

Social Perception of the Influence of Public Policies on the Residential Rental and Holiday Tourism Rental Markets

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Abstract

This work assesses the influence of generic public housing policies in Spain and specific public policies relating to vacation rental housing on residential rental costs in recent years from the perspective of people linked to residential housing rental and vacation rental housing. We used partial least squares structural equation modelling on the data obtained in a survey of 413 individuals with direct links to the fields of tourism and real estate. The results obtained by the model confirm the influence of the growth in holiday tourist housing and the implementation of public housing policies on rises in residential rent. These conclusions can inform public policy measures in the general area of housing and, specifically, in the area of holiday homes, toward reducing the impacts of certain factors on access to housing in the province of Málaga. The main contribution of this work is the direct collection of the opinions of people related to residential and tourist housing on the Costa del Sol.

Keywords: Holiday homes, public policies, accessible housing, partial least squares structural equation modelling, collaborative economy

Introduction

The difficulties faced by large sectors of the population in gaining access to decent and adequate housing at an affordable price are among the issues of greatest concern to social scientists and social agents at present. Within the general conditions of access to housing, in Spain, the increase in the cost of rented housing since 2015 stands out (Fotocasa, 2019), which has forced individuals who have opted for this type of housing to dedicate more of their family's economic resources to pay for it. These family resources have also been declining in recent years, resulting from the combination of moderate increases in wage income (Barómetro Social, 2019b), reduced social spending (Barómetro Social, 2019a), and the lower levels of gross savings available (Instituto Nacional de Estadística, 2018). Coinciding with this social reality has been the development and growth of a new type of tourist accommodation, the tourist holiday home, which is also considered a determining factor in explaining the evolution of the residential rental housing market in the last five years (Instituto Nacional de Estadística, 2019a).

In any case, this increase in the price of residential rent has led to a social debate on the responsibility that public policy makers have in this situation. Regardless of the direction taken, it is appropriate to understand the causes that justify this situation, paying particular attention to the influence of public policies as well as activity in the tourism sector and, more specifically,

the irruption of holiday homes in the residential rental housing market. Thus, the objective of this article is to evaluate and verify the influence that public policy action in the field of housing has on the dynamics of prices and on the residential rental housing stock, in an environment of growth in tourist holiday housing. This begins in Section 2, which describes the housing access situation in Spain, with emphasis on rental housing and the possibilities offered by public policies. In addition, it describes the influence of tourist holiday housing on urban environments, as well as on the supply and price of residential rental housing. Section 3 then outlines the public housing policies pursued in Spain for the vacation rental housing sector.

Section 4 details the methodology used, starting with a quantitative survey aimed at a broad public with some kind of relationship with tourist or residential rental housing. This survey asks respondents about the current sector situation, the factors influencing it, and the implementation of certain public policy measures. Subsequently, after data collection, data processing is conducted using partial least squares structural equation modelling (PLS), which has a long track record in studies related to the social sciences and notably in the field of tourism. Finally, reference is made to the main conclusions and implications obtained through the statistical method and the analysis of social scientists on the subject matter under study. These conclusions reaffirm the positions that support a greater role for public policies in the field of housing, ultimate aim of which is to provide greater rationality to the housing market, making rental housing prices and supply possible for sectors of the population with difficulties in accessing it.

Literature review

The attitude of the state and the situation of access to housing—The social influence of vacation rental housing

The economic and social importance of the tourism and real estate sectors in Spain has been highlighted not only in academic circles but also in the current political and social debate because of its influence on the progress of the economy in general (García Montalvo, 2013) and in its contribution to well-being, social coexistence, sustainability, employment, business investment, and the expectations of benefits in the form of work income (Pareja & Sanchez, 2012), capital income (Núñez Tabales et al., 2007), and the revenue-raising capacity for the benefit of public finances (Vinuesa Angulo, 2013). However, in the context of these questions, it is worth raising the first nuances, relating to the attitude of the public sector and the institutions towards these processes, their consequences and their different degrees of commitment. This will determine the existence or lack of controls and strategic planning, their levels of advocacy and support, the social sectors that are benefited and harmed, the commitment to diversification or industrial monoculture, the collection structure and public spending policy. Currently, housing spending in Spain accounts for a significant part of household income. Specifically, in 2018, 30.7% of the total household expenditure was dedicated to housing costs, whether as mortgage payments, rent, or maintenance, repair, or improvement costs, having risen from 27.3% in 2008 (Encuesta de Presupuestos Familiares, 2018). For all these reasons, Spain has become one of the countries in the European Union with the most population living in rented accommodations, paying 42% of their disposable household income on rent, second only to Greece and far behind countries such as Finland, France, Sweden, Austria and Germany (Eurostat, 2019).

However, this rise in rent has been most evident in the access to rental housing, with a different evolution of rental incomes and household incomes during these years. If we take the Home Rental Price Index provided by Fotocasa for the period 2012–2018, based on the prices offered by its customers, we observe that the average price per square metre of the rental in Spain increased by 8.74%, while the average household rent in Spain increased by 2.41%

(Instituto Nacional de Estadística, 2019b). Thus, the increase in average rent in Spain has risen four times more than the average rent of households. This disparity in the growth of both variables expresses an increased difficulty for households that decide or have no choice but to live in rented accommodations. Therefore, knowledge of the factors that determine the price of housing is a starting point for public policy measures to facilitate access to housing for lower-income sectors. Among these factors is the development and growth of tourist holiday housing, and it is, therefore, necessary to confirm the relationship between this and public housing policies. It is worth remembering that the link between the tourism sector and the real estate sector has a long tradition, and both sectors influence the economy. Since 2014, there has been a gradual increase in purchase and sale prices and rentals of homes (Ministerio de Fomento, 2019) and in the construction of new properties in the main urban and tourist centres of the country, with greater activity in buying and selling and real estate as an investment (Ministerio de Fomento, 2019). This type of accommodation has had substantial importance around the world in different social and economic fields, influencing the transformation processes of urban centres (Cocola Gant, 2016), the arrival of financial capital investors (Gothan, 2005), the reception of immigrant populations (Hernández Pezzi, 2018), the internal commercial structure of cities (Marcuse, 1985), the participation of large multinational companies in technology, the disposable income of citizens (Arias Sans & Quagliari, 2015) and the availability of residences (Ardura & Sorando, 2016).

The growth of the tourist holiday housing stock has beneficial economic effects in terms of increased employment needs (Biagi et al., 2012), increased business activity (Giampiccoli, & Mtapuri, 2020), new investment channels for savers and increased wealth for property owners (Haufiku-Makhubela, Hermann, & Sifolo 2021). In this economic context, where there are no clear alternatives in other sectors in which to develop business projects that can be consolidated in the future, tourism and real estate become the main recipients of entrepreneurship and wholesale investment (O'Reagan & Choe, 2017). Additionally, it generates negative effects, such as an increase in rental or residential property prices and a decrease in the supply of both, and the adverse reactions of residents of urban centres who observe that their way of life is being altered and the provision of natural resources and public space, which are then directed to the benefit of visitors enjoying the tourist activity (Gago, 2018).

With regard to its influence on the price of residential rental housing, there are precedents for scientific studies stating that the general tourist activity and that carried out by the vacation rentals on housing, in particular, influences the price of the house for residential rental as a result of the demand generated by tourists (Schäfer, 2017), measured by the spatial effect of certain tourist elements such as tourist attractions, restaurants and tourist accommodations, using geographic information systems (GIS), while on the supply side, it does so by creating services required by tourism (Biagi, 2015), going to the average prices of homes in Italian cities, analysed under a generalised method of moments (GMM-SYS) approach. This influence has been studied in American cities such as Boston (Barron, 2018; Horn & Morante, 2017), Los Angeles (Lee, 2016) and New York (BJH Advisors, 2016) and, on the European continent, in cities such as Berlin (Schäfer, 2017), Paris (Brossat, 2019), Barcelona (García López et al., 2020) and Madrid (UrbaData Analytics, 2017). These works obtain data from rental price lists obtained by public and private bodies and from the listings of homes offered on Airbnb, using different econometric tools for their final analysis. In addition, there has been an influence of vacation rentals on housing on the variation of the supply of residential housing for rent (Dredge et al., 2016), in a context where demand for the latter is also increased, for example, in Los Angeles (Lee, 2016), Boston (Horn & Morante, 2017), Sydney (Gurran, 2017), Paris (Brossat, 2019), New York (BJH Advisors, 2016) or San

Francisco (Brousseau, 2015), to name the best-studied cases. For all of these reasons, it is worth assessing the performance of public policies as facilitators or detractors in the development of vacation rental housing and their responsibility to provide improvements in the accessibility to housing, allowing for the sustainability of public and natural resources in the cities that present this phenomenon, as can be seen below.

Public administrations in the housing market: Public policies for the vacation rental housing sector

The social consequences of the current increase in the cost and scarcity of residential rental housing have led to the question of what the most appropriate social response should be. This response varies and includes positions that defend the free market and the need for a greater volume of real estate (López-Rodríguez & De los Llanos, 2019) as well as others that propose a greater interventional orientation of the public sector in areas such as price controls, the maximum duration of contracts (Arias Sanz, 2015) and the legislation of investment companies in the real estate market (Ardura et al., 2020). This debate includes the construction of social housing for rent or the taxation of large multinationals marketing tourist housing online, as well as the exploitation of holiday homes (Brossat, 2019; Hernández Pezzi, 2018). The defence of an interventionist orientation of a social nature is based on housing policies as an instrument that guarantees access to housing for the population, mainly among families with lower incomes (Cano & Etxezarreta, 2014). However, there is also a more developmentalist type of interventionism in which these policies serve to encourage housing production in times of recession (Pareja & Sánchez, 2012), which is the consideration of housing that has been imposed in Spain in the last century (Rodríguez Alonso, 2010). As a result, the market has been more prominent in public sector action in providing housing for citizens, such that fiscal, monetary, and financial policies have facilitated the development of real estate and tourism activity and its predominant role in the country's economy. This liberalising, laissez-faire approach has reduced the provision of public housing to a marginal role by adopting legislative measures to facilitate the activity of real estate agents (Idoate, 2008). Thus, for example, in Spain, social housing is provided practically for sale, with only 2% of the total stock for rent (Ministerio de Fomento, 2019), making Spain one of the last countries in Europe in terms of a percentage of social housing (Naredo, 2010). Notably, in 2017 and 2018, public protection housing did not exceed 10% of the total homes built in either year, while public rental housing accounted for a meagre 3.8% of the total in 2018 (Ministerio de Fomento, 2019).

There are other instruments that the state can use in housing policy. Thus, from the point of view of social intervention, we should cite the control of rentals, which through the Urban Leasing Act (LAU), can legislate by establishing control over the rental price and objective conditions related to the condition of the properties and the area in which they are located. In this way, they limit their application for a period of time and are supported by a specific state law for large capitals (Ardura, 2018). This possibility of establishing controls and limits on monthly rental rents established by homeowners for residential rent is being carried out by the municipal authorities of major European cities, albeit with different orientations, depending on the ideological positioning of the municipal governments (Novy & Colomb, 2016), the public housing policies that have been carried out previously and the scope of competence available in the municipality.

In this manner, and by considering the tourist activity, we can find cities with housing policies that allow them to slow the growth of vacation rental housing through measures that control rent, as is the case of Berlin (Fields & Uffer, 2016), Paris (Brossat, 2019), Amsterdam (Van Duijne et al., 2018), Vienna (Kadi, 2015) and Barcelona (Algaba, 2021), others, such as Milan, who have opted for more moderate regulations with consensus with the sharing-

economy platforms and, finally, a large number of cities that have not adopted any outstanding measures (Aguilera et al., 2019), such as the city of Málaga. However, in all cases, the municipal authorities have very limited inspection capacity (Leshinsky & Schatz, 2018).

On the contrary, in Spain, current laws have been oriented in favour of the free market, highlighting the Law 4/2013 of Flexibilisation and the promotion of the housing rental market, reformed in March 2015, which had the fundamental objective of making the rental market more flexible in order to achieve its dynamisation (Pareja & Sanchez, 2015), reducing the rights of tenants in order to make the rental market more attractive to landlords (Ardura et al., 2020). Such measures make the rental market unstable in the short term, a circumstance that benefits the real estate investment trusts (REITs), as it is in their interest to reduce risks and make the market more flexible, facilitating the sale of the property and increasing profitability, raising prices and thus revaluing the initial investments of these companies (Gil García, 2018). This has facilitated the connection between financial markets and urban property, structuring urban space and its use (Adisson, 2018) and giving REITs great autonomy (Wijburg, 2019). Regarding the tax policy related to the tourism accommodation sector, it is possible to influence the two main actors involved in this sector: the companies that manage tourist housing, including the auxiliary sector working in management and maintenance of these, and the global multinational platforms of the sharing economy that market this tourist accommodation on the Internet.

It should be borne in mind that although the tourism accommodation sector has a long tradition of tax fraud (Migai et al., 2019), vacation rental housing has amplified the phenomenon because of the greater number of transactions and managed turnover (De Groen & Maselli, 2016), lack of control actions of public administrations (Katz, 2015) and disinterest in this matter by the sharing economy's online marketing platforms (O'Reagan & Choe, 2017). In addition to concealing part of their turnover for tax purposes, holiday accommodation companies tend to omit in their tax returns the ancillary activities other than the accommodations they provide (Migai et al., 2019): Many companies that provide ancillary maintenance and cleaning services for holiday accommodations do not register their employees for tax purposes (O'Reagan & Choe, 2017). To remedy these shortcomings, marketing platforms can transfer to state tax agencies where they operate the tax identification and bank account details of the agents involved in providing the service, as they do in the United States, Italy, Belgium and Spain (Migai et al., 2019). This practice is facilitated by current technological developments as tax authorities have access to the number and volume of business transactions generated through multinational Internet platforms of the so-called *collaborative economy* (O` Reagan & Choe, 2017), identifying the agents involved in the business process and access to the payment gateways of financial institutions and Internet companies (Brossat, 2019).

These platforms can withhold a percentage of the contracted and paid turnover for tax purposes, as is the case in the UK, France, Italy and Amsterdam (Migai et al., 2019) and reduce the administrative burden for the tax administration. With regard to the fraud that can be generated in the field of employment, there are common situations of employees of holiday home companies and their auxiliary maintenance and management companies, including low wages, a lack of annual leave, a high number of overtime hours worked in high seasons and work that is not included in the employment contract (Williams & Horodnic, 2017). Many of them exercise their tasks falsely as claiming to be self-employed, which makes their work more precarious (Murillo et al., 2017), as they assume different occupational risks, medical services, and provisions for retirement and unemployment (Carboni, 2016). In addition, this form of staff recruitment by holiday home companies led to a loss of social security and tax revenue

for the society as a whole (Murillo et al., 2017) while increasing expenses in the form of public services in tourist areas.

All these frauds produce an unfair competitive advantage of this type of accommodation over traditional hotel businesses, which are more regulated (Zapata & Postigo, 2018). They have additional detrimental effects, such as the destruction of higher-quality jobs and business closures in the traditional hotel sector (Zervas et al., 2017), increasing the growing economic inequality of society by replacing higher-quality employment with precarious employment (Elliott, 2016).

In terms of the taxation assumed by collaborative economy Internet marketing platforms, these companies have the advantage of taxing a very small amount of their profits, shifting this taxation to states with lower tax burdens (Langley & Leyshon, 2017), some of them tax havens (Murillo et al., 2017). In the European Union, the main company marketing tourist accommodation in the collaborative economy, Airbnb, has its tax headquarters in Ireland, where it receives income from 190 delegations in the countries where it operates (Murillo et al., 2017). These delegations have become subsidiaries that theoretically perform marketing and advertising tasks and receive the services from their head office, which invoices them and receives the revenue (Brossat, 2019).

This situation raises the need for society to increase the tax burden on marketing platforms, according to their profit levels (Leaphart, 2016). For example, in Spain, and again, in the case of Airbnb, despite marketing more than 200,000 properties and managing the bookings of more than 5.5 million tourists per year, charging a percentage of 12% of the turnover to the owner for each transaction has paid only 452,850 Euros in corporation taxes in the last seven years, with a declared accumulated profit of 996,800 Euros (Page, 2019). In France, in 2016, they declared 330,880 Euros in profit with ten million customers and a turnover of 400 million Euros, which allows them to have 48 million Euros of revenue and pay annual taxes in the amount of only 100,000 Euros (Brossat, 2019).

The application of fair and adequate taxation for holiday home marketing platforms is justified by their high profits, the eminently commercial nature of their activities (Henten & Windekilde, 2016), and their high economic valuation: They are multinational companies with strong market power over tourist customers, Internet developers and housing advertisers (Kasprowicz, 2016), with an almost monopolistic role in the market (Katz, 2015). Finally, and based on an overall assessment, public policies in recent years have seen a reduction in the economic resources necessary for the support of public services dedicated to facilitating the social cohesion of tourism activity and its quality (Arias Sans & Quaglieri, 2015), in a global environment of reducing tax revenues, in the highest income brackets, making it necessary to further strengthen tax collection (Migai et al., 2019). Following the description of how previous social research has analysed the influence of vacation rental housing and public policies on the supply and price of residential rental housing, we will now assess this influence by means of the methodological approach chosen, the partial least squares structural equation modelling in Section 4.

Methods

In order to meet the objective of this article, which is to find out how the price of residential rent in Málaga is influenced by factors such as tourist holiday housing and the actions of public housing policies, we have chosen a methodology based on the statistical data analysis partial least squares structural equation modelling (PLS), which has a long track record in studies related to the social sciences, particularly in the field of tourism (Usakli & Kucukergin, 2018). This method uses a database obtained through a survey of a sample of the target statistical universe, whose individuals have direct knowledge of the object of study, either because of

their life and work experience or because of their teaching and research activity (Casas Anguita, 2003). Specifically, it has been based on groups and individuals in the province of Málaga, such as:

- University professors whose research is related to economics, tourism, architecture and law employees of notaries from Málaga and the Costa del Sol
- Students from the same disciplines noted above who lived in rented housing
- Professionals of financial institutions with responsibilities related to financing companies and individuals and managing real estate assets
- Public employees and political officials, including local administrations in Málaga and the Costa del Sol, and the regional administration (Junta de Andalucía), related to subjects such as tourism, urban planning and economics
- Young clients of financial institutions applying for or having been granted a home loan
- Tenants and owners of residential rental homes and holiday tourist homes.
- Bank clients and real estate clients
- Real estate professionals from Málaga and the Costa del Sol
- Independent professionals related to urban and tourism fields: Lawyers, architects, tax advisors and economists from Málaga and the Costa del Sol

To obtain and process the data appropriately, it was necessary to determine in advance the optimal size of the sample to be studied, to achieve a certain degree of confidence to reach rigorous conclusions. For this reason, we opted for a sample with a maximum error of less than 5%, for a confidence level of 95%, in accordance with the technical and economic means and available resources (Torres & Paz, 2006), provided, moreover, that the sample was represented by population related to the rental house and that it could also be adapted to the requirements mentioned above. Finally, the criterion of determining the sample size was followed based on the number of parameters to be estimated, and although a ratio of 5:1 is supported in normal and elliptical theory, especially when there are many latent variable indicators, and the associated factorial loads are large. In the case of this survey, a proportion of at least 10:1 was used in arbitrary distributions, so at least 380 questionnaires had to be collected (Bentler & Chou, 1987). In this way, 413 questionnaires were obtained, through promotional work and distribution for four months, between May and September 2018, of a link, via email, and of mobile telephone messaging instruments such as Whatsapp and Telegram. Thanks to the current technological development, the web survey model has been chosen using Google Forms, which provides a platform very suitable for the purpose of this research, since it allows the sending of the same in a way easy, fast, and accessible to respondents located in any geographical area. Regarding the type of questions designed, closed estimation questions were chosen, using a 1–7 Likert scale, depending on the degree of agreement or disagreement with the statements made, a total of 38 short, single-sentence questions to accommodate respondents of all educational and cultural levels, presented in neutral ways to gather true opinions. Its internal structure was organised around common themes to facilitate the mental exercise of the respondent's mental exercise and the fluency of the questionnaire, starting with questions that respondents can answer easily, specifically identifying questions, and continuing with the most complex questions about the housing situation. In addition, a transition between blocks was delimited with an introductory text, as in the case of possible public policy measures at the end of the questionnaire.

The content of the questions dealt with specific issues and opinions, divided into three parts: first, the identification questions, including the respondent's sex, year of birth, postal code of residence, level of study and level of family income, factors related to the main

independent variables, with anonymity guaranteed. Secondly, a series of questions collect respondents' opinions on all the factors that influence the price and the rental housing park. In addition to the scientific studies mentioned above, the inclusion of these issues, including those contained in the third block, was decided at a round table session, held on June 14, 2017, at the headquarters of the International University of Andalusia in Málaga, with the objective to expose the object of study, allowing each rapporteur to establish the economic and social reasons that influence access to housing today. Speakers included university professors of economics and architecture, public leaders, representatives of tourism business associations, holiday home companies, state-level appraisal companies and urban architects, all of them with extensive professional and technical knowledge about housing and tourism. The survey sought respondents' views on the current situation, the factors influencing it and the implementation of certain public policy measures, to confirm the adequacy of the determinants collected above, and quantifying the weight of each, extending the results to wider audiences (Jansen, 2013) and performing the data processing phase.

Results

Having collected the data provided by the questionnaires drawn up in the manner and by the subjects discussed above, presented in Table 1, we analyse the relevant questions related to seven dimensions that reflect the perception that home users have of the rental market, from both vacation and residential perspectives.

Table 1: Dimensions on user perception of the rental market.

Demand for housing (DV)
1. The current overall economic context and increased employment have a major influence on the growth of housing demand.
2. The increase in demand for rental housing is caused by the creation of new homes that cannot afford home ownership
3. The increase in demand for rental housing is caused by an increase in the residential population in the city of Malaga and its metropolitan area, as a result of the emergence of new job opportunities.
Impact on the price of tourist housing for rent (PVA).
8. There has been an influx of investors looking for returns higher than other sources of investment in the rental market.
9. Investments by real estate investment companies influence the price and housing stock.
11. The largest growth in prices and in the rental housing stock is in the areas of greatest tourist activity.
Tourist housing and its influence on the economic environment (Vturis)
12. The increase in rented housing stock is a consequence of the need for housing for holiday tourist accommodation.
13. The profitability of rent in tourist homes is higher than that obtained in residential rental homes.
14. The rates of delinquency and conflicts of tourist housing are lower than those of residential rental housing.
Housing supply (OV)
15. Empty housing stock is being reduced and put on the market as rental stock.
16. The increase in demand for rental housing is concentrated in certain areas of the city.
17. The increase in the price of rental homes is spreading to the rest of the city and its Metropolitan Area.
23. The increase in the price of residential housing rentals is a consequence of the increase in prices of the holiday rental.
25. A real estate bubble is occurring in the sale of real estate.
Housing policies (Pol. V)
19. The public sector must intervene in the rental housing market.
20. There is tax and labour fraud in the activity of employers who manage tourist housing.
26. Greater construction of public housing under rent.
Public policy measures for the residential rental market (PPMA)
27. Establishment of interadministrative regulation by the State.
28. Rent price cap by district.

29. Tenant bonuses in Personal Income Tax.
30. Direct assistance to the tenant to pay rent monthly payments.
31. Tax homes that remain empty for a certain number of days per year.
32. Reform of the Urban Leases Act: increase from 3 to 5 years the maximum period of rental contracts.
Public policy measures for the holiday rental market (PPMV)
33. Increase in local taxes such as the property tax for tourist housing.
34. Creating specific fees that affect their activity.
35. Limitation of the number of days the dwelling can be available for renting.
38. Moratoriums on the authorisation of new tourist homes in certain areas of the city.

Table 1 presents the 27 questionnaire topics related to the seven dimensions or constructs that constitute the factors to be analysed. As a consequence of the questions posed and the dimensions to be analysed, the following working hypotheses and sub-hypotheses have been put forward with the aim of analysing the socio-economic factors that influence the price of rented tourist housing. Specifically, these working hypotheses are:

H1: The factor that represents the supply of housing is influenced by the factors that reflect the impact of tourist housing in its economic environment (H1.1) and by public policy measures for the residential rental market (H1.2).

H2: The factor representing general housing policies is influenced by public policy measures for the holiday rental market (H2.1) and by public policy measures for the residential rental market (H2.2).

H3: The factor that captures the price of tourist housing for rent is influenced by the impact of tourist housing in its economic environment (H3.1), the supply of housing (H3.2), the demand for housing (H3.3) and the general policy (H3.4).

H4: The factor of rental tourist housing pricing is indirectly influenced by public policy measures for the holiday rental market (H4.1) and by public policy measures for the residential rental market (H4.2).

The methodology used for estimating the proposed model and confirming the scenarios raised is based on a PLS structural model, a multivariate statistical model that allows the simultaneous examination of a series of dependency relationships. It combines aspects of multiple regression and factor analysis to estimate a series of dependency relationships, but at the same time interdependent in the same model, in which the algorithm calculates partial regression ratios in measurements and structural models through the use of separate ordinary least squares regressions (Olague, 2016). It is suitable when the samples are not large, the data do not fit normal distributions, and the models are complex with numerous variables and parameters (López Bonilla, 2006). Because of these faculties, the model allows us to study real-life phenomena and becomes a statistical procedure to test measurement hypotheses of functional and predictive approaches to reality (Bagozzi, 2012). The model presented and the proposed PLS methodology of structural equations have been estimated using SmartPLS 3.0 computer software (Ringle et al., 2014), which is employed by 63% of the tourist researchers who have used PLS (Usakli & Kucukergin, 2018) and has managed to estimate more complex models with less data (Henseler, 2017).

The process began with exporting the data collected in the survey in an Excel database to the SmartPLS programme; next, the indicators were encoded in the columns, and observations were encoded in the rows. The research model, referring to the theoretical model as a comparison, was then applied as a latent variable, and the variables were connected such that the indicators of each variable were identified. Finally, the SmartPLS programme

calculated the PLS algorithm (model estimation), obtaining the factorial loads of each indicator, the standardised regression coefficients, and R^2 (Do Valle & Assaker, 2016). The structure of the submodel is presented based on seven latent factors (with their respective 27 statistically significant reflective indicators or items) that give rise to ten counters to ten hypotheses, as an exploratory model. Figure 1 presents the estimates made against the working assumptions.

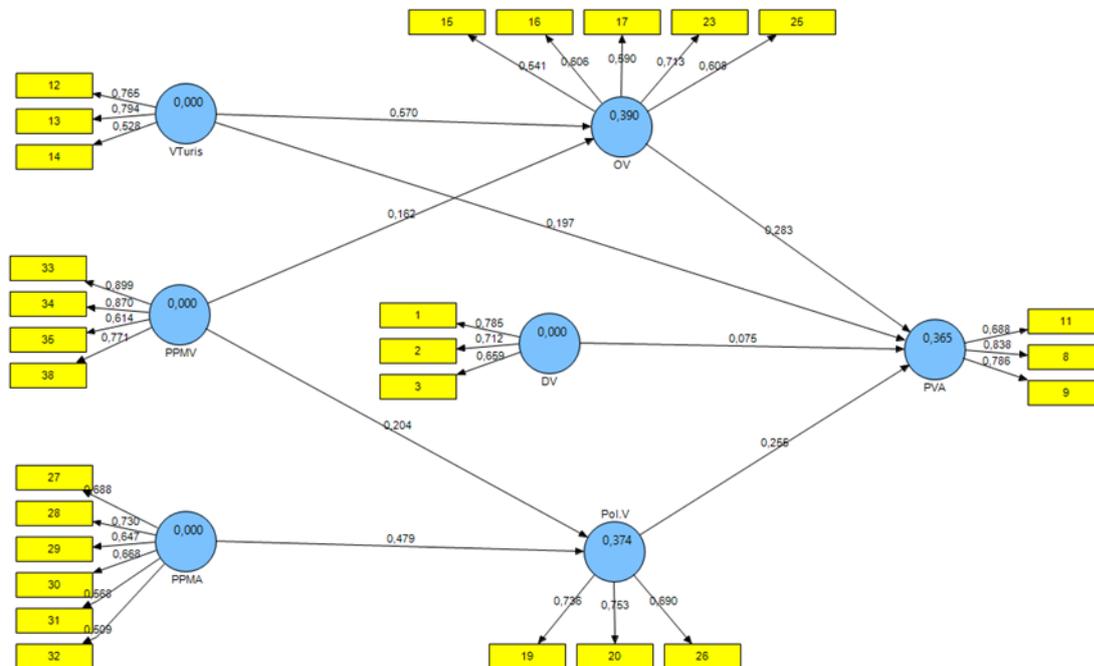


Figure 1. Estimation of the proposed structural equation model

The use of this model is supported by the results obtained for the average extracted variance (AVE), presented in Table 2, which confirm the convergent and discriminating validity of the model. Additionally, as Chin pointed out in 1998, the composite reliability index in PLS models has an advantage over Cronbach alpha values (Chin, 1998), not to assume that all indicators receive the same weight, where for all latent variables they exceed the suggested 0.7 value as the level by Nunnally and Bernstein (1994). This value of 0.7 confirms the reliability of the data and its degree of robustness necessary to support the stability of the results, because it is considered for an exploratory investigation where this should be a minimum of 0.60, and the confirmatory and predictive research should be 0.70 or higher (Hair et al., 2018).

Table 2. Reliability measures

	AVE	Compo site reliabili ty	R^2	Cronba ch's alpha	Commu nality	Redund ancy
DV	0.5195	0.7634		0.5622	0.5195	
OV	0.3771	0.7501	0.3897	0.5856	0.3771	0.0242
PPMA	0.4092	0.8039		0.7134	0.4091	
PPMV	0.6340	0.8717		0.8063	0.6341	
PVA	0.5979	0.8159	0.3651	0.6604	0.5979	0.0136
Pol.V	0.5281	0.7702	0.3742	0.5524	0.5281	0.1757
VTuris	0.4982	0.7432		0.5079	0.4982	

However, Table 2 also presents results that confirm the internal reliability, the validity of the proposed items, and the goodness of the adjustment. The latter indicator is validated when reaching the GoF index proposed by Tenenhaus et al. (2005): a value of 0.4377. Notably, the values of the variance inflation factor (VIF), calculated from the R^2 values of Table 2, are clearly below five. Therefore, we can ensure the very low presence of collinearity in the model, because when IVF values are higher than five, the level of collinearity is higher. Regarding the predictive power of the model, the values obtained for the R^2 statistic are significant and greater than 0.1 and thus fulfil the criterion of acceptability established by Falk and Miller (1992). The R^2 value measures the variance explained in each of the endogenous variables, and, therefore, it is a measure of the explanatory and predictive power of the model. The R^2 value ranges from 0–1, with higher values, indicating higher explanatory power. However, acceptable R^2 values are based on the study context, and a value of R^2 , for example, 0.10 is considered satisfactory, because R^2 is a function of the number of values studied. Thus, the greater the number of variables, the higher the R^2 value (Shmueli et al., 2016).

The correlations between the latent variables under study are presented in Table 3. The discriminating validity of the model can be confirmed by comparing the extracted mean deviation (AVE) values of each latent variable with the squared values of the matrix of correlations between latent variables, according to the criterion established by Fornell and Larcker (1981). By itself, the AVE is obtained for each latent variable by sizing the load of each indicator and calculating the mean value. The minimum acceptable AVE is 0.50, and an AVE of 0.50 or higher indicates that the variable explains 50% or more of the variance of the elements under study (Hair et al., 2018). However, as mentioned before, it goes beyond this solo measure; thus, it is considered to compare the value obtained in this indicator with the squared values of the matrix of latent variable correlations, evaluating the discriminating validity by which the shared variance for all model variables should not be greater than their AVE (Fornell & Larcker, 1981). This verification takes the following form:

$$AVE_i > \rho_{i,j}^2; AVE_j > \rho_{j,i}^2$$

Table 3. Matrix of correlations between latent variables

	DV	OV	PPMA	PPMV	PVA	Pol.V	VTuris
DV	1.0000						
OV	0.2066	1.0000					
PPMA	0.1657	0.3618	1.0000				
PPMV	-0.0992	0.2797	0.5268	1.0000			
PVA	0.1906	0.5249	0.3000	0.2797	1.0000		
Pol.V	0.1365	0.4214	0.5866	0.4564	0.4436	1.0000	
VTuris	0.1114	0.6037	0.2394	0.2056	0.4527	0.3008	1.0000

Estimates of the direct and indirect effects between latent variables of the proposed model are presented in Tables 4 and 5. Existing dependency relationships between latent variables can be verified in these tables. Table 6 lists estimates of the hypothesised relationships, both direct and indirect, between latent variables of the proposed structural model. Following Hair et al. (2011) and Henseler et al. (2009), we used a bootstrapping resampling method (5000 samples) to estimate the values of the student t -statistics and their corresponding standard errors to assess the statistical significance of the coefficients corresponding to each of the scenarios raised.

Table 4. Direct effects between latent variables

Direct Effects							
	DV	OV	PPMA	PPMV	PVA	Pol.V	VTuris
DV					0.075		
OV					0.283		
PPMA						0.479	
PPMV		0.162					0.204
PVA							



Pol.V		0.255
VTuris	0.570	0.197

Table 5. Indirect effects between latent variables

Indirect Effects							
	DV	OV	PPMA	PPMV	PVA	Pol.V	VTuris
DV					0.075		
OV					0.283		
PPMA					0.122	0.479	
PPMV		0.162			0.098	0.204	
PVA							
Pol.V					0.255		
VTuris		0.570			0.358		

Table 6. Hypothesis test for direct and indirect effects between latent variables

Hypothesis	Relations	Direct Effects	Standard Error	t-Statistic
H3.3	DV→PVA	0.075	0.0558	1.349
H3.2	OV→PVA	0.283	0.0681	4.160*
H4.2	PPMA→PVA	0.122	0.0295	4.135*
H2.2	PPMA→Pol.V	0.479	0.0517	9.271*
H1.2	PPMV→OV	0.162	0.0533	3.045*
H4.1	PPMV→PVA	0.098	0.0296	3.305*
H2.1	PPMV→Pol.V	0.204	0.0623	3.275*
H3.4	Pol.V→PVA	0.255	0.0574	4.436*
H1.1	VTuris→OV	0.570	0.0517	11.029*
H3.1	VTuris→PVA	0.358	0.0578	6.193*

As can be seen in Table 6, the relationships and statistical significance of the estimated coefficients for the ten proposed relationships between the latent variables of the model confirm the veracity of the four general hypotheses set out above. These support the development of the model of the structural equations analysed, with the exception of the sub-hypothesis defined by the incidence of the factor related to the demand for housing on the price of tourist rental housing. This could indicate the existence of two distinct markets: one for the purchase of investment housing and the other for the rental of tourist housing.

The results shown in Table 6, when the proposed hypotheses are verified, conclude that the model presented in this paper has been useful to determine the important influence that certain factors exert on the price of tourist rental housing in Málaga. For them, the application of generic public policies in the housing market and policies designed for rentals, both residential and tourist, have a significant influence on the price of vacation rental housing. This conclusion is in line with other research outlined here, reaffirming the value of public housing policies in facilitating access to housing for all social sectors in the country.

Conclusion and implications

This document confirms the impact of the measures taken by public administrations to facilitate access to the right to housing, in areas such as social housing construction, taxation and price control. Thus, from the point of view of the generic policies to promote affordable housing for residential rent, the need for greater construction of public housing under this scheme could be included. This type of policy must be implemented in a country such as Spain, with one of the lowest rates of this type of housing on the European continent. On the other hand, the implementation of rental controls similar to those in other European countries such as France, Germany, Austria, and the Netherlands is also recommended. By contrast, the impact of tourist housing on its economic environment and the existence of certain factors that condition the supply of housing also is perceived as conditioning the variations in the price of vacation rental housing in the province of Málaga. Quantitatively and considering the relationships between the different constructs, the higher impact perceived of the dimensions analysed regarding the

price of vacation rental housing would be from these last two analysed factors. That is, the influence of tourist housing within its economic environment and the existence of certain factors that condition the supply of housing also condition the variations in the price of vacation rental housing. These results support the idea of an influence of vacation rental housing on the supply and price of residential rentals, reducing the former and increasing the latter, circumstances that make it necessary to carry out public policies that improve administrative and fiscal controls in the vacation rental housing sector.

Therefore, it is in the field of vacation rental housing where the greatest contributions will be made, since the results obtained in the previous model reflect how this type of housing influences the price of residential rental housing. This price is also determined by generic public policies for rental housing and those specific to holiday homes. Thus, for example, moratoriums on the licensing of new vacation rental housing can be established in certain already-saturated areas of the city while allowing them in others, with different taxation in each area. Measures could be implemented, including tax exemptions granted to the owners of vacation rental housing up to a certain amount of income or the commissioning of the accommodation up to a specific number of days per year. Fundamental proposals include improvements in the taxation of profits, in the contracting of services of auxiliary companies and in staff from the entire vacation rental housing sector, referring to the owners of these accommodations and those of the large sharing-economy platforms dedicated to their commercialisation.

The ultimate goal is to ensure that all these companies have the same tax burden and operating costs as those of traditional companies among their competition, ending their current competitive advantage, which is partly justified by their lower fiscal and labour costs. In short, the above proposals, if taken into consideration by the Spanish public authorities, would be a change of direction in the policies that would make them closer to those in other countries in central and northern Europe. Finally, the main limitation of this work is the inability to include socio-economic variables such as inflation level, unemployment rates and others related to sample consumers, such as income level, employment situation and cultural level. We did not include them in the model because of their poor adaptation to the methodology used, which would have further narrowed the conclusions. Notably, this limitation can be a stimulus for future research conducted with other methodologies.

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