



# Don't stand so close to me: The urban impact of immigration<sup>☆</sup>



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## ABSTRACT

We examine the impact of immigration on segregation patterns and housing prices in urban areas. We develop a spatial equilibrium model that shows how the effect of an immigrant inflow in a district affects local housing prices through changes in how natives perceive the quality of their local amenities and how this influences their mobility. Predictions of the model are tested by using a novel dataset on housing prices and population variables at the district level for a sample of 20 large Italian cities. To address endogeneity problems, we adopt an instrumental variable strategy which uses historical enclaves of immigrants across districts to predict current settlements. We find that immigration raises average house prices at the city level, while it reduces price growth in the district affected by the inflow vis-à-vis the rest of the city. We provide evidence that this pattern is driven by native-flight from immigrant-dense districts towards other areas of the same city. These findings are consistent with a negative effect of immigrants on native's perceived local amenities.

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## 1. Introduction

*"Urban development in our period [1789–1848] was a gigantic process of class segregation, which pushed the new laboring poor into great morasses of misery outside the centres of government and business and the newly specialised residential areas of the bourgeoisie. The almost universal European division into a 'good' west end and a 'poor' east end of large cities developed in this period." Eric Hobsbawm [The Age of Revolution: 1789–1848]*

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Between 2000 and 2010, there was a huge increase in the immigrant population around the world, putting considerable pressure on urban areas in the developed countries.<sup>1</sup> Indeed immigrants are disproportionately concentrated in cities. In 2010, the fraction of foreign-born individuals in the population of New York was 2.8 times the national average. Similar patterns are observed in London and Paris (3 and 1.8, respectively) and also in countries with a more recent history of immigration like Italy (2.2 in Milan and 1.6 in Rome). An even more striking feature of immigrant settlements is its very skewed distribution across neighborhoods, observed in many European and American metropolitan areas. In the main Italian cities the proportion of foreign born individuals in the most immigrant-dense district is about 3 times higher than in districts with lower immigrant density. This asymmetrical population shock has some similarities with the urbanization process described by Hobsbawm in *The Age of Revolution: 1789–1848*, and with other historical periods in which cities became the destination for huge migration flows.

The emergence of segregation patterns and natives' reaction to the presence of a large number of immigrants are typical concerns for sociologists, economists and policymakers. The aim of this paper is to analyze these phenomena by exploring the interplay between natives and foreigners in the context of real estate. Housing markets are particularly

<sup>1</sup> According to the United Nations (<http://esa.un.org/migration/index.asp>), the number of migrants in 2010 was 214 million – an increase of 20% since 2000. Europe hosts the largest number of immigrants (nearly 70 million people) – followed by Asia (61 million) and North America (50 million) – and accounts for roughly one third of immigrant population growth in the decade.

suitable for this kind of analysis: immigrant–native interactions occur on a very local spatial scale and housing prices are likely to be very sensitive to the natives' attitudes towards immigration. Nevertheless, most of the existing studies analyzing the impact of immigration on the residential housing market look at the average price at the city level (Saiz, 2003, 2007; Ottaviano and Peri, 2006), ignoring the spatial distribution of the population (both natives and immigrants) within the city and different effects on local prices.

In this paper we develop a simple spatial model that formalizes how an immigrant shock in a district affects local amenities, thus influencing local prices and native mobility. We assume that the natives' indirect utilities depend on both real wages (and, therefore, on housing prices) and the perceived quality of amenities, which are a function of the number of immigrants residing in the district. No restrictions are imposed on the relationship between immigration and natives' perception of local amenities. On the one hand, natives may have racial or religious preferences that could induce a negative effect; they may find hurdles to communication; or they may be concerned by a deterioration of local standards of living due to the crowding effect on local indivisible goods (e.g. parks and transport). On the other hand, natives may have preferences for cultural diversity and may benefit from a rise in the variety of local goods (e.g. ethnic restaurants), thus inducing a positive effect of immigration on amenities.

Specifically, according to our theoretical results, (i) an immigrant shock to a district increases the average price of housing at the city level; (ii) the district hit by the shock will have higher (lower) growth in house prices than the city average if and only if migrants have a positive (negative) effect on the natives' perception of local amenities; (iii) an immigrant shock may induce natives to resettle in other areas of the city; native mobility is affected by an income effect (i.e. the crowding out of natives due to the increased demand for housing by immigrants) and an amenities effect, whose sign depends on the effect of immigrants on local amenities; (iv) if immigrants are concentrated in a district with a more rigid housing supply, we observe no additional effects on prices but a stronger native outflow.

We provide a set of empirical models that allow to test the theoretical predictions and, thus, to identify whether and how immigrants (i.e. individuals with non-Italian citizenship) affect natives' perceived local amenities. We implement our empirical strategy using a unique dataset on the number of migrants and natives, and housing prices at the district level based on a sample of 20 large Italian cities in the period 2003–2010. To identify an exogenous source of variation in immigrant inflows at the district level, we adopt an instrumental variable (IV) strategy, using historical enclaves of immigrants across districts to predict current settlements (Card, 2001). Consistently with the theoretical prediction, we find that immigration has a positive effect on average price growth at the city level. In particular a 10% increase in immigrant stocks raises the average price by 5%. However, at the intra-municipal level we find that the same 10% increase in immigrant population in a district lowers prices by 2 percentage points vis-à-vis the city average. This slower price growth in the district directly hit by a positive immigrant shock is driven by native-flight: 10 additional immigrants who arrive in a district cause 6 natives to resettle in other areas of the city. We also find that native-flight is greater when immigrants settle in districts where housing supply is more constrained (e.g. historic city centers). These findings provide evidence of a perceived deterioration of amenities on the part of natives and suggests the rise of spatial segregation patterns of migrants.

Starting with the work of Saiz (2003), several papers have documented a positive effect of immigration on housing prices at the city level.<sup>2</sup> However, only Saiz and Wachter (2011) move the analysis

<sup>2</sup> See Saiz (2003 and 2007) and Ottaviano and Peri (2006) for the US, De Blasio and D'Ignazio (2010) for Italy, Gonzales and Ortega (2012) for Spain. Sá (2011) studies the effect of immigration on house price in the UK using different levels of aggregation, finding a negative effect when house price is measured at the local authority level and no effect at the more aggregated level. This would suggest that the effects of immigration are only captured when the market is defined at a proper geographical level because native mobility may diffuse the effects throughout broader partitions of the territory (Borjas, 2006).

towards the intra-city level, allowing for heterogeneous effects across districts. They focus on US metropolitan areas and use census waves to document that housing values have grown relatively more slowly in districts of immigrant settlement.<sup>3</sup> We improve and extend the analysis with respect to them in three aspects. First, we provide a more tractable theoretical model that yields closed-form solutions. Our model replicates their simulated results, and is able to derive a set of testable implications of model assumptions.<sup>4</sup> Second, while Saiz and Wachter (2011) focused on decennial price changes, we use yearly data to document a significant effect of immigration on the housing market even in the short-term. Finally, we provide new evidence on the urban impact of immigration in a markedly different setting with respect to the US. Indeed, historically, Italy has not been a destination country for migration flows and the bulk of immigration has been relatively recent.<sup>5</sup> This may affect the natives' attitudes towards foreign-born people and feelings about the impact of immigration on cultural and national identity. Moreover, Italian households have a comparatively high propensity to buy their own home and this may lead them to care more about neighborhoods' characteristics and local amenities. All these elements may play a significant role in house price adjustment to an immigration shock.

Our paper is also related to the literature on urban segregation. Residential segregation has been investigated in the sociological literature since the 1950s. More recently, economists have entered the field. Their interest was mainly attracted by the economic consequences of ghettos – in terms of the economic performance of minorities, human capital accumulation and costly social behavior (e.g. crime) – and by the determinants of segregation. On the latter point, Cutler et al. (1999) examine segregation in American cities and argue that current patterns are determined by “decentralized racism”, that is whites pay more than blacks to live in predominantly white areas.<sup>6</sup> Most of the literature on urban segregation concerns the US whereas evidence for Europe is much more limited; however our paper provides evidence on urban segregation for a European country, shedding light on its potential determinants.<sup>7</sup>

The rest of the paper is organized as follows. In Section 2 we develop the theoretical model and derive a set of testable predictions. In Section 3 we describe the data and provide some preliminary analysis. In Section 4 we present the empirical strategies adopted to test the theoretical findings and in Section 5 we show the results. Section 6 discusses robustness checks and some extensions. Section 7 concludes.

## 2. Theoretical model

In this section, we develop a theoretical model on the effects of immigration on city- and district-level housing prices and citizens' mobility within the city.

### 2.1. Assumptions and equilibrium in the housing market

Suppose a city has 2 districts, 1 and 2. Each individual  $i$  located in district  $d$  maximizes the following utility function:

$$U_{id} = A_d \frac{C_i^{1-\alpha} H_i^\alpha}{(1-\alpha)^{1-\alpha} \alpha^\alpha} \quad (1)$$

<sup>3</sup> See also Cobb-Clark and Sinning (2011) for an analysis of neighborhood diversity through the lens of the housing market.

<sup>4</sup> The tractability of the model also allows to derive some additional predictions (e.g. the effects of rigidities in the housing supply) that are tested in the empirical part of the paper.

<sup>5</sup> In 2010 there were 4.6 million resident foreigners, about 7.5% of overall population, up from 2.5% in 2000 and less than 1% in 1991. Italy ranked among the first 5 destination countries for migration flows in the 2000s (together with the US, UK, Canada and Spain).

<sup>6</sup> Card et al. (2008) find that population flows exhibit tipping-like behavior: once the minority share in a district exceeds a “tipping point”, all the whites leave. Bayer et al. (2004) analyze urban patterns in the San Francisco Bay Area and conclude that racial differences in socio-demographic features explain a large amount of the observed segregation.

<sup>7</sup> Boeri et al. (2012) examine residential segregation in Italy. They focus on the (negative) labor market consequences of immigrant segregation using data for 8 Italian cities.

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