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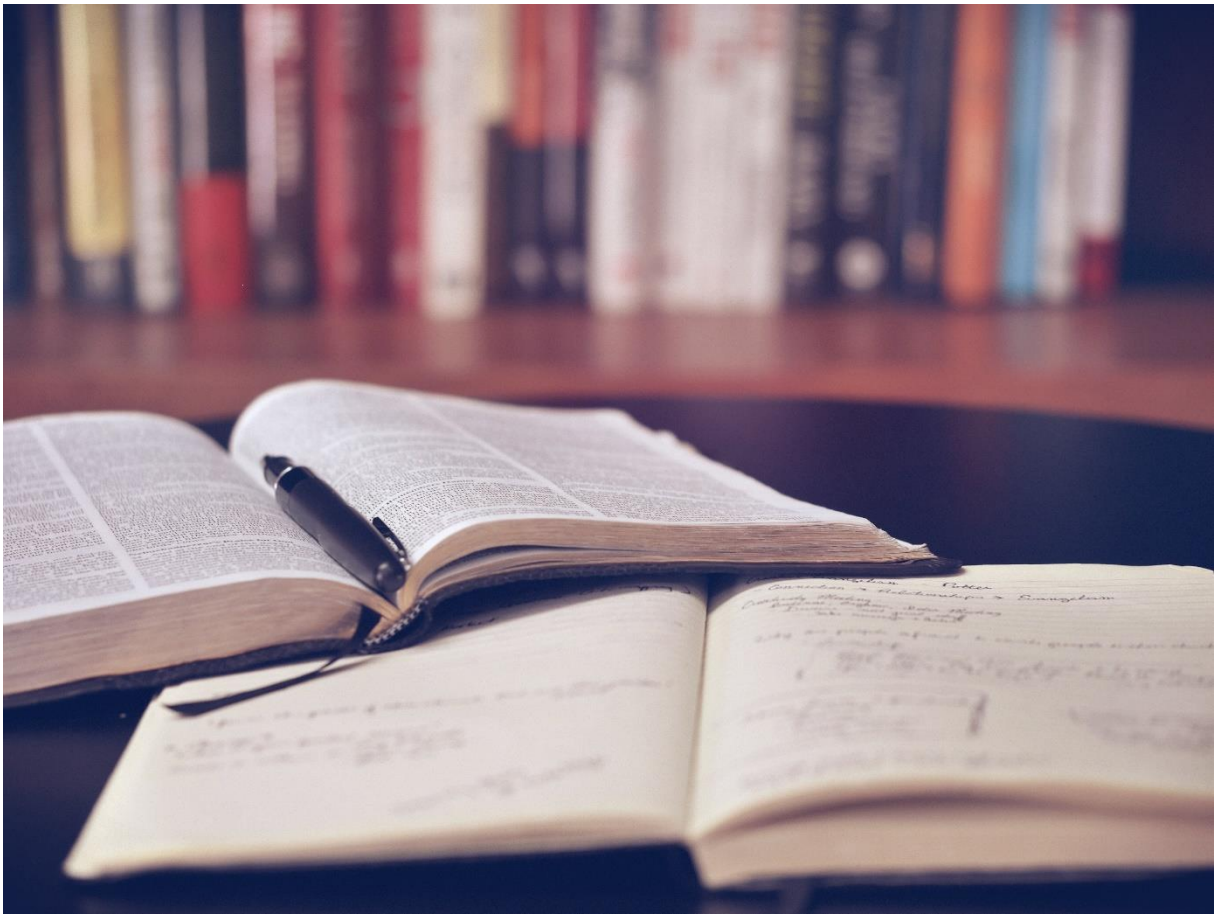

Bargaining power in apartment sales in Corsica: A latent class approach

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BARGAINING POWER IN APARTMENT SALES IN CORSICA: A LATENT CLASS APPROACH

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Abstract

This paper adds to the literature by extending the bargaining model of Harding, Rosenthal, and Sirmans (2003) to a latent class framework. We examine data on apartment sales in Corsica over the period 2006 to 2016. Our results indicate that the Corsican housing market has two distinct segments and that bargaining power of buyers and sellers is not the same in these two segments. In particular, we find that the French mainlanders have more bargaining power when selling in one market segment but they experience a decrease in bargaining power when buying in the other segment. Corsican buyers exhibit significant bargaining power in both sub-markets but local sellers exhibit significant bargaining power in just one segment of the market. Auxiliary regressions indicate that the apartments associated with the first segment are more spacious, less likely to be new, more likely to have a garden, and typically have longer travel times to any of the local amenities like doctors, pharmacies and the downtown area. From this we conclude that apartments in one segment are more likely to be rural and at a greater distance from the coast compared to the other segment.

Keywords: Latent class, hedonic regression, bargaining power

JEL: R31, R3, C24

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Introduction

Corsica, a region of France, is a small but distinctive island in the Mediterranean with a population of about 320 thousand residents[1]. The island's unique topography sets it apart. Corsica consists of steep mountains in the interior encircled by a beach. The island is presently connected to the outside via airports in Ajaccio, Bastia, Calvi and Bonifacio. There are also many ferries connecting with Europe. With Corsica's attractive beaches and the improvements in air travel, tourism is increasing in importance. The island receives about 3 million tourists annually[2], with a peak of around 400 thousand visitors in August. Most of the tourists visit for the beaches and the growth in tourism has important implications for the Corsican apartment market. An examination of this apartment market is the subject of this research.

Our study of the Corsican apartment market has several novel features. We are the first to examine the Corsican apartment market. Previous studies on Corsica examine either farmland market determinants (Tafani et al., 2012; Giannoni et al., 2017) or price trend analysis (Prunetti et al., 2015). In our examination of the apartment market we examine a unique data set containing information on over 8,000 apartment transactions in Corsica over the period 2006 to 2016. In addition to information on several apartment characteristics, our data set also contains information on buyer and seller characteristics. Following the approach of Harding, Rosenthal, and Sirmans (2003), henceforth HRS, we use this information on buyer and seller characteristics to determine relative bargaining power of the two groups. We then extend the work of HRS by examining relative bargaining power using a latent class model to identify segments of the market in which the bargaining power might differ.

[1] Source: INSEE (French National Institute of Statistics and Economic Studies), General Census of Population 2015.
[2] Source: Observatoire Régional des Transports de la Corse (*Regional Observatory of Transport of Corsica*).

Our OLS estimation results indicate an increase in bargaining power when buyer and seller are from the same county as the property on sale and when both buyer and seller are Corsican. We find a decrease in bargaining power when both buyer and seller are French mainlanders (we will use only "French" from now on). Our latent class results indicate the existence of two market segments. In our arbitrarily designated Regime 1, we find evidence of increased bargaining power when both buyer and seller are French. For the second regime, Regime 2, we find an increase in bargaining power when both buyer and seller are selling from their county and when buyer and seller are both Corsican. For this regime we find a decrease in bargaining power when both buyer and seller are French.

Our auxiliary regression results, along with an examination of the weighted means of the independent variables, indicates that Regime 1 apartments are more likely to be rural and more distant from the coast. These two factors make it more likely that these apartments are owned by locals and transacted between locals.

Literature Review

Hedonic regression models have been used for years in studies of the impact of housing characteristics on sales prices. These hedonic prices are often interpreted as competitive market equilibrium prices, but recently many have recognized that for housing markets in particular this assumption may not be true. Housing markets are not characterized by homogeneous products. If markets are thin it is often the case that buyers can pay markedly different prices for very similar properties. This is due to asymmetric information most often associated with differential search cost for buyers and sellers. The price dispersion can also be due to distinctive features of the property leading to a "thinning" of buyer interest.

The housing market and the market for new cars are markets in which sale prices are characterized by bargaining outcomes. Many studies in the housing and, generally, the real estate area have examined the causes and consequences of this price dispersion. In the next section we review the empirical research on the factors related to price dispersion in housing and real estate markets.

Buyer Characteristics. Turnbull and Sirmans (1993) suggest that price differences for similar properties can be due to varying levels of information, possibly due to differences in search costs. Their empirical results find no systematic differences in prices across different types of buyers. Song (1995) finds that bargaining outcomes are affected by the seller's asking price and that first-time homebuyers do not bargain less than repeat home buyers. HRS (2003) examine relative bargaining power of buyers and sellers in an hedonic regression model. They find that wealth, gender, and the presence of school-age children explain some of the differences in bargaining power. Brasington and Sarama (2008) find that deed type affects sale price with more complex deeds resulting in lower prices. Research by Ihlanfeldt and Mayock (2012) notes that buyers pay different prices for nearly identical homes. They suggest that this due to differences in the relative bargaining power of buyers. They test the hypothesis that the relative bargaining strength of buyers coming from beyond the local market is relatively weak because of high search markets. They find support for the hypothesis through an examination of single-family home transactions in Florida. Using data from China, Zhou et al. (2015) also find buyers from outside the local market paying higher prices and that price anchoring occurs. Research by Chandra et al. (2017) looks at differences in prices for new cars. They examine these differences based on demographic characteristics which they find explain at least 20% of the observed variation in prices. Bayer et al. (2017) examine relative prices paid by minorities compared to

whites for similar housing. They find that black and Hispanic homebuyers pay about a two percent premium for their homes. Holmes and Xie (2018) find that out-of-state buyers pay 20% higher prices than local buyers.

Seller Characteristics. Cotteleer et al. (2008) find sellers of agricultural land have market power as buyers try to purchase adjoining tracts of land. Hardin et al. (2009) evaluate the impact of ownership and management structure on property performance. They find that multifamily properties managed by real estate investment trusts (REITS) generate higher effective rents than non-REIT properties. The results imply that the structure of property ownership can impact property performance. Using repeat sales data, Anglin and Wiebe (2013) find empirical evidence that a single small seller can influence the selling price of their house and that the effect is larger than expected. A study by Larsen and Coleman (2014) examines senior citizen's bargaining power in the single family house market. The empirical results indicate that seniors pay no difference in purchase prices but do sell their homes at on average 6% less than other sellers.

Other. Pope (2008) suggests that asymmetric information between buyers and sellers can affect hedonic prices. They confirm this idea by an examination of seller disclosures for flood zones. They find a 4% decline in selling prices after the disclosures. Colwell and Munneke (2006) make a slight extension of the HRS model and use this model to find systematic differences in bargaining power and property class for certain groups of buyers. As the HRS approach is the basis for our analysis it is discussed in detail in the next section.

Harding, Rosenthal, and Sirmans (2003). HRS modify the usual hedonic regression model to incorporate bargaining effects for buyers and sellers. Their general framework is given below

$$P_i = sC_i + B_i, \quad (1)$$

where *P* represents the sales price of property, *C* represents the characteristics of the property, *s* represents the hedonic prices which are influenced by the buyers and sellers, and *B* represents the impact of bargaining on the hedonic price function.

In order to operationalize the model, that is, estimate the effect of bargaining, HRS begin with the following relationship. In (2) below HRS represent the impact of bargaining as a function of buyer and seller characteristics, D^{sell} and D^{buy}, the marginal impacts of these characteristics on bargaining given by b^{sell} and b^{buy}, and an error term capturing idiosyncratic differences in bargaining power between buyers and sellers, e_B,

$$B = b^{sell}D^{sell} + b^{buy}D^{buy} + e_B. \quad (2)$$

Substituting (2) into (1) yields the following hedonic regression model now including the impact of buyer and seller characteristics on bargaining

$$P = sC + b^{sell}D^{sell} + b^{buy}D^{buy} + e_B. \quad (3)$$

HRS assume that housing characteristics, *C*, are known to all market participants but only partly observed by the analyst. Thus, housing characteristics are divided into two groups, C_1, which are those observed by the analyst and C_2, which are those not observed by the analyst. Additionally, HRS assume that these unknown characteristics C_2 are valued by buyers and sellers causing C_2 to be correlated with D^{sell} and D^{buy} according to the following relationship,

$$s_2C_2 = d^{sell}D^{sell} + d^{buy}D^{buy} + e_D\,, \quad (4)$$

where s_2 is the vector of shadow prices on C_2. Not having information on these omitted characteristics leads to an omitted variables problem which biases the estimates of the

coefficients describing bargaining power in equation (3) above. HRS state that overcoming his omitted variables problem is the key to measuring bargaining effects. Their solution to the problem is to substitute equation (4) into equation (3) to yield

$$P = s_1 C_1 + (b^{sell} + d^{sell})\, D^{sell} + (b^{buy} + d^{buy}) D^{buy} + \varepsilon \quad (5)$$

where all terms are defined previously save for the random error term ε which is now $e_B + e_S$. If the expressions in parentheses in (5) are written as

$$\Omega^{sell} = b^{sell} + d^{sell}$$

$$\Omega^{buy} = b^{buy} + d^{buy}$$

an identification problem is apparent. The coefficients of individual characteristics are not identified unless some parameter restrictions are imposed in the estimation.

To address this issue HRS make two assumptions resulting in parameter restrictions on the model. The first assumption they call *symmetric bargaining power* which implies $b^{sell} = -b^{buy}$. As the name suggests, this constraint implies that buyers and sellers have equal bargaining power. The second constraint they impose on the estimation is called *symmetric demand* which implies that $d^{sell} = d^{buy}$ meaning that seller and buyer characteristics have the same impact on the value of the unknown property characteristics.

With these constraints imposed, the authors obtain an equation that is readily estimable by OLS

$$P = s_1 C_1 + b(D^{sell} - D^{buy}) + d(D^{sell} + D^{buy}) + \varepsilon \quad (6)$$

and b provides a direct measure of the effect of seller and buyer traits on bargaining power.

Data Set

Our data set consists of all the apartment sale contracts in Corsica between 2006 and 2016. The primary source for this information is the PERVAL data set[3]. This database, produced by the Chamber of Notaries (*Chambre de Notaires*), collects detailed information on property sales in France, including information about the purchase price, contract signature date, and several property features. In addition, all observations are geo-referenced and some information on buyer and seller characteristics are obtained including nationality, age and registered residence. By using the spatial coordinates of the properties, we are able to estimate travel times from each apartment to various neighborhood amenities like services (doctors, pharmacies, and schools) and environmental goods (sea-view, beaches, and downtown areas). Our final data set includes information on 8,253 apartment sales.

Variables

Our dependent variable is the logarithm of the sale price of the apartment. Our independent variables include *intermediation* which is a dummy variable for which a value of one indicates the presence of an intermediary in the transaction. *Mortgage* is a dummy variable indicating the presence of a mortgage on the property. *Furnished* is a dummy variable indicating whether the unit is furnished. *Reverse* indicates the presence of a reverse mortgage. *Full* is a dummy variable equal to one indicating that the buyer has full property rights. *Rooms* is the number of rooms in the apartment. *Bath* is the number of bathrooms in the apartment. *Floors* is the floor on which the unit is located. *New* indicates new construction. *Pre* indicates sold prior to construction. *Balcony* is a dummy variable equal to one if the apartment contains at least one

[3] Data source at the following link: https://www.perval.fr

balcony. *Garden* is a dummy variable equal to one indicating that the apartment has a private garden. *Size* indicates the number of square meters of the apartment. *Pool* is a dummy variable indicating that the apartment has a pool. *City* is a dummy variable indicating that the apartment is located in one of the two main Corsican cities: Ajaccio or Bastia. *Beach* is time to the beach in minutes. *Doctor* is the number of minutes to the nearest doctor. *Pharmacy* is the number of minutes to the nearest pharmacy. *Primary* is the number of minutes to the nearest primary care facility. *Downtown* is the number of minutes to downtown. *Maintown* is the number of minutes to the nearest main town. *Seaview* is a constructed index approximating the quality of the sea view from the apartment, calculated by using ArcGIS (Nagy, 1994; O'Sullivan and Turner, 2001). By exploring the apartment vicinity using the geo-coordinates, one can determine the ratio of visible sea area within a radius of 20 km around the apartment. This ratio ranges from 0 to 100 with zero indicating no view of the sea and 100 being a full view.

The summary statistics for all variables used in the model are given in column 2 of Table 1. All monetary variables used in the study have been deflated. As the table shows the average real price of the apartment sold during this period is just under 175,000 euro. Table 1 shows that just under 30% of all the units were purchased with mortgages and nearly all of the exchanges came with full property rights. The average number of rooms per apartment is just under three, just under 25% of the units have basements, and over 90% have balconies. The average size of the dwelling is just over 65 square meters. In addition to these variables, we also include year and county dummy variables.

The Bargaining Power Model

In order to evaluate the impact of individual characteristics of buyers and sellers on sale prices we constructed sums and differences of buyer-seller characteristics in the same manner as

HRS. In particular, we examine the impacts of a series of eight dummy variables constructed for buyer and sellers which indicate whether buyer, seller, and property are located in the same home county, whether both buyer and seller are local (Corsican), whether both buyer and seller are French or not, and whether buyers or sellers jointly own the property. These dummy variables are used to construct four new sum variables and four new difference variables.

The sum variables take on the values 0, 1, or 2 indicating, respectively, whether the characteristic is indicative of neither buyer nor seller, indicative of either buyer or seller, or indicative of both buyer and seller. Harding et al. (2003) suggest that these variables measure demand effects of buyer and seller characteristics.

These four dummy variables are also used to construct four new difference variables. Following HRS we also adopt the convention of calculating *seller – buyer* differences. As these characteristics are dummy variables, these differences can take on the values -1, 0, or 1. A value of -1 indicates the characteristic is present in the buyer but not the seller. A value of 0 indicates that the characteristic is present for both or absent for both, essentially meaning buyer and seller are the same. A value of 1 indicates the characteristic is present for the seller but absent from the buyer. HRS use the coefficients of these variables to indicate relative bargaining strength. A negative coefficient associated with this variable indicates that the seller receives a lower price and the buyer pays a higher price. That is, there is little bargaining power. On the other hand a positive coefficient on a difference variable is an indication of bargaining power.

Conceptual Model

We use this richly detailed data set to estimate a log linear hedonic regression model. We use the logarithm of the national audit of the sales price as the dependent variable and include

several independent variables which we describe earlier. Our basic conceptual model is given below.

$$\begin{aligned} lnP = {} & \beta_0 + \beta_1 Intermediation + \beta_2 Mortgage + \beta_3 Furnished + \beta_4 Reverse + \beta_5 Full \\ & + \beta_6 Rooms + \beta_7 Baths + \beta_8 Floor + \beta_9 New + \beta_{10} Pre + \beta_{11} Basement \\ & + \beta_{12} Balcony + \beta_{13} Garden + \beta_{14} Size + \beta_{15} Beach + \beta_{16} City + \beta_{17} Doctor \\ & + \beta_{18} Pharmacy + \beta_{19} Primary + \beta_{20} Downtown + \beta_{21} Maintown + \beta_{22} Seaview \\ & + \beta_{23} DiffCounty + \beta_{24} DiffCoowner + \beta_{25} DiffCorsican + \beta_{26} DiffFrench \\ & + \beta_{27} SumCounty + \beta_{28} SumCoowner + \beta_{29} SumCorsican + \beta_{30} SumFrench \\ & + year\ dummies + \varepsilon \end{aligned}$$

We expect the coefficients of *Intermediation*, *Mortgage*, *Furnished*, *Reverse*, *Full*, *Rooms*, *Baths*, *Floor*, *New*, *Pre*, *Basement*, *Balcony*, *Garden*, *Size*, *Seaview*, *and City* to be positive while we expect the coefficients of all the travel time variables, namely *Beach*, *Doctor*, *Pharmacy*, *Primary*, *Downtown*, and *Maintown*, to be negative, although close proximity to noise and crowds could cause house prices to decrease in some of these cases.

Estimation Results

The OLS estimation results are given in column 3 of Table 1. The R^2 for the model exceeds 0.64 which is impressive for the large number of transactions in our sample. Of the 20 slope coefficients in the model 18 are statistically significant at the $\alpha = 0.05$ level or better. The signs of all coefficients are consistent with our expectations except, apparently, for the negative but statistically insignificant coefficient on *Reverse* and the positive and statistically significant coefficient of *Primary.* The positive coefficient for the variable *Primary* may be due to the fact that primary schools generate noise and traffic congestion externalities for area residents. In

consideration of the large number of observations and the large number of independent variables this model performs remarkably well.

In evaluating these results we will look at the estimates for the constructed sum and difference variables. However, following HRS we will focus our discussion on the bargaining power variables. All of the constructed different coefficients are statistically significant at the $\alpha = 0.10$ level or better except *SumCoowner*. The results indicate greater scope for bargaining when buyer and seller are from the same county as the apartment or when buyer and seller are both Corsican. The results indicate less scope for bargaining if the property is sold from one group of owners to a second group of owners or if both buyer and seller are French. These findings are supported by the estimation of an additional model with the *buy – sell* dummy variables included

These results are based on the usual assumption that the housing market is not segmented. In the next section we examine this issue more carefully by estimating a latent class or finite mixture model.

A Latent Class Approach

The idea of modeling data using mixtures of known distributions has been around for many years. However, only recently, with the advent of the EM algorithm and the improvement in computing technology has the estimation of these models become practical. The developments by Dempster et al. (1977) provided the basis for maximum likelihood estimation of these models and improvements in computer speed and capacity allowed the finite mixture approach to be applied to much larger samples. Today, finite mixtures of regression models are in wide use. An early application in economics is the work of Beard et al. (1991). These authors

estimated a finite mixture model of statistical cost functions that differ due to unobservable differences in technology. Despite the increase in the number of applications of finite mixture or, latent class, models as they are also called there has been much less use in the housing and real estate literature.

A search of this literature yields only three applications. Belasco et al. (2012) used a finite mixture of regressions model to locate unobservable housing submarkets. Work by Lu et al. (2015) used a finite mixture of regression models to identify latent submarkets for smart growth neighborhoods. They find four distinct but unobservable classes of individuals in the housing market. More recently, the paper by Ibraimovic and Hess (2018) used a finite mixture model to identify three latent classes indicating heterogeneity in residential choices for those living in Nagano, Switzerland.

This paper adds to this growing literature by extending the model of HRS (2003) to a latent class framework. Like the studies above, our effort can be justified by appealing to a market segmentation argument. In the estimation results that follow we use the same hedonic regression model as in the previous section. Using a finite mixture or latent class approach enables one to determine whether there are identifiable populations in Corsica characterized by different hedonic regression models and different degrees of bargaining power.[4] If different market segments are found to exist we can conduct additional statistical analyses to shed light on the nature of the two regimes.

[4] Our latent class estimation results are obtained using PROC FMM in the SAS statistical package.

Latent Class Estimation Results

The results from estimating a finite mixture model are given in columns four and five of Table 1. We find evidence for the existence of two regimes.[5] The estimation results for arbitrarily-named Regime 1 are given in column four of the table. Our empirical results indicate that about eighteen percent of the sample observations are more closely associated with this regime. Of the twenty independent variables associated with house characteristics, only three have coefficients not statistically different from zero at any of the usual levels. The estimated coefficients of *Reverse* and *Primary* still have negative signs. As pointed out by Davidoff and Welke (2017), "The reverse mortgage reduces the net gain to selling the home, because there is more wealth in the absence of a sale and less wealth after a sale." This explains the negative sign of the coefficient of *Reverse*.

We now examine the coefficients of the difference variables for evidence of bargaining power. Only one of the difference coefficients is statistically different from zero at the $\alpha = 0.10$ level or better. The result indicates an increase in bargaining power if French buyers are negotiating with French sellers.

Column 5 of Table 1 contains the estimation results for Regime 2 which represents about eighty-one percent of the data. Of the twenty slope coefficients, seven are not significantly different from zero (*Intermediation*, *Mortgage*, *Baths*, *Floor*, *Pre*, *Doctor*, and *Pharmacy*). Of the 20 slope coefficients of house characteristics, two show a wrong sign, namely *Doctor* and *City*, although the former is not statistically different from zero.

[5] A model with two regimes is favored over a model with a single regime using the BIC.

We now examine the coefficients of the difference variables and the implications for bargaining power for our Regime 2 results. The difference coefficients for County, Corsican and French are statistically different from zero at the $\alpha = 0.10$ level or better. The results indicate an increase in bargaining power when buyer and seller are from the same county or are both from Corsica. However, there is a reduction in bargaining power if buyer and seller are both French. These results are also supported by replacing the sum and difference variables by the simple *buy* and *sell* dummy variables.[6]

The estimation results for Regimes 1 and 2 are generally similar with one important difference. Some investigation as to the nature of these two regimes could provide insight into this finding.

Auxiliary Regressions

As mentioned previously, one of the results from the estimation of a latent class or mixture model is an estimate of the posterior probability that a particular observation is associated with each regime. That is, the procedure provides an estimate of the probability that an apartment transaction is associated with either regime. We use this probability as the dependent variable in an auxiliary regression to estimate the impact of each independent variable on the probability of association with Regime 1. These estimation results are given in column 2 of Table 3. The two variables having the most impact based on magnitude of their coefficients

[6] For the latent class model regime 1 characterizes about 18% of the observation and regime 2 characterizes about 82% of the observations. For the *buy - sell* dummy variable coefficients we find four of the eight are statistically significant at the $\alpha = 0.10$ level or better. In particular, we find if a property is sold by a group of owners the sales price is about 9% lower. We find that if the buyer is local the sales price is about 15% lower. We also find that if the buyer is French the price is about 15% lower and if the seller is French the price is about 25% higher. For regime 2 which accounts for about 82% of the observations we find five of the eight coefficients are statistically significant at the $\alpha = 0.05$ level or better. We find that if the seller is from the same county as the property the sales price is about 5% higher. We find that if the buyer is local the sales price is about 15% and if the seller is also local the sales price is about 4% lower. Finally, we find that if the buyer is French the sales price is about 25% higher and if the seller is French the sales price is about 4% higher.

are *Furnished* and *New*. Both coefficients are statistically significant and negative. Together, these results indicate that a new and furnished apartment has a probability of being associated with Regime 2 about 0.11 higher than otherwise. The largest positive effect is associated with the presence of a reverse mortgage which increases the probability of being associated with regime 1 about 0.04.

Next, we use the posterior probabilities to calculate the weighted means for each of the two groups to shed additional light on regime or class differences. These means are given in columns three and four of Table 2. These results, to a large degree, reflect our findings from the auxiliary regression previously discussed. Based on the means, the apartments associated with Regime 1 tend to be more spacious, they are less likely to be new, more likely to have a garden, and typically have longer travel times to any of the amenities we discuss. Together with the auxiliary regression results, a picture of a Regime 1 apartment emerges that may be more rural and at a greater distance from the coast. These two factors make it more likely that these apartments are owned by locals and transacted between locals. Furthermore, in those areas it is reasonable to observe a higher bargaining power for Corsican buyers and French sellers due to lower information asymmetry for them. Conversely, Regime 2 apartments are more closely associated with the coastal regions of the island. Again, sellers who are county residents and Corsican buyers exhibit more bargaining power, while French buyers have less.

The differences we find across the observed sub-populations of buyers and sellers can be explained by the presence of asymmetric information. Rational individuals will continue to search for a better deal until the marginal cost of searching equals the marginal benefit. One might expect that local, Corsican, and non-Corsican market participants will exhibit different search costs. In other words, the cost of collecting information (searching for a better deal)

increase as the agent is more distant and less familiar with the search area. Following this reasoning, non-local sellers and buyers tend to stop the search and/or end the price negotiation sooner than local participants.

Conclusions

This paper extends the model of Harding, Rosenthal, and Sirmans (2003) to a latent class framework. Our results indicate that the Corsican housing market has two distinct segments and that bargaining power of buyers and sellers is not the same in these two segments. Our results indicate that there are at least two classes or regimes in the Corsican housing market characterized by different patterns of bargaining power.

Our auxiliary regressions indicate that the apartments associated with Regime 1 tend to be more spacious, they are less likely to be new, more likely to have a garden, and typically have longer travel times to any of the amenities we discuss. From this we conclude that Regime 1 apartments are more likely to be rural and at a greater distance from the coast.

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TABLE 1
SAMPLE STATISTICS AND ESTIMATION RESULTS

Variable	Mean (SD)	OLS[a] Estimation	Latent Class[a] Regime 1	Latent Class[a] Regime 2
lrealprice	11.889 (0.53)	-------		
Intermediation	0.155 (0.36)	0.047*** (3.98)	0.165*** (3.42)	0.012 (1.14)
Mortgage	0.297 (0.46)	0.011 (1.20)	0.105*** (2.79)	-0.011 (1.52)
Furnished	0.175 (0.38)	0.181*** (15.48)	0.403*** (8.02)	0.110*** (9.73)
Reverse	0.002 (0.04)	-0.327 (3.57)	-0.898*** (3.27)	-0.139* (1.65)
Rooms	2.827 (1.22)	0.181*** (37.33)	0.211*** (15.78)	0.030*** (4.70)
Baths	1.123 (0.42)	0.152*** (13.07)	0.211*** (6.05)	0.015 (1.19)
Floor	1.785 (1.78)	0.012*** (4.68)	0.032*** (3.04)	0.002 (1.17)
New	0.514 (0.50)	0.212*** (14.84)	0.301*** (4.76)	0.180*** (14.79)
Pre	0.408 (0.49)	0.041*** (2.91)	0.211*** (3.33)	0.003 (0.26)
Basement	0.242 (0.43)	0.048*** (5.07)	0.079** (2.08)	0.036*** (4.36)
Garden	0.069 (0.25)	0.169*** (8.53)	0.261*** (3.63)	0.052** (2.44)
Size	65.143 (40.87)	0.003*** (22.39)	0.001*** (3.13)	0.012*** (44.94)
Beach	5.896 (7.42)	-0.014*** (23.11)	-0.022*** (7.12)	-0.011** (19.95)
Doctor	3.570 (6.97)	-0.003 (1.04)	-0.009 (1.10)	0.003 (1.35)
Pharmacy	3.395 (7.00)	-0.011*** (4.92)	-0.016** (2.18)	-0.000 (0.03)
Primary	3.273 (6.41)	0.022*** (13.27)	0.032*** (5.56)	0.017** (8.07)
Downtown	14.724 (15.12)	-0.008*** (20.36)	-0.006*** (4.45)	-0.009*** (22.02)
Maintown	15.109 (13.95)	-0.004*** (7.67)	-0.004** (2.38)	-0.002*** (5.23)

Seaview	12.708 (11.47)	0.001*** (3.73)	-0.000 (0.05)	0.001*** (3.79)
City	0.667 (0.47)	-0.023** (2.10)	0.002 (0.04)	-0.063*** (6.16)
Year1	0.085 (0.28)	-0.127*** (6.44)	-0.166** (2.07)	-0.116*** (6.56)
Year2	0.092 (0.29)	0.021 (1.08)	-0.034 (0.44)	0.021 (1.19)
Year3	0.104 (0.30)	0.017 (0.89)	-0.019 (0.23)	0.024 (1.39)
Year4	0.093 (0.29)	0.006 (0.31)	0.036 (0.44)	0.004 (0.23)
Year5	0.136 (0.34)	0.021 (1.13)	-0.051 (0.66)	0.014 (0.88)
Year6	0.075 (0.26)	0.084*** (4.13)	0.074 (0.86)	0.055*** (3.02)
Year7	0.075 (0.26)	0.092*** (4.54)	0.014 (0.18)	0.090*** (4.92)
Year8	0.093 (0.29)	0.021 (1.09)	-0.080 (1.02)	0.032* (1.81)
Year9	0.069 (0.25)	0.029 (1.46)	-0.008 (0.10)	0.017 (0.87)
Year10	0.038 (0.19)	0.026 (1.09)	0.015 (0.16)	0.016 (0.69)
Year11	0.054 (0.23)	0.013 (0.61)	0.006 (0.08)	0.024 (1.03)
DiffCounty	0.200 (0.63)	0.025*** (3.48)	0.018 (0.62)	0.018*** (2.97)
DiffCoowner	-0.030 (0.44)	-0.016* (1.78)	-0.052 (1.45)	-0.005 (0.64)
DiffCorsican	0.205 (0.56)	0.058*** (6.50)	0.054 (1.51)	0.052*** (6.40)
DiffFrench	0.029 (0.27)	-0.049*** (3.08)	0.198*** (3.07)	-0.103*** (7.22)
SumCounty	0.809 (0.72)	0.032*** (4.71)	-0.009 (0.32)	0.031*** (5.38)
SumCoowner	0.232 (0.46)	-0.011 (1.27)	-0.036 (1.02)	-0.013* (1.64)
SumCorsican	1.450 (0.66)	-0.088*** (10.68)	-0.088*** (2.70)	-0.095*** (12.19)
SumFrench	1.895 (0.35)	0.144*** (11.28)	0.060*** (1.15)	0.145*** (11.89)

Intercept	-------	10.811*** (341.78)	10.693*** (81.98)	10.915*** (347.27)
R^2		0.64		
Mixing weight	-------	-------	0.19 (16.33)	0.81

[a]Figures in parentheses are absolute values of t-ratios.
[***]Indicates statistical significance at the α=0.01 level.
[**]Indicates statistical significance at the α=0.05 level.
[*]Indicates statistical significance at the α=0.10 level.

TABLE 2
MARGINAL EFFECTS

	Case	Seller	Buyer	OLS[a] Estimation	Latent Class[a] Regime 1	Latent Class[a] Regime 2
County	(i)	Yes	No	+5.86%	-------	+5.02%
	(ii)	No	Yes	-------	-------	-------
	(iii)	Yes	Yes	+6.60%	-------	+6.39%
	|t-test| between (i) and (iii)			0.25	-------	0.26
Coowner	(i)	Yes	No	-------	-------	-------
	(ii)	No	Yes	-------	-------	-------
	(iii)	Yes	Yes	-------	-------	-2.56%
Corsican	(i)	Yes	No	-------	-------	-4.20%
	(ii)	No	Yes	-13.58%	-8.42%	-13.67%
	(iii)	Yes	Yes	-16.32%	-16.32%	-17.30%
	|t-test| between (i) and (iii)			-------	-------	4.66
	|t-test| between (ii) and (iii)			0.89	0.22	1.36
French	(i)	Yes	No	+9.96%	+29.43%	-------
	(ii)	No	Yes	+21.28%	-------	+28.14%

	(iii)	Yes	Yes	+33.37%	+12.74%	+33.64%
	|t-test| between (i) and (iii)			3.31	0.62	-------
	|t-test| between (ii) and (iii)			1.75	-------	0.82

[a]Showing only the marginal effects significant at the α=0.05 level or less.

TABLE 3

Auxiliary Regression Results and Weighted Means

Variable	Linear Probability Model[a]	Regime 1 Means and SDs	Regime 2 Means and SDs
lnrealprice	-------	11.918 (0.46)	11.889 (0.58)
Intermediation	-0.018*** (2.67)	0.166 (0.16)	0.153 (0.32)
Mortgage	-0.010** (2.03)	0.279 (0.19)	0.301 (0.41)
Furnished	-0.043*** (6.24)	0.183 (0.17)	0.173 (0.34)
Reverse	0.042 (0.79)	0.003 (0.02)	0.002 (0.04)
Rooms	0.004 (1.31)	3.0386 (0.69)	2.779 (1.00)
Baths	0.023*** (3.42)	1.189 (0.25)	1.108 (0.34)
Floor	-0.002 (1.57)	1.651 (0.77)	1.816 (1.60)
New	-0.053*** (6.36)	0.424 (0.21)	0.534 (0.45)
Pre	0.004 (0.53)	0.334 (0.20)	0.426 (0.45)
Basement	-0.004 (0.69)	0.250 (0.19)	0.240 (0.38)
Garden	0.019* (1.65)	0.119 (0.14)	0.057 (0.21)
Size	0.000*** (5.83)	72.736 (31.01)	63.392 (26.38)
Beach	-0.000 (0.86)	6.273 (3.49)	5.809 (6.55)

Doctor	0.000 (0.34)	5.190 (5.88)	3.197 (3.65)
Pharmacy	0.006*** (4.52)	5.098 (5.91)	3.003 (3.66)
Primary	-0.002** (2.53)	4.567 (5.71)	2.975 (2.84)
Downtown	-0.000 (1.28)	15.652 (6.82)	14.510 (13.48)
Maintown	0.001** (2.49)	16.963 (7.77)	14.681 (11.56)
Seaview	-0.000 (0.26)	12.011 (4.95)	12.869 (10.34)
City	-0.020*** (3.03)	0.622 (0.21)	0.677 (0.42)
Year1	-0.031*** (2.66)	0.0775 (0.12)	0.087 (0.25)
Year2	-0.023** (1.99)	0.085 (0.12)	0.093 (0.26)
Year3	-0.027** (2.43)	0.092 (0.13)	0.106 (0.28)
Year4	-0.014 (1.22)	0.086 (0.12)	0.095 (0.26)
Year5	-0.028*** (2.64)	0.112 (0.14)	0.141 (0.31)
Year6	-0.020* (1.74)	0.067 (0.11)	0.077 (0.24)
Year7	0.003 (0.22)	0.078 (0.12)	0.075 (0.24)
Year8	-0.008 (0.70)	0.094 (0.13)	0.093 (0.26)
Year9	-0.006 (0.49)	0.082 (0.12)	0.066 (0.22)
Year10	-0.010 (0.69)	0.043 (0.09)	0.037 (0.17)
Year11	0.056*** (4.47)	0.082 (0.12)	0.048 (0.19)
DiffCounty	-0.001 (0.16)	0.185 (0.28)	0.204 (0.57)
DiffCoowner	0.009* (1.77)	-0.007 (0.19)	-0.035 (0.40)
DiffCorsican	-0.013** (2.45)	0.186 (0.25)	0.210 (0.50)

DiffFrench	0.024** (2.56)	0.030 (0.12)	0.029 (0.24)
SumCounty	0.007* (1.79)	0.801 (0.31)	0.810 (0.65)
SumCoowner	-0.007 (1.25)	0.248 (0.21)	0.228 (0.41)
SumCorsican	-0.014*** (2.84)	1.386 (0.30)	1.465 (0.59)
SumFrench	0.017** (2.22)	1.885 (0.16)	1.897 (0.32)
Intercept	0.154*** (8.30)	-------	-------
R^2	0.10	-------	-------

[a]Figures in parentheses are absolute values of t-ratios.
***Indicates statistical significance at the α=0.01 level.
**Indicates statistical significance at the α=0.05 level.
*Indicates statistical significance at the α=0.10 level.