Shocks to income and to siblings:

Effects on child schooling and work

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Abstract

This paper investigates the effects of adversities directly affecting other household members, on child participation in school and work in rural Colombia. We consider adversities affecting separately the household head and siblings of the child. The first adversity is the departure of the head from the household. This is likely to induce a negative income shock, assuming that the head is the main breadwinner, and can affect child time use in the presence of credit and insurance market failures. The second adversity is the ill-health of siblings. This can have effects on child time use either due to the presence of credit constraints, or the existence of direct interactions between siblings in production. We find evidence that the departure of the household head affects negatively the schooling of males, and increases their participation in paid work. We attribute this effect to a negative income shock, as it holds even conditional on other changes that may occur with the head departing the household, such as a change in the education level and gender of the new decision-maker. By considering the effects of sibling ill-health, we find evidence consistent with complementarities between brothers in production, rather than sibling interactions being driven by resource constraints.

1. Introduction

Children living in less developed countries (LDCs) go to school less and work more than their counterparts in developed countries. The mechanisms driving these differences are multifaceted, but there are two in particular that we wish to highlight. First, formal insurance and credit provision is thin or even non-existent in many parts of LDCs. This is particularly problematic given the relatively high levels of risk and exposure to shocks, and there is evidence that this affects the time use of children, through their role in safeguarding consumption (Jacoby and Skoufias, 1997; Beegle et al, 2006; Fitzsimons, 2007). Second, home and farm production are relatively widespread in LDCs, and the use of family labour on own enterprises introduces competing demands on children's time. Added to this, the existence of interactions between siblings in production has potentially important implications for the within-family allocation of schooling and work (Bommier and Lambert, 2004; Edmonds, 2006a).

With these features in mind, in this paper we investigate empirically the extent to which child schooling and work are affected by adversities within the household. We also seek to understand the channels through which the effects are occurring. We consider adversities that relate directly to other household members. The first is the departure of the head from the household. This is likely to induce a negative income shock, assuming that the head is the main breadwinner, and can affect child time use in the presence of credit and insurance market failures. The second adversity is the ill-health of siblings. This can have effects on child time use either due to the presence of credit constraints, or the existence of direct interactions between siblings in production. We investigate these channels in this paper.

Consider first negative income shocks. There is a substantial body of literature which shows that transitory unanticipated negative income shocks can have negative consequences for the education of children. This is often taken as evidence of credit market failures, although insurance market failures must also be a part of the story. Proxies for negative unanticipated income shocks vary, and include crop losses (Beegle et al, 2006); the death of a parent (Gertler et al, 2004); the household head becoming unemployed (De Janvry et al, 2006; Duryea et al, 2007; Skoufias and Parker, 2006); parental divorce (Skoufias and Parker, 2006); illness of the household head and community-wide disasters (de Janvry et al, 2006). Coming at it from

another angle, Edmonds (2006b) uncovers more direct evidence of liquidity constraints, from the finding that anticipated cash transfers to the elderly in South Africa are associated with increases in schooling and decreases in hours worked of children. In this paper we proxy a negative income shock using the recent departure of the head from the household due to death or divorce. However, such an event can also have other implications that are relevant for child time use, for example due to the fact that the new household decision-maker may have different education levels or gender (Gertler et al, 2004). To isolate the effect of the negative income shock, it is important to control for such changes in the analysis that follows.

We go on to consider the effects of the ill-health of siblings of school-going age on child activities. The importance of siblings for education is well-known, though there is less of a consensus on why they matter. One branch of the literature focuses on liquidity constraints, which may force siblings into competition with each other if households cannot afford to send all their children to school (Parish and Willis, 1993; Morduch, 2000). Another, though relatively smaller branch, is that direct interactions may exist between siblings, for example complementarities in production, and these are likely to be particularly relevant in LDCs given the importance of home/farm production (Edmonds, 2006a; Bommier and Lambert, 2004). The literature tends to focus on the number and composition of siblings, though by considering the ill-health of siblings as we do here, we obtain an insight into how the household re-optimises across siblings in the presence of sibship adversities.

This paper contributes to both strands of the literature, and in so doing contributes to our understanding of different forces that affect child school and work allocation. In analysing negative income shocks, we investigate the importance of credit and insurance market failures in education choices. In investigating the effects of the ill-health of siblings, we contribute to our understanding of whether interactions between siblings are driven by liquidity constraints or by the existence of direct interactions between siblings in production.

We document a number of interesting findings. First, we find evidence that 12-17 year old males play a role in cushioning the household against negative income shocks that occur with the loss of the household head; the fact that the adverse effects of these shocks are mitigated with income is consistent with the presence of credit and insurance market failures. The ill-health of siblings appears to have beneficial effects for the education of males and to reduce

the paid work of males, consistent with complementarities between males in work. We detect no effects of sibling ill-health for females.

The paper proceeds as follows. In section 2 we describe the data used in the analysis. Section 3 presents the empirical methodology and results, and section 4 presents plans for future work.

2. Data

We use data from a three year panel survey of households and individuals in rural Colombia. Our sample consists of households with at least one 12-17 year old in at least one of the periods. These data have been collected for the purpose of evaluating a large scale welfare programme *Familias en Acción* (FeA from hereon), that has been in place since the latter part of 2002. The programme is aimed at alleviating poverty by fostering human capital accumulation among the poorest households in rural Colombia. It consists of conditional subsidies for investments into education, nutrition and health. Subsidies are granted to the mother of 7-17 year old child(ren) conditional on the child(ren) attending at least 80% of school classes.[2] In the first two years of the programme, 340,000 households were registered to participate. The programme has recently been expanded to another 60,000 households and is currently being piloted in deprived urban areas. We refer the reader to Attanasio et al (2006) for a more complete description of the programme.

The first wave of data collection took place in 2002, just prior to the implementation of the programme in the treatment towns. Around 11,500 households were interviewed, containing just under 11,000 12-17 year old children. One year later, a second wave was collected, with a third wave of data collected in 2006. The attrition rate between the first and second surveys is 6.2%, and between the second and third surveys is about 12% (implying an attrition rate of 17% between the first and third survey).

The data are extremely rich and detailed, reflecting interviews that lasted on average 3.5 hours. The surveys contain information on a wide range of variables including household socio-

[2] The amounts of the subsidy are 14,000 pesos (US$6.15) and 28,000 pesos (US$12.30) for children attending primary and secondary school respectively. The other, though substantially less prominent component of the programme, is the nutrition subsidy. A flat-rate monthly monetary supplement of 46,500 pesos (US$20.45) is provided to mothers of beneficiary families with children aged 0-6, conditional on fulfilling certain health care requirements.

demographic structure, dwelling conditions, use of healthcare services, children's and mother's anthropometric indicators, household consumption and assets, individual education and labour supply, income and transfers. Additionally, information on the municipality infrastructure, wages and food prices was collected by administering questionnaires to knowledgeable town authorities and through visits to local markets.

We restrict the analysis to rural areas, thus omitting urban centres, to capture areas where credit and insurance markets are more likely to be thin. For the analysis that considers loss of the household head since the previous wave, we use data from waves 2 and 3. This is because we only observe departure of the household head relative to the previous wave, so we cannot use wave 1. For the remainder of the analysis we use all three waves of data.

2.1 Descriptive Statistics

Our outcome variables relate to child school and work participation. To capture participation in school, we consider two measures. The first is school enrolment at the time of the survey. The second is whether the individual reports having been in school on the most recent school day prior to the survey, which is a better proxy for actual attendance at school. For participation in work, we consider both paid and unpaid work separately. The survey contains a specific module on paid work, and we include in this category children who have spent the majority of the week prior to the survey engaged in paid work or actively looking for a job. Thus, it captures what we consider to be "full-time" paid workers. There is no survey module specific to unpaid work. To proxy engagement in this, we use information on the child's time use on the most recent school day.[3] We include an indicator that takes the value one if the child has spent more than half an hour in unpaid work on the most recent school day. This category this includes both full- and part-time unpaid workers, and to get a better sense of the distinction, we also classify it into "full-time" (FT) unpaid, i.e. 2 hours (the median in the sample) or more. Note that the school and work categories are not mutually exclusive, as a child may engage in more than one activity.

[3] In surveys 1 and 2, we drop children interviewed on a Sunday or Monday, as they were questioned as to time use on the previous day, which for these children is not a school day. This sample selection is on the basis of interview day, which is random.

In Table 1, we show proportions enrolled in school by age, separately for males and females. We see that enrolment rates are quite high amongst children aged 7-11. The first substantial drop in enrolment is observed at age 12, which is the age of transition from primary to secondary school. For this reason, we confine our analysis to children aged 12 through 17. Another point worth noting is that female school enrolment is higher than male enrolment in this environment, with the gap between the genders increasing with age. Finally, enrolment appears to be only weakly related to attendance on the most recent school day, with attendance being substantially lower than enrolment.

Table 1: School participation, by age and gender

Age	Male		Female	
	Enrolment %	Previous day attendance %	Enrolment %	Previous day attendance %
7	91.1	-	92.4	-
8	93.7	-	95.9	-
9	95.5	-	96.3	-
10	93.7	67.8	95.9	70.2
11	91.6	66.8	93.2	68.7
12	84.3	62.9	88.0	62.7
13	75.2	54.7	80.2	59.4
14	64.1	47.0	74.8	56.1
15	55.1	38.7	63.8	47.1
16	45.9	32.2	56.1	41.8
17	37.4	27.4	45.3	32.1
N	*17,673*	*10,790*	*15,325*	*9,132*

Notes: Based on FeA surveys 1, 2 and 3. Rural areas.

Next, in Table 2 we show child paid and unpaid work participation, defined as described above. There is a substantial amount of engagement in unpaid work across both genders, and it is around 20 percentage points higher overall amongst females than males, despite higher female enrolment in school. Engagement in paid work is substantially lower than in unpaid work, though it reaches almost 20% for males, and is quite a bit lower for females, at just under 7%.

Table 2: Work participation, by gender

Age	Male			Female		
	Non-paid work	**Non-paid work FT**	**Paid work or seek work**	**Non-paid work**	**Non-paid work FT**	**Paid work or seek work**
12-17	56.3%	34.8%	18.8%	76.%	49.6%	6.6%
N	*7876*		*9803*	*6438*		*7575*

Notes: Based on FeA surveys 1, 2 and 3.

In Table 3 we show the percentage of households reporting that the head has left since the previous survey. Between 2% and 3% of households report the departure of the household head since the previous survey.

Table 3 Percentage of households reporting shocks relating to household head

Shock	**Survey 1**	**Survey 2**	**Survey 3**
Departure of *household head* since previous survey due to death/divorce	-	1.69%	2.97%
Number of households	3,471	3,440	3,309

Notes: Based on FeA surveys 2 and 3.

In Table 4 we show the percentage of children experiencing a serious illness in the previous 15 days, either relating to themselves or to their siblings. Note that serious illness refers to an illness that resulted in the affected individual being confined to bed. The proportions experiencing serious illnesses are by no means negligible, reaching up to 10%.

Table 4 Percentage of children affected by serious illnesses of self or of school-aged sibling

Shock	Survey 1	Survey 2	Survey 3
Recent serious illness of *child*	9.3%	8.7%	7.6%
Recent serious illness of *brother*	8.9%	7.9%	5.2%
Recent serious illness of *sister*	7.4%	8.3%	5.7%
Number of children	5,670	5,675	5,532

Notes: Based on FeA surveys.

3. Estimation and Results

In this section we present the estimation methodology and results of the empirical analysis. To estimate the effects of the departure of the household head, the model is

$$y_{ijt} = \alpha_1 + \alpha_2 V_{jt} + X'_{ij}\alpha_3 + W'_{h't}\alpha_4 + f_j + \delta_t + u_{ijt} \qquad (1)$$

where i indexes child, j indexes household/village and t indexes time, V_{jt} is an indicator that takes the value one if the head has left the household due to death or divorce since the previous wave, and 0 otherwise. X_{ij} is a vector of observed time-invariant household characteristics, $W_{h't}$ includes observed characteristics of the head at the time of the survey (gender, education level, relationship to the child) and the composition of adults in the household at the time of the survey, all of which are likely to change between surveys in households in which the head has departed, f_j includes unobserved time-invariant household characteristics, δ_t is a survey round dummy, and u_{ijt} denotes the effects of unobserved random shocks that we assume to be iid. The dependent variable is discrete (indicators for participation in school or work). The coefficient of interest is α_2, which yields the effect of household head departure on the outcome of interest. In the analysis, we pool all individuals aged 12-17 and living in remote rural areas in any of the surveys.

For the analysis that consider the effects of the ill-health of siblings, we estimate

$$y_{ijt} = \beta_1 + \beta_2 H_{kjt} + X'_{ij}\beta_3 + f_j + \gamma_t + \varepsilon_{ijt} \qquad (2)$$

where H_{kjt} is an indicator that takes the value one if at least one sibling aged 7-17 inclusive has been ill and confined to bed at some stage in the previous 15 days, and all other variables are as previously defined.

One concern in estimating equations (1) and (2) is that adversities such as the death of the household head/elderly householder, marital dissolution, and ill-health of siblings, may simply be proxies for household characteristics that are correlated with the outcome variables, school and work participation. In other words, they may be correlated with f_j in the above equations. To deal with the potential endogeneity of adversities, we use the panel nature of the data and estimate equations (1) and (2) using a fixed effects framework. Our assumption that unobserved household characteristics that may be correlated with adversities are time-invariant, as well as estimation using a linear probability model, allows us to purge the equations of this correlation.

Before presenting the results, a number of points are worth noting. We assume that sibling health is unaffected by another sibling's work or school time. Family size and household composition are taken to be exogenous. Note also that the measures of adversities relate to different periods: death or divorce of the household head relates to the period since the previous survey; illnesses relate to the 15 day period prior to the survey. This has implications for the empirical work: we would expect illnesses to be more closely associated with recent activities than with general school enrolment; departure of the household head on the other hand may have more repercussions for enrolment, though it is also likely to be associated with recent time use.

3.1 Effects of shocks relating to the household head

We first model child time allocation as a function of a negative income shocks. For this, we think of death/divorce (labelled loss, from hereon) of the household head as translating into a substantial negative income shock, under the assumption that the household head is the main breadwinner.[4] However, as discussed in section 1, the sudden departure of a household head

[4] We observe whether the household head of the previous survey has since died or "left the household". However, the aim is to capture negative income shocks, and if a household head leaves so as to obtain a better job elsewhere, then this latter measure would be potentially misleading. We therefore use additional survey

may affect child time use for reasons other than inducing a negative income shock. First, the gender and/or education level of the prevailing decision-maker may change. If preferences for education vary along these dimensions, this may affect child time allocation. Second, the relationship of the child to the household head may change; and third the household composition of adults may change. These may also have direct effects on child time allocation. We control for these so as not to confound them with the effect that operates through a negative income shock. This is similar in spirit to Gertler et al, 2004, though our empirical analysis differs from Gertler et al in a number of important respects: our use of panel data allows is to control for fixed unobserved factors that affect time allocation; moreover we not only consider school enrolment but also work participation.

We first show the effects of the loss of the head on school attendance, separately for males and females in Table 5. The first column shows the basic specification, and in each subsequent column we add variables (listed at the top of the column) to capture other changes that may occur when the head departs, discussed in the preceding paragraph, so as not to confound their effects with the effect that operates through a negative income shock.

We see that the loss of the head is significantly detrimental to the school enrolment of males, and this finding remains robust when across all specifications. The fact that the point estimate only decreases slightly from the first to the last column, suggests that the other changes that occur upon loss of a household head are not the main channels through which enrolment is affected: the negative income shock appears to be the overriding factor. The point estimates for females are positive on the other hand, though none are significant at conventional levels.

information to refine the variable to whether the household head left due to divorce or separation, which, along with death, we can credibly consider as a negative income shock to the household.

Table 5: School enrolment and loss of household head, males and females

Males	Basic spec	+ number of adults	+ gender of current head	+ relationship of child to current head	+ education level of current head
Loss of household head	-0.178	-0.181	-0.200	-0.202	-0.196
	(0.057)**	(0.059)**	(0.068)**	(0.068)**	(0.071)**
N	*6129*				
R-squared	0.16	0.16	0.16	0.16	0.16
Females					
Loss of household head	0.092	0.088	0.125	0.135	0.129
	(0.062)	(0.063)	(0.082)	(0.082)	(0.082)
N	*5040*				
R-squared	0.14	0.14	0.14	0.14	0.14

Notes: Control for age dummies, whether child has been seriously ill recently, number of siblings and quadratic, time dummies, number of adults, gender of head, relationship of child to head, education level of head.. Robust standard errors in parentheses, clustered at village level. + significant at 10%; *significant at 5%; ** significant at 1%

Whether the negative income shock affects work, is now investigated in Table 7. From hereon we show only the results from the richer specification that controls for all other changes that occur upon loss of the head. There is evidence that the reduced schooling of males observed above work upon departure of the head, feeds through to increased participation in paid work. Taken together with the large decrease in school enrolment, this suggests that 12-17 year old males play an important role in cushioning the household against negative income shocks that occur with the loss of the household head. We observe no significant effects unpaid work, or on the work participation of females.

Table 6 Work participation and departure of household head, males and females

Males	Paid work	Non-paid	Non-paid FT
Loss of household head	0.128	-0.061	0.013
	(0.066)+	(0.093)	(0.075)
N	*6135*	*5525*	*5525*
R-squared	0.14	0.01	0.02
Females			
Loss of household head	0.030	-0.005	-0.030
	(0.043)	(0.082)	(0.135)
N	*5048*	*4548*	*4548*
R-squared	0.05	0.01	0.06

Notes: Control for age dummies, whether child has been seriously ill recently, number of siblings and quadratic, time dummies, number of adults, gender of head, relationship of child

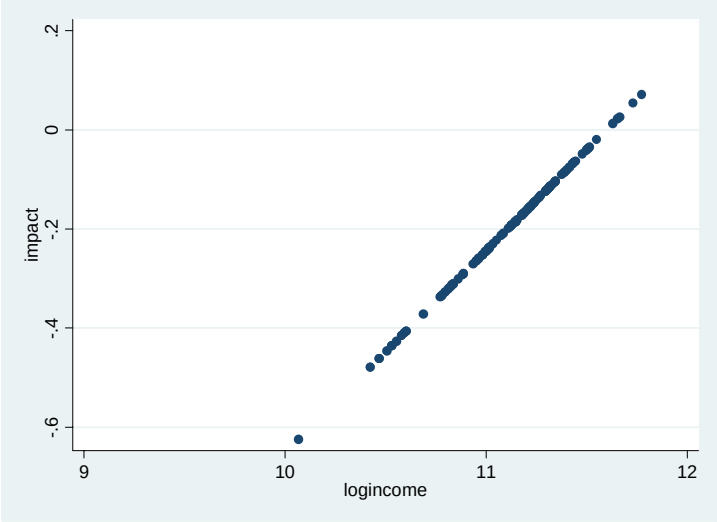
to head, education level of head. Robust standard errors in parentheses, clustered at village level. + significant at 10%; *significant at 5%; ** significant at 1%

This pattern of results suggests that males play an important role in cushioning the household against negative income shocks. Importantly, we controlled for all other changes that occur in the household when a head leaves, including possible changes in the gender and education level of the new head, so as to isolate the impact of a negative income shock. This finding is consistent with credit and insurance market failures. To investigate this further, we test whether the adverse effect of departure of the head is mitigated at higher values of income. We interact the adverse shock with the household income measured in the first survey. We see from Table 7 that the adverse effect of the shock on school enrolment is in fact mitigated significantly the higher is income, and this is shown graphically in figure 1. We see this as consistent with credit and insurance market failures.

Table 7 Interacting shocks with income, males

	School	**Paid work**
Loss of household head	-4.73	2.78
	(2.39)*	(1.96)
Loss of household head * log income	0.407	-0.238
	(0.217)+	(0.174)
N	*6024*	*6030*

Notes: Control for age dummies, whether child has been seriously ill recently, number of siblings and quadratic, time dummies, number of adults, gender of head, relationship of child to head, education level of head. Robust standard errors in parentheses, clustered at village level. + significant at 10%; *significant at 5%; ** significant at 1%



3.2 Effects of shocks relating to elderly adults in the household

In this section we investigate whether there is any evidence of the loss of an elderly adult (aged above 60) affecting the school and work of children. Unlike household heads, we do not restrict departure to that due to death/divorce, as we can safely assume that the elderly adult has not left for income-generating purposes. We set loss equal to one if an elderly adult has left the household since the previous survey due to death or for some un-stated reason. The loss of an elderly household may affect child time use for a number of reasons: it may reduce the direct demand for home care, which may be provided by children; it may increase available resources to the household, if elderly adults deplete resources due to health care needs, for example.

There is some evidence, shown in the upper panel of Table 8, that for males the loss of an elderly adult from the household is beneficial for schooling, whether enrolment or attendance, and this finding is statistically significant for the latter. This increased schooling is matched by a decrease in full-time non-paid work, although this is not significant at conventional levels. However, it suggests that the males tend to engage more in non-paid work, at the expense of schooling, when there an elderly adult in the household. For females on the other hand, we detect no significant effects of an elderly adult leaving the household on time allocation, as shown in the lower panel of Table 8.

Table 8 School enrolment, time use and shocks relating to elderly adults, males and females

Males	**School enrolment**	**School attendance**	**Paid Work**	**Non-paid**	**Non-paid FT**
Loss of elderly adult (above 60)	0.053	0.085	-0.027	-0.025	-0.074
	(0.039)	(0.043)*	(0.033)	(0.060)	(0.056)
N	*8350*	*7083*	*8355*	*7080*	*7080*
R-squared	0.15	0.10	0.13	0.01	0.02
Females					
Loss of elderly adult (above 60)	-0.035	-0.022	-0.035	-0.053	-0.028
	(0.043)	(0.058)	(0.043)	(0.053)	(0.058)
N	*6831*	*5834*	*6837*	*5826*	*5826*
R-squared	0.11	0.08	0.05	0.01	0.05

Notes: Uses data from FeA surveys 1, 2 and 3. Control for age dummies, whether child has been seriously ill recently, number of siblings and quadratic, time dummies, number of adults, gender of head, relationship of child to head, education level of head. Robust standard errors in parentheses, clustered at village level. + significant at 10%; *significant at 5%; ** significant at 1%

3.3 Effects of ill-health of siblings

In this section we investigate the effects of the ill-health of siblings on child education and work. Pitt and Rosenzweig (1990) also consider the effects of the ill-health of siblings on schooling, though they consider infant siblings, whereas we consider siblings of school-going age, who may be in competition for resources for schooling. We define an indicator for ill-health which takes the value one if at least one sibling between the ages of 7 and 17 (inclusive) has been ill and confined to bed at some stage in the previous 15 days. Throughout the analysis we take the ill-health of siblings as exogenous; note that we also control for the number of siblings.

We first show the effects of sibling illnesses, by gender of the sibling, on school and work participation of males, in Table 9. We see that the presence of an ill brother significantly increases school participation, and reduces participation in paid work. Sister illnesses have no discernible effects on boys' activities.

Table 9: Effects of sibling ill-health on school and work, males

	School enrolment	School attendance	Paid work	Non-paid	Non-paid FT
Sister illness	-0.009	-0.002	-0.014	-0.005	-0.025
	(0.025)	(0.035)	(0.025)	(0.033)	(0.037)
Brother illness	0.046	0.077	-0.034	0.040	-0.050
	(0.025)+	(0.030)*	(0.018)+	(0.031)	(0.033)
N	*8364*	*7098*	*8370*	*7095*	*7095*
R-squared	0.15	0.10	0.13	0.01	0.01

Notes: Uses data from FeA surveys 1, 2 and 3. Control for age dummies, whether child has been seriously ill recently, number of siblings and quadratic, time dummies, number of adults, gender of head, relationship of child to head, education level of head. Robust standard errors in parentheses, clustered at village level. + significant at 10%; *significant at 5%; ** significant at 1%

These findings are consistent with the existence of complementarities between brothers in work, such that if a brother is ill and unable to work, his brother also works less. If such complementarities in production are important, they are likely to be relatively more important in households that are engaged in own production. To investigate the extent to which this is the case, we define an indicator for a "self-employed household" which takes the value one if at least one adult in the household runs a farm or business enterprise, and zero otherwise. Just over 55% of our sample of households fall into this "self-employed" category. Table 10 below shows heterogeneous effects along this dimension. We see that the effects observed above are

being driven entirely by self-employed households. In such households, having an ill brother results in increased schooling and reduced paid work. Note also that unpaid work increases, though this is entirely driven by very low engagement in unpaid work (likely to be household-related chores), rather than by "full-time" unpaid work.

Table 10: Heterogeneous effects by self-employed households

	School attendance	Paid Work	Non-paid	Non-paid FT
Brother illness	0.083	-0.046	0.088	-0.031
* self-employed hh	(0.040)*	(0.021)*	(0.039)*	(0.044)
Brother illness	0.068	-0.016	-0.035	-0.081
* non self-employed hh	(0.047)	(0.036)	(0.057)	(0.047)+
N	*7098*	*8370*	*7095*	*7095*
R-squared	0.10	0.13	0.01	0.01

Notes: Uses data from FeA surveys 1, 2 and 3. Control for age dummies, whether child has been seriously ill recently, number of siblings and quadratic, time dummies, number of adults, gender of head, relationship of child to head, education level of head. Robust standard errors in parentheses, clustered at village level. + significant at 10%; *significant at 5%; ** significant at 1%

For females, shown in Table 11, we observe no significant effects of sibling ill-health on time use.

Table 11 Effects of sibling ill-health on school and work, females

	School enrolment	School attendance	Paid work	Non-paid	Non-paid FT
Sister illness	0.019	-0.045	0.011	-0.002	0.022
	(0.024)	(0.031)	(0.017)	(0.034)	(0.040)
Brother illness	0.023	-0.005	0.010	-0.002	0.022
	(0.028)	(0.035)	(0.020)	(0.034)	(0.040)
N	6838	5841	6844	5833	5833
R-squared	0.11	0.08	0.05	0.06	0.05

Notes: Uses data from FeA surveys 1, 2 and 3. Control for age dummies, whether child has been seriously ill recently, number of siblings and quadratic, time dummies, number of adults, gender of head, relationship of child to head, education level of head. Robust standard errors in parentheses, clustered at village level. + significant at 10%; *significant at 5%; ** significant at 1%

4. Future Work

In this paper we have investigated the effects of a range of adversities that directly affect other household members, on child schooling and work. A number of interesting findings emerge. First, we find evidence of negative income shocks affecting adversely the schooling of males,

and increasing their paid work participation. The fact that the negative effect on schooling is mitigated at higher values of income is consistent with the presence of credit and insurance market failures, in line with previous work in this literature. Second, we find evidence of interactions between brothers being driven by direction interactions between brothers in work, rather than by liquidity constraints. This initial investigation highlights the importance of understanding the channels more fully, which constitutes ongoing work.

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