

Labour Market Effects of Migration-
Related Supply Shocks: Evidence
from Internal Refugees in Colombia

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Motivation

- Armed civil conflicts impose economic costs on victims of conflict and people living in conflict regions
 - Exacerbating pre-existing problems of poverty and inequality
- Yet conflict may impose economic costs beyond direct victims and people living in conflict areas
- Forced internal displacement
 - Exerts a heavy toll on the people forced to migrate
 - And may also affect people in destination cities through labour supply shocks, among other channels
- Today: 60 million forced migrants resulting from several conflicts in the world

Motivation

- Colombia the second largest magnitude of internally displaced population worldwide
 - 6.9 million IDP: 14.4% of total population
- Conflict is largely a rural phenomenon: residents in the countryside suffer the direct costs of conflict
- Internally displaced population flee the countryside for the relative safety of the country's urban areas.
- In some cities, the resulting labour supply shocks have been sizable

Objective and contribution

- Identify the causal impact of labour supply shocks of internal displacement flows on urban wages
- Estimate the broader labour market effects of conflict: how migration from conflict areas impact labour markets not directly touched by conflict

Impact of economic migration on labor markets

- Results show migration negatively affects wages and employment outcomes for natives, especially the least skilled: wide difference on estimates
- Difficult to establish causality between migration flows and labor market conditions: people migrate to cities with more dynamic labor markets
- Identification strategies
 - Analysing national rather than regional labour markets (Borjas, 2005),
 - Treating historical inflows of migrants as instruments (Altonji and Card, 1989; LaLonde and Topel, 1991; Card, 1990, Schoeni, 1997)
 - Exploiting natural experiments (Card, 1990; Hunt, 1992; Carrington and DeLima, 1996; Friedberg, 2001; Angrist and Kugler, 2003; Kugler and Yuksel, 2008; Lemos and Portes, 2008).

Conflict in Colombia

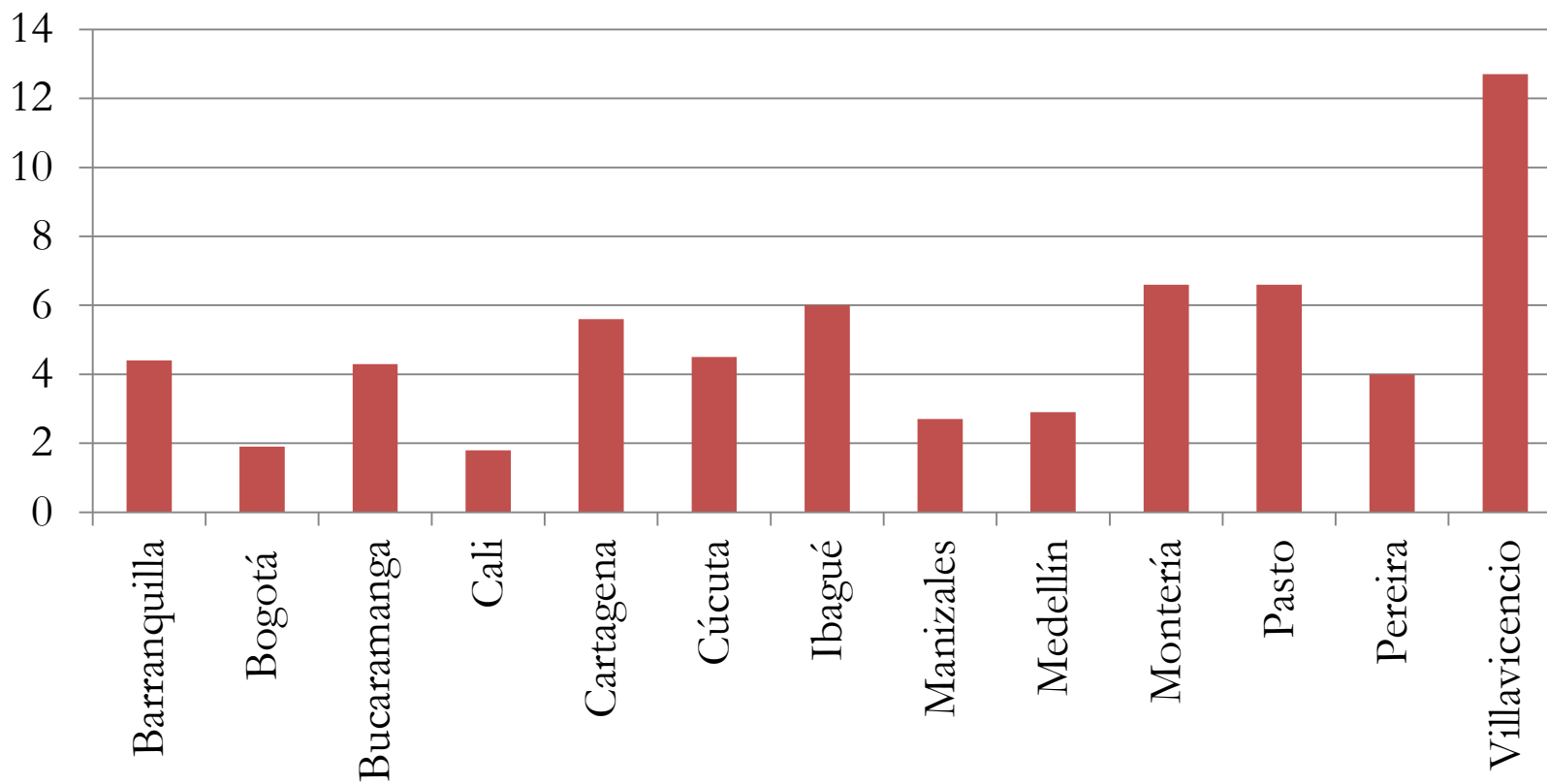
- Civil conflict in Colombia was triggered by the emergence of several left wing guerrilla groups in the late 1960s
- Violence intensified in the decades to follow with the expansion of guerrilla groups to wealthier areas of the country to extract resources and with the appearance of illegal drug crops
- Drug trade resources also instigated the creation of right-wing paramilitary groups that have been closely related to drugbarons and some land owners
- Intensification of the conflict caused an escalating trend of attacks against the civilian population and has been the main driver behind forced displacement

Conflict in Colombia

- Victims between 1985 and 2015: 7.3 million people (15.1% of the Colombian population)
 - Approximately 220,000 people died: 81.5% were civilians
- Forced displacement a strategy of armed groups to terrorize the population, weaken the support to the opponent group, prevent civil resistance, and seize valuable assets
 - Internally displaced persons between 1985 and 2015 is 6.9 million people
 - 90% of the Colombian municipalities were affected as origin location, as destination or both
 - Only 11% wants to return to their place of origin
- Today
 - Since 2002 onwards violence has decreased
 - 2006: peace process with paramilitary groups demobilized 31.700 combatants
 - Currently peace negotiations with FARC the largest guerrilla group

Labour supply shock in largest metropolitan areas

IDP shares in the 13 largest metropolitan areas: 2005



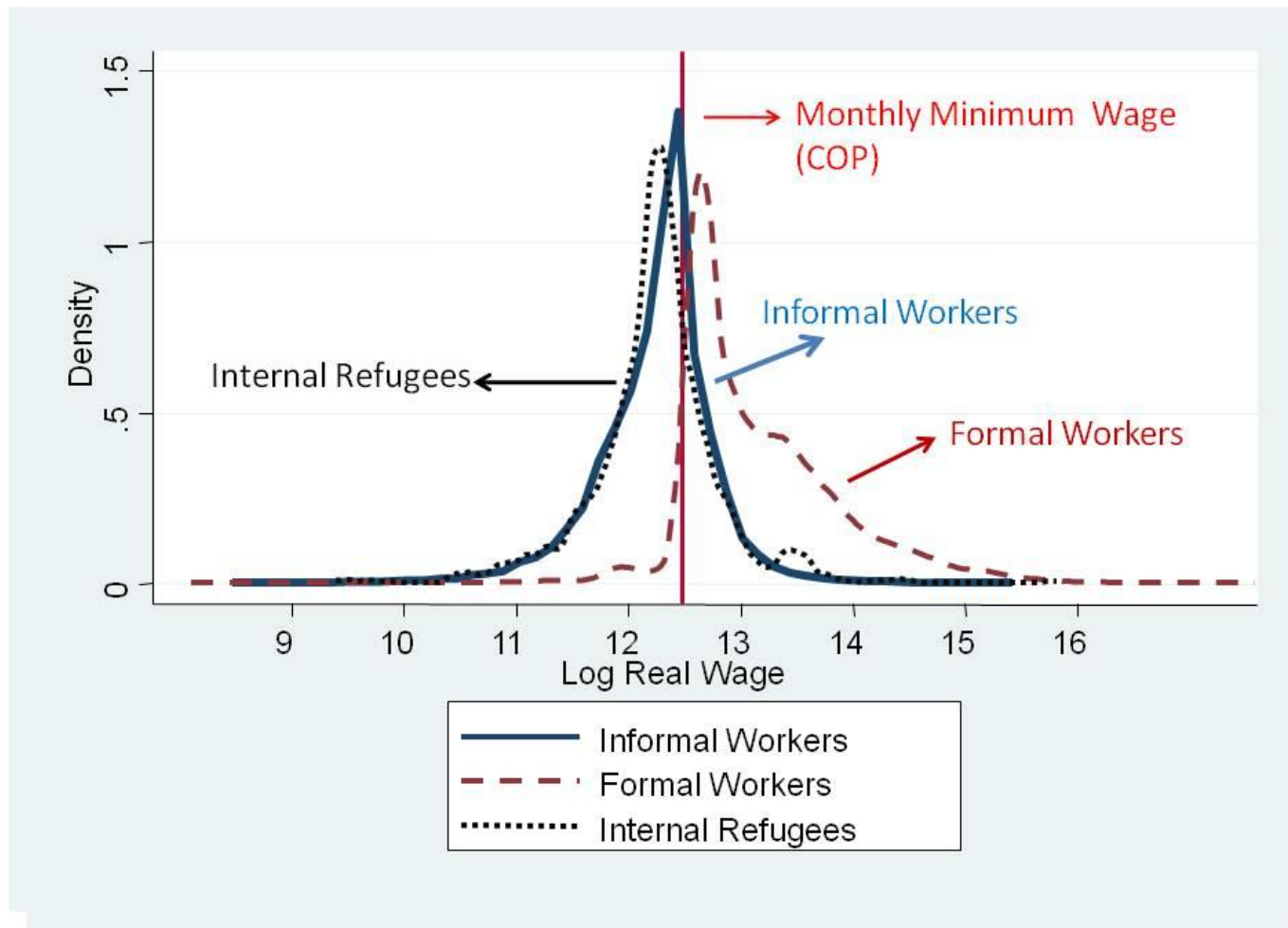
Source: Authors' calculations based on DANE and RUV

Workforce descriptive statistics

| | Formal | Workers | Informal | Workers | Internal | Refugees |
|-------------------------------|---------|-----------|----------|-----------|----------|-----------|
| | Mean | Std. Dev. | Mean | Std. Dev. | Mean | Std. Dev. |
| Age | 36.32 | 10.34 | 32.19 | 12.60 | 29.75 | 14.02 |
| Sex (Female==1) | 0.46 | 0.50 | 0.52 | 0.50 | 0.42 | 0.49 |
| Married | 0.59 | 0.49 | 0.39 | 0.49 | 0.45 | 0.50 |
| Household Members | 4.43 | 1.95 | 5.05 | 2.40 | 5.90 | 2.55 |
| Years of Completed Education | 12.20 | 3.82 | 7.36 | 3.61 | 6.49 | 3.82 |
| Real Monthly Wage (COP) | 581,815 | 632,899 | 217,070 | 155,539 | 127,142 | 205,894 |
| Wage in terms of the Min.Wage | 2.51 | 2.68 | 0.91 | 0.68 | 0.67 | 1.15 |

Source: Authors' calculations based on ECH

Internally displaced persons: close substitutes of informal workers



Source: Authors' calculations based on ECH

Data

- Data on Internal Refugees (RUV) from Victims' Unit
- National Household Survey 2001-2005 (ECH 2001-2005)
- Data on massacres by municipality from CEDE and the Colombian Police

Estimation

- Reduced form specification for individual i in municipality c at time t

$$W_{ict} = \beta_t + \beta_{ct} + X_{ict}\delta + \gamma \ln S_{ct} + \epsilon_{ict}$$

- X_{ict} individual characteristics: potential experience, years of schooling completed, gender and marital status

$$S_{ct} = \frac{\sum_{j=2001}^t M_{cj}}{Pop_{12-65ct}}$$

- Share of internal refugees at period t with respect to the labor force

Identification strategy

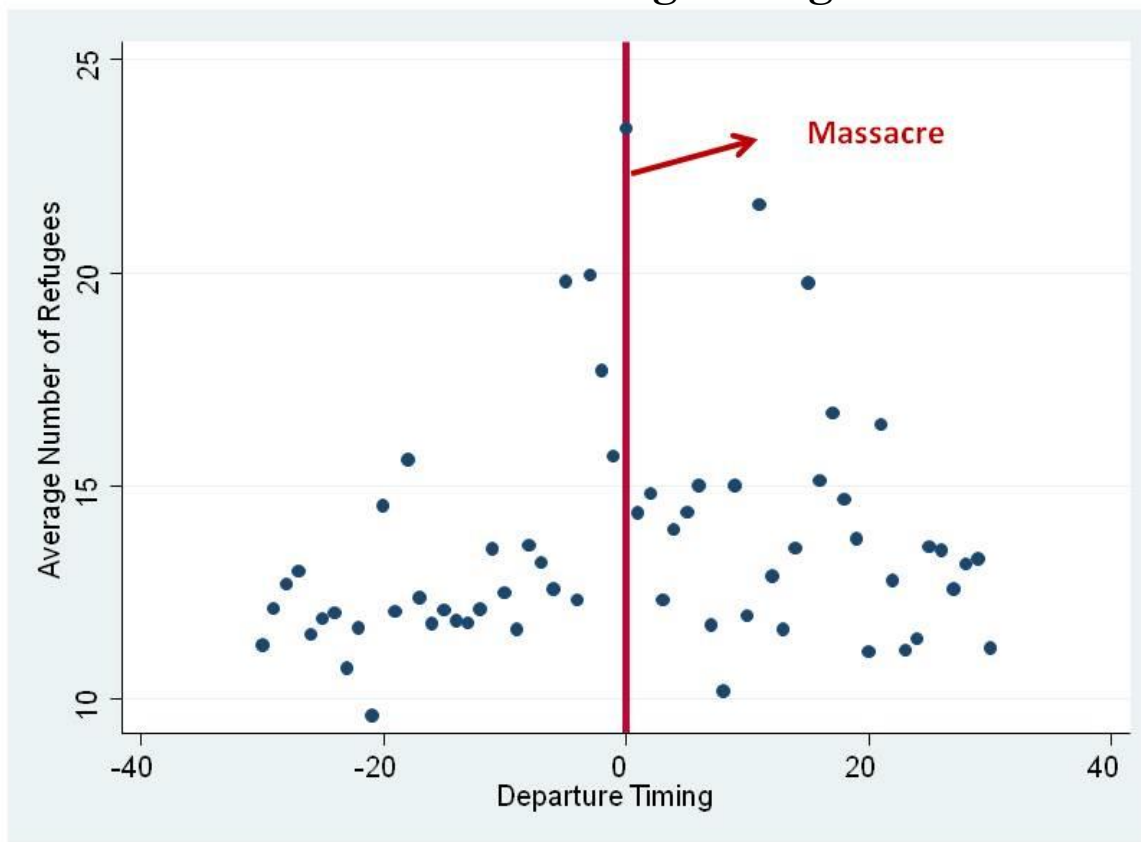
- Instrumental variable: number of massacre victims in municipalities of origin divided by the distance between municipality of origin and destination

$$I_{ct} = f \left(\sum_{\substack{City_c \\ AllOrigins_o}} \frac{\sum_{t=Jan2001}^T MassacreVictims_{to}}{Distance_{oc}} \right)$$

- The functional form of the instrument suggests that the number of migrants in labor market c will increase in the number of massacre victims, but decrease in the distance from the massacre to the labor market.

Identification strategy: migration driven by massacres and not favorable labor conditions

Massacres and Timing of Migration



Source: Authors' calculations based on CEDE and police data

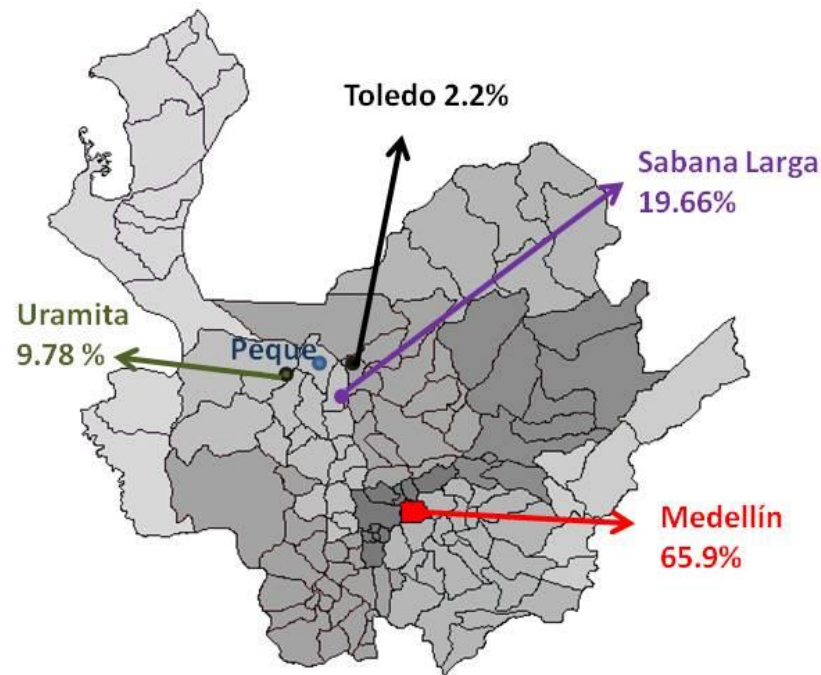
Identification strategy: timing of violence in rural areas is not related to conditions in nearby urban labour markets

| Dependent Variable: Massacres per state | (1) | (2) | (3) |
|---|------------------|-----------------|-----------------|
| Log unemployment rate of the state capital | -0,34 (1,434) | | |
| Log employment rate of the state capital | | 0,25 (1,961) | |
| Log labour force participation of the state capital | | | 0,06 (1,363) |
| Observations | 62 | 62 | 62 |
| F-Statistic | 0,05 | 0,01 | 0,00 |
| R-Squared | 0,00 | 0,00 | 0,00 |
| Year FE | Yes | Yes | Yes |
| Month FE | Yes | Yes | Yes |
| State FE | Yes | Yes | Yes |

Source: Authors' calculations based on ECH, CEDE and police data

Identification strategy: workers fleeing rural violence generally relocate nearby, most often to their state capital

Displacement after a Massacre (Peque, Antioquia, July 2001)



Source: Authors' calculations based on CEDE and police data

Results: First Stage Regression

| | Unweighted data | Weighted | |
|----------------------------------|---------------------------------------|---------------------------------------|---------------------------------|
| | Regression at the Individual Level | Regression at the Individual Level | Regression at the city level |
| Log (Massacre Victims/ Distance) | 0.43*** (0,055) | 0.37*** (0,047) | 0.48*** (0,098) |
| R2 | 0,96 | 0,97 | 0,46 |
| Observations | 688098 | 688098 | 1619 |
| F(1, 12) | | | 23,59 |
| F(63, 12) | 63,98 | 262,89 | |
| Year FE | Yes | Yes | Yes |
| Month FE | Yes | Yes | Yes |
| City FE | Yes | Yes | Yes |
| SES FE | Yes | Yes | Yes |
| Sector FE | Yes | Yes | Yes |

Note: OLS estimates. City, month and year fixed effects are included in all the regressions.

Robust clustered standard errors are reported in parentheses.

* Significant at the 10 % level.

** Significant at the 5 % level.

*** Significant at the 1 % level

Standard errors are clustered at the city level

Results: IV estimations

| | Total sample | Female | Male |
|---|--------------|-----------|-----------|
| Overall | -0.088*** | -0.100*** | -0.081*** |
| | (0.015) | (0.022) | (0.02) |
| Waged workers manual occupations | -0.063*** | -0,021 | -0.075*** |
| | (0,023) | (0,049) | (0,027) |
| Waged workers administrative & professional occupations | -0.046** | -0.064** | -0,024 |
| | (0,023) | (0,030) | (0,035) |
| Domestic workers | -0,022 | -0,017 | 0,027 |
| | (0,041) | (0,041) | (0,249) |
| Independent Workers/ Self Employed | -0.168*** | -0.228*** | -0.131*** |
| | (0,028) | (0,049) | (0,034) |

Robust clustered standard errors are reported in parentheses.

* Significant at the 10 % level.

** Significant at the 5 % level.

*** Significant at the 1 % level

Results IV estimations: independent workers and education levels

| | Total sample | Female | Male |
|--|--------------|-----------|-----------|
| Independent Workers/ Self Employed | -0.168*** | -0.228*** | -0.131*** |
| | (0,028) | (0,049) | (0,034) |
| With a high school degree or less | -0.207*** | -0.270*** | -0.174*** |
| | (0,028) | (0,048) | (0,034) |
| With some college or college degree | 0,039 | -0,054 | 0,096 |
| | (0,106) | (0,173) | (0,134) |

Robust clustered standard errors are reported in parentheses.

* Significant at the 10 % level.

** Significant at the 5 % level.

*** Significant at the 1 % level

Results IV estimations: salaried workers, self-employed professionals and employers

| | Total sample | Female | Male |
|---|--------------|---------|-----------|
| Salaried, self-employed professionals & employers | -0.038** | -0,027 | -0.041** |
| | (0,019) | (0,022) | (0,020) |
| With a high school degree or less | -0.052*** | -0,04 | -0.058*** |
| | (0,019) | (0,025) | (0,021) |
| With some college or college degree | -0,033 | -0,028 | -0,03 |
| | (0,038) | (0,040) | (0,039) |

Robust clustered standard errors are reported in parentheses.

* Significant at the 10 % level.

** Significant at the 5 % level.

*** Significant at the 1 % level

Results IV estimations: informal/formal workers

| | Total sample | Female | Male |
|--|--------------|-----------|-----------|
| Informal workers | -0.428*** | -0.472*** | -0.404*** |
| | (0,095) | (0,149) | (0,123) |
| Informal workers: high school degree and less | -0.517*** | -0.510*** | -0.537*** |
| | (0,115) | (0,186) | (0,145) |
| Informal workers: some college or college degree | -0,273 | -0,359 | -0,232 |
| | (0,188) | (0,264) | (0,266) |
| Formal workers | -0,106 | -0,15 | -0,088 |
| | (0,243) | (0,368) | (0,319) |
| Formal workers: high school degree and less | -0,101 | -0.708* | 0,100 |
| | (0,289) | (0,380) | (0,388) |
| Formal workers: some college or college degree | -0,048 | -0,098 | -0,018 |
| | (0,314) | (0,462) | (0,418) |

Robust clustered standard errors are reported in parentheses.

* Significant at the 10 % level.

** Significant at the 5 % level.

*** Significant at the 1 % level

Conclusions

- Inflows of internally displaced persons have a large effect on urban labour-market: a 10% increase in the share of IDP decreases wages from 0.8 to a little over 5.7%
- Burden of the increase in labour supply falls disproportionately on female, self-employed, low-skilled and informal workers
- Real minimum wage in the period increased on average 2.21% yearly, while wages for self employed workers with a high school diploma or less declined 2.07% in response to a 10% increase in the share of forced migrants

Conclusions

- Results suggest expansion of the informal economy, accompanied by a large decline in wages in this sector
- Negative impacts of displacement are broadly distributed across the Colombian population
 - Forced migrants face large welfare losses from the displacement process
 - Large inflows of displaced populations also affect vulnerable groups within the urban population in destination cities