Does mother's autonomy within the household matter for child education in India?

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Abstract:

In this paper, I examine the effect of mothers's autonomy within the household on child educational inputs and school participation. Several studies have found that, mother's autonomy in household decision making, plays an important role in child welfare, particularly in health. Using data from the nationally representative India Human Development Survey (2004-05), I examine whether such an explanation also extends to the case of educational inputs and outcomes. Using a measure of autonomy, which brings together the sources, settings and evidences of power, I find that mother's autonomy plays an important role in time allocation, but its effect on educational expenditure is limited to younger children. Further, as autonomy rise, mother's autonomy is found to be related to increased work participation among older children, though the effect disappears at higher level of autonomy. I also find an independent effect of mother's education on child educational outcome.

Introduction

In this research I examine the role of mother's autonomy within the household on child educational inputs and outcomes in India. Specifically, I examine whether mothers with higher levels of autonomy allocate more resources towards child education. In addition, I also study how autonomy affects the decision to enroll among children in post primary years.Several studies show that women's autonomy improves allocation of resources towards children. This is particularly true for child health and nutrition in the early years. Low level of autonomy among mothers is argued to be one of the main factors behind the low nutritional outcome among their children in India.

The low level of educational attainment of its population is an important challenge for India to reach its developmental potential (Dreze & Sen, 2002; Kingdon, 2007). In the last couple of decades the government made several efforts to expand educational participation through improving infrastructure particularly for elementary education years (Asadullah & Yalonetzky, 2012; Ramachandran, 2007). These have resulted in significant improvement in participation in rural areas, educationally backward states and among girls and children from socially disadvantaged groups (Sankar, 2008). However, though primary enrollment rate has reached a near universal level, secondary enrollment is far from so. The dropout rates at the primary level has almost halved between early 1980s (58.7%) and mid 2000s (29%) while the dropout rates at the secondary level remains high (50%) (MRHD, 2008).

Educational attainment in developing countries like India are affected by a host of factors, the foremost being poverty. Poverty affects schooling through its associated direct and indirect expenses as well as the opportunity cost of the child's time (Boyle, Brock, Mace, & Sibbons, 2002; Huebler, 2008; Hunt, 2008). Outside the household, there are issues of school quality that can be seen in poor infrastructure and manpower (Dreze & Sen, 2002; Kingdon, 2007; Kremer, Chaudhury, Rogers, Muralidharan, & Hammer, 2005; The PROBE Team, 1999). Studies in recent years find that 50% of the schools have no water supply, 35% don't have blackboards and approximately 90% have no functioning toilets (Ramachandran, 2007). In addition, there are issues of private returns to education. Extensive literature on India highlights variation in economic returns to education by gender, social hierarchy (caste), location (rural/urban) and other types of labor market segmentation (Agrawal, 2011; Duraisamy, 2002; Vasudeva Dutta,

2006). This have its consequences of the extent to which educational attainment (Chamarbagwala, 2008; Kingdon & Theopold, 2008). Though improvement of women's autonomy is a desired outcome in itself, the results from this study will give a better understanding of the role of autonomy in human development.

Autonomy and child outcome

There is extensive literature that finds that women's autonomy within household have significant impact on child outcomes particularly in health and nutrition (Doss, 2012; Quisumbing & Maluccio, 2000). This is an area where India lags far behind other comparable nations (Das Gupta et al., 2000). India ranks 122 among 138 countries in the Gender Inequality Index based on reproductive health, empowerment, and labor market participation (Klugman, 2010). Ramalingaswami, Jonsson, and Rohde (1996) argues that the very low status of the mothers is the main reason for the extremenly poor nutritional status of children in South Asia. The main purpose of this study is to explore whether such impact also extends to education.

On one hand, childhood health and nutrition is known to have strong effects on school preparedness and access (Alderman, Behrman, Lavy, & Menon, 2001; Pridmore, 2007; Walker et al., 2007). Behrman (1996) and more recently Glewwe and Miguel (2007) have noted that though the mechanism is not well established there are overwhelming evidence of the a strong relation between preschool nutrition and subsequent school attainment. In addition, malnutrition and health are also found to effect school dropout through late enrollment (Daniels & Adair, 2004; Glewwe & Jacoby, 1995) and irregular attendance (Boyle et al., 2002; Colclough, Rose, & Tembon, 2000; Miguel & Kremer, 2004).

On the other hand, higher autonomy may have ambiguous effects on child's time allocations related to school performance and participation. Though there is by now substantial literature which indicates, mothers invest more from their own resources on children than fathers (Duflo, 2003; Haddad & Hoddinott, 1994; Thomas, 1997), Doepke and Tertilt (2011) argues that such outcome need not indicate preferences. E.g. such outcome can appear when market wage differentials results in household specialization of time intensive public goods (child care) or if there is gender discrimination in consumption of private goods. In such situations, higher autonomy can increase own consumption of goods and time at the cost of child consumption. In

case of child labor, Basu (2006) notes that as woman's decision making abilities rise child labor initially falls but then goes up. In case of father migrant families in China where migration affects household bargaining power of the mother, Chen (2006) observes that though mothers do not alter child outcomes that can easily be monitored (e.g. child anthropometrics) they may reduce child outcomes that are difficult to monitor (e.g. child leisure) and demand for mother's own leisure may affect girl child more than boys (through more domestic work). Smith and Byron (2005) also find that in some parts of India, increased bargaining power is associated with discrimination against girls (measured in terms of nutritional outcomes).

Data

Main data source for this study is the India Human Development Survey of 2005 conducted jointly by the University of Maryland and National Council of Applied Economic Research, New Delhi (Desai et al., 2007). It is a nationally representative survey of 41,554 households located in 33 states and union territories of India. The sample covers 1503 villages and 971 urban blocks in 276 towns and cities. In addition, I use district level data on school characteristics from the District Information System for Education (2004-05) collected by the National University of Educational Planning and Administration, New Delhi.

Analytical strategy

In this study, I assume that child educational outcome is a result of household optimization. The parents optimize their joint utility from own consumption and leisure and utility derived from their child's education. The choices are constrained by household budget and child education production function. Child education production involves educational inputs, child and household characteristics as well as exogenous factors like school quality and labor market returns. Autonomy enters the model in its ability to influence the production process mainly through allocation of inputs like time for educational support at home and share of consumption expenditure spent on education. The identification strategy, therefore, is to examine the extent to which household level educational inputs and child educational outcomes vary with the relative level of their mother's autonomy. In the empirical analysis, I examine the association of autonomy and support for homework first using a probit model for any support and then a poisson model for the number of sources of support. In addition, I also use a generalized linear

model with log link function to examine the effect of autonomy on the share of household consumption expenditure on education. Educational expenses are measured as total expenses for school fees, books, uniform, transportation and other materials and private educational assistance at the household level. In the above cases I run the regressions separately for the children in the 6-11 age group and the 12-18 age group. However, I restrict the sample to those households with at least one currently enrolled child of a given age group.

Subsequently, I look at the effect of autonomy on current enrollment. Investment in the schooling decision follows the framework of Becker models where children are enrolled so long marginal returns are higher than equal the marginal costs. With usual credit constraints, common I developing countries, these decisions are contingent on household income. So enrollment decisions are affected by monetary resource allocation. However, enrollment is also related to work due to the opportunity cost of the child's time. It has also been observed that in India, not all children who are not going to school are involved in work (Bhatty, 1998). To address this issue, the joint decision on enrollment and work is examined using an ordered probit model following a strategy used earlier by Maitra and Ray (2002) and Rosati and Tzannatos (2006). Four different combinations of enrollment and work are ranked based on child welfare: enrolled and do not work, enrolled and work, neither enrolled nor work, and not enrolled but work. Work participation is identified by involvement in any work (in family-farm, animal care, agricultural wage labor, non agricultural wage labor, salaried position, family business work) for more than 240 hours in the last year.

In the regression analysis, I further control for child characteristics, mother characteristics, household characteristics and district level school and other characteristics that can affect these outcomes. Child characteristics include child age, sex, mother characteristics includes education and any work participation. Household characteristics include size, highest educational attainment among adults, religion-ethnicity of the household head (dummy variable indicating upper caste Hindu or not), household asset quintile and urban location. In enrollment and work regression, I additionally control for the local area (district) school characteristics include district level percentage of schools with girls' toilet, mean student classroom ratio, percent of teachers with in-service training (at the primary or secondary level based on the child's age). In addition, I also control for level of urbanization and female literacy in the district values from the preceding

national census. Since most of the instruments related to autonomy index is available for a single "eligible" women in the household, only the children of those mothers are considered in the analysis of child level outcomes. All regressions are estimated using multilevel model – at the individual household or child level and the primary sampling unit level to account for possible correlations.

Measuring autonomy

Though the general idea of autonomy is well understood, it is expressed and observed in many different ways. For the purpose of this study, I refer autonomy within household as the "capacity to control one's personal environment" following Dyson and Moore (1983). Perception of control in household decision making is the fundamental basis of measuring autonomy (Ashraf, 2009; Kar, Pascual, & Chickering, 1999). However, there are other factors, which shape the bargaining process. Particularly pre-existing gender norms can limit what is bargained over, whether someone is entitled to bargain and whether it is appropriate to bargain (Agarwal, 1997; England & Kilbourne, 1990; Sen, 1990). It is important to discuss autonomy in terms of sources of such power, settings and agencies through which these powers are exercised and achievements or evidence of such power (Kabeer, 1999; Kishor, 2000; Mabsout & Van Staveren, 2010). Smith and coauthors (Smith, 2003; Smith & Byron, 2005) summarize these different aspects of autonomy by creating an autonomy index based on a factor analysis of measures of sources and settings of power. Here I take a different approach where the latent variable autonomy is identified by taking into account the sources and settings of power which affects autonomy, and evidences of power which is affected by autonomy, using a Multiple Indicators, Multiple Causes (MIMIC) specification (Jöreskog & Goldberger, 1975). A similar approach was also used by Mabsout and Van Staveren (2010).

The 'indicators' variables used in the construction are decision regarding purchase of household durables and number of children and whether permission is necessary to visit health centers and home of relatives and friends. The decision variables are ordered as whether the decision is made jointly together with the spouse, alone or by others in the household (which may include the spouse). The permission variables are ordered as whether no permission is required and subject can visit unaccompanied, no permission is required, but subject must be accompanied and whether permission is required for any such visits. The 'causes' variables includes age of

cohabitation, difference in age with spouse (in percent), differences in education with spouse (in years), exposure to any media, whether the woman works for cash, male bias in preference for education, and in the number of children and any reason for domestic violence. In addition, I include district-level urbanization and female literacy rates. The factor score is used to create a categorical variable for autonomy (low, medium and high).

Figure 1 shows the results of the MIMIC exercise. Most of the variables are found to be significantly related to autonomy in the expected direction except for age differences in education with a spouse, any reason for domestic violence and district level female literacy. The age difference was not found to be significant, possibly because of the low average level of educational attainment while the district-level urbanization is possibly a stronger determinant of autonomy than female literacy. The question on domestic violence may have an error in measurement as the question was regarding the women in the community and not the respondent.

To explore the validity of the index, in Figure 2, I examine the relation between BMI categories and different levels of autonomy. As expected, percentage underweight drop at higher levels of autonomy. Figure 3 shows the relation between autonomy and self reported health. The proportion of respondents with very good and good health progressively increases with the levels of autonomy.

Preliminary relations

Among household level educational outcomes, support in homework increases by level of autonomy, though the proportion among highest autonomy groups are slightly lower than those with medium level of autonomy (Figure 4). On the other hand, sources of the support increases with higher level of autonomy. The median share of household expenditure on education increases slightly with autonomy levels, but the interquartile range increases sharply at higher levels of autonomy (Figure 5).

Figure 6 shows the work enrollment patterns by different level of autonomy for both age groups. For 6-11 age group, incidence of work is very low. Percentage with enrollment and no work, increases with autonomy and not working and not enrolled also decreases with autonomy. For the 12-18 age group, only work decreases with autonomy and only school increases with autonomy, except that it falls slightly for those in the medium level of autonomy. Not working

and not enrolled also drops with autonomy. Overall, work without enrollment or with enrollment is higher among medium level of autonomy.

Regression results

Table 1 through Table 3 shows the regression output for household level outcomes – support in homework and share of consumption expenditure spent on education. The first two tables shows the result of the probit and the poisson regression on support in homework.

The effect of the number of male children in the younger age group is slightly higher than the females while the opposite is true for females in the older age group. Similar patterns can be seen in the case of any support or number of sources of support. However, there is not much difference by gender in case of share of expenditure. This may be due to the fact that bias if any plays in choosing to enroll the child. Kingdon and coauthors (Azam & Kingdon, 2013; Kingdon, 2005) in their studies on gender bias in educational expenditure in India, also observe that once enrolled, there is hardly any difference in expenditure between boys and girls. As expected availability of public funding (in terms of free books, uniform, school fees and scholarship) reduces the share of expenditure on education.

Mothers' education and highest education among adult members is a significant determinant of sources of support as well as share of expenditure spent on education for both age groups, but highest education among adult is only significant for the younger age group for any support. Mothers work has no significant effect on any support and share of expenditure on education, but has negative effect on sources of support.

Household assets matter for support, but only at higher levels. The effect of household assets are however stronger in case of share of consumption expenditure spent on education. Priviledged ethnic groups (upper caste hindus) also show similar effects. Social network, particularly through membership matters for both age groups in both specifications for support and results in lower educational expenditures.

Finally, mother's autonomy significantly increases the probability of support for both age groups, though the marginal effects are higher in magnitude among mothers with medium level of autonomy than the highest. However a more consistent effect of mother's autonomy can be

seen in the case of the sources of support. On the other hand, mother's autonomy has a significant effect on share of education expenditure only for younger children. It should be noted that due to the way the autonomy index is created it is difficult to interpret the magnitude of these effects except when comparing the different levels of autonomy.

As observed in Figure 6, there is very little work participation among the younger children and enrollment is generally much higher than the older age group. Regression analysis (not reported) also found no significant effect of mother's autonomy on enrollment pattern. Table 4 shows the regression output for enrollment work choices for children in 12-18 age group. As expected from earlier results, age of child significantly reduces the probability of enrollment while increasing the probability to work or neither work or be enrolled. Similar patterns can also be seen if the child is female. Mother's education and education of highest education among adult in the household is also significantly related to the child being enrolled and not participating in any work. Similar effects can also be seen in households with more members. The biggest driver for children away from enrollment is household wealth. Similar effects can be seen in households who are from upper caste. Mothers autonomy initially increases probability of "work and no enrollment", though it has no significant effect at the highest level of autonomy.

Conclusions

The study finds that autonomy positively affects sources of support in homework for both age groups and share of expenditure on education only among younger children. On the other hand medium level of autonomy is associated with higher probability of work among older children, an effect which disappears at the highest level of autonomy. The results are contingent on how autonomy is defined though the direction of the effects are expected to be similar in alternative conceptualization of autonomy.

It is important here to note that in most cases, the education of the mother – a product of bargaining in the natal family – is significant in all specifications, even after controlling for autonomy. This is specifically interesting as factors which are related to women's education and subsequent paid employment are also significant determinant of autonomy. For example, percentage age difference with spouse is higher in magnitude for women who marry early without finishing school or not pursuing paid employment following school. Male bias in

education also works in the same direction. The exercise of measuring autonomy, therefore hints at the importance of mother's education as the single most important factor in child educational inputs and outcome.

Figure 1: MIMIC model for creating of autonomy index

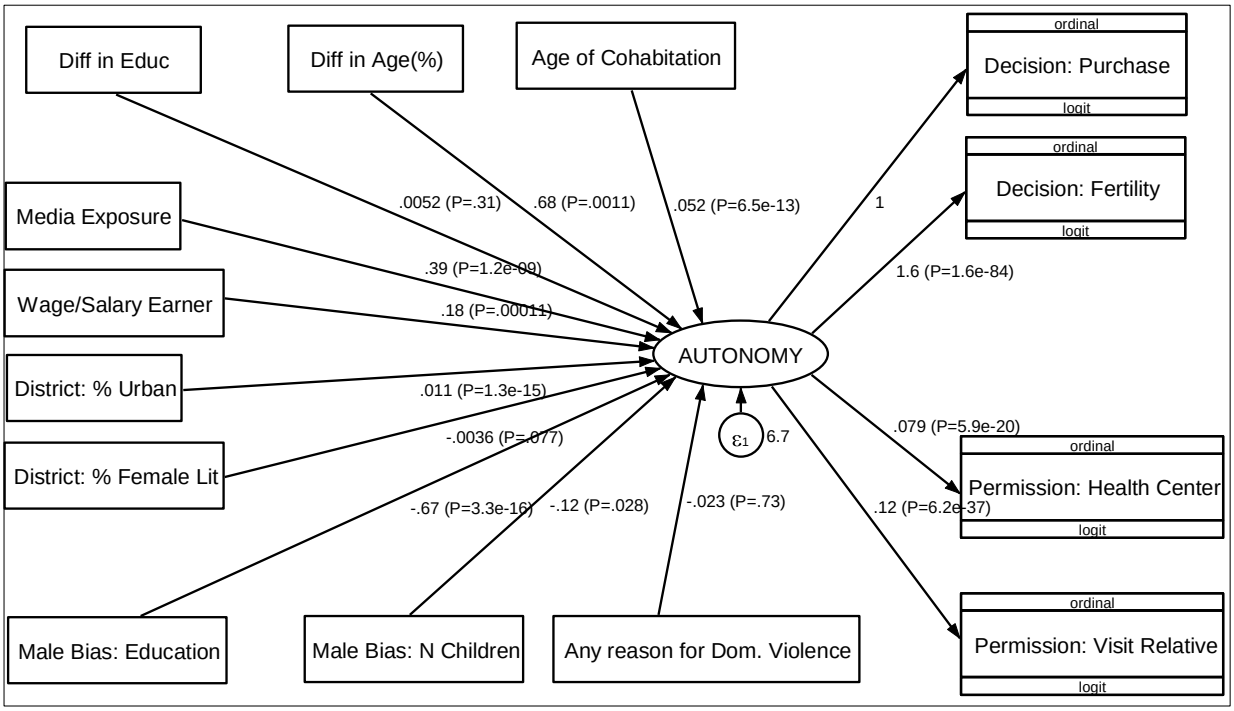

Figure 2: BMI categories for different levels of autonomy

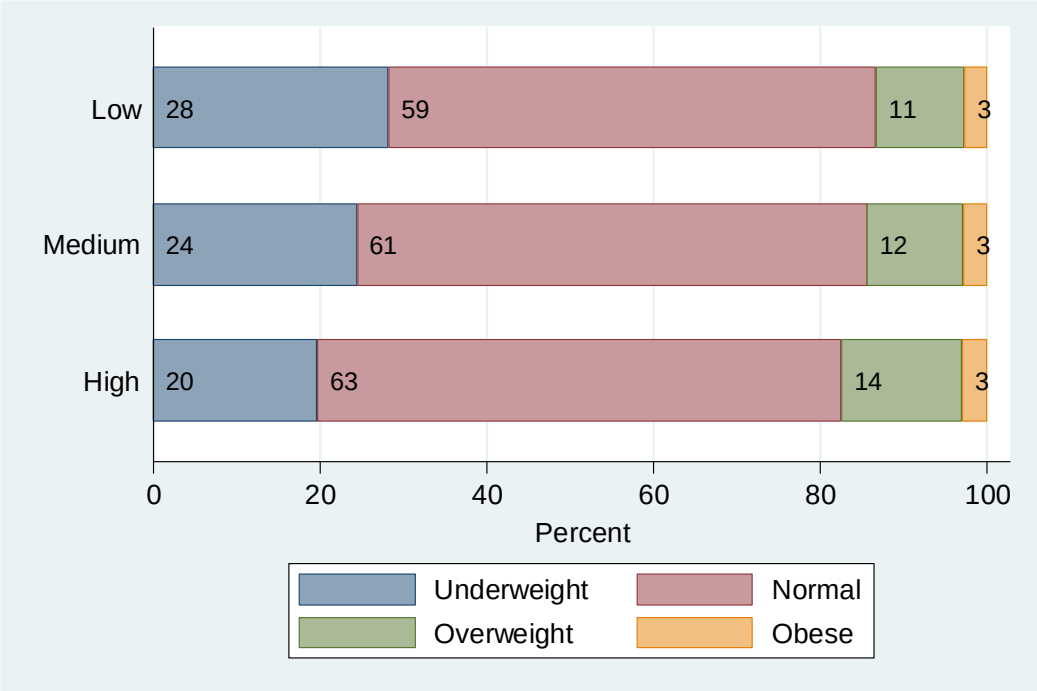

Figure 3: Self reported health for different levels of autonomy

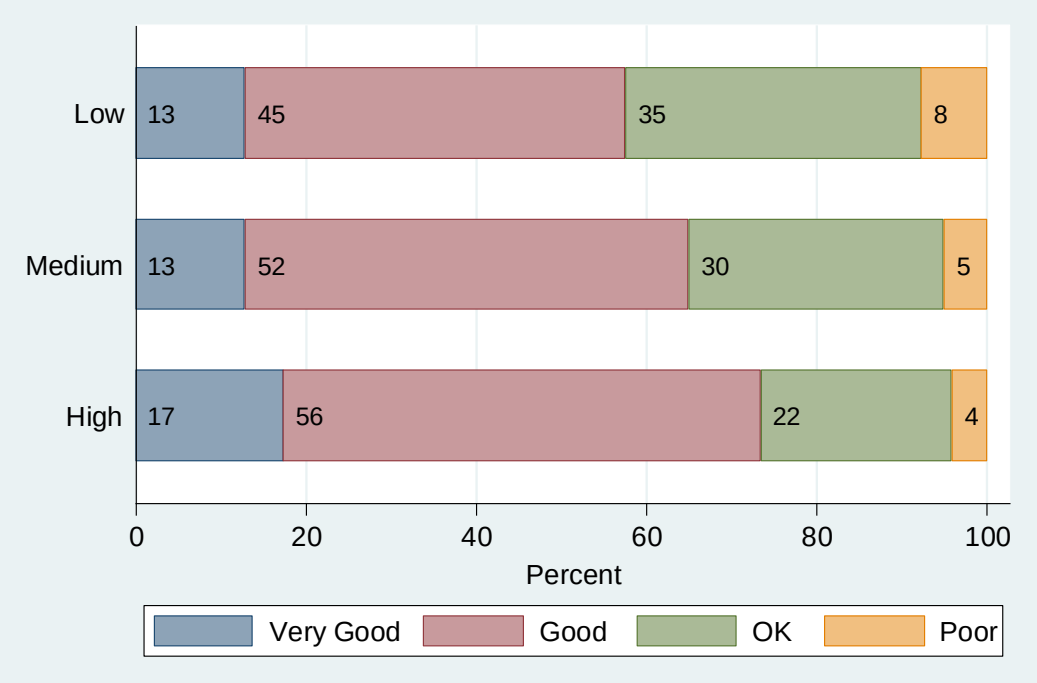

Figure 4: Sources of educational support in households with different levels of autonomy

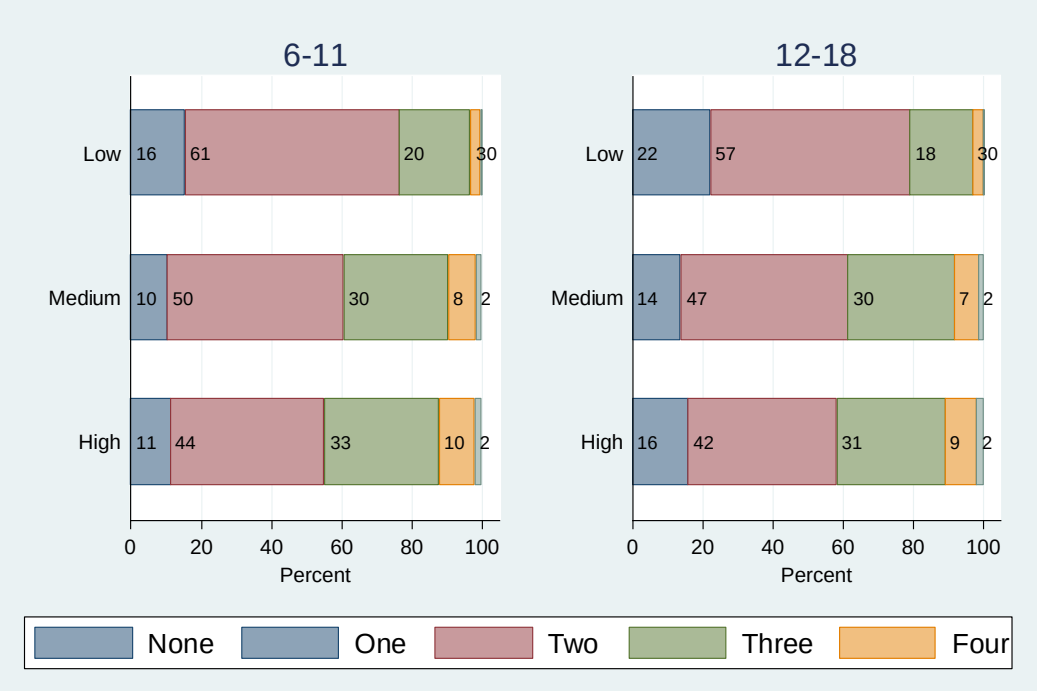

Figure 5: Share of educational expenditure in households with different levels of autonomy

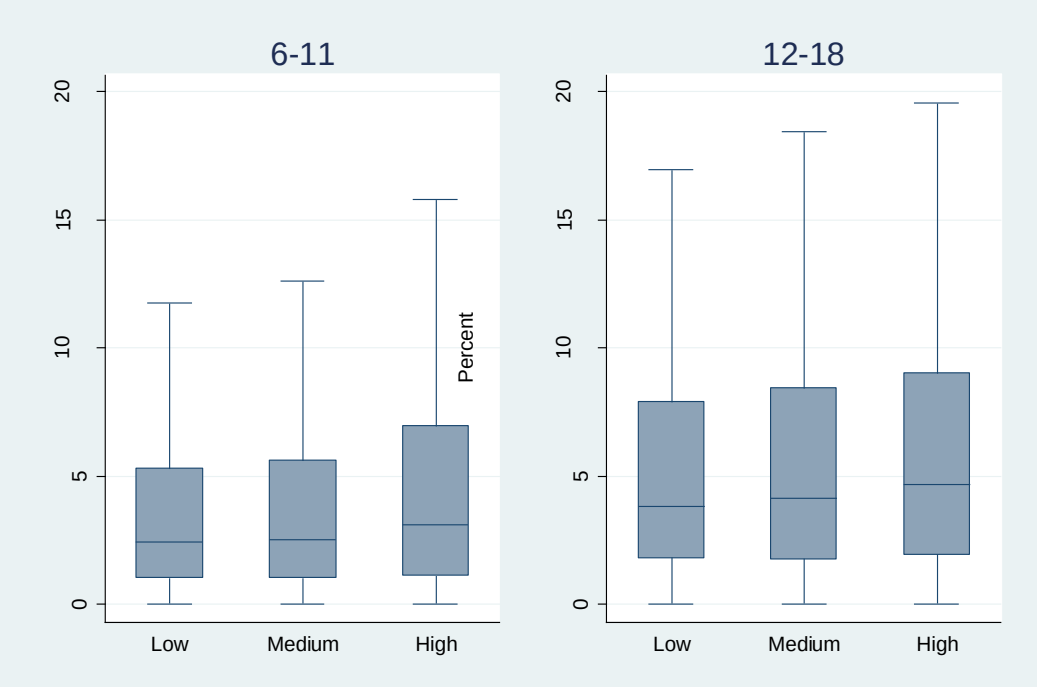

Figure 6: Work enrollment pattern for different levels of autonomy

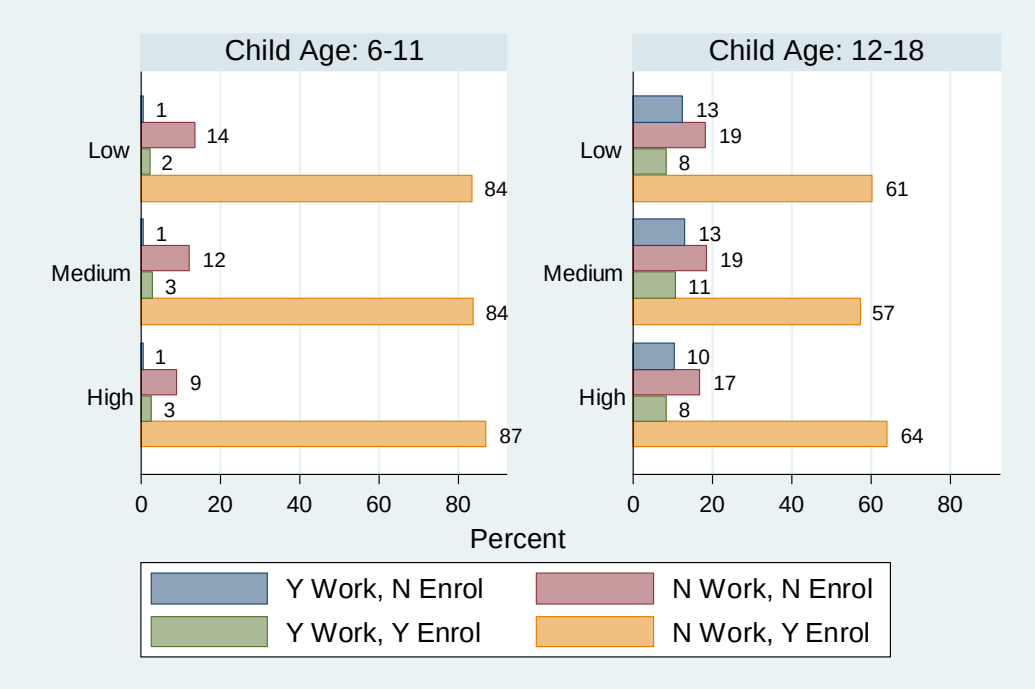

Table 1: Regression output: Any support.

	Any Support in HW			
	Age 06-11		Age 12-18	
VARIABLES	Coef.	Marg. Eff.	Coef.	Marg. Eff.
Autonomy: Low(Base)				
Autonomy: Medium	0.2409***	0.0284***	0.2258***	0.0434***
	(0.058)	(0.007)	(0.052)	(0.010)
Autonomy: High	0.1626***	0.0202***	0.1511***	0.0302***
	(0.059)	(0.007)	(0.053)	(0.011)
# female enrolled (6-11)	0.0989***	0.0115***		
	(0.035)	(0.004)		
# male enrolled (6-11)	0.1320***	0.0153***		
	(0.036)	(0.004)		
# female enrolled (12-18)			0.1971***	0.0372***
			(0.033)	(0.006)
# male enrolled (12-18)			0.1571***	0.0297***
			(0.032)	(0.006)
Mother: Education	0.0637***	0.0074***	0.0740***	0.0140***
	(0.008)	(0.001)	(0.006)	(0.001)
Mother: Any Work	0.0417	0.0049	0.0039	0.0007
	(0.048)	(0.006)	(0.048)	(0.009)
HH: # persons	0.0159*	0.0018*	0.0901***	0.0170***
	(0.009)	(0.001)	(0.012)	(0.002)
HH: Highest Adult Educ.	0.0435***	0.0050***	0.0062	0.0012
	(0.006)	(0.001)	(0.005)	(0.001)
HH: Upper Caste Hindu	0.1341**	0.0146**	0.0048	0.0009
	(0.061)	(0.006)	(0.048)	(0.009)
HH: Assets - 1st Quintile (base)				
HH: Assets - 2nd Quintile	0.1176**	0.0145**	0.0596	0.0098
	(0.058)	(0.007)	(0.060)	(0.010)
HH: Assets - 3rd Quintile	0.1138*	0.0140*	-0.0079	-0.0013
	(0.067)	(0.008)	(0.065)	(0.011)
HH: Assets - 4th Quintile	0.2509***	0.0283***	-0.2015***	-0.0383***
	(0.085)	(0.009)	(0.072)	(0.014)
HH: Assets - 5th Quintile	0.3251***	0.0349***	-0.3595***	-0.0741***
	(0.102)	(0.010)	(0.081)	(0.017)
HH: Soc Net -Knows	0.1569***	0.0181***	0.0716*	0.0136*
	(0.045)	(0.005)	(0.043)	(0.008)
HH: Soc Net - Member	0.1667***	0.0186***	0.1199***	0.0223***
	(0.050)	(0.005)	(0.044)	(0.008)
HH: Urban	-0.0233	-0.0027	0.1433**	0.0271**
	(0.073)	(0.008)	(0.062)	(0.012)
Constant	0.4200***		-0.0532	
	(0.100)		(0.105)	
Observations	12,520	12,520	10,577	10,577
Number of groups	2,374		2,352	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 2: Regression output: Number of sources of support.

	# Sources of Support in HW			
	Age 06-11		Age 12-18	
VARIABLES	Coef.	Marg. Eff.	Coef.	Marg. Eff.
Autonomy: Low(Base)				
Autonomy: Medium	0.1816***	0.2329***	0.1898***	0.2262***
	(0.017)	(0.021)	(0.019)	(0.023)
Autonomy: High	0.2154***	0.2811***	0.2240***	0.2717***
	(0.017)	(0.022)	(0.020)	(0.025)
# female enrolled (6-11)	0.0322***	0.0434***		
	(0.009)	(0.012)		
# male enrolled (6-11)	0.0317***	0.0427***		
	(0.010)	(0.013)		
# female enrolled (12-18)			0.0653***	0.0820***
			(0.010)	(0.013)
# male enrolled (12-18)			0.0428***	0.0538***
			(0.010)	(0.013)
Mother: Education	0.0228***	0.0307***	0.0325***	0.0409***
	(0.002)	(0.002)	(0.002)	(0.003)
Mother: Any Work	-0.0263*	-0.0354*	-0.0341**	-0.0429**
	(0.013)	(0.018)	(0.016)	(0.020)
HH: # persons	0.0163***	0.0220***	0.0324***	0.0407***
	(0.002)	(0.003)	(0.003)	(0.004)
HH: Highest Adult Educ.	0.0177***	0.0239***	0.0114***	0.0144***
	(0.002)	(0.002)	(0.002)	(0.003)
HH: Upper Caste Hindu	0.0361**	0.0490**	-0.0009	-0.0011
	(0.014)	(0.019)	(0.017)	(0.022)
HH: Assets - 1st Quintile (base)				
HH: Assets - 2nd Quintile	0.0349*	0.0462*	0.0417*	0.0548*
	(0.020)	(0.026)	(0.024)	(0.032)
HH: Assets - 3rd Quintile	0.0398*	0.0529*	-0.0087	-0.0112
	(0.022)	(0.029)	(0.025)	(0.033)
HH: Assets - 4th Quintile	0.0627**	0.0842**	-0.0430	-0.0540
	(0.025)	(0.033)	(0.029)	(0.036)
HH: Assets - 5th Quintile	0.0412	0.0547	-0.0716**	-0.0888**
	(0.027)	(0.036)	(0.032)	(0.039)
HH: Soc Net -Knows	0.0530***	0.0710***	0.0178	0.0223
	(0.014)	(0.019)	(0.017)	(0.021)
HH: Soc Net - Member	0.0803***	0.1092***	0.0855***	0.1085***
	(0.014)	(0.020)	(0.016)	(0.021)
HH: Urban	-0.0090	-0.0122	0.0147	0.0185
	(0.019)	(0.025)	(0.022)	(0.027)
Constant	-0.3174***		-0.4420***	
	(0.030)		(0.035)	
Observations	12,520	12,520	10,577	10,577
Number of groups	2,374		2,352	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 3: Regression output: Share of education in consumption expenditure.

	Share of Education in Consumption Exp			
	Age 06-11		Age 12-18	
VARIABLES	Coef.	Marg. Eff.	Coef.	Marg. Eff.
Autonomy: Low(Base)				
Autonomy: Medium	0.0535**	0.0025**	0.0249	0.0016
	(0.025)	(0.001)	(0.024)	(0.002)
Autonomy: High	0.0894***	0.0042***	0.0291	0.0019
	(0.026)	(0.001)	(0.024)	(0.002)
# female enrolled (6-11)	0.2783***	0.0131***		
	(0.018)	(0.001)		
# male enrolled (6-11)	0.3117***	0.0147***		
	(0.018)	(0.001)		
# female enrolled (12-18)			0.3401***	0.0224***
			(0.015)	(0.001)
# male enrolled (12-18)			0.3616***	0.0238***
			(0.015)	(0.001)
# receiving public funding (6-11)	-0.3077***	-0.0145***		
	(0.015)	(0.001)		
# receiving public funding (12-18)			-0.2287***	-0.0151***
			(0.013)	(0.001)
Mother: Education	0.0058*	0.0003*	0.0204***	0.0013***
	(0.003)	(0.000)	(0.003)	(0.000)
Mother: Any Work	0.0123	0.0006	-0.0273	-0.0018
	(0.021)	(0.001)	(0.022)	(0.001)
HH: # persons	-0.0017	-0.0001	-0.0244***	-0.0016***
	(0.004)	(0.000)	(0.004)	(0.000)
HH: Highest Adult Educ.	0.0130***	0.0006***	0.0144***	0.0010***
	(0.003)	(0.000)	(0.003)	(0.000)
HH: Upper Caste Hindu	0.0388	0.0018	0.0543**	0.0036**
	(0.024)	(0.001)	(0.021)	(0.001)
HH: Assets - 1st Quintile (base)				
HH: Assets - 2nd Quintile	0.2257***	0.0084***	0.1558***	0.0086***
	(0.031)	(0.001)	(0.029)	(0.002)
HH: Assets - 3rd Quintile	0.3403***	0.0134***	0.2379***	0.0137***
	(0.032)	(0.001)	(0.031)	(0.002)
HH: Assets - 4th Quintile	0.4651***	0.0196***	0.3084***	0.0184***
	(0.037)	(0.002)	(0.035)	(0.002)
HH: Assets - 5th Quintile	0.6076***	0.0276***	0.3986***	0.0249***
	(0.042)	(0.002)	(0.042)	(0.003)
HH: Soc Net -Knows	0.0278	0.0013	0.0281	0.0018
	(0.021)	(0.001)	(0.020)	(0.001)
HH: Soc Net - Member	-0.0886***	-0.0041***	-0.0506**	-0.0033**
	(0.022)	(0.001)	(0.020)	(0.001)
HH: Urban	0.2220***	0.0105***	0.1447***	0.0095***
	(0.030)	(0.001)	(0.030)	(0.002)
Constant	-3.8709***		-3.5408***	
	(0.047)		(0.046)	
Observations	11,916	11,916	10,124	10,124
Number of groups	2,352		2,328	

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Regression output for work and enrollment patterns among children aged 12-18.

	Work and Enrollment				
VARIABLES	Coef.	Marginal Effects			
		Y Work, N Enrol	N Work, N Enrol	Y Work, Y Enrol	N Work, Y Enrol
Autonomy: Low(Base)					
Autonomy: Medium	-0.0656**	0.0088**	0.0069**	0.0019**	-0.0176**
	(0.029)	(0.004)	(0.003)	(0.001)	(0.008)
Autonomy: High	-0.0036	0.0005	0.0004	0.0001	-0.0010
	(0.031)	(0.004)	(0.003)	(0.001)	(0.008)
Child: Age	-0.3247***	0.0434***	0.0344***	0.0093***	-0.0871***
	(0.005)	(0.001)	(0.001)	(0.000)	(0.001)
Child: Female	-0.0973***	0.0130***	0.0103***	0.0028***	-0.0261***
	(0.020)	(0.003)	(0.002)	(0.001)	(0.005)
Mother: Education	0.0483***	-0.0065***	-0.0051***	-0.0014***	0.0130***
	(0.004)	(0.001)	(0.000)	(0.000)	(0.001)
Mother: Any Work	-0.2846***	0.0363***	0.0316***	0.0092***	-0.0771***
	(0.028)	(0.004)	(0.003)	(0.001)	(0.008)
HH: # persons	-0.0178***	0.0024***	0.0019***	0.0005***	-0.0048***
	(0.005)	(0.001)	(0.001)	(0.000)	(0.001)
HH: Highest Adult Educ.	0.0459***	-0.0061***	-0.0049***	-0.0013***	0.0123***
	(0.003)	(0.000)	(0.000)	(0.000)	(0.001)
HH: Upper Caste Hindu	0.0576*	-0.0076*	-0.0062*	-0.0017	0.0154*
	(0.035)	(0.004)	(0.004)	(0.001)	(0.009)
HH: Assets - 1st Quintile (base)					
HH: Assets - 2nd Quintile	0.1991***	-0.0315***	-0.0229***	-0.0050***	0.0594***
	(0.035)	(0.006)	(0.004)	(0.001)	(0.011)
HH: Assets - 3rd Quintile	0.3300***	-0.0492***	-0.0386***	-0.0094***	0.0973***
	(0.036)	(0.006)	(0.004)	(0.001)	(0.011)
HH: Assets - 4th Quintile	0.5842***	-0.0776***	-0.0695***	-0.0198***	0.1668***
	(0.045)	(0.006)	(0.006)	(0.002)	(0.013)
HH: Assets - 5th Quintile	0.8186***	-0.0972***	-0.0967***	-0.0308***	0.2247***
	(0.055)	(0.006)	(0.007)	(0.003)	(0.015)
HH: Soc Net -Knows	0.0949***	-0.0127***	-0.0101***	-0.0028***	0.0256***
	(0.026)	(0.003)	(0.003)	(0.001)	(0.007)
HH: Soc Net - Member	0.0802***	-0.0106***	-0.0085***	-0.0023***	0.0215***
	(0.027)	(0.004)	(0.003)	(0.001)	(0.007)
HH: Urban	0.0039	-0.0005	-0.0004	-0.0001	0.0010
	(0.037)	(0.005)	(0.004)	(0.001)	(0.010)
District: % Schools with girls toilet	-0.0010	0.0001	0.0001	0.0000	-0.0003
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
District: Student classroom ratio (UP)	-0.0002	0.0000	0.0000	0.0000	-0.0001
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
District: % School with trained teachers (UP)	-0.0031**	0.0004**	0.0003**	0.0001**	-0.0008**

	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
District: % Urban (Census 2001)	-0.0028***	0.0004***	0.0003***	0.0001***	-0.0007***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
District: % Female Literacy (Census 2001)	0.0086***	-0.0011***	-0.0009***	-0.0002***	0.0023***
	(0.001)	(0.000)	(0.000)	(0.000)	(0.000)
Observations	22,148	22,148	22,148	22,148	22,148
Number of groups	2,399				

Robust standard errors in parentheses (*** p<0.01, ** p<0.05, * p<0.1)

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