

# **Juan Carlos or Maria Fernanda: who obtains a higher price cut in the selling price in the Spanish housing market?**

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## **Abstract**

In this paper we investigate if a home seller is willing to apply a price cut and if exist a discrimination in the percentage of price cut (discount), between natives and immigrants. We refine our hypothesis by dividing our sample into three groups: native, immigrants with Spanish name and immigrants with a foreign name. A unique data set has been obtained from a housing market intermediary for which we have besides of the individual and financial information, data on the characteristics of the dwelling including the actual market (transaction and list) price and the name of the buyer. Using a no parametric estimation (Ñopo's 2008) we disentangle from the unexplained part of differences in price cut gap and the part attributed to non-comparable individuals. Results show significant differences in price cut gap between native (and immigrant with native name) and immigrant with foreign name that can be attributed to discrimination.

JEL:

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## Introduction

When immigrants arrive to a new country tend to locate in cities or neighborhood with high concentrations of ethnically similar immigrants. The explanation of this clustering could be found in the benefit that immigrants receive by network externalities (find a job, family help, language, credits, etc.). There is a substantial literature on network externalities in migration (see Gottlieb (1987), Grossman (1989), Marks (1989), Stark (1991), Chiswick and Miller (1996)) and the determinants of the location choice of immigrants (Bartel 1989; Jaeger 2000; Bauer et al. 2002, 2005). It is also well documented that immigrants in advanced societies tend to live spatially concentrated within large cities (Bartel 1989; Borjas 1998, Card 2001). However, when first (important) wave of immigrant enter in a country could be that the natives behavioural may contribute to the surge of ethnic enclaves (Card et al. 2008 and Saiz and Wachter 2011). In the literature is possible to identify two main mechanisms of discrimination off immigrants versus natives at spatial level. First, natives may be willing to move to all-native neighborhoods and pay a premium to avoid immigrants (decentralized discrimination). Second, natives can find ways to restrict immigrant location choices to certain areas (centralized discrimination). One way to do this latter one is through the housing market. Home sellers might discriminate on the basis of the race or ethnicity of a potential buyer for a number of possible reasons. Most obviously, racial animosity or prejudice could motivate a difference in the offers that sellers are willing to accept from candidate buyers of different race. Alternatively, sellers might use race to statistically

discriminate: in particular, if minority buyers have higher search costs, less experience in real-estate bargaining, or financial restrictions, sellers (of all races) might seek to extract more of the surplus generated from transactions involving these buyers.

In this paper we investigate if discrimination determines the percentage of price cut, studying if home sellers are more willing to give a discount on price list distinguish by natives and immigrants buyers. In particular, we focus on the negotiation between the list price and the final transaction price of the house. Controlling for the characteristics of the houses, neighborhood and buyers we are able to calculate if immigrants are discriminated with respect to natives into obtain a price cut when buy a new house. We refine our hypothesis by dividing our sample into three groups: *natives*, *immigrants with Spanish name* and *immigrants with a foreign name*. Names are rich sources of information, they can signal gender, ethnicity or class (Kasof, 1993). In addition, names also differ in the pronunciation. (Laham et al 2012). For Spanish people, for example the *j* is an easy letter to pronounce with a particular sound that very few countries have. Instead, a word that start with *s* follow by a consonant does not exist in Spanish and it is very hard to pronounce. Several studies provide evidence for the name pronunciation effect, find that names easy to pronounce are judged more positive than names with difficult pronunciation (Mehrabian 2001, Schwarz 2004, Winkielman et al. 2003). Immigrants with Spanish name maybe capture the cultural integration of immigrants with native people and are perceived by natives as familiar see for example Frey and Levitt (2004) and Bivaschi et al (2014). If this is a case, an immigrant called Juan Carlos (a typical Spanish name) has an advantage to an immigrant called Maria Fernanda or Mohammed. Furthermore, the name could give to the seller some clue

about the country of origin of a person. In the US is well documented that prejudice of white seller against black buyers, which need to pay a premium to allow white to seller their house to them (Beker 1957, Yinger 1979). However is hard to understand why black want to pay this premium instead to buy house from a non-discriminant seller. The answer is because homes such as other products (car for instance) are influenced not only by the characteristics of the products but also by bargaining skills. Bargaining power is a condition for a price discrimination, if a seller (buyer) has prejudice or has more information over a certain group he/she can require a premium (discount) for the disutility associated in sell (buy) that product. Many studies have documented the evidence of various forms of price discrimination in the housing market by race (e.g., King and Mieszkowski, 1973; Yinger, 1978; Schafer, 1979; Chambers, 1992; Kiel and Zabel, 1996; Harding et al., 2003; Myers, 2004; Ihlanfeldt and Mayock, 2009).

All of these studies, except Harding et al. (2003) and Ihlanfeldt and Mayock (2009), use a similar approach: estimate a hedonic price model that includes a dummy variable indicating the race of the buyer. The estimated coefficient on the race variable reveals whether blacks pay more than whites do for similar homes, and a positive black/white differential is taken as evidence of price discrimination against black buyers. A major concern with this approach, recognized in all of the studies, is the assumption that control variables in the hedonic model do not capture any difference in the neighborhood quality across racial groups. If blacks tend to live in lower-quality homes in lower-quality neighborhoods, then the race variable is likely to indicate that they pay less than whites do for what appear to be similar homes.

The studies by Harding et al. (2003) and Ihlanfeldt and Mayock (2009) attempt to circumvent this missing variable problem using an econometric strategy that attempts to control for correlations between the race of the buyers and sellers and any unobservable

variables that affect prices. Ihlanfeldt and Mayock (2009) expand the Harding et al. (2003) study including Asian and Hispanic households. They find that price discrimination exists against blacks and Asians. Price discrimination against blacks is restricted to non-majority black neighborhoods and is smaller in magnitude in neighborhoods containing younger and more educated homeowners.

Our paper differs from previous research on price discrimination in several ways. Firstly, we test the discrimination in terms of price cut (discount) rather than in selling price as usually the literature in housing has study. As long as our dataset offers we observe both the list price and the selling price (an advantage over most US data). We can observe whether a seller offers a significant price cut to a native or to immigrant buyer. Secondly, this paper is one of the few papers in Europe that look at house price discrimination. Price discrimination is also a significant feature of the housing market in Spain due to the recent wave of immigration in Spain.

Thirdly, our dataset also offers an advantage because contains information about the name of the final buyer. In this sense, we are also able to distinguish between house prices of immigrants with Spanish names and those with non-native names capturing the bargaining power that certain type of immigrants can have such as Latin. Spain has received a lot immigrants from South America which culture is very similar to the Spanish one, Moreover, our dataset includes not only dwelling characteristics but also buyer characteristics, and we have included this information in the estimated model since the ability to bargain depends on individual characteristics. In this sense, we can refine our hypothesis and test whether home sellers offer significant price cuts to natives, to immigrants with Spanish names or to immigrants with foreign names. Our results imply that sellers do not privilege Spanish buyers with higher price cuts who are less likely to receive a price cut than any type of immigrant.

Finally, our empirical approach presents some novelties. In order to consider properly the importance of the differences in characteristics among natives, immigrants with foreign name and immigrants with native name, we use a novelty methodology developed by Ñopo (2008). The advantage of this procedure is that we can simultaneously estimate the common support and the mean counterfactual price cut for the native on the common support (i.e., a similar group of natives and immigrants whenever the comparison is possible). Furthermore, the decomposition of the price cut gap explicitly accounts for differences in the supports of the distributions of characteristics (that is differences due to the fact that the comparison is not possible). The main advantage of this procedure is that provides additional information about the distribution of the differences in price cut that remain unexplained by the characteristics of the house or individuals after the decomposition, without requiring any estimation of price house equations and hence, no validity-out-of-the-support assumptions. Furthermore due the presence of selection bias between people that receive a discount and people do not, this method allow us to control for this bias. We present evidence of a significant price cut for immigrants with native names relative to immigrants with non-Spanish names, although the difference in common support is small. A large part of the gap can be attributed to discrimination or unobservable characteristics. Relative price cut gap between natives and immigrants with native name is reduced and related to (positive) discrimination or unobservable characteristics. One limitation of this study is that we do not have individual information about sellers. So far, we cannot know why this discrimination happen.

The paper is structured as follows. The first section describes the Spanish housing market and immigrant wave during the boom years. Section 2 presents the

empirical approach and Section 3 presents dataset and results. Finally, the paper ends with the main conclusions.

## **The Spanish Housing Market and Immigration**

### *Housing Market*

During the first decade of this century, housing boom was one of the main engines for economic growth in Spain. In fact, along the period 2002-2007 the growth of the construction sector explained around 20% of GDP growth. For many years, the production of new dwellings in Spain was higher than the sum of the new dwellings in Germany, France and Italy. From 2001 to 2008 Spanish population has increased by 1% while the total amount of accommodations has increased by 20%. The peak of transaction in houses was achieved in 2005-07, based on the official statistics of the Department of Public Works, 349,118 housing transactions were reported in 2011, compared with 706,928 in 2006 and the housing prices in Spain tripled in nominal terms between 1998 and 2007. A peculiar characteristic of the Spanish housing market is homeownership, 83% of households being owner occupied. In the EU-16 countries only 70% of homes are owner occupied on average (see Table 1). The main reason for this fact is an historical over protecting regulation for tenants and tax incentives for owners, with negative consequences in terms of labor mobility and entrepreneurship (Oswald, 1997, Munch et al 2006, Bracke et al, 2012).

### *Migration flow in Spain*

In a relatively short period of time, Spain has become a recipient country of a significant migration flows from other countries (OECD, 2008). Spain ranks second after the

United States among OECD countries in absolute numbers of annual immigration, and it follows Luxembourg (41.6%) and Switzerland (20.3%) in the percentage of the total population that is foreign (10.3%). Those figures place Spain ahead of all other European Union members. The number of immigrants was particularly high between 1995 and 2007, where the number of foreigners rising steeply from 542,300 (1.4% of the population) in 1995 to 5,598,691 (14.4%) in 2010. Migrants come from a highly varied range of countries: Latin America, the Maghreb, and Eastern Europe. Immigrants from Latin America may face a smoother transition to Spanish life and be more accepted by the natives because they typically share both the language and culture with Spain (Ramos et al 2010 and Bisin et al 2010). This feature of immigrants to Spain is not as common in other countries that have recently received a larger number of immigrants, such as the United States, the United Kingdom and Australia.

Many of these immigrants bought a house during the boom period (1998-2006). During this period, 12.5 percent of non-Spanish born mortgagors experienced mortgage delinquencies, while this proportion was only about 1.6 percent among Spanish-native mortgagors.<sup>1</sup> This figure may suggest that immigrants are relatively risky borrowers, thus providing incentives for statistical discrimination in the mortgage market.<sup>2</sup> Spanish law does not explicitly prohibit discrimination in the housing market. However, the 1991 Spanish Immigration Law (art 31) does prohibit any form of discrimination, either prejudiced or statistical is illegal. The question, of course, is whether this prohibition is borne out in practice by similar prices for both native and non-native buyers.

[TABLE 1]

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<sup>1</sup> Report on Financial Stability (Bank of Spain, May 2009).

<sup>2</sup> Diaz and Raya (2014) analyze price discrimination in the mortgage market in Spain.



## Empirical approach

Our main aim in this study is to decompose price cuts differences among natives and immigrants (distinguishing also among immigrants with natives and non natives names). Our variable of interest is relative price cut  $((\text{List Price}-\text{Sell Price})/\text{List Price})$ . We decompose the difference in the relative price cuts, between natives and immigrants, into the part due to differences in the explanatory variables (explained) and the part induced by differences in the coefficients (unexplained). In this sense, we follow the literature of distribution of earnings. The most popular method is based on a parametric approach. Following Blinder (1973) and Oaxaca (1973) (hereafter BO), separate wage functions are estimated for males and females taking account of various personal characteristics (see Mincer, 1974). The difference in average wages between males (M) and females (F) can be decomposed into differences in personal characteristics (the endowment effect) and differences in returns (the remuneration effect): Junh et al. (1993) (hereafter JMP) extend the method proposed by BO to account for the unobserved heterogeneity.

Both the BO and JMP methods estimate the average unexplained difference in pay, not its distribution. Buchinsky (1994) overcomes this limitation by estimating quantile earning equations. DiNardo et al. (1996) and Donald et al. (2000) both suggest semi-parametric models to explore the distribution of unexplained differences. Machado and Mata (2005) and Melly (2006) presented an approach using quantile regression to decompose differences in log wages between two groups, which allow the differences at various quantiles of the distributions to be analyzed<sup>3</sup>.

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<sup>3</sup> See McMillen (2008) and Nicodemo and Raya (2012) for applications to the housing price distribution.

A different approach was proposed by Barsky et al. (2001), who suggested including only one explanatory variable (income) to avoid the problem of dimensionality in non-parametric estimation. They recognized for the first time the importance of differences in support and restricted the comparison whenever is possible (to the common support). This aspect is relevant because there are combinations of individual characteristics for which it is possible to find individuals from one of the groups but not from the other. The traditional BO decomposition will fail to recognize these differences in the support. Moreover, this decomposition is informative only about the average unexplained difference in main variable and not about the distribution of the unexplained differences.

Following this idea, Ñopo (2008) adapted a tool of the program evaluation literature, matching, to fix the problem. The main advantage of this procedure is that it provides additional information about the distribution of the differences in prices that remain unexplained by the characteristics of the individuals after decomposition without requiring any estimation of relative price cut equations and, hence, no validity-out-of-the-support assumptions. We follow the Ñopo (2008) method since there are some combinations of characteristics that are typical for natives but not for immigrants (language for instance) and vice versa. Ñopo's method disentangles this part from the unexplained part of differences in price cut gap.

We propose to decompose the percentage of the relative price cut gap, between natives and immigrants, distinguish if the name of the immigrant is a native name or not. We have taken into account the differences in the distributions of dwelling and individual characteristics and, in particular, immigrants' differences in support (for example immigrants could buy houses located in some specific areas or native could have bargaining characteristics different than immigrants). Specifically, the proposed

approach considers the fact of being native or immigrant as a treatment and uses a matching procedure to select sub-samples of natives and immigrant such that there are no differences in observable characteristics between the matched groups.

To illustrate the methodology that we use to decompose the total relative price cut gap ( $\Delta$ ), i.e. the difference between average in outcomes variable, among immigrants and natives (and among immigrants with native and foreign name), suppose that there are two groups, natives (N) and immigrants (M). We use the following matching procedure to decompose price cut differences between the two groups. First, as shown in equations (2) and (3), we calculate the expected value of the price cut conditional on the characteristics of the two groups:

$$E[Y | N] = \int g^N(x) dF^N(x) \quad (2)$$

$$E[Y | M] = \int g^M(x) dF^M(x) \quad (3)$$

Next, we decompose the difference in terms of the observed discount and the respective counterfactuals, as shown in (4) and (5):

$$\Delta = \int_{S^N} g^N(x) dF^N(x) + \int_{S^M} g^N(x) dF^N(x) \quad (4)$$

$$\Delta = \left[ \int_{S^M \cap S^N} g^N(x) dF^N(x) + \int_{S^N \cap S^M} g^N(x) dF^N(x) \right] - \left[ \int_{S^N \cap S^M} g^M(x) dF^M(x) + \int_{S^M \cap \bar{S}^N} g^M(x) dF^M(x) \right] \quad (5)$$

The expression in (5) can be understood as four additive components of the total price cut differences (see Ñopo, 2008, for details):

$$\Delta = \Delta_N + \Delta_M + \Delta_X + \Delta_0 \quad (6)$$

where:

$\Delta_N$  is the part of the price cut gap that can be attributed to the existence of buyer profiles for which there are natives but no immigrants. A typical example of this type is the fact that for single individuals, with higher education and permanent contract, living in a dwelling of 90 squared meters or more, relatively new (less than 10 years old) with parking it is possible to find natives but no immigrants in the sample. So, there are two groups of natives, those who have characteristics that can be matched to immigrants' characteristics and those who do not. This term account for the part of the gap that exists because natives have some combinations of characteristics that are absent among immigrants.

$\Delta_M$  is the part of the price cut gap that is due to the existence of buyer profiles for which there are immigrants but no natives. This typically corresponds to the segment with primary education, temporary contract, living in a dwelling of 50 squared meters or less, relatively old (more than 60 years old). So, there are two groups of immigrants, those who have characteristics that can be matched to natives' characteristics and those who do not. This term accounts for combinations of immigrants' characteristics for which there are not comparable group of natives.

$\Delta_X$  is the part of the discount that can be explained by differences in the distribution of individual characteristics of natives and immigrants over their common support.

$\Delta 0$  is the unexplained part in BO:  $(\beta^N - \beta^M) \cdot X^M$ . This difference is attributed to the unobservable characteristics and/or to discrimination between natives and immigrants.

For that purpose, we try to find pairs of immigrant and native buyers with the same set of individual and dwelling characteristics (type of contract, education, marital status, surface area, availability of parking, age of the dwelling, etc.). The result of these matches reflects a synthetic situation where immigrants and natives have exactly the same distribution of observable characteristics. In our case, following Ñopo (2008), we construct different specifications, using the following groups of variables to create matches to those in our treatment group:

Set 1: Dwelling characteristics. House Size, Parking., Rooms, Age of construction

Set 2: Dwelling characteristics (including year and regional dummies). House Size, Parking., Rooms, Age of construction, Year and Region dummies

Set 3: Dwelling and individual characteristics. House Size, Parking., Rooms, Age of construction, Education., Age, Married, Permanent contract, Household Income, Year and Region dummies

The first group of variables comprises only characteristics of the houses sold. The second group adds year and regional dummies to capture businesses cycle effects and regional difference across Spain. The third group adds individual characteristics of buyers. Of course, when the number of characteristics is increased, the probability of finding a perfect match decreases. Thus, we use the following applied matching procedure: first, we select one immigrant with a native name or a foreign name from

the sample (without replacement); second, we select all natives who have the same characteristics  $X$  as the immigrant selected previously; third, we construct a synthetic sample with all individuals who enter in this match; finally, we calculate their average price cut and match it with the original immigrant who was used to create the sample of matched natives. This algorithm is repeated for each individual in the immigrant sample.

## Data

We use a unique data set obtained by a housing market intermediary with franchisers in most of the Spanish provinces from 2004 until 2006. This real estate company also has its own mortgage brokerage branch. This company made 6,528 sales in 2012 which was 4% of the total sales in Spain during that year. It operates in a specific segment of the housing market (low-medium and medium rank dwellings). So far, our sample is quite homogeneous with respect to socio-economic and dwelling characteristics. This dataset it is very unique and it is the only one that reports information at individual level for buyers and sellers in Spain.

The data are collected each semester and pooled in a unique dataset. For a subsample of 4,055 with information on the characteristics of the dwelling including the actual market (transaction and list) price.

The variables on the characteristics of the dwelling and the transaction are: surface area, age of the dwelling, an indicator that the dwelling has parking, the number of rooms, and the time on market. The characteristics of the buyer are: age, educational level, household income, type of contract, marital status and country of born. We also

control for the selling time and location. Table 2 lists the variables used in this study and their definitions.

[TABLE 2 HERE]

Attending to their country of origin, we define three groups of individuals for the analysis. The first group includes natives only. The second comprises immigrants with foreign names, while the third group includes those with non-native names. We use information from the Spanish the Spanish Institute of Statistic (INE, 2013) concerning the most common names in Spain to classify immigrant name into two groups: a typically foreign name or a native name. This classification suggests, for example, that “Mohamed” is the most common male name for people from Morocco and Algeria, and Maria Fernanda is the most common name for a female from Ecuador. Neither of these names is commonly Spanish. On the other hand, the most common male name for an Ecuadorian, Juan Carlos, is also a common Spanish name (as common as is the name of the king until 2014). This procedure is followed by the literature that has studied the discrimination by race and name see for example Bertrand and Mullainathan, (2003) or Alang et al (2013)

Table 3 presents descriptive statistics for the full sample and for the three groups of buyers (natives, immigrants with native names, and immigrants with foreign names). The data set includes 2,558 natives (63.08%) and 1497 non Spanish-born individuals, of which 690 are immigrants with a clearly foreign name (46.09%) and the rest are immigrants with a native name. Table 3 suggests that immigrants are more likely to receive a price cut than natives. The relative price cut to list price is higher for immigrants with native names (5.36 percentage points) with respect to natives (5.23) both slightly higher than the one for immigrants with foreign name (4.99 percentage points). Looking at the characteristics of the house bought by native and immigrants,

differences are appreciated in the house size, age and parking. Immigrants tend to live in smaller and older homes, which are less likely to have parking with respect to natives. In terms of socio-demographic characteristics, immigrant buyers are on average less educated (although slightly better educational level is observed for those with Spanish names). Another key variable that determines the potential bargaining skill of a buyer is the type of labor contract. Our data reveal that the share of buyers with permanent contract is higher for the Spaniards with respect to non Spanish-born buyers. Finally a higher percentage of immigrants are married (especially those with native name) with respect to Spanish buyers. These statistics suggest that, immigrants report significant worse economic conditions than Spanish-born buyers.

[TABLE 3]

## Results

In this section, we present the empirical models which estimates: the determinants of the probability of receiving a price cut; the determinants of a obtaining a higher price cut (conditional mean); and the decomposition of relative price cut differences among natives, immigrants with native name and immigrant with foreign name.

### *Probability of receiving a price cut*

Table 4 presents the estimation of the probability of receiving a price cut. In particular, in the first three columns we present the three models listed in the empirical approach section: model 1 (only with difference is explained by characteristics dwelling



characteristics); model 2 (dwelling characteristics adding regional and year dummies as a control); model 3 (dwelling characteristics, regional and year dummies and individual characteristics). Being native -with respect to immigrant- reduces the probability of receiving a price cut. The signs of these variables do not change when we control for individual characteristics, regions, and year of sale. House size, availability of a parking and rooms (but only at 10% of significance) has significant effects in the first model that become insignificant after controlling for region and year of sale. The only dwelling characteristic which is significant in all the models is the age of construction of the house. An additional year of antiquity of the dwelling increases the price cut probability, but the effect is relatively small.

Table 4 (column 3) shows the importance of including individual characteristics in the estimation of the probability of obtaining a price cut. Among individual characteristics, marital status and income are determinants of the price cut. As expected, a higher income increases the probability of obtaining a price cut, maybe because this give more access to the credit market. The same effect is observed by education: tertiary education (with respect to primary) increases the probability of obtaining a price cut. Finally, being native decreases the probability of receiving a price cut

[TABLE 4 HERE]

### *Determinants of price cut*

In markets for heterogeneous goods, bargaining power between buyer and seller affects housing transactions (Genesove and Meyer, 1997 and Hardin et al, 2003). In this process, a seller who spends more time and effort will find a buyer who is willing to pay

a higher price for the house (Yavas, 1992) while a buyer who searches more intensely will find a low-priced house (Anglin, 1997). Finally, a house can become stigmatized if remains on the market for a long time (Taylor, 1999). Table 5 presents estimates of the determinants of price cut by not only OLS but also using a Heckman approach (where the probability of having a price cut is the selection equation). The selection variable (inverse Mills ratio) is not significant, so both equations are comparable. As expected, time on the market affects positively price cuts. The same positive effect is observed for the age of the dwelling, a higher educational level and a higher income level (these two latter cases in the case of OLS equation)<sup>4</sup>. Being native does not have any significant effect in obtaining a higher price cut.

[TABLE 5 HERE]

### ***Decomposition of the differences in price cut***

As we have shown, once controlling for individual and dwelling characteristics, no differences were observed in the percentage of price cut among natives, immigrants with native names and immigrants with foreign name. Otherwise, as we have observed in the quantile decomposition, immigrants with native name and natives obtain larger price cuts at the middle of the distribution. Likewise, these larger price cuts are explained by differences in characteristics. However, as Nopo (2008) points out, we need to compare individuals with the same characteristics *since* there are some combinations of characteristics that are typical for natives but not for immigrants (either with native or foreign name) and vice versa. Moreover this method, with respect to

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<sup>4</sup> Quantile estimates (McMillen, 2008; Degen and Fischer, 2009; Nicodemo and Raya, 2012) across the full distribution of price cuts are available upon request. Our estimates show a higher price cuts in the middle of the distribution for natives with respect to immigrants. This behavior is explained by differences in the characteristics (better bargaining and dwelling characteristics).

Oaxaca-Blinder (1973) or Machado and Mata (2005) give us the opportunity to compare two groups of individual that both suffer of selection, due that we do not observe people that do not receive any discount. In Table 5 we report the price cut gap and the percentage of matched and unmatchaed cases for every pair of cases analysed and every set.

Figures from 5 to 7 report Nopo's estimates of the differences in relative price cut and the unexplained absolute and relative gap ( $\Delta_0$ ). We restrict the analysis to individuals who receive a positive price cut. The estimates are based on differences across matched groups.

Figures 5, 7, and 9 show the Nopo's method to decompose the relative average price cut gap into the four components explained above ( $\Delta_N + \Delta_M + \Delta_X + \Delta_0$ ). We have done this exercise for the 3 groups of individuals (immigrants with a native name, immigrants with a foreign name and natives) and for the 3 Sets of variables defined in Section 2.

Figure 5 reports the relative average of price cut gap, it is 1,84%<sup>5</sup>, meaning that immigrants with a Spanish name receive a slightly higher price cut than natives (control group). Focusing on the Set 3, the one with individual and dwelling characteristics, the most important component is the unexplained part ( $\Delta_0$ ), which is positive and increases when we control for individual characteristics. So, if discrimination exists is in on behalf of immigrants with native name with respect to natives. The retribution of immigrants with native name characteristics is higher. Economic needs, motivation and expectations can explain this result. The difference across immigrants with and without some characteristics of the natives ( $\Delta_M$ ) is negative for all sets of control variables

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<sup>5</sup>  $0,0184=(5,326-5,229)/(5,326*277+5,229*878)/1155)$

except when both housing and individual characteristic controls are included. This term represents the part of the relative average price cut gap explained by the fact that there are some combinations of characteristics of immigrants that are not comparable with native characteristics. The profile of immigrants which are non-comparable with natives increases the gap.  $\Delta_N$  switches from positive to negative after controlling for individual characteristics. This term represents the part of the relative average price cut gap explained by the fact that there are some combinations of characteristics of natives that are not comparable with immigrant characteristics. The profile of natives which are non-comparable with immigrants reduces the gap. The difference in individuals' characteristics on their common support ( $\Delta_X$ ) also is a significant determinant of the relative price cut gap, particularly in the last set of estimate. The negative value for  $\Delta_X$  implies that natives have better characteristics than immigrants with a native name and this fact explains a part of the relative price cut gap. To sum up, relative price cut gap between natives and immigrants is reduced and related to (positive) discrimination or unobservable characteristics. Otherwise, the existence of certain profiles of buyers present only in the natives decreases price cut gap by approximately 4 percentage points and the existence of certain profiles of buyers present only in the immigrants increases price cut gaps by 5 percentage points.

In Figure 6 we estimate the difference in the relative average price cut gap received by immigrants with a foreign name and the group of natives. The gap ( $\Delta$ ) is negative this time and considerably higher – around 4.68% – meaning that natives receive larger price cut gap than immigrants with a foreign name. In Figure 6 we decompose, as before, this gap in the four components. Focusing on the Set 3, all the components are negative except the characteristics of native ( $\Delta_N$ ), which remain

positive after controlling for several sets of explanative variables. The existence of certain profiles of buyers present only in the natives increases price cut gap (on behalf of immigrants with foreign name) by 5 percentage points approximately. Just the opposite effect has the  $\Delta_M$ , which remain negative after controlling for several sets of explanative variables (by 5 percentage points). The groups are much different in their observable characteristics. In this case, natives receive larger price cuts than immigrants with foreign names although the difference in common support is small ( $\Delta_X$ ). Only 2 percentage points of the price gap is explained by differences in characteristics of native and immigrants whenever the comparison is possible. In this sense, more than 4 percentage points can be attributed to discrimination or unobservable characteristics. As a result, (negative) discrimination is concentrated here, to immigrants buyers with foreign name.

Finally, we present the differences in price cut across immigrants (Figure 9). We observe that immigrants with a native name received larger price cut than immigrants with a foreign name, and the gap is around 6.6%. In this case the unexplained gap ( $\Delta_0$ ) is positive, meaning that discrimination can explain a huge part (more than 5 percentage points) of differences among immigrants with a foreign name and a native name come from discrimination and the latest received higher price cut. The difference in individuals' characteristics on their common support ( $\Delta_X$ ) is negative (decreasing price cut gap by 5 percentage points approximately). This fact means that immigrants with a native name have different (worse) distribution of characteristics than immigrants with a foreign name. Likewise, differences in price cut (and probably discrimination) will be even higher if comparable immigrants were identical. In Spain the immigrants with a native name come usually from South America, immigration with characteristics quite

different from Europe immigrants, for example (which are included in the group of immigrants with foreign name). Both,  $\Delta_N$  (here differences among immigrants with a native name) and  $\Delta_M$ , are positive, although difference among immigrants with foreign name is negative for the first two sets of variable and turns positive for last one. In both cases, the existence of certain profiles of buyers present only in one group increases price cut gap.

## Conclusions

In this paper we have analyzed if discrimination determines the fact of having a price cut and, in case, the percentage of price cut, that is, if sellers are more willing to cut a higher percentage of list price to natives with respect to immigrants. We focus on the negotiation between the list price and the final transaction price of the house. Controlling for the characteristics of the houses, neighborhood and buyers we are able to calculate if immigrants are discriminated with respect to natives into obtain a price cut when buy a new house. We refine our hypothesis by dividing our sample into three groups: natives, immigrants with Spanish name and immigrants with a foreign name. In this sense, we test whether a seller offer significant price cuts to fellow native, to immigrants with Spanish names or to immigrants with foreign names. Our estimates imply that sellers do not favor Spanish buyers with higher price cuts and a Spanish buyer is less likely to receive a price cut than any type of immigrant. This result can be explained, as well as by the absence of discrimination, by, at least, three further reasons. Firstly, some natives pay the house with some percentage of cash payment in order to avoid taxes (undeclared money). These individuals prioritize tax evasion to price cut. Secondly, a higher percentage of ownership implies lower mobility. The need of a dwelling in some specific location can explain that natives can not use its bargaining

advantages to obtain a higher price cut as much as they can. Finally, according to the descriptive, the profile of the native needs lower price cuts.

However, when we consider properly the importance of the differences in characteristics among natives, immigrants with foreign name and immigrants with native name, we use a novelty methodology developed by Ñopo (2008). The advantage of this procedure is that we can simultaneously estimate the common support and the mean counterfactual price cut for the native on the common support (i.e. a similar group of natives and immigrants whenever the comparison is possible). Furthermore, the decomposition of the price cut gap explicitly accounts for differences in the supports of the distributions of characteristics (that are differences due to the fact that the comparison is not possible). We present evidence of a significant price cut for immigrants with native names relative to immigrants with non-Spanish names, although the difference in common support is small. A large part of the gap can be attributed to discrimination or unobservable characteristics. As a result, (negative) discrimination is concentrated here, to immigrants buyers with foreign name. Relative price cut gap between natives and immigrants with native name is reduced and related to (positive) discrimination or unobservable characteristics. To sum up, Juan Carlos an Ecuadorian buyer with similar characteristics than David (a native) obtain a similar price cut for a similar dwelling. However, both obtain higher price cut for the same dwelling than Maria Fernanda, also Ecuadorian, also with similar individual characteristics.

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**Table 1: Owners versus tenants in the UE**

	Owners	Tenants
EU-27	72.4	27.6
<b>Euro area (EA16)</b>	70.1	29.9
Romania	96.5	3.5
Lithuania	91.6	8.4
Slovakia	89.3	10.7
Latvia	86.0	14.0
Bulgaria	87.1	12.9
Estonia	88.9	11.1
Slovenia	81.3	18.7
Hungary	89.0	11.0
Malta	79.9	20.1
Czech Republic	75.8	24.2
Greece	76.7	23.3
Poland	66.0	34.0
Italy	72.6	27.4
Cyprus	73.1	26.9
<b>Spain</b>	83.2	16.8
Portugal	74.5	25.5
Ireland	77.3	22.7
France	62.1	38.0
Belgium	73.1	26.9
Luxembourg	73.8	26.2
Finland	73.2	26.8
Austria	57.7	42.3
United Kingdom	72.5	27.5
Denmark	66.5	33.5
Sweden	68.8	31.2
Netherlands	67.5	32.5
Norway	86.1	13.9
Iceland	85.8	14.2
Germany	55.2	44.8

Source: Eurostat (2010)

**Table 2: Variable definition**

<b>Name of the variable</b>	<b>Definition</b>
<b>% Relative price cut</b>	Price cut relative to list price
<i>Characteristics of the dwelling</i>	
<b>House size</b>	Surface in squared meters
<b>Age of construction</b>	Antiquity of the dwelling
<b>Time on Market</b>	Time from listing to sell
<b>Parking</b>	1 if the dwelling has a parking included in price, 0 otherwise
<b>Rooms</b>	Number of rooms of the dwelling
<i>Characteristics of the individual</i>	
<b>Age</b>	Age in years of the buyer
<i>Educational level</i>	
<b>Primary Education</b>	1 if the maximum level of education is primary, 0 otherwise
<b>Secondary Education</b>	1 if the maximum level of education is secondary, 0 otherwise
<b>Tertiary education</b>	1 if the maximum level of education is university, 0 otherwise
<b>Household income</b>	Net monthly individual income in euros
<b>Permanent contract</b>	1 if the type of contract is permanent, 0 otherwise
<b>Married</b>	1 if the marital status of the individual is married, 0 otherwise.

**Table 3: Descriptive Statistics**

	Native		Imm. with foreign name		Imm with Native name	
	<i>Discount</i>	<i>No discount</i>	<i>Discount</i>	<i>No discount</i>	<i>Discount</i>	<i>No discount</i>
<b>%People who receive price cut</b>	56.72		65.31		66.91	
<b>% Relative price cut</b>		5.23		4.99		5.33
<b>House size</b>	73.40	68.48	67.21	64.24	65.33	63.52
<b>Parking</b>	0.11	0.13	0.06	0.05	0.05	0.05
<b>Rooms</b>	2.75	2.72	2.86	2.83	2.87	2.86
<b>Age of construction</b>	30.11	34.87	37.27	40.66	38.55	40.12
<b>Time on Market</b>	76.43	92.83	71.13	93.17	66.42	89.42
<i>Individual characteristics</i>						
<b>Age</b>	31.925	33.299	33.022	33.960	34.213	34.395
<b>Married</b>	0.292	0.277	0.380	0.3881	0.489	0.465
<b>Primary education</b>	0.528	0.359	0.844	0.423	0.762	0.719
<b>Secondary Education</b>	0.357	0.421	0.138	0.785	0.159	0.236
<b>Tertiary education</b>	0.115	0.220	0.018	0.178	0.079	0.045
<b>Permanent contract</b>	0.520	0.642	0.438	0.037	0.481	0.523
<b>Household income</b>	506.051	629.411	631.627	0.525	594.695	618.321
<b># obs.</b>	<b>1096</b>	<b>1462</b>	<b>272</b>	<b>535</b>	<b>237</b>	<b>453</b>



**Table 4: Probit Estimation for individuals who receive a Price cut**

	(1)	(2)	(3)
<b>House size</b>	-0.385***	-0.045	-0.131
	0.089	0.094	0.108
<b>Parking</b>	0.231***	0.11	0.105
	0.067	0.07	0.08
<b>Rooms</b>	0.062*	0.049	0.052
	0.034	0.035	0.041
<b>Age of construction</b>	0.006***	0.004***	0.004**
	0.001	0.001	0.002
<b>Time on market</b>	0.003***	0.003***	0.003***
	0.000	0.000	0.000
<i>Individual characteristics</i>			
<b>Native</b>	-0.192***	-0.009	-0.151**
	0.054	0.058	0.071
<b>Immigrants with a foreign Name</b>	-0.017	-0.068	-0.101
<b>Age</b>	-	-	0.004
			0.003
<b>Secondary Education</b>	-	-	-0.021
			0.058
<b>Tertiary Education</b>	-	-	0.283***
			0.06
<b>Married</b>	-	-	0.401***
			0.088
<b>Permanent contract</b>	-	-	0.052
			0.053
<b>Household income</b>	-	-	0.016
			0.022
<b>Regional dummy</b>	N	Y	Y
<b>Year Dummy</b>	N	Y	Y
<b># obs.</b>	3906	3906	3906

We report marginal effects. Standard deviation in italics

**Table 5: OLS and Heckman estimation for the price cut**

	<b>OLS</b>	<b>Heckman</b>
<b>Native</b>	0.047	0.086
	0.197	0.243
<b>Immigrants with a foreign Name</b>	0.054	0.041
	0.226	0.252
<b>Log House Size</b>	-0.277	-0.281
	0.338	0.327
<b>Parking</b>	0.24	0.253
	0.217	0.252
<b>Rooms</b>	-0.013	-0.023
	0.126	0.127
<b>Age of construction</b>	0.028***	0.028***
	0.005	0.005
<b>Time on Market</b>	0.011***	0.011***
	0.001	0.003
<b>Individual Characteristics</b>		
<b>Age</b>	0.012	
	0.009	
<b>Secondary Education</b>	-0.268*	
	0.157	
<b>Tertiary education</b>	0.383**	
	0.168	
<b>Household income</b>	0.857***	
	0.269	
<b>Permanent contract</b>	0.14	
	0.148	
<b>Married</b>	0.087	
	0.056	
<b>Inverse Mills Ratio</b>		-0.123
		1.657
<b>N</b>	2896	2896

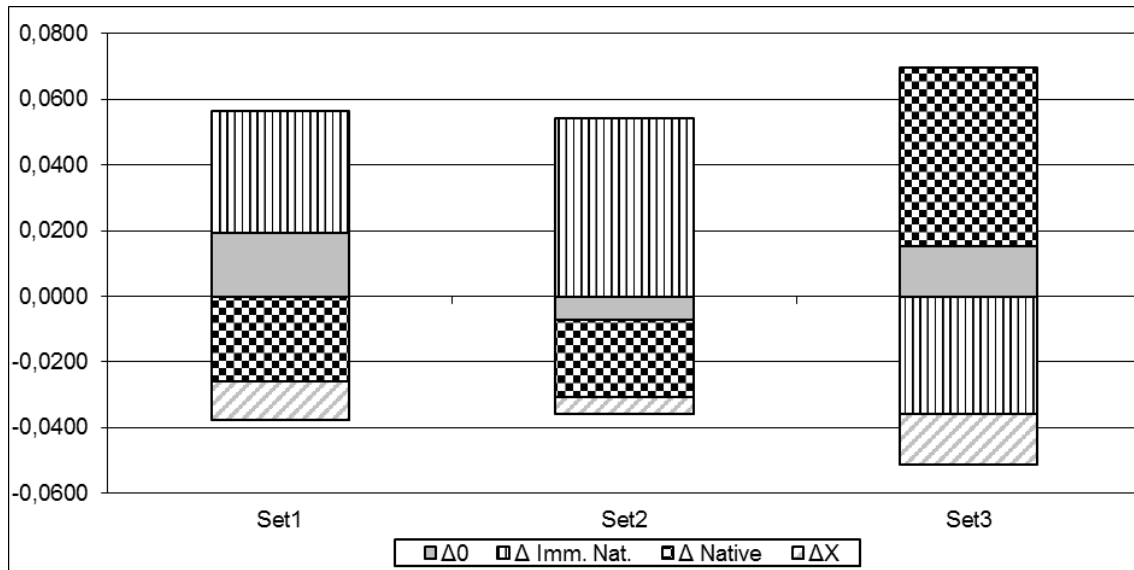
**Table 6. Price cut gap. % Unmatched for every comparasion and every set**

	Imm. Nat. name vs Native			Imm. With foreign name vs Native			Imm. Nat. name vs Imm foreign name		
	Price cut as % of Imm nat name	Average price cut	% Imm nat name	Price cut as % of Imm foreign name	Average price cut	% Imm foreign name	Price cut as % of Imm nat name	Average price cut	% Imm with foreign name
		Unmathched	% Native		Unmathched	% Native		Unmathched	Unmathched
Set1	1.85%	14	30	-4.63%	16	30	6.80%	24	24
Set2	1.85%	28	50	-4.63%	28	50	6.80%	46	48
Set3	1.85%	60	82	-4.63%	60	72	6.80%	76	79

Set1: House Size, Parking., Rooms, Age of construction , Set2: House Size, Parking., Rooms, Age of construction, Year and Region dummies, Set3: House Size, Parking., Rooms, Age of construction, Education., Age, Married, Permanent contract, Household Income, Year and Region dummies

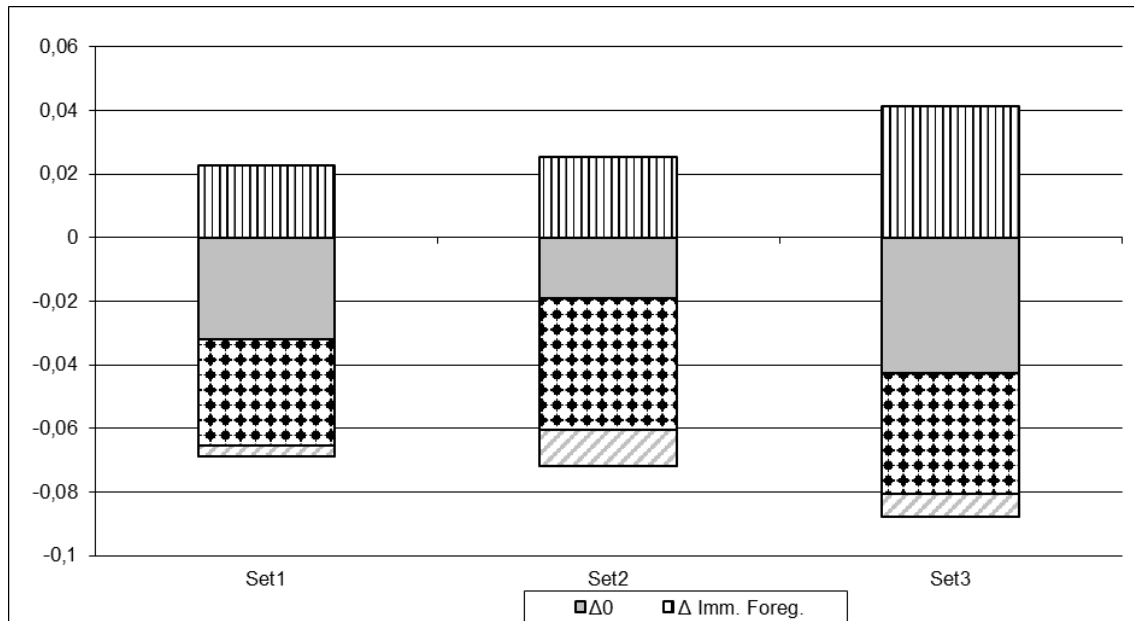
**Figure 5: Ñopo's price cut decomposition. Immigrant with a native name vs.**

**Native**



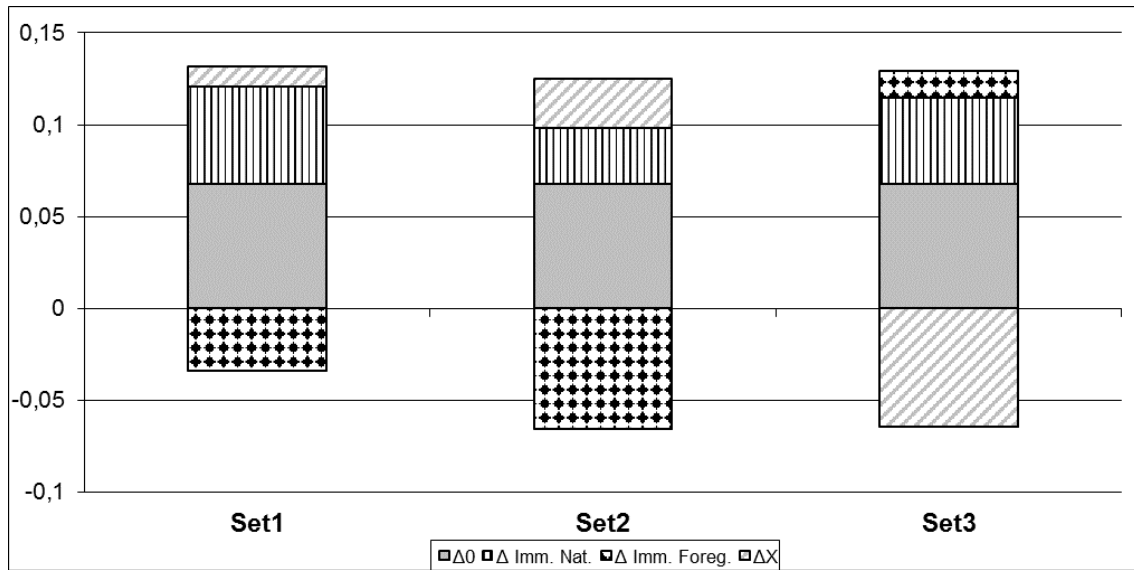
Set1: House Size, Parking., Rooms, Age of construction , Set2: House Size, Parking., Rooms, Age of construction, Year and Region dummies, Set3: House Size, Parking., Rooms, Age of construction, Education., Age, Married, Permanent contract, Household Income, Year and Region dummies

**Figure 6: Ñopo's price cut decomposition: Immigrant with a foreign name vs. Native**



Set1: House Size, Parking, Rooms, Age of construction, Set2: House Size, Parking., Rooms, Age of construction, Year and Region dummies, Set3: House Size, Parking., Rooms, Age of construction, Education., Age, Married, Permanent contract, Household Income, Year and Region dummies

**Figure 7: Ńopo's price cut decomposition. Immigrants with a native name vs. Immigrants with a foreign name**



Set1: House Size, Parking., Rooms, Age of construction , Set2: House Size, Parking., Rooms, Age of construction, Year and Region dummies, Set3: House Size, Parking., Rooms, Age of construction, Education., Age, Married, Permanent contract, Household Income, Year and Region dummies.