

The long-term effect of child labour on cognitive achievement

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Child Labour



Concerns

- The assumption that labour is harmful to children's development underpins both the theoretical literature and the policy debate on child labour
 - Child labour undermines human capital formation and earning potentials in later life (Baland & Robinson 2000; Ranjan 1999)
 - Worldwide returns to the elimination of child labour are very large (ILO 2003)
- Not clear, both theoretically and empirically, whether child labour substantially affects children's wellbeing
 - Child labour as a source of exploitation (Parsons & Goldin 1989)
 - Child labour as a survival strategy (Grootaert & Kanbu 1995; Basu & Van 1998)
 - Full-time employment in sweatshops, or working with hazardous materials or under unhealthy working conditions
 - Performing low intensity activities, or working under the supervision of adults

The Study

- **Motivation**

- The empirical evidence that rigorously quantifies the consequence of child labour is limited

- **Objective**

- Aims to evaluate the causal effect of child labour on cognitive achievement scores

- **Results**

- Five years subsequent to the child labour experience, we find significant negative impacts on cognitive achievement scores

Empirical Framework

- Cognitive outcomes at a given time acquired through a cumulative process in which initial skill endowments are combined with human capital investments at various stages of childhood (Ben-Porath 1967; Cunha et al. 2010)

- Period 1: Human capital investment decision made

$L_{ih,1} = Z_{ih,1} \gamma + \epsilon_{ih,1}$; where $L_{ih,1}$ is hours spent doing income-generating work

- Period 2: Investment outcomes observed

$A_{ih,2} = \phi L_{ih,1} + X_{ih,1} \beta + \zeta_{ih,2}$; where $A_{ih,2}$ is test scores in reading and maths & PPVT

- Sources of bias in using OLS
 - Between and within household selections

Empirical Framework

- Instrumental variables estimator
 - Adult daily wage at the community level
- Induces substantial variation in child labour
- Exogenous to child labour decision outcomes
- Exclusion restriction
 - Log of monthly HH expenditure per adult / wealth index/
 - Structural variables (log of population size, primary schools, healthcare facilities, factories, financial institutions, natural disasters)
 - State dummy variables

Data

- Young Lives Survey in Ethiopia: 2009 and 2014 rounds (www.younglives-ethiopia.org)
- Children randomly selected from five regional states and 20 sentinel sites
- Sample attrition: 6%
- **Reading:** children required to read a sentences or a short paragraph that lacks one or more words and demonstrate their knowledge of vocabulary and comprehension by writing down a word that would complete the meaning of the sentences or paragraph
- **Mathematics:** addition, subtraction, multiplication, division, problem solving, measurement, data interpretation, and basic geometry
- **Peabody Picture Vocabulary Test (PPVT):** children required to select the picture that best represents the meaning of a stimulus word presented orally by the examiner
- Items with poor indicators of reliability and validity were deleted (Leon & Singh 2017)

Data

Variable	Mean	Standard Deviation
Reading score (in %)	34.78	17.17
Math score (in %)	41.92	21.04
PPVT score in %	70.08	15.70
Labour hours	1.52	2.23
Chore hours	2.48	1.97
Number of observations	1,870	

Results

Estimator	Variable	Reading	Math	PPVT
OLS	Labour hours	-0.046*** (0.014)	-0.102*** (0.014)	-0.078*** (0.012)
	Chore hours	-0.158*** (0.014)	-0.034** (0.014)	-0.040*** (0.017)
IV	Labour hours	-0.306*** (0.097)	-0.245*** (0.094)	-0.290*** (0.078)
	Chore hours	-0.057 (0.034)	-0.071 (0.141)	-0.082 (0.124)
IV: enrolled	Labour hours	-0.263*** (0.192)	-0.208*** (0.205)	-0.248*** (0.150)
	Chore hours	-0.033 (0.054)	-0.045 (0.060)	-0.046 (0.369)

Conclusion

- Much attention has been devoted recently to the problem of child labour
- The moral distaste of some extreme types of child labour even is beyond question even in the absence of empirical evidence
- Important to investigate whether child labour is harmful for children in contexts where it constitutes relatively low intensity activities
- We find that child labour significantly reduces cognitive achievements
- Child labour positively associated with earning opportunities (Beegle et al. 2009) and bargaining power (Moehling 2005)
- Our findings suggest negative effects may dominate and justify the ongoing concerns over the adverse effects of child labor
- We suggest future studies to use data on child labor income and extend the time horizon

THANK YOU



Variable	Mean	Standard Deviation
Reading score (in %)	34.78	17.174
Math score (in %)	41.916	21.038
PPVT score in %	70.082	15.702
Labor hours	1.516	2.233
Chore hours	2.484	1.966
Male child	0.529	0.499
Child age in months	97.437	3.727
Biological child	0.887	0.317
Age of HH head	44.121	10.981
Male HH head	0.809	0.394
HH head's education	3.581	4.324
Household size	6.189	1.987
Log of expenditure	5.395	0.586
Male daily wage	49.473	22.126
Female daily wage	45.398	15.917
Urban area	0.397	0.489
Primary schools	0.634	0.482
Financial institutions	0.451	0.498
Healthcare providers	0.622	0.485
Business firms	0.341	0.474
All weather roads	0.458	0.498
Male daily wage in 2014	64.624	18.216
Female daily wage in 2014	49.649	14.334
Primary school in 2014	0.997	0.052
Financial institutions in 2014	0.503	0.500
Healthcare providers in 2014	0.757	0.429
Business firms in 2014	0.549	0.498

Variable	Labor hours		Chore hours	
	coef.	s.e	coef.	s.e
Male wage	0.014***	0.003	0.003	0.003
Female wage	-0.005	0.005	0.038***	0.005
Male child	1.345***	0.081	-1.156***	0.076
Child age	0.018*	0.011	0.011	0.010
Biological child	-0.112	0.142	0.030	0.124
Head age	-0.004	0.004	-0.013***	0.004
Male head	0.644***	0.107	0.059	0.103
Head education	-0.052***	0.010	-0.017	0.010
HH size	0.026	0.022	0.011	0.023
Log of expenditure	-0.010	0.078	-0.158**	0.072
Urban	-0.909***	0.160	-1.183***	0.151
Healthcare	0.479***	0.087	-0.044	0.087
Primary school	-0.168	0.116	-0.672***	0.096
Financial inst.	-0.825***	0.129	0.605***	0.124
Business firm	0.115	0.110	0.137	0.093
non-wage benefits	0.581***	0.148	-0.018	0.132
_cons	-1.356	1.232	2.084*	1.168
Number of observations	1,870		1,870	
R-squared	0.37		0.31	

Variable	Reading		Math		PPVT	
	coef.	s.e	coef.	s.e	coef.	s.e
Labor hours	-0.045***	0.014	-0.097***	0.014	-0.081***	0.012
Chore hours	-0.120***	0.013	0.016	0.013	-0.051***	0.013
Male wage	-0.001	0.001	-0.002	0.001	-0.001	0.001
Female wage	-0.002	0.002	-0.003	0.002	-0.004	0.002
Urban	0.688***	0.081	0.672***	0.080	0.455***	0.073
Healthcare	0.193***	0.039	0.191***	0.042	-0.038	0.041
Primary school	0.457***	0.053	0.247***	0.056	0.051	0.055
Financial inst.	0.048	0.066	0.019	0.061	0.190***	0.056
Business firm	-0.240***	0.044	-0.210***	0.045	0.174***	0.042
All weather roads	0.094	0.060	0.120**	0.060	-0.156***	0.060
_cons	-2.640***	0.589	-2.359***	0.586	-2.625***	0.558
Number of observations	1,562		1,621		1,638	
R-squared	0.50		0.44		0.45	