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The importance of administrative data in the evaluation of the incidence of social housing allowance programmes

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ABSTRACT

The aim of this work is to assess the rental assistance programme that was implemented by the Catalan regional government in the 2010s using administrative data provided by the Catalonia Housing Agency to analyse whether it achieved its aims to enhance the design of similar programmes. Linear probability models to explain the probability of receiving the grant were estimated and some significant variables were identified: age; rent price; expertise; being a woman; non-EU citizenship and the number of old, young or disabled members. Multiple regressions were estimated in regard to the grant's rate in relation to the rent price and the effort required to pay relative to income after having received the grant. The results suggest that rental assistance facilitates access to housing to groups that face more difficulties and that the revenue captured by landlords, although statistically significant, is small, since they capture approximately 3% by raising prices. This aid, despite being controlled by different variables, benefits elderly people more than young people, which must be addressed because, theoretically, when access requirements are met, no group should benefit more than others.

1. Introduction

Catalonia [Nomenclature des Unités Territoriales Statistiques II (NUTS-II)] is a region in Spain where a new housing act was implemented during the second decade of the XXI century to provide governmental rent subsidies to facilitate access to housing to several groups such as elderly individuals, people at risk of being socially excluded and those who cope with difficulties paying their rent.

There are several arguments supporting the implementation of housing allowances for low-income families. One of them is related to paternalism, namely, the perception that (at least, in some cases) low-income families underestimate their housing needs and, consequently, spend too little on them (Parsell & Marston, 2016). Another argument is based on altruism, which moves the public in general to think about low-income families, especially about their young children (Nordvik & Sørvoll, 2014), and to believe that housing allowances should take precedence over cash transfers of identical amounts.

The aim of this article is to assess rental assistance programmes implemented from 2011 to 2019 by the Catalan Government on the basis of their regulations on housing rights (Law 18/2007, of 28 Desember, 2007) and on the Spanish law that regulated the Housing Plan in Spain for 2018–2021 (Royal Decree 106/2018, of 9 March, 2018). The present work is, therefore, an assessment of the programme, using the results of an assessment of similar programmes implemented in other countries and an assessment of rental assistance granted in Catalonia over the last decade. In the below analysis, administrative data provided by the Catalonia Housing Agency (*Agència de l'Habitatge de Catalunya*) are used. In this regard, models to explain the probability of receiving the grant are estimated based on the grant's rate in relation to the amount of rent and effort made in relation to income after having received the grant. The results show that some groups, even after receiving a grant, need to make an effort to live in rented accommodation (for instance, young people and women). Additionally, an approximation of the grant's impact is provided. The results show that the landlord's revenue capture, although small, is statistically significant.

The motivation of the paper is to evaluate public policies, particularly in regard to allowances in a European context. The use of administrative data is not common within the Spanish context, and findings from such data are particularly relevant given that Spanish housing law is currently being drafted. Thus, the evaluation of rental allowance

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programmes in Catalonia based on administrative data will facilitate the design of social housing policies.

This paper contributes to the field because it is an evaluation of public rental assistance programmes for housing demand, which can allow us to analyse their effects, whether they achieve their proposed aims, and if their design can be improved and to detect any unwanted effects. This is the first paper to use administrative data to estimate econometric models that explain the probability of receiving rental assistance (discreet and continuous), the amount of allowance relative to the amount of rent and effort made by rentees once an allowance is received.

This paper is structured as follows. First, the literature that addresses the effectiveness of housing allowances is presented in Section 2. Next, the allowances are contextualized in the Catalan case in Section 3. Section 4 addresses the administrative data used to conduct the analyses. Finally, the results of the estimated models are explained in Section 5. The paper ends with a conclusion in Section 6 and recommendations on economic policy in Section 7.

2. Literature review

Demand-side subsidies are included among the policies more positively valued by researchers in the field focused on the housing economy (García, 2019). Demand-oriented policies are particularly effective relative to supply control policies. The latter are widely criticized in the economic literature because of their negative consequences in terms of equity and efficiency (Raya, 2021). In general, demand-oriented policies are divided into two categories: demand-side subsidies and rent vouchers (which are designed differently). An extensive economic literature analyses the former, and the vast majority work is based on the Experimental Housing Allowance Programme (EHAP) (Olsen, 1982, 2003). For instance, Hausman and Wise (1980) proposed a general method based on data of individuals facing discontinuous or nonlinear budget constraints to obtain empirically estimated housing expenditure functions. In regard to vouchers, there are some examples in the literature. Susin (2002) uses hedonic regression models for US vouchers in 1993 and concludes that low-income households in metropolitan areas with more vouchers increased the rental price faster than those in areas with fewer vouchers. Carlson et al., (2012) isolate effects of housing voucher receipt through propensity score matching and regression adjustment and find a positive effect on neighbourhood quality in a 5-year period, despite being small in the short term, as well as a higher probability of change in household composition in the year when the voucher is received, although there is greater stability in the following years. Meschede and Chaganti (2015) use a mixed-method case study of vouchers for homeless families in Massachusetts and find that families show improved living conditions but identify persistent barriers to achieving economic and housing stability in the long term. Collinson and Ganong (2018) examine who benefitted from two policy changes aimed to improve the neighbourhood quality of US voucher holders: whereas uniform growth in ceilings led landlords to increase rentals prices and had little effect on neighbourhood quality, establishing postal code ceilings led landlords to adjust rental prices and improved neighbourhood quality.

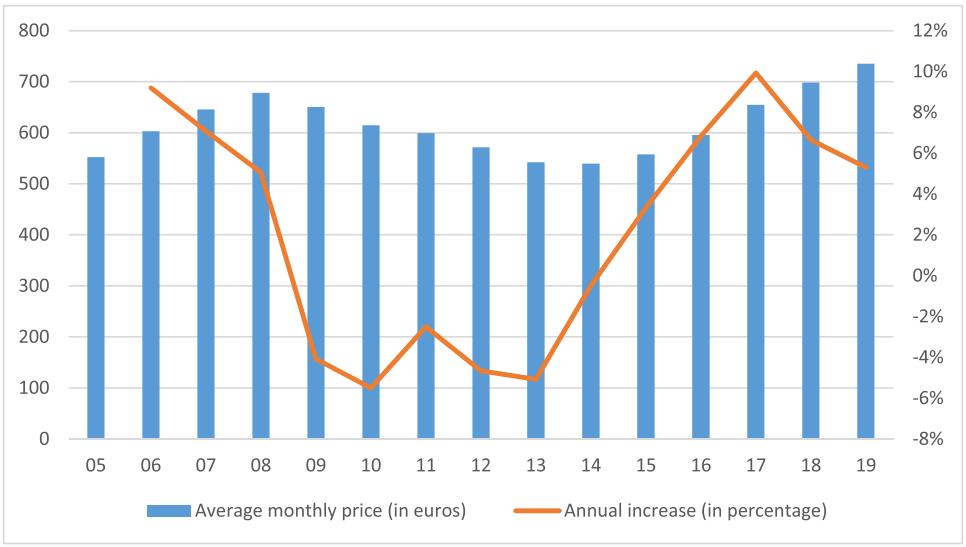
The results of the analysed literature point in two opposite directions. On the one hand, rent allowances reduce the housing cost/income ratio (Katz et al., 2003; Stephens et al., 2010), therefore improving access to housing. Consequently, an improvement in defaulting and in spending on other basic services is observed, as well as a reduction in the number of homeless people (Thomson et al., 2013). In this regard, a decrease in the costs related to homeless accommodation services, along with a reduction of justice service costs, are observed (Ly & Latimer, 2015).

At the same time, rent allowances can bring about an increase in prices and/or capture of revenue by landlords (del Pero et al., 2016; Eriksen & Ross, 2013; Fack, 2006). Despite the fact that the net effect of changes in consumption patterns, either in housing or in other items, has shown significant benefits for recipients, it is important to know the extent of the benefit obtained in relation to the obtained subsidy (and paid by taxpayers). Thus, the average value of the profit for receivers is lower than the average subsidy value (measured as the subsidy amount). This means that part of the allowance does not go to recipients because landlords capture part of this rental aid when they raise their rental prices. Specific figures point to a value of approximately 80%. Thus, de facto, 80% of the subsidy goes to the recipient and 20% goes to the landlord (Olsen, 2003; Venti & Wise, 1984). Nonetheless, the part of the profit that goes to the landlord has a significant effect on the territory's rental prices, since the experimental evidence has led analysts to state that the implementation of a demand-oriented programme would not have significant effects on rent prices, even in the short term (Olsen & Zabel, 2015), because families that meet the access requirements represent a small fraction of the housing demand. To mitigate such negative effects, del Pero et al. (2016) provide recommendations on design, and Eerola and Lyytikäinen (2021) do not find significant effects on rentals in Finland.

As stated above, the programme that has been most analysed in the literature is the Housing Choice Voucher Programme (USA), whereby recipient families choose housing that fits their needs and use only 30% of their income to pay for it, which is the difference covered by the programme (up to a determined limit). This means that allowances are received by landlords. Katz et al. (2003) revealed that those benefiting from the programme spend 36% of their income on housing, whereas those who do not benefit spend 44%. Even so, the limit on the housing cost is not complied with (30% of income). According to the author, this is the case because the housing price exceeds the limit set by the programme. This unwanted effect of such aid, an increase in housing rentals, occurs because prices increase when an offer is not flexible enough. In this regard, Eriksen and Ross (2013) used a quasi-experimental model to analyse the impact of increasing the number of housing vouchers from 2000 to 2002 in the United States. The results reveal few changes in average rental prices. Nevertheless, heterogeneities are observed in rent prices depending on the quality of the dwelling: the price of medium-quality dwellings increased by $5.28, whereas the price of lower-quality dwellings decreased by $13.47. The reason for this is that the distribution of vouchers increased the demand for higher quality dwellings. Susin (2002) states that low-income families that do not benefit from subsidies and reside in cities where a large number of housing allowances are granted have found that rental prices increase faster here than in cities with fewer subsidies, with revenue capture estimated at 16%. This means that landlords capture 16% of allowances by increasing the rental price.

Focusing on European countries, Stephens et al. (2010) used data from the EU-Statistic on Income and Living Conditions (EU–SILC) to analyse the relation between housing allowances and affordability in six European countries: Germany, Hungary, Portugal, the Netherlands, Sweden and the United Kingdom. A comparison of families that spend over 40% of their income to pay for their housing costs and those who do not shows that this proportion is lower for those who receive any kind of subsidy. In regard to the capture of revenue, del Pero et al. (2016) review several empirical studies that show that, in many cases, housing subsidies result in an increase in rent prices and revenue capture by landlords (Finland, France and the United Kingdom). The effect varies by country. In the United Kingdom (Gibbons & Manning, 2006) and France (Fack, 2006), revenue capture is estimated to be between 50% and 78%, respectively. Put differently, in the case of France, for instance, one additional euro of housing allowances turns into an average increase in the rental price of 78 cents and, finally, recipients receive a benefit of only 22 cents per euro of the subsidy. Eerola and Lyytikäinen (2021), in reference to Finland, do not find significant effects of the revenue captured from an increase in the value of housing subsidies.

Additional offers on housing stock (Sinai & Waldfogel, 2005), the labour market (Chetty et al., 2016; Owens, 2017), and health (Gibson



Source: Incasòl

Fig. 1. Average rent prices in Catalonia: 2005–2019.
Source: Incasòl.

et al., 2011; Lindberg et al., 2010) have been addressed. Carlson et al. (2012) conducted a global economic assessment of the programme.

The increase in the amount of housing for rent per capita (Sinai & Waldfogel, 2005), square metres and rooms per tenant and dwelling quality (Clapham & Foye, 2019; del Pero et al., 2016) have also been documented. In cases that involve moving to a different neighbourhood thanks to a subsidy, general satisfaction increases (Clapham & Foye, 2019) and segregation decreases (Moulton, Peck, & Dillman, 2014). In this scenario, low-income families that do not benefit from subsidies experience an increase in the rental prices in their neighbourhoods due to the increase in demand and the fact that the offer is not very flexible (del Pero et al., 2016).

Conversely, evidence limited to incomes is heterogeneous and linked to the labour market. Varady (2010) indicates that participants' income might be reduced because of the reduction of labour mobility, greater social incentives or difficulties to adapt in cases of moving to a different neighbourhood. In contrast, a long-term study observes positive effects on beneficiaries' children (Chetty et al., 2016). The effect on the labour situation is equally heterogeneous in both the long and short terms. No significant effects were found in a study on rental benefits by Feeny et al., (2012), and other studies have even detected negative effects (Jacob & Ludwig, 2012; Owens, 2017). Certainly, negative effects are observed more often in cases in which subsidies are linked to an apartment. In the long term, positive effects occur from increasing the chances of programme beneficiaries' children finding employment (Chyn, 2018).

In terms of health, a reduction in stress and anxiety (mental health) is observed because of strengthened feelings of security in both neighbourhoods (when moving to a new neighbourhood) and dwellings. For instance, Casciano and Massey (2012) performed a quasi-experimental study on New Jersey and found that neighbourhood disorders are related to anxiety symptoms and stress burdens. Moulton et al. (2014) found that children improved their mental health in a symmetrically predicted endogenous subgroup study conducted in high-poverty neighbourhoods of Baltimore, Boston, Chicago, Los Angeles and New York. Lindberg et al. (2010) detected an improvement in children's nutrition due to increasing purchasing power. It has been observed that this particularly affects young women and single mothers (Lindberg et al., 2010; Owens, 2017). Other studies do not find any significant impact in the short term (Tsemberis et al., 2003). Additionally, an improvement in children's nutrition is detected from increasing purchasing power (Lindberg et al., 2010), a decrease in alcohol and drug abuse (Chyn, 2018; Gibson et al., 2011) and a reduction in criminal incidents and violent situations experienced by participants due to living in a better environment (Chyn, 2018). In terms of education, evidence has been found in several areas: whereas Chetty et al. (2016) conduct a Moving to Opportunity Experiment in five US cities and conclude that the impact on recipients' children is positive, in terms of increasing college attendance rates, DeLuca and Dayton (2009) conclude that they attend higher-performing private schools having a higher likelihood of improved grades, graduation from secondary school and access to higher education. According to the authors, the impact occurs through neighbourhood/school changes or an improvement in parents' purchasing power.

3. Context: the housing and rental market in Catalonia and housing policies

Catalonia experienced boom years in regard to houses constructed and mortgages contracted from 1998 to 2007 (Raya et al., 2017). Catalonia was affected, similar to the rest of Spain (Urrestarazu-Capellán et al., 2021), by the real estate bubble of the end of the 2000 s, but more severely than other countries, due to its excessive dependence on the real estate market and the softening of mortgage standards. As a result, banks accumulated real estate from foreclosures of family homes and bankruptcies of construction companies, which were estimated to represent 28.8% of the housing stock in 2013 (Torres-Pruñonosa et al., 2022). Real estate prices decreased from 2007 to 2014 in Catalonia as well as in Spain. Although they both have been gradually increasing since 2014, the housing price index, published quarterly by the Spanish National Statistics Institute (Instituto Nacional de Estadística, 2022), shows that real estate prices in 2021 were 3.81% lower in Spain than in 2007, when prices reached their peak, and 2.93% lower in Catalonia. As far as the real estate market is concerned, different authors report that the Catalan market represents the Spanish market well (de La Paz & Gabrielli, 2015; Dol et al. (2016). For instance, Torres-Pruñonosa et al., (2021) identify different factors, including the fact that Catalonia represents approximately 15% of both the housing stock and real estate transactions, how Catalonia exhibits demographic heterogeneity as a representative autonomous community of Spain as a whole and how the evolution of both markets is homogenous.

Given that the housing policy is carried out in Spain at a regional

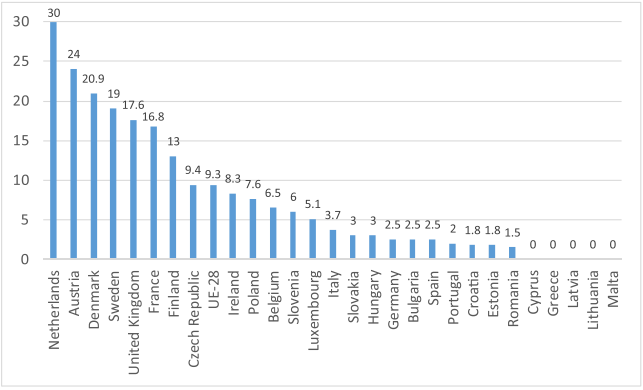


Fig. 2. Social housing in the EU (in percentage)
Source: Eurostat, INE and Housing Europe.

level and that a new housing law that will be in force for all of Spain is currently being drafted, it is convenient to analyse the Catalan rental assistance policy over the last decade given that the findings can be directly extended to other Spanish regions, as well as to other European regions and/or countries with similar characteristics, although more indirectly.

Fig. 1 shows information about the evolution of rent prices in Catalonia, according to the data provided by Incasòl (Institut Català del Sòl, Land Catalan Institute). Increases are observed from 2005 to 2008 (23%), followed by a period of adjustment from 2009 to 2014 (of 17%). When we take into account that the accumulated inflation in Catalonia from 2005 to 2014 was 28%, rent prices decreased more than 22% in terms of purchasing power during this particular period. Finally, a new period of rising prices is observed to have started in 2015, from which prices have increased almost an accumulated 33%, with annual rates that nearly reached 10% (Fig. 1), albeit in marked deceleration (Torres-Pruñonosa et al., 2021). Given that in this period the accumulated inflation was just over 4%, it is here where the rental increase concentrates. The increase is higher than the sum of the rent price decrease in the previous period and the rise in inflation. In short, even though over the last period rent prices have increased significantly over inflation, the fact that in a period of 15 years rent prices have increased 6% over the general rise in prices does not seem to be worrying news. The problem is that during this period, income per capita in Catalonia did not increase in real terms. Growth in real terms has been at 23.11%, whereas the accumulated increase in inflation has been at 33%. This means that income per capita in actual terms has decreased by 10%. Until 2014, this was not a problem because rent prices also decreased in actual terms. Starting in 2015, a problem arose because from 2005 to 2019, the rise in rent prices was 16% over income per capita. In addition, since the distribution of income is not uniform, this problem has more intensively affected lower income families and, in particular, young people. During this period, young people were expelled from the real estate market and were the major segment of the population that bolstered the rental market: young people of 16–29 years of age, followed by those aged 30–44 (Banco de España, 2019). With no savings, youth unemployment at over 50% and precarious employment, access to housing is complicated for young people. Now, even more because of the COVID-19 pandemic, this is more significantly affecting young people and those born outside Spain. In both cases, the initial increase in the Gini index is much greater than that experienced by the general population. The rebound is particularly sharp when public sector aid is not taken into account, but even when it is, the growth in inequality is greater in these collectives (CaixaBank Research, 2020).

In the majority of European countries, this problem would be solved by means of public rental housing. In Spain, only 2.5% of the housing stock is social (Catalonia's percentage is similar). In the EU-18, the average is 9.3%, and in more developed countries, the average percentage is approximately 20% (Fig. 2). In relative terms, figures indicate that the country with the largest social housing stock in relation to its main housing is the Netherlands, which is followed by Austria, Denmark, Sweden and the United Kingdom. France and Finland also stand out for having a high percentage of social housing in relation to their dwellings. The failure in Spain occurred because between 1981 and 2019, only 2.36 million subsidized houses were built. According to data provided by the College of Architects and the Ministry of Public Works, between 1952 and 2016, 6.8 million subsidized houses were built in any of their different modalities. This means that 26.6% of all Spanish housing was built with state aid. Had the public sector kept these dwellings, there would be no social housing shortage, and the rental market could have a regulatory submarket.

Spain also comes last in the EU-28 in terms of expenditures per capita on social housing. The United Kingdom has been the leading EU country, with an expenditure of 439 euros per inhabitant. The United Kingdom is followed by Denmark (311), Ireland (250), Luxembourg (253), Germany (204), Finland (208), Sweden (187) and the Netherlands (155), with the expenditures in this area being the highest in Europe. In the case of Spain, according to these statistics, the average expenditure on social housing was €35.4 per capita per year from 2007 to 2017 (which is again clearly below the average in the EU-28 of €148.2). Catalonia is even below the Spanish average (€33.1). Not only the level but also the evolution have been negative because in Spain, the decrease in this period was 39%. The largest decreases in the European environment can be found in Greece (−81%), Bulgaria (−65%) and Hungary (−43%). In such a context, rental market aid is economically necessary, at least as long as there is no social rental market.

3.1. *Rental assistance policies in Catalonia*

Rental assistance policies fall within the framework of Catalan Government housing policies. In addition to grants for housing renovations,[3] these policies take two forms: the creation of social housing parks and aid for rent payments. Both are intended to facilitate access to housing. With regard to social housing, public housing is offered to collectives without access to the private market. Aid for rent payments supports collectives that, despite being able to access the private market, need to exert considerable effort because rent represents an amount of their incomes that is higher than what is recommended (approximately 40%).

Focusing on policies related to assistance for rent payment, which is the object of this assessment, in all cases, they involve the payment of part of the rental. Basically, they can be classified into three groups:

1. Allowances (or renovations) for collectives older than 65 years (LJ). The aim of LJ allowances is to help the elderly pay their rent. Legal requirements include being above a certain age; having an income higher than the rental fee but also lower than 2.35 times the IRSC, which is a legal indicator of access to social allowances that are periodically updated to remove the effect of inflation; receiving less than 500 euros annually in interest on savings annually; and delivering banking records that prove that all previous rental payments were paid before the application was submitted.
2. Allowances for collectives at risk of being excluded or housing from mediation services (LC). These are allowances to applicants in exceptional situations, such as having been previously evicted or having obtained a dwelling from a public housing agency or nonprofit organization. The aim of the LC programme is to help people at risk of being socially excluded pay the difference between actual and fair rent. The latter is technically calculated by means of

[3] This policy could gain relevance with the Next Generation Funds, since the building sector would contribute by renovating housing stock in terms of sustainability and digitalization.

Table 1
Number of observed episodes.

No. Episodes	Frequency	Percentage	Accumulated
1	167,149	37.89	37.89
2	99,756	22.61	60.5
3	65,276	14.8	75.29
4	42,411	9.61	84.91
5	27,843	6.31	91.22
Over 5	38,753	8.79	100
Total	441,188	100	

different criteria, such as the family income, the number of family members and the number of those who are disabled. Legal requirements to obtain the subsidies did not change during the analysed years and included the following: being a legal resident of Catalonia over the last 5 years, being at risk of social exclusion according to article 72 of the Catalan Housing Right Act (Law 18/2007, of 28 Desember, 2022), having a level of income lower than 1.5 times the IRSC weighted by the number of family members and the area where housing is located, paying a rental price lower than a maximum amount determined per region, paying rent from a bank account, being up to date with rental payments at the time of submitting the application, having no second-degree or lower kinship relationship with the landlord, and receiving less than 500 euros annually in interest on savings, among others.

3. Grants available on a competitive basis for holders of a rental contract (M). The aim of M subsidies is to have rent paid, on a competitive basis, to facilitate access to and permanence in rental housing for sectors of the population at risk of social exclusion. The criteria for granting this aid, until the budget is exhausted, take into account the economic capacity of the applicant, as well as other factors such as age, having been evicted, the number of disabled people in the family, women victims of gender violence, single-parent families with dependent children, large families, and victims of terrorism. Each of these factors receives a score, and the sum of all of scores is the final score, which is the final criterion for granting the aid. Legal requirements, which did not change during the analysed years, are as follows: being a legal resident in Catalonia, having an income high enough to pay the rental price but lower than the established limits, being the housing object of aid for the usual and permanent residence and being officially registered, being up to date with rental payments at the time of submitting the application, and having no second-degree or lower kinship relationship with the landlord, among other factors.

Although the present analysis covers 2011–2019, the aims of the subsidies, the legal requirements to obtain them and the main characteristics of the programmes have not substantially changed.[4] Only minor issues[5] have occasionally changed, and none of them disturbs the analysis because the aid always aims to help people over the age of 65, those who may be socially excluded and those who have difficulty paying their rent.

4. Data

With the anonymous administrative microdata provided by the Catalonia Housing Agency for 2011–2019, a descriptive statistical analysis was developed along with an estimation of some explanatory models to determine key variables for an allowance or subsidy to be granted. Beginning in 2015, in addition to data related to the application (the type of resolution, type of aid, rental price, amount of aid, municipality, year of assistance and applicant's year of birth), data about the socioeconomic profiles of the individuals were obtained (gender, income, the number of members under 18 and older than 65, nationality and whether the applicant reported any kind of disability).

4.1. Descriptive statistical analysis of the entire sample (2011–2019)

The sample includes 441,198 registrations. In the sample, there are applicants with a single registration (37.89%) or two (22.61%), three (14.80%), four (9.61%), five (6.31%) or more than five registrations (8.78%). This allows us to detect certain expertise about the application for aid because this expertise is not only due to the benefits that "extend" (if the conditions are still met) previous aid, but it is also observed among competitive call grants (Table 1).

Fig. 3 shows the distribution of rental subsidies recipients' percentages for the period. The lowest percentages of favourable decisions appear for the 2019 competitive grants (54.90%). For allowance programmes (LJ), percentages of over 90% are common. For competitive programmes, percentages stand at approximately 80% (Fig. 3). The high percentage of individuals who receive the subsidy is attributable to the Catalan government maximizing the number of people who receive the subsidy (if the budget is sufficient, which does not occur with M grants in 2019). Subsidies are competitive (especially for M). Individuals are not rejected because they do not fulfil an administrative requirement. Such individuals were removed from the sample. Descriptive statistics of social and demographical characteristics for granted and not granted individuals are shown in Table A.1. included in Appendix A.

With regard to the data obtained for all aid, the average rental price amounts to €440.53, and the average allowance is €161.24, which means that allowances cover, on average, 43.24% of the rental price (ratio), thus covering over 40% of rent according to international standards (Table 2). In 2019, this percentage fell to 40%. The maximum monthly price of applicants' income is €1,400, whereas the maximum amount allocated is €240. This ceiling of €240 might result in a reduction of the rental's percentage covered by this aid.

Finally, differences per age group were detected (Table 3). After dividing the sample into three age ranges (16–30 years, 31–64 years and over 65), we observe that the percentage of granted allowances increases with age, ranging between 73% and 88%. In terms of ratios, a certain age patterns are also found. As age increases, the granted allowance increases, ranging from 41% to 44%. When only competitive grants are taken into account, these differences disappear.

Appendix A shows additional descriptive statistics. Table A.2. shows annual descriptive statistics on the evolution of key variables: granted and ratio. Whereas the mean of the latter ranges between 0.404442 and 0.490333, the mean of the former ranges between 0.838235 and 0.942206, except for 2013 and 2019, which present lower values. Table A.3. shows descriptive statistics of socioeconomic variables such as age, gender, income, members over 65 and members under 18segmented by type of grant. Table A.4 shows mean values of the percentage of the category for the explanatory variables that are qualitative variables.

4.2. Descriptive statistical analysis of the sample with sociodemographic characteristics (2015–2019)

Data on the applicants' incomes are available from 2015 (as well as data on other variables of their socioeconomic profiles). For 2015, these data only include information related to applicants who have been granted the allowance. For the following years, the data of all applicants are included. Table 4 shows descriptive income information. The

[4] For example, in the case of LC subsidies, in 2018 the regulatory bases of the programme were legally published to reduce the size of the annual call, as over the previous years no changes occurred.

[5] For instance, LC subsidies in 2019 presented the following minor changes from those of 2013 in regard to the maximum actual rental price per area: Tarragona province was split into two different areas (namely, Tarragona and Terres de l'Ebre) and the maximum rental price in Girona province increased from €450 to €500.

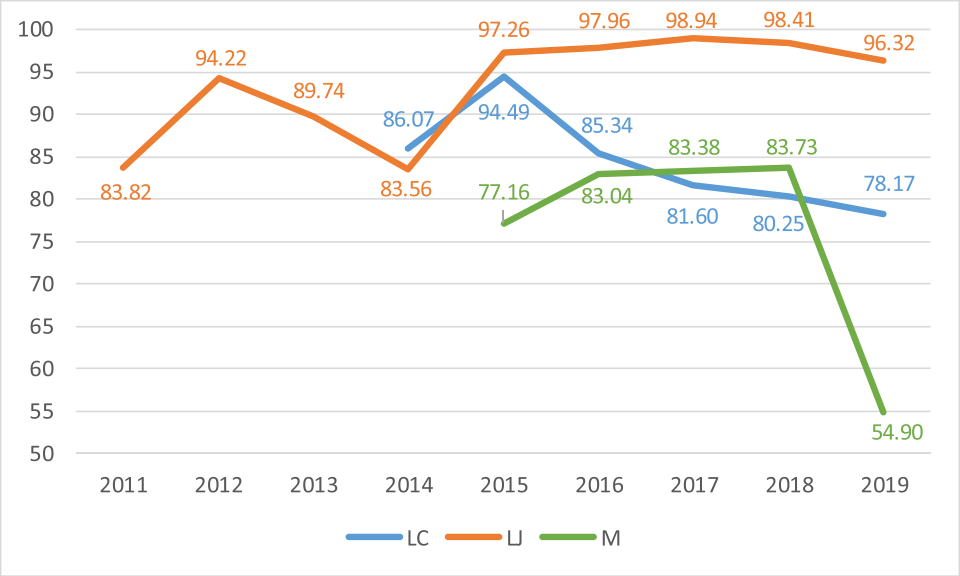


Fig. 3. Distribution of rental subsidies recipients' percentages for the study period.

Table 2
Descriptive statistical analysis of the allowance granted, rent price and ratio.

	Average	Standard deviation
Monthly allowance (in euros)	161.24	58.95
Rent price (in euros)	440.53	164.85
Ratio	0.4324	0.1181

Table 3
Distribution of allowances per age (percentage). Total sample and M.

Age groups	Granted (Total sample)	Ratio (Total sample)
Under 35	73.27	41.19
Between 35 and 65	77.24	43.49
Over 65	87.9	44.74

Table 4
Applicant income statistics. 2015–2019.

	Granted	Ratio
Average Income	€10,349	
Income:		
Below €4,800	0.729	0.516
€4,800–€11,400	0.952	0.428
€11,400–€16,000	0.850	0.370
Over €16,000	0.582	0.379

average annual income level for the period is €10,349. The table also shows a descriptive statistical analysis of the recipients and the ratio of the monthly allowance in relation to the rental price for four income groups: €0–€4,800,[6] €4,801–€11,400,[7] €11,401–€16,000[8] and over €16,000.

Table 5 shows the average percentage of granted allowances as well as the ratio of the monthly allowance in relation to the rental price, according to the applicants' different characteristics. A slightly higher percentage of women receive allowances (80.8% versus 80.2% in the case of men), but the proportion of the allowance to rentals is also 1.1% lower. In regard to nationalities, non-EU citizens with legal residence obtain a higher percentage of the granted allowances (82%), at almost 3% over Spanish national and non-EU citizens without legal and permanent residence and 5 points over applicants from EU member countries. In terms of the percentage covered by the rent allowance, non-EU citizens with legal and permanent residence are also those to whom the allowance covers a higher rental price percentage (43%), at 1% over that of Spanish citizens and more than 2% over that of other nationalities. Households with family members with disabilities or over 65 or under 18 years old receive more allowances and at an amount that covers a larger proportion of their rental costs. Both aspects become more pronounced with the number of disabled members, and the maximum is reached when a family member over 65 years of age lives in a household with 4 members younger than 18.

Finally, the last column of Table 5 shows information about the average effort that rental payment represents in relation to income, both before and after having been granted housing allowances. The average effort is estimated as the ratio between the yearly rent price (before and after having received the allowance) and household income. The average effort after having received the allowance decreases by 26% (from 59% to 33%). The percentage of families for whom rent represents more than 40% of their income has decreased by almost 35% (from 65% to 30%). It is therefore evident that housing allowances have improved access to housing services in the case of these families. Table 5 includes a descriptive statistical analysis of the basis of the average effort required once an allowance is granted. More effort is found in the case of women (5 points in comparison to men), citizens born outside the European Union but within the economic European area (4 points in comparison to Spanish citizens) and people in households without members under 18 years of age (at least 3 points in comparison to households with two or more members under 18 years of age). No significant differences were observed in other areas. In terms of age, slightly greater effort is observed among those younger than 35 (1 point) due to a smaller reduction in effort in comparison particularly to those over 65 years old (5 points).

[6] The value represents approximately 0.6 *IRSC for 2020. Law 13/2006 of July 27th on social allowances of a financial nature stipulated that the Catalan Indicator of Income Sufficiency (IRSC) must be periodically established by the Catalan Government Budget Law. In 2020, the Budget Law of the Catalan Government established an indicator of income sufficiency of €569.12 per month and €7967.73 per year.

[7] This is the 2020 minimum wage.

[8] The value represents approximately 2 *IRSC of 2020.

Table 5
Descriptive statistical analysis of applicant profile characteristics for 2015–2019.

	Granted	Ratio	Effort
Woman	0.8082	0.4157	35.93%
Man	0.8022	0.4275	30.96%
Nationality:			
Spanish	0.7978	0.4151	34.87%
European Union Member Country	0.7762	0.4074	34.08%
Non-EU with legal and permanent residence	0.8236	0.4280	31.93%
Without legal and permanent residence	0.7927	0.4019	36.51%
Another country from the European Economic Area	0.6792	0.4203	38.40%
Disability:			
0	0.7747	0.4167	33.74%
1	0.8132	0.4185	33.21%
2	0.8184	0.4254	30.86%
3	0.8261	0.4442	31.11%
4	0.8974	0.4852	28.91%
5	0.8484	0.4754	30.49%
6	0.8571	0.5240	
7	1.0000	0.5193	
Members over 65 years old:			
0	0.7991	0.4196	33.51%
1	0.8498	0.4406	33.71%
2	0.8243	0.4054	30.77%
Members under 18 years old:			
0	0.7801	0.4209	35.29%
1	0.804	0.4123	34.89%
2	0.8163	0.4224	32.31%
3	0.8538	0.4329	29.11%
4	0.8547	0.4405	28.11%
5	0.8391	0.4493	27.75%
Whole sample:			
Before the subsidies			58.70%
After the subsidies			33.40%

Table 6
Explanatory Models of an allowance having been granted. Entire sample and M.

	Sample 2011–2019		Sample 2015–2019	
	Total Coef.	M Coef.	Total Coef.	M Coef.
Age	0.001 ***	0.0003 ***	0.0002 ***	-0.0002
Rental (€100)	-0.007 ***	-0.020 ***	0.029 ***	0.001
Expertise	0.028 ***	0.043 ***	0.017 ***	0.017 ***
Income (€100)			-0.001 ***	-0.001 ***
Year (ref: 2011 or 2015)				
2012	0.091 ***			
2013	-0.112 ***			
2014	-0.075 ***			
2015	0.215 ***			
2016	0.249 ***	0.059 ***	0.000	-0.135 ***
2017	0.136 ***	0.000	0.094 ***	0.000
2018	0.140 ***	0.010 ***	0.003	-0.120 ***
2019	-0.096 ***	-0.264 ***	-0.261 ***	-0.433 ***
Type of grant (ref: LC)				
LJ	0.225 ***		0.119 ***	–
M	-0.028 ***		0.092 ***	–
Gender (woman)			0.013 ***	0.015 ***
Members > 65			0.024 ***	0.041 ***
Members < 18			0.025 ***	0.028 ***
Disabilities			0.016 ***	0.018 ***
Nationality (ref: Spanish)				
EU Citizen			-0.003	-0.002
Non-EU Citizen			0.001	0.004 *
Without residence			-0.029	-0.025
Others euro			-0.058	-0.075
Intercept	0.061	0.273	0.304	0.554
Municipal Control	YES		YES	
Pseudo R^2	0.16	0.13	0.17	0.24

5. Results

The above descriptive evidence does not take into account correlations among the explanatory variables. That is, it is impossible for the observed age effect to indicate that older people are paying lower rent or are more experienced in requesting aid. For the whole sample, we estimate two types of models according to whether the dependent variable is the reason for a favourable decision or, for those who have already achieved one, an explanatory model of the percentage represented by the allowance amount in relation to the monthly rent price. In both cases, we estimate the models for two different samples[9]: the entire sample and competitive grants (M). Finally, the same models are used for the 2015–2019 sample, to which variables related to the individual's sociodemographic profile are incorporated.

The explanatory models for obtaining a favourable decision are estimated by means of a linear probability model.[10] For models of the entire sample (Table 6), it is observed that any additional year has a positive effect on achieving a favourable outcome (0.1%)[11], even for the models of the competitive grant sample (0.03%). The effect of the rent price is also significant. For each rental price of €100, the probability of achieving a favourable decision decreases between 0.002% and 0.07%. The applicant's expertise, assessed as the number of times they have taken part in previous calls, fluctuates between 0.03% and 0.04% points. Both the effects of rent and expertise are stronger for competitive grants. With regard to the type of assistance, M has a lower probability of success than LC aid (reference category).

Once the variables of the socioeconomic profile are incorporated,[12] with respect to the allowances having been granted, we observe that a higher income (negatively) and more expertise (positively) statistically affect grant approval. The two most interesting aspects with regard to the entire sample estimation are that age, despite being a significant aspect shaping the probability of obtaining a grant, being controlled by income is not statistically significant in the case of M grants. Additionally, rent's sign has changed, and now (except for M grants, for which it is not a determining factor) it positively affects the probability of receiving an allowance. Consequently, it seems that in previous estimations, the rent price captured a large part of the income effect. The rest of the variables related to the applicants' profiles are considered to be statistically significant. Women as well as households with many

[9] Nonetheless, Table B.1 in Appendix B shows the estimations for noncompetitive assistance, with the differences shown to be small and of the same levels of significance as those of the whole sample.

[10] Linear probability, logit, and probit models were used to estimate dichotomous choice models. The linear probability model has well-known disadvantages, including the following: a normal distribution of the error term, heterokedascity and, especially, predicted probabilities outside the 0–1 interval. However, there are some advantages of linear probability models. First, they allow a direct interpretation of a parameter. Additionally, some parameters of interest can be estimated in the linear probability model, but not in either logit or probit models. If the model contains a dummy variable for membership in some groups and every member of a group has the same value for the dependent variable, the coefficient of the group dummy variable cannot be estimated in logit or probit models, but it can be estimated in a linear probability model (Caudill, 1988). This applies in our case, because we have so many dummy variables (we control for more than 800 municipalities), and in some cases the value of the dependent variable within the group is the same.

[11] Although the effect is small (0.001 of the probability of having being granted an allowance, or an increase of 0.1%), it is highly significant, because the standard deviation of the parameter is 0.00004.

[12] Keeping nonsignificant variables could generate higher values of explained variance and an increasing R-squared. However, this is not the case with the adjusted R-squared. In our case, only one variable of Table 6 is nonsignificant in all equations (and only two others are nonsignificant in some equations): nationality. Removing this variable from the model only changes R-squared in the fourth decimal; that is, R-squared remains almost the same. Coefficients also kept constant (see Table C.1. in Appendix C).

Table 7
Explanatory Models of the ratio of the granted allowance amount versus the total rent amount. Entire sample, M and others.

	Sample 2011–2019		Sample 2015–2019	
	Total Coef.	M Coef.	Total Coef.	M Coef.
Age	0.0004 ***	0.0004 ***	0.000 ***	0.0001 ***
Episode	0.0004 ***	0.002 ***	-0.0002 ***	0.001 ***
Income (100€)			-0.000 ***	-0.00005 ***
Year (ref: 2011 or 2015)				
2012	0.016 ***			
2013	0.051 ***			
2014	0.034 ***			
2015	0.043 ***			
2016	0.041 ***	-0.001 * *	0.000	0.000
2017	0.073 ***		0.021 ***	0.013 ***
2018	0.068 ***	-0.003 ***	0.019 ***	0.010 ***
2019	0.058 ***	-0.014 **	0.009 ***	0.000
Type (ref: LC)				
LJ	0.041 ***		0.051 ***	
M	-0.060 ***			
Gender (Woman)			-0.006 ***	-0.001 ***
Members> 65			-0.005 ***	0.001 ***
Members< 18			0.003 ***	-0.0002 ***
Disabilities			-0.001 ***	0.007 ***
Nationality (ref: Spanish)				
EU Citizen			-0.003 **	0.000
Non-EU Citizen			0.005 ***	0.003 ***
Without residence			0.010 *	0.005 ***
Other European			-0.012	-0.017 ***
Intercept	0.026 *	-0.038	0.480	0.372
Municipal Control	YES		YES	
R^2	0.26	0.19	0.35	0.26

Table 8
Explanatory Models of the Points. Total and interval. 2019.

	Total Coef.	Interval 28.1–28.7 Coef.
Age	0.021 ***	0.012
Rent (€100)	2.60 ***	0.4 **
Expertise	0.258 ***	-0.011
Income (€100)	-0.003 ***	0.000
Gender (Woman)	-0.035	-0.099
Members > 65	3.367 ***	-0.487
Members < 18	4.854 ***	-0.380 *
Disabled	1.462 ***	0.356
Nationality (ref: Spanish)		
EU Citizen	0.899 ***	-0.876
Non-EU Citizen	1.229 ***	0.315
Without residence	0.704	0.871
Other European	0.906	0.000
Intercept	42.991 ***	37.275
Municipal Control	YES	
R^2	0.77	0.08

members over 65 and with more disabled members have greater chances of obtaining a grant. The same is observed for non-EU citizens, albeit less significantly.

With respect to models in which the dependent variable is the ratio, effort ratio or points, are all estimated by linear regression models. In all cases, the dependent variable is continuous, and the dependent variables are not censored or truncated. To some extent, as we add dummy variables for year dummies, these models can also be considered pseudo-panel models.

Finally, in all cases, we have the same specification

$$Y_{it} = \alpha + \beta_j X_{it} + \delta_t Time_t + \gamma_l Type_{it} + v_m Municipalities_{it} + \varepsilon_{it}$$

where Y_{it} is the outcome (been granted, the ratio, the effort ratio or points), X_{it} denotes sociodemographic characteristics (age, gender, income, nationality, etc.), Type is the type of subsidy and Time and

Table 9
Explanatory models of the effort ratio. Entire sample and M. 2015–2019.

	Total Coef.	M Coef.
Age	-0.001 ***	-0.001 ***
Expertise	0.0003 *	-0.003 ***
Rent (€100)	-0.002 ***	-0.003 ***
Year (ref:2015)		
2016	0.000	-0.031 ***
2017	-0.002	-0.013 ***
2018	0.011 ***	0.003 ***
2019	0.007 **	0.000
Type of grant (ref:LC)		
LJ	0.029 ***	–
M	0.104 ***	–
Gender (Woman)	0.006 ***	0.003 ***
Members> 65	0.001	-0.004 ***
Members< 18	-0.0005 *	0.003 ***
Disabled	-0.004 ***	-0.006 ***
Nationality (ref:Spanish)		
EU Citizen	0.012 ***	0.008 ***
Non-EU Citizen	-0.020 ***	-0.020 ***
Without residence	-0.018 **	-0.017 **
Other European	0.013	0.030
Intercept	0.520 ***	0.652
Municipal Control	YES	
R^2	0.58	0.69

Table 10
Explanatory models for the annual rent growth rate. Entire sample and M.

	Total Coef.	M Coef.
Granted	1.146 ***	1.047 ***
Intercept	98.85 ***	98.95 ***
Municipal Control		
R^2	0.10	0.12

Municipalities are controls (fixed effects). ε_{it} follows the usual assumptions, and **β**, **γ**, **δ**, **α** and θ are the parameters.

The explanatory models of the allowance's percentage in relation to the rent price that are calculated are shown in Table 7. All the models show that every additional year has a positive effect on the allowance's percentage in relation to the rent price (0.04%), even for models with competitive grants. The applicant's expertise assessed as the number of times participating in former calls has a positive effect for M grants and a negative effect for the others. With regard to the type of allowance, in general terms, and in accordance with the descriptive evidence, M competitive grants have a lower percentage in the ratio under study in Table 7 (allowance's percentage in relation to the rental price), always in relation to LC allowances (category of reference). LJ shows a percentage (allowance in relation to the rental price) clearly superior to that of the LC grants.

When we introduce variables related to the individuals' socioeconomic profile (sample 2015–2019), we find that the effect of expertise (which only shows a positive effect for M grants) changes in relation to the previous models. Nonetheless, both income and age behave according to what we had observed. Income reduces an applicant's allowance-rent ratio, whereas older age increases this ratio. In regard to profile variables, significant differences are found in relation to when the dependent variable is applied, and whether an allowance has been granted or not. In this sense, being a woman, the number of members over 65 years of age (which maintains a positive sign only for M grants) and the number of disabled members reduce the allowance-rent ratio. While the number of members under 18 years of age has a positive effect on the entire sample, it has a slightly negative effect on M grants. It seems, therefore, that these characteristics have a positive effect on chances of receiving the allowance but a negative effect on the amount of aid in relation to rent paid. Finally, not only being a non-EU citizen but also not having legal residence have a positive effect on the

allowance-rent ratio for the sample covering all aid and M grants. However, the rest of the European applicants (from outside the EU) show a relatively lower allowance-rent ratio.

Last, Table 8 shows points assigned by the housing agency to each application requesting competitive grants in 2019. The procedure, in this latter case, consists of a two-stage estimation. In the first stage, all points are modelled using municipalities[13] as explanatory variables. The objective is to standardize points per municipality and increase the second-stage freedom degrees (given that in this stage, they are not controlled by municipality). With the predictions obtained in the first stage, a model of points related to the profile variables, rent price and episodes is estimated (only for 2019). The purpose of Table 8 is to show the decisive factors of the obtained points and the key variable for the assignment of allowances, for which there is only information for 2019. For this year, we know the determinants of adding one point as a candidate to obtain the allowance and therefore determine the decisive factors of the continuous variable. This allows us to identify key variables in the most decisive interval in regard to granting the allowance. The decisive variables refer to applicants whose points are in the boundary of obtaining the allowance or not. When the available information only identifies whether the allowance has been granted, we cannot obtain this knowledge. Once again, the effects obtained after having deducted the effects of the other variables incorporated into the model are net effects.

In 2019, the cut-off point was 28.399, and points fluctuated between 0 and 68.39. In the decisive interval, the only variables that were statistically decisive were the amount of rent (positive sign) and having members under the age of 18 (negative sign). In boundary cases, these are the only variables that influence receiving the allowance. For the entire sample, we again find, as for the model in which the dependent variable is whether the allowance is granted or not, more points are given to older individuals, those with lower incomes and who are more disabled, and those over 65 and under 18 years of age. In comparison to Spanish citizens, both EU and non-EU citizens have more points. It is interesting that being a woman does not affect the obtained points.

Finally, Table 9 shows the factors that determine the effort made once the allowance has been granted. The purpose here is to determine whom the granted allowance helps more, and namely, what determines the effort dedicated to rent in relation to an individual's income. Again, we estimate models for the entire sample and competitive grants (M). The signs and significances go in the usual direction. Less effort is required from older individuals and those with higher incomes. With regard to expertise, the effect depends on the type of allowance. More expertise reduces effort once an M grant has been granted. Being a woman increases the required effort, and the number of disabled individuals living with an applicant that has been granted the allowance reduces it. Compared to Spanish citizens, EU citizens make more effort, whereas being a non-EU citizen and not having a residence reduce the effort made. Last, the number of members younger than 18 years or older than 65 years depends on the type of grant. In the case of M grants, a larger number of members over 65 years of age reduces the required effort. The effect of the number of members younger than 18 years on effort is the opposite depending on the type of grant.

As we have seen, the economic literature focuses mainly on the impact of housing allowances: whether allowances truly improve access to housing or whether landlords, aware of the allowances, raise prices and capture all allowances or part of them. In this report, this question is partly addressed because fully addressing it would require knowing the prices given in tenancy agreements before obtaining allowances to assess whether prices have increased or not. Since these data are not available, a first approach on the basis of individuals who have obtained housing allowances in different years can be carried out. The descriptive evidence shows an annual growth rate of 1.01% (which means a growth rate of over 3% for those renewing the agreement for 3 years). Recall that these data refer to a specific type of rent (low-price segment), and the studied period includes two well differentiated periods: 2011–2015 (crisis) and 2016–2019 (growth). Additionally, all applicants could benefit from this growth. On the one hand, descriptive evidence shows that among those who did not receive allowances, rent prices decreased by 0.166%, showing evidence of impact (it should be monitored according to dwelling characteristics) that it is relatively limited. Approximately €5 (1.18%) of the average allowance (€161) goes to a higher rental price. On the other hand, for individuals with more than one episode who received allowances, the annual rent growth rate was 1.014%.

As stated above, it is not possible to use a hedonic pricing model that would allow for controlling whether this incidence is due, to a certain extent, to the fact that the dwellings of those to whom allowances are granted are better (with better characteristics). Having said this, from municipality locations, we can control and limit the sample to those who have renewed contracts with the same Land Registry title number.[14] Table 10 shows a model for this rent growth rate depending on having been granted an allowance in the previous period or not, monitored by municipality. When monitoring by municipality, the incidence remains the same (1.14%), and if the incidence is estimated on the basis of M grants, it is slightly lower (1.05%).

6. Conclusions

The economic situation in Catalonia shows that rent prices over the last 5 years have increased beyond inflation. From a period of adjustment, the rent increase of the last 15 years, per se, is not a cause for concern. However, it is when we add to it per capita income, which, in real terms, has decreased over 10%, and an income redistribution that is detrimental to lower incomes, in particular for young people, who are excluded from the housing market and are without savings and in a precarious labour market. When we consider an almost nonexistent social housing market and public spending on housing below European standards, the problem of access to housing is obvious. In this context, rent allowances are needed, at least when there is no policy to promote social housing and housing stock for this purpose according to European standards.

The probability of obtaining an allowance increases with age; rent prices; expertise; being a woman; non-EU citizen status; and the number of household members older than 65, younger than 18 or disabled. It decreases with income. Recall that the effects are net values. Therefore, a question that arises is whether it makes sense, for instance, that aspects such as being a woman, the household typology, nationality, paying more rent (which does not have an effect in the case of M) or being an elderly person have advantages for the same rent price and income. In some cases, the answer is yes because there are unobservable aspects that we want to "reward" (gender-based violence, collateral costs, etc.). In other cases, the answer is no. Furthermore, for those with a number of points near the cut-off level, the only statistically determining variables are the amount of rent (positively) and the number of members under 18 years old (negatively). We must consider whether it makes sense that these two factors are so decisive relative to other variables.

A similar consideration can be made with regard to the allowance in relation to the rent price or the effort made to pay for housing after

[13] Of the 139 municipalities with more than 500 observations, Tables A.5 and A.6 in Appendix A show the 10 municipalities with the highest and lowest probabilities of being granted. Values range from 0.59 (Palamós) to 0.90 (Sant Just Desvern), which is not a large difference. The vast majority of municipalities present values of 0.70–0.82

[14] Consequently, this estimation might be similar for a sample of "repeated sales" typically used in housing economic literature (Schiller, 1991) to obtain a price index controlled by dwelling quality (since this is the same, with the exception of "wear and tear", between contracts/sales).

having received an allowance. For groups that are more likely to be granted assistance, the amount of allowance obtained represents a less of the rental price. Accordingly, either these groups pay a higher rental price or receive lower allowances. This does not matter if more effort in relation to their income is not needed, but in the opposite case, it does. For instance, households with more members over 65 or under 18 of age do not need to make extra efforts (in the latter case, it is the opposite). However, this happens for women, for whom the amount of rental aid seems to be insufficient, since they need to make more efforts than men in relation to their income once assistance has been granted.

With respect to this effort and linking it to the greater chances of obtaining assistance, it should be necessary to monitor whether, in addition to increasing the chances of obtaining assistance, once it has been granted, the group needs to dedicate more effort than other groups. This is what happens for non-EU citizens and those who are older. It is necessary to determine whether these effects are caused by any variable that we have not detected.

Rent subsidies improve access to housing, decreasing the proportion of households that allocate over 40% of their income to pay for housing by 35 points. In fact, this access ratio decreases 26 points on average after obtaining assistance. After obtaining a grant, those who make greater efforts are women, young people, households with lower incomes, households without disabled members and European citizens from non-EU countries. The number of members under 18 or over 64 years of age depends on the aid's typology.

The literature also shows concern about the proportion of rental assistance that does not benefit the recipients of allowances but becomes revenue captured by landlords. In many cases, rent subsidies result in a rent price increase and revenue capture by landlords. It has not been possible to confirm this hypothesis with data obtained by the housing agency because they are not linked to their respective Incasòl contracts. That said, for individuals who have obtained more than one form of aid, from whom we can learn about rental evolution, revenue capture by landlords has been detected, which is statistically significant but limited (approximately 1% annual of rental values and 3% of the allowance amount). These results contrast with Eerola and Lyytikäinen (2021), which show no significant effects in the case of Finland, but they confirm findings from the United Kingdom (Gibbons & Manning, 2006) and France (Fack, 2006). Therefore, this first approximation indicates that the benefit of rental aid in Catalonia is superior to that found in the literature, which is approximately 80% (Olsen, 2003; Susin, 2002; Venti & Wise, 1984), in comparison to the value of 97% in the Catalan case.

The current design of housing allowances benefits older people in terms of coverage. For our whole sample, this is normal because people over 65 years old are the target population. However, this effect is also maintained in the competitive grants sample. In particular, a 25-year-old person, in comparison to a 65-year-old person, has a 4-point lower probability of obtaining a favourable decision for all forms of aid and a 1.2-point lower probability of achieving this in the case of M grants. The effect of the rent price (negative effect) and the applicant's expertise (positive effect), assessed as the number of times the applicant has participated in calls, is also significant. Both the rent price and the expertise effect are greater in the case of competitive grants. In regard to age, there is the possibility of creating a specific assistance programme to promote the independence of young adults, particularly those with financial difficulties who are disposed towards independence. As we show, young people are those with less granted aid (and a lower allowance-rent ratio and higher rent (after allowance)-income ratio). Data about independence in the Catalan young population show that only 23.8% of people of 16–29 years of age are able to become independent, according to the Consell de Treball, Econòmic i Social de Catalunya (Labour, Economic and Social Council of Catalonia). Delay in age remains a characteristic feature. With regard to the delay in the age of emancipation, Eurostat estimates that the average age in Bulgaria and Spain is 29.4 years (EU-SILC). These are among the highest ages in European countries, surpassed by those of Croatia (31.5 years), Slovakia (31) and Italy (30.1). In the EU-28, the average age is 26.1 years, although in Nordic countries, such as Sweden and Denmark, it drops significantly to 20.7 years and 21.9 years, respectively. Housing is not the only aspect that contributes to the delay in the age of becoming independent (youth unemployment and job insecurity also have an effect), but it is a decisive factor.

The implications of this paper are especially important given that a new Spanish housing law is currently being drafted. The new legislation can design better social housing policies to facilitate access to housing based on the experience of the Catalan rental allowance programmes. For instance, according to the results obtained, elderly people benefit more than young people from Catalan social housing aid. This situation should be corrected by the new law that will be in force in all Spanish regions. This issue is in line with a new national subsidy financed by means of national Spanish funds, although managed regionally, to benefit young people (Royal Decree, 42/2022, of 18 January, 2022). According to this paper and previous literature (Thomschke, 2016; Mense et al., 2017; Diamond, McQuade, & Qian, 2019; Raya, 2021; Breidenbach, Eilers, & Fries, 2022), this kind of subsidy works better than limiting rental prices. The latter occurred in Catalonia from September 2020 to April 2022, when the Constitutional Court annulled it on the grounds that it infringed on state powers (Sentence of the Constitutional Court 37/2022, of 10 March, 2022). Nonetheless, limiting prices in Spain is still an object of debate among legislators and could be included in the new Spanish housing law.

As far as limitations of this paper are concerned, we recognise that the administrative data used are not perfect, although their quality improved over the years analysed. For example, it is noteworthy that the exercises carried out in this paper for 2015–2019 differ from those used for the whole sample because from 2015 onward, variables related to the characteristics of individuals were included in the dataset. Similarly, while the dataset only includes points for the last years analysed, including all points—instead of the dichotomy variable showing whether the grant was received or not—is preferred, since this quantitative variable would allow for a much more precise analysis. Future research should evaluate allowance programmes over a longer period with better data, particularly for both individual characteristics and points obtained. Likewise, as another limitation of our dataset, information on rent paid was not available, although this information is available from a different department of the Catalan regional government. Future research using this information could improve on our incidence analysis, allowing us to evaluate in a more precise way whether a landlord has increased the rent price, capturing part of the grant.

Finally, the population of our study includes individuals who can access the studied subsidy. Evidently, this is not a random sample of the total population, but our aim is to determine how the subsidy works among these individuals. Within this group, there is no evident bias because everyone can access the subsidy (if we do not consider information bias and the capability to lead with administration requirements bias). However, especially in regard to competitive grants (M), the estimated models are useful in determining what type of individual is more likely to be granted and how their situation has changed.

7. Lessons learned

We recommend continuing the economic assessment of aid, first because of the principles of assessment, as assessment must be an inherent and ongoing activity of economic policy. Second, administrations need to make a great effort to the administrative data presented in this report. As we show, the data improve considerably in recent years (in particular, for two variables essential for assessment: income and points obtained by applicants). Such effort to collect data should not be lost, as it will make it possible to compile nearly complete administrative data for the next assessment. Additionally, we recommend linking data about housing allowances to contracts' microdata, since by analysing the 2011–2019 period with both data sources, a more robust estimation of the effect of rent allowances is possible. Administrations should guarantee that all target groups—those in need—have the same probabilities of obtaining rental assistance and of receiving the same amount. Therefore, a crucial question concerns planning ex ante the generation of information needed to allow an ex post assessment of changes or reforms, the implementation of which is being considered. In this regard, literature also recommends a review of the economic state of granted allowances. One way to do it is by annual application.

CRediT authorship contribution statement

All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

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Appendix A. Descriptive statistics

See Appendix Tables A1–A6.

Table A1
Descriptive statistics segmented by granted and not granted groups.

Variable	Group	Observations	Mean	Std. Dev.	Min.	Max.
Age	Granted	337,159	46.751850	14.679990	18	119
	Not granted	97,405	43.309570	12.508740	17	116
Rent price (in euros)	Granted	337,159	405.133800	124.072800	1	1,348.81
	Not granted	97,405	422.503400	132.056200	0	1,265.00
Episodes	Granted	337,159	2.748940	1.883882	1	11
	Not granted	97,405	2.074134	1.577159	1	11
Income	Granted	261,712	9,706.269000	4,669.097000	0	45,715.49
	Not granted	51,762	13,817.340000	9,325.449000	0	115,221.80
Gender (woman)	Granted	261,189	0.505056	0.499975	0	1
	Not granted	64,067	0.494919	0.499978	0	1
Members over 65 years old	Granted	261,748	0.151268	0.411697	0	3
	Not granted	64,342	0.115508	0.372330	0	4
Members under 18 years old	Granted	261,748	1.214806	1.230678	0	12
	Not granted	64,342	1.030431	1.160945	0	10
Disability	Granted	227,474	0.138842	0.407450	0	7
	Not granted	64,342	0.110643	0.362168	0	6

Table A2
Annual descriptive statistics.

Year	Variable	Observations	Mean	Std. Dev.	Min.	Max.
2011	Ratio	20,800	0.448587	0.156951	0.004440	1
	Granted	24,820	0.838235	0.368242	0	1
2012	Ratio	17,817	0.465411	0.157802	0.035088	1
	Granted	18,912	0.942206	0.233360	0	1
2013	Ratio	18,809	0.490333	0.155335	0.033333	1
	Granted	37,607	0.500146	0.500007	0	1
2014	Ratio	17,969	0.481246	0.155946	0.037944	1
	Granted	20,640	0.870591	0.335660	0	1
2015	Ratio	38,259	0.448436	0.124339	0	1
	Granted	45,491	0.841068	0.365617	0	1
2016	Ratio	50,322	0.429303	0.104422	0	1
	Granted	58,324	0.862801	0.344060	0	1
2017	Ratio	59,791	0.422160	0.097210	0	1
	Granted	70,242	0.854047	0.353061	0	1
2018	Ratio	65,129	0.413088	0.089649	0	1
	Granted	76,890	0.848953	0.358097	0	1
2019	Ratio	51,870	0.404442	0.095137	0	1
	Granted	86,466	0.600259	0.489848	0	1

Table A3
Descriptive statistics segmented by type of grant.

Variable	Grant Type	Observations	Mean	Std. Dev.	Min.	Max.
Age	LC	7,704	45.123310	12.235070	19	94
	LJ	174,512	49.630770	15.452230	17	106
	M	253,738	43.528780	12.974010	18	119
Rent price (in euros)	LC	7,704	364.207000	124.728900	0	903.96
	LJ	174,512	413.618900	132.280700	0	1,348.81
	M	253,738	407.498200	121.600200	0	1,250.00
Episodes	LC	7,704	1.964174	1.217282	1	9
	LJ	174,512	3.104640	2.129533	1	11
	M	253,738	2.269672	1.539538	1	11
Income	LC	7,617	9,198.204	5,476.334	0	61,731.48
	LJ	70,918	8,536.291	4,282.676	0	94,335.65
	M	235,725	10,978.280	6,209.790	0	115,221.80
Gender (woman)	LC	7,693	0.535162	0.498795	0	1
	LJ	70,763	0.469200	0.499054	0	1
	M	247,615	0.512089	0.499855	0	1
Members over 65 years old	LC	7,703	0.102168	0.343087	0	2
	LJ	71,083	0.238102	0.489402	0	3
	M	248,122	0.119022	0.374575	0	4
Members under 18 years old	LC	7,703	1.116967	1.186329	0	8
	LJ	71,083	1.328489	1.336315	0	8
	M	248,122	1.136143	1.181255	0	12
Disability	LC	7,703	0.141893	0.419889	0	5
	LJ	55,718	0.181216	0.504467	0	7
	M	229,176	0.120610	0.365928	0	7

Table A4
Descriptive statistics of qualitative variables.

Variable	Values	Observations	Mean	Std. Dev.	Min.	Max.
Year	2011	435,954	0.057277	0.232371	0	1
	2012	435,954	0.043778	0.204600	0	1
	2013	435,954	0.086548	0.281172	0	1
	2014	435,954	0.047507	0.212722	0	1
	2015	435,954	0.093682	0.291386	0	1
	2016	435,954	0.133909	0.340555	0	1
	2017	435,954	0.161474	0.367968	0	1
	2018	435,954	0.176945	0.381623	0	1
	2019	435,954	0.198881	0.399159	0	1
Type of Grant	LC	435,954	0.017672	0.131755	0	1
	LJ	435,954	0.400299	0.489960	0	1
	M	435,954	0.582029	0.493226	0	1
Gender	Woman	326,071	0.503326	0.499990	0	1
Nationality	Spanish	321,328	0.519998	0.499601	0	1
	European Union Member Country	321,328	0.040551	0.197247	0	1
	Non-EU with legal and permanent residence	321,328	0.438088	0.496153	0	1
	Without legal and permanent residence	321,328	0.001198	0.034594	0	1
	Another country from the European Economic Area	321,328	0.000165	0.012842	0	1

Table A5
Ten municipalities with the highest probability of being granted.

Municipality	Mean (Granted)
Sant Just Desvern	0.905689
Premià de Dalt	0.874510
Vilassar de Mar	0.859615
Llagostera	0.858225
Manresa	0.855861
Valls	0.854563
Tarragona	0.854311
Tremp	0.852090
Torredembarra	0.851021
Sant Celoni	0.847679

Table A6
Ten municipalities with the lowest probability of being granted.

Municipality	Mean (Granted)
Palamós	0.591750
Granollers	0.595800
Sant Andreu de la Barca	0.652174
Calonge i Sant Antoni	0.664452
Llagosta, la	0.666307
Santa Margarida i els Monjos	0.677365
Franqueses del Vallès, les	0.681452
Cardedeu	0.681868
Alcarràs	0.682566
Castell-Platja d'Aro	0.682635

Appendix B. : Explanatory models. Other than M

See Appendix Table B1.

Table B1
Explanatory models of an allowance having been granted and of the ratio of the granted allowance's amount versus the total rent amount. Other than M.

	Granted Coef.	Ratio Coef.
Age	0.001 ***	0.0005 ***
Rental (€100)	-0.002 ***	
Expertise	0.019 ***	
Episode		-0.0001 ***
Year (ref: 2011)		
2012	0.092 ***	0.016 ***
2013	-0.113 ***	0.050 ***
2014	-0.072 ***	0.037 ***
2015	0.245 ***	0.049 ***
2016	0.233 ***	0.044 ***
2017	0.083 ***	0.082 ***
2018	0.063 ***	0.074 ***
2019	0.048 ***	0.059 ***
Type of grant (ref: LC)		
LC	0.341 ***	0.065 ***
LJ	0.314 ***	0.049 ***
M		
Intercept	0.096	0.535
Municipal Control	YES	YES
R^2	0.26	0.14

Appendix C

See Appendix Table C1.

Table C1
Explanatory Models (without nationality) of an allowance having been granted. Entire sample and M.

	Sample 2011–2019		Sample 2015–2019	
	Total Coef.	M Coef.	Total Coef.	M Coef.
Age	0.001 ***	0.0003 ***	0.0002 ***	-0.0002
Rental (€100)	-0.007 ***	-0.020 ***	0.029 ***	0.001
Expertise	0.028 ***	0.043 ***	0.017 ***	0.017 ***
Income (€100)			-0.001 ***	-0.001 ***
Year (ref: 2011 or 2015)				
2012	0.091 ***			
2013	-0.112 ***			
2014	-0.075 ***			
2015	0.215 ***			
2016	0.249 ***	0.059 ***	0.000	-0.135 ***
2017	0.136 ***	0.000	0.094 ***	0.000
2018	0.140 ***	0.010 ***	0.003	-0.120 ***
2019	-0.096 ***	-0.264 ***	-0.261 ***	-0.433 ***
Type of grant (ref: LC)				
LJ	0.225 ***		0.119 ***	–
M	-0.028 ***		0.092 ***	–
Gender (woman)			0.013 ***	0.015 ***
Members > 65			0.024 ***	0.041 ***
Members < 18			0.025 ***	0.028 ***
Disabilities			0.016 ***	0.018 ***
Intercept	0.061	0.273	0.304	0.554
Municipal Control	YES		YES	
Adjusted R^2	0.16	0.13	0.17	0.24

References

Banco de España (2019). Boletín económico. Available at ⟨https://www.bde.es/f/webbde/SES/Secciones/Publicaciones/InformesBoletinesRevistas/BoletinEconomico/19/T2/descargar/Fich/be1902.pdf⟩ (accessed on April 23, 2021).

Breidenbach, P., Eilers, L., & Fries, J. (2022). Temporal dynamics of rent regulations – The case of the German rent control. *Regional Science and Urban Economics, 92*, Article 103737.

CaixaBank Research (2020). Desigualdad. Available online on: ⟨https://www.caixabankresearch.com/es/tendencias-fondo/desigualdad⟩ (accessed on April 23, 2021).

Carlson, D., Haveman, R., Kaplan, T., & Wolfe, B. (2012). Long-term effects of public low-income housing vouchers on neighborhood quality and household composition. *Journal of Housing Economics, 21*(2), 101–120.

Casciano, R., & Massey, D. S. (2012). Neighborhood disorder and anxiety symptoms: New evidence from a quasi-experimental study. *Health & Place, 18*(2), 180–190.

Caudill, S. B. (1988). An advantage of the linear probability model over probit or logit. *Oxford Bulletin of Economics and Statistics, 50*(4), 425–427.

Chetty, R., Hendren, N., & Katz, L. F. (2016). The effects of exposure to better neighborhoods on children: New evidence from the Moving to Opportunity experiment. *American Economic Review, 106*(4), 855–902.

Chyn, E. (2018). Moved to opportunity: The long-run effects of public housing demolition on children. *American Economic Review, 108*(10), 3028–3056.

Clapham, D., & Foye, C. (2019). How should we evaluate housing outcomes? Working Paper. UK Collaborative Centre for Housing Evidence (CaCHE), Glasgow. Available online on: ⟨https://housingevidence.ac.uk/wp-content/uploads/2019/03/190329_Evaluating_housing_outcomes_final.pdf⟩ (accessed on April 12, 2022).

Collinson, R., & Ganong, P. (2018). How do changes in housing voucher design affect rent and neighborhood quality? *American Economic Journal: Economic Policy, 10*(2), 62–89.

del Pero, A. S., Adema, W., Ferraro, V., & Frey, V. (2016). Policies to promote access to good-quality affordable housing in OECD countries. *OECD Social*. In *Employment and Migration Working Papers, 176*. Paris: OECD Publishing.

DeLuca, S., & Dayton, E. (2009). Switching social contexts: The effects of housing mobility and school choice programs on youth outcomes. *Annual Review of Sociology, 35*, 457–491.

Diamond, R., McQuade, T., & Qian, F. (2019). The effects of rent control expansion on tenants, landlords, and inequality: Evidence from San Francisco. *American Economic Review, 109*(9), 3365–3394.

Dol, K., Mazo, E. C., Llop, N. L., Hoekstra, J., Fuentes, G. C., & Etxarri, A. E. (2016). Regionalization of housing policies? An exploratory study of Andalusia, Catalonia and the Basque Country. *Journal of Housing and the Built Environment, 32*, 581–598.

Eerola, E., & Lyytikäinen, T. (2021). Housing allowance and rents: Evidence from a stepwise subsidy scheme. *The Scandinavian Journal of Economics, 123*(1), 84–109.

Eriksen, M. D., & Ross, A. (2013). The impact of housing vouchers on mobility and neighborhood attributes. *Real Estate Economics, 41*(2), 255–277.

Fack, G. (2006). Are housing benefit an effective way to redistribute income? Evidence from a natural experiment in France. *Labour Economics, 13*(6), 747–771.

Feeny, S., Ong, R., Spong, H., & Wood, G. (2012). The impact of housing assistance on the employment outcomes of labour market programme participants in Australia. *Urban Studies, 49*(4), 821–844.

García, M.-A.L. (2019). Vivienda y política pública: objetivos e instrumentos. Documento de Trabajo, 7. ⟨https://documentos.fedea.net/pubs/dt/2019/dt2019-07.pdf⟩ (accessed on April 12, 2022).

Gibbons, S., & Manning, A. (2006). The incidence of UK housing benefit: Evidence from the 1990s reforms. *Journal of Public Economics, 90*(4–5), 799–822.

Gibson, M., Thomson, H., Kearns, A., & Petticrew, M. (2011). Understanding the psychosocial impacts of housing type: Qualitative evidence from a housing and regeneration intervention. *Housing Studies, 26*(4), 555–573.

Hausman, J. A., & Wise, D. A. (1980). Discontinuous budget constraints and estimation: The demand for housing. *The Review of Economic Studies, 47*(1), 75–96.

Instituto Nacional de Estadística. Available online on: ⟨https://www.ine.es/⟩ (accessed on April 15, 2022).

Jacob, B. A., & Ludwig, J. (2012). The effects of housing assistance on labor supply: Evidence from a voucher lottery. *American Economic Review, 102*(1), 272–304.

Katz, B., Turner, M. A., Brown, K. D., Cunningham, M., & Sawyer, N. (2003). *Rethinking local affordable housing strategies: Lessons from 70 years of policy and practice*. Washington, DC: The Brookings Institute,.

de La Paz, P. T., & Gabrielli, L. (2015). Housing Supply and Price Reactions: A comparison approach to Spanish and Italian markets. *Housing Studies, 30*, 1036–1063.

Law 18/2007, of 28 Desember. Housing Right Act. Available online on: ⟨https://www.boe.es/buscar/doc.php?id=BOE-A-2008-3657⟩ (accessed on April 28, 2022).

Lindberg, R. A., Shenassa, E. D., Acevedo-Garcia, D., Popkin, S. J., Villaveces, A., & Morley, R. L. (2010). Housing interventions at the neighborhood level and health: A review of the evidence. *Journal of Public Health Management and Practice, 16*(5), S44–S52.

Ly, A., & Latimer, E. (2015). Housing first impact on costs and associated cost offsets: A review of the literature. *The Canadian Journal of Psychiatry, 60*(11), 475–487.

Mense, A., Michelsen, C., & Cholodilin, K.A. (2017). Empirics on the causal effects of rent control in Germany. FAU Discussion Papers in Economics, 24/2017. Friedrich-Alexander University Erlangen-Nuremberg, Institute for Economics.

Meschede, T., & Chaganti, S. (2015). Home for now: A mixed-methods evaluation of a short-term housing support program for homeless families. *Evaluation and Program Planning, 52*, 85–95.

Moulton, S., Peck, L. R., & Dillman, K.-N. (2014). Moving to opportunity's impact on health and well-being among high-dosage participants. *Housing Policy Debate, 24*(2), 415–445.

Nordvik, V., & Sørvoll, J. (2014). Interpreting housing allowance: The norwegian case. *Housing, Theory and Society, 31*(3), 353–367.

Olsen, E. O. (1982). *Role of government in the housing sector*. University of Virginia.

Olsen, E. O. (2003). Housing programs for low-income households. *Means-tested transfer programs in the United States* (pp. 365–442). University of Chicago Press.
Olsen, E. O., & Zabel, J. E. (2015). US housing policy. In G. Duranton, J. V. Henderson, & C. S. William (Eds.), *Handbook of regional and urban economics, 5* pp. 887–986). Elsevier.
Owens, A. (2017). How do people-based housing policies affect people (and place)? *Housing Policy Debate, 27*(2), 266–281.
Parsell, C., & Marston, G. (2016). Supportive housing: justifiable paternalism? *Housing, Theory and Society, 33*(2), 195–216.
Raya, J.M. (2021). Efectos de la pandemia en el mercado del alquiler: ¿es conveniente una norma de regulación de precios? EsadeEcPol Insight #27.
Raya, J. M., Estévez, P. G., Prado-Román, C., & Torres-Pruñonosa, J. (2017). Living in a smart city affects the value of a dwelling? In M. Peris-Ortiz, D. Bennett, & D. Pérez-Bustamante Yábar (Eds.), *Sustainable smart cities: Innovation, technology, and knowledge management*. Springer.
Royal Decree 106/2018, of 9 March, which regulates the State Housing Plan 2018–2021 (2018). Available online on: ⟨https://www.boe.es/buscar/act.php?id=BOE-A-2018–3358⟩ (accessed on April 28, 2022).
Royal Decree 42/2022, of 18 January, which regulates the Bono Alquiler Joven and the State Plan for access to housing 2022–2025 (2022). Available online on: ⟨https://www.boe.es/boe/dias/2022/01/19/pdfs/BOE-A-2022–802.pdf⟩ (accessed on April 27, 2022).
Sinai, T., & Waldfogel, J. (2005). Do low-income housing subsidies increase the occupied housing stock? *Journal of Public Economics, 89*(11–12), 2137–2164.
Stephens, M., Fitzpatrick, S., Elsinga, M., Van Steen, G., & Chzhen, Y. (2010). *Study on housing exclusion: Welfare policies, housing provision and labour markets*. European Commission/University of York.
Susin, S. (2002). Rent vouchers and the price of low-income housing. *Journal of Public Economics, 83*(1), 109–152.
Thomschke, L. (2016). Distributional price effects of rent controls in Berlin: When expectation meets reality. MEP Discussion Papers, 89. University of Münster, Münster Center for Economic Policy (MEP).
Thomson, H., Thomas, S., Sellstrom, E., & Petticrew, M. (2013). Housing improvements for health and associated socio-economic outcomes. *Cochrane Database of Systematic Reviews, 2*, Article CD008657.
Torres-Pruñonosa, J., García-Estévez, P., & Prado-Román, C. (2021). Artificial neural network, quantile and semi-log regression modelling of mass appraisal in housing. *Mathematics, 9*, 783.
Torres-Pruñonosa, J., García-Estévez, P., Raya, J. M., & Prado-Román, C. (2022). How on earth did spanish banking sell the housing stock. *SAGE Open, 12*, 1. https://doi.org/10.1177/21582440221079916
Tsemberis, S., Rogers, E. S., Rodis, E., Dushuttle, P., & Skryha, V. (2003). Housing satisfaction for persons with psychiatric disabilities. *Journal of Community Psychology, 31*(6), 581–590.
Urrestarazu-Capellán, R., Sánchez-Ollero, J. L., & García Pozo, A. (2021). The influence of the real estate investment trust in the real estate sector on the Costa del Sol. *European Research on Management and Business Economics, 27*(1), Article 100133.
Varady, D. (2010). What should housing vouchers do? A review of the recent literature. *Journal of Housing and the Built Environment, 25*(4), 391–407.
Venti, S. F., & Wise, D. A. (1984). Moving and housing expenditure: transaction costs and disequilibrium. *Journal of Public Economics, 23*(1–2), 207–243.
Sentence of the Constitutional Court 37/2022, of 10 March, 2022. Appeal of unconstitutionality 6289–2020 (2002). Available online on: ⟨https://www.boe.es/boe/dias/2022/04/08/pdfs/BOE-A-2022–5807.pdf⟩ (accessed on April 27, 2022).

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