DO WORKING CHILDREN IN NEPAL MISS MORE SCHOOL? DEPENDS WHO YOU ASK

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This paper examines the relationship between school attendance and work among Nepalese children. Relative to non-working children, engagement in market work is associated with 1.5 additional missed school days per week; moreover, girls' engagement in domestic work is associated with 0.4 more days, when using self-reported data. Using responses from household representatives, however, shows a much weaker correlation. To understand this inconsistency, we deploy a randomized survey experiment to investigate adults' perception of schooling benefits, where high benefits may indicate closer attention to children's time use. We find adults report very few benefits of education on average.

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JEL category: O10, J20

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Introduction

The international community has long tried to reduce the number of children engaged in labor. However, according to a report from the International Labour Office and United Nations Children's Fund (2021), the number of child laborers increased for the first time in 20 years in 2020. In the wake of the 2020 Covid-19 pandemic, identifying reliable child labor survey methods and measures is more critical than ever. In this paper, we investigate reporting differences between children and adults, gender differences in engagement in market/domestic work and school, and gender-based differences in adults' perception of children's benefits from education.

Administering two surveys is costly, and while some researchers have documented reporting differences in hours worked between children and adults responding on their behalf, the existing literature has not confirmed whether the differences impact empirical analyses. In our data, adult respondents report that 11.5 percent of children missed at least one school day the week prior to an October 2016 survey, relative to 14.4 percent when children report their own attendance, a 25 percent increase. This discrepancy is especially pronounced among older children, who report attending fewer school days per week.

We leverage the reporting discrepancy findings between the two datasets and use our primary data to estimate the relationship between work and school attendance. Both datasets comprise our regression framework. Our descriptive empirical results suggest that working children are significantly more likely to miss school than their non-working peers. Differentiating by work type, we find market work is 20 to 28 percentage points more likely to be associated with missed school than no work. About 14 percent of our sampled children miss school on average, making the probability increase nearly twofold. Domestic work is often undercounted. In our study, we include unpaid chores, and domestic work is associated with an increase in children's probability of missing school by 6 to 7.5 percentage points, which is an approximately 50 percent increase. These findings are not sensitive to the data used, as the self- and proxy-reported sets yield similar estimates of the probability of missing any school, the extensive margin.

However, when evaluating the participation in work and school on the intensive margin, we find significant differences between our self- and proxy-reported data. The self-reported data estimates indicate children engaged in market work miss almost 1.5 school days per week, whereas the proxy data suggests only 0.3 days missed. We observe a 0.4-school day reduction among girls engaged in domestic work using the self-reported data but not using the proxy data. The measurement variation represents not only a level discrepancy but also results in different estimates of missed school days depending on which group is surveyed. Our findings urge future research to focus on identifying whose responses are best suited to inform policy recommendations.

Because we find the reduction in school attendance associated with domestic work among girls only when we survey the children directly, we consider whether adult respondents value girls' education less than they do boys' education. We use a randomized survey experiment to show that adult respondents only identify about 2.3 benefits of schooling on average which may signal that they may not pay close attention to whether

children miss school. Moreover, we find suggestive evidence that when making a relative comparison to girls, adults list more benefits of education for boys. When asked about girls relative to boys, respondents fail to identify additional benefits.

In summary, our study documents a significant difference between school attendance reporting by household representatives and by children themselves. The differences in reporting result in varying estimates of reduced school attendance associated with work among children. Furthermore, our findings demonstrate gender differences in the relationship between child labor and school attendance and highlight the importance of differentiating by type of work, and of including unpaid domestic work when analyzing child labor's true costs.

The subsequent sections of this paper provide background on child labor and its schooling impact, describe our data and sample characteristics, detail our empirical methods, present our results with a focus on the roles of reporting, gender, and work type, and examine how adults perceive education's benefits for children by gender.

Child Labor and Schooling Background

While Nepal makes it illegal to employ individuals under 14, child labor has historically been part of the country's culture. Researchers have established that poverty or the need to pay for basic expenses can drive child labor rates (Basu and Van, 1998; Edmonds and Pavcnik, 2005).[1] Physical work may negatively affect development but working children may also derive income and subsequent nutrition from their jobs, potentially offsetting the exhaustion and injuries they suffer, as evidenced by the ambiguous findings of some child labor and health researchers (Beegle et al., 2009; O'Donnell et al., 2005). The most common activity among working children is domestic labor (Edmonds, 2009), which may not always lead to physical harm but Myat Thi et at. (2021) report high rates of violence and lower levels of psycho-social well-being. Nevertheless, working children are more likely than non-working children to miss school, reducing their human capital investment. Beegle et al. (2009) report causal evidence in Vietnam that working an average amount reduces children's school attendance by almost 50 percent and decreases their educational attainment by more than 20 percent.

Researchers have used evidence from the PROGRESA program in Mexico (Behrman et al., 2015) and a school attendance-conditional stipend program in Nepal (Edmonds and Shrestha, 2014) to show interventions providing funds for common expenses can increase school attendance. Children of working mothers are themselves more likely to work than those with non-working mothers (DeGraff and Levison, 2009; Mukherjee and Das, 2008), and families often use child labor as insurance against risk, both as a precaution and after experiencing income shock. Furthermore, educated parents are more likely to send their children to school (Webbink et al., 2015), and mothers' education plays a larger role in girls' education (Thomas et al., 1997) than boys' education.

[1.] It is important to acknowledge that measuring participation in the labor force is challenging in developing countries (Paul, 2016).

Defining Child Labor

The existing literature employs various child labor definitions (Dammert et al., 2017; Edmonds, 2009). The International Labour Organization's Statistical Information and Monitoring Programme on Child Labour's definition relies on activity type and age. It includes children above the minimum work age and up to 17 for the most severe labor categories. Some studies limit their child labor definition to wage work, others identify all market work, and still, others include domestic chores (Basu et al., 2010). The United Nations (System of National Accounts, 2008) defines economic activity as all production inside and outside the home that could be destined for the market, regardless of the producer's eventual decision to sell or retain the product for his or her own use. Dziadula and Guzmán (2020) find significant differences in child labor prevalence estimates depending on the definition used.

Webbink, Smits, and de Jong (2012) show that excluding unpaid household and family business work, which they call "hidden" child labor, underestimates its prevalence. Assaad et al. (2010), working in Egypt, and Levison and Moe (1998), in Peru, emphasize the importance of including domestic activity in child labor, as it especially burdens girls and may reduce school attendance. Existing research suggests that domestic child labor is likely undercounted (Pocock et al., 2021), and excluding it may impact work-school tradeoff estimates, especially among girls. Evidence also suggests that households adopting or fostering children and providing them with food and a place to live often misreport domestic work (ILO, 2017). We follow Edmonds and Pavcnik (2005), who urge researchers to include work in and out of the household, including domestic work, in any analysis of child labor.

Measurement and Reporting

We contribute to a growing body of literature that focuses on child labor reporting discrepancies between adult household representatives and children (Dammert and Galdo, 2013; Dillon et al., 2012; Galdo et al., 2020; Janzen, 2018). Evidence also suggests differences between proxy and self-reported labor force participation rates among adults, depending on questionnaire type (Bardasi et al., 2011) and proxy gender (Kapur et al., 2021). In Nepal, child labor prevalence estimates range from 11% to nearly 30%, varying based on child labor definition and response type (Dziadula and Guzmán, 2020). Dammert and Galdo (2013) briefly consider respondent identity in their examination of whether Peruvian children attend school and how many years they have completed. The researchers do not find children's school attendance self-reporting to differ significantly from reporting by adults on their behalf.

Our study expands on the literature and tests whether school attendance reporting differences emerge between adults and children in Nepal. The discrepancy we find may reflect the value adults place on education. The existing research shows that both preferences and returns realized influence parents' choices about whether to send their children to school (Alderman and King, 1998). Evidence suggests parents perceive

education returns as being lower than they are in reality, consistent with economic theory showing that students who are given correct information complete more years of school than their peers (Jensen, 2010).

Research shows education returns are greater for girls than boys in developing countries (Peet et al., 2015). However, parents do not seem aware of the gender difference. Gertler and Glewwe (1992) consider parents' willingness to pay for school and suggest that parents see girls' primary-level education as useful for their household roles. For boys, they perceive a financial return. We contribute to this literature by conducting a randomized survey experiment to investigate the perceived benefits of education by gender.

Child Labor and School Attendance

Education up to fifth grade is free in Nepal, with instruction provided six days per week from 10 am to 4 pm. The country sets no minimum compulsory schooling, and average school attainment is less than eight years.[2] Research has shown child labor's impact on educational attainment and learning is significant and negative (Beegle et al., 2009; Bezerra et al., 2009; Gunnarsson et al., 2006; Heady, 2003; Holgado et al., 2014, Lee et al., 2021).[3] Buonomo Zabaleta (2011) shows that working more than three hours per day is associated with school failure. We measure only attendance, not educational outcomes, but other researchers have linked reduced school attendance to low test scores. Emerson et al. (2017) estimate the effects range from 5% to 13% of a standard deviation in test scores, equivalent to losing 0.2 to 0.5 years of learning.

Where research shows that school attendance is lower among working than non-working children (Assaad et al., 2010; Beegle et al., 2009; Putnick and Bornstein, 2015; Ray and Lancaster, 2005), some evidence suggests only a partial tradeoff between school and work among child laborers, as the two activities are not perfect substitutes (Attanasio et al., 2010; Edmonds and Shrestha, 2014; Ravallion and Wodon, 2000). Evidence from compulsory schooling reform in Turkey points to higher substitutability in rural than urban areas (Dayioglu-Tayfur and Kirdar, 2020).

Researchers have documented a reduction in school attendance, especially significant for girls, associated with unpaid household work or chores (Dayıoğlu, 2013). Levison et al. (2001) find that in Mexico, girls are almost 14 percentage points more likely than boys to attend school and not work when child labor is defined traditionally; however, they find that girls are almost 8 percentage points less likely than boys to go to school and not work when household domestic work is included in the definition. Buonomo Zabaleta (2011) shows that market production has larger negative effects on school outcomes than time spent on household chores. Nevertheless, extant literature suggests that children are

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[2.] Average adult attainment, according to the 2011 Nepal Living Standards Survey, is approximately 7.6 years for women and 5.7 years for men. The statistics are published by the Education Policy and Data Center, with the sample including individuals age 15 to 49. https://www.epdc.org/country/nepal. This is below other nations in the region, such as India and China, as their national education policies contributed to their growth (Bhattacharyay & Bhattacharyay (2020).

[3.] Dumas (2012) finds past child work positively impacts test scores among children in Senegal.

as likely to trade schooling for domestic work as they are for market work (Assaad et al., 2010; Levison and Moe, 1998).

Levison and Moe (1998) identify a gap in the literature: Due to data limitations, many studies focus only on whether children work or go to school. Putnick and Bornstein (2015) evaluate whether child labor inhibits school enrollment in 30 low- and middle-income countries and urge future research into the impact of different child labor types and their intensity on school success indicators. We add to the research by considering school attendance intensity (i.e., number of days attended per week), work intensity (i.e., hours worked per week), and child labor type (i.e., market or domestic).

Data

We collected data in six Nepali municipalities (Bharatpur, Nepalgunj, Pokhara, Tulsipur, Birgunj, and Rajbiraj; see appendix Figure A1 for a map) in October 2016 as part of a baseline impact evaluation survey. Eliminating households that had no children, did not give consent, or had missing responses resulted in a final sample of 2,885 households and 3,474 children ages 5 to 13. We administered two surveys. First, we interviewed a household representative who provided descriptive information like the household's religion, size, and assets, as well as each occupant's gender, age, relationship to the respondent, and activities in the previous week. We also asked the respondents questions about education's benefits for children. Second, after receiving adult consent, we interviewed each child directly. The proxy data sample is approximately 5 percent larger. Despite several follow-up visits, we were unable to conduct individual interviews with all of the children listed on the household rosters. Furthermore, if children report a different age than the household representative, they may not be included in the sample based on the age cutoff.

Variables of Interest:

Capturing school attendance over the week prior to the survey maximizes recall accuracy. We focus on a binary attendance indicator, *Missed School Last Week*, which corresponds to missing at least one day. We also measure the intensive margin of attendance by recording the exact number of days missed the previous week. Using the International Labour Organization's Statistical Information and Monitoring Programme on Child Labour's age restrictions and including older children would likely overestimate the reduced attendance associated with work, as they are less likely than young children to attend school and more likely to work. We, therefore, classify any child between ages 5 and 13 who worked or did chores for at least one hour the week prior to our survey as engaged in child labor.[4] We divide our work definition into two subcategories, domestic and market. Given the evidence that surveys underestimate the time girls spend working at home, we include household tasks and chores in our definition of domestic work. The work includes tasks designated as

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[4.] We do not consider pay in our sample, in which less than 3% of child laborers are compensated.

domestic help, cleaning, and fetching water or firewood outside the home. [5] We include the following tasks even when performed for the laborer's own household: shopping, repairing equipment, cooking, cleaning utensils/house, washing clothes, and caring for children/old/sick, among other similar tasks. Market work includes tasks classified as agricultural, fishery, shop help, textiles, machine repair, messenger, doorkeeper, and garbage collector.

How Children Spend Their Time:

In our self-reported survey data, 67.2% of children go to school and are not engaged in child labor (Table 1). The proportion is larger among boys, at 74% than among girls, at just below 60%. About 2.4% of the sample works (0.63% market and 1.78% domestic) and does not attend school at all; 18.5% of boys and 32.26% of girls do domestic work and attend school. Approximately 3.7% of the sample is idle, having neither worked nor attended school in the past week.

Table 1. Child Labor and School Attendance by Gender

	Total	**Boys**	**Girls**
Only school	2,336	1,348	988
	67.24%	73.98%	59.81%
Only domestic work	62	19	43
	1.78%	1.04%	2.60%
Only market work	22	14	8
	0.63%	0.77%	0.48%
School and domestic work	870	337	533
	25.04%	18.50%	32.26%
School and market work	56	35	21
	1.61%	1.92%	1.27%
No school and no work	128	69	59
	3.68%	3.79%	3.57%
Observations	3,474	1,822	1,652

Note: Data are collected in October 2016 for children age 5-13 in six Nepali municipalities.

In our survey, we asked the children the main reason they skipped school the previous week. Working boys are more likely to be uninterested in school (42% versus 26% of girls), and more girls miss school to work and help the family (almost 28% compared to less than 9% of boys) or because they are girls (almost 10%). Asked why they work and allowed to give multiple reasons, 93.4% say they do so to help the family financially. Only a small percentage cite earning money for themselves or learning skills. Examining work

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[5] We use two survey questions to define work: 1. "Did (NAME) engage in any work at least one hour during the past week?" The answer is binary (i.e., "yes" or "no"). If the response is "no," then 2. "During the past week did (NAME) do any of the following activities at least for one hour?" The activities are: Run any kind of business, big or small, for yourself?; Work for a wage, salary, commission, or any payment in kind?; Do any work as a domestic worker for a wage, salary, or any payment in kind?; Provide unpaid help in a household business of any kind?; Do any work on household's plot, farm, food, growing vegetables, or looking after animals?; Do any construction or major repair work on your own home plot or business?; Catch any fish, prawns, shells, wild animals, or other food for the household?; Fetch water or collect firewood for household use?

intensity, the data suggest that 50% of the children work less than five hours per week, while 25% work more than 10 hours weekly, and 10% work more than 17 hours per week. See appendix Tables A1 and A2 and Figure A2 for all survey data and the full distribution of hours worked.

Sample Characteristics by Gender and Work Type

Table 2 presents selected descriptive statistics from our self- and proxy-reported data. Using our child labor definition, which includes household production and chores, the self-reported data indicate almost 37% of girls and 22% of boys are engaged in labor. Working children are older than non-working children on average. Boys work approximately 6.5 hours per week, and about 88% are engaged in domestic work. Girls work for 8.4 hours per week, and more than 95% are engaged in domestic work; 22.5% of working boys and 17.9% of working girls missed school the previous week, while 12% of non-working children did so.

Our descriptive statistics (see Appendix Table A3) show that working children come from slightly smaller households and are less likely to have their parents living in their households than non-working children.[6] They are more likely than non-workers to come from households with heads who are female and child laborers themselves. Working children's households have lower daily adult earnings, are more likely to have experienced a shock in the last year, and have fewer non-land assets than non-working children's households.[7] The survey also reveals that almost 95% of the household representatives are aware that it is illegal to employ children younger than 14 years old.

Table 2.   Descriptive Statistics for Children Ages 5-13

Boys	All		Working		Non-working	
	self	proxy	self	proxy	self	proxy
Reported age	9.06	9.00	10.57	10.68	8.62	8.63
	(2.60)	(2.60)	(2.17)	(2.15)	(2.55)	(2.55)
Education:						
Missed school last week (%)	14.65	11.04	22.47	19.17	12.42	9.29
	(35.37)	(31.35)	(41.79)	(39.43)	(32.99)	(29.03)
Days missed	0.50	0.14	0.76	0.24	0.42	0.12
	(1.48)	(0.57)	(1.75)	(0.72)	(1.38)	(0.54)
Distance to school (minutes)	19.03	19.04	21.57	21.63	18.30	18.49
	(16.28)	(15.87)	(16.50)	(15.42)	(16.14)	(15.91)
Work:						
Engaged in child labor (%)	22.23	17.74	100.00	100.00		

[6.] We cannot identify birth order in our data, as all children are identified only in relationship to their household head. We focus on households' total children and number of younger siblings. The literature shows that child labor probability decreases with birth order, though it does not impact school attendance probability or hours spent on chores (Seid and Gurmu, 2015).

[7.] We define shock as any of the following: death, family illness or injury, flood, drought, landslide, crop loss or price decrease, property or job loss, income earner leaving the house.

	self	proxy	self	proxy	self	proxy
	(41.59)	(38.21)	(0)	(0)		
Weekly child labor hours			6.55	7.61		
			(8.20)	(10.21)		
Engaged in domestic work/chores (%)			87.90	79.06		
			(32.65)	(40.75)		
Engaged in market work (%)			12.1	20.94		
			(32.65)	(40.75)		
Observations	1,815	1,911	405	339	1,410	1,572

Girls	**All**		**Working**		**Non-working**	
	self	**proxy**	**self**	**proxy**	**self**	**proxy**
Reported age	9.25	9.17	10.77	10.96	8.38	8.41
	(2.60)	(2.62)	(2.02)	(1.93)	(2.50)	(2.51)
Education:						
Missed school last week (%)	14.10	12.05	17.85	16.06	11.94	10.33
	(34.82)	(32.56)	(38.33)	(36.75)	(32.44)	(30.44)
Days missed	0.53	0.12	0.68	0.18	0.44	0.09
	(1.56)	(0.52)	(1.74)	(0.65)	(1.45)	(0.46)
Distance to school (minutes)	17.95	17.88	20.65	21.49	16.38	16.29
	(15.65)	(15.41)	(16.73)	(16.98)	(14.77)	(14.39)
Work:						
Engaged in child labor (%)	36.62	30.01	100.00	100.00		
	(48.19)	(45.84)	(0)	(0)		
Weekly child labor hours			8.40	10.02		
			(8.76)	(10.92)		
Engaged in domestic work/chores (%)			95.21	92.93		
			(21.38)	(25.66)		
Engaged in market work (%)			4.79	7.07		
			(21.38)	(25.66)		
Observations	1,650	1,743	605	523	1,045	1,220

Note: Data are collected in October 2016 for children age 5-13 in six Nepali municipalities. Children's self-reported responses are used for their own school and work activities. Household information is obtained from adult representatives.

Discrepancies in School Attendance Reporting

Table 3 shows that the proxy-reported percentage of children missing school the week before our survey is significantly lower than the self-reported data across age and gender. The largest discrepancy, 5.25 percentage points, is among older boys, whose reporting of missed school is 50% greater than that of their proxies (15.65% to 10.4%). The smallest difference, approximately 2 percentage points, is among young children, likely because parents are more attuned to the whereabouts of young children. Children also report missing

school for an average of approximately half a day per week, which is more than a third of a day higher than the proxy-reported average.

Table 3.   Proxy and Self-Reported School Attendance Measures by Gender

	Missed school last week (%)			Number of missed school days last week (%)		
	self	proxy	difference	self	proxy	difference
All children	14.39	11.52	2.87***	0.51	0.13	0.38***
Age 5-9	14.33	12.34	1.99**	0.51	0.12	0.39***
Age 10-13	14.46	10.62	3.85***	0.51	0.13	0.38***
Boys	14.65	11.04	3.61***	0.50	0.14	0.36***
Age 5-9	13.75	11.6	2.15*	0.46	0.13	0.33***
Age 10-13	15.65	10.4	5.25***	0.53	0.15	0.39***
Girls	14.1	12.05	2.06***	0.53	0.12	0.41***
Age 5-9	14.99	13.18	1.81	0.57	0.11	0.45***
Age 10-13	13.21	10.85	2.36***	0.49	0.12	0.37***

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the ward level. Data are collected in October 2016 for households with children age 5-13 in six Nepali municipalities.

Empirical Methods

The school attendance patterns we find in our descriptive statistics could be attributable to factors other than child labor, such as family characteristics. We, therefore, use regression analysis to further examine the relationship between schooling and child labor. The analysis explores both the extensive and intensive margins, with an emphasis on gender and work type. We treat our six examined municipalities as strata with a total of 86 wards (clusters). All estimations account for the survey design and compute robust standard errors using a linearized variance estimator based on a first-order Taylor series approximation. In the first probability model, y_{ih} is an indicator of whether child i from household h missed any school days in the week prior to our survey:

$$\hat{y}_{ih} = \alpha + \theta W_i + X_i \beta_1 + X_h \beta_2 + \delta_m + \epsilon \tag{1}$$

where W_i is an indicator of whether the child worked in the previous seven days for at least one hour. The results are conditional on a vector of observable child (X_i) and household (X_h) characteristics, as well as municipality fixed effects (δ_m) to capture regional differences. We estimate our models separately for boys and girls to generate gender-specific coefficients.

Next, we replace W_i with a set of binary indicators for domestic work and market work:

$$\hat{y}_{ih} = \alpha +_1 \text{Domestic}_i +_2 \text{Market}_i + X_i \beta_1 + X_h \beta_2 + \delta_m + \epsilon \tag{2}$$

Domestic$_i$ specifies that the child is primarily engaged in domestic work. *Market$_i$* signals that the child's primary work activity is in the market sector. Then, we interact domestic work and market work with hours worked the previous week:

$$\hat{y}_{ih} = \alpha + {}_1 \text{Domestic}_i * \text{Hours}_i + {}_2 \text{Market}_i * \text{Hours}_i + X_i \beta_1 + X_h \beta_2 + \delta_m + \epsilon \qquad (3)$$

As a robustness check, we conduct a probit estimation. Results are reported in our appendix.

In the first model set, we use children's self-reported responses regarding their labor engagement and school attendance for our initial specifications, then estimate the models using adult proxy responses. In the second model set, the dependent variable y_{ih} indicates the predicted number of missed school days per week. In addition to estimating the linear specifications as outlined above, we also estimate the last model using a log-log specification:

$$\widehat{\ln y_{ih}} = \alpha + {}_1 \ln(\text{Domestic} * \text{Hours}_i) + {}_2 \ln(\text{Market} * \text{Hours}_i) + X_i \beta_1 + X_h \beta_2 + \delta_m + \epsilon \quad (4)$$

We add a positive constant $\Delta = 1$ to all y_{ih}, *Domestic Hours$_i$*, and *Market Hours$_i$*, so that the log-transformation becomes feasible[8].

Child Labor and School Attendance Regression Results

We first confirm that children engaged in any type of child labor are more likely to miss school at least one day the week prior to our survey (Model 1, Table 4). Working children are approximately 8 percentage points more likely than non-working children to miss school in both datasets. In Model 2, we differentiate between domestic and market work. Domestic work is associated with a 6 to 7.5 percentage point increase in the probability of missed attendance. The probability is 28 percentage points higher for boys and 22.5 points higher for girls engaged in market work. The average probability of missing school the week prior to the survey is slightly greater than 14%, thus our findings represent a roughly 200% increase in the probability of missing school in the previous week associated with engagement in market work.

Table 4. Missed School in Past Week Regression Analysis by Gender and Respondent

Boys	Model 1		Model 2		Model 3	
	self	proxy	self	proxy	self	proxy
Child labor	0.084	0.085				
	(0.025)***	(0.023)***				
Domestic work			0.059	0.041		
			(0.028)**	(0.019)**		
Domestic hours worked					0.006	0.007
					(0.003)**	(0.002)***
Market work			0.279	0.245		

[8.] Since the choice of Δ can be seen as somewhat arbitrary and one may be concerned about the elasticity estimates in the log-log models, we also compute the point elasticities at the means using the coefficients obtained in the linear models. The results are comparable in magnitude.

	self	proxy	self	proxy	self	proxy
			(0.065)***	(0.059)***		
Market hours worked					0.012	0.011
					(0.003)***	(0.003)***
R^2	0.14	0.18	0.15	0.19	0.15	0.20
Observations	1,815	1,911	1,815	1,911	1,815	1,911
Mean	0.147	0.110	0.147	0.110	0.147	0.110

Girls	**Model 1**		**Model 2**		**Model 3**	
	self	**proxy**	**self**	**proxy**	**self**	**proxy**
Child labor	0.082	0.079				
	(0.024)***	(0.023)***				
Domestic work			0.075	0.070		
			(0.023)***	(0.023)***		
Domestic hours worked					0.008	0.004
					(0.003)**	(0.001)***
Market work			0.225	0.201		
			(0.091)**	(0.082)**		
Market hours worked					0.011	0.011
					(0.003)***	(0.003)***
R^2	0.15	0.17	0.15	0.17	0.16	0.18
Observations	1,650	1,743	1,650	1,743	1,650	1,743
Mean		0.120	0.141	0.120	0.141	0.120

Notes: ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the ward level. Full weeks are six school days. Data are collected in October 2016 for children age 5-13 in six Nepali municipalities. Household information is obtained from adult representatives. Specifications control for all observable child characteristics with age dummies, household character- istics, and municipality fixed effects. Full regression coefficient results are available in the appendix.

In Model 3, we control for work intensity using hours per week. We find girls perform 7.9 hours of domestic work per week on average, yielding a decrease in full-week school attendance probability greater than 6.3 percentage points (7.9 * 0.8). Boys, who engage in market work for 17.6 hours per week on average, experience a greater than 21.1 percentage point (17.6 * 0.6) decrease in the probability of attending a full school week. In summary, when focusing on the probability of missing school in the previous week, the extensive margin, we find that work is associated with a higher probability of having missed school and we obtain similar results using self-reported and proxy response data.

On the other hand, the estimates of school days missed in the previous week, the intensive margin, vary by the data source. Relying on our self-reported data, Model 1 in Table 5 shows working boys are predicted to miss 0.3 days more per week relative to non-working children; working girls are predicted to miss 0.44 days more. Examining our proxy data, we find no association between work and days missed for boys and only a 0.079-day attendance reduction for working girls. Separating children engaged in domestic

and market work (Model 2), we find stark differences. Based on our self-reported data compared to not working, children's engagement in market work is associated with 1.3-1.4 more school days missed, and girls in domestic work miss about 0.4 more school days per week on average. Using our proxy data, the results indicate we should not expect boys or girls in domestic work to miss any more days than their non-working counterparts and the reduction in weekly attendance associated with market work shrinks to less than one-third of a day. Model 3, which adds hours worked, and Model 4 which is estimated as a log-log specification and thus reduces the parameter estimates to an elasticity, show similar patterns.

As a result of these data, we conclude that analysis of the relationship between school attendance and child labor varies greatly depending on the researchers' choice of the respondent. The self-reported data results suggest that relative to no work, market work is associated with fewer days of school attendance for all children, and domestic work is associated with reduced attendance for girls. However, these associations are not observed in the proxy data.

Table 5. School Days Missed in Past Week Regression Analysis by Gender and Respondent

Boys	Model 1		Model 2		Model 3		Model 4 (log-log)	
	Self	**proxy**	**self**	**proxy**	**self**	**proxy**	**self**	**proxy**
Child labor	0.305	0.076						
		(0.050)						
Domestic work			0.170	0.019				
			(0.106)	(0.041)				
Domestic hours worked					0.024	0.008	0.057	0.018
					(0.012)*	(0.006)	(0.024)**	(0.014)
Market work			1.415	0.320				
			(0.343)***	(0.137)**				
Market hours worked					0.075	0.007	0.198	0.055
					(0.018)***	(0.006)	(0.046)***	(0.033)*
R²	0.13	0.10	0.15	0.11	0.15	0.10	0.16	0.13
Observations	1.815	1,911	1,815	1.911	1,815	1,911	1,815	1,911
Mean	0.50	0.14	0.50	0.14	0.50	0.14	0.50	0.14
Girls	**Model 1**		**Model 2**		**Model 3**		**Model 4 (log-log)**	
	Self	**proxy**	**self**	**proxy**	**self**	**proxy**	**self**	**proxy**
Child labor	0.437	0.079						
	(0.113)***	(0.039)**						

Domestic work			0.393 (0.103)***	0.063 (0.039)				
Domestic hours worked					0.049 (0.012)***	0.006 (0.005)	0.097 (0.023)***	0.012 (0.010)
Market work			1.294 (0.534)**	0.303 (0.137)**				
Market hours worked					0.070 (0.012)***	0.017 (0.005)	0.174 (0.060)***	0.075 (0.032)**
R^2	0.12	0.11	0.13	0.11	0.15	0.11	0.15	0.14
Observations	1,650	1,743	1,650	1,743	1,650	1,743	1,650	1,743
Mean	0.53	0.12	0.53	0.12	0.53	0.12	0.53	0.12

Notes: ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the ward level. Full weeks are six school days. Data are collected in October 2016 for children age 5-13 in six Nepali municipalities. Household information is obtained from adult representatives. Specifications control for all observable child characteristics with age dummies, household characteristics, and municipality fixed effects. Full regression coefficient results are available in the appendix.

We estimate our models separately by gender of the adult respondent (proxy) to further investigate the differences in reporting and we find male and female responses lead to similar estimates of attendance reduction associated with work for girls. However, the reduction in school days for boys is identified only when using male responses (Appendix Tables A6 and A7). The finding suggests that men may be more aware of boys' time use. Furthermore, adults may perceive benefits of education for children differently depending on the child's gender and thus pay more or less attention to whether or not they attend school. That is where we turn next.

Parental Perceptions of Education's Benefits

In addition to documenting measurement differences between self- and proxy-reported school attendance, we find that reporting differences play a role in estimating the reduction in school attendance associated with child labor. We, therefore, investigate the value parents place on their children's education and examine whether adults perceive the benefits differently based on the child's gender.

Survey Experiment Framework

As outlined in Sudman et al. (1996), when survey respondents are asked to form judgments about people or topics, they look for reference or comparison groups. If a survey question is independent (i.e., unrelated to previous questions), respondents define the reference group only via the information they have on the topic. Independent questions allow respondents to answer based on their own experiences, cognitive ability, memory, etc. Questions asked in a comparative way (i.e., after similar questions about other groups) introduce additional reference points. Respondents may react to comparative questions along two dimensions. The first involves the "comparing or contrasting effect," in which

respondents associate two groups and try to revise their assessments of both to make them similar. The respondents shrink the differences between groups when asked comparative questions. They may, however, consider the second group in contrast to the first, expanding the differences between the two.

The second reaction dimension involves the "additive or subtractive effect," where respondents increase or decrease their response intensity. That is, as a survey asks a respondent repeatedly about a topic or group, his or her responses to it become increasingly positive or negative. The two dimensions are not mutually exclusive. For example, responses could demonstrate both the comparing and additive effects.

Researchers have used survey context effects to evaluate responses to well-being questions (Deaton and Stone, 2016), and we draw on this literature to design our experiment. We randomized the order of two questions on the benefits of education. For half of the surveys, we asked household representatives to think of a 15-year-old boy who has finished fifth grade (primary school's conclusion in Nepal) and left school and list any advantages the boy has compared to a peer who did not attend primary school.[9] Respondents could provide as many benefits as they wished. We then asked the same question about a 15-year-old girl. For the other half of the surveys, the order is reversed, inquiring first about a girl and second about a boy. The balance test of this randomization is available in Appendix Table A9. We consider the first question to be independent, as no reference point exists, but we interpret the second set as relative to gender. Understanding the differences between reported benefits to education for boys versus girls in the independent category could be considered the cleanest comparison. However, examining the differences between the independent and relative responses can help us understand how adults may compare education benefits for one gender when they are instructed to think relative to the other.

Survey Experiment Results

The experimental data in Table 6 show approximately 90% of respondents identified at least one education benefit for both boys and girls. The percentage of women respondents identifying at least one benefit is consistently smaller than that of men. Moreover, fewer women identify benefits for girls relative to boys: 89.8% of women identify at least one benefit for girls independently, but only 87% do so relative to boys, a statistically significant difference.

We find that, on average, respondents only report 2.28 benefits of education for the first gender listed. Results are consistent for both boys and girls in the "independent question" category. This demonstrates that in the cleanest comparison, respondents do not vary in their identification of the benefits of education according to the gender of the hypothetical child. Next, we find that respondents consistently list more education benefits for the second gender mentioned, regardless of which is specified first. This effect is therefore additive. There are two potential explanations for this additive effect. First, we could conclude that

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[9.] Adult respondents were household heads if available. Otherwise, we surveyed another adult household member; we used household members older than 15 as a last resort.

respondents have an overall positive view of education; therefore, when pressed, they can come up with more benefits to education than initially listed. This explanation is consistent with the survey experiment literature. Or this could be interpreted as a type of response bias--when a question is repeated, the respondent may think that the enumerator was not satisfied with their initial response and try to "do better" by providing more information.

Examining the additive response by the randomly assigned gender referred to in the second question, we find the increase in benefits to be larger in magnitude and statistically significant for boys, compared with girls. In other words, respondents spontaneously identify significantly more education benefits for boys (2.28 independent and 2.44 relative on average). The increase in benefits for girls compared to boys is smaller and insignificant (2.28 independent and 2.34 relative on average). Appendix Figure A3 highlights the differences visually.

Table 6.   Household Representatives' Perception of Education's Benefits

Benefits for boys	Independent	Relative	Difference	N
All respondents				
Percentage who identified at least one benefit	89.45	91.07	1.61	2,885
The number of benefits identified	2.28	2.44	0.16***	2,885
Male respondents				
Percentage who identified at least one benefit	91.50	92.35	0.86	1,375
The number of benefits identified	2.33	2.47	0.14	1,375
Female respondents				
Percentage who identified at least one benefit	87.62	89.88	2.26	1,510
The number of benefits identified	2.23	2.42	0.19**	1,510

Benefits for girls	Independent	Relative	Difference	N
All respondents				
Percentage who identified at least one benefit	90.72	89.66	-1.06	2,885
The number of benefits identified	2.28	2.34	0.06	2,885
Male respondents				
Percentage who identified at least one benefit	91.77	92.67	0.89	1,375
The number of benefits identified	2.29	2.42	0.13	1,375
Female respondents				
Percentage who identified at least one benefit	89.75	86.96	-2.79**	1,510
The number of benefits identified	2.28	2.28	0.00	1,510

Notes: ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the ward level. Data are collected in October 2016 from adult household representatives of children age 5-13 in six Nepali municipalities.

Among the respondents, we find approximately 46% of women and 30% of men have no education. Our data further reveal that men and women list different education benefit types. Fewer women list the opportunity to attend secondary school—only 9.2% list the benefit for boys and 11.9% list it for girls, relative to 15% of men identifying the benefit for boys and 16.3% for girls. The results are consistent with research finding that educated parents are more likely to send their children to school than their less educated counterparts (Webbink et al., 2015). We find that a larger percentage of women than men identify learning to read, write, and do mathematics as an educational benefit. Our full results are available in Appendix Table A10. The types of benefits listed, and the low number of benefits identified overall may perhaps aid in adults' inattentiveness to whether children miss school and thus lead to differences in reporting and differential estimates of school attendance.

Conclusion

This paper explores the reduction in school attendance associated with child labor on the extensive and intensive margins, emphasizing the effects of gender and work type (i.e., domestic versus market). We use primary data from a baseline survey of child labor in Nepal collected using two instruments. We are uniquely able to contrast estimates obtained using data reported by children themselves and estimates obtained using data reported by adults on the children's behalf. We find significantly more children report missing at least one school day the week prior to our survey than do household representatives.

Our regression estimates of missed school days using data collected from children suggest that market work is associated with boys being 28 percentage points more likely to miss school than their non-working peers; girls are 22.5 percentage points more likely to miss school. The increase is nearly two-fold, as about 14% of children report missing school the week prior to the survey. Domestic work corresponds to an increase in the probability that students do not attend a full week of school by 6 to 7 percentage points. Our results are qualitatively similar when we use the proxy data. Given the benefits of education for future earnings, the missed school may demonstrate a significant, previously undocumented human capital loss for girls engaged in domestic work and chores.

Using our self-reported data to examine the number of missed school days per week, our intensive margin, we show that doing market work results in students missing close to 1.5 more days per week than their non-working peers. For girls, domestic work engagement is associated with attending almost 0.5 fewer school days per week compared to girls who do not work. Differentiating work types and using our proxy data, market work is associated with an approximately 0.25-day reduction in weekly attendance. Domestic work is not a predictor of reduced attendance for boys or girls in the proxy data. The results suggest that the survey type used clearly affects the estimates of missed days and warrants additional study to determine which survey responses are more accurate.

To explore the reporting discrepancies and differential estimates, we use an experimental design to evaluate household representatives' perceptions of education's benefits. We find that Nepalese adults identify very few benefits of education and suggest that they perceive

more benefits for boys when considering the topic relative to girls. Future research should investigate the divergent perceptions' determinants.

We acknowledge that our work faces limitations. Like existing research, we cannot distinguish who is telling the truth about school attendance and can only inform on the mismatch. Ideally, future investigations would obtain administrative attendance records to solve the puzzle. Further, our analysis of the relationship between school attendance and education is not experimental, as we use a one-time, cross-sectional survey. Thus, we cannot attribute causality to our observed correlations between labor engagement and school attendance. Furthermore, our survey experiment analysis implies that respondents perceive question order and assess education's benefits for boys versus girls in relative terms. Cognitive survey question testing or focus group discussions on the topic could show whether respondents truly perceive the relationship. In the absence of qualitative research, we rely on the survey design and opinion polling literature, which indicates how respondents typically behave.

A recent study of compulsory schooling changes and schooling infrastructure improvements in Turkey showed a significant reduction in the country's use of child labor (Dayioglu-Tayfur and Kirdar, 2020). The researchers suggest that public investment, along with compulsory schooling's incapacitation effects, may be more effective at reducing child labor than laws themselves. We encourage policymakers to promote education's benefits for both boys and girls and prompt future research to include domestic work and chores when analyzing schooling in places where child labor is common practice.

Disclosure:
The authors report there are no competing interests to declare.

Data availability statement:
The data underlying this article cannot be shared publicly due to concerns regarding the privacy of individuals that participated in the study. The data will be shared on reasonable request to the corresponding author.

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APPENDIX

Table A1.   Reasons for Missing School

	Total	Boys	Girls
Not interested in school	46	29	17
	34.3%	42%	26.2%
Work/internship/help in household	24	6	18
	17.9%	8.7%	27.7%
Family shock (death or illness)	21	13	8
	15.7%	18.8%	12.3%
Access (financial or distance)	13	7	6
	9.7%	10.2%	9.3%
Because of gender	6	0	6
	4.5%	0%	9.2%
Other (cultural, religious, disability)	24	14	10
	17.9%	20.3%	15.3%
Observations	134	69	65

Note: Data are collected in October 2016 for children age 5-13 in six Nepali municipalities. Responses are self-reported by children.

Table A2.   Reasons for Working

	Total	Boys	Girls
Earn money for themselves	10	5	5
	2.7%	3.1%	2.3%
Earn money for household	351	150	201
	93.4%	94.3%	92.6%
Learn skills	12	2	10
	3.2%	1.3%	4.6%
School is irrelevant/not interested	3	2	1
	0.8%	1.3%	0.5%
Observations	376	159	217

Note: Data are collected in October 2016 for children age 5-13 in six Nepali municipalities. Responses are self-reported by children.

Table A3.   Self-Reported Descriptive Statistics for Children Age 5-13 by Labor and Gender

	All		Working		Not working	
	Boys	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**
Age	9.06	9.25	10.57	10.77	8.62	8.38
	(2.60)	(2.60)	(2.17)	(2.02)	(2.55)	(2.50)
Missed school last week (%)	14.65	14.1	22.47	17.85	12.42	11.94
	(35.37)	(34.82)	(41.79)	(38.33)	(32.99)	(32.44)
Number of days missed	0.5	0.53	0.76	0.68	0.42	0.44
	(1.48)	(1.56)	(1.75)	(1.74)	(1.38)	(1.45)
Distance to school (minutes)	19.03	17.95	21.57	20.65	18.30	16.38
	(16.28)	(15.65)	(16.50)	(16.73)	(16.14)	(14.77)
Engaged in child labor (%)	22.23	36.62	100.00	100.00		
	(41.59)	(48.19)	(0)	(0)		
Weekly hours child labor			6.55	8.40		
			(8.20)	(8.76)		
Engaged in domestic work (%)			87.90	95.21		
			(32.65)	(21.38)		
Engaged in market work (%)			12.1	4.79		
			(32.65)	(21.38)		
Household size	5.77	5.88	4.99	5.40	5.99	6.16
	(2.66)	(2.66)	(1.85)	(2.07)	(2.81)	(2.91)
Number of children in house-hold	2.32	2.47	2.14	2.38	2.38	2.52
	(1.44)	(1.63)	(1.17)	(1.35)	(1.50)	(1.76)
Number of younger siblings	0.82	1.06	0.76	1.09	0.84	1.05
	(1.10)	(1.17)	(0.89)	(1.06)	(1.15)	(1.23)
Parents not in household (%)	2.96	4.90	4.44	5.29	2.54	4.68
	(16.96)	(21.60)	(20.63)	(22.40)	(15.74)	(21.13)
Household head female (%)	16.68	19.01	22.72	25.45	14.96	15.28
	(37.29)	(39.25)	(41.95)	(43.60)	(35.68)	(36.00)
Household head was child laborer (%)	17.67	19.67	29.38	30.08	14.33	13.66
	(38.15)	(39.76)	(45.61)	(45.90)	(35.05)	(34.66)
Household daily income per adult	2.16	1.95	1.90	1.31	2.23	2.33
(hundreds of rupees)	(8.38)	(6.62)	(9.53)	(4.21)	(8.02)	(7.65)
House has cement walls (%)	55.93	57.14	41.98	44.79	59.92	64.28
	(49.66)	(49.50)	(49.41)	(49.77)	(49.02)	(47.94)
Household owns land (%)	52.20	52.06	66.67	61.49	48.06	46.61
	(49.97)	(49.97)	(47.20)	(48.70)	(49.98)	(49.91)

	All		Working		Not working	
	Boys	**Girls**	**Boys**	**Girls**	**Boys**	**Girls**
Household uses gas stove for cooking (%)	56.26	54.72	55.56	47.44	56.46	58.93
	(49.62)	(49.79)	(49.75)	(49.98)	(49.60)	(49.22)
Household uses a flush toilet (%)	41.66	41.10	38.27	35.21	42.63	44.51
	(49.31)	(49.22)	(48.67)	(47.80)	(49.47)	(49.72)
Household experienced a shock in last year (%)	20.97	20.34	27.16	22.48	19.20	19.10
	(40.72)	(40.26)	(44.53)	(41.78)	(39.40)	(39.33)
Hindu (%)	82.88	84.56	85.19	87.27	82.22	83.00
	(37.68)	(36.14)	(35.57)	(33.36)	(38.25)	(37.58)
Muslim (%)	14.32	12.77	8.40	8.93	16.02	15.00
	(35.04)	(33.39)	(27.77)	(28.53)	(36.69)	(35.72)
Buddhist (%)	1.59	1.51	3.95	2.15	0.92	1.15
	(12.52)	(12.21)	(19.50)	(14.51)	(9.54)	(10.65)
None/other (%)	1.21	1.15	2.47	1.65	0.85	0.86
	(10.92)	(10.67)	(15.54)	(12.76)	(9.17)	(9.24)
Aware of minimum age law (%)	94.79	94.85	94.32	94.88	94.92	94.84
	(22.24)	(21.10)	(23.17)	(22.07)	(21.97)	(22.13)
Observations	1,815	1,650	405	605	1,410	1,045

Note: Data are collected in October 2016 for children age 5-13 in six Nepali municipalities. Children's self-reported responses are used for their own school and work activities. Household information is obtained from adult representatives.

Table A4.1.   Self-reported Missed School in Past Week Regression Analysis by Gender

	Boys			Girls		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Child labor	0.084			0.082		
	(0.025)***			(0.024)***		
Domestic work		0.059			0.075	
		(0.028)**			(0.023)***	
Domestic hours			0.006			0.008
			(0.003)**			(0.003)***
Market work		0.279			0.225	
		(0.065)***			(0.091)**	
Market hours			0.012			0.011
			(0.003)***			(0.003)***
Distance to school	0.000	0.000	0.000	-0.000	-0.000	-0.000
(minutes)	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.000)
Household size	-0.005	-0.005	-0.005	-0.002	-0.003	-0.002
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)

	Boys			**Girls**		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Number of	-0.001	-0.002	-0.002	0.011	0.011	0.009
children in house	(0.006)	(0.006)	(0.006)	(0.006)*	(0.006)*	(0.006)
Number of	0.008	0.008	0.008	-0.011	-0.011	-0.012
younger siblings	(0.009)	(0.009)	(0.009)	(0.008)	(0.008)	(0.008)
Parents do not live	0.069	0.071	0.057	0.064	0.062	0.054
in household	(0.045)	(0.046)	(0.046)	(0.047)	(0.046)	(0.047)
Daily income per	0.000	0.000	0.000	0.001	0.001	0.000
adult	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
House has cement	-0.056	-0.055	-0.053	-0.048	-0.049	-0.036
walls	(0.023)**	(0.022)**	(0.022)**	(0.023)**	(0.023)**	(0.023)
Household owns	-0.056	-0.056	-0.055	-0.031	-0.030	-0.030
land	(0.017)***	(0.017)***	(0.017)***	(0.018)*	(0.018)	(0.018)
Household uses	-0.027	-0.022	-0.022	-0.020	-0.019	-0.014
gas stove	(0.022)	(0.022)	(0.022)	(0.021)	(0.021)	(0.021)
Household uses a	0.001	-0.003	-0.002	-0.059	-0.059	-0.062
flush toilet	(0.021)	(0.021)	(0.021)	(0.019)***	(0.019)***	(0.018)***
Household shock	0.089	0.090	0.096	0.078	0.078	0.076
in last year	(0.023)***	(0.023)***	(0.022)***	(0.025)***	(0.025)***	(0.026)***
Muslim	-0.038	-0.034	-0.033	0.040	0.041	0.040
	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)	(0.038)
Buddhist	-0.029	-0.021	-0.039	-0.032	-0.030	-0.026
	(0.071)	(0.072)	(0.067)	(0.064)	(0.064)	(0.069)
None/other	0.010	0.004	0.001	0.049	0.045	0.009
religion	(0.056)	(0.056)	(0.056)	(0.119)	(0.119)	(0.110)
Household head	-0.001	-0.001	-0.001	-0.029	-0.029	-0.027
female	(0.022)	(0.022)	(0.022)	(0.018)	(0.018)	(0.018)
Household head	-0.044	-0.041	-0.040	-0.039	-0.039	-0.036
child laborer	(0.024)*	(0.024)*	(0.024)*	(0.022)*	(0.022)*	(0.022)*
Aware of	0.016	0.022	0.017	0.029	0.033	0.039
minimum age law	(0.040)	(0.037)	(0.038)	(0.032)	(0.033)	(0.035)
R^2	0.14	0.15	0.15	0.15	0.15	0.16

Notes: ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the ward level. Full weeks are six school days. Data are collected in October 2016 for children age 5-13 in six Nepali municipalities. Children's self-reported responses are used for their own school and work activities. Household information is obtained from adult representatives. Specifications control for all observable characteristics of the child with age dummies, household characteristics, and municipality fixed effects.

Table A4.2.   Proxy-reported Missed School in Past Week Regression Analysis by Gender

	Boys			Girls		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Child labor	0.085			0.079		
	(0.023)***			(0.023)***		
Domestic work		0.041			0.070	
		(0.019)**			(0.023)***	
Domestic hours			0.007			0.004
			(0.002)***			(0.001)***
Market work		0.245			0.201	
		(0.059)***			(0.082)**	
Market hours			0.011			
			(0.003)***			
Distance to school	-0.000	-0.000	-0.000	-0.001	-0.001	-0.001
(minutes)	(0.001)	(0.000)	(0.001)	(0.000)*	(0.000)**	(0.000)**
Household size	-0.008	-0.008	-0.007	-0.002	-0.002	-0.002
	(0.005)	(0.005)	(0.005)	(0.004)	(0.004)	(0.004)
Number of	-0.004	-0.004	-0.004	0.010	0.010	0.009
children in house	(0.005)	(0.005)	(0.004)	(0.005)**	(0.005)*	(0.005)*
Number of	0.023	0.023	0.023	-0.004	-0.003	-0.004
younger siblings	(0.010)**	(0.009)**	(0.010)**	(0.008)	(0.008)	(0.008)
Parents do not live	0.004	-0.003	-0.002	0.025	0.023	0.020
in this household	(0.034)	(0.032)	(0.035)	(0.028)	(0.028)	(0.029)
Daily income per	0.000	0.000	0.000	0.003	0.003	0.002
adult	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)
House has cement	-0.047	-0.040	-0.042	-0.031	-0.029	-0.024
walls	(0.019)**	(0.018)**	(0.019)**	(0.025)	(0.024)	(0.024)
Household owns	-0.052	-0.054	-0.053	-0.027	-0.027	-0.026
land	(0.016)***	(0.016)***	(0.016)***	(0.018)	(0.018)	(0.018)
Household uses	-0.024	-0.021	-0.020	-0.037	-0.036	-0.037
gas stove	(0.017)	(0.017)	(0.017)	(0.018)**	(0.018)*	(0.018)**
Household uses a	-0.022	-0.026	-0.027	-0.050	-0.052	-0.054
flush toilet	(0.019)	(0.019)	(0.018)	(0.018)***	(0.018)***	(0.018)***
Household shock	0.070	0.065	0.073	0.046	0.044	0.046
in last year	(0.019)***	(0.021)***	(0.018)***	(0.023)**	(0.023)*	(0.023)**
Muslim	0.018	0.015	0.022	0.058	0.056	0.056
	(0.037)	(0.037)	(0.036)	(0.041)	(0.040)	(0.041)
Buddhist	0.021	0.025	0.010	-0.072	-0.071	-0.074
	(0.051)	(0.054)	(0.048)	(0.032)**	(0.032)**	(0.034)**
None/other	0.036	0.038	0.027	-0.033	-0.044	-0.055
religion	(0.054)	(0.054)	(0.052)	(0.113)	(0.111)	(0.110)

	Boys			Girls		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Household head	0.000	-0.002	-0.003	-0.028	-0.029	-0.027
female	(0.020)	(0.019)	(0.019)	(0.018)	(0.017)*	(0.017)
Household head	-0.033	-0.028	-0.028	-0.033	-0.031	-0.029
child laborer	(0.019)*	(0.019)	(0.019)	(0.018)*	(0.018)	(0.019)
Aware of	-0.016	-0.016	-0.011	0.046	0.046	0.048
minimum age law	(0.032)	(0.031)	(0.029)	(0.030)	(0.030)	(0.030)
R^2	0.18	0.19	0.20	0.17	0.18	0.18

Notes: ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the ward level. Full weeks are six school days. Data are collected in October 2016 for children age 5-13 in six Nepali municipalities. Proxy-reported data are obtained from household representatives. Specifications control for all observable characteristics of the child with age dummies, household characteristics, and municipality fixed effects.

Table A5.1.   Self-reported School Days Missed in Past Week Regression Analysis by Gender

	Boys			Girls		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Child labor	0.305			0.437		
	(0.101)***			(0.113)***		
Domestic work or chores		0.170			0.393	
		(0.106)			(0.103)***	
Domestic hours			0.024			0.049
			(0.012)*			(0.012)***
Market work		1.415			1.294	
		(0.343)***			(0.523)**	
Market hours			0.075			0.070
			(0.018)***			(0.020)***
Distance to school	-0.002	-0.002	-0.002	-0.001	-0.001	-0.001
(minutes)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Household size	-0.030	-0.028	-0.026	-0.017	-0.019	-0.013
	(0.015)**	(0.015)*	(0.015)*	(0.022)	(0.022)	(0.022)
Number of children in house	-0.015	-0.019	-0.021	0.050	0.049	0.038
	(0.024)	(0.023)	(0.024)	(0.034)	(0.032)	(0.031)
Number of younger siblings	0.045	0.047	0.048	-0.038	-0.033	-0.038
	(0.036)	(0.037)	(0.037)	(0.043)	(0.043)	(0.043)
Parents do not live	0.379	0.389	0.319	0.458	0.445	0.396
in this household	(0.235)	(0.238)	(0.238)	(0.262)*	(0.257)*	(0.263)

	Boys			Girls		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Daily income per	0.005	0.005	0.005	0.001	0.001	0.000
adult	(0.005)	(0.005)	(0.005)	(0.006)	(0.006)	(0.006)
House has cement	-0.153	-0.152	-0.146	-0.174	-0.178	-0.108
walls	(0.095)	(0.091)*	(0.090)	(0.112)	(0.112)	(0.114)
Household owns	-0.339	-0.339	-0.333	-0.137	-0.134	-0.131
land	(0.071)***	(0.070)***	(0.067)***	(0.101)	(0.100)	(0.097)
Household uses	-0.248	-0.220	-0.220	-0.155	-0.150	-0.115
gas stove	(0.087)***	(0.088)**	(0.087)**	(0.095)	(0.095)	(0.092)
Household uses a	0.029	0.005	0.015	-0.252	-0.254	-0.267
flush toilet	(0.079)	(0.076)	(0.076)	(0.082)***	(0.082)***	(0.080)***
Household shock	0.221	0.225	0.249	0.180	0.183	0.175
in last year	(0.104)**	(0.101)**	(0.099)**	(0.113)	(0.113)	(0.114)
Muslim	-0.204	-0.182	-0.177	0.119	0.125	0.122
	(0.150)	(0.145)	(0.147)	(0.216)	(0.216)	(0.215)
Buddhist	0.345	0.391	0.316	-0.244	-0.234	-0.203
	(0.333)	(0.337)	(0.306)	(0.107)**	(0.106)**	(0.107)*
None/other	0.417	0.382	0.372	-0.059	-0.086	-0.294
religion	(0.356)	(0.360)	(0.351)	(0.361)	(0.375)	(0.336)
Household head	0.041	0.036	0.035	-0.117	-0.115	-0.111
female	(0.091)	(0.088)	(0.088)	(0.081)	(0.081)	(0.080)
Household head	-0.181	-0.168	-0.173	-0.183	-0.185	-0.164
child laborer	(0.089)**	(0.088)*	(0.083)**	(0.086)**	(0.086)**	(0.082)**
Aware of	0.071	0.107	0.090	0.129	0.157	0.189
minimum age law	(0.223)	(0.203)	(0.206)	(0.148)	(0.154)	(0.168)
R^2	0.13	0.15	0.15	0.12	0.13	0.15

Notes: ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the ward level. Full weeks are six school days. Data are collected in October 2016 for children age 5-13 in six Nepali municipalities. Children's self-reported responses are used for their own school and work activities. Household information is obtained from adult representatives. Specifications control for all observable characteristics of the child with age dummies, household characteristics, and municipality fixed effects.

Table A5.2. Proxy-reported School Days Missed in Past Week Regression Analysis by Gender

	Boys			Girls		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Child labor	0.076			0.079		
	(0.050)			(0.039)**		
Domestic work or chores		0.019			0.063	
		(0.041)			(0.039)	
Domestic hours			0.008			0.006
			(0.006)			(0.005)
Market work		0.320			0.303	
		(0.137)**			(0.137)**	
Market hours			0.007			0.017
			(0.006)			(0.009)*
Distance to school	0.001	0.001	0.001	-0.001	-0.002	-0.002
(minutes)	(0.001)	(0.001)	(0.001)	(0.001)*	(0.001)*	(0.001)*
Household size	-0.010	-0.009	-0.009	-0.007	-0.007	-0.007
	(0.008)	(0.008)	(0.008)	(0.005)	(0.005)	(0.005)
Number of children in house	0.004	0.002	0.003	0.024	0.024	0.023
	(0.008)	(0.009)	(0.008)	(0.011)**	(0.011)**	(0.011)**
Number of younger siblings	0.026	0.026	0.025	-0.001	-0.000	-0.001
	(0.015)*	(0.015)*	(0.015)*	(0.013)	(0.013)	(0.013)
Parents do not live in this house-hold	0.077	0.065	0.073	0.014	0.009	0.007
	(0.090)	(0.083)	(0.093)	(0.032)	(0.033)	(0.035)
Daily income per adult	-0.000	-0.000	-0.000	0.010	0.010	0.010
	(0.001)	(0.001)	(0.001)	(0.006)	(0.006)	(0.006)
House has cement walls	-0.068	-0.058	-0.064	-0.005	-0.003	0.001
	(0.037)*	(0.035)	(0.036)*	(0.036)	(0.036)	(0.036)
Household owns land	-0.058	-0.060	-0.060	-0.036	-0.036	-0.036
	(0.035)	(0.035)*	(0.036)*	(0.035)	(0.035)	(0.035)
Household uses gas stove	0.002	0.007	0.006	-0.020	-0.018	-0.016
	(0.030)	(0.029)	(0.029)	(0.024)	(0.024)	(0.024)
Household uses a	-0.002	-0.008	-0.007	-0.056	-0.060	-0.062

	Boys			Girls		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
flush toilet	(0.037)	(0.037)	(0.036)	(0.038)	(0.038)	(0.038)
Household shock	0.123	0.115	0.126	0.090	0.085	0.088
in last year	(0.034)***	(0.038)***	(0.033)***	(0.034)**	(0.035)**	(0.033)***
Muslim	0.083	0.081	0.086	0.021	0.017	0.019
	(0.066)	(0.066)	(0.066)	(0.045)	(0.045)	(0.045)
Buddhist	-0.091	-0.088	-0.096	-0.116	-0.114	-0.113
	(0.068)	(0.069)	(0.067)	(0.049)**	(0.050)**	(0.055)**
None/other	-0.129	-0.124	-0.124	-0.308	-0.334	-0.338
religion	(0.037)***	(0.033)***	(0.038)***	(0.160)*	(0.149)**	(0.153)**
Household head	0.012	0.009	0.011	-0.052	-0.052	-0.048
female	(0.037)	(0.037)	(0.037)	(0.026)*	(0.026)**	(0.027)*
Household head	-0.029	-0.020	-0.023	-0.081	-0.076	-0.077
child laborer	(0.039)	(0.038)	(0.039)	(0.028)***	(0.028)***	(0.027)***
Aware of	-0.002	-0.003	0.001	0.055	0.052	0.050
minimum age law	(0.047)	(0.046)	(0.046)	(0.054)	(0.054)	(0.053)
R^2	0.10	0.11	0.10	0.11	0.11	0.11

Notes: ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the ward level. Full weeks are six school days. Data are collected in October 2016 for children age 5-13 in six Nepali municipalities. Proxy-reported data are obtained from household representatives. Specifications control for all observable characteristics of the child with age dummies, household characteristics, and municipality fixed effects.

Table A6:./   Missed School in Past Week Regression Analysis by Proxy Respondent Gender

Boys	Model 1		Model 2		Model 3	
	male proxy	female proxy	male proxy	female proxy	male proxy	female proxy
Child labor	0.140 (0.035)***	0.041 (0.034)				
Domestic work			0.079 (0.035)**	0.005 (0.026)		
Domestic hours worked					0.009 (0.004)**	0.004 (0.002)*
Market work			0.331 (0.067)***	0.191 (0.089)**		
Market hours worked					0.012 (0.004)***	0.011 (0.004)***
R^2	0.16	0.24	0.17	0.25	0.17	0.25

Girls	Model 1		Model 2		Model 3	
	male proxy	female proxy	male proxy	female proxy	male proxy	female proxy
Child labor	0.088 (0.036)**	0.084 (0.029)***				
Domestic work			0.080 (0.035)**	0.075 (0.028)***		
Domestic hours worked					0.002 (0.002)	0.006 (0.002)***
Market work			0.227 (0.101)**	0.182 (0.109)*		
Market hours worked					0.012 (0.005)**	0.009 (0.004)**
R^2	0.18	0.20	0.19	0.20	0.18	0.21

Notes: ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the ward level. Full weeks are six school days. Data are collected in October 2016 for children age 5-13 in six Nepali municipalities. Specifications control for all observable characteristics of the child with age dummies, household characteristics, and municipality fixed effects.

Table A7. School Days Missed in Past Week Regression Analysis by Proxy Respondent Gender

Boys	Model 1		Model 2		Model 3	
	male proxy	female proxy	male proxy	female proxy	male proxy	female proxy
Child labor	0.158 (0.092)*	0.025 (0.063)				
Domestic work			0.051 (0.078)	-0.005 (0.061)		
Domestic hours worked					0.013 (0.009)	0.003 (0.007)
Market work			0.537 (0.213)**	0.173 (0.174)		
Market hours worked					0.008 (0.009)	0.006 (0.008)
R^2	0.09	0.15	0.11	0.15	0.09	0.15

Girls	Model 1		Model 2		Model 3	
	male proxy	female proxy	male proxy	female proxy	male proxy	female proxy
Child labor	0.077 (0.062)	0.098 (0.054)*				
Domestic work			0.067 (0.059)	0.078 (0.055)		
Domestic hours worked					-0.002 (0.003)	0.011 (0.007)
Market work			0.246 (0.211)	0.332 (0.199)*		

	(1)	(2)	(3)	(4)	(5)	(6)
Market hours worked					0.015	0.017
					(0.014)	(0.012)
R^2	0.10	0.14	0.10	0.14	0.10	0.16

Notes: ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the ward level. Full weeks are six school days. Data are collected in October 2016 for children age 5-13 in six Nepali municipalities. Specifications control for all observable characteristics of the child with age dummies, household characteristics, and municipality fixed effects.

Table A8.   Self-reported Missed School in Past Week Probit Analysis

	Boys			Girls		
	(1)	**(2)**	**(3)**	**(1)**	**(2)**	**(3)**
Child labor	0.329			0.411		
	(0.099)***			(0.115)***		
Domestic work		0.235			0.382	
		(0.114)**			(0.114)***	
Domestic hours			-0.024			0.037
			(0.011)**			(0.009)***
Market work		0.909			0.890	
		(0.183)***			(0.291)***	
Market hours			-0.038			0.040
			(0.009)***			(0.010)***

Notes: ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the ward level. Full weeks are six school days. Data are collected in October 2016 for children age 5-13 in six Nepali municipalities. Children's self-reported responses are used for their own school and work activities. Household information is obtained from adult representatives. Specifications control for all observable characteristics of the child with age dummies, household characteristics, and municipality fixed effects.

Table A9.   Benefits of Education Balance Tests

	Mean	**Boys first**	**Girls first**	**Difference**
Respondent characteristics:				
Age	39.96	39.99	39.94	0.04
Male	0.48	0.47	0.48	-0.01
Was a child laborer	0.19	0.20	0.19	0.02
Religion:				
Hindu	85.89	85.08	86.70	-1.62
Muslim	10.81	11.17	10.46	0.72
Buddhist	2.08	2.50	1.66	0.84
None/other	0.01	0.01	0.01	0.00
Language:				
Nepali	37.92	36.64	39.20	-2.56
Bhojpuri	25.93	26.02	25.83	0.19
Maithali	11.16	11.45	10.87	0.58
Abadhi	14.97	15.34	14.61	0.72
Other	0.03	0.03	0.03	0.01
Caste:				

	Mean	Boys first	Girls first	Difference
Hilly caste group	25.16	23.87	26.45	-2.58
Hill Dalit	6.27	6.04	6.51	-0.47
Hilli ethnic group	11.13	10.90	11.36	-0.46
Terai caste group	27.38	28.11	26.66	1.44
Terai Dalit	8.46	8.54	8.38	0.16
Terai ethnic group	11.20	12.01	10.39	1.62
Muslim	9.98	9.99	9.97	0.02
Education:				
None	0.35	0.36	0.34	0.02
Primary	0.19	0.19	0.20	-0.02
Secondary or more	0.46	0.46	0.45	0.00
Household characteristics:				
Size	5.06	5.08	5.04	0.04
Female-headed	0.20	0.19	0.20	-0.01
Experienced a shock in past year	0.19	0.21	0.18	0.02
Walls of house made of cement	0.53	0.52	0.54	-0.02
Owns telephone	0.91	0.91	0.90	0.01
Owns land	0.55	0.54	0.57	-0.03

Notes: N = 2,885. ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the ward level. Data are collected in October 2016 for households with children age 5-13 in six Nepali municipalities.

Table A10. Percentage of Respondents Identifying Education's Specific, Selected Benefits

	Female respondent			Male respondent		
	Independent	Relative	Difference	Independent	Relative	Difference
Benefits for boys:						
Read and write	61.13	61.52	-0.38	58.21	56.42	1.79
Mathematics	32.15	39.55	-7.40***	33.58	33.62	-0.04
Vocational training	15.68	16.25	-0.57	14.22	20.20	-5.98***
Chance to attend secondary school	9.22	12.78	-3.56**	14.96	16.02	-1.06
Benefits for girls:						
Read and write	62.72	57.44	5.27**	55.70	58.06	-2.36
Mathematics	37.02	35.18	1.84	30.16	36.51	-6.35**
Vocational training	14.51	15.42	-0.90	15.15	19.35	-4.20**
Chance to attend secondary school	11.85	12.38	-0.53	16.31	14.52	1.79
Observations			1,510			1,375

Notes: ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the ward level. Data are collected in October 2016 for households with children age 5-13 in six Nepali municipalities.

Figure A1.   Location of Municipalities in Nepal
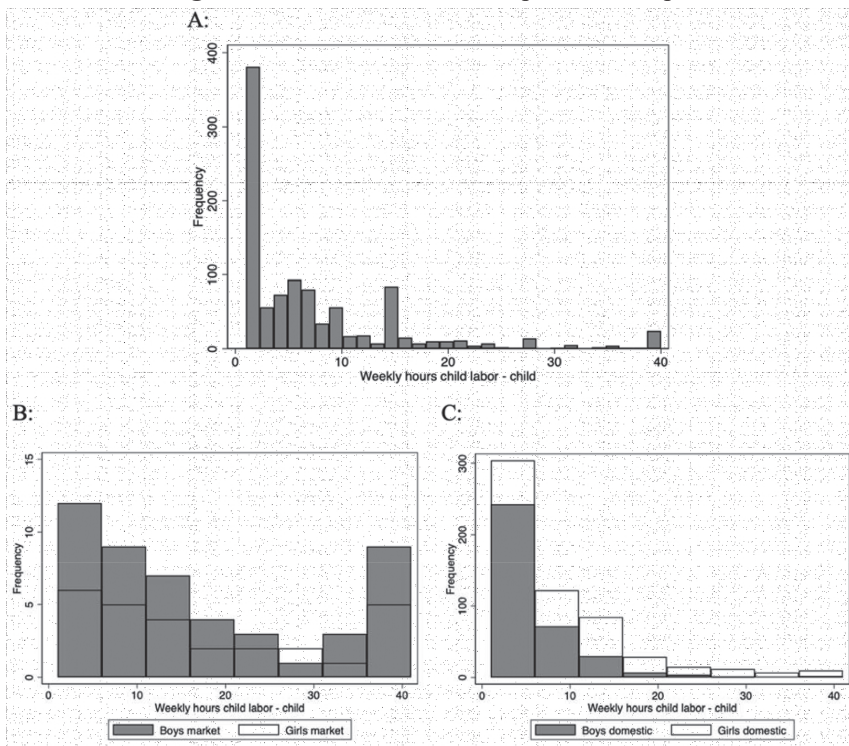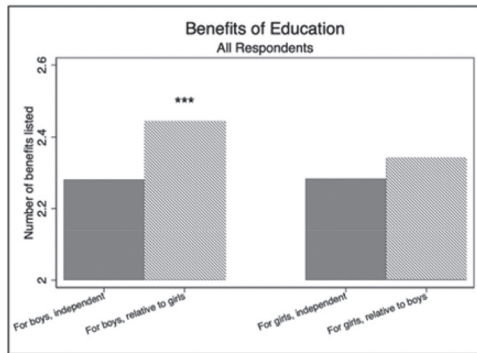

Figure A2.   Weekly Hours Worked for Children Age 5-13 by Labor Type

Notes: Data are collected in October 2016 for children age 5-13 in six Nepali municipalities.
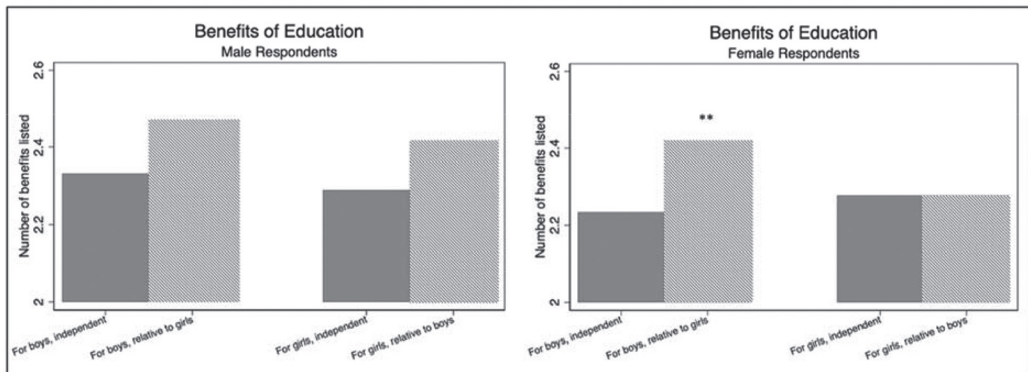
A:

B:

Figure A3.   Household Representatives' Independent and Relative
Education Benefits for Boys and Girls

Notes: p < 0.05, *** *p* < 0.01. Robust standard errors are clustered at the ward level. Data are collected in October 2016 for households with children age 5-13 in six Nepali municipalities.