

Civil War, Forced Migration and Educational Attainment in Destination Areas: Evidence from Colombia

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Motivation

- Massive migrations to cities prompted by civil war have raised the number of unskilled populations in host cities.
- In developing countries, they can exacerbate pre-existing problems of poverty (Ibáñez and Moya, 2008).
- Beyond the direct effects of gunfire, however, civil conflicts may also affect populations not directly in harm's way.
- At the end of 2008, there were an estimated 26 million internal refugees around from more than 22 countries (UNHCR).
- The countries with the three largest internal refugee populations are Sudan, Colombia and Iraq.

Motivation

- The case of Colombia offers a different type of instrument with which to study the effects of in-migrations on educational attainment of natives.
- Detailed data on the location and timing of civil violence and violence-related migration let us establish several important facts:
 - 1 Large migration flows in Colombia are tied directly to massacres of civilians in rural areas.
 - 2 The timing of violence in rural areas is not related to conditions in nearby urban labor markets.
 - 3 Workers fleeing rural violence generally relocate nearby, most often to their provincial capital.

Motivation

- Civil conflict in Colombia was triggered by the emergence of several left wing guerrilla groups in the late 1960s.
- Violence from guerrilla groups intensified in the decades to follow with the appearance of illegal drug crops.
- Drug trade resources also instigated the creation of right-wing paramilitary groups that have been closely related to drug barons and land owners.
- Intensification of the conflict has caused an escalating trend of attacks against the civilian population and has been the main driver behind forced displacement.
- Between 1998 and 2008, nearly 4.2 million persons, equivalent to 10 percent of the country's population, were forced to migrate (Ibáñez and Velásquez, 2008).

Civil War, Forced Migration and Educational Attainment in Destination Areas

- This paper studies the effects of displacement on schooling decisions of non-migrant children, rather than the migrants themselves.
- The disproportionately large shares of younger children and young adults among the displaced populations may have a crowding effect on schools at destinations.
- If these migrations depress the wages and employment opportunities of low-skilled workers at destinations, then non-migrant students may decide to stay in school due to their relatively weak prospects in the labor market.

The Effects of Forced Migration on the Marginal Costs and Benefits of Education for Non-Migrant Children at Destinations

- Internal refugees often experience educational disruption at their place of origin, and upon arrival may lag behind other school aged children.
- Displaced children are given priority access to public schools and the conditional cash transfer program "Familias en Acción" in destination areas.
- At the same time, the influx of migrants can also increase the returns to education. Calderón and Ibáñez (2010) estimate that the arrival of displaced populations to cities is associated with a 2.1 percent decline in wages of low skilled workers.

Literature Review

- A number of papers have found evidence that migration crowds out native students from schools (Betts (1998) and (2000), Betts and Lofstorm (2000) and Hoxby (2000), and Betts and Fairlie (2003)).
- The conflict literature has concentrated on examining schooling choices in areas more severely affected by conflict (Barrera and Ibáñez (2004), Shemyakina (2006), Miguel and Roland (2006), Chen et al. (2007), Dueñas and Sánchez (2007), Akresh and de Walque (2008) and Akbulut-Yuksel (2008)).

Table: Descriptive Statistics of School Aged Children in Colombia

Household Characteristics	Mean	SD	Mean	SD
	Internal Refugees 7-12		Non-Migrants 7-12	
Male	0.51	0.50	0.50	0.50
Age	9.51	1.70	9.53	1.70
No. Siblings	3.26	2.29	2.82	1.56
Siblings under 5	1.44	1.66	1.14	1.48
Household Size	7.91	3.53	7.34	3.09
Female Head	0.30	0.46	0.24	0.43
	Internal Refugees 13-17		Non-Migrants 13-17	
Male	0.49	0.50	0.52	0.50
Age	14.95	1.41	14.88	1.40
No. Siblings	3.45	2.24	2.89	1.59
Siblings under 5	1.32	1.87	1.02	1.40
Household Size	8.49	3.67	7.56	3.19
Female Head	0.29	0.45	0.27	0.44

Table: Descriptive Statistics of School Aged Children in Colombia
Continued

Education Outcomes	Mean	SD	Mean	SD
	Internal Refugees 7-12		Non-Migrants 7-12	
Enrollment Rate 7-12	0.93	0.25	0.95	0.22
Drop-out Rate	0.09	0.29	0.05	0.23
Grade	3.32	1.75	3.54	2.94
Literacy	0.86	0.34	0.89	0.32
FA Beneficiary	0.39	0.49	0.40	0.49
Classroom Size	29.17	11.46	29.59	11.10
	Internal Refugees 13-17		Non-Migrants 13-17	
Enrollment Rate 7-12	0.72	0.45	0.77	0.42
Drop-out Rate	0.13	0.34	0.12	0.32
Grade	7.33	2.26	7.35	2.22
Literacy	0.95	0.23	0.96	0.19
FA Beneficiary	0.37	0.48	0.38	0.49
Classroom Size	31.95	11.28	32.63	11.25

Empirical Specification

In order to identify the impact of the inflow of forced migrants on school enrollment of children, I use the following reduced form specification:

$$SE_{ict} = \beta_t + \beta_c + X_{ict}\delta + \gamma \ln S_{ct} + \epsilon_{ict} \quad (1)$$

Where

$$S_{ct} = \frac{\sum_{j=1998}^t M_{cj}}{SchoolCohort_{7-17ct}} \quad (2)$$

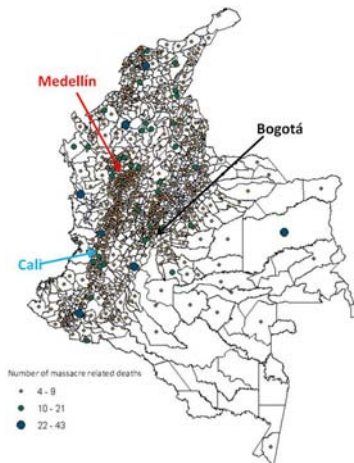
Empirical Specification

If internal refugees settle in economically vibrant areas, then underprivileged children obtain relatively more education in such areas, and the coefficients on the migrant ratio will be biased upward. To provide a further safeguard against misspecification, I use an instrumental variables approach, where the instrument for S_{ct} is the cumulative number of massacres occurring in the same state. Algebraically, it is given by:

$$I_{ct} = f \left(\sum_{State_s} \text{NumberofMassacres} \right) \quad (3)$$

Background: Violence in Colombia

Figure 1: Massacres 1988-2008



Data

- Evaluation data from Familias en Acción collected between 2002-2006 for 122 municipalities
- Household survey collected between 2001-2006 for the 13 largest metropolitan areas

Results FA Evaluation Data

- My results suggest that the arrival of larger cohorts of displaced children are particularly perverse for other displaced children that arrived earlier to these municipalities, with a significant but rather small crowding effect on non-migrant children.
- A 10 percent increase in the share of migrants in a given area reduces school enrollment by 1.5 percent for displaced children and by 0.42 percent for non-migrant children.
- Non-migrants appear to be less sensitive to the arrival of displaced children than displaced children themselves.
- The crowding effect will be larger for the younger non-migrant children relative to older non-migrant children, while it will be smaller for younger internal refugees relative to older internal refugees.

Table: FA Regressions for School Enrollment of Children 7-17

	Non-Migrants 7-17		IDPs 7-17	
	OLS	IV	OLS	IV
FA Beneficiary	0.243*** (0.007)	0.250*** (0.007)	0.273*** (0.028)	0.264*** (0.029)
Female	0.031*** (0.006)	0.030*** (0.006)	0.032 (0.025)	0.030 (0.027)
Age	-0.028*** (0.001)	-0.028*** (0.001)	-0.037*** (0.004)	-0.038*** (0.004)
Log Refugee Share	-0.007*** (0.003)	-0.043*** (0.008)	-0.041*** (0.012)	-0.152*** (0.043)
No. Siblings	0.026*** (0.002)	0.026*** (0.002)	0.041*** (0.007)	0.048*** (0.008)
No. Household Members	-0.034*** (0.001)	-0.034*** (0.001)	-0.026*** (0.006)	-0.025*** (0.006)
No. Siblings Under 5	0.017*** (0.003)	0.018*** (0.003)	-0.002 (0.012)	-0.020 (0.014)
Constant	0.996*** (0.022)	0.835*** (0.042)	0.902*** (0.094)	0.363 (0.223)
N	13814	13814	879	879
F-Stat	145.137	143.819	13.448	12.362
R ²	0.208	0.197	0.274	0.204

Source: FA Evaluation Survey 2002-2005. Note: Each individual coefficient is statistically significant at the *10%, **5%, or ***1% level.

Table: FA Regressions for School Enrollment of Children Ages 7-12

	Non-Migrants 7-12		IDPs 7-12	
	OLS	IV	OLS	IV
FA Beneficiary	0.147*** (0.008)	0.155*** (0.008)	0.127*** (0.032)	0.120*** (0.033)
Female	0.016** (0.007)	0.017** (0.007)	0.009 (0.029)	0.010 (0.030)
Age	0.008*** (0.002)	0.009*** (0.002)	-0.002 (0.009)	-0.003 (0.009)
Log Refugee Share	-0.006** (0.003)	-0.049*** (0.010)	-0.050*** (0.014)	-0.121** (0.049)
No. Siblings	0.031*** (0.002)	0.031*** (0.002)	0.043*** (0.008)	0.049*** (0.009)
No. Household Members	-0.043*** (0.001)	-0.044*** (0.001)	-0.030*** (0.006)	-0.030*** (0.007)
No. Siblings Under 5	0.026*** (0.003)	0.028*** (0.003)	-0.004 (0.014)	-0.014 (0.016)
Constant	0.777*** (0.029)	0.582*** (0.053)	0.648*** (0.123)	0.302 (0.259)
N	8269	8269	534	534
F-stat	68.451	67.489	4.779	4.300
R ²	0.172	0.150	0.184	0.142

Source: FA Evaluation Survey 2002-2005. Note: Each individual coefficient is statistically significant at the *10%, **5%, or ***1% level.

Table: FA Regressions for School Enrollment of Children 13-17

	Non-Migrants 13-17		IDPs 13-17	
	OLS	IV	OLS	IV
FA Beneficiary	0.343*** (0.012)	0.346*** (0.012)	0.476*** (0.048)	0.466*** (0.054)
Female	0.053*** (0.011)	0.052*** (0.011)	0.062 (0.045)	0.048 (0.050)
Age	-0.083*** (0.004)	-0.083*** (0.004)	-0.079*** (0.015)	-0.073*** (0.017)
Log Refugee Share	-0.008** (0.004)	-0.022* (0.013)	-0.022 (0.021)	-0.199*** (0.077)
No. Siblings	0.014*** (0.003)	0.013*** (0.003)	0.036*** (0.012)	0.046*** (0.014)
No. Household Members	-0.019*** (0.002)	-0.019*** (0.002)	-0.024** (0.011)	-0.023* (0.012)
No. Siblings Under 5	0.004 (0.005)	0.004 (0.005)	0.009 (0.023)	-0.027 (0.029)
Constant	1.656*** (0.066)	1.591*** (0.089)	1.485*** (0.277)	0.543 (0.495)
N	5545	5545	345	345
F-Stat	80.694	80.494	9.300	7.878
R ²	0.268	0.266	0.411	0.283

Source: FA Evaluation Survey 2002-2005. Note: Each individual coefficient is statistically significant at the *10%, **5%, or ***1% level.

Table: FA Evaluation Survey Regressions for Classroom Size

	Non-Migrants 13-17		IDPs 13-17	
	OLS	IV	OLS	IV
All Children				
Log Refugee Share	-0.055 (0.085)	0.674** (0.279)	-0.512 (0.441)	1.594 (1.411)
N	9320	9320	582	582
F-Stat	58.469	78.710	5.338	4.495
R ²	0.136	0.077	0.187	.
Older Children				
Log Refugee Share	-0.039 (0.105)	1.468*** (0.366)	-0.431 (0.507)	2.528 (1.744)
N	6135	6135	390	390
F-Stat	38.814	54.164	5.447	2.974
R ²	0.137	0.073	0.264	.
Younger Children				
Log Refugee Share	-0.091 (0.143)	-0.468 (0.429)	-0.224 (0.867)	0.220 (2.549)
N	3185	3185	192	192
F-Stat	15.942	32.228	1.464	1.994
R ²	0.112	0.102	0.174	.

Note: Each individual coefficient is statistically significant at the *10%, **5% or ***1% level

Results ECH Data for the 13 Largest Metropolitan Areas

- Information on school aged children and Internal Refugees in school age is more reliable for large metropolitan areas, and thus the shares used are calculated using only school aged children.
- The results show that a 10 percent increase in the share of displaced children will reduce non-migrant enrollment by about 0.56 percent and IDP school enrollment by about 0.82 percent.
- The magnitude of the effects is similar to that found in the FA evaluation survey, and is consistently larger for displaced children.
- However, the main difference is that in the 13 largest cities, the crowding effect will be larger for older children, with a 1.1 decline in enrollment rates for a 10 percent increase in the share of forced migrants.

Table: ECH Regressions for School Enrollment of Children Ages 7-17

	Non-Migrants 7-12		IDPs 7-12	
	OLS	IV	OLS	IV
Age	-0.036*** (0.000)	-0.036*** (0.000)	-0.040*** (0.003)	-0.040*** (0.004)
Female	0.011*** (0.002)	0.011*** (0.002)	0.025 (0.022)	0.026 (0.022)
Female Head	-0.026*** (0.002)	-0.025*** (0.002)	-0.080*** (0.025)	-0.081*** (0.026)
Years of Education Head	0.001*** (0.000)	0.001*** (0.000)	0.011*** (0.003)	0.011*** (0.003)
Siblings	-0.002*** (0.001)	-0.002*** (0.001)	-0.025*** (0.009)	-0.025*** (0.009)
No. Household Members	-0.009*** (0.001)	-0.009*** (0.001)	-0.011* (0.006)	-0.011* (0.006)
Log Refugee Share	-0.016*** (0.003)	-0.063*** (0.018)	-0.093*** (0.034)	-0.013 (0.203)
Constant	1.263*** (0.013)	1.071*** (0.075)	0.897*** (0.161)	1.214 (0.815)
N	87347.000	87347.000	1228.000	1228.000
F-Stat	577.938	575.316	10.684	10.340
R ²	0.142	0.139	0.182	0.178

Note: Each individual coefficient is statistically significant at the *10%, **5%, or ***1% level.

Table: ECH Regression for School Enrollment of Children Ages 7-12

	Non-Migrants 7-12		IDPs 7-12	
	OLS	IV	OLS	IV
Age	-0.002*** (0.004)	-0.002*** (0.004)	0.005 (0.039)	0.003 (0.039)
Female	0.011*** (0.002)	0.011*** (0.002)	0.006 (0.024)	0.005 (0.024)
Female Head	-0.018*** (0.002)	-0.018*** (0.002)	-0.058** (0.029)	-0.057** (0.029)
Years of Education Head	0.000*** (0.000)	0.000*** (0.000)	0.007** (0.003)	0.007* (0.004)
No. Siblings	-0.009*** (0.001)	-0.009*** (0.001)	-0.027*** (0.009)	-0.027*** (0.009)
Household Size	-0.004*** (0.000)	-0.004*** (0.000)	-0.005 (0.006)	-0.005 (0.006)
Log Refugee Share	-0.009*** (0.002)	-0.003 (0.015)	-0.022 (0.037)	-0.109 (0.203)
Constant	0.947*** (0.011)	0.972*** (0.062)	0.816*** (0.178)	0.479 (0.789)
N	48535.000	48535.000	709.000	709.000
F-Stat	43.343	42.727	3.254	3.226
R ²	0.022	0.022	0.106	0.099

Note: Each individual coefficient is statistically significant at the *10%, **5%, or ***1% level.

Table: ECH Regressions for School Enrollment Older Children Ages 13-17

	Non-Migrants 7-12		IDPs 7-12	
	OLS	IV	OLS	IV
Age	-0.104*** (0.001)	-0.104*** (0.001)	-0.103*** (0.014)	-0.103*** (0.014)
Female	0.014*** (0.004)	0.014*** (0.004)	0.038 (0.039)	0.038 (0.039)
Female Head	-0.035*** (0.004)	-0.034*** (0.004)	-0.099** (0.044)	-0.099** (0.045)
Years Education Head	0.002*** (0.000)	0.002*** (0.000)	0.019*** (0.006)	0.019*** (0.006)
Siblings	-0.001 (0.002)	-0.001 (0.002)	-0.031* (0.017)	-0.031* (0.019)
Household Size	-0.014*** (0.001)	-0.013*** (0.001)	-0.010 (0.012)	-0.010 (0.015)
Log Refugee Share	-0.024*** (0.005)	-0.111*** (0.034)	-0.150** (0.061)	-0.150 (0.318)
Constant	2.284*** (0.032)	1.928*** (0.139)	1.508*** (0.342)	1.508 (1.280)
N	38812.000	38812.000	519.000	519.000
F-Stat	283.607	281.332	5.703	5.473
R ²	0.155	0.149	0.224	0.224

Note: Each individual coefficient is statistically significant at the *10%, **5%, or ***1% level.

Conclusion

- The arrival of school aged children into cities and large towns has contributed towards the decline in educational attainment of both internal refugees and non-migrant students at these destinations.
- Larger cities are the most likely destination of displaced families and greater attention should be given on how to expand the supply of schools.
- While government programs appear to be targeting at risk populations, the efforts fall short in the light of the dynamics of civil war and the rapid increase of displaced populations arriving in more densely populated areas.

THANK YOU
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Background: Violence in Colombia

- Massacres, defined as events that involve the murder of at least 4 persons, are a particularly effective tactic for generating a mass exodus from rural areas.

Table: Massacres and Economic Conditions in Cities

Massacres per State			
	OLS (1)	OLS (2)	OLS (3)
Lag Unemp Rate	-0.345 (1.434)		
Lag Employment Rate		0.257 (1.961)	
Lag LFP Rate			0.063 (1.363)
Constant	0.324 (0.248)	0.129 (1.059)	0.224 (0.893)
Observations	624	624	624
F-Stat	0.058	0.017	0.002
R ²	0.000	0.000	0.000