Abstract ampliado

RESUMEN AMPLIADO

Title: Growth dynamics and typology of the provincial population in Spain: A Spatial shift-share analysis.

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Área Temática: S06 – Measuring regional changes: the spatial shift-share

Resumen: *(mínimo 1500 palabras)*
The main purpose of this paper is to analyse the growth of the provincial population in Spain, isolating the effects related to the provincial neighborhood and the regional location of the provinces. Thus, the spatial shift-share shown in Montanía et al. (2021) is used to present a new classification of the provincial populations in a multi-contextual framework that takes into account the national, neighborhood and regional benchmarks. The results of the analysis provide some diagnoses about the performance of every region, showing which of the different geographical contexts are generating the sources of population (or depopulation).

In the last European horizon 2014-2020, only countries included in the specific program Northern Peripheric and Arctic received funds for depopulation[1]. However, Europe Union is being aware of the importance of this problem. Thus, European Union has included depopulation features in the European structural and investment funds of the European

[1] Finland, Sweden and United Kingdom.

Regional Development Fund (ERDF), an example is the modification of population density threshold for sparsely populated areas (population density of less than 12,5 inhabitants per square kilometer) and very sparsely populated areas (less than 8 inhabitants per square kilometer).

According to ESPON[2] (2017), demographic change in Europe is increasingly becoming a major policy challenge. Nowadays rural regions account for 28% of Europe's population. By 2050, the population of Europe's urban regions is projected to increase by 24.1 million persons (Eurostat, 2016). By contrast, the population of predominantly rural regions is projected to fall by 7.9 million. Considering EU regions, in 2018 the fastest expanding population were concentrated in German, Austria, Ireland, United Kingdom and Nordic Countries. As well as several regions in Belgium, France and Luxemburg, meanwhile population decline regions were in eastern Europe, Baltic Members States, Greece, Italy, Portugal and central regions of France and Spain (except Mediterranean coast).

Considering these elements, development strategies of European Union are mainly addressed to identify the rural declining depopulation regions to creating a planning to define some policy lines at national and regional level. These policies emphasize the local economy; access to basic services and territorial advantages; the importance of support information and communication technology, digitalization and knowledge-intensive activities, since there seems to be consensus on the fact that the opportunities derived from new technologies could open new initiatives (ESPON, 2017).

Considering the new topics related with demographic issues that is emphasizing European policy, we address our study to analyses population change in Spanish regions (at NUTS3 level, provinces). Our main interest is to detect differences in population changes for the Spanish provincial regions. Spanish provinces are not equal, since they differ in both economic conditions and demographic features. In Spain, the regional evolution of the productive structure and economic development over the years has drawn a territory with a spatial pattern, containing regions that evolve at different speeds. Additionally, the spatial pattern of the Spanish provinces indicates the formation of territorial clusters. In this sense, the literature has demonstrated the presence of neighbour's dependence relations. This is the case of regions with high economic development surrounded by regions with high economic development. In the same way, it is possible to detect a spatial pattern in demographic factors. Therefore, in certain studies, to avoid biased and inefficient results, spatial component should be considered in the empirical analysis using econometric models.

In this context, the analysis of the evolution of the working age population at provincial level will permit to distinguish regional differences, reinforcing the analytical instruments in order to guide policies to address the population dynamics in certain areas. The relevance of this variable is explained by the fact that changes in working age population can alter the distribution of population within a territory (Collantes and Pinilla, 2019)

[2] The so called "ESPON" programme is a cooperation programme of the European Union

Data about "Population" in the Spanish provinces were obtained from the Spanish National Statistical Institute (INE). Continuous Register Statistics classified total population by provinces considering five years groups. We grouped total population on three age levels: young population (population less than 15 years), working age population (population between 16 and 65 years) and retired population (over 65 years). We focus our interest mainly in detecting the drivers of the change on working age population (16-65 years).

Following the shift-share technique, the growth of the Spanish provincial population could be decomposed in three components: the national growth effect, the structural mix effect and the regional shifts or competitive effect (Stevens and Moore, 1980). Authors as Nazara and Hewings (2004) and Ramajo and Márquez (2008), among others, extend the traditional shift-share considering the spatial interactions between regions, and including in the shift-share methodology the spatial dimension. This spatial interaction could be added through a matrix that indicate the regional connections.

Working age population is a variable associated with both economic activity and total jobs (or contracts) in a region. Thus, the endogeneity relation between these variables has been largely analysed in the literature (Boarnet, et al, 2005; Carlino and Mills, 1987; Hoogstra, van Dijk and Florax, 2017), and different models have studied the territorial features of the regions considering the relationship between population and employment (as jobs follow people or people follow jobs,).

This paper addresses population dynamics in a territory from a different framework. We will focus on the analysis if the changes in labour force of the regions in a certain period, decomposing it on different effects. Regional differences on these effects could be a good approximation to detect regional singularities in the Spanish provinces. This result could help to provide diagnosis that could improve regional policies when trying to mitigate population declining.

Changes of working age population within a province could have important effects on the provincial evolution, since this group of population can affect regional capacities through different channels (as consumers and as workers). This motivates the analysis of the changes of this group of provincial population by using the Spatial Shift-Share (Montanía et al., 2021).

The different effects obtained from the decomposition of the changes in working age population are the next (see Montanía et al, 2021):

- Neighbourhood total effect (NTE). It measures the change observed in the working age population of a Spanish province that can be attributed to the performance of the neighbours of the province.
- Neighbourhood industry mix effect (NIM). It is the part of change explained by the structure of the neighbours of the province under analysis, evaluating whether this group of population is more dynamic than population in the neighbouring provinces.
- Neighbourhood competitive effect (NCE). It evaluates the growth of working age population in a province with respect to that registered in its neighbouring

provinces, showing whether working age population in a Spanish province has a relative strength or weakness in relation to its neighbours.

- Regional industry mix effect (RIE). It represents the part of the provincial growth that is related to the population structure of the province, showing whether the province under analysis has a comparative advantage or disadvantage in terms of working age population.
- Neighbourhood regional shift effect (NRSE). It measures the growth rate of population in a province with respect to its neighbouring provinces, assessing whether the population structure in a province has a relative weakness or strength with respect to its neighbouring provinces.
- Residual effect (RE). It shows the effect of the difference between the growth rates of all the groups of population in the neighbouring provinces and the working age population in the province under analysis.

From our empirical application, we present a classification of provincial types that show information to assist regional policy design. This type of classification complements the other types of classification presented in the literature respect to the performance of the Spanish provinces when analysing depopulation.

The provincial categories displayed offers a simple diagnosis, showing the characteristics of the changes in the working age population for the Spanish provinces. The classification is based on the performance of a province considering three different territorial contexts: national, neighbourhood and provincial. Considering the importance of spatial pattern on Spanish map, neighbourhood and provincial contexts permit to detect spillover effects that contribute to obtain more efficient results. Our main contribution is that, from our empirical analysis, the sources of growth (or decline) of the Spanish provincial working age population are assigned to the different geographical context where the factors affecting population are operating.

Our empirical study is focused on the Spanish regions (NUTS-3) during the period 2014-2020. Since the end of the last century, Spain has attracted an increasingly higher number of foreign population, with 2007 representing the year with the maximum entrance of immigrants into this country. However, from 2008 to 2014, with the change in the economic scenario (mainly due to the crash in the construction sector) and the subsequent loss of jobs in Spain, the entrance of immigrants started to fall in an outstanding and continuous way. 2014 is the first year with positive change on foreign population in Spain. Consequently, we consider 2014-2020 as a steady period to obtain structural behaviours on population change about the national, neighbourhood or regional components.

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Palabras Clave: Spatial shift-share, population dynamics, neighbourhood, NUTS-3
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