

Entrepreneurship and human capital development in children

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Introduction

- Socio-economic transformation in Tanzania
 - Declining share of labour force working in agriculture
 - Increasing share of labour force working in wage jobs
 - Economic progress, but inefficient schooling system and child labour
- Schooling
 - The gross enrolment ratio in primary school has declined from 109% in 2008 to 87% in 2013
 - The gross enrolment ratio for secondary school was only 32% in 2013
 - Every third child in Tanzania is affected by child labour
 - Agriculture, mining, fishing and domestic work
 - The advancement in efforts to eliminate the worst forms of child labour is characterized as minimal (USDL, 2016)

Introduction

- How does the establishment of non-farm enterprises (NFEs) affect child labour and schooling outcomes?
- Not straightforward to predict the impact of starting to operate an NFE
 - Profit and output can change and also consumption decisions, which could lead to better outcomes of children (less labour, more school)
 - Expectations about returns to education could increase upon establishing an NFE (assuming lower expected returns to education in agriculture)
 - Opportunity costs of having children in school are likely to be lower in agriculture given the higher rate of underemployment, which could lead to worse child school outcomes when parents establish an NFE (more labour, less school)

Literature (briefly)

- Child labour in Tanzania has been previously studied in relation to economic and health shocks
 - Transitory income shocks lead to more child labour (Beegle et al., 2006)
 - Agricultural shocks affect child's overall work hours, with higher effects for boys (Bandara et al., 2015)
 - Father's illness decreases school attendance, the likelihood of completing primary school and leads to fewer years of schooling, but does not increase child labor (Alam, 2015)
- The link between entrepreneurship and human capital development has so far received very little empirical evidence
 - Other countries: Parikh and Sadoulet (2005), Qureshi et al., (2014), Canagarajah and Coulombe (1997)

Contribution

- Distinguish the effect of operating a non-farm enterprise from work in agriculture
 - The comparison group comprises the unemployed (Parikh and Sadoulet, 2005; Qureshi et al., 2014) or all occupations, including for example wage work in the public or private sector (Canagarajah and Coulombe, 1997)

Data

- Tanzania National Panel Survey
 - Living Standards Measurement Study – Integrated Surveys on Agriculture (LSMS-ISA)
 - Three survey rounds: 2008/2009, 2010/2011, and 2012/2013
 - 20,000 individuals in around 3,000 households in each round
 - All regions and districts in Tanzania, including Zanzibar (representative at the national level)
 - Panel with the attrition rate of about 5%
 - Children between 5 and 14 years for child labour variables (child labour dummy and hours working)
 - Children between 7 and 14 for schooling variables (attending and homework hours)

Key variables

- The International Labour Organization (ILO) Minimum Age Convention: children below 12 years of age should not be working, and children between 12 and 14 years of age are only eligible for light work (up to 14 hours per week)
- Work activity includes regular employment for wage, household, agricultural work, fetching water or fetching firewood

Sample

Sample	2008	2010	2012	Total
Category 1: Age 5 – 14	2,238	2,996	3,535	8,769
Category 2: Age 7 – 14	1,674	2,228	2,705	6,607
Category 3: Age 7 – 14 (in school)	1,359	1,771	2,030	5,160
Boys	670	876	986	2,532
Girls	689	895	1,044	2,628

Non-farm enterprise summary

	2008	2010	2012	Total
NFE	387 (17.3%)	628 (21.0 %)	663 (18.8%)	1,678 (19.1%)
Father's NFE	293 (13.1%)	427 (14.3%)	409 (11.6%)	1,129 (12.9%)
Mother's NFE	155 (6.9%)	294 (9.8%)	349 (9.9%)	798 (9.1%)
NFE with employees	69 (3.1%)	125 (4.2%)	85 (2.4%)	279 (3.2%)
NFE without employees	318 (14.2%)	503 (16.8%)	578 (16.4%)	1,399 (16.0%)

Estimation

$$y_{it} = \alpha_i + \beta_i NFE_{it} + \delta X_{it} + \rho_j + \omega_t + \tau_t + e_{ijt}$$

- Dependent variables (y_{it}): child labour, hours spent working in a week, school attendance, hours spent doing homework, and school attendance and work combined
- Control variables (X_{it}): age, gender, household workforce, access to credit, consumption expenditure, ownership of agricultural land, asset index, parents' education, weather shock in the past 5 years
- Region, month, survey year and household fixed effects
 - Control for time-invariant unobservable heterogeneity
- Separately estimate outcomes for boys and girls

Descriptive evidence: unconditional differences

Variables	No NFE	NFE	Difference	t-value	Observations
Child labour (0/1)	0.312	0.141	0.171	14.20***	8,765
Hours week	5.566	1.707	3.859	13.38***	8,765
Attend school (0/1)	0.755	0.897	-0.141	-11.06***	6,607
Homework (minutes/week)	86.752	174.28	-87.525	-9.49***	3,801
Household workforce	2.824	2.962	-0.138	-2.82***	8,765
Agricultural plot (0/1)	0.980	0.466	0.514	75.19***	8,765
Credit (0/1)	0.122	0.203	-0.080	-8.62***	8,765
Expenditure per capita (real, mil. TZS)	0.449	0.842	-0.393	-39.96***	8,765
Asset index	-1.660	1.657	-3.317	-71.79***	8,765
Weather shock (0/1)	0.172	0.069	0.103	10.65***	8,765
No school (0/1)	0.133	0.044	0.089	10.33***	8,765
Some primary (0/1)	0.139	0.073	0.067	7.41***	8,765
Completed primary (0/1)	0.638	0.522	0.116	8.84***	8,765
Some secondary (0/1)	0.057	0.186	-0.129	-17.64***	8,765
Completed secondary (0/1)	0.030	0.147	-0.117	-19.82***	8,765
Higher education (0/1)	0.003	0.029	-0.026	-10.90***	8,765
Rural (0/1)	0.913	0.426	0.487	53.91***	8,765
Distance to major road (km)	25.100	9.889	15.212	23.32***	8,765
Distance to town (km)	58.695	22.096	36.599	34.60***	8,765

Descriptive evidence: conditional differences

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Child labour	Hours worked (ln)	Attend school	Child labour	Hours worked (ln)	Attend school	Homework
NFE established two periods after	-0.028 (0.063)	-0.192 (0.126)	0.031 (0.047)				
NFE established one period after				-0.062* (0.034)	-0.089 (0.088)	0.008 (0.030)	0.376 (0.427)
No. observations	1,346	1,346	1,346	3,701	3,701	3,695	1,321
No. clusters	705	705	705	1,206	1,206	1,206	753
Adjusted R^2	0.12	0.20	0.45	0.14	0.24	0.39	0.19

The impact of NFE on child labour and schooling outcomes

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	FE	OLS	FE	OLS	FE	OLS	FE
	Child labour		Hours worked (ln)		Attend school		Homework (ln)	
NFE	-0.043** (0.019)	0.011 (0.040)	-0.146*** (0.053)	-0.016 (0.111)	0.012 (0.019)	0.006 (0.030)	0.300 (0.193)	0.104 (0.461)
NFE _{t-1}	-0.063** (0.025)	-0.116** (0.053)	-0.189*** (0.066)	-0.150 (0.146)	0.019 (0.021)	-0.010 (0.044)	0.338 (0.231)	-0.442 (0.541)

Child outcomes and the type of NFE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Child Labour		Hours worked (ln)		Attend school		Homework (ln)	
Boys								
NFE _{t-1}	-0.124***	-0.061	-0.425***	-0.186	0.055	-0.071	-0.137	0.722
with employees	(0.048)	(0.101)	(0.129)	(0.224)	(0.043)	(0.093)	(0.578)	(0.722)
NFE _{t-1}	-0.053	-0.112	-0.159	-0.230	0.068**	-0.019	0.189	-0.104
without employees	(0.040)	(0.081)	(0.100)	(0.181)	(0.034)	(0.055)	(0.326)	(0.511)
Girls								
NFE _{t-1}	-0.235***	-0.239**	-0.536***	-0.364	-0.041	0.045	1.393**	-1.244
with employees	(0.061)	(0.106)	(0.154)	(0.232)	(0.047)	(0.066)	(0.612)	(1.155)
NFE _{t-1}	-0.062	-0.128	-0.200*	-0.174	-0.005	0.071	0.494	-1.456
without employees	(0.040)	(0.085)	(0.106)	(0.212)	(0.037)	(0.074)	(0.377)	(0.909)

Child outcomes and the ownership of NFE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Child Labour		Hours worked (ln)		Attend school		Homework (ln)	
Boys								
Father's NFE _{t-1}	-0.029 (0.037)	-0.168* (0.086)	-0.115 (0.091)	-0.355* (0.191)	0.077*** (0.029)	0.017 (0.060)	0.528* (0.316)	0.145 (0.545)
Mother's NFE _{t-1}	-0.027 (0.041)	0.102 (0.073)	-0.187* (0.105)	0.057 (0.173)	0.031 (0.034)	-0.014 (0.060)	-0.416 (0.387)	-0.284 (0.612)
Girls								
Father's NFE _{t-1}	-0.072* (0.039)	-0.123 (0.100)	-0.176* (0.097)	-0.143 (0.217)	-0.024 (0.036)	0.164** (0.081)	0.449 (0.369)	-1.972** (0.973)
Mother's NFE _{t-1}	-0.078** (0.039)	-0.070 (0.057)	-0.199* (0.112)	-0.091 (0.168)	0.029 (0.041)	0.003 (0.059)	0.426 (0.408)	-0.643 (0.747)

Child outcomes, non-farm enterprise ownership and consumption expenditure

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Child Labour		Hours worked (ln)		Attend school		Homework (ln)	
Boys								
NFE*Exp.	-0.105**	-0.284***	-0.331***	-0.382*	0.038	-0.108	0.233	0.355
	(0.046)	(0.106)	(0.124)	(0.209)	(0.039)	(0.078)	(0.397)	(0.627)
NFE	0.078***	0.157***	0.281***	0.522***	-0.000	-0.005	0.462**	0.107
	(0.023)	(0.051)	(0.071)	(0.122)	(0.025)	(0.036)	(0.194)	(0.295)
Expenditure	-0.064	-0.223**	-0.208*	-0.196	-0.047	-0.104	0.159	0.507
	(0.042)	(0.093)	(0.109)	(0.236)	(0.039)	(0.095)	(0.379)	(0.678)
Girls								
NFE*Exp.	-0.168***	-0.273*	-0.468***	-0.621**	-0.077*	0.033	0.818*	-3.109***
	(0.051)	(0.161)	(0.127)	(0.306)	(0.043)	(0.095)	(0.462)	(1.105)
NFE	0.073***	0.107**	0.212***	0.317***	0.066**	0.010	0.144	0.224
	(0.026)	(0.046)	(0.074)	(0.121)	(0.027)	(0.037)	(0.202)	(0.361)
Expenditure	-0.133***	-0.168	-0.355***	-0.530*	-0.105*	-0.047	0.329	-2.373***
	(0.048)	(0.133)	(0.113)	(0.283)	* (0.042)	(0.106)	(0.475)	(0.846)

Conclusion

1. Differentiated impacts by child gender and enterprise ownership
 - Less child labour for boys in father-owned NFE, both at the extensive and at the intensive margin
 - Lower incidence of child labour for girls for NFEs that hire at least one employee
 - Labour substitution or task compatibility
2. A negative correlation between NFE ownership and child labour in households with higher levels of consumption expenditure
 - Consistent with earlier findings that children from relatively wealthier households engage significantly less in household work (Webbink et al., 2012)

Conclusion (continued)

3. Less child labour may not result in increased school attendance

- No significant relationship between owning an NFE and school attendance for either boys or girls
 - No significant relationship for the number of hours spent doing homework either
 - The only exception is a positive effect of father-owned NFE on an increased likelihood for school attendance for girls
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- By increasing wealth, household entrepreneurship may improve the severe child labour problem in Tanzania
 - Resolving the problem of low school attendance rates requires other types of policy actions
 - Caveat: The work does not account for time-varying unobservable characteristics