

Remittances, Child Labor, and Schooling: Evidence from Colombia

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Migration, child labor, and human capital accumulation

- ▶ Work may distract from **human capital accumulation**
 - ▷ contemporaneous: learning outcomes
(Akabayashi and Psacharopoulos, 1999; Rosati and Rossi, 2003; Beegle et al., 2005)
 - ▷ inter-generational transmission
(Emerson and Souza, 2003, 2011)
- ▶ Poverty \equiv strict budget constraints \implies propensity to work \uparrow
 - ▷ “luxury axiom” (Basu and Van, 1998)
 - ▷ “child labor trap” (Emerson and Souza, 2003, 2011)
 \implies child labor **widens inequality** over time
- ▶ **Remittance income** relaxes constraints
- ▶ **Question:** Remittance incomes $\stackrel{?}{\implies}$ child labor, schooling

This paper

Migration and child welfare in Colombia

- ▶ **Colombia:** Migrant-sending with significant child labor
3rd remittance-sender in Latin America; ≈ 13 pct. children/teens work
- ▶ **Data:** GEIH Household Dataset, 2007-14
- ▶ **Key parameters:**
 - ▷ School participation
 - ▷ Child labor participation (extensive and **intensive** margins)
- ▶ Addressing endogeneity: **IV estimations**
 - ▷ **Historical net-migration rate** as IV
 - ▷ Net-migration rate **interacted with HH var** (\implies region FE)

Preview of results

Remittances and child outcomes

► **Mean Effects: Increase** in remittances

⇒ child labor incidence↓, school participation↑
PPP-US\$100 ↑ ⇒ 8 p.p.↓ in child labor, 18 p.p.↑ schooling

⇒ hours worked↓
PPP-US\$100 ↑ ⇒ 1.6 hours worked↓

► **Heterogeneous Impacts:** Impacts differ by groups

- ▷ Gender differences for child labor, not for schooling
 - Stronger effects on boys for child labor
 - Partly explained by more male involvement in paid work
- ▷ Poorer households benefit more
- ▷ Largest effects for children just above compulsory edu. age

Roadmap

Context

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Data and Empirical Strategy

Main Results

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Colombian Migrant Workers and Their Remittances

- ▶ Macroeconomic instabilities led to **international outmigration**
 - ▷ In 2005, \approx **8 percent** of total population lived abroad
 - ▷ **Main destinations:** US, Spain, Ecuador, Venezuela
- ▶ Outmigration led to significant **remittance inflows**
 - ▷ rapid growth: **US\$1.6bn.**(2000) to peak **US\$4.4bn.**(2008).
- ▶ Importantly, remittances supplement **recurrent expenditure** of households left behind (Garay and Rodriguez, 2005)
 - ▷ \approx 59 percent used for households' recurrent expenditure
 - almost a third (\approx 20 percent overall) for education
 - ▷ only 4 percent is saved

School Participation and Work Among Children

- ▶ Post-primary education far from universal
 - ▷ Only 42% with at least secondary education (OECD, 2014)
 - ▷ Limited transition beyond primary
- ▶ Pressure to work an important reason for dropping out
 - 2012 National Desertion Survey
 - lower enrolment for working children [▶ enrolment](#)
- ▶ Child labor regulated — but enforcement is weak
 - ▷ Children < 15 y.o. can only work in artistic, cultural, recreational or sports activities [▶ by age/sector](#)
- ▶ Poor households may put children to work out of necessity

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Conceptual Framework

Standard Time Allocation Model

(Hoop and Rosati, 2014)

- ▶ (Unitary) household utility function:

$$U = U(C, L, S)$$

where C=consumption, L=leisure, S = schooling

- ▶ Send child to work (U_1) or school (U_2)?

$$\text{Max}_S U(U_1, U_2) =$$

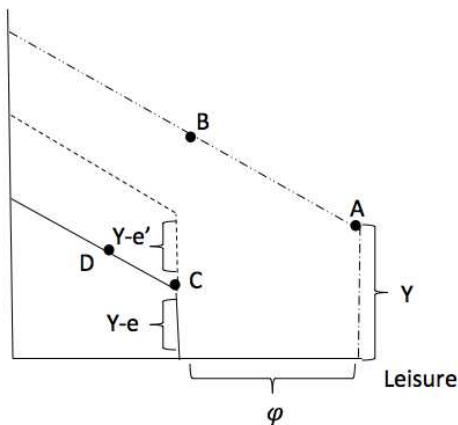
$$\text{Max} \begin{cases} U_1 = \text{Max}_S U(Y + R + wH, 1 - H, 0) & S = 0 \\ U_2 = \text{Max}_S U(Y + R + wH - e, 1 - H - \varphi, 1) & S = 1 \end{cases}$$

Conceptual Framework

Standard Time Allocation Model

(Hoop and Rosati, 2014)

Consumption



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Empirical Strategy

Specification and Data

► **Baseline specification:**

$$Y_{it}^r = \gamma R_{ht} + X_{it}\beta + \varphi_t + \mu_r + \epsilon_{it}$$

for individuals **aged 12–18**

► **Outcome variables:**

- ▷ Binary: **School participation** and **child labor**

→ LPM w/ region and month-year FE

- ▷ Continuous: **Hours worked**

→ hours worked censored \implies Tobit (no FE) ▶ figure

- ▷ Labor information **includes paid** and **unpaid work**

► **Total remittance** received by HH

- ▷ PPP-adjusted US\$

Empirical Strategy

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Empirical Strategy

Specification and Data

- ▶ **Other observables:**
 - ▷ **Child:** gender and age
 - ▷ **Household head:** gender, marital, and employment status
 - ▷ **Household:** # of members, # of children

- ▶ **Data:** *Gran Encuesta Integrada de Hogares, 2007-2014*
 - repeated cross-sections
 - 394,060 observations of children/teen

Empirical strategy

Instrumental Variable

▶ Instrumental variables:

▶ first-stage

$$\text{First stage: } R_{ht} = \alpha Z_r + X_{it}\beta + \varphi_t + \mu_{it}$$

- ▶ Historical regional net migration, 2000-2005
- ▶ Interact with HH variables (% HH member with post-sec edu)
→ allows region FE (Hanson & Woodruff 2003; Nunn & Qian 2012)

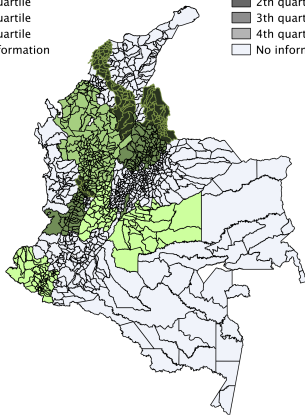
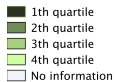
▶ Estimation strategy;

- ▶ **2SLS** for **extensive margins**
- ▶ **Tobit-IV** (no FE) for **hours worked**

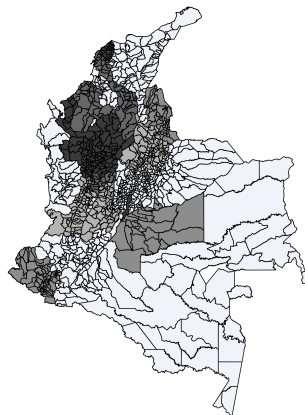
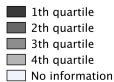
Identification strategy

Historical migration not isolated to a particular region, 2000-2005

Net migration rate



Post-secondary education



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Remittances, child labor and school attendance

PPP-US\$ 100 \implies 8 p.p. \downarrow child labor; 18 p.p. \uparrow school participation

	OLS (1)	OLS (2)	2SLS (3)	2SLS- interacted (4)
Panel A. Dep Var: Child labor				
Remittances ('00 PPP US\$)	-0.0002*** (0.0001)	-0.0001*** (0.00003)	-0.023*** (0.001)	-0.075*** (0.008)
Panel B. Dep Var: School attendance				
Remittances ('00 PPP US\$)	0.0001* (0.0001)	0.0001 (0.0001)	0.011*** (0.001)	0.180*** (0.018)
Region FE	Yes	Yes	No	Yes
Month-Year FE	Yes	Yes	Yes	Yes
Child & HH Controls	No	Yes	Yes	Yes
Observations	394,060	394,060	394,060	394,060

Remittances and the number of hours worked

PPP-US\$100 $\uparrow \implies$ 1.64 hours \downarrow hours worked

Dep. Var.:	Tobit	IV-Tobit
Working Hours	(1)	(2)
Remittances ('00 PPP US\$)	-0.011*** (0.003)	-1.640*** (0.089)
FE	No	No
Child & HH Controls	No	Yes
Observations	394,060	394,060

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Heterogenous effects

By gender, poverty status (and age)

- ▶ Effects on work (not schooling) stronger for boys than girls
 - ▷ remittances only affect hours for paid employees
 - ▷ boys more likely than girls in paid work
 - 22.9% boys, 31.0% girls who worked in unpaid sector

- ▶ All effects are stronger for poorer households
 - ▷ based on wealth index from house characteristics

- ▶ Strongest effects for 15-16 years old
 - ▷ Compulsory education in Colombia up to 15 y.o. (age-wise), or 1 year pre-primary, 9 years basic (schooling-wise)
 - ▷ Free public education: primary (2010), secondary (2012)
 - ▷ For further exploration

Wealth and Remittance Impacts: By Gender

Extensive Margins

Dependent Variable:	Child Labor (1)	School attendance (2)
Remittances ('00 PPP US\$)	-0.065*** (0.009)	0.172*** (0.022)
Remittances \times Boys ('00 PPP US\$)	-0.013** (0.006)	0.011 (0.014)
Remittances + (Remittances \times Boys) ('00 PPP US\$)	-0.079*** (0.007)	0.183*** (0.017)
Region FE	Yes	Yes
Month-Year FE	Yes	Yes
Child & HH Controls	Yes	Yes
Observations	394,060	394,060

Wealth and Remittance Impacts: By Gender

Intensive Margins

Dependent Variable: Working Hours	Gender	
	Boys	Girls
Remittances ('00 PPP US\$)	-2.124*** (0.108)	-1.204*** (0.115)
Observations	195,982	198,078

Wealth and Remittance Impacts: By Employment Types

Intensive Margins

Dependent Variable: Working Hours	Payment status	
	Paid	Unpaid
Remittances ('00 PPP US\$)	-1.441*** (0.273)	-0.773 (0.563)
Observations	36,925	13,129

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Wealth and Remittance Impacts: By Wealth Index

Extensive Margins

Dependent Variable:	Child Labor (1)	School attendance (2)
Remittances ('00 PPP US\$)	-0.049*** (0.006)	0.129*** (0.014)
Remittances \times Wealth _{BelowMedian} ('00 PPP US\$)	-0.051*** (0.011)	0.122*** (0.027)
Remittances + (Remittances \times Wealth _{BelowMedian}) ('00 PPP US\$)	-0.101*** (0.014)	0.250*** (0.035)
Region FE	Yes	Yes
Month-Year FE	Yes	Yes
Child & HH Controls	Yes	Yes
Observations	394,060	394,060

Wealth and Remittance Impacts: By Wealth Index

Intensive Margins

Dependent Variable: Working Hours	Asset Index	
	Below Median (1)	Above Median (2)
Remittances ('00 PPP US\$)	-2.607*** (0.237)	-1.237*** (0.085)
Observations	223,550	170,510

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Wealth and Remittance Impacts: By Age Groups

Extensive Margins

Dependent Variable:	Child Labor (1)	School attendance (2)
Remittances ('00 PPP US\$)	-0.059*** (0.007)	0.153*** (0.016)
Remittances \times Age ₁₅₋₁₆ ('00 PPP US\$)	-0.037*** (0.006)	0.066*** (0.013)
Remittances \times Age ₁₇₋₁₈ ('00 PPP US\$)	0.009 (0.006)	0.005 (0.015)
Region FE	Yes	Yes
Month-Year FE	Yes	Yes
Child & HH Controls	Yes	Yes
Observations	394,060	394,060

Wealth and Remittance Impacts: By Age Groups

Intensive Margins

Dependent Variable: Working Hours	Age Groups		
	12-14	15-16	17-18
Remittances ('00 PPP US\$)	-1.267*** (0.097)	-1.785*** (0.148)	-0.982*** (0.117)
Observations	163,965	113,580	116,515

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1. Remittances improve the welfare of children left behind
2. Effects on child labor **stronger for boys**
3. Effects on child labor and schooling **stronger for poorer households**
4. Strongest effects for children of **upper secondary school-age**

THANK YOU

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APPENDIX

Summary Statistics

	Recipient	Non-recipient
<i>Children Characteristics</i>		
Labor	11.10	12.76
Attend school	83.36	81.58
Male	49.85	49.73
Age	15.11	15.05
<i>Household characteristics</i>		
Other Children	2.09	2.17
Household head is [...]		
Female	57.95	38.43
Employed	59.71	78.73
Married	29.57	32.50
Total remittances amount	3,807	0
N	14,083	379,977

School Participation

By Age Groups

	Working	Non-working
Secondary (12-14 y.o.)	82.13	87.28
Media (15-16 y.o.)	19.01	24.90
University (17-18 y.o.)	20.29	33.43

Notes: the sample includes children between 12-18 years old from *GEIH, 2007-2014*.

▶ back

Child Labor

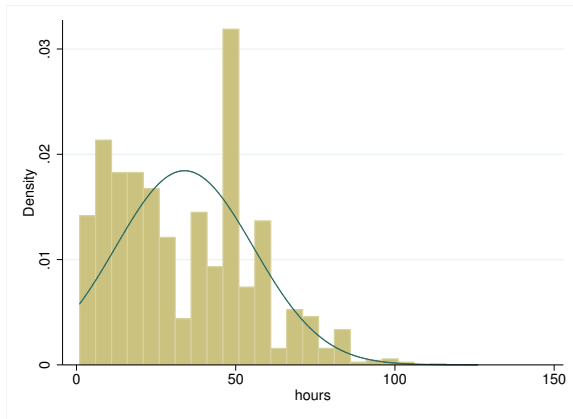
By Gender, Age Groups, and Sector

	All	Boys	Girls	12-14	15-16	17-18
Wholesale and retail	27.42	25.77	29.71	37.07	29.33	23.90
Hotels and restaurants	10.59	8.62	13.33	11.80	10.60	10.25
Manufacturing	5.97	5.26	6.96	10.12	6.26	4.69
Storage, transport and comm.	5.78	4.80	7.13	8.37	5.98	4.97
Other services	3.14	1.92	4.82	2.85	3.10	3.23
Construction	5.74	9.67	0.27	2.06	5.17	7.01
Domestic service	4.99	0.35	11.43	2.18	4.83	5.83

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First Stage

Instrumental Variables

[▶ back](#)

First Stage

Instrumental Variables

	Uninteracted (1)	Interacted (2)
Net Migration Rate	-29.548*** (2.345)	
Net Migration Rate \times Post-Secondary		-32.201*** (4.584)
Kleibergen-Paap F-statistic	158.78	49.33
Region FE	No	Yes

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