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The impact of internal displacement on destination communities: Evidence from the Colombian conflict

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ABSTRACT

More than ten percent of the population of Colombia has been forced to migrate due to civil war. This study employs an enclave IV strategy, which exploits social distance between origin and destination locations, as well as conflict-induced migration, to estimate the impact that the arrival of displaced individuals has on the wages of local residents. I compare the effects on four different subgroups of the population, partitioned by skill (low-skilled versus high-skilled) and by gender. The analysis suggests that a conflict-induced increase in population leads to a short-run negative impact on wages, but that subsequent out-migration from receiving municipalities helps to mitigate these effects. Though the impact tends to dissipate over time, it persists for low-skilled women, suggesting that this group is particularly vulnerable to the arrival of forced migrants.

1. Introduction

The world is plagued by violence. Ongoing conflicts across the globe, in Iraq, Colombia, Nigeria, Libya, Mexico, Ukraine, Democratic Republic of Congo and Syria among others, and stories of migrants leaving these conflict zones, are often featured in the news. There are now over 60 million people around the world who have fled their homes as a result of armed conflict, the largest number since World War II (UNHCR, 2016). Over 38 million of these are internally displaced people who remain within the boundaries of their home countries. In Colombia alone, more than six million people have been displaced by violence, over ten percent of the country's population. Although the direct impact that violence has on the lives of these victims is evident, the effects of displacement also extend to wider settings. As these forced migrants arrive in cities and towns, economic and political channels diffuse these effects among residents at the arriving locations. I study how the arrival of those displaced by violence between 1998 and 2005, a period which saw unprecedented levels of displacement in Colombia, affected wages at destination communities.

I build on previous work by Calderón-Mejía and Ibáñez (2016), who examine the impact of internal displacement on urban labour markets, and expand their analysis by looking at a wider range of receiving municipalities and allowing for longer-run effects. To estimate the causal effects of interest I employ an instrumental variable strategy which uses migrant shares from the origin municipality to predict displacement to the destination. The instrument combines two factors, which are arguably independent of conditions at the destination, to predict migration flows after 1997: displacement driven by violence at the municipalities of origin, and shares of migrants from these origin municipalities who were living at the destination in 1993. The migration networks, or enclave, instrument has been commonly used in the immigration literature since Card (2001), but has not been previously used (to the best of my knowledge) to analyze internal migration in Colombia.

I frame the analysis within a spatial equilibrium model in which violent conflict leads to "forced" migration. The welfare of residents at receiving locations is affected by the arrival of forced migrants through various mechanisms, including a reduction in wages induced by increased labour supply. However, subsequent out-migration of affected residents helps mitigate the effects over time.

I find empirical support for the conceptual framework presented. Receiving municipalities are adversely affected in the short-run by a negative impact on wages. A one percent increase in population due to conflict-induced migration leads to an overall reduction in wages of 1.4 percent in the short-run. I also estimate the effects separately for four different subgroups of the population, partitioned by skill and by gender. The effect is particularly severe for women. A one percent increase in population due to conflict-induced migration decreases wages for low-skilled women by 2.2 percent, and for high-skilled women by 1.7 percent.

Over time, however, the effect tends to dissipate. In the long-run (over a five year period), I find no overall impact on wages. I

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present evidence that labour reallocation may help explain these observations. I find that larger inflows of internally displaced people result in increased rates of out-migration from destination municipalities. These out-migration responses, however, differ by gender and skill group. In particular, the analysis suggests that high-skilled individuals are more mobile, which can help explain why I find no long-run impact on their wages. The wage impact, however, does persist for low-skilled women (with an estimated long-run elasticity of −1.6), suggesting that this group is particularly susceptible to the arrival of forced migrants, both through an initial stronger wage effect and a weaker out-migration response.

The analysis I present contributes mainly to two important areas of study. First, there is a growing literature in economics on the causes and consequences of civil war (Blattman and Miguel, 2010). Since 1960, twenty percent of countries have experienced civil conflicts lasting at least ten years, which highlights the importance of the issue for economic development and welfare. Second, the study contributes to a more traditional and extensive literature on immigration and labour markets.

Studies on internal displacement which examine how those displaced are affected include Kondylis (2010), Ibáñez and Vélez (2008), Ibáñez and Moya (2010), Calderón et al. (2011) and Silva Arias and Sarmiento Espinel (2013).[1] Studies that analyze the impact that internal displacement has on host (destination) communities include Alix–Garcia and Saah (2010), who find that food prices in Tanzania increased following refugee inflows from Burundi and Rwanda in the 1990s, but that the impact is mitigated by food aid, and that while wealth effects are positive for rural inhabitants close to refugee camps, they are negative for those in urban areas. Baez (2011), studying the same conflict, finds worsening health outcomes for children in Tanzanian regions with larger number of refugees. Maystadt and Verwimp (2014) find that the presence of refugees in Tanzania led to increased household consumption, though the impact differs widely by occupation, while Maystadt and Duranton (2014) suggest that refugee induced road construction may have led to permanent welfare gains through a reduction in transportation costs. Ruiz and Vargas-Silva (2016) investigate the effects of refugee hosting on employment outcomes and find that native workers in host regions were less likely to work outside their household. Alix-Garcia and Bartlett (2015) find that high-skilled employment is higher in a Darfurian city affected by displacement compared to a similar neighbouring city which was unaffected, as the arrival of internally displaced people generates a positive demand driven shock for these workers. Ruiz and Vargas-Silva (2013) conclude that the evidence regarding the impact of forced migrants on destination communities is mixed, and emphasize Maystadt and Verwimp (2014)'s view that there tend to be both winners and losers in the host communities.

It should be highlighted that while both the Tanzanian refugees and those displaced in Darfur were mostly localized in large camps, internally displaced people in Colombia are located all throughout the country. Studying the impact of displacement on Colombian labour markets, Bozzoli et al. (2013) find that self-employment is lower in origin municipalities of displacement, and higher in destination municipalities, while Peña (2014) highlights the ability of labour markets to absorb forced migrants with negligible impacts on the employment outcomes of the native population. Calderón-Mejía and Ibáñez (2016) find that internal displacement has a large negative impact on wages in the informal sector of destination cities, and that it increases the probability of native workers working in the informal sector. Taken together, these studies suggest that informal sectors in Colombian labour markets seem to easily absorb the inflow of forced migrants, but that wages in destination communities are likely to be affected as a result. The short-run estimates I report support these conclusions. In addition, Calderón et al. (2011) report that displaced women are more competitive in destination labour markets relative to displaced men, suggesting that the labour market effects for local residents are likely to be larger for women. The findings I report also support this hypothesis.

The paper also contributes to the broader debate on the effects of immigration on labour markets. Several studies have found that such effects tend to be small (see for instance Card, 2005, 2009; Friedberg, 2001; Ottaviano and Peri, 2012; Peri and Yasenov, 2015; Beerli and Peri, 2015), suggesting that immigrant workers and native workers are imperfect substitutes. Others, however, argue that the effects can be large and are usually concentrated among young or poorly educated workers, who generally compete with (low-skilled) immigrants for jobs (see Borjas, 2003, 2017, 2006; Smith, 2012; Borjas and Monras, 2017). The short-run elasticity of wages with respect to the number of workers that I estimate is on average larger than that found in other immigration studies with similar specifications,[2] but smaller than that reported by Calderón-Mejía and Ibáñez (2016).[3] The effects I find are likely to be larger from those reported for other settings as a result of i) the shock being absorbed mainly by wages, as opposed to employment,[4] and ii) migrants being closer substitutes to natives in terms of skills. Finally, the evidence I present for the case of Colombia is consistent with Monras (2015)'s study of Mexican immigration to the United States, which finds a large negative short-run impact on wages, and stresses how labour reallocation dissipates these impacts in the long-run.

The paper is organized as follows. Section 2 briefly outlines the background of civil conflict in Colombia. Section 3 presents the theoretical framework. The data and summary statistics are described in section 4. Section 5 outlines the empirical strategy. Section 6 presents the results and section 7 concludes.

2. Background

It is not uncommon for countries to undergo civil wars and internal conflict throughout the process of economic development. Since 1958 an estimated 220,000 people have died in Colombia, over 80% of whom were civilians, due to one of the longest ongoing civil conflicts in the world (CNMH, 2013).

In the 1960s, the emergence of left-wing guerrilla groups ended a transition from violence between political parties to one of a subversive nature. The Revolutionary Armed Forces of Colombia (FARC) and the National Liberation Army (ELN), both founded in 1964, have played leading roles throughout the civil war. It was not until the 1980s, however, that these guerrilla groups started an aggressive geographic expansion of their activities throughout the country. Sánchez Torres and Díaz (2005) document this expansion and highlight both the substantial increase in the number of attacks from these groups, and the widening of their geographic reach. Their operations have been mainly funded through kidnappings, extortion, trade of illegal drugs, and as of more recent, illegal mining. Various attempts of peace negotiations between these guerilla groups and the Colombian government have taken place throughout the decades. The most recent negotiations

[1] Kondylis (2010) finds that displaced men in Bosnia are more likely to be unemployed, while displaced women are less likely to be in the workforce. Silva Arias and Sarmiento Espinel (2013) find that internally displaced people are around 6 percentage points more likely to be unemployed than other migrants, with the impact considerably mitigated by higher levels of education. Ibáñez and Vélez (2008) find that internally displaced people suffer welfare losses equivalent to 37% of their lifetime consumption, while Ibáñez and Moya (2010) find that only 25% of displaced households recover the asset losses generated by displacement.

[2] For instance, Borjas and Monras (2017) report estimates of between −0.9 and −1.3 for the Mariel boat lift supply shock and −0.6 for Soviet émigrés in Israel, and Monras (2015) reports estimates of between −0.7 and −1.5 for the Mexican peso crisis.

[3] However, they use a different specification. I discuss this in further detail in the results.

[4] See Peña (2014) for evidence from Colombia and Smith (2012), Borjas and Monras (2017) for evidence from the U.S., France and former Yugoslavia.

between the government and the FARC concluded at the end of 2016 with a peace accord which is, as of this writing, in its initial implementation stages.[5]

In the 1980s, the increasing threat from guerillas and the inability of the government to ensure safety across the country led many landowners to sponsor local militia forces. These right-wing groups merged and founded the United Self-Defense Forces of Colombia (AUC) in 1997, a counter-insurgency paramilitary group with the objective of combating the FARC and ELN. Funded principally by narcotraffickers and other private interests, the AUC were widely condemned of human rights abuses, including massacres, torture, and assassinations. After negotiations with the government of Álvaro Uribe Vélez, most AUC members demobilized between 2004 and 2006. Some remain active today as part of smaller militia and criminal groups.

The Colombian military is one of the largest in Latin America and has often received funding and support from the United States government as part of their 'war on drugs' campaign. After an unsuccessful attempt at negotiations with the FARC broke down in 2002, Álvaro Uribe Vélez was elected president running on a platform of aggressive military intervention against the rebel insurgencies. During his eight year mandate (having been re-elected in 2006), the army intensified its efforts of combating the guerilla groups and recovered a substantial share of the country's territory that was under FARC and ELN control.

All of these groups, including the Colombian military, have been accused of human rights violations. The multi-party nature of the conflict and its intensity has resulted in civilians being victims of crossfire, threats, kidnappings, massacres, bombings, forced recruitment of minors, and extortion. Civilians are targeted and persecuted as a deliberate strategy of war, often accused of aiding enemy groups, whoever these are. Millions of peasants and farmers have opted for fleeing conflict zones to ensure their and their family's safety. These internally displaced people leave their hometowns and often arrive at cities or large towns.

Though the experiences of millions of victims of displacement are undoubtedly unique, many share common traits. Two specific settlement approaches are frequent when arriving at their destinations: *nuclear settlements*, in which vacant lots, often in the peripheries of cities, are 'invaded' by groups of displaced individuals to raise huts and shelters in which to live; and *dispersed settlement*, finding accommodation in the homes of family or friends who reside there (Naranjo, 2004). Internally displaced people are likely to become part of the informal economy of the municipalities where they arrive, often as construction workers, maids, or selling food items or other cheap goods on the streets. Ibáñez (2008) highlights two important facts regarding the issue: first, internal displacement is unequivocally a consequence of violence, and those displaced differ substantially from other types of internal migrants; second, though access to public services is higher for displaced people in the urban areas where they settle, their incomes and consumption patterns are severely negatively affected, and they often find themselves in vulnerable conditions worse than those of other poor urban residents.

3. Conceptual framework

To investigate how the welfare of native residents of destination cities is affected by internal displacement, I present a spatial equilibrium framework in the spirit of Moretti (2011), generalized and extended to include violent conflict v as a determinant of well-being. The economy consists of a set of locations J, each producing a single tradable good. Each individual i of type k (which defines their skill and gender) is mobile and chooses location j to maximize their indirect expected utility U_{kij}, given by:

$$U_{kij} = V_{kj}(w_{kj}, r_j, a_j) + \varepsilon_{kij}$$

where $w_{kj}(N_{kj}, v_j)$ is the wage in location j for type k, $r_j(N_j, v_j)$ is the cost of housing (of which each worker demands one unit) and $a_j(N_j, v_j)$ is a measure of the local amenities captured by the individual. Finally, $\varepsilon_{kij}(s_{ij}, v_j)$ is an idiosyncratic component for i's individual preference for location j, where s represents social capital and positively affects idiosyncratic utility ($\frac{\partial \varepsilon_{kij}}{\partial s_{kij}} > 0$). V is increasing in w and a ($\frac{\partial V_{kj}}{\partial w_{kj}} > 0$, $\frac{\partial V_{kj}}{\partial a_j} > 0$), and decreasing in r ($\frac{\partial V_{kj}}{\partial r_j} < 0$).

The components of individuals' welfare are themselves in turn functions of N_j, the number of residents of type k at location j, and v_j, the level of violence at location j. In particular, wages are negatively related to population ($\frac{\partial w_{kj}}{\partial N_{kj}} < 0$, the labor demand curve is downward sloping), the cost of housing is increasing with population ($\frac{\partial r_j}{\partial N_j} > 0$)[6] and the relationship between amenities and N is ambiguous, due to the possibility of either congestion in amenities (as in Dinkelman and Schulhofer-Wohl, 2015) or of increased access to resources due to political responses (as suggested by Bohada, 2010).

Wages, amenities and individual's preferences for a specific location are negatively affected by violence ($\frac{\partial w_{jk}}{\partial v_j} < 0$, $\frac{\partial a_j}{\partial v_j} < 0$, $\frac{\partial \varepsilon_{kij}}{\partial v_j} < 0$, $\forall k, i$). Violence makes individuals and firms less productive, destroys amenities, and also affects individuals directly. The cost of housing is positively affected by violence ($\frac{\partial r_j}{\partial v_j} > 0$), through destruction of the stock of housing.[7] Violence therefore unambiguously affects utility U negatively ($\frac{\partial U_{kij}}{\partial v_j} < 0$, $\forall k, i$).

3.1. Effect of civil conflict on migration and impact at destination

Assume now three locations, R, T and C (which can be thought of as Rural, Towns, Cities). I now consider the impact that civil conflict in location R can have on C's and T's residents through internal displacement, and I differentiate short-run and long-run effects. Assume (without loss of generality) that the social distance between R and T is smaller than that between R and C. In this general framework this assumption is defined through the idiosyncratic preferences of individuals: those having higher social capital in R, have higher social capital in T than in C. That is, if $s_{kiR} > s_{kiT}$, then $s_{kiT} > s_{kiC}$.

Suppose now that the level of violence in R, v_R, increases as a result of civil conflict. As outlined above, an increase in v_R will negatively affect the utility that individuals receive from locating at R, that is, U_{kiR} decreases. This reduction in the utility received from locating in R results in out-migration from this location. Displaced individuals from R relocate to T in the short-run. The arrival of migrants in location T (an increase in N_T) affects the utility of T's residents, U_{kiT}, through three specific mechanisms: i) a change in wages w_{kT}; ii) a change in the availability of amenities a_T; and a change in the cost of housing r_T.[8]

Furthermore, if U_{kiT} is negatively affected by the arrival of displaced individuals, then the residents of T may in turn out-migrate to location C, therefore affecting U_{kiC} through an increase in N_C. Thus we

[5] See http://www.nytimes.com/2016/11/24/world/americas/colombia-juan-manuel-santos-peace-deal-farc.html and https://www.nytimes.com/2016/11/30/world/americas/colombia-farc-accord-juan-manuel-santos.html.

[6] Depetris-Chauvin and Santos (2017) study the effects of internal displacement on housing prices in Colombian cities and find that a 10% increase in displacement flows increase average rental prices by 0.12% (low-income rental prices increase by 0.23% and high-income rental prices decrease by 0.18%).

[7] Note however, that the overall effect on the cost of housing is likely to be negative as violence induces out-migration, therefore reducing the demand for housing.

[8] Although wages are affected differentially by migration from households of different types, all households share the same amenities and rental markets in the model.

can expect the impact of displacement on T to be mitigated by out-migration in the longer-run (as N_T decreases). It should thus be noted that the welfare impact of internal displacement is mitigated with more than two locations, firstly because the number of forced migrants arriving at each location is reduced, and in addition native residents of a location affected by the arrival of migrants may in turn choose themselves to move to a third location.

The framework will be evaluated empirically in the following sections. I partially estimate the impact of internal displacement on native workers by analyzing the effect that the arrival of migrants has on their wages, both in the short-run and in the long-run.[9] In addition, I estimate the effect of in-migration on subsequent out-migration.

4. Data and summary statistics

The main sources of data used are: a labour survey carried out by the National Administrative Department of Statistics (DANE), a government entity in charge of the collection and diffusion of Colombia's official statistics; the Colombian censuses of 1993 and 2005, also collected by the DANE; and the Unique Registry for Displaced Population (RUPD) maintained by the non-profit organization Acción Social.[10]

The survey used is the National Household Survey (ECH) for the years 1998–2004, a repeated cross-section collected quarterly by the DANE throughout the country (267 municipalities). The ECH includes data on wages as well as employment and schooling status. Unfortunately, these surveys do not allow for the consistent identification of displaced households, thus I assume that displaced households do not enter the sampling frame the year after their arrival.[11] The sample is restricted to individuals who are between 15 and 70 years old. The log of real wages are winsorized at the 1% level. Table 1 summarizes statistics for individuals in the ECH survey by education (less than secondary and secondary and above).

The Colombian censuses of 1993 and 2005 were accessed through the Integrated Public Use Microdata Series (IPUMS, 2014). Although the census covers the entire population of the country, the public use version covers ten percent of the population (over four million observations) across 533 municipalities (merged to be larger than 10,000) located in 31 different departments (a political division equivalent to states or provinces). The 2005 census includes detailed questions on migration, in particular, it asks people whether they have moved in the previous five years, and what the reasons were for such move. I classify as internally displaced those who list "violence or insecurity" as their reason for moving.

Household skill groups, which are pivotal to the analysis, are defined such that high-skilled households are those in which all adult members have secondary education or above. This definition provides groups with a roughly balanced number of households. Table A1 summarizes statistics for native households in the census (those who have not moved in the previous five years) by skill groups, as well as by IDP status. Internally displaced people are on average younger, have larger families and are more likely to belong to an ethnic minority. Their education level is on average lower than that of the native population.[12] As expected, high-skilled households are more likely to have children in school, and have higher access to water and electricity than low-skilled households. Unsurprisingly, displaced households in the census fare poorly by all these metrics, for the most part worse than low-skilled households. In addition, summary statistics of a wealth index created using household assets and dwelling characteristics is also reported.

Over 700,000 people were registered as displaced during the period of study. The independent variable of interest is built using data from the RUPD, a unique registry which documents the number of internally displaced people both arriving at and leaving from Colombian municipalities.[13] Note however that these are two separate counts, and there is no matching between the origin and destination of the migrants in the data. I exploit both of these data records in my empirical strategy outlined below. Various municipality controls are also added and constructed using the 1993 census. I summarize these municipal characteristics in Table A2. Fig. 1 shows the number of forced migrants in Colombia between 1997 and 2011. Internal displacement increased substantially during the period of study due to the intensification of the conflict. In addition, Fig. 2 maps the number of internally displaced people arriving at Colombian municipalities for the period preceding the census (2000–2004).

One possible measure of the substitutability between internally displaced people and local residents is the prevalence of employment across different industries at the destination. If internally displaced individuals are able to find employment in the same industries as local workers, local workers are more likely to be affected by the inflow of forced migrants. Using data from the 2005 census, I estimate differences in employment rates between internally displaced individuals and each of the relevant subgroups by regressing industry employment dummy variables on subgroup dummy variables. The results from this analysis are presented in Table A3.[14] Highlighted in bold is the smallest coefficient for each industry among the four groups. These differences are also normalized and shown in Fig. A1. In general, the distribution of displaced individuals across industries is closest to that of local low-skilled women, and most different to that of high-skilled men. The unweighted averages of the absolute value of these coefficients are 0.041, 0.047, 0.007, and 0.022, respectively for low-skilled men, high-skilled men, low-skilled women, and high-skilled women.[15] Or, interpreted differently, given the industry of employment of an individual, it is most difficult to distinguish internally displaced individuals from low-skilled women.[16] These observations are consistent with those of Calderón et al. (2011) and with the results of the main analysis presented below.

5. Empirical strategy

Displacement due to violence presents a natural experiment to analyze important migration related issues. The flow of internally displaced people arriving at destination cities as a share of the local population provides plausibly exogenous variation in the supply of labour. The analysis will explore the impact of internal displacement separately for low-skilled and high-skilled individuals, as well as by gender. The sample is thus partitioned and the regressions are separately run on each of these groups, allowing for heterogeneous impacts of the covariates, by skill and gender group, on the outcomes of interest.

[9] In particular, I aim to find estimates of $\frac{\partial w_{kj}}{\partial N_j}$.

[10] Accessed through the Integrated System for Humanitarian Information for Colombia (SIDIH).

[11] The ECH's module on migration was only carried out during the first quarter of the year and was unavailable to the public at the time of this analysis.

[12] Silva Arias and Guataquí Roa (2008) and Ibáñez (2008) also highlight the relatively low educational attainment of internally displaced people.

[13] Displacement is known to be underreported in the census, see Silva Arias and Sarmiento Espinel (2013) for a discussion of how these two sources compare.

[14] The excluded category is internally displaced people.

[15] Averages excluding the unknown and the "not in universe" industry categories are, respectively, 0.012, 0.009, 0.004, and 0.007. Averages of the normalized differences are, respectively, 15.5, 17.2, 4.5, and 10.7.

[16] An alternative set of regressions, in which I pool internally displaced individuals with each subgroup separately, and regress an IDP status dummy on the industries of employment, yield qualitatively similar conclusions (Table A4). The R-squared from these separate regressions are 0.015, 0.038, 0.004 and 0.016, respectively for low-skilled men, high-skilled men, low-skilled women, and high-skilled women. Again, industry of employment has the least predictive power in differentiating low-skilled women from internally displaced people, and the most predictive power in differentiating high-skilled men.

Table 1
Individual summary statistics (ECH survey).

	(1) Full Sample		(2) <Secondary		(3) Secondary +	
	mean	sd	mean	sd	mean	sd
Male	0.63	0.48	0.67	0.47	0.54	0.50
Years of education	7.25	4.63	4.55	2.69	12.7	2.39
Age	36.9	12.9	38.4	13.7	34.1	10.5
Married (or civil union)	0.58	0.49	0.60	0.49	0.54	0.50
Urban	0.70	0.46	0.60	0.49	0.90	0.30
(Log of) Real wages	11.9	1.00	11.6	0.93	12.4	0.90
Observations	937964		535821		402143	

Notes: The table reports the weighted average of the individual characteristics in the ECH sample, for all years (1997–2004), using the survey weights. Column (2) summarizes variables for individuals with less than secondary school completed, and column (3) for those who have completed secondary school or above.

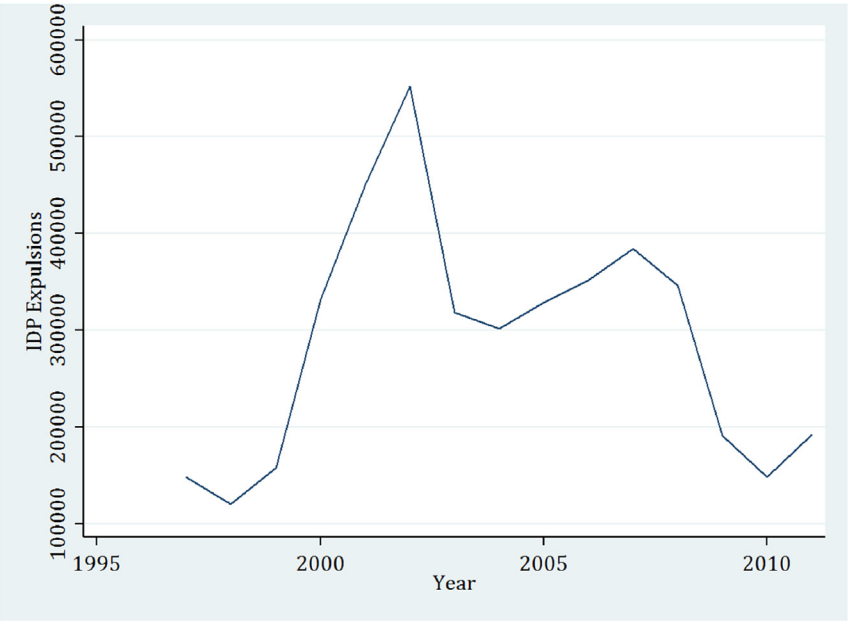

Fig. 1. Internal displacement in Colombia per year.

5.1. Short-run effects

The short-run analysis focuses on the impact of displacement on wages, using the ECH survey. The impact of forced migration on individual wages at the destination location is estimated using the following equation:

$$y_{imt} = \alpha + \beta d_{mt-1} + \lambda_i X_{imt} + \lambda_m X_{mt} + \gamma_t + \delta_m + \delta_m T + \varepsilon_{imt}$$

where y_{imt} is the log of wages for individual i in municipality m at time t. The inflow of internally displaced people for each one hundred people is represented by d_{mt}, that is:

$$d_{mt} = \frac{100}{pop_{mt}} \times f_{mt}$$

where f_{mt} is the total number of forced migrants arriving at municipality m at time t. The vector X_i includes individual controls (education, potential experience and its square, gender and marital status), and X_{mt} includes the log of total population. I include municipality fixed effects, year fixed effects, and municipality specific linear time trends. Note that β constitutes the parameter of interest, which estimates the impact of the arrival of forced migrants at time $t-1$ on wages at time t. The model is estimated in two steps, first regressing wages on the individual covariates and averaging the residuals at the municipal-year level, and then regressing these average wage residuals on the municipal and time varying regressors (including displacement).

5.2. Long-run effects

An alternate specification which captures long-run effects is also studied:

$$y_{im} = \alpha + \beta d_m + \lambda_i X_{im} + \lambda_m X_m + \delta_{D_m} + \varepsilon_{im}$$

where y_{im} is the outcome of interest, X_{im} is a vector of household and individual controls (various demographic characteristics including household size, proportion of female members, gender of household head, education of household head, number of children, number of adults, proportion of adults at different levels of education, among others), X_m is a long vector of municipality level controls (which include population, longitude, latitude, altitude, share urban population, as well as the mean of various descriptive statistics in 1993),[17] and δ_{D_m} are department fixed effects (where municipality m is located in department D_m). These department fixed effects capture variation at

[17] Including access to schooling, access to water supply and trash collection services, unemployment, and share employed in agriculture, among others.

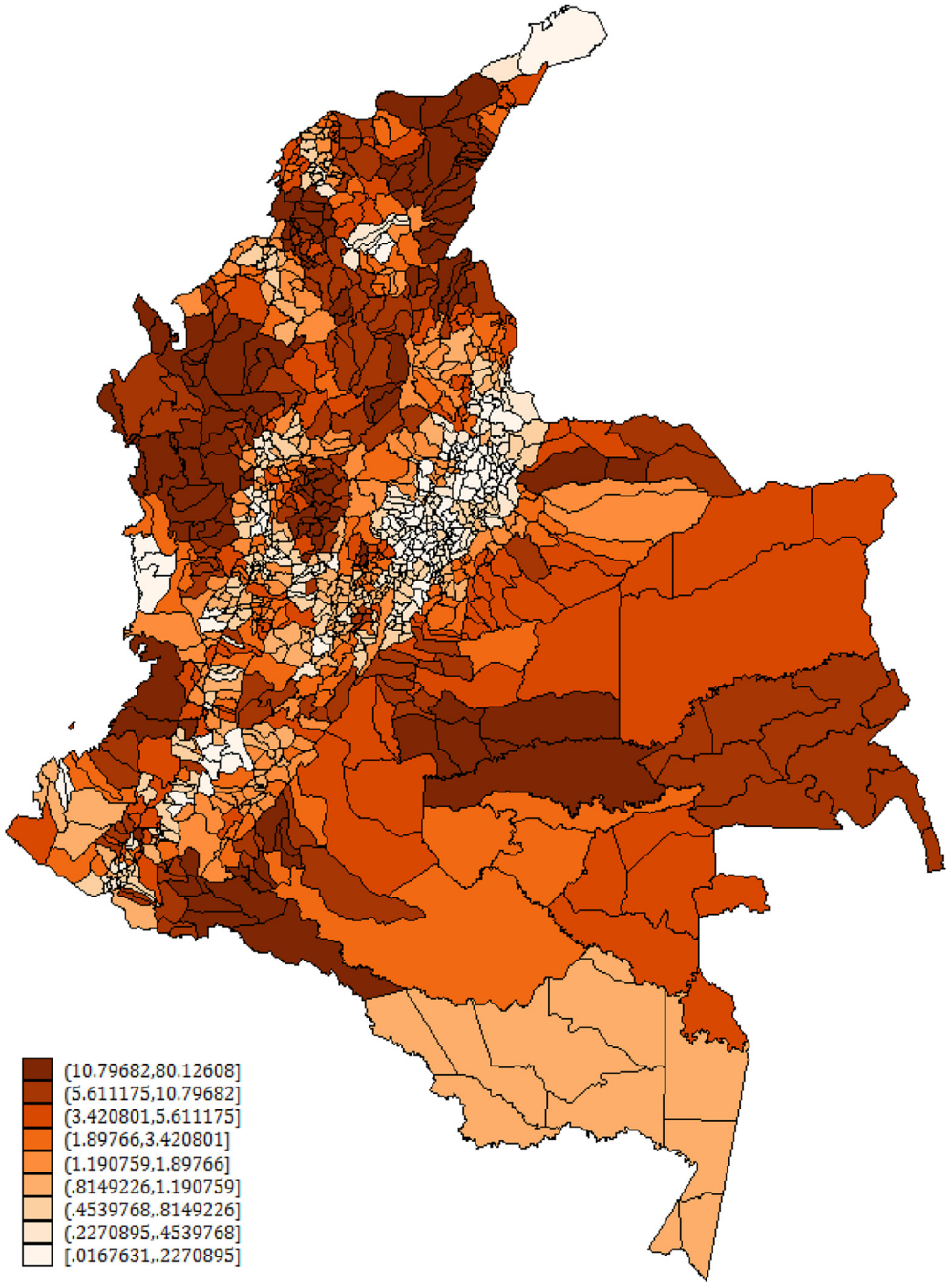

Fig. 2. Number of IDP arrivals (2000–2004) per 100 population.

the department level which could affect both the probability of internal displacement and the outcomes of interest. Capturing the homogeneity of outcomes within departments is important given the possibility of spatial correlation (as highlighted by Fig. 2). Finally, the inflow of internally displaced people in the previous five years for each one hundred people is represented by d_m, that is:

$$d_m = \frac{100}{pop_m} \times f_m$$

where f_m is the total number of forced migrants arriving at municipality m in the previous five years, and pop_m is the population of the municipality. The long-run analysis is done for wages using the 2004 ECH sample, and for a household wealth index using the 2005 census. Since the census includes detailed migration information, the sample of analysis selected in this case includes only native residents at the destination municipalities, defined as those who lived in the same municipality 5 years prior to the census.

5.3. Enclave IV

As argued by previous work, displacement is driven by episodes of violence (Ibáñez, 2008; Calderón-Mejía and Ibáñez, 2016) and the timing of these expulsions is thus likely independent of outcomes at receiving locations. The forced migrants' choice of location may however be affected by, or correlated with, certain city characteristics. For instance, if labour market conditions are relatively favourable at a specific city at

the time of departure, it is likely to attract more migrants. More specifically, the number of internally displaced people arriving, f_{mt}, could be correlated with ε_{imt}. To overcome this concern, I employ the migration networks, or enclave, instrument commonly used in the immigration literature (some recent examples include Monras, 2015; Lafortune et al., 2014).

Patterns of migration are often determined by past migration waves, and internally displaced people often arrive at the homes of relatives or friends (Naranjo, 2004). I define the instrument using the 1993 census. It is defined as:

$$dIV_{mt} = \frac{100}{pop_{mt}} \times \left(\sum_j e_{jt} \times s_{mj1993} \right)$$

where e_{jt} is the total number of expulsions from municipality j at time t, and s_{mj1993} is the share of migrants from municipality j who lived in municipality m in 1993.[18] The instrument depends on migration decisions which took place prior to 1993, and is thus potentially uncorrelated with outcomes during the period of study, conditional on a wide range of past municipal controls.[19]

The empirical strategies presented use variation in the arrival of forced migrants across time in the ECH survey to identify the short-run effects of internal displacement, an analysis similar to that of Calderón-Mejía and Ibáñez (2016). On the other hand, the analysis exploits variation across municipalities to identify the longer term impact of internal displacement, with t defined in the instrument as the period five years prior. This second strategy, IV with a wide set of controls, is similar to that in Duranton (2016)'s analysis of agglomeration effects in Colombia.

5.4. Out-migration

The long-run analysis I have presented uses migration information from the census to identify non-movers since, as predicted by the framework presented in section 4, a negative welfare impact to the residents of certain location will result in out-migration from it (it is such a shock that leads to internal displacement in the first place). As forced migrants arrive at their destinations they affect the welfare of local residents through various outcomes, if such an impact is negative overall, it would in turn also result in migration away from these receiving locations. Such process of labour reallocation has been documented in studies of immigration into the U.S, but has not, to the best of my knowledge, been studied for the case of Colombia. I use migration information from the census to examine such a possibility through the following short-run specification:

$$y_{mt} = \alpha + \beta d_{mt-1} + \lambda y_{mt-1} + \gamma_t + \delta_m + \varepsilon_{mt}$$

where y_{mt} is the rate of out-migration defined as $y_{mt} = (n_{mt}/pop_{m2000}) * 100$, n_{mt} is the number of people who moved away from municipality m at time t by relevant group (by skill or gender), and pop_{m2000} is the estimated relevant population of m in the year 2000 (by skill or gender group); d_{mt-1} is the number of internally displaced people arriving at m at time $t-1$ as previously defined; I also include municipality and time fixed effects. The out-migration rates are defined for the subpopulations of low-skilled and high-skilled households by gender of the head. I include a lagged dependent variable as a control variable as violence shocks could be correlated across space and time, such that d_{mt-1} could be potentially correlated with y_{mt-1}.[20]

Finally, I study long-run effects on out-migration through the following specification:

$$y_{m2005-2000} = \alpha + \beta d_m + \lambda y_{m2000-birth} + \lambda_m X_m + \delta_{D_m} + \varepsilon_m$$

where $y_{m2005-2000} = (n_{m2005-2000}/pop_{m2000}) * 100$, $n_{m2005-2000}$ is the number of people who moved away from municipality between 2000 and 2005, and pop_{m2000} is defined as above. In addition, I control for previous rates of out-migration using $y_{m2000-birth} = (n_{m2000-birth}/pop_{m2000}) * 100$, where $n_{m2000-birth}$ are the number of people born in m who lived elsewhere in 2000.[21]

As before, the enclave instrument is used to predict displacement (d_{mt} and d_m) in both the short-run and long-run out-migration specifications.

6. Results

6.1. First stage

I first present estimates from regressing the number of internally displaced people as a share of the population of the destination location on the constructed instrument. The first stage estimates for the ECH surveys are presented in Table 2, and those for the census are presented in Table A5. As observed, the enclave instrument is a good predictor of arrivals at the destination municipalities, both in the short-run and in the long-run, and for all of the groups split separately (by gender and skill). Note that running the first stage regressions separately for the different subsamples does not alter the sample of municipalities,[22] only the relative weights that each municipality receives depending on their skill composition. It is thus not surprising that the first stage coefficients are very similar across specifications.

6.2. Impact on labour markets

6.2.1. Short-run effect on wages

Table 3 shows the results from the short-run analysis, which includes municipal fixed effects, year fixed effects and municipal specific linear trends, with the log of real wages as the outcome of interest, winsorized at the 1 and 99 percentiles. Both the OLS and the IV estimates suggest that displacement has a negative effect on local wages. The IV estimates are larger in magnitude indicating that the OLS estimates may be biased likely due to the selection of more favourable municipalities by those displaced, as discussed above. The IV estimate for all households (Panel B, column 1) indicates that a one percent conflict-induced increase in population leads to a 1.4 percent reduction in wages the following year. Columns 2–5 further partition the sample by both gender and skill. The IV estimates suggest that the impact of displacement on local wages is larger for women than for men. This result is consistent with Calderón et al. (2011)'s observation that displaced women may be more competitive in urban labour markets than displaced men, as well as with the employment by industry descriptive characteristics shown in Table A3. A one percent increase in population due to displacement leads to a 2.2 percent reduction of wages for low-skilled women (Panel B, column 4) and a 1.7 percent reduction in wages for high-skilled women (Panel B, column 5). The effect is smallest for high-skilled men, leading to a wage reduction of 0.7 percent, not statistically significant (Panel B, column 3).

[18] Migrants in these case are defined as people who were born in j but did not live there in 1993. Note that $\sum_m s_{mj1993} = 1$ for each j.

[19] Though some displacement due to violence had already taken place by 1993, the 1985 census (Colombia's previous census) does not include information on migrant's place of birth, thus the instrument cannot be constructed using earlier dates.

[20] Note that the estimate of λ may be biased in 2SLS estimation, however, estimating a reduced form model through QML based on Kripfganz (2016) yields almost identical estimates of β.

[21] This control was chosen given data limitations from the census. Data is available for municipality of residence five years prior (in 2000) and municipality of birth.

[22] With the exception of two municipalities which do not contain any high-skilled households in the ECH sample.

Table 2
IV first stage (ECH sample).

	(1)	(2)	(3)	(4)	(5)
Panel A: Short-run					
	(Dep variable: Share of displaced (t-1))				
Enclave IV (t-1)	1.309***	1.347***	1.229***	1.292***	1.316***
	(0.224)	(0.227)	(0.224)	(0.227)	(0.220)
N	874574	303713	204214	186801	179846
N-clusters	267	267	265	267	265
Panel B: Long-run					
	(Dep variable: Share of displaced (1999–2003))				
Enclave IV (1999–2003)	0.851***	0.844***	0.895***	0.834***	0.817***
	(0.158)	(0.159)	(0.155)	(0.164)	(0.139)
N	208153	71002	50951	41487	44713
N-clusters	285	285	283	285	282
Skills	All	Low-skilled	High-skilled	Low-skilled	High-skilled
Gender	All	Male	Male	Female	Female

Notes: The table reports the first stage estimates from regressing the number of IDP arrivals on predicted arrivals using the enclave instrument. The short-run specification in Panel A includes years 1997–2004, includes municipal fixed effects and municipality specific linear time trends. The long-run specification in Panel B uses only 2004, includes department fixed effects and municipal controls. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table 3
Short-run effect on wages.

	(1)	(2)	(3)	(4)	(5)
	(Dep variable: Log of wages)				
Panel A: OLS					
	OLS	OLS	OLS	OLS	OLS
Share of displaced (t-1)	−0.00328	0.000477	−0.00489	−0.00761	−0.00865
	(0.00404)	(0.00532)	(0.00606)	(0.00529)	(0.00532)
Panel B: IV					
	IV	IV	IV	IV	IV
Share of displaced (t-1)	−0.0142*	−0.0122	−0.00789	−0.0219**	−0.0170***
	(0.00848)	(0.0108)	(0.0104)	(0.0109)	(0.00539)
N	874574	303713	204214	186801	179846
N-clusters	267	267	265	267	265
F first-stage (IV)	34.15	35.25	30.05	32.45	35.66
Skills	All	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	All	Male	Male	Female	Female

Notes: The table reports estimates from regressing the number of IDP arriving at $t-1$ as a share of the total population, on the log of real wages for individuals in the ECH survey (1996–2004) at time t. All specifications include individual controls (gender -only column 1-, education, potential experience), municipal fixed effects, year fixed effects and municipal specific linear trends. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

The estimates presented are larger than those documented in other work on labour markets and migration (Calderón-Mejía and Ibáñez, 2016; being an important exception).[23] Given that a large share of individuals work in the informal sector in Colombia, the effect is likely to be larger as a result of the labour supply shock being absorbed mostly by wages as opposed to employment (as suggested by the evidence in Peña, 2014). In addition, internally displaced people in Colombia are more likely to be similar to residents at the destinations than, for instance, Cuban immigrants are to U.S. residents. These two distictions are important to understand how the wage effects of migration may vary from those found in more advanced economies.[24]

6.2.2. Long-run effect on wages (and on wealth index)

Table 4 shows the results of the long-run analysis, which includes department fixed effects and a long vector of municipal controls, on the log of real wages. The OLS estimates suggest that displacement is associated with higher local wages at the end of the five year period, a one percent conflict-induced increase in population between 1999 and 2003, is associated with wages which are roughly 0.4 percent higher

[23] The authors find that a 10 percent increase in the refugee share leads to a decrease in wages of 0.88 percent. Such an increase in the total migrant share, at a mean of roughly 2.3 percent in their sample, represents a population increase of about 0.23 percent. The comparable estimate would then suggest that a 1 percent increase in population leads to a decrease in wages of about 3.8 percent. However, since the specification they use is different (their explanatory variable is migrant share), such a comparison should be made with caution. Overall, the short-run estimates from this section use a similar dataset and a slightly different approach to Calderón-Mejía and Ibáñez (2016), on a wider set of municipalities, with analogous conclusions.

[24] Another important consideration is mobility, both occupational (as emphasized by Foged and Peri, 2016), and geographical, as discussed below.

Table 4
Long-run effect on wages.

	(1)	(2)	(3)	(4)	(5)
	(Dep variable: Log of wages)				
Panel A: OLS					
	OLS	OLS	OLS	OLS	OLS
Share of displaced (1999–2003)	0.00362*	0.00476**	0.00284	0.0000904	0.00600**
	(0.00190)	(0.00231)	(0.00278)	(0.00459)	(0.00291)
Panel B: IV					
	IV	IV	IV	IV	IV
Share of displaced (1999–2003)	0.00221	0.00648	0.00525	−0.0161**	0.00673
	(0.00399)	(0.00464)	(0.00581)	(0.00754)	(0.00725)
N	208153	71002	50951	41487	44713
N-clusters	285	285	283	285	282
F first-stage (IV)	29.18	28.03	33.27	25.98	34.30
Skills	All	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	All	Male	Male	Female	Female

Notes: The table reports estimates from regressing the number of IDP arriving between 1999 and 2003 as a share of the total population, on the log of real wages for individuals in the ECH survey in 2004. All specifications include individual controls (gender -only column 1-, education, potential experience), department fixed effects, and municipal controls. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

in 2004 (Panel A). The IV estimates (Panel B) suggest that the long-run effect on wages is negative and statistically significant for low-skilled women, and not statistically different from zero for the remaining groups. The estimates indicate that a one percent increase in population between 1999 and 2003 leads to a decrease in local wages for low-skilled women of about 1.6 percent in 2004.

Though the initial impact on wages for most groups was negative and significant in the short-run, the effect tends to dissipate or disappear in the longer run. This result appears surprising given the relatively large short-run impact found on wages but is congruent with previous studies of immigration into the U.S, which have stressed labour reallocation as a likely explanation for these (or the absence of) findings (see for instance Borjas, 2006; Monras, 2015). I evaluate this hypothesis by analyzing the impact of displacement on out-migration below. Notably, however, the effect persists for low-skilled women even in the long-run analysis. In terms of wage impacts, low-skilled women are disproportionately affected by incoming displacement relative to other groups. The short-run effect is largest for them and the effect seems to persist over the five year period of analysis.

A large and persistent impact on wages may have a measurable effect on the accumulation of wealth over a long period of time. I use data from the census to study this possibility. The impact of internal displacement on household wealth at receiving communities may be indirectly estimated by looking at asset ownership (as in Alix-Garcia and Saah, 2010). I create an index of household wealth through principal component analysis of asset ownership (television, radio, refrigerator, water heater, computer, washer, phone, car), and estimate the long-run impact of internal displacement on this index. Because these assets are measured at the household level, I split the sample based on the gender and skills of the household head. The results from this analysis are presented in Table A6. The estimates indicate that internal displacement has a negative and statistically significant effect on the wealth index of low-skilled households at the destination (columns 2 and 4). To assess the extent to which the effect on low-skilled households headed by men may be driven by an effect on their partners (low-skilled women), I also do the analysis using only single individual households (Table A7). The results suggest, once again, that low-skilled women are those most affected by the inflow of internally displaced people (column 4). This empirical exercise, which uses an alternative dataset (the census as opposed to the labour surveys), corroborates the results from the analysis on wages.

6.3. Out-migration

Table 5 reports the results from the analysis of the effect of displacement on out-migration. Following an inflow of forced migrants, we expect local residents who are negatively affected by the shock to migrate. The coefficients are all positive, suggesting that the arrival of internally displaced people has a negative impact on the welfare of local residents, therefore inducing out-migration. The short-run IV estimates indicate that a one percent increase in population increases the rate of out-migration by about 0.2–0.3 people per 100 initial residents (Panel A, columns 5–8). The effect is largest for high-skilled women, and smallest for low-skilled women. The results from the long-run specification, which captures the cumulative effect of arrivals from 2000 to 2004 on the rate of out-migration during the same period, are presented in Panel B. The long-run analysis suggest that high-skilled individuals are more responsive to the inflow of migrants than low-skilled individuals. The short-run and the long-run out-migration responses are not statistically different from each other.

With the theoretical framework presented in mind, the effects from this section capture two distinct effects. As internally displaced people arrive at their destination, they affect the welfare of residents through various mechanisms, however, only those for whom the effect is large enough such that their optimal choice of location changes, will move. Thus, people who out-migrate are either those for whom the impact of displacement is large, or those who are close to marginal in their location decision to begin with. Mobility plays an important role in this. If, for instance, low-skilled women are less mobile (ie. they are not marginal in their location decision), then even a large negative effect may not be enough to induce them to move, and they are likely to suffer both short-run and long-run consequences from the arrival of new residents. Groups that are more mobile are better able to cope with the impact of displacement by migrating themselves.[25]

6.4. Robustness checks

The main regressions on wages are repeated in this section after restricting the sample in various ways. Table A8 restricts the sample

[25] I further investigate to what extent these out-migration responses can explain the differences in the short-run and long-run wage effects with a simple accounting exercise in the appendix.

Table 5
Impact on the rate of out-migration.

	(1) OLS	(2) OLS	(3) OLS	(4) OLS	(5) IV	(6) IV	(7) IV	(8) IV
	(Dep variable: Rate of out-migration)							
Panel A: Short-run								
Share of displaced (t-1)	0.0327**	0.0512	0.0150	0.0553	0.282***	0.296*	0.226***	0.321*
	(0.0152)	(0.0443)	(0.0174)	(0.0447)	(0.0768)	(0.161)	(0.0814)	(0.180)
N	2660	2660	2660	2660	2645	2645	2645	2645
N-clusters	532	532	532	532	529	529	529	529
F first stage					19.969	20.192	19.351	20.197
Panel B: Long-run								
Share of displaced (2000–2004)	0.0641*	0.0519	0.0661*	0.134***	0.232***	0.260*	0.236***	0.374***
	(0.0353)	(0.0718)	(0.0347)	(0.0391)	(0.0887)	(0.145)	(0.0848)	(0.135)
N	516	516	516	516	516	516	516	516
F first stage					38.421	41.543	37.106	39.855
Skills	Low-skilled	High-skilled	Low-skilled	High-skilled	Low-skilled	High-skilled	Low-skilled	High-skilled
Gender	Male	Male	Female	Female	Male	Male	Female	Female

Notes: Panel A reports estimates from regressing the number of IDP arriving at time $t-1$ as a share of the total population, on the rate of out-migration at time t. All specifications include municipality fixed effects, year fixed effects and the out-migration rate at time $t-1$ as a control. Pabel B reports estimates from regressing the number of IDP arriving between 2000 and 2004 as a share of the total population, on the rate of out-migration during the same period. All specifications include department fixed effects, municipal controls and the out-migration rate before 2000 (from birth) as a control. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

depending on whether the municipality is one of the largest 13 Colombian cities, which were part of the Calderón-Mejía and Ibáñez (2016) study. Columns 1–4 restrict the sample to just these cities, the instrument becomes weak and the results insignificant. The enclave instrument does not seem to be a good predictor of migration to these large cities. Columns 5–8 report the results of excluding these cities from the analysis. The coefficients remain negative, statistically significant for women, and close in magnitude to those previously found, suggesting that the cities are not driving the results.

The ECH surveys are not representative at the municipality level and the sample is small for some of these municipalities. Tables A9 and A10 restrict the sample of municipalities depending on the size of the survey. Table A9, columns 1–4 and 5–8, excludes municipalities for which the sample size represents less than five percent and ten percent of the total population, respectively. Though the instrument becomes weaker (in particular in columns 5–8), the effect remains negative and fairly large. Table A10 restricts the sample depending on the total number of individuals surveyed at the municipality. Columns 1–4 and 5–8, omit municipalities with less than 50 and less than 100 individuals in the sample, respectively. Again, the results remain negative and large. The results are particularly large for columns 5–8, suggesting that the main estimates may be attenuated if measurement error is large in municipalities with small samples.

Tables A11–A13 restrict the years of the analysis. Across specifications the results remain negative and mostly significant. The analysis indicates that the results seem to be particularly large for the later period of study, in particular after 1999 (Table A11, columns 1–4), though somewhat imprecisely measured. Note too that for one of these subsamples, the effect for low-skilled women is small and statistically insignificant (A13, column 7). However, because this subsample is a short panel of only three years, much of the variation seems to be absorbed by the municipality specific linear time trends. Re-running the analysis without these trends results in estimates much closer to those reported in other specifications.[26]

[26] The point estimates for low-skilled men, high-skilled men, low-skilled women and high-skilled women, respectively: −0.026, −0.012, −0.024, and −0.04 (table not shown but available upon request).

The short-run estimates on wages assume that internally displaced people arriving at a municipality do not enter the sampling frame the following year. I bound the estimates for the impact on wages considering the possibility of them entering the sample and two extreme case scenarios: they all enter the bottom of the wage distribution, or they all enter the top. The sample is restricted such that if the share of IDP arriving at a municipality make up x percent of the population, then the bottom or the top x percent of the wage earners are removed from that municipality. These bounded estimates are presented in A14. Columns 1–4 show the lower bound estimate, which remains negative but now close to zero, and columns 5–8 show the higher bound estimate, negative, relatively large and statistically significant.

Analogous robustness checks for the long-run specification are reported in Tables A15–A18 (with the exception of the year restrictions, since I use only one year). The analysis on the subsample of cities should be taken with extreme caution as the variation is coming only from the cross-section of 13 cities (Table A15, columns 5–8). For the remaining sample restrictions, the long-run effect for low-skilled women remains large and statistically significant, varying from −1.2 to −2.1 percent. Table A18 repeats the bounds exercise for the long-run analysis. Columns 1–4 show the lower bound estimate, which is not statistically different from zero for low-skilled women but positive for low-skilled men and high-skilled women, and columns 5–8 show the higher bound estimate, negative, relatively large and statistically significant for low-skilled women.

7. Conclusion

In this paper I present a spatial equilibrium model to illustrate the mechanisms by which civil conflict induces displacement and how displacement in turn affects residents at receiving locations. I partially estimate the magnitude of these effects, with a focus on wages, using an enclave instrument constructed with reference to previous migration studies. The instrument exploits displacement driven by violence and past waves of migrants to predict the location decision of displaced individuals.

This paper presents evidence of internal displacement having a large short-run impact on local wages across Colombian municipalities. The labour supply shock is absorbed through an initial reduction of wages, not surprising given that most displaced individuals work in the informal sector where minimum wages do not bind. More interestingly, these effects seem to dissipate in the longer-run analysis. Labour reallocation may play an important role in dissipating these negative effects, as indicated by the fact that following inflows of forced migrants, out-migration of local residents increases. This result is congruent with Monras (2015)'s recent study of Mexican immigration into the United States.

The negative impact on wages, however, persists in the long-run for low-skilled women. Low-skilled women appear to be less mobile, as suggested by the fact that they react the least to the arrival of displaced people in terms of their out-migration rates. This low mobility, coupled with the fact that internally displaced women adapt well to new labour markets (Calderón et al., 2011), make low-skilled local women most vulnerable to the arrival of displaced individuals, both in the short-run and in the long-run.

Conflict-induced population displacement will have impacts on other amenities related to the well-being of residents at destination cities, yet not explicitly studied in the empirical analysis presented. Access to public goods, road congestion, pollution and crime are important factors likely to be affected by the arrival of large numbers of forced migrants. These issues remain important avenues for future work.

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Appendix.

Accounting for the short-run and long-run differences in wage effects

I investigate whether the out-migration responses can explain why the wage effects dissipate in the long-run with a simple accounting exercise. Table A19 presents the estimated short-run effect on wages (column 1), the estimated out-migration response (long-run, in column 2) and the estimated long-run effect on wages (column 4) for each group. Assuming that internally displaced individuals and local residents are perfect labour market subsitutes, column 3 predicts what the long-run effect on wages should be given the estimated short-run effect on wages and the estimated out-migration responses.[27] Column 5 estimates what percentage of the adjustment can be explained by the out-migration response under this perfect substitutability assumption, for each group.[28] I find that out-migration can partially explain the long-run adjustment (between 15 and 89 percent). Note that i) for most groups these estimates are likely to be lower-bounds given the assumption (we expect wages of, for instance, high-skilled men to be more responsive to out-migration of other high-skilled men than to in-migration of internally displaced individuals) and ii) the estimates are sensitive to the somewhat imprecise point estimates of these effects (especially since the long-run wage effects are not statistically different from zero).

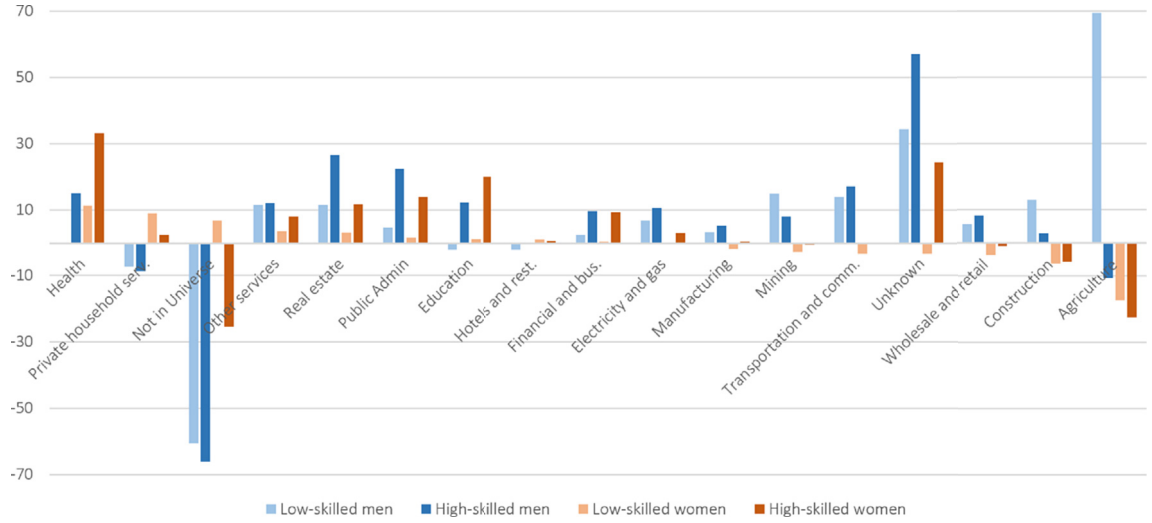

Fig. A1. Normalized differences in employment rates by industry between IDP and locals. Notes: The figure shows normalized differences $(\overline{X}_{local} - \overline{X}_{idp}/(s^2_{local} + s^2_{idp}))$ of employment rates across industries, between internally displaced people and each of the subgroups of local residents in the analysis.

A final empirical exercise estimates the out-migration "responsiveness" of each group to short-run wage impacts by dividing the estimated out-migration response by the estimated short-run effect on wages (column 6). Though not all of the welfare impact will be captured by this wage effect,

[27] More precisely, it is calculated as $\beta_{SRwage}(1 - \beta_{outmig})$.

[28] That is, $[\beta_{\text{SRwage}} - \beta_{\text{SRwage}}(1 - \beta_{\text{outmig}})]/[\beta_{\text{SRwage}} - \beta_{\text{LRwage}}]$.

the exercise approximates what this out-migration elasticity would be if wages were the only mechanism through which welfare was affected. The calculation suggests that high-skilled individuals are more responsive to negative shocks to their wages than low-skilled individuals. In particular, a one percent short-run wage decrease induces out-migration of 0.11 low-skilled women and 0.33 high-skilled men, per 100 individuals, in the long-run.

Table A1
Household Summary Statistics (2005 Census).

	(1) Full Sample		(2) Low-Skilled		(3) High-Skilled		(4) IDP	
	mean	sd	mean	sd	mean	sd	mean	sd
% of Children in School	0.91	0.26	0.88	0.30	0.96	0.18	0.82	0.36
Electricity (0/1)	0.94	0.25	0.90	0.29	0.98	0.13	0.86	0.35
Water Supply (0/1)	0.82	0.38	0.75	0.43	0.94	0.24	0.73	0.45
Trash Collection (0/1)	0.75	0.43	0.63	0.48	0.93	0.26	0.69	0.46
Wealth index	0.75	2.01	0.027	1.64	1.89	2.01	−0.23	1.64
literate	0.93	0.20	0.89	0.24	0.99	0.065	0.90	0.24
with less than primary	0.070	0.20	0.11	0.25	0	0	0.096	0.22
with primary	0.35	0.37	0.57	0.31	0	0	0.46	0.39
with secondary	0.44	0.38	0.27	0.27	0.69	0.39	0.34	0.37
with tertiary	0.15	0.29	0.043	0.13	0.31	0.39	0.10	0.26
% male	0.48	0.20	0.49	0.19	0.46	0.21	0.48	0.20
senior (65 +)	0.14	0.42	0.15	0.41	0.14	0.42	0.100	0.35
adult (25–65)	2.03	0.87	2.16	0.93	1.84	0.72	1.90	0.81
young adult (15–24)	0.61	0.88	0.71	0.95	0.45	0.72	0.67	0.93
children (5–14)	1.72	0.92	1.84	1.01	1.53	0.74	1.94	1.08
babies (0–4)	0.54	0.79	0.63	0.86	0.41	0.64	0.72	0.89
HH size	5.05	1.92	5.48	2.06	4.37	1.43	5.32	2.00
HH age (average)	24.6	7.46	24.8	7.62	24.4	7.20	22.3	6.96
Observations	405073		290760		114313		6739	

Notes: The table reports the weighted average of household characteristics by skill group from the 2005 census. High skilled households are defined as those in which all adult members (of working ages 16–65) have secondary education or above. Columns 1–3 include only non-movers, defined as people who lived in the same municipality five years prior. Column (4) reports statistics for self-identified IDP households in the census.

Table A2
Municipality Summary Statistics.

	(1)est1mean	sd
IDP arriving between 2000 and 2004 per 100 population	4.78	7.84
Share urban	0.50	0.24
Population	76968.9	333095.2
Unclassified workers	0.23	0.097
Unemployed	0.034	0.027
Unpaid family worker	0.041	0.038
Self-employed	0.34	0.10
Male	0.51	0.021
Age	25.2	2.04
Migrants	0.35	0.17
Agricultural worker	0.14	0.073
Racial minority	0.039	0.15
Number of rooms	3.33	0.43
Dirt floor	0.24	0.20
School years	4.55	1.09
Kids in school	0.46	0.071
Wealth index (durables)	−0.67	0.85
Electricity	0.74	0.23
Water Supply	0.63	0.23
Trash collection	0.34	0.25
Population 1993	71901.5	276034.5
Population 1985	40958.3	102983.4
(Log of) Total area	6.53	1.14
Avg. Precipitation	3767.0	3210.9
Soil aptitude index	2.79	1.12
Erosion index	1.90	0.91
Latitude	−75.0	1.41
Longitude	5.79	2.62
Altitude	1072.1	856.9
Observations	518	

Notes: The table reports the mean and standard deviation of variables used as controls at the municipal level, from the 2005 and 1993 census.

Table A3
Differences in employment by industry: IDP vs. Local workers.

	NIU (not in universe)	Agriculture	Mining	Manufacturing	Electricity, gas and water	Construction
Local low-skilled male	−0.342***	0.106***	0.00118***	0.00530***	0.000417***	0.0173***
	(0.00673)	(0.0152)	(0.000205)	(0.00185)	(0.0000675)	(0.00204)
Local high-skilled male	−0.378***	**−0.0157****	0.000846***	0.00857**	0.00125***	**0.00389****
	(0.00934)	(0.00251)	(0.000282)	(0.00352)	(0.000321)	(0.00156)
Local low-skilled female	**0.0374***	−0.0252***	−0.000165**	−0.00277*	**0.000000388**	−0.00803***
	(0.0192)	(0.00388)	(0.0000707)	(0.00167)	(0.0000478)	(0.00199)
Local high-skilled female	−0.146***	−0.0328***	**−0.0000236**	**0.000897**	0.000192**	−0.00730***
	(0.0240)	(0.00459)	(0.000113)	(0.00226)	(0.0000795)	(0.00198)
Constant	0.684***	0.0363***	0.000222***	0.0114***	0.0000949**	0.00863***
	(0.00774)	(0.00515)	(0.0000740)	(0.00280)	(0.0000413)	(0.00203)
N	2282760	2282760	2282760	2282760	2282760	2282760
N-clusters	532	532	532	532	532	532
	Wholesale and retail trade	Hotels and restaurants	Transportation and comm.	Financial and insurance	Public admin. and defense	Real estate and bus. services
Local low-skilled male	0.00819***	−0.00202	0.0108***	0.000509	0.00135***	0.00703***
	(0.00169)	(0.00144)	(0.00131)	(0.000383)	(0.000241)	(0.00135)
Local high-skilled male	0.0123***	**−0.000321**	0.0140***	0.00223***	0.00856***	0.0187***
	(0.00326)	(0.00145)	(0.00230)	(0.000515)	(0.00143)	(0.00272)
Local low-skilled female	−0.00531***	0.00115	−0.00228***	**0.000108**	**0.000465****	**0.00185**
	(0.00128)	(0.00140)	(0.000678)	(0.000146)	(0.000231)	(0.00173)
Local high-skilled female	**−0.00151**	0.000694	**−0.0000450**	0.00211***	0.00457***	0.00733***
	(0.00160)	(0.00131)	(0.000685)	(0.000462)	(0.000678)	(0.00214)
Constant	0.0128***	0.00480***	0.00408***	0.000413***	0.00137***	0.00317***
	(0.00171)	(0.00146)	(0.000830)	(0.000154)	(0.000246)	(0.000732)
N	2282760	2282760	2282760	2282760	2282760	2282760
N-clusters	532	532	532	532	532	532
	Education	Health and social work	Other services	Private household services	Unknown	
Local low-skilled male	−0.00148**	**−0.0000317**	0.0201***	−0.00677***	0.174***	
	(0.000654)	(0.000324)	(0.00287)	(0.00118)	(0.0142)	
Local high-skilled male	0.00999***	0.00539***	0.0215***	−0.00798***	0.295***	
	(0.00242)	(0.00114)	(0.00193)	(0.00115)	(0.0225)	
Local low-skilled female	**0.00100**	0.00338***	**0.00621****	0.00853***	**−0.0164**	
	(0.000672)	(0.000490)	(0.00229)	(0.00104)	(0.0152)	
Local high-skilled female	0.0163***	0.0137***	0.0142***	**0.00243****	0.125***	
	(0.00320)	(0.00203)	(0.00188)	(0.00118)	(0.0271)	
Constant	0.00427***	0.00141***	0.0189***	0.00879***	0.199***	
	(0.000707)	(0.000253)	(0.00291)	(0.00112)	(0.0108)	
N	2282760	2282760	2282760	2282760	2282760	
N-clusters	532	532	532	532	532	

Notes: The table reports estimates from regressions in which the dependent variable is employment in industry *x* and the explanatory variables are subgroup category dummies. The excluded category is internally displaced individuals. Highlighted in bold is the smallest coefficient for each regression. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A4
IDP status and industry employment.

	(1)	(2)	(3)	(4)
	(Dep variable: IDP dummy)			
Agriculture, fishing, and forestry	−0.0529***	−0.0218	0.0691***	0.274***
	(0.00335)	(0.0139)	(0.00885)	(0.0368)
Mining	−0.0585***	−0.108***	0.118***	0.0279
	(0.00421)	(0.0148)	(0.0418)	(0.0214)
Manufacturing	−0.0412***	−0.0835***	0.00919	−0.0110
	(0.00529)	(0.0175)	(0.00569)	(0.0102)
Electricity, gas and water	−0.0609***	−0.116***	−0.00422	−0.0469***
	(0.00497)	(0.0150)	(0.0158)	(0.00849)
Construction	−0.0526***	−0.0775***	0.289***	0.177***
	(0.00370)	(0.0117)	(0.0522)	(0.0580)
Wholesale and retail trade	−0.0438***	−0.0885***	0.0241***	−0.00737
	(0.00349)	(0.0134)	(0.00528)	(0.00676)
Hotels and restaurants	−0.0105	−0.0552***	−0.00375	−0.0140
	(0.0164)	(0.0161)	(0.00866)	(0.0108)
Transportation and communications	−0.0563***	−0.104***	0.0339***	−0.0123
	(0.00358)	(0.0143)	(0.00987)	(0.00870)
Financial services and insurance	−0.0420***	−0.111***	−0.0106	−0.0505***
	(0.0106)	(0.0152)	(0.00838)	(0.00762)
Public administration and defense	−0.0518***	−0.110***	−0.00721	−0.0502***
	(0.00444)	(0.0143)	(0.00490)	(0.00634)
Real estate and business services	−0.0520***	−0.108***	−0.00843	−0.0450***
	(0.00534)	(0.0155)	(0.00772)	(0.00648)
Education	−0.0169**	−0.101***	−0.00770**	−0.0489***
	(0.00725)	(0.0152)	(0.00381)	(0.00746)
Health and social work	−0.0360***	−0.103***	−0.0257***	−0.0554***
	(0.00815)	(0.0146)	(0.00259)	(0.00684)
Other services	−0.0497***	−0.0888***	−0.00628**	−0.0309***
	(0.00319)	(0.0114)	(0.00248)	(0.00442)
Private household services	0.0657***	0.267***	−0.0141***	−0.0240***
	(0.0210)	(0.0445)	(0.00229)	(0.00494)
Unknown	−0.0463***	−0.0943***	0.00438	−0.0310***
	(0.00289)	(0.0110)	(0.00350)	(0.00265)
Constant	0.0697***	0.120***	0.0361***	0.0628***
	(0.00353)	(0.0153)	(0.00175)	(0.00746)
N	846418	321545	821203	367808
N-clusters	532	532	532	532
R2	0.0150	0.0384	0.00405	0.0159
Skills	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	Male	Male	Female	Female

Notes: The table reports estimates from regressing IDP status on industry of employment on a pooled sample of internally displaced individuals and the specific subsample of local residents (non-movers). The excluded category is "Not Employed". Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A5
IV First Stage (2005 Census).

	(1)	(2)	(3)	(4)	(5)
Enclave IV (2000–2004)	0.628***	0.597***	0.635***	0.660***	0.705***
	(0.132)	(0.138)	(0.122)	(0.137)	(0.130)
N	851964	435198	187493	137879	91394
N-clusters	517	517	517	517	517
Skills	All	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	All	Male	Male	Female	Female

Notes: The table reports the first stage estimates from regressing the number of IDP arrivals on predicted arrivals using the enclave instrument, using the 2005 Census. All specifications include household head individual controls (gender, education, age), household controls (composition and education), department fixed effects, and municipal controls. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A6
Long-run effect on wealth index (all households, by household head characteristics).

	(1)	(2)	(3)	(4)	(5)
Panel A: OLS					
	OLS	OLS	OLS	OLS	OLS
Share of displaced (2000–2004)	−0.00398***	−0.00517***	0.000295	−0.00516***	−0.00232
	(0.00153)	(0.00145)	(0.00229)	(0.00136)	(0.00187)
Panel B: IV					
	IV	IV	IV	IV	IV
Share of displaced (2000–2004)	−0.0114*	−0.0113**	−0.00764	−0.0141***	−0.00611
	(0.00597)	(0.00569)	(0.00761)	(0.00513)	(0.00638)
N	826111	424379	181377	132660	87695
N-clusters	517	517	517	517	517
F first stage (IV)	22.829	18.781	28.609	22.764	29.836
Skills	All	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	All	Male	Male	Female	Female

Notes: The table reports estimates from regressing the number of IDP arriving between 2000 and 2004 as a share of the total population, on the wealth index for households in the 2005 Census. All specifications include household head individual controls (gender, education, age), household controls (composition and education), department fixed effects, and municipal controls. Clustered standard errors at the municipal level are reported in parenthesis. The sample is split according to the skills and gender of the household head. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A7
Long-run effect on wealth index (single individual households).

	(1)	(2)	(3)	(4)	(5)
Panel A: OLS					
	OLS	OLS	OLS	OLS	OLS
Share of displaced (2000–2004)	−0.00289**	−0.00345***	0.000995	−0.00608***	−0.000283
	(0.00136)	(0.00128)	(0.00316)	(0.00190)	(0.00318)
Panel B: IV					
	IV	IV	IV	IV	IV
Share of displaced (2000–2004)	−0.00504	−0.00734	0.00505	−0.0136*	−0.00232
	(0.00573)	(0.00537)	(0.00996)	(0.00809)	(0.0132)
N	81706	31104	23782	12632	14188
N-clusters	517	517	517	517	517
F first stage (IV)	12.691	9.741	16.678	12.173	14.509
Skills	All	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	All	Male	Male	Female	Female

Notes: The table reports estimates from regressing the number of IDP arriving between 2000 and 2004 as a share of the total population, on the wealth index for households in the 2005 Census. All specifications include individual controls (gender, education, age), department fixed effects, and municipal controls. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A8
Sample restrictions (by city).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of displaced (t-1)	0.0498	−0.0464	−0.0696	0.0404	−0.0116	−0.00904	−0.0189**	−0.0212***
	(0.154)	(0.0531)	(0.142)	(0.0778)	(0.0100)	(0.0108)	(0.00814)	(0.00459)
N	180592	155787	130357	139241	123121	48427	56444	40605
N-clusters	13	13	13	13	254	252	254	252
F first stage (IV)	2.530	6.355	2.722	8.153	48.38	48.04	44.38	61.19
Skills	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	Male	Male	Female	Female	Male	Male	Female	Female
Sample	Cities Only	Cities Only	Cities Only	Cities Only	No Cities	No Cities	No Cities	No Cities

Notes: The table reports estimates from regressing the number of IDP arriving at $t-1$ as a share of the total population, on the log of real wages for individuals in the ECH survey (1996–2004) at time t. All specifications include individual controls (education, potential experience), municipal fixed effects, year fixed effects and municipal specific linear trends. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A9
Sample restrictions (by cell size).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of displaced (t-1)	−0.0117	−0.00821	−0.0192**	−0.0171***	−0.0276	−0.0189	−0.0309	−0.00599
	(0.0118)	(0.0114)	(0.00865)	(0.00556)	(0.0218)	(0.0118)	(0.0191)	(0.0166)
N	272765	185153	166998	161880	187291	128094	112655	111052
N-clusters	217	217	217	216	162	162	162	162
F first stage (IV)	31.77	25.61	28.36	32.68	8.463	13.27	12.27	21.08
Skills	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	Male	Male	Female	Female	Male	Male	Female	Female
Sample	Sample>0.05	Sample>0.05	Sample>0.05	Sample>0.05	Sample>0.1	Sample>0.1	Sample>0.1	Sample>0.1

Notes: The table reports estimates from regressing the number of IDP arriving at $t-1$ as a share of the total population, on the log of real wages for individuals in the ECH survey (1996–2004) at time t. All specifications include individual controls (education, potential experience), municipal fixed effects, year fixed effects and municipal specific linear trends. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A10
Sample restrictions (by cell size).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of displaced (t-1)	−0.00827	−0.00688	−0.0169**	−0.0191***	−0.0311	−0.0288**	−0.0427*	−0.0345**
	(0.0100)	(0.0104)	(0.00793)	(0.00508)	(0.0202)	(0.0121)	(0.0253)	(0.0144)
N	300549	203515	185351	179203	288857	201021	180648	176974
N-clusters	255	255	255	255	228	228	228	228
F first stage (IV)	35.01	30.48	32.78	36.28	17.43	15.58	30.91	24.11
Skills	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	Male	Male	Female	Female	Male	Male	Female	Female
Sample	Sample>50	Sample>50	Sample>50	Sample>50	Sample>100	Sample>100	Sample>100	Sample>100

Notes: The table reports estimates from regressing the number of IDP arriving at $t-1$ as a share of the total population, on the log of real wages for individuals in the ECH survey (1996–2004) at time t. All specifications include individual controls (education, potential experience), municipal fixed effects, year fixed effects and municipal specific linear trends. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A11
Sample restrictions (by year).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of displaced (t-1)	−0.0586***	−0.0325**	−0.0420	−0.0320**	−0.0331**	−0.0244*	−0.0312	−0.0207*
	(0.0220)	(0.0142)	(0.0274)	(0.0132)	(0.0146)	(0.0146)	(0.0231)	(0.0112)
N	286194	196524	177674	173394	266491	188733	168244	166934
N-clusters	265	263	265	263	264	262	264	262
F first stage (IV)	17.85	16.51	24.82	23.07	23.25	21.78	31.13	30.41
Skills	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	Male	Male	Female	Female	Male	Male	Female	Female
Sample	1999+	1999+	1999+	1999+	2000+	2000+	2000+	2000+

Notes: The table reports estimates from regressing the number of IDP arriving at $t-1$ as a share of the total population, on the log of real wages for individuals in the ECH survey (1996–2004) at time t. All specifications include individual controls (education, potential experience), municipal fixed effects, year fixed effects and municipal specific linear trends. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A12
Sample restrictions (by year).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of displaced (t-1)	−0.00294	−0.00191	−0.0253***	−0.0190*	−0.0154	−0.0109	−0.0252**	−0.0236***
	(0.00810)	(0.0112)	(0.00918)	(0.0105)	(0.0135)	(0.0134)	(0.0113)	(0.00540)
N	175032	107871	106862	94653	236674	153936	146369	135592
N-clusters	207	207	207	207	264	259	264	261
F first stage (IV)	65.21	28.76	34.08	36.88	42.34	24.43	25.44	23.86
Skills	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	Male	Male	Female	Female	Male	Male	Female	Female
Sample	<2003	<2003	<2003	<2003	<2004	<2004	<2004	<2004

Notes: The table reports estimates from regressing the number of IDP arriving at $t-1$ as a share of the total population, on the log of real wages for individuals in the ECH survey (1996–2004) at time t. All specifications include individual controls (education, potential experience), municipal fixed effects, year fixed effects and municipal specific linear trends. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A13
Sample restrictions by year.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of displaced (t-1)	0.000251	−0.000738	−0.0276***	−0.0226**	−0.0115	−0.0163	−0.00636	−0.0136
	(0.00848)	(0.0114)	(0.00954)	(0.00950)	(0.0190)	(0.0183)	(0.0197)	(0.0134)
N	116687	64675	68174	56260	187026	139539	118627	123586
N-clusters	189	189	189	189	238	236	238	236
F first stage (IV)	99.71	71.71	78.31	169.2	21.73	20.69	20.74	22.84
Skills	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	Male	Male	Female	Female	Male	Male	Female	Female
Sample	98–01	98–01	98–01	98–01	01–04	01–04	01–04	01–04

Notes: The table reports estimates from regressing the number of IDP arriving at $t-1$ as a share of the total population, on the log of real wages for individuals in the ECH survey (1996–2004) at time t. All specifications include individual controls (education, potential experience), municipal fixed effects, year fixed effects and municipal specific linear trends. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A14
Bounds.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of displaced (t-1)	−0.00155	−0.00461	−0.000482	−0.00723	−0.0169	−0.0439***	−0.0199*	−0.0324***
	(0.0104)	(0.00868)	(0.00837)	(0.00562)	(0.0118)	(0.0102)	(0.0109)	(0.00776)
N	302060	203788	183034	178813	302668	199110	186579	177960
N-clusters	267	265	267	265	267	265	267	264
F first stage (IV)	31.81	29.74	27.71	33.84	32.20	24.25	31.37	28.67
Skills	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	Male	Male	Female	Female	Male	Male	Female	Female
Sample	Low-bound	Low-bound	Low-bound	Low-bound	High-bound	High-bound	High-bound	High-bound

Notes: The table reports estimates from regressing the number of IDP arriving at $t-1$ as a share of the total population, on the log of real wages for individuals in the ECH survey (1996–2004) at time t. All specifications include individual controls (education, potential experience), municipal fixed effects, year fixed effects and municipal specific linear trends. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A15
Sample restrictions (by city).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of displaced (1999–2003)	−0.0469	−0.0625***	−0.0108	−0.0432**	0.00714*	0.00789	−0.0166***	0.00754
	(0.0417)	(0.0216)	(0.0330)	(0.0175)	(0.00426)	(0.00590)	(0.00645)	(0.00722)
N	38169	36762	26765	32860	32833	14189	14722	11853
N-clusters	13	13	13	13	272	270	272	269
F first stage (IV)	19.06	27.30	19.66	23.81	38.40	44.72	35.59	43.62
Skills	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	Male	Male	Female	Female	Male	Male	Female	Female
Sample	Cities Only	Cities Only	Cities Only	Cities Only	No Cities	No Cities	No Cities	No Cities

Notes: The table reports estimates from regressing the number of IDP arriving between 1999 and 2003 as a share of the total population, on the log of real wages for individuals in the ECH survey in 2004. All specifications include individual controls (education, potential experience), department fixed effects, and municipal controls. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A16
Sample restrictions (by cell size).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of displaced (1999–2003)	0.00359	0.00401	−0.0160**	0.00587	−0.000130	0.000690	−0.0122**	−0.00160
	(0.00475)	(0.00514)	(0.00672)	(0.00678)	(0.00490)	(0.00574)	(0.00562)	(0.00797)
N	63146	45679	36595	39680	42533	30329	23842	25921
N-clusters	239	239	239	238	184	184	184	184
F first stage (IV)	32.60	43.93	26.71	40.84	28.92	30.49	26.88	28.60
Skills	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	Male	Male	Female	Female	Male	Male	Female	Female
Sample	Sample>0.05	Sample>0.05	Sample>0.05	Sample>0.05	Sample>0.1	Sample>0.1	Sample>0.1	Sample>0.1

Notes: The table reports estimates from regressing the number of IDP arriving between 1999 and 2003 as a share of the total population, on the log of real wages for individuals in the ECH survey in 2004. All specifications include individual controls (education, potential experience), department fixed effects, and municipal controls. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A17
Sample restrictions (by cell size).

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of displaced (1999–2003)	0.00652	0.00875	−0.0206***	0.00680	0.00118	0.00503	−0.0186**	0.00925
	(0.00461)	(0.00552)	(0.00772)	(0.00714)	(0.00592)	(0.00684)	(0.00948)	(0.00745)
N	70688	50898	41350	44678	68639	50508	40559	44400
N-clusters	269	269	269	269	224	224	224	224
F first stage (IV)	27.57	32.02	25.76	33.63	27.35	39.00	27.36	39.13
Skills	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	Male	Male	Female	Female	Male	Male	Female	Female
Sample	Sample>50	Sample>50	Sample>50	Sample>50	Sample>100	Sample>100	Sample>100	Sample>100

Notes: The table reports estimates from regressing the number of IDP arriving between 1999 and 2003 as a share of the total population, on the log of real wages for individuals in the ECH survey in 2004. All specifications include individual controls (education, potential experience), department fixed effects, and municipal controls. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A18
Bounds.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Share of displaced (1999–2003)	0.0156***	0.00990	0.00483	0.0159**	−0.00426	−0.00349	−0.0220***	−0.00697
	(0.00414)	(0.00625)	(0.00955)	(0.00738)	(0.00510)	(0.00627)	(0.00723)	(0.00757)
N	68839	50374	37516	43459	69976	46377	41279	42260
N-clusters	285	283	285	282	285	281	285	281
F first stage (IV)	28.78	32.56	21.96	36.26	28.86	38.51	28.66	32.52
Skills	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled	Low-Skilled	High-Skilled
Gender	Male	Male	Female	Female	Male	Male	Female	Female
Sample	Low-bound	Low-bound	Low-bound	Low-bound	High-bound	High-bound	High-bound	High-bound

Notes: The table reports estimates from regressing the number of IDP arriving between 1999 and 2003 as a share of the total population, on the log of real wages for individuals in the ECH survey in 2004. All specifications include individual controls (education, potential experience), department fixed effects, and municipal controls. Clustered standard errors at the municipal level are reported in parenthesis. Significance levels shown *p<0.10, **p<0.05, ***p<0.01.

Table A19
Accounting for long-run vs. short-run differences through out-migration.

	Estimated short-run effect (β_{SRwage})	Estimated out-migration response (β_{outmig})	Predicted long-run effect	Estimated long-run effect (β_{LRwage})	Explained by out-migration	$\beta_{outmig}/\beta_{SRwage}$
Low-skilled men	−0.0122	0.232	−0.0094	0.0065	0.15	−19.02
High-skilled men	−0.0079	0.260	−0.0058	0.0052	0.16	−32.95
Low-skilled women	−0.0219	0.236	−0.0167	−0.0161	0.89	−10.77
High-skilled women	−0.0170	0.374	−0.0106	0.0067	0.27	−22.00

Notes: Columns 1, 2 and 4 come respectively from Tables 3–5. Column 3 is the predicted long-run effect taking into account out-migration, under the assumption that internally displaced people and the corresponding sub-group of local residents are perfect substitutes. Column 5 estimates what percentage of the adjustment can be explained by the out-migration response under this perfect substitutability assumption. Column 6 presents an estimate of the "responsiveness" of migration to short-run changes in wages.

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