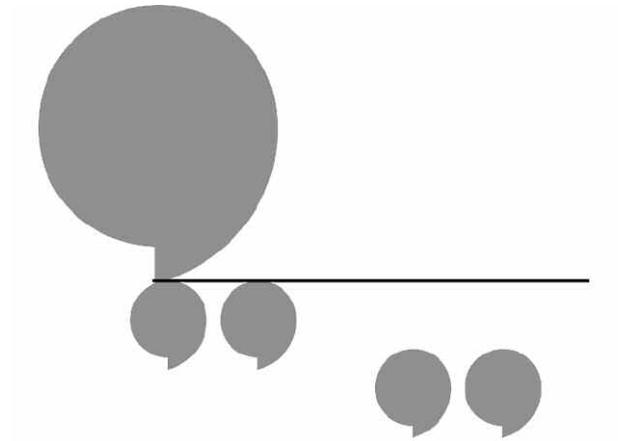


***Extended abstract***

*Effects of Rural Tourism  
on Demographic Evolution  
in Rural Municipalities in Spain*



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*Highlights:*

1. Overnight stays have little incidence on the demographic evolution of the analyzed rural municipalities.
2. The existence of tourism resources and products contributes positively to maintaining the population of rural municipalities.
3. Tourism policy should prioritise the valorisation of heritage over investment in accommodation.

*Abstract:* After more than 30 years of EU co-financed investments in rural tourism, few studies have assessed the effects and, to a lesser extent, the impact, of this sector on demographic development at local level. For this reason, this paper analyses, on the basis of two multiple linear regressions, one from the demand side and the other from the supply side, whether the sector has contributed to slowing down the depopulation process happened in many rural municipalities in Spain. The results show that from the demand side the effect is practically nonexistent, although the result could be conditioned by the data quality. From the supply side, municipalities with a significant provision of tourism resources (and, presumably, many of them, converted into effective tourism products) to diversify tourism have had a better demographic evolution. Together with rural tourism, other factors such as employment, the size of the municipality or climatic conditions have also influenced the demographic evolution of these municipalities.

*Keywords:* Depopulation, rural development, economic analysis, municipalities at risk of depopulation.

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## *Extended Abstract*

### **1. Introduction and justification**

Since Spain joined the European Union in 1986, rural areas have received significant funding from programmes and measures implemented using the LEADER methodology, with the aim of diversifying their economies away from the primary sector (Nieto and Cárdenas, 2015). One of the sectors that has received most funding is rural tourism (Larrubia and Navarro, 2011), which has become the economic activity of reference for many rural areas (National Rural Network, 2011). However, after three decades of European support for this sector, its predominant role as a driving force for the development of rural areas is being questioned. In order to assess this issue, this article uses econometric techniques to analyse whether the tourism sector has contributed to maintaining the population in rural areas.

### **2. Objectives and methodology**

The aim of the article is to test whether rural tourism can contribute positively to the demographic evolution of rural municipalities. For this objective, a methodology based on econometric techniques will be used through the estimation of multiple linear regression models on panel data. The sample of the analysis will be the municipalities participating in the rural tourism occupancy surveys conducted by the Spanish statistical office (Instituto Nacional de Estadística, INE) between 2006 and 2019. Regarding the variables, the literature points to the importance of employment, geography, public services or the size of the municipality as factors that may affect demographic evolution (Bandrés and Azón, 2021). In relation to tourism variables, on the demand side, the number of overnight stays in tourist establishments stands out, while on the supply side there are multiple variables such as: natural environment, cultural heritage, architectural uniqueness, ski resorts, hiking routes... In addition, it is also important to include variables on the participation of the municipalities in LEADER or PRODER projects or in national tourism promotion plans.

Based on the availability of information on the above variables and the sample of municipalities, two models are proposed, one from the demand side and the other from the supply side.

The demand model studies the influence of tourism demand, measured by overnight stays, on the population of rural municipalities between 2006 and 2019. However, the INE data on overnight stays are of low quality, so unbalanced panel data had to be used and the sample size had to be increased by considering not only rural municipalities (less than 2000 inhabitants) but also intermediate ones (between 2000 and 10000 inhabitants). The sample size is 1066 observations from 194 municipalities.

The supply model uses, instead of overnight stays, the tourist resources (or potential products) of each municipality to try to explain the rural demographic evolution between 2006 and 2019. The variables included in this model are: the location of the municipalities within protected natural areas, the existence of ski resorts, cultural heritage and membership of the Association of the Most Beautiful Villages of Spain. The greater availability of data allows us to work with a balanced panel of 1,176 observations from 84 rural municipalities, all of them with less than 2,000 inhabitants.

Finally, control variables have been introduced in both models to capture some of the main determinants of demographic evolution such as the size of municipalities, employment and average temperature. The number of LEADER and PRODER periods in which a municipality has participated has also been included as an independent variable in both models.

### **3. Results**

The estimation of the demand model has been done by the least squares procedure using clustered robust standard errors due to the unbalanced data set. The effect of the independent variable "Overnight stays" on the evolution of the population is significant and positive, but very close to zero, practically non-existent. Possible explanations for this result may be the lower importance of rural tourism in the intermediate municipalities added to increase the sample size or the high seasonality of tourism activity at weekends and holidays. In this sense, the high seasonality may prevent the population from working exclusively in this sector, so that if the income from tourism cannot be complemented by other activities, its influence on demographic evolution may be low or non-existent.

On the supply side, a balanced panel data model with random effects has been estimated. In relation to the tourism variables, three of the four tourism resources variables are significant with a positive effect on the evolution of the population: protected natural areas, ski resorts and cultural heritage.

The supply model shows which are the elements of tourist attraction that, individually, have influenced the evolution of the rural population. However, these resources are also seasonally complementary, so that their coexistence can amplify their effect. Consequently, a third model has been proposed that takes this fact into account. In this model, the different local tourism resources variables are replaced by a single categorical variable that includes the number of significant former tourism resources available in each municipality. The result confirms this hypothesis, as the new variable is significant, with a positive sign and a stronger relationship with population as the availability of tourism resources increases. The model shows that those municipalities that have the resources to offer diversified and non-seasonal tourism products have had a better demographic evolution. Therefore, tourism resources and products can help to fight depopulation.

#### **4. Discussion**

The results obtained in this study indicate that in the supply model, in the sample of rural municipalities analysed, there is a positive relationship between the existence of tourism resources and demographic evolution. In addition, if tourism resources are diversified, the positive effects on the population are even greater. These are the main contributions of this work to the existing literature. In this sense, several reports point out that the only way for rural tourism to become the economic and social driving force of rural areas is through its deseasonalisation, and the results obtained here confirm this theory.

On the demand side, the conclusions are not so clear. Overnight stays, although a significant variable, have a very low coefficient implying that their effect is very limited, which confirms the results obtained by other authors (Sánchez et al., 2014; Osorio et al., 2019). However, the results may be conditioned by the scarcity and poor quality of data on overnight stays at the local level.

## **5. Conclusions**

When the first measures to promote rural tourism were put in place in the 1960s, and later, with the strong support of the European LEADER initiative in the early 1990s, a promising future for the sector was in sight. However, after more than thirty years of investment, it is still not known what its effect has been in rural areas in terms of economic development or population retention. Precisely, the aim of this article is to contribute to assess the effects of rural tourism on the demographic evolution of rural municipalities.

The main problem we have faced, which possibly explains the lack of comprehensive assessments, is the scarcity and low quality of local tourism data. These problems have been solved, at least technically, by using supply and demand models, increasing the number of observations in the sample, selecting proxy variables for tourism or tourism products, or including categorical or qualitative variables in the models.

The main conclusions of our analysis are the low effect of overnight stays in tourist accommodation and the positive contribution of tourist resources, whether cultural or natural heritage, to the maintenance of the population. Moreover, it has been found that the location in the same municipality of several of these resources, which are seasonally complementary and can lead to the development of diversified tourism products, significantly multiplies their effects on the population.

## **6. Next steps**

The research initiated here presents several opportunities for further analysis in the future. First, this work could be replicated at the regional level, since some regions may have better data on overnight stays or disaggregated data on LEADER initiatives. A second avenue of analysis would be to look for or construct new explanatory variables for the models. Finally, a third research possibility would be to try to determine the effects of excursionists on rural tourism.