospitalization. What we have is information on child hospitalization for treatment during the 365 days preceding the date of the survey, expenses incurred and ways in which expenses were financed. To address the potential endogeneity of the hospitalization decision variable, we consider all children in the sample in a nominal outcome

framework. Specifically we use the multinomial logit (MNL) model in which the non-hospitalized children are considered as one distinct category together with other children who were hospitalized and used different sources of finance. This structure helps us to control for the endogeneity of household decisions on hospitalization. This approach is also preferable to multistage estimation procedures, such as a censored bivariate probit model, since the decision of households to hospitalize their sick children and to use various financial sources to cover the hospitalization costs are usually made in one step. In other words, it is quite difficult to know which decision comes first and which follows.

All children are divided into five mutually exclusive groups: not hospitalized; hospitalized and financed through income and savings; hospitalized and financed through borrowing; hospitalized and financed through sale of assets and help from friends and relatives; and finally, hospitalized and financed through a combination of income and savings, borrowing or help from friends and relatives. Among various outcomes, these five categories are created based on tests for combining dependent categories. Two categories *m* and *n* are indistinguishable if the odds of category *m* versus category *n* are not affected by any of the explanatory variables. A Wald or an LR test (Long and Freese, 2003) can test this hypothesis. If the null hypothesis cannot be rejected, we combine the two categories. In addition, we test the independence of irrelevant alternative assumptions of the multinomial logit model using the Small and Hsiao test.

The MNL model can be formally presented as follows: let y_i be the unordered categorical dependent variable that takes one of the values from *1* to *J*, where *J* is the total number of categories (in our case 5). The stochastic component is given by $y_i \sim$ multinomial $(y_i|\pi_{ij})$, where $\pi_{ij} = Pr(y_i = j)$ for $j = 1, \ldots, J$. The systemic component, which is also the predicted probability for each category, is given by $E(y) = \pi_{ij} = \exp(x_i\beta_j) / \sum_{k=1}^{J} \exp(x_i\beta_k)$, where x_i is the vector of explanatory variables for observation *i*, and β_j is the vector of coefficients for category *j*.

3. SOURCES OF DATA AND MEASUREMENT OF VARIABLES

In this study, we use the 60th Indian National Sample Survey (NSS) data set. Since 1950,

the National Sample Survey Organization of India has been collecting major information on socio-economic conditions of the population, as well as economic and operational features of informal enterprises and establishments (Saha, 2002). The 60th round data was collected between January and June 2004, adopting a two-stage stratified sampling procedure. Among other things, the data set contains extensive information on outpatient and inpatient health care utilization and expenditure, details on sources of finance for meeting health expenses, figures on mortality and other health care related information for both rural and urban households. This study uses the data on the incidence of hospitalization (inpatient care) during the last 365 days before the survey, inpatient medical and non-medical expenses for each hospitalized person, and sources of financing these expenses.

Households used four different financing sources: household income and savings, borrowing, contributions from friends and relatives, and sale of assets including sale of ornaments, other physical assets, animals, etc. Some households used a combination of these four financing options. As previously shown, in addition to the non-hospitalized option, this study uses four mutually exclusive financing options identified for hospitalized children based on tests for combining dependent categories. Excluding the non-hospitalized children, 54 percent of households financed children's hospitalization expenses from their income/savings, 12 percent from borrowing, 5 percent from sale of assets and contributions, and 29 percent from income and savings, borrowing or help from friends and relatives.

The explanatory variables can be divided into individual, household and access (supply side) variables. The first group captures the characteristics of the child (age and sex), and the second describes the character of the decision maker or the household in general (income and family size of the household plus the social status, educational level and gender of the household head). The access variables include user fees and transport costs. Unfortunately, direct information is not available on most of the access variables. We use medical expenses, therefore, to measure prices and transport cost to approximate distance. We compute district-level median values of medical and transport costs and use these median values for each individual within the district irrespective of particular characteristics. Hallman (1999), Li (1996) and Dor (1986) use similar approaches to

measure user fees. Since information on the severity of illness could not be observed for non-hospitalized children, this variable is not included in the analysis. f presents the descriptive statistics of the variables used in the analysis.

Table I. Descriptive Statistics of the Variables Used in the Analysis (60nd round)

4. RESULTS

Descriptive results

Before presenting the results of the MNL model, let us examine the bivariate pattern of household strategies for health care financing. As expected, a higher share of boys than girls is hospitalized. In line with findings from the literature and from related studies we have undertaken using the 52nd round data (e.g. Hazarika, 2000; Asfaw et al., 2007a), 1.02 percent of boys are hospitalized compared to 0.62 percent of girls, and the difference is statistically significant ($p < 0.001$). Given hospitalization, however, there is no statistically significant gender difference in the duration of stay in hospital.

Figure II presents the ratio of the percentage of hospitalized boys and girls by sources of finance. The bold horizontal line indicates equal proportion in utilization of different sources of finance for hospitalized boys and girls. Consistent with our theoretical framework and hypothesis, households are less likely to invest scarce resources to finance the hospitalization costs of girls. The graph illustrates clearly increasing gender gap in resource utilization as we move from less expensive to relatively expensive sources of finance. For instance, the percentage of hospitalized boys financed through borrowing is 1.8 times higher than that of girls, and most of these differences are statistically significant at 1% level.

Figure II. Ratio of percentage of hospitalized boys and girls by sources of finance

Figure III. Ratio of percentage of hospitalized boys and girls by sources of finance and income of the household

The patterns remain quite similar between poor and non-poor households as

shown in Figure III. Of particular note, however, is that the poor, as would be expected, are more likely to borrow funds, sell assets and get help from friends and relatives to finance a boy's hospital stay. For instance in poor households, the percentage of boys whose inpatient health expenses were financed through sale of assets, help from friends and relatives, and borrowing is 5 and 6 times higher than that of girls, respectively. In contrast, the percentages of boys and girls in poor households whose expenses are financed through household income and savings are almost equal. This implies where resource constraints are particularly binding on decision making that poverty intensifies the gender gap.

These bivariate results, therefore, highlight the gender gap in intra-household utilization of scarce resources to finance children's inpatient health expenditure in India. The next important question is whether these results stay or disappear when we apply rigorous econometric analysis that controls for other variables and addresses the sample selection problem.

Econometric results

A multinomial logit model (MNL) is estimated to examine the gender gap in the probability of using different health care financing resources. As shown in this study, inclusion of the non-hospitalized children in the analysis avoids the endogenous sample selection problem associated with the hospitalization decision. The MNL model, however, has one limitation: the assumption of the independence of irrelevant alternatives (IIA). We use the Small and Hsiao test to examine whether adding or deleting outcomes affect the odds among the remaining outcomes. The results showed that the odds (outcome-m vs. outcome–n) are independent of other alternatives.

Table II presents the multinomial logit results. As expected, children from rich and urban households were more likely to be hospitalized and their expenses to be financed from households' income and savings. Additionally biological children were more likely to be hospitalized and to use relatively expensive sources of finances compared to other children, such as grandchildren. Other important results indicate probability of hospitalization decreases as family size increases; distance affects

probability of hospitalization more than user fees (though most of the coefficients are statistically insignificant); and age of child affects probability to be hospitalized and to use scarce financing resources, decreasing as age increases but at a decreasing rate. Age of child affects the probability of hospitalization and usage of different financing sources as shown by the negative and positive coefficients of the age and the age square variables, respectively.

As expected, the sex variable is negative and statistically significant in most of the equations, suggesting considerable gender bias in access to hospital treatment between girls and boys. Similar studies conducted in India using the 52nd NSS data set also found statistically significant gender differences in the place of death and hospitalization between girls and boys, even when controlling for gender differences in illness rates (Asfaw et al., 2007a, b).

5. DISCUSSION AND CONCLUSION

Our primary objective is to examine the gender gap in the household strategies for health care financing. Our main interest, therefore, lies in the impact of gender on hospitalization and on the usage of different resources to finance the hospitalization costs. For the sake of interpretation, the predicted probabilities of boys and girls to be hospitalized and to receive different financing options (*P(category j=1|x)*) are computed by keeping all other explanatory variables at their mean values.

Figure IV presents these predicted probabilities and the percentage differences between boys and girls. The first axis measures the percentage differences in probabilities between boys and girls and the second axis measures the actual probabilities. As the figure illustrates, the probability of girls to be hospitalized and to use various health care financing options is very low compared to boys. For instance, the probability of girls to be hospitalized and to use household income and savings is 0. 29 percent compared to 0.42 percent for boys. The same holds for other financing options.

The percentage gap, however, is very deep in the case of scare resources. To see this clearly, the percentage gaps in the probability of being hospitalized and using different resources between boys and girls are plotted in the first axis of figure IV. As the

shaded bars show, the percentage difference between boys and girls in the probability of being hospitalized and using different financing options increases as we move from readily available financial resources to relatively scarce and expensive resources. For instance, the probability of boys to be hospitalized and to use borrowed money and a combination of other expensive financing sources is two times higher than that of girls. This suggests that the gender gap is more pronounced when using scarce resources.

Figure IV. Predicted probability of hospitalization and utilization of difference sources of finance

To further examine our hypothesis that resource constraints can exacerbate the gender gap, we examined the impact of gender on the probability of hospitalization and usage of different financing mechanisms by income. We expect the gender gap between rich and poor to be strong in the case of relatively tight or expensive resources. To illustrate this, we include an interaction term between gender and income in the MNL equation, and the probability of boys and girls not to be hospitalized (the base category) and the probability to be hospitalized and to use different sources of finance are computed for different income groups. The results are presented in Figure V.

Panel (e) of Figure V shows the probability of boys and girls not to be hospitalized by income of the households. The graph indicates that the probability of no hospitalization declines as income increases. Across all income groups, girls are more likely not to be hospitalized when compared to boys, but the gender gap declines as income increases. Consistent with our theoretical framework and hypothesis, the gender gap in the probability of hospitalization and usage of income and savings is very low as shown in Panel (a) and partly in Panel (b) of Figure V. As expected, the poor are also less likely to use these financing mechanisms frequently. The gender gap in the probability of children to be hospitalized and to use borrowed money or resources from sale of assets and contributions from friends and relatives is very high, as shown in panels (c) and (d). More interestingly, this gap increases at an increasing rate as we move from the richest to the poorest households. This conforms well to our theoretical model where we hypothesized that the gender gaps in financing options will be particularly large for those

where the budget constraints are particularly tight.

These results thus strongly support our theoretical framework presented in the analytical section and shed new light on our knowledge of gender discrimination in the health care behavior of households. The gender gap in the probability of children to be hospitalized and to be financed from current household income and savings is relatively low. Gender, however, exerts statistically significant influence on the probability of children to be hospitalized and on the household to finance from relatively scarce sources, such as borrowing and selling of assets. Moreover, the results indicate that this gender gap is exacerbated by poverty.

These results highlight new aspects of gender discrimination by financially constrained households in response to health shocks. Not only are girls less likely to be hospitalized, but also households in India are very cautious about using expensive mechanisms to finance the inpatient health care costs of girls compared to boys. As the budget constraint becomes tighter, households tend to give more priority to boys than to girls. In particular, households who face tight budget constraints are more likely to favor boys than girls in their hospitalization decision. In other words, being a girl likely decreases chances for receiving scarce financial resources for hospitalization, controlling for all other variables. The corollary of these results is that, other things remaining constant, the gender gap in the hospitalization of girls and boys can be narrowed if households are less constrained by tight budgets, as shown in Figure IV and Panels (a) and (b) of Figure IV.

In addition to other several factors, these results imply that intra-household gender discrimination in allocating scarce financial resources for health care can be one possible factor for the observed high gender gap in Indian child mortality, morbidity, hospitalization, etc. This may indicate that the gender gap in health care utilization and consequently in mortality can be narrowed if more households could finance the health expenses of their children from relatively cheap sources of finance, such as from their income and savings. In India apart from gender-related education, easing the financial burden of health care, such as hospitalization, can help to reduce the observed gender gap in health care utilization between boys and girls. Promoting different health care financing mechanisms, such as prepaid health insurance programs, or decreasing the

price of hospitalization may help to reduce the gender gap in health care utilization. These actions could create sustainable financing options for lower income families, leading to better health outcomes and a more balanced sex ratio in the country.

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Table I. Descriptive Statistics of the Variables Used in the Analysis (60th round)

Variable (for children under ten years old)	(2004)
Sex of the household head (1 male and 0 otherwise)	0.93
Age of the household head	44.74
Relation of the child to the head (1 if the head is the father/mother of the child)	0.62
Education (1 if the head is literate and 0 otherwise)	0.62
Social status (1 if scheduled tribes, caste, or other backward class & 0 otherwise)	0.70
Urban (1 if the household is located in urban areas and 0 otherwise)	0.31
Sex of the child (1 girl and 0 otherwise)	0.48
Age of children:	
Girls	4.63
Boys	4.61
Percentage of children hospitalized (1 year before the survey) for treatment	
Girls	0.62
Boys	1.02
Percentage of children engaged in income generating activities (%)	
Girls	0.11
Boys	0.15
Average number of children in the household	2.67
Median district level hospital prices per hospitalized child (INR) (proxy for user fees)	2457
Median district level transport cost to the nearest hospital (INR) (proxy for distance)	195
Percentage of households used different financing mechanisms for their children	
Household income/saving	53.86
Borrowing	12.00
Sale of asset and contribution from friends/relatives	4.57
Income/saving, borrowing, and help from friends/relatives	29.57
Per capita monthly expenditure (INR)	565

Source: Computed from the 60th Indian NSS

Table II. MNL results

Variable	Dependent variables[+]			
	Hospitalized and expenses financed from			
	Income/savings	Borrowing	Asset sale/help	Inc/sav, bor, help
Girl	-0.39***	-0.61*	-0.44	-0.71**
	(0.10)	(0.28)	(0.33)	(0.23)
Age of the child	-0.42***	-0.46**	-0.54**	-0.66***
	(0.09)	(0.16)	(0.20)	(0.11)
Age square of child	0.03**	0.03	0.03	0.05***
	(0.01)	(0.02)	(0.03)	(0.01)
Ln per capita exp.	0.82***	-0.17	0.20	0.49**
	(0.17)	(0.18)	(0.46)	(0.16)
Urban	0.25	0.56*	0.37	-0.18
	(0.25)	(0.28)	(0.51)	(0.20)
Head illiterate	-0.26*	-0.09	-1.04	-0.02
	(0.13)	(0.24)	(0.61)	(0.15)
Age of the head	0.05	-0.02	0.06*	0.02
	(0.03)	(0.02)	(0.03)	(0.04)
Age square of the head	-0.00*	0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
User fees	-0.06	0.03	0.23	0.10
	(0.05)	(0.10)	(0.12)	(0.08)
Scheduled tribe/caste	0.23*	0.43	1.07**	0.49*
	(0.10)	(0.32)	(0.38)	(0.21)
Female head	-0.41*	0.17	-0.58	0.12
	(0.17)	(0.65)	(1.03)	(0.28)
Distance to hospital	-0.11	-0.05	-0.11	-0.18
	(0.15)	(0.11)	(0.10)	(0.12)
Biological child	-0.01	1.12*	1.39**	0.14
	(0.22)	(0.47)	(0.44)	(0.28)
Number of children	-0.12	-0.04	-0.45*	-0.05
	(0.08)	(0.11)	(0.20)	(0.08)
	(0.09)	(0.16)	(0.20)	(0.11)
Sex of the child: Girl	-0.39***	-0.61*	-0.44	-0.71**
	(0.10)	(0.28)	(0.33)	(0.23)
Constant	-9.17***	-4.86***	-11.59***	-7.51***
	(1.33)	(1.29)	(3.08)	(1.26)
Number of obs.	73395.00			
Pseudo R2	0.06			
LR chi2(52)	110121.25			
Prob > chi2	0.0000			
Log pseudolikelihood	-4346.4527			

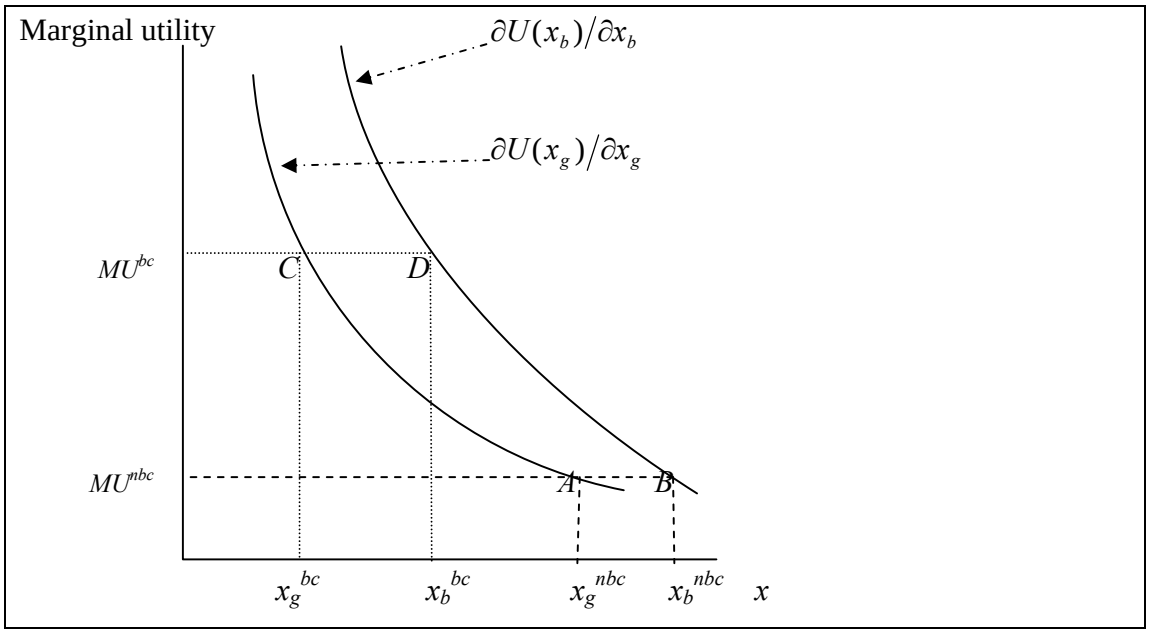
[+] Not hospitalized children are the base category

Robust standard errors in parentheses

* Significant at 10%; ** significant at 5%; *** significant at 1%

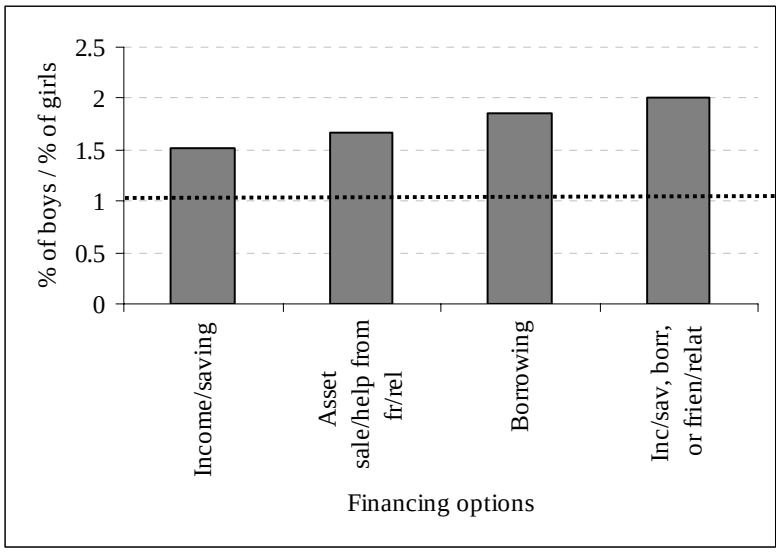
Source: Computed from the 60th Indian NSS

Figure I. Marginal utility from health care expenditure for boys and girls



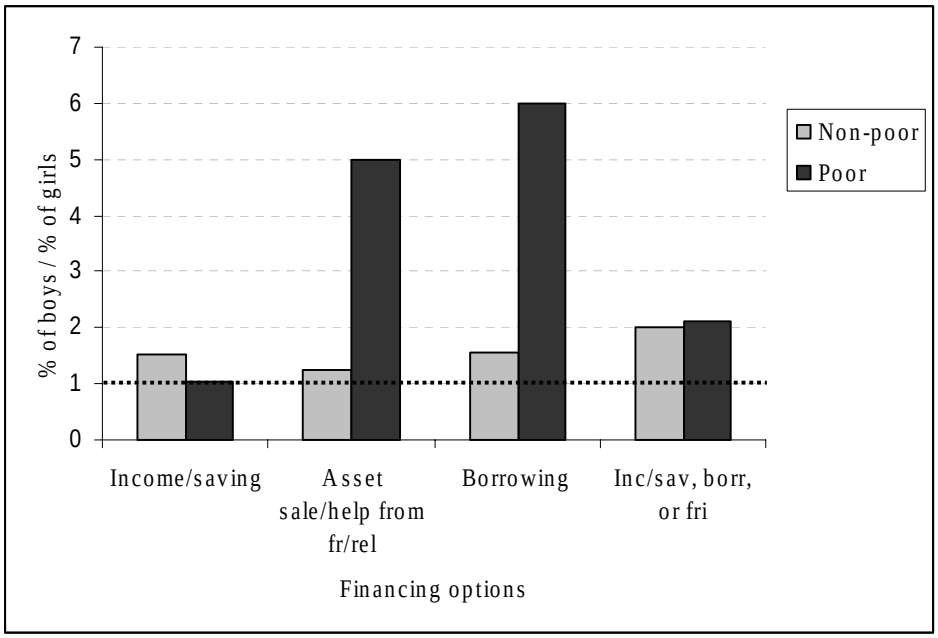
Where *bc* represents binding constraint and *nbc* non-binding constraint.

Figure II. Ratio of percentage of hospitalized boys and girls by sources of finance



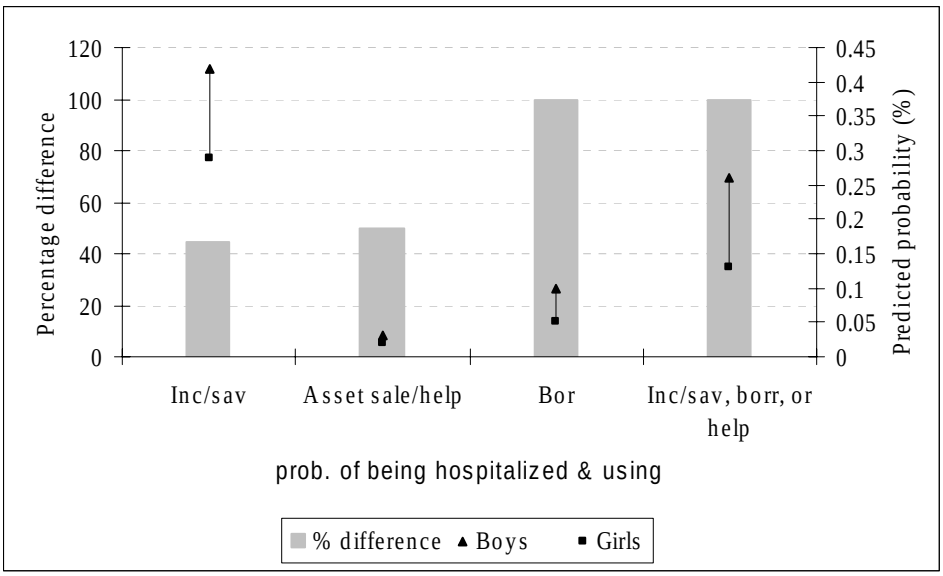
Source: Computed from the 60th round Indian NSS

Figure III. Ratio of percentage of hospitalized boys and girls by source of finance & income of the household



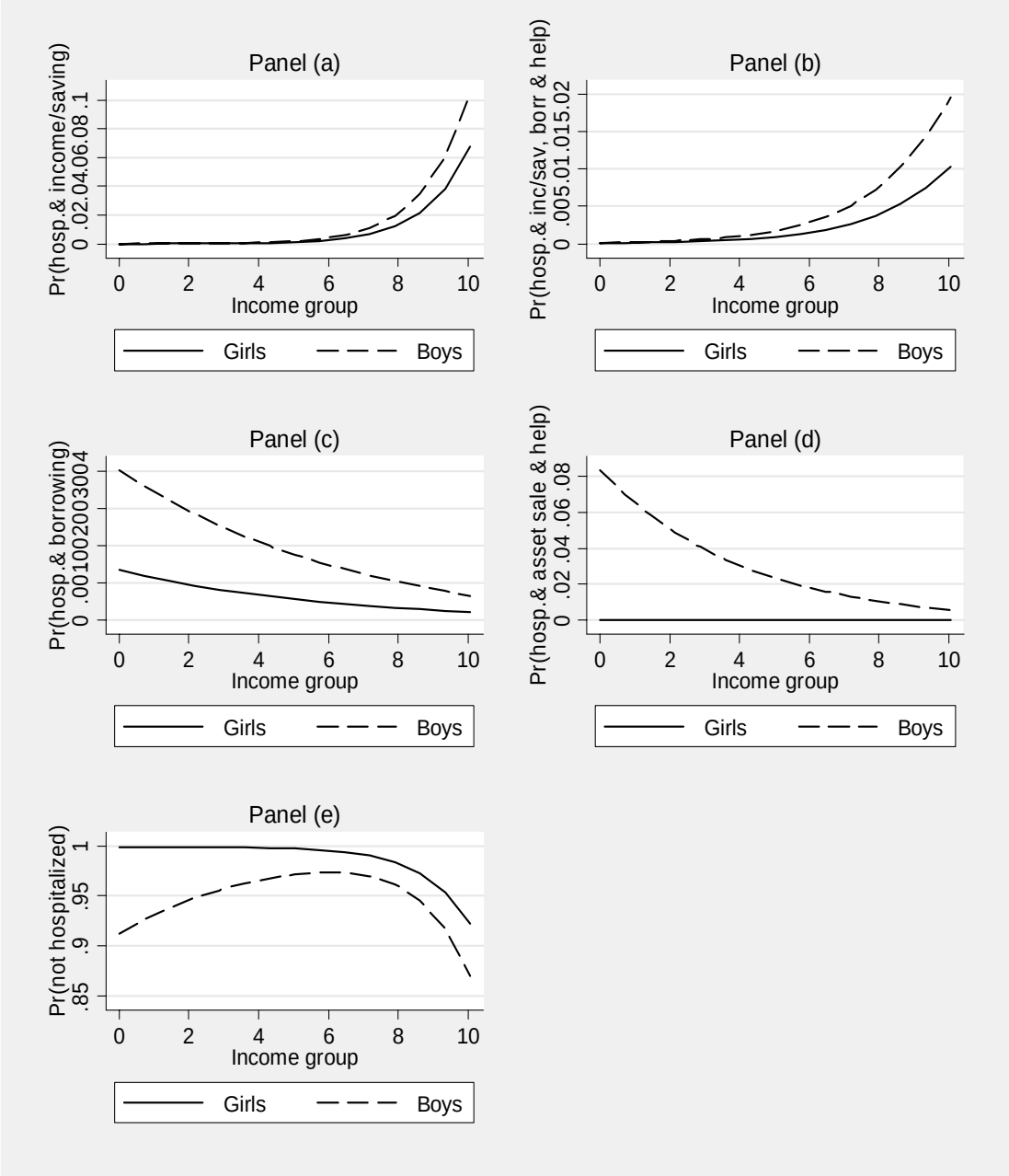
Source: Computed from the 60th round Indian NSS

Figure IV. Predicted probability of hospitalization and utilization of difference sources of finance



Source: Computed from the 60th round Indian NSS

Figure V. Predicted probabilities of different outcomes by income



Source: Computed from the 60th round Indian NSS