Rental Housing Discrimination and the Persistence of Ethnic Residential Segregation*

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Abstract

We conduct a field experiment to show that discrimination in the rental market represents a significant obstacle for the residential mobility of immigrants. We employ the Internet platform to identify vacant rental apartments in different neighborhoods of the two largest Spanish cities, Madrid and Barcelona. We send emails declaring an interest in the apartments and signal the senders' ethnicity by purposively using native or foreign-sounding names. We find significant evidence that, in line with previous studies, immigrants face differential treatment when trying to rent an apartment. Our new result is that this negative treatment varies considerably with the share of immigrants in the target area. In neighborhoods with a scarce presence of immigrants the response rate is 30 percentage points lower for immigrants than for natives, while this differential disappears when the immigration share reaches 50 percent. We conclude that discriminatory practices in the rental housing market play an important role in perpetuating ethnic residential segregation in large cities.

Keywords: immigration, discrimination, ethnic residential segregation
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1.- Introduction

Upon arrival to a new country immigrants often settle in segregated neighborhoods. Ethnic networks are useful to find a job and generally facilitate the adjustment to the new society (Bartel, 1989; Zavodny, 1997; Jaeger, 2000; Bauer et al. 2002, 2005). As the newcomers or their descendants assimilate - finding a steady job, accumulating some wealth and forming families – they may be willing to move out of the ethnic enclave. A different address in a less segregated neighborhood may signal that the immigrant family has economically and socially improved (Logan and Alba, 1993; South and Crowder, 1998; Fong and Wilkes, 1999; Freeman, 2000). However, a well-established empirical regularity is that immigrants in advanced societies tend to live spatially concentrated within large cities.[1]

The persistence of ethnic segregation may be attributed to immigrants' preferences for neighborhoods where their own group dominates, even when their socioeconomic and cultural differences with respect to natives significantly diminish or disappear (Freeman, 2000; Bowes et al. 2002). Discrimination in the housing market can also play a role, representing an obstacle to acquiring a dwelling in certain areas, even when immigrants achieve high socioeconomic status. There is extensive evidence of the contribution of discriminatory practices to spatial ethnic segregation in what for over a century was regarded as the paradigmatic "mixing pot" -- the USA (Galster, 1986 and 1991; Yinger, 1986; Page, 1995; and more recently Hanson and Hawley, 2011). This pattern has also been widely recognized in some European countries with a long history of international migration (Giffinger, 1998; Phillips, 1998; Musterd et al. 1998 and Aalbers, 2005).

This paper investigates the role that rental housing discrimination plays in the residential mobility of immigrants in Spain, a country with a fairly recent history of international immigration. The number of residents born abroad grew from 1 million in 1996 to 6 million in 2008 out of a total population of 46 million. While the labor market impact of this supply shock seems to be negligible, the sudden spike in immigration has reshaped the ethnic composition of Spanish cities.[2]

The level of segregation in Spanish cities is lower than in the US or other Western and Northern European countries, but segregation has not disappeared as

[1] See Bartel (1989), Alba and Nee (1997), Borjas (1998) and Freeman (2002) for examples in the US and Musterd (2005), Phillips (1998), and Bolt and van Kempen (2010) for Europe.

[2] Several studies analyze the economic impact of immigration in Spain and find no significant effect on the wages and employment opportunities of natives (González and Ortega 2011; Carrasco et al. 2008).

immigrants' stay in the country has lengthened.[3] Previous studies have uncovered an important degree of discrimination against immigrants in the Spanish rental housing market (Bosch et al. 2010). Our contribution here is to investigate the implications of discriminatory practices for the observed patterns of spatial ethnic segregation.

We conduct a field experiment in the two largest Spanish cities, Madrid and Barcelona, where native and immigrant candidates apply to move to vacant rental apartments advertised on the Internet. We employ Moroccan and Spanish-sounding names in the applications to signal the ethnicity of the candidate.[4] We then compare the response rate differentials between the two groups across areas with different shares of immigrants to identify the extent to which rental housing discrimination represents a barrier for the residential mobility of immigrants.

Our results reveal a significant negative correlation between the immigrant share in a particular neighborhood and the degree of discrimination against Moroccan applicants. That is, discrimination against immigrants is particularly intense in areas where there are very few immigrants. This finding suggests natives can effectively restrict the access of immigrants to certain areas and perpetuate the persistence of spatial segregation in large cities.

The paper is organized as follows. The next section gives a brief overview of the relevant literature, section 3 describes the characteristics of the housing market and the geographical distribution of immigrants in Spain, section 4 explains the experimental setup, section 5 discusses the main results and some key conclusions are drawn in section 6.

2.- Literature Review

Residential ethnic segregation is a complex phenomenon with different dimensions measured by a battery of indices (Massey and Denton, 1988). It may usefully be understood at the general level as the overrepresentation of a particular group in some parts of a city and its under-representation in others. For our study of Barcelona and Madrid we apply this basic definition and measure ethnic segregation by the percentage

[3] See Fernandez-Huertas Moraga et al. (2009) for a detailed description of the evolution of ethnic segregation in Spain.

[4] By nationality, the most numerous groups of immigrants come from Romania (14.2%), Morocco (12.7%), Ecuador (7.4%) and Colombia (5.2%). Spanish Statistical Office, Local Population Registry, 2009. We restrict our analysis to Moroccan immigrants, as opposed to those of Ecuadorians and Rumanians, as their names are clearly distinguishable from those of natives.

of foreign born residents with or without Spanish citizenship in an certain area (i.e. neighborhood or census district).[5]

The popular view on ethnic segregation is generally negative. The main concern is that segregation, when linked to poverty and deprivation, can be detrimental for the process of socioeconomic assimilation and integration of the minority group. Indeed, it has been shown that deprivation in a neighborhood is statistically associated with a lower socioeconomic position (Galster et al. 2008), poor educational outcomes (Overman, 2002; Crane, 1991; Duncan et al. 1994) and limited unemployment exit rates (Clark and Drinkwater, 2002; van der Klaauw and Ours 2003). However, there may also be positive aspects associated with spatial segregation. For example, social contacts or networks may function as a safe port in a hostile environment (Boal, 1976; Portes and Sensenbrenner, 1993; Bolt et al. 1998) and provide alternative channels for socioeconomic mobility (Wilson and Portes, 1980; Sanders and Nee, 1996; Burgers et al. 1997).

Since neighborhoods are so important in determining economic and social outcomes, it seems important to get a handle on certain fundamental factors governing their formation and growth. The literature has identified three different models to explain residential ethnic segregation. In the *spatial segregation* model the essential argument is that immigrants first choose to live in an ethnic enclave, where they can find the support and help of their co-ethnics. However, as immigrants assimilate, both culturally and economically, they tend to opt for higher quality neighborhoods which typically coincide with native majority neighborhoods. The empirical evidence in favor of this model is limited and cautionary. For example, in the Netherlands, differences in residential behavior between ethnic groups persist even when controlling for individual-level characteristics (Bolt and van Kempen, 2010). In the US, the spatial segregation model fails to account for the fact that blacks find it more difficult to move into neighborhoods with a larger share of whites with better-quality conditions than do white members of other minority ethnic groups (Clark 1986, Alba and Nee 1997, Freeman 2002 and Fong and Wilkes 1999). The high level of ethnic segregation in countries with

[5] The share of foreign born in the neighborhood has been employed in previous studies to conduct empirical studies on the spatial segregation of immigrants (see, for example, Card et al. 2008; Hanson and Hawley 2011).

a large tradition of international migration also suggests that other factors drive the residential mobility decisions of minority groups.

A second common perspective known as the *ethnic enclave* model questions the view that the residential preferences of the ethnic minority become closer to those of the native majority the longer their residency in the host society. Freeman (2000) points out that in the US some middle-class African Americans choose to live in segregated neighborhoods, where they feel at home and can contribute to the welfare of the community. In the Netherlands, Turks and Moroccans with high income do not necessarily want to live in a predominantly white neighborhood (van Ham and Feijten 2008). Ethnic segregation can also result from natives' preferences to move to all-native neighborhoods, or the so called "white flight". The last decade has brought abundant evidence of these preferences in the US (Card et al. 2008; Saiz and Wachter, 2011) and Europe (Ozuekren 2003; Brama, 2006; Bolt et al. 2008; van Ham and Feijten 2008).

A third view, known as the *place stratification* model, emphasizes that ethnic minority groups are hampered in their residential mobility by discrimination on the part of all kinds of actors in the housing market. The literature points to mortgage-lenders (Aalbers, 2005; Galster, 1999; Sarre et al. 1989), real-estate agents (Philips and Karn, 1992; Yinger, 1995 and 1999), private landlords (Aelbers et al. 1991; Phillips 1998) and numerous authorities at both the local and national levels (Giffinger, 1998; Musterd et al. 1998; Goodchild and Cole, 2001). As a consequence of discrimination, minority groups are less able to move into desirable neighborhoods, and differences in residential locations do not disappear even if the socioeconomic conditions of the minority improve.

Several studies have attempted to directly assess the extent to which housing discrimination contributes to patterns of ethnic residential segregation. For example, Galster (1986, 1991) shows that cities in the US with high levels of discrimination tend to be more segregated than cities with low levels of discrimination. Within cities, Yinger (1986) and Page (1995) find evidence of discrimination in neighborhoods where the proportion of non-whites is relatively low (i.e. between 5 and 20%).

The evidence of discrimination has typically been based on audit studies. For example, two subjects (one from the majority racial group and one from the minority) are matched based on observable characteristics (excluding ethnicity) and trained in how to specifically act toward a real estate agent or landlord. The subjects are sent to a landlord or real estate agent's office to inquire about an advertised housing unit. After

the visit, the subjects report whether they have been shown the advertised unit and other potentially objective measures of treatment.

Despite the popularity of audit studies, Heckman and Siegelman (1993) and Heckman (1998) claim the results are likely to be impacted by the idiosyncrasy of the testers. An alternative approach involves conducting field experiments using written applications. Bertrand and Mullainathan (2004) study the presence of racial discrimination in the labor market by sending resumes to job offers. They signal the ethnicity of the applicants through their names and study discrimination against blacks in the US job market. Carpusor and Loges (2006) adapt this approach to test for discrimination in the housing market, making inquiries via email regarding available apartments in the US. They signal ethnicity through Arabic, African-American or European sounding names, and find that Arab and African-American applicants receive significantly fewer responses than their white counterparts. Similar studies have been conducted in Italy (Baldini and Federici, 2011), Sweden (Ahmed and Hammarstedt, 2008; Ahmed et al. 2010) and Spain (Bosch et al. 2010). All them underscore the prevalence and high degree of discrimination against the minority group.

Most of the research on housing market discrimination has been conducted in the US, the UK and Northern Europe. The characteristics of the housing market in those countries are substantially different, and thus the varying incidence of discrimination. Northern European countries, for example, are characterized by a large welfare state and a significant social housing sector. The basic pattern is a substantial intervention by the government, aiming to reduce residential segregation and achieve a greater ethnic mix (Phillips, 2010). In Western European countries (i.e. Germany, Austria, Belgium, the Netherlands and France) the stock of the public housing is also large, but the selective provision of welfare and household-related allowances substantially contributes to the existence of segregated neighborhoods (Giffinger, 1998; Giffinger and Reeger, 1997; van Kempen and Priemus, 2002). Finally, in the UK and the US there is comparatively limited collective provision of housing, and immigrants must find a home in the less regulated private rental sector, where discrimination is likely more intense (Bailey, 1966; Yinger 1978 and 1995; Chambers 1992; Phillips 2006a and 2006b).

In Southern European countries (Portugal, Spain and Italy) there are few state led interventions to promote residential integration. The housing market in these countries is characterized by an important degree of informality that leads immigrants to live in the worse houses and poorest neighborhoods (Malheiros, 2002). Some authors

have explained these residential patterns in terms of the prevalence of negative attitudes towards immigrants (Arbaci 2004, 2007). However, to the best of our knowledge, there is no formal test for the presence of discrimination in accounting for the observed degree of residential segregation.

3.- Immigration in Spain

The contemporary immigration episode in Spain began in the late 1990's. Over a period of 10 years the foreign born population grew from 3% in 1996 to 14% in 2008.[6] This extremely rapid and enormous inflow of immigrants has changed the ethnic composition of the country.[7]

Immigrants are unevenly distributed across Spain. Regions along the Mediterranean coast, the province of Madrid and the Canary Islands have received the bulk of immigration.[8] Economic reasons and network effects seem to be responsible for this regional concentration (Farré et al. 2011). Immigrants are more likely to be in urban than in rural areas, and within cities the degree of segregation is not negligible (Fernández-Huertas Moraga et al. 2009).

We choose to focus our investigation on two major Spanish cities, Madrid and Barcelona, for two reasons. First, these are the only two cities whose size (i.e. 3.2 million residents in Madrid and 1.6 million in Barcelona in 2008) is comparable to that of other international studies. Second, in each city in 2008 around 20% of the population were immigrants, well above the country average of 14%.

The level of residential ethnic segregation in Spain is lower than in the US and other Northern and Western European countries, and has remained fairly constant during the last decade. Segregation at the national level between 2001 and 2008, measured by the dissimilarity index, decreased slightly from 0.41 to 0.37. In big cities, segregation is higher but presents a similar pattern: the dissimilarity index decreased in Barcelona from 0.55 to 0.50 and in Madrid from 0.50 to 0.45.[9] Despite the small decrease in segregation, immigrants tend to be overrepresented in certain areas within cities. Figures 1 and 2 display the percentage of immigrants in the different census

[6] As a result of the international financial crisis that has severely impacted Spain, the stock of immigrants has remained fairly constant since 2008.

[7] Our definition of immigrant is a foreign born individual living in Spain, with or without Spanish citizenship.

[8] In 2008 these regions account for the 53 percent of the native population in Spain, and 75 percent of the immigrant population (Fernández-Huertas Moraga et al. 2009)

[9] For a more detailed discussion of the evolution of ethnic segregation in Spain see Fernández-Huertas Moraga et al. (2009).

districts in Madrid and Barcelona for 2000 and 2008.[10] For example, in downtown Madrid the share of immigrants in 2008 was 31%, while it was less than 15% in the residential areas located in the north of the city (see Figure 1). Differences in immigrant concentration across districts are even more pronounced in Barcelona (see Figure 2).

Spain hosts immigrants from a variety of ethnic origins, but about two-thirds of the immigration flow comes from Latin America (30%), Eastern Europe (20%) and North Africa (13%). Because we employ the soundness of the applicant's name to signal ethnicity, our experimental study focuses only on Moroccan immigrants whose names are clearly distinguishable from those of natives. Given the geographical proximity between Morocco and Spain, this group already represented a substantial amount of the foreign born population at the beginning of the immigration boom. By 2008 they were still one of the most popular minority groups, accounting for almost the 13% of all immigrants. Their spatial distribution is typical of other immigrant groups. According to the results in Fernández-Huertas Moraga et al. (2009) the dissimilarity index at the metropolitan area level oscillates between 0.3 and 0.5 for Moroccans, Ecuadorians and Romanians during the whole immigration episode. The tables below figure 1 and 2 also display the share of Moroccan immigrants by census districts in 2008. They are overrepresented in certain areas such as downtown Barcelona and the Usera district in Madrid.

In this paper we focus on the presence of discrimination in the private rental housing market. In Spain rental dwellings represent only 11% of the total housing stock.[11] The size of the private rented sector is larger in Madrid (17%) and Barcelona (29%). According to Oxley et al. (2010), in other European countries the percentage of rental homes is 48% for Germany in 2006, 20% for France in 2006 and 13% for the UK in 2007. The size of the private rented sector in the US for 2004 was 32%. Despite Spain's relatively smaller size, immigrants are dramatically overrepresented in the private rented sector. According to the National Immigrant Survey 2007 (ENI 2007),

[10] There are 10 census districts in Barcelona and 21 in Madrid. The census districts are geographical subdivisions created for the collection of statistical data. Their average population size is 155,780 inhabitants, with a standard deviation of 56,569, a minimum of 43,951 and a maximum of 265,866. Spanish Local Population Registry.

[11] In Spain there is a shortage of statistics related to housing. The most recent reliable source of information on the characteristics of the Spanish housing market is the 2001 Census. More recent studies such as Oxley et al. (2010) and Mora-Sanguinetti (2011) point out that the weight of the rental market in Spain was 11 percent in 2001 and remained near constant until 2008 when, as estimated by the Ministry of Housing, it rose to 13 percent.

64% of the respondents lived in private rented dwellings. These figures are slightly higher in Madrid (68%) and Barcelona (67%).

In some countries the presence of public housing in the stock of dwellings has directly impacted the level of ethnic segregation (for Austria, see Giffinger, 1998; for the UK, see Goodchild and Cole, 2001). The share of public housing in Spain is less than 2%, thus its affect on segregation (if any) is likely to be negligible.[12]

Against the background of the previous discussion, it is clear on a comparative basis that an objective investigation of immigrants' residential mobility decisions in Spain must recognize the relevance and concentrate on the private rental housing market. Our methodology is further narrowed by the decision to restrict our attention to private landlords, excluding from sampling and analyses dwellings rented by real estate agents. They may receive several emails within our experimental design and distort the results.

4.- Experimental Design

Our experimental design is similar to that of other studies that sought to identify discrimination in the rental housing market (Ahmed and Hammarstedt 2008; Ahmed et al. 2010 and Bosch et al. 2010). A brief summary of our strategy will highlight the main differences of our approach and prior work in this area.

We use the email correspondence testing method to examine the chances of natives and immigrants to rent a flat in areas with varying presence of foreign-born population. Written applications are sent to rent vacant apartments advertised on *www.idealista.com*, the leading real estate website in Spain.[13] On this platform, private owners and real estate agencies can advertise properties to sell or rent. For private owners, the first submitted ad is free of charge. Fees for agencies start at a minimum of 79 Euros per month. In contrast, individuals interested in a particular advertised housing unit can at no cost send an electronic application filling-in their name, email address and a short message.

[12] In the National Immigrant Survey 2007 (ENI 2007) less than 1% of the respondents report to be in social housing.

[13] According to this website almost 50 percent of the people in Spain use the Internet to search for housing. During 2011 *idealista.com* was one of the 50 most visited web sites in Spain and the only property advertising site in this ranking. Popular press such as The New York Times, The Telegraph, The Wall Street Journal and The Washington Post, identifies *idealista.com* as the largest Spanish online property advertising site (http://www.idealista.com/pagina/ranking).

In our experimental setup, the potential tenants applied to all rental ads published by private owners on *idealista.com* for seven months, from December, 2009 to June, 2010. For each housing unit, the site contains information on the monthly rent, address, number of rooms, square meters and in most cases, the name (and thus the gender) of the person placing the ad. Each week we collected information on available flats on Tuesdays, and sent applications the next day. One week later we recorded whether the fictitious applicants received a response. When they did and were invited to visit the apartment or to provide additional information, we played that role again for an instant and politely declined the invitation.

Common native and Moroccan-sounding names were used to signal the ethnicity of the candidate. Based on name frequency data from Spanish National Statistics Office, we selected the most popular Spanish male names (Manuel, Antonio, José and Juan) and female names (Ana, Isabel, Carmen and María) and the four most common surnames (García, González, Fernández and Rodríguez). We also used the most common Moroccan names for males in Spain (Mohamed, Ahmed, Rachid and Youssef) and for females (Rachida, Aicha, Naima and Khadija) and the four most common surnames (El Idrissi, Mohamed, Saidi and Serroukh).

We created email accounts for our applicants using 3 different global providers: gmail, hotmail and yahoo. For example: carmen.garcia1969@yahoo.com; mohamed_ahmed@gmail.com or rachidamohamed22@hotmail.com.

Previous studies show that information about the socioeconomic characteristics of the candidates affect discriminatory practices. Accordingly, we sent emails containing different amount of information about the occupation of the candidate. We consider two types of candidate: (1) applicants who send an email showing interest in the advertised flat but without any information other than their name; (2) applicants whose email contains information about their highly reliable job (i.e. university professor or banking clerk), presumably representing the ideal employed tenant from the point of view of defensive property owners.

Our fictitious applicants sent the Spanish version of the following emails:

<u>No information</u>

"Hello,

I am interested in renting this apartment. I would be very grateful if you contacted me. Thank you. NAME"

High-paying occupation

"Hello,

I am interested in this flat. I work as a financial analyst for a bank (La Caixa/Caja Madrid). I have recently moved to the city (Barcelona/Madrid) and I am looking for a flat where to live for at least a couple of years. I would be happy to provide a financial guarantee. Please contact me if interested. Many thanks. NAME"

Or alternatively:

"Hello,

I am a Professor at the Department of Political Science of the University (Pompeu Fabra/Carlos III de Madrid). I have been living in the city (Barcelona/Madrid) for a couple of years and I would like to find a new apartment. I have a permanent contract with the University. I am very interested in your flat and I would be very grateful if you could contact me. Best regards. NAME".

We created eight kinds of fictitious characters as applicants: The first four are either Moroccan or native, male or female candidates who withhold any information about their socioeconomic status, and the second four candidates instance the same categories but put forward information about their occupations. We use a random assignment procedure, where each vacant apartment is contacted by only one of the eight applicants. We submit applications to 1186 apartments, and each of the eight types of applicant applies to approximately 150 apartments.

However, the focus of this paper is not on the average discrimination that immigrants experience, but rather on how discrimination varies across different areas within cities. From the original website we learn and record the precise address of each vacant flat.[14] We then match this location with the share of immigrants obtained from the Spanish Local Population Registry.[15] In particular, we employ two levels of spatial

[14] The websites used in previous studies to investigate rental market discrimination do not contain the address of the housing units, hence making it impossible to conduct the type of analysis that we propose here.

[15] The Registry is conducted at the municipality level and it provides a very accurate measure of the number of immigrants, including the undocumented. The reason is that in Spain registration is required in order to have access to public healthcare and education, but also to be eligible in the event of an amnesty. The process of registration does not require proof of legal residence, and the data are confidential (that is,

disaggregation at the city level: the census district and the ZIP or postal code, the latter being a more disaggregated spatial subdivision.[16] Barcelona and Madrid together have 31 census districts and 70 ZIP codes.

The randomness in our experimental design ensures that both immigrants and natives apply on average to similar apartments; hence the differential treatment that we observed is only attributable to the interpretations placed on their names. Tables A1 and A2 in the Appendix provide evidence on the validity of our randomization exercise. These tables present the mean differences (and standard errors) in flat characteristics between rental units contacted by natives and immigrants. We do not find any systematic differences in the type of flats that the two groups apply for.[17]

5.- Results

Table 1 presents the descriptive statistics of our experimental exercise. The first column shows that the response rate for natives is almost 20 percentage points higher than for Moroccans. Interestingly, as in previous studies (Ahmed et al. 2010 and Bosch et al. 2010), discrimination presents a clear gender bias pattern against males. Compared to their native counterparts their response rate is 25 percentage points lower, while it is 10 points lower for females. The table also shows that the response rate increases when positive information about the socioeconomic status of the applicant is revealed. Finally, there is evidence that a reliable job reduces the response differential between natives and immigrants: from 23.6 percentage points among those applicants without information to 15.45 among those in high paying occupations.

The main result of our research is illustrated in Figure 3. We plot by ZIP code the response rate differential in favor of natives against the share of immigrants in that particular ZIP code. Positive numbers in the y-axis indicate emails signed with a native-sounding name obtain a higher response rate than those signed with a foreign-sounding one. The figure also displays the fitted values from regressing the response rate differential on the share of immigrants, weighted by the number of observations at the ZIP level. Admittedly there is some noise in the data, but overall a clear negative

cannot be used to expel undocumented migrants). Immigrants in this context have strong incentives to register.

[16] While census districts are geographical subdivisions with statistical purposes, ZIP or postal codes are smaller geographical areas entirely designed to facilitate the postal service. Their average population size is 4,198 inhabitants, with a standard deviation of 9,647, a minimum of 1 and a maximum of 116,455. Spanish Local Population Registry.

[17] Similar results are found at the ZIP code level.

relationship emerges, indicating that as the share of immigrants increases in a particular area, rental housing discrimination decreases. This evidence suggests that while many factors are likely to be responsible for the geographical distribution of immigrants within cities, the presence of artificial barriers to their residential choices may contribute to the persistence of ethnic residential segregation in large metropolitan areas such as Madrid and Barcelona.

We next estimate a set of econometric models to investigate the statistical significance of the previous evidence. Let us first discuss the results for our baseline model. Following prior studies, we run a regression to estimate the probability of being contacted (i.e. receiving a response email to the flat inquiry) as a function of a set of socioeconomic characteristics, including the applicant's ethnicity:

$$C_i = \beta_0 + \beta_1 \text{Im}\, g_i + \beta_2 Fem_i + \beta_3 Info_i + \beta_4 (Fem_i \times \text{Im}\, g_i) + \beta_5 (Info_i \times \text{Im}\, g_i) + \\ + \beta_6 (Fem_i \times Info_i \times \text{Im}\, g_i) + u_i$$

where C_i is an indicator variable with the value 1 if the applicant is contacted and 0 otherwise; $\text{Im}\, g_i$ is an indicator with the value 1 if the email is signed with a foreign-sounding name; Fem_i is 1 for females and $Info_i$ is a dummy variable with the value 1 if positive information about the applicant's occupation is provided in the email. The model also includes interactions between the immigrant indicator, and the gender and information variables in order to reveal patterns of discrimination along those dimensions. Finally, u_i is an error term that -- given the experimental nature of our setup -- can be assumed to be uncorrelated with the explanatory variables.

Table 2 displays the estimates of the baseline model. The first column shows the raw level of discrimination, where the dependent variable in the previous equation is regressed only on the immigrant indicator. Accordingly an email signed with a Moroccan-sounding name has 18 percentage points lower probability of receiving an answer than one signed with a native-sounding name. Column (2) shows the results for the same regression, but includes flat characteristics such as rent per square meter, number of rooms and city fixed effects. Given the experimental nature of our data, it is not surprising that our results are unaffected by the inclusion of these controls. In column (3) we include as additional regressors the gender dummy and its interaction with the immigrant indicator. The coefficient on this interaction is positive, large in

magnitude and highly significant. The point estimate indicates that female immigrants are 15 percentage points more likely to be contacted than their male counterparts. This is evidence of the large gender penalty male immigrants face in the rental housing market. Column (4) estimates the same model including flat characteristics and, as expected, the results are unaffected.

We next study how discriminatory behavior changes with the amount of information disclosed in the application. The model in column (5) contains as additional regressors the information dummy and its interaction with the immigrant indicator, the goal being to accurately capture differences between "high-quality" candidates and those who do not provide any socioeconomic status information. According to our estimates, candidates signaling a high-paying occupation are 8 percentage points more likely to be contacted than those who do not report any information about their jobs. The interaction of this variable with the immigrant indicator suggests the presence of some additional informational premium for immigrants of around 8 percentage points, which is statistically insignificant. However, when this informational premium is interacted with the gender indicator (see column (6)), the returns to information becomes positive and statistically significant for male immigrants.[18] Note that despite the positive premium, information does not eliminate the difference in response rate between natives and immigrants.

Overall, the results in table 2 confirm and extend the previous findings in the literature. Property owners use the informational content of names to differentially treat immigrants. This differential treatment is substantially larger for males and does not disappear when information about the socioeconomic status of the candidate is revealed. This last finding indicates that either information other than the socioeconomic status is relevant, or that negative attitudes towards immigrants are behind the substantial amount of discrimination observed in the rental market.[19]

Table 3 explores discriminatory practices across neighborhoods with different ethnic composition, as measured by the share of immigrants (i.e. foreign born individuals with or without Spanish citizenship). Column (1) displays the estimates of the model for the raw level of discrimination, including as additional regressor the share of immigrants at the ZIP code level ($ZIP - \mathrm{Im}g - Share_i$) interacted with the immigrant

[18] While β_5 captures the returns to information for male immigrants, $\beta_5+\beta_6$ captures the returns for females, which according to our point estimates are approximately 0.
[19] See Bosch et al. (2010) for a deeper discussion about the effect of information on discrimination.

indicator. The results indicate that in all-native areas immigrants are on average 30 percentage points less likely to be contacted than native applicants. However, this differential decreases as the presence of immigrants in the area increases. In particular, a 10 percentage points increase in the immigration share at the ZIP code level increases the chances of being contacted (relative to those of natives) by 5.5 percentage points. Consequently, it seems reasonable to conclude that discrimination will tend to disappear in areas where the concentration of immigrants is around 50 percent.

The remaining columns in table 3 show evidence about the robustness of the previous finding. Column (2) adds ZIP code fixed effects to control for unobserved characteristics that may affect the probability of being contacted. Due to the experimental nature of our design, the results are unaltered. Column (3) reports the effect of outlier observations. A casual reading of Figure 3 might lead one to think our results are driven by those extreme values. We estimate the model excluding the observations at the top and bottom 10% of the immigrant share distribution. While the relationship between discrimination and the immigrant share remains positive and significant, the point estimate increases to 1.23. This is mainly due to the substantial reduction in the variance of the immigrant share across neighborhoods after excluding the extreme values. Column (4) adds the set of flat characteristics to the specification with all the observations. Again, the relationship between discrimination and immigrant concentration remains unaffected. Column (5) includes the gender and the information dummy and their interactions with the immigrant indicator. No significant changes affect our results. Finally, column (6) reports evidence indicating whether the relationship between the distribution of immigrants and discrimination varies with an applicant's characteristics. We failed to find evidence that the relationship varies with the gender or the quality of the applicant.[20]

A similar analysis can be conducted using the share of Moroccan immigrants at the ZIP code level, and the results are presented in table 4. The point estimate on the interaction between the share of Moroccan immigrants ($ZIP - Moroccan - Share_i$) and the immigrant indicator is larger, due to the smaller mean and variance of this variable.[21] The point estimate suggests that a 1 percentage point increase in the number of Moroccans at the ZIP code level increases the chances of response to an email signed

[20] The results using a probit model instead of a linear probability model are extremely similar and available upon request from the authors.

[21] The share of Moroccan immigrants in the sample has a mean of 1.14 and standard deviation of 0.97. The share of all immigrants in the sample has a mean of 22.05 and a standard deviation of 9.93.

by a Moroccan applicant by 5 percentage points. This effect is large and reinforces the view that while several factors may be responsible for the important overrepresentation of immigrants in certain areas within cities, part of it is due to discriminatory practices in the rental housing market. In particular, property owners utilizing on line applications seem to be effectively blocking the supply of housing units immigrants have access to by filtering their applications.

Robustness Checks

We now investigate the effect of a series of confounding factors that could undermine the validity of our previous results. One fairly obvious and realistic possibility is that the quality (or monthly rent) of flats in areas with few immigrants is different from that in other areas. In this scenario property owners in high quality flats could be said to discriminate more due to contextual factors, e.g. having a higher level of risk aversion. In this case, it would be the characteristics of flats in a neighborhood that are driving our results. We examine this possibility in the first column of table 5, where we allow the coefficient on the interaction between the share of immigrants and the immigrant indicator to vary by flat characteristics. None of those interactions is statistically significant and our main result remains invariant. This implies that the reason for the observed spatial pattern is not that discrimination occurs in expensive/high-quality flats that happen to be in areas where there are few immigrants.

The overrepresentation of immigrants that we observe in certain areas of Madrid and Barcelona may also be determined by the fact that owners in those areas are themselves immigrants, and thus less prone to discriminate against those of their own kind. However, the immigration phenomenon in Spain is relatively recent and originates mainly from low income countries. Hence, according to the National Immigrant Survey 2007 (ENI 2007) the home ownership rate among immigrants is around 30%, which is relatively low. Our results then are unlikely driven by a substantial share of immigrants operating on the supply side. We can actually test this hypothesis with our data set. We have the names of approximately 80% of the property owners or renters in our sample, either in their original ads or their reply email. With this information we can infer the nationality of the owner and examine whether it is a factor in the observed discriminatory patterns. In our sample 85% of all the owners (for which we have names) have a Spanish-sounding name. We then compute the share of "non-Spanish" owners by ZIP code and try to correlate it with the immigrant indicator. The results for this

specification appear in column (2) of table 5. We failed to find any significant effect for this variable, suggesting our results identify mainly the behavior of native owners.

Finally, we discuss two possible channels that can explain the correlation between discrimination and the relative presence of immigrants in an area by studying the evolution of the latter during the last decade. Information on the past distribution of immigrants within cities is only available at the census district level. We therefore need to first confirm our previous finding at this higher level of aggregation. Column (3) in table 5 presents the estimates for our basic specification using the share of immigrants at the census district level as the explanatory variable. At this level, a 10 percentage points increase in the share of immigrants is associated with a 6 percentage points increase in the probability that an immigrant will be contacted. Thus our previous finding is validated.

We now explore the relationship between the increase in the immigrant share in a particular neighborhood and the current level of discrimination. We employ as explanatory variable the growth in the share of immigrants by district between 2000 and 2008 interacted with the immigrant indicator. Column (4) shows a very strong correlation. In particular, a 1 percentage point increase in the share of immigrants in one district is associated to a fall in discrimination of 0.85 percentage points. One rather subtle possible explanation for this result is that districts found discriminating more in 2008 were also over discriminating back in 2000, thus generating a lower influx of immigrants. Alternatively, a closely related argument could be that immigrants moving into certain districts brought in new information and increased acceptance of the foreign born population. Unfortunately, our data set does not allow us to disentangle these two overlapping explanations.

On the whole, our results indicate that the degree of discrimination varies substantially with the ethnic composition of the neighborhood. We find evidence that property owners or renters tend to discriminate more in areas with a lower share of immigrants. Although there are other possible factors affecting the residential mobility of immigrants within cities, our findings indicate that the presence of discrimination in the rental housing market contributes to the persistence of ethnic segregation.

6.- Conclusions

This article recounted our conduct of a field experiment (in the two largest Spanish cities, Madrid and Barcelona) whose results constitute significant evidence that discrimination against immigrants in the rental housing market is strongly correlated with their spatial distribution. Our estimates indicate that in areas with very few immigrants the differential response rate to housing applications between natives and immigrants was as high as 30 percent. As the share of immigrants increases, this differential is reduced. In particular, a 10 percent increase in the share of immigrants at the ZIP or postal code level increases the chances that an immigrant will be contacted by the property owner or renter by 6 percentage points (relative to their native counterpart). We also show that this spatial pattern responds to neither differences in the quality and price of flats nor the ethnic origin of the owners across geographical areas.

We fully acknowledge these findings do not allow us to conclude that discriminatory practices generated the current distribution of immigrants across neighborhoods. To be sure, there are other factors, like house prices and immigrants' preferences to live close to each other, that play a substantial role in shaping the spatial distribution we observe today. Nonetheless, our results show that, even if other forces would have been responsible for triggering ethnic segregation, the discriminatory behavior of property owners in restrict immigrants' location options and choices, played a fundamental role in creating persistency in the urban landscape once segregation started.

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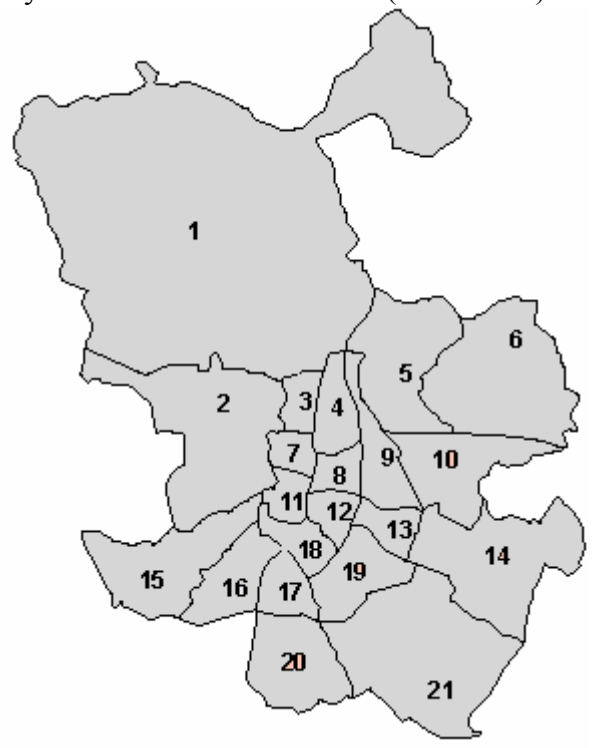
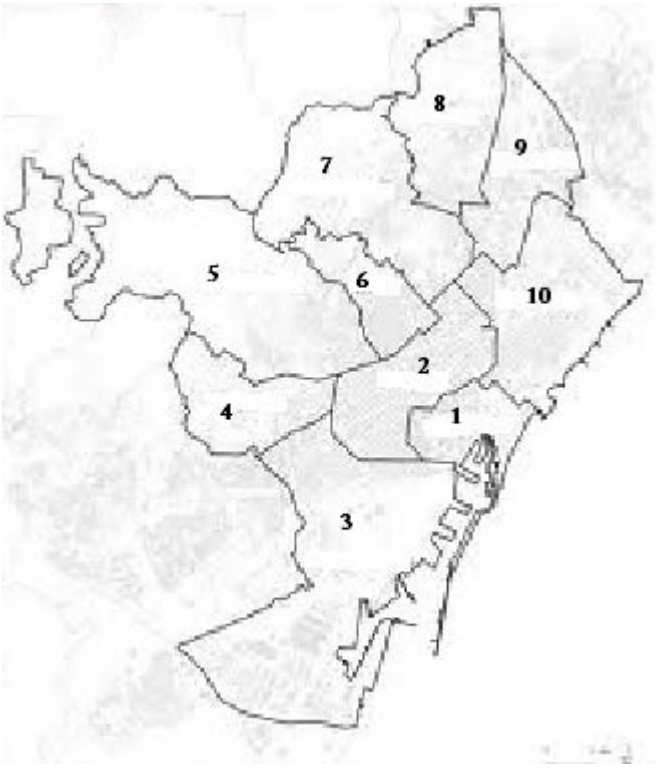
Figure 1: Immigrant share by census districts in Madrid (2000-2008)



	All immigrants 2000	All immigrants 2008	Moroccan immigrants 2008
(1) Fuencarral	4.92	13.05	1.71
(2) Moncloa	5.98	16.09	0.74
(3) Tetuán	7.65	25.39	0.57
(4) Chamartín	7.20	16.07	0.60
(5) Hortaleza	4.82	15.14	0.66
(6) Barajas	5.09	15.39	1.63
(7) Chamberí	6.86	18.33	0.68
(8) Salamanca	6.88	17.89	0.84
(9) Ciudad Lineal	5.78	21.06	0.64
(10) San Blas	3.33	16.36	0.94
(11) Centro	11.92	31.43	1.08
(12) Retiro	4.73	12.58	0.84
(13) Moratalaz	3.20	13.18	1.36
(14) Vicálvaro	3.62	17.87	0.55
(15) Latina	4.37	21.17	0.70
(16) Carabanchel	4.89	25.22	0.64
(17) Usera	4.15	25.47	2.39
(18) Arganzuela	5.95	19.08	1.75
(19) Puente de Vallecas	3.60	20.89	1.14
(20) Villaverde	3.76	25.34	0.52
(21) Villa de Vallecas	2.94	17.77	1.11

Note: The table presents the share of immigrants (or Moroccans). That is, the share of foreign born residents (or residents born in Morocco) with or without Spanish citizenship. The number of total residents in Madrid was 2.9 million in 2000 and 3.2 million in 2008. The share of immigrants was 5% in 2000 and 20% in 2008.

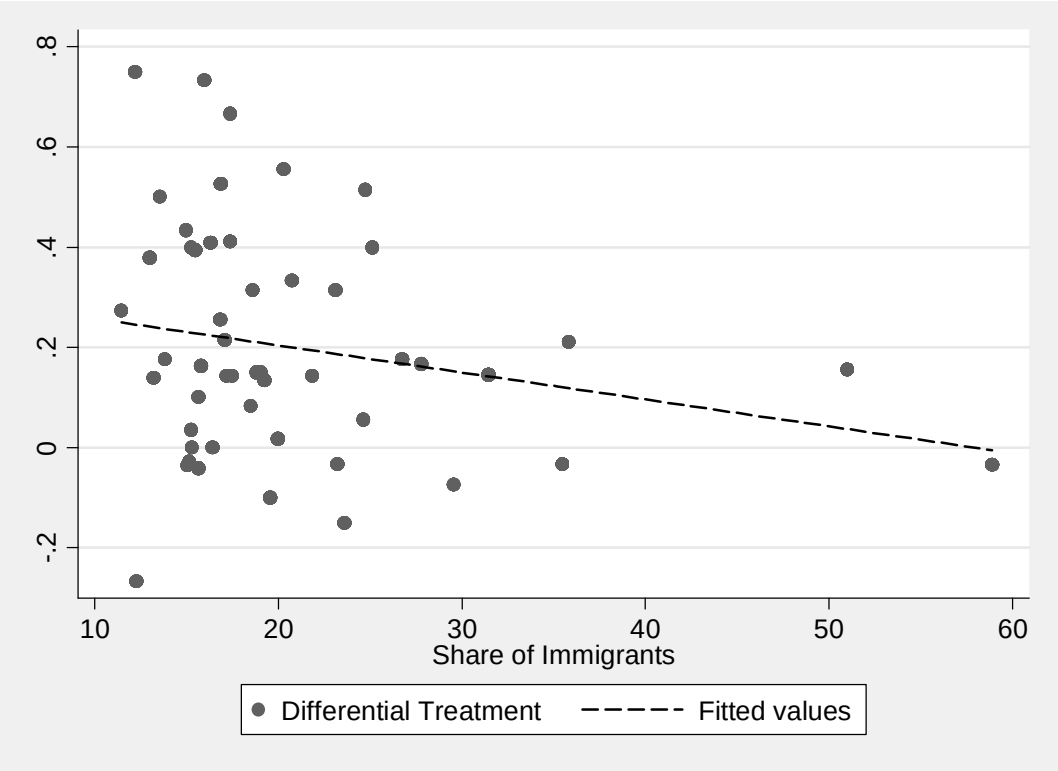
Figure 2: Immigrant share by census districts in Barcelona (2000-2008)



	All immigrants 2000	All immigrants 2008	Moroccan immigrants 2008
(1) Ciutat Vella	14.81	47.26	3.55
(2) Eixample	5.71	20.59	0.56
(3) Sants-Montjuïc	4.82	21.73	1.42
(4) Les Corts	5.20	14.73	0.46
(5) Sarrià-Sant Gervasi	6.25	15.08	0.34
(6) Gràcia	5.08	18.20	0.54
(7) Horta-Guinardó	3.26	14.92	0.62
(8) Nou Barris	2.86	18.10	1.01
(9) Sant Andreu	3.17	15.21	1.01
(10) Sant Martí	3.62	17.01	0.92

Note: The table presents the share of immigrants (or Moroccans). That is, the share of foreign born residents (or residents born in Morocco) with or without Spanish citizenship. The number of total residents in Barcelona was 1.5 million in 2000 and 1.6 million in 2008. The share of immigrants was exactly the same as in Madrid, 5% in 2000 and 20% in 2008.

Figure 3: Difference in response rates and ethnic segregation



Note: The horizontal axis displays the share of immigrants at the ZIP code level constructed from the Registry data. The vertical axis displays the differential treatment in favor of natives at the ZIP code level defined as the percentage of emails answered to native applicants minus the percentage of emails answered to foreign candidates. The line corresponds to a regression of the difference in response rates on the share of immigrants weighted by number of observations at the ZIP level.

Table 1: Descriptive Statistic

	All	Male	Females	No information	High-paying occupation
Natives	71.83%[(a)]	72.85%	70.81%	65.48%	74.94%
N. obs.	600[(b)]	302	298	197	403
Immigrants	53.75%	46.74%	60.68%	41.88%	59.49%
N. obs.	586	291	295	191	395

(a): Percentage of applicants that receive an email back from the renter.
(b): Number of emails sent

Table 2: Baseline discrimination

	(1)	(2)	(3)	(4)	(5)	(6)
$\mathrm{Im}g_i$ (β_1)	-0.181***	-0.171***	-0.249***	-0.304***	-0.224***	-0.202***
	(0.028)	(0.027)	(0.038)	(0.054)	(0.042)	(0.044)
Fem_i (β_2)			-0.018	-0.017	-0.017	-0.017
			(0.036)	(0.036)	(0.036)	(0.036)
$Fem_i \times \mathrm{Im}g_i$ (β_4)			0.155***	0.156***	0.156***	0.111*
			(0.054)	(0.053)	(0.053)	(0.060)
$Info_i$ (β_3)					0.088**	0.088**
					(0.039)	(0.039)
$Info_i \times \mathrm{Im}g_i$ (β_5)					0.080	0.150**
					(0.057)	(0.069)
$Fem_i \times Info_i \times \mathrm{Im}g_i$ (β_6)						-0.139*
						(0.082)
Constant (β_0)	0.718***	0.729***	0.745***	0.683***	0.772***	0.776***
	(0.018)	(0.099)	(0.101)	(0.105)	(0.101)	(0.101)
Flat Characteristics		X		X		
N. observations	1186	1186	1186	1186	1186	1,186
R-squared	0.035	0.104	0.114	0.132	0.131	0.133

Flat characteristics include price per squared meter, number of rooms and city fixed effects.
The estimates correspond to a linear probability model.
*,**,***: Significant at 10%, 5% and 1% respectively.

Table 3: Discrimination and immigrant concentration. Evidence at the ZIP code level.

	(1)	(2)	(3)	(4)	(5)	(6)
$\mathrm{Im}\,g_i$	-0.304***	-0.308***	-0.448***	-0.282***	-0.349***	-0.365***
	(0.048)	(0.062)	(0.097)	(0.061)	(0.074)	(0.080)
$ZIP-\mathrm{Im}\,g-Share_i\times\mathrm{Im}\,g_i$	0.549***	0.576**	1.232**	0.510**	0.555**	0.625***
	(0.172)	(0.237)	(0.468)	(0.234)	(0.221)	(0.229)
$ZIP-\mathrm{Im}\,g-Share_i\times\mathrm{Im}\,g_i\times Fem_i$						-0.001
						(0.003)
$ZIP-\mathrm{Im}\,g-Share_i\times\mathrm{Im}\,g_i\times Info_i$						-0.000
						(0.003)
Fem_i					-0.032	-0.032
					(0.040)	(0.040)
$Fem_i\times\mathrm{Im}\,g_i$					0.173***	0.180**
					(0.055)	(0.090)
$Info_i$					0.090**	0.090**
					(0.043)	(0.043)
$Info_i\times\mathrm{Im}\,g_i$					0.094*	0.06
					(0.055)	(0.097)
Constant	0.718***	0.658***	0.720***	1.223***	1.339***	1.334***
	(0.016)	(0.034)	(0.017)	(0.117)	(0.112)	(0.111)
ZIP fixed effects		X	X	X	X	X
Flat Characteristics				X	X	X
N. observations	1186	1186	938	1186	1186	1,186
R-squared	0.042	0.112	0.051	0.175	0.203	0.203

Flat characteristics include price per squared meter, number of rooms and city fixed effects.
The estimates correspond to a linear probability model where the standard errors are clustered by ZIP code level.
*,**,***: Significant at 10%, 5% and 1% respectively.

Table 4: Discrimination and concentration of Moroccan immigrants. Evidence at the ZIP code level.

	(1)	(2)	(3)	(4)
$\mathrm{Im}\,g_i$	-0.233***	-0.217***	-0.281***	-0.271***
	(0.040)	(0.038)	(0.053)	(0.060)
$ZIP-Moroccan-Share_i \times \mathrm{Im}\,g_i$	4.598**	4.118**	4.809**	4.016
	(2.186)	(1.980)	(1.989)	(2.482)
$ZIP-Moroccan-Share_i \times \mathrm{Im}\,g_i \times Fem_i$				0.004
				(0.029)
$ZIP-Moroccan-Share_i \times \mathrm{Im}\,g_i \times Info_i$				-0.013
				(0.038)
Fem_i			-0.032	-0.032
			(0.041)	(0.041)
$Fem_i \times \mathrm{Im}\,g_i$			0.172***	0.157**
			(0.055)	(0.074)
$Info_i$			0.090**	0.090**
			(0.044)	(0.044)
$Info_i \times \mathrm{Im}\,g_i$			0.095	0.1
			(0.055)	(0.071)
Constant	0.678***	1.224***	1.342***	1.346***
	(0.029)	(0.116)	(0.112)	(0.112)
ZIP Fixed Effects	X	X	X	X
Flat Characteristics		X	X	X
N. observations	1186	1186	1186	1186
R-squared	0.111	0.174	0.202	0.202

Flat characteristics include price per squared meter, number of rooms and city fixed effects.
The estimates correspond to a linear probability model where the standard errors are clustered by ZIP code level.
*,**,***: Significant at 10%, 5% and 1% respectively.

Table 5: Robustness Checks

	(1)	(2)	(3)	(4)
$\mathrm{Im}\,g_i$	0.000	-0.286***	-0.294***	-0.305***
	(0.000)	(0.063)	(0.050)	(0.048)
$ZIP-\mathrm{Im}\,g-Share_i\times\mathrm{Im}\,g_i$	0.496*	0.487*		
	(0.251)	(0.249)		
$ZIP-\mathrm{Im}\,g-Owners-Share_i\times\mathrm{Im}\,g_i$		0.064		
		(0.220)		
$District-\mathrm{Im}\,g-Share_i\times\mathrm{Im}\,g_i$			0.559***	
			(0.150)	
$Increase-in-share_i\times\mathrm{Im}\,g_i$				0.848***
				(0.187)
Constant	1.236***	1.226***	0.681***	0.688***
	(0.137)	(0.116)	(0.101)	(0.102)
ZIP Fixed Effects	X	X		
District Fixed Effects			X	X
Flat Characteristics	X	X	X	x
Flat Characteristics x Img	x	x		
Observations	1186	1186	1186	1186
R-squared	0.175	0.175	0.133	0.134

Flat characteristics include price per squared meter, number of rooms and city fixed effects.
The estimates correspond to a linear probability model where the standard errors are clustered by ZIP code level.
*,**,***: Significant at 10%, 5% and 1% respectively.

Appendix:

Table A1: Comparison of flats contacted by natives and immigrants. Madrid

	ROOMS (Number of rooms)	PRICE (rental price per month)	M2 (squared metters)	GENDER_L (gender of the landlord)	GENDER_A (gender of the applicant)
(1) Fuencarral	-0.349[(1)]	-271.4*	-19.99	0.127	0.062
	(0.381)[(2)]	(153.3)	(17.02)	(0.216)	(0.195)
(2) Moncloa	-0.167	-133.3	0.417	-0.136	0.083
	(0.396)	(158.6)	(17.36)	(0.243)	(0.197)
(3) Tetuán	0.074	-58.38	-5.384	0.125	-0.236*
	(0.233)	(64.21)	(6.747)	(0.166)	(0.132)
(4) Chamartín	-0.1286	-171.28	-9.1904	-0.0940	-0.243
	(0.404)	(145.8)	(15.68)	(0.227)	(0.186)
(5) Hortaleza	0.292	-197.5	-5.750	0.133	0.125
	(0.512)	(192.3)	(22.61)	(0.260)	(0.237)
(6) Barajas	-0.550	-267.5*	-31.00	0.333	0.150
	(0.776)	(130.6)	(21.02)	(0.333)	(0.350)
(7) Chamberí	-0.578*	-206.1	-13.69	0.433	0.000
	(0.321)	(181.7)	(12.66)	(0.092)	(0.156)
(8) Salamanca	0.006	278.2	13.23	0.050	0.018
	(0.325)	(194.5)	(14.07)	(0.172)	(0.152)
(9) Ciudad Lineal	-0.261	6.797	-4.882	0.442**	-0.126
	(0.280)	(97.70)	(8.440)	(0.188)	(0.163)
(10) San Blas	0.974*	155.7*	29.23**	0.299	0.282
	(0.472)	(82.87)	(11.29)	(0.246)	(0.218)
(11) Centro	0.047	127.1**	1.147	0.090	0.103
	(0.141)	(60.53)	(4.767)	(0.109)	(0.093)
(12) Retiro	-1.114***	-135.9*	-27.13**	-0.077	-0.188
	(0.284)	(78.73)	(10.90)	(0.201)	(0.179)
(13) Moratalaz	0.133	-18.87	-2.133	-0.333	0.067
	(0.501)	(131.2)	(22.33)	(0.471)	(0.414)
(14) Vicálvaro[(3)]	1.000	70.00	-9.000	-1.000	1.000
	(.)	(.)	(.)	(.)	(.)
(15) Latina	-0.425	-97.53*	-13.42	-0.089	-0.117
	(0.324)	(48.70)	(8.958)	(0.222)	(0.185)
(16) Carabanchel	0.158	31.84	5.413	-0.198	0.113
	(0.352)	(51.83)	(8.686)	(0.220)	(0.177)
(17) Usera	0.143	55.24	5.024	0.429*	0.238
	(0.479)	(74.22)	(11.35)	(0.202)	(0.292)
(18) Arganzuela	-0.326	-80.64	-12.18	0.100	-0.140
	(0.306)	(71.41)	(7.252)	(0.188)	(0.170)
(19) Puente de Vallecas	-0.775*	-82.50	-4.425	-0.222	0.275
	(0.363)	(61.50)	(13.57)	(0.274)	(0.208)
(20) Villaverde	0.250	-50.63	1.000	0.458*	0.250
	(0.412)	(52.51)	(10.67)	(0.247)	(0.250)
(21) Villa de Vallecas	-0.686	-57.14	-19.97	-0.083	-0.457
	(0.699)	(120.5)	(28.08)	(0.416)	(0.284)

(1): Difference in average characteristics (i.e. number of rooms) between housing units contacted by natives and immigrants.
(2): Standard error of the difference in average characteristics.
(3): Standard errors cannot be computed since there is only 1 observation.
*,**,***: Significant at 10%, 5% and 1% respectively.

Table A2: Comparison of flats contacted by natives and immigrants. Barcelona

	ROOMS (Number of rooms)	PRICE (rental price per month)	M2 (squared metters)	GENDER_L (gender of the landlord)	GENDER_A (gender of the applicant)
(1) Ciutat Vella	0.019	-31.29	-2.819	0.002	0.113
	(0.168)	(70.39)	(5.776)	(0.109)	(0.093)
(2) Eixample	0.206	-65.56	-2.864	-0.111	-0.045
	(0.224)	(61.62)	(5.792)	(0.126)	(0.104)
(3) Sants-Montjuïc	-0.256	-75.78	-7.937	0.050	0.027
	(0.256)	(51.16)	(5.509)	(0.166)	(0.143)
(4) Les Corts	-0.033	-117.5	-6.685	-0.084	-0.388**
	(0.424)	(108.5)	(11.28)	(0.213)	(0.163)
(5) Sarrià-Sant Gervasi	0.046	109.7	6.582	-0.167	0.034
	(0.299)	(111.2)	(10.91)	(0.135)	(0.120)
(6) Gràcia	0.145	84.12	5.003	0.100	-0.051
	(0.235)	(58.56)	(6.470)	(0.148)	(0.130)
(7) Horta-Guinardó	0.164	88.92	10.70*	0.011	-0.021
	(0.231)	(64.09)	(5.716)	(0.155)	(0.127)
(8) Nou Barris	-0.293	6.447	-8.632	-0.136	0.218
	(0.251)	(41.67)	(5.401)	(0.214)	(0.167)
(9) Sant Andreu	0.188	-0.625	8.188	-0.084	0.188
	(0.316)	(61.69)	(9.741)	(0.213)	(0.179)
(10) Sant Martí	-0.210	9.377	-0.027	-0.048	-0.150
	(0.235)	(100.6)	(6.030)	(0.158)	(0.117)

(1): Difference in average characteristics (i.e. number of rooms) between housing units contacted by natives and immigrants.
(2): Standard error of the difference in average characteristics.
*,**,***: Significant at 10%, 5% and 1% respectively.