

# The Impacts of IDPs on Host Communities: Housing Prices

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# Outline

- 1 Motivation
- 2 Empirical Strategy
- 3 Data
- 4 Preliminary Results

1 Motivation

2 Empirical Strategy

3 Data

4 Preliminary Results



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Source: Council on Hemispheric Affairs. Picture taken by Mariusz Kluzniak. Bogota city view hdr.

# This paper

- Aim: To study the impact of IDPs inflows on rental and food prices.

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- The effect is not obvious:
  - IDPs inflows might increase demand, particularly for low income housing.
  - IDPs inflows might generate negative externalities for the initial residents.
  - IDPs inflows might decrease wages and income.

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# Importance

- **World: 38 Million IDPs.**
- Colombia: 6 Million IDPs (Source: Internal Displacement Monitoring Centre).
- 11% of Colombians are living in host communities (There are no displacement camps in Colombia).
- According to our data: 5.8 Million of inflows between 1999 and 2014.
- 2.8 Million of inflows to Colombian 13 largest cities (our sample of cities).

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# Contribution

- Why is this novel?
  - ▶ focus on ACTUAL intensity of inflows
    - ★ previous papers did not exploit actual magnitude of the displacement inflows at location level (Alix-García and Saah, 2009; Baez, 2011).
    - ★ The exception is Calderón and Ibáñez (2015) who, for Colombia, using data similar to ours find that wages decrease in host cities.
  - ▶ identify causal effect trough
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    - ★ IV approach
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# Empirical model

With a panel of host cities we estimate,

$$P_{c,t} = \alpha + \beta \text{Inflows}_{c,t-1} + \eta' X_{c,t} + d_c + d_t + u_{c,t} \quad (1)$$

- 1  $P_{c,t}$  is a price in city  $c$  and time  $t$ .
- 2  $\text{Inflows}_{c,t-1}$  is number of IDPs arriving at  $t - 1$  to host city  $c$ .
- 3  $X$  are controls: IDPs Outflows, CPI, Population and city-level linear trends.
- 4  $d_c$  and  $d_t$  are city and year fixed effects.
- 5  $u_{c,t}$  is an heteroscedasticity-corrected error term.



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# Empirical model

- Problem: Migration is an endogenous decision (i.e: higher wages, lower cost of living, ammenities, etc.).
- Solution: Use an instrumental variable approach.

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- $receptivity_{c,t} = \sum_{m \in M \setminus \{c\}} outflows_{m,t} \times D_{m,c}^{-1}$
- Where  $c \in C \subseteq M$  is a city in our set of 13 cities, which is a subset of Colombian 1100 municipalities.
- The instrument is a distance-weighted average of the outflows in all municipalities except city/municipality  $c$ .

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# Data Sources

- We focus on Colombian 13 largest cities for which data on both IDP inflows and prices is available at quarterly frequency for the period 1999-2015.
- Source of prices: CPI of DANE by income level.
- Source of migration inflows and outflows: RUV (Registro Único de Víctimas). ie: The Colombian government.

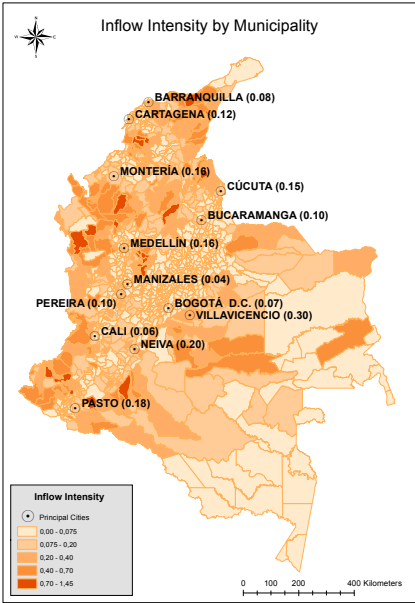
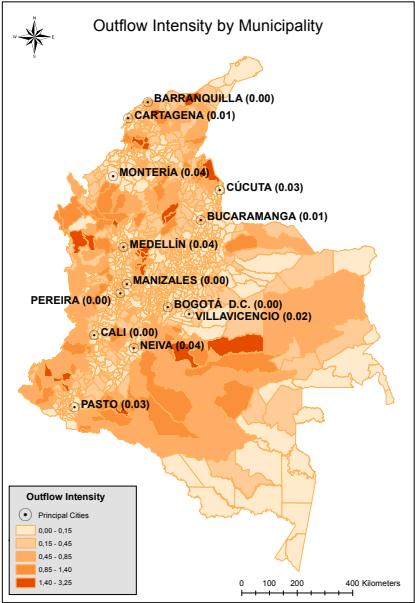
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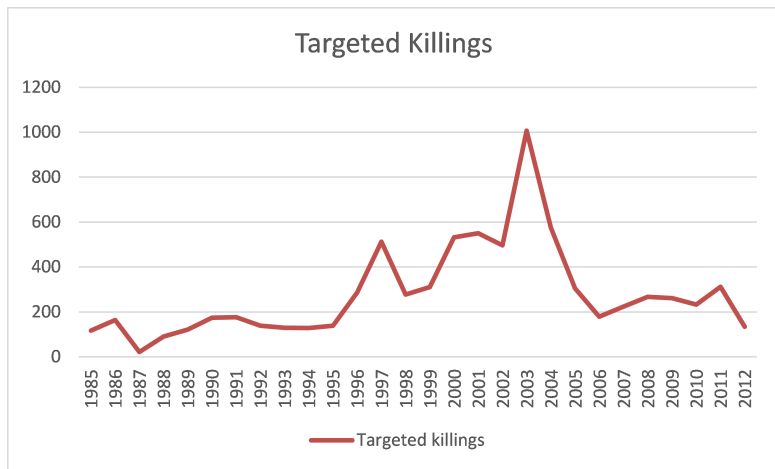
# IDPs municipality level data. Accion Social and RNI



# Attacking Civilians (Centro Nacional de Memoria Histórica)



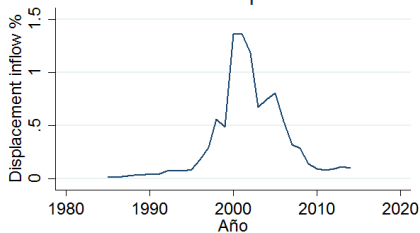
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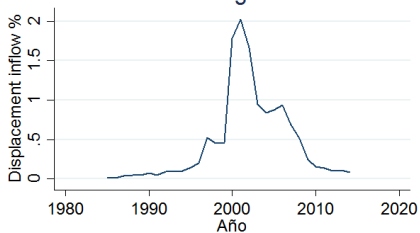


# Northern Colombia

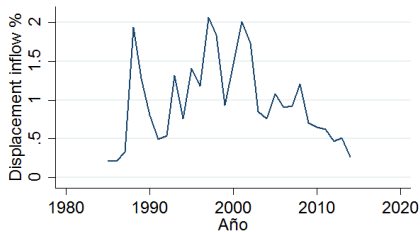
## Barranquilla



## Cartagena

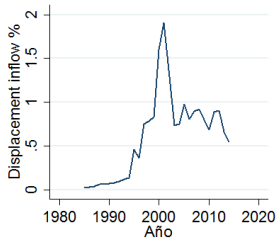


## Monteria

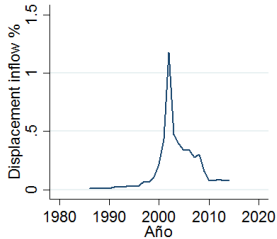


# Eastern Colombia

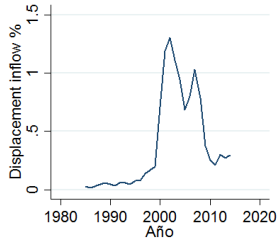
## Medellin



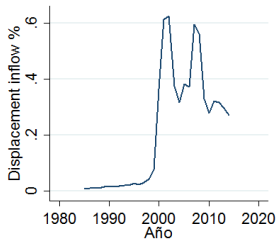
## Manizales



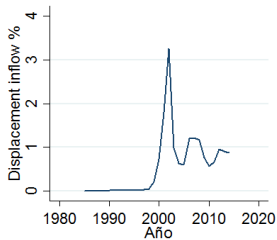
## Pereira



## Cali

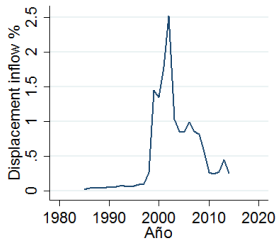


## Pasto

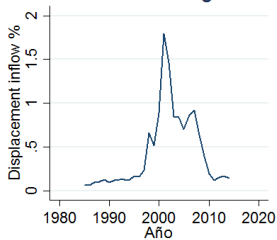


# Central Colombia

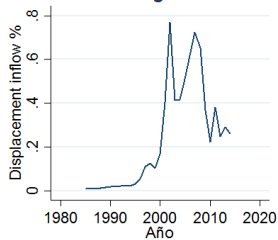
## Cucuta



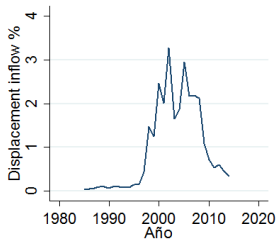
## Bucaramanga



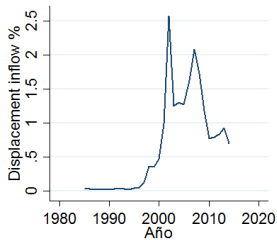
## Bogota



## Villavicencio



## Neiva



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# Some Descriptive Statistics

Tab.: Descriptive Statistics

	<i>Low IDP Inflows</i>		<i>High IDP Inflows</i>	
	mean	sd	mean	sd
Rental Prices	4.6271	0.1924	4.4770	0.1574
Food prices	4.5102	0.3142	4.3418	0.2466
IDP Inflows t-1	6.3036	1.0455	7.4533	0.8873
Outflows t-1	4.5148	1.2002	5.1670	1.0218
CPI	4.5550	0.2623	4.4091	0.2044
Population	13.4778	0.7871	13.6002	0.9479
Observations	282		550	

Standard deviation in parenthesis. All variables in logs.

# Housing Prices

Tab.: IDP Inflow and Housing Prices

	(1) Rental Prices OLS	(2) Rental Prices Low Income OLS	(3) Rental Prices Middle Income OLS	(4) Rental Prices High Income OLS
IDP Inflows t-1	0.0070 (0.0018)	0.0065 (0.0026)	0.0081 (0.0022)	0.0021 (0.0029)
Outflows t-1	-0.0019 (0.0011)	-0.0019 (0.0015)	-0.0022 (0.0013)	0.0007 (0.0017)
CPI	1.0389 (0.0652)	1.1646 (0.0989)	0.9813 (0.0730)	0.7951 (0.1058)
Population	-0.2364 (0.2013)	-0.5545 (0.2433)	-0.1313 (0.2600)	0.3355 (0.3297)
Observations	832	832	832	832

Robust standard errors in parenthesis. Panel regressions of city level prices against inflows of IDP. All regression include city and time fixed effects, and city-level time trends.

# First stages

1

Tab: IDP Inflows and City Receptivity.

	(1) Log IDP Inflows	(2) Log IDP Inflows
City Receptivity t+3	0.2251 (0.1566)	
City Receptivity t+2	-0.0530 (0.2003)	
City Receptivity t+1	-0.2092 (0.1957)	
City Receptivity t	1.3597 (0.1821)	1.5617 (0.1888)
City Receptivity t-1	0.3879 (0.1803)	0.6091 (0.1714)
City Receptivity t-2	0.0700 (0.1707)	
City Receptivity t-3	-0.0087 (0.1463)	
City Receptivity t-4	0.0343 (0.1336)	
Observations	832	832

Robust standard errors in parenthesis. Panel regressions of city level IDP inflows against City Receptivity. All regression include controls (Outflows, CPI and Population), city and time fixed effects, and city-level time trends.

# Housing Prices IV

Tab.: IDP Inflow and Housing Prices

	(1) Rental Prices OLS	(2) Rental Prices Low Income OLS	(3) Rental Prices Middle Income OLS	(4) Rental Prices High Income OLS
IDP Inflows t-1	0.0070 (0.0018)	0.0065 (0.0026)	0.0081 (0.0022)	0.0021 (0.0029)
Observations	832	832	832	832

Tab.: IDP Inflow and Housing Prices

	(1) Rental Prices IV	(2) Rental Prices Low Income IV	(3) Rental Prices Middle Income IV	(4) Rental Prices High Income IV
IDP Inflows t-1	0.0092 (0.0034)	0.0148 (0.0052)	0.0038 (0.0040)	-0.0206 (0.0071)
Observations	832	832	832	832
Instrument (F-stat)	79.72	79.72	79.72	79.72

Robust standard errors in parenthesis. Panel regressions of city level prices against inflows of IDP. All regression include city and time fixed effects, and city-level time trends. Controls not shown are lagged city outflows of IDPs, CPI, and population (all in logs). Inflows are instrumented using IDP Outflows in all other municipalities in both t-1 and t-2 weighed by (the inverse of) distance to the city.



# Housing Prices - Falsification I

Tab.: IDP Inflow and Housing Prices

	(1) Rental Prices OLS	(2) Rental Prices Low Income OLS	(3) Rental Prices Middle Income OLS	(4) Rental Prices High Income OLS
IDP Inflows in t+3	-0.000093 (0.001635)	-0.002284 (0.002036)	0.000805 (0.002109)	-0.000323 (0.002304)
Observations	831	831	831	831

Tab.: IDP Inflow and Housing Prices

	(1) Rental Prices IV	(2) Rental Prices Low Income IV	(3) Rental Prices Middle Income IV	(4) Rental Prices High Income IV
IDP Inflows in t+3	0.012834 (0.004368)	0.022326 (0.005726)	0.008788 (0.004944)	-0.025057 (0.008096)
Observations	831	831	831	831
Instrument (F-stat)	54.37	54.37	54.37	54.37

Robust standard errors in parenthesis. Panel regressions of city level prices against inflows of IDP. All regression include city and time fixed effects, and city-level time trends. Controls not shown are lagged city outflows of IDPs, CPI, and population (all in logs). Inflows are instrumented using IDP Outflows in all other municipalities in both t-1 and t-2 weighed by (the inverse of) distance to the city.

# Housing Prices - Falsification II

Tab.: IDP Inflow and Housing Prices

	(1) Rental Prices OLS	(2) Rental Prices Low Income OLS	(3) Rental Prices Middle Income OLS	(4) Rental Prices High Income OLS
IDP Inflows in t+3	-0.001395 (0.001596)	-0.003597 (0.001983)	-0.000663 (0.002093)	-0.000717 (0.002393)
IDP Inflows t-1	0.007322 (0.001854)	0.007383 (0.002632)	0.008252 (0.002281)	0.002218 (0.002965)
Observations	831	831	831	831

Tab.: IDP Inflow and Housing Prices

	(1) Rental Prices IV	(2) Rental Prices Low Income IV	(3) Rental Prices Middle Income IV	(4) Rental Prices High Income IV
IDP Inflows in t+3	0.010513 (0.004761)	0.018849 (0.006098)	0.008366 (0.005436)	-0.019164 (0.009435)
IDP Inflows t-1	0.005646 (0.003920)	0.008483 (0.005761)	0.001007 (0.004568)	-0.014342 (0.008442)
Observations	831	831	831	831
Instrument (F-stat)	22.26	22.26	22.26	22.26

Robust standard errors in parenthesis. Panel regressions of city level prices against inflows of IDP. All regression include city and time fixed effects, and city-level time trends. Controls not shown are lagged city outflows of IDPs, CPI, and population (all in logs). Inflows are instrumented using IDP Outflows in all other municipalities in both t-1 and t-2 weighed by (the inverse of) distance to the city.

# Food Prices

Tab.: IDP Inflow and Food Prices

	(1) Food Prices OLS	(2) Food Prices Low Income OLS	(3) Food Prices Middle Income OLS	(4) Food Prices High Income OLS
IDP Inflows t-1	-0.0024 (0.0015)	-0.0006 (0.0017)	-0.0026 (0.0015)	-0.0076 (0.0015)
Observations	832	832	832	832

Tab.: IDP Inflow and Housing Prices

	(1) Food Prices IV	(2) Food Prices Low Income IV	(3) Food Prices Middle Income IV	(4) Food Prices High Income IV
IDP Inflows t-1	-0.0135 (0.0034)	-0.0125 (0.0039)	-0.0133 (0.0033)	-0.0179 (0.0035)
Observations	832	832	832	832
Instrument (F-stat)	79.72	79.72	79.72	79.72

Robust standard errors in parenthesis. Panel regressions of city level prices against inflows of IDP. All regression include city and time fixed effects, and city-level time trends. Controls not shown are lagged city outflows of IDPs, CPI, and population (all in logs). Inflows are instrumented using IDP Outflows in all other municipalities in both t-1 and t-2 weighed by (the inverse of) distance to the city.

# Conclusions

- Rental Prices for low income individual increase with IDP Inflows.
- This hurts tenants and IDPs who do not get housing subsidies.
- Rental Prices for high income individuals increase.
- Food prices seem to increase however our instrumental variables approach is not valid because of inter-municipality general equilibrium effects.

# Conclusions

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