Demographic factors and regional diversity behind the recent increase of renter-occupied households in Spain: a multilevel exploration

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Abstract

The increase of the renter-occupied households from 11.4% to 13.5% during the intercensal period 2001-2011 is one of the most prominent results of the last Spanish census, as it represents a turnaround of the traditional homeownership expansion. This paper analyses that evolution from a demographic perspective focusing on the young households and using multilevel modelling techniques to examine two questions: if the recent increase of renter-occupied households implies changes in the hierarchy and intensity of the individual factors that underlie housing tenure status; and if the uneven impact of the last housing and financial boom and bust is related with the current regional diversity in young households' preference for renting.

Therefore, we focus on the women aged 25-34 years-old, living solely with the partner and their children, if any. Using data from the Spanish censuses, 2001 and 2011, and from the official housing prices indexes, two multilevel logistic models were designed to compute the probability of living in a rented dwelling versus the other tenure options. Individual explanatory factors (age, nationality, education attainment level, type of locality, marital status) as well as contextual factors (house price index, metropolitan context, and average age of the population) were considered in two levels, individual and regional (Spanish NUTS3 division, 50 *provincias*).

The results confirm changes in the role of individual factors that explain rental housing choice during the years of 2001 and 2011. At the contextual level, higher probabilities of renter-occupation are found in regions where the housing prices remained more constant over time. At both levels, age (of the individuals and the regional population age structures) is having an increasing explanatory role.

Keywords: renting, young households, rental housing sector, provinces, Spain.

1. Introduction and research strategy

The increase of the proportion of renter-occupied households from 11.4% to 13.5% (a net growth of 824,000 renter-occupied households) during the intercensal period 2001-2011 is one of the most prominent results of the last Spanish census. For the first time renter-occupied households increased, disrupting the long-term trend registered from 1950 to 2001. Each chronological limit of this period falls within opposite economic financial cycles. The year of 2001 is at the heart of the housing and financial boom that took place from 1997 to 2007 in Spain. On the contrary, in 2011, Spain was already understood as one of the countries where Global Financial Crisis had hit the most.

This paper proposes to compare these two distinct, but chronologically close, periods and to analyse how they have affected the chances of households become renters over homeowners. At the same time, being Spain a complex state from different points of view (linguistic, historical, economic, regional self-government structures), the social and economic transformations experienced during the last 15-20 years have had major regional variations, which we expect to be found also in renting individual propensities.

In this sense, the research subject is to analyse, and to compare for that period (2001-2011), the individual and contextual characteristics that were more associated to renter-occupied households. The universe is formed by women aged 25-34 years-old, living solely with the partner and their children, if any. This universe responds to three criteria. First, *women* were selected because their age addresses the life course stage of the household better than men's age. Second, only *young* women were singled out because they are most likely to have decided about their residential status shortly before the census reference period. Thirdly, women must be living with a *partner*, ensuring they are in a relatively advanced stage of their biography and have mostly the control, jointly with their partners, of housing decisions. Thus, our analysis confidently focuses on households actually affected by the geographic and temporal contexts this paper is coping about, even more in a low mobility housing system like the Spanish one. Moreover, by identifying behavioural changes within young couples we are exploring potential future cohort innovations with regard housing tenure status preferences.

In this study, the individual characteristics were considered by the personal and household sociodemographic variables from the 2001 and 2011 Spanish census. To examine the regional context, the NUTS3 regional division (*provincia*) was used, ensuring that significant socio-spatial processes are found and relative homogeneity amidst the households. The paper assumes that to be renter instead of being homeowner is explained by a similar set of individual factors, both in 2001 and 2011. But, it defends also that the growing importance of renting in this period is accompanied by some modifications in the hierarchy and intensity of these same factors. This would be our first hypothesis (#1).

Nevertheless, the paper pays mostly attention to how geographic context influences individual propensities to be renter and how this effect has been changing over time. So far, this topic has been barely studied in Spain and with regard to the Spanish context, we note that there is much regional variability of geographical elements (degree of urbanisation), demographic

composition (age structure) and, especially for this paper, severity of the recent economic boom and bust (housing prices). Therefore, the primary purpose of this paper is to verify if, after considering simultaneously individual and contextual factors, the degree of stability of housing price indexes of the province of residence has affected the trend of renter-occupation. The hypotheses related with this main aim are that (#2) the factor *housing price* explains more the tendency to rent than other contextual factors, and that (#3) the more stable the regional housing price indexes are, the more likely a woman aged 25-34 years-old living with a partner is to live in a renter-occupied household.

2. Data and methods

This study uses as main data source the microdata from the Spanish census, 2001 and 2011 editions, offered by the Spanish National Statistics Office (INE). Our sample, corresponding to women aged 25-34 years-old, living solely with the partner and their children, if any, comprises 193,926 cases (75,830 cases from 2001 census, 5% sample, and 121,926 cases from 2011 census, 10% sample). The contextual aggregated indicators came from the censuses as well, with the exception of the housing prices indexes, which are published by the Spanish Ministry of Public Works.

The multilevel regression models were hierarchically structured in two levels to estimate the probability of living in a rented-occupied household as opposed to be living under another tenure status (homeownership in most cases). This probability is determined by independent variables organised in two levels: individual variables (combined couple nationality, marital status, education level of woman, age of woman, locality size[1]) referred to the microdata sample; and regional variables (rate of change of housing price index[2], proportion of high-rise residential buildings – 4 or more floors, average age of the population) measured in a aggregated way for the 50 units, provinces, of this second level. All in all, eight models were estimated. Five models for the level 1, and three for the level 2. Model 8 is the final model and includes all the independent variables.[3]

The interpretation of results is pretty close to the one of the binomial logistic regression models. The main distinction is in the interpretation of the variance because in multilevel analysis, the variance relates to the observed differences between provinces when individual and contextual level variables are introduced.

The strategy of analysis and interpretation of the models is as follows. Firstly, a zero (or empty) model computing the dependent variable without the independent ones is estimated. If the variance is different than zero, then there is regional heterogeneity and room for further

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[1] This is not an individual variable, in *stricto sensu*. Nevertheless, under the definition of regional level used in this paper it is not also a regional variable. In fact, locality size is an intermediate variable that, being significant in the modelling, we decided to attach to the level 1 as a characteristic trait of the household.

[2] With regard the rate of change of housing price index, we divided the period 2001-2011 in two sub-periods. In the first model, the period 2001-2008 was analysed. Being the boom years, housing prices were skyrocketing. In the second model, we consider the period 2008-2011, i.e. the GFC and the decrease of the housing prices. Considering this two sub-periods, it is better not to deduce causality.

[3] Here we will refer only to the most representative models.

analysis. Next, the individual factors are introduced in successive models. If the variance becomes or tends to zero, the probability to live in a renter-occupied household can be explained mostly by these factors. Regional diversity would be just an effect of a sociodemographic compositional effect. It is reasonably expected that some level of regional heterogeneity will remain after including the individual variables in the models.

At the second level of the modelling, the contextual variables are included in successive models. If variance becomes lower, then regional differences in the renting behaviour of young couples can be explained, in some degree, by factors related with external factors and processes addressing the regional context. If this is the case, it can be demonstrated that regional diversity is a significant element of the Spanish housing system.

3. Results
Individual variables

As expected, variance of Models "0" or "empty" of 2001 and 2011 is not zero and, hence, regional heterogeneity of the renting behaviour can be analysed. In other words, the probability of a Spanish women aged 25-34 years-old, living with a partner and their children, if any, to live in a rented-occupied household depends on the province of residence, in both moments. Models 5 of 2001 and 2011 where all individual independent variables are taken into account, show a weak reduction of variance in relation to Models 0, even some increase in 2001. Definitely, the individual level is not too much relevant to explain regional variability.

By comparing Models 5, some significant changes in the performance of individual variables can be found (Table 1). The hierarchical order in relation to their degree of determination is the same in both moments, but the internal diversity of the categories is quite different, and this confirms, although partially, our initial hypothesis (#1). The nationality of the couple is the more determinant variable, followed by the official marital status, the educational attainment level of the woman, the age and the locality size, in both moments. Nevertheless, while the internal heterogeneity in the variables nationality and type of couple has decreased, it has increased in the variables size of locality (higher probability if living in cities) and, that is notable, age (higher probability of the youngest). The higher heterogeneity by age indicates a prominent role of the younger households in the recent increase of rented-occupied dwelling, perhaps as an anticipation of a long-term cohort effect. This change could be starting in urban housing markets.

Contextual variables

Also as expected, when all contextual variables are added to the models, variance tends to decline substantially (Models 8). Thus, the regional heterogeneity in the access to renting is explained mainly by contextual factors not directly related with the households. Plainly, region matters in order to understand the housing dynamics in Spain. In both models, the main effect comes from the relative change of the housing price indexes. This variable *per se*

explains about 21% and 17% of regional heterogeneity, respectively.[4] That confirms our hypothesis #2. Nevertheless, both the proportion of households living in high-rise buildings (proxy of the metropolitanisation[5] of the regional context) and the average age of population (proxy of the complexity of the housing market in terms of supply and demand) have also important effects.

The proportion of the variance explained by the sum of the two levels, individual and contextual, is 51.2% in 2001 model and 42.0% in 2011 model.[6] The explanatory capacity of the 2011 model is lower than in 2001, which can be due to a higher complexity of the factors influencing the current housing options. Moreover, the contextual level, taken separately, is less explicative in 2011 than in 2001.

A result worthy of note is how regional age structures have clearly gained influence, in 2011. In older-population provinces, propensities to be renter are significantly higher, independently of the individual characteristics, the housing prices and the metropolitanisation stage. Surely, an aged population entails a more mature housing market, with an increased older, second-hand housing supply, which would be feeding the private, non-commercial, renting market. On the other hand, urban structure factors are becoming less important. The traditional heterogeneity between more urbanised regions (more renting leaning) and more rural regions is blurring.

In relation with our main hypothesis (#3), models' coefficients confirm that the propensity to rent is higher within couples living in provinces with more stable housing prices. In 2001, the more moderate the housing prices increase, the higher the propensity to rent. In 2011, the more temperate the housing prices fall, the higher the tendency to rent the house. Nevertheless, in both moments the relationship is not totally linear.

Table 1. Odds ratios* of the multilevel logistic regression models to determinate the access to rented housing of women aged 25-34 years-old, living with a partner. Spain, 2001 and 2011

Census 2001				Census 2011			
Variable/category	Mod. 0[a]	Mod. 5[b]	Mod. 8[c]		Mod. 0[a]	Mod. 5[b]	Mod. 8[c]
Individual variables				**Individual variables**			
Nationality of the couple				*Nationality of the couple*			
Both foreigners		26,01	26,01	Both foreigners		23,33	23,33
She Spanish – He foreigner		3,99	3,99	She Spanish – He foreigner		4,00	4,01
She foreigner – He Spanish		3,45	3,45	She foreigner – He Spanish		3,03	3,03
Both Spanish (ref.)		1	1	Both Spanish (ref.)		1	1
Marital status of the couple				*Marital status of the couple*			
Unmarried		2,83	2,83	Unmarried		2,37	2,37
Married (ref.)		1	1	Married (ref.)		1	1
Education of woman				*Education of woman*			
Primary or less		2,11	2,11	Primary or less		1,15	1,15
Secondary		0,96	0,96	Secondary		0,85	0,85
Tertiary (ref.)		1	1	Tertiary (ref.)		1	1
Age of woman (years)				*Age of woman (years)*			
25-26		1,38	1,38	25-26		2,38	2,38

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[4] These proportions were calculated comparing the variances of Models 6 not shown in this abstract (0.155 in 2001 and 0.103 in 2011) with those of Models 5.

[5] In Spain, where compact urban areas are still the norm.

[6] Variance of Model 8 versus variance of Model 0.

	a	b	c		a	b	c
27-28		1,17	1,17	27-28		2,00	2,00
29-30		1,10	1,10	29-30		1,46	1,46
31-32		1,04	1,04	31-32		1,24	1,24
33-34 (ref.)		1	1	33-34 (ref.)		1	1
Locality size (inhabitants)				*Locality size (inhabitants)*			
Plus 500.000		2,14	2,14	Plus 500.000		3,53	3,53
100.001- 500.000		1,03*	1,03*	100.001- 500.000		1,71	1,71
50.001- 100.000		0,88	0,88	50.001- 100.000		1,65	1,65
20.001- 50.000		0,83	0,83	20.001- 50.000		1,29	1,29
10.001-20.000		0,77	0,77	10.001-20.000		1,07	1,07
2.001-10.000		0,80	0,80	2.001-10.000		1,03*	1,03*
Less 2.000 (ref.)		1	1	Less 2.000 (ref.)		1	1
Contextual variables				**Contextual variables**			
Increase of housing price index[d] 2001-2008				*Increase of housing price index[d] 2008-2011*			
Q4			0,49	Q1			0,76
Q3			0,75**	Q2			0,92**
Q2			1,25*	Q3			0,89**
Q1 (ref. less price increase)			1*	Q1 (ref. less price increase)			1
Proportion of households living in high-rise residential buildings (4+ floors)				*Proportion of households living in high-rise residential buildings (4+ floors)*			
Q4			0,62	Q4			0,94**
Q3			1,14*	Q3			1,03**
Q2			1,41	Q2			1,06**
Q1 (ref. lower proportion)			1	Q1 (ref. lower proportion)			1
Average age of population				*Average age of population*			
Q4			1,03*	Q4			1,34
Q3			0,92*	Q3			1,09**
Q2			1,01*	Q2			0,89**
Q1 (ref. lower age)			1	Q1 (ref. lower age)			1
Variance between provinces	0,143	0,198	0,070	Variance between provinces	0,164	0,123	0,095
Constant	-2,119	-2,561	-2,350	Constant	-1,211	-2,969	-2,935

Source: Spanish Census of Population 2001 and 2011, INE.

*: all coefficients are significant for a p<0.001, except * for p<0.05 y ** for p<0.01.

a: Model empty.

b: Model with individual variables only.

c: Final multilevel model, with individual and contextual variables.

d: Compound growth rate of housing Price index (purchase price, m2, euros)

4. Main conclusions

Constant results in both periods:

- The region matters in order to understand housing dynamics in Spain. Regional heterogeneity in the access to renting is explained mainly by contextual factors, not directly related with the household features.
- The main contextual effect comes from the relative change of the regional housing price indexes.
- Propensity to be renter is higher in the couples living in regions (provinces) with more stable housing prices.
- The individual level is not so much relevant in the explanation of the regional variability.

Changing results in the second period in relation to the first one:

- There are significant changes in the degree of determination of individual variables, in favour of age and urban location.
- The explanatory power of 2011 model is lower than in 2001, perhaps due to a higher complexity of factors influencing housing options.

- The second level part of the models, taken separately, is also less explicative in 2011 than in 2001. Regional dimension, unless with the data and analysis of this paper, could have lost a bit of influence to understand housing processes as Spain comes out of the GFC, or either there is some spatial convergence.

Demographic factors (age) are becoming more determinant of renting behaviour, both in the individual and in the contextual levels:
- At the individual level, the tendency of youngest households to have higher renting propensities is more evident in 2011 models. Whether this is a cohort long-term innovation or simply a period effect restrained to a specific age range is something to be analysed further.
- At the contextual level, propensities to rent are positively related to provinces with older age structures. Aged population provinces would develop more dynamic rental housing markets because housing markets are becoming more diverse.