The Impacts of IDPs on Host Communities: Housing Prices

Emilio Depetris-Chauvin*     Rafael J. Santos†

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* †Universidad de Los Andes.
Outline

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

2 Empirical Strategy

3 Data

4 Preliminary Results
Aim: To study the impact of IDPs inflows on rental and food prices.
This paper

- 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-Garcia 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 through
    - Fixed effects model with location-specific linear trends
    - IV approach
  - investigate impacts on rental prices in urban areas by varying levels of income.
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Empirical model

With a panel of host cities we estimate,

\[ P_{c,t} = \alpha + \beta \text{Inflows}_{c,t-1} + \eta' X_{c,t} + d_c + d_t + u_{c,t} \]  \hspace{1cm} (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, amenities, etc.).
- Solution: Use an instrumental variable approach.
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Empirical model

- \( \text{receptivity}_{c,t} = \sum_{m \in M \setminus \{c\}} \text{outflows}_{m,t} \times D_{m,c}^{-1} \)

- 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-weighed average of the outflows in all municipalities except city/municipality \( c \).
Empirical model

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Empirical Strategy

Data

Preliminary Results
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.
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- Source of prices: CPI of DANE by income level.
- Source of migration inflows and outflows: RUV (Registro Único de Víctimas), i.e., The Colombian government.
IDPs municipality level data. Accion Social and RNI

Outflow Intensity by Municipality

Inflow Intensity by Municipality
Attacking Civilians (Centro Nacional de Memoria Histórica)
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Northern Colombia

Barranquilla

Cartagena

Monteria
1 Motivation
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Some Descriptive Statistics

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

Standard deviation in parenthesis. All variables in logs.
## Housing Prices

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<tr>
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<tr>
<td>IDP Inflows t-1</td>
<td>0.0070</td>
<td>0.0065</td>
<td>0.0081</td>
<td>0.0021</td>
</tr>
<tr>
<td></td>
<td>(0.0018)</td>
<td>(0.0026)</td>
<td>(0.0022)</td>
<td>(0.0029)</td>
</tr>
<tr>
<td>Outflows t-1</td>
<td>-0.0019</td>
<td>-0.0019</td>
<td>-0.0022</td>
<td>0.0007</td>
</tr>
<tr>
<td></td>
<td>(0.0011)</td>
<td>(0.0015)</td>
<td>(0.0013)</td>
<td>(0.0017)</td>
</tr>
<tr>
<td>CPI</td>
<td>1.0389</td>
<td>1.1646</td>
<td>0.9813</td>
<td>0.7951</td>
</tr>
<tr>
<td></td>
<td>(0.0652)</td>
<td>(0.0989)</td>
<td>(0.0730)</td>
<td>(0.1058)</td>
</tr>
<tr>
<td>Population</td>
<td>-0.2364</td>
<td>-0.5545</td>
<td>-0.1313</td>
<td>0.3355</td>
</tr>
<tr>
<td></td>
<td>(0.2013)</td>
<td>(0.2433)</td>
<td>(0.2600)</td>
<td>(0.3297)</td>
</tr>
<tr>
<td>Observations</td>
<td>832</td>
<td>832</td>
<td>832</td>
<td>832</td>
</tr>
</tbody>
</table>

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

<table>
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<th>(1) Log IDP Inflows</th>
<th>(2) Log IDP Inflows</th>
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<tbody>
<tr>
<td>City Receptivity t+3</td>
<td>0.2251</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.1566)</td>
<td></td>
</tr>
<tr>
<td>City Receptivity t+2</td>
<td>-0.0530</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.2003)</td>
<td></td>
</tr>
<tr>
<td>City Receptivity t+1</td>
<td>-0.2092</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.1957)</td>
<td></td>
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<tr>
<td>City Receptivity t</td>
<td>1.3597</td>
<td>1.5617</td>
</tr>
<tr>
<td></td>
<td>(0.1821)</td>
<td>(0.1888)</td>
</tr>
<tr>
<td>City Receptivity t-1</td>
<td>0.3879</td>
<td>0.6091</td>
</tr>
<tr>
<td></td>
<td>(0.1803)</td>
<td>(0.1714)</td>
</tr>
<tr>
<td>City Receptivity t-2</td>
<td>0.0700</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.1707)</td>
<td></td>
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<tr>
<td>City Receptivity t-3</td>
<td>-0.0087</td>
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<tr>
<td></td>
<td>(0.1463)</td>
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<tr>
<td>City Receptivity t-4</td>
<td>0.0343</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.1335)</td>
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## Housing Prices IV

### Tab.: IDP Inflow and Housing Prices

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<td>IDP Inflows t-1</td>
<td>0.0070 (0.0018)</td>
<td>0.0065 (0.0026)</td>
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<td>0.0021 (0.0029)</td>
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<tr>
<td>IDP Inflows t-1</td>
<td>0.0092 (0.0034)</td>
<td>0.0148 (0.0052)</td>
<td>0.0038 (0.0040)</td>
<td>-0.0206 (0.0071)</td>
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<td>Observations</td>
<td>832</td>
<td>832</td>
<td>832</td>
<td>832</td>
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<tr>
<td>Instrument (F-stat)</td>
<td>79.72</td>
<td>79.72</td>
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## Housing Prices - Falsification I

**Tab.: IDP Inflow and Housing Prices**

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<td>IDP Inflows in t+3</td>
<td>-0.000093 (0.001635)</td>
<td>-0.002284 (0.002036)</td>
<td>0.000805 (0.002109)</td>
<td>-0.000323 (0.002304)</td>
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<td>-0.001395 (0.001596)</td>
<td>-0.003597 (0.001983)</td>
<td>-0.000663 (0.002093)</td>
<td>-0.000717 (0.002393)</td>
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<td><strong>IDP Inflows t-1</strong></td>
<td>0.007322 (0.001854)</td>
<td>0.007383 (0.002632)</td>
<td>0.008252 (0.002281)</td>
<td>0.002218 (0.002965)</td>
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<td>0.010513 (0.004761)</td>
<td>0.018849 (0.006098)</td>
<td>0.008366 (0.005436)</td>
<td>-0.019164 (0.009435)</td>
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<td><strong>IDP Inflows t-1</strong></td>
<td>0.005646 (0.003920)</td>
<td>0.008483 (0.005761)</td>
<td>0.001007 (0.004568)</td>
<td>-0.014342 (0.008442)</td>
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<td>22.26</td>
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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 weighted by (the inverse of) distance to the city.
### Food Prices

#### Tab.: IDP Inflow and Food Prices

<table>
<thead>
<tr>
<th></th>
<th>(1) Food Prices OLS</th>
<th>(2) Food Prices Low Income OLS</th>
<th>(3) Food Prices Middle Income OLS</th>
<th>(4) Food Prices High Income OLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDP Inflows t-1</td>
<td>-0.0024 (0.0015)</td>
<td>-0.0006 (0.0017)</td>
<td>-0.0026 (0.0015)</td>
<td>-0.0076 (0.0015)</td>
</tr>
<tr>
<td>Observations</td>
<td>832</td>
<td>832</td>
<td>832</td>
<td>832</td>
</tr>
</tbody>
</table>

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- This hurts tenants and IDPs who do not get housing subsidies.
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