

Urban Depopulation: Shrinking Cities and Brain Drain in Spanish Sending Regions

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Abstract

This paper examines the regional migratory balances of Spanish youth by urban-rural perspective and educational attainment, focused in brain drain and brain gain processes in 2000-2008 and 2009-2017. In order to do so, three sources of the Spanish Statistical Office (INE) are used: *Estadística de Variaciones Residenciales*, *Padrón Municipal de Habitantes* and *Encuesta de Población Activa*. The main results reveal that depopulation, as a consequence of brain drain processes, is no longer exclusive to rural areas. Rather, this study finds that such depopulation has recently extended to small and medium cities of traditional out-flow regions. Young people with high educational attainment of these cities now display a higher propensity to emigrate towards the main metropolitan areas of Spain, namely Madrid. The departure of the qualified young population is not compensated for by the arrival of immigrants, both in quantity and in regards to the level of education of such immigrants. This situation gives rise to negative migration balances and processes of educational decapitalization and has been found to have increased over time.

Introduction

Depopulation is a crucial demographic challenge facing the continent of Europe. Spain exhibits one of the lowest population densities in Europe, with fewer than 15 inhabitants per square kilometer in 60% of its territory. Although depopulation has recently appeared on the political agenda, it is a phenomenon that goes a long way back. Since the second half of the 19th century, emigration of rural populations increased, reaching a critical level between the end of the 1950s and the mid-1970s, when there was a massive rural exodus (Silvestre, 2002). Thereafter, outflows were smaller, but persistent (Recaño, 2017). However, rural-urban migrations have since diminished in size as the capacity of these areas to send young people to the cities has become limited. Meanwhile, as a consequence of globalization, the polarization between cities is increasing. As a result, interurban migratory flows from cities at lower levels of the territorial hierarchy to predominant metropolitan areas have increased (Sassen, 1991; Florida, 2002; Sánchez-Moral et al., 2018; González-Leonardo et al., 2019). In addition, since the beginning of the 21st century, out-migration of highly educated youth populations has increased in Spanish sending regions, primarily through internal migration (González-Leonardo & López-Gay, 2019) but also as a result of emigration abroad (González-Enríquez & Martínez-Romera, 2017). This is a process known as brain drain.

Brain drain refers to the loss of qualified human capital in a territory. It has negative consequences for endogenous development in out-flow regions and contributes to processes of accumulation in receiving areas, through imported human capital (Docquier & Rapoport, 2012). Such flows are directed from peripheral places to centers of the territorial system, usually global cities (Sassen, 1991; Florida, 2002). Mobility is explained by a rational action of individuals seeking to obtain higher yields for their abilities, which are better rewarded in places occupying the upper levels in the territorial hierarchy (Sjaastad, 1962; Sánchez-Moral et al., 2018). The greater the mismatch between skills and the returns paid for these in the regions of origin, the more significant the impact of the brain drain. Non-economic factors, such as the offer of cultural activities and diversity, should also be taken into account when considering the choice of one's place of residence (Florida, 2002), although economic variables, namely employment and salary, have a greater influence in the decision to move (Martin-Brelot et al., 2010).

Goals and hypotheses

The first goal will be to analyze the migratory balances of Spanish youth populations in the autonomous communities of Spain by urban-rural perspective in two distinct time periods: 2000-2008 and 2009-2017. Our hypotheses sustain that recent increases in mobility has developed more unbalanced net-migration rates, in which urban areas of sending regions, small cities and medium, are most harmed by the emigration of the young population. The second goal will be focused on examining brain drain and brain gain processes for each autonomous community. It is expected that regions with the most significant population losses will also demonstrate the highest levels of brain drain, and that this dynamic has increased over time.

Data and method

The migratory balances of each autonomous community, considering interregional and international flows, and the brain gain-brain dynamics will be analyzed for the Spanish-born population aged between 25 and 39 in two periods of time: 2000-2008 and 2009-2017. Using Estadística de Variaciones Residenciales and Padrón Municipal de Habitantes data, the net-migration rate will be calculated for three distinct territorial categories: provincial capitals, rural municipalities and urban non-capital municipalities -defined as urban centres with more than 10.000 inhabitants or those included in the Statistical Atlas of the Urban Areas of the Spain Government. Additionally, Encuesta de Población Activa stock data will be used to examine the extent of educational capitalization, or decapitalization, through the calculation of brain gain indexes for each of the 17 autonomous communities of Spain. These will be computed by the second equation. A positive index represents educational capitalization, where the immigrant population are more highly educated than the out-migrant population. This brain gain index and the net-migration rate will be showed in a dispersion plot to assess the correlation between these variables.

$$TMN_{25-39}^{i,t,t+n} = \frac{(I_{25-39}^{i,t,t+n} - E_{25-39}^{i,t,t+n})/n}{(P_{25-39}^{i,t} + P_{25-39}^{i,t+n})/2} * 1000 \quad GBI_{25-39}^{i,t,t+n} = \sum_{x=t}^{t+n} \left(\frac{IU_{25-39}^{i,x}}{I_{25-39}^{i,x}} - \frac{EU_{25-39}^{i,x}}{E_{25-39}^{i,x}} \right) * 100$$

Iⁱ: immigrants to the region i. Eⁱ: out-migrants from the region i. Pⁱ: population in the region i. IUⁱ: immigrants with university degree. EUⁱ: out-migrants with university degree.

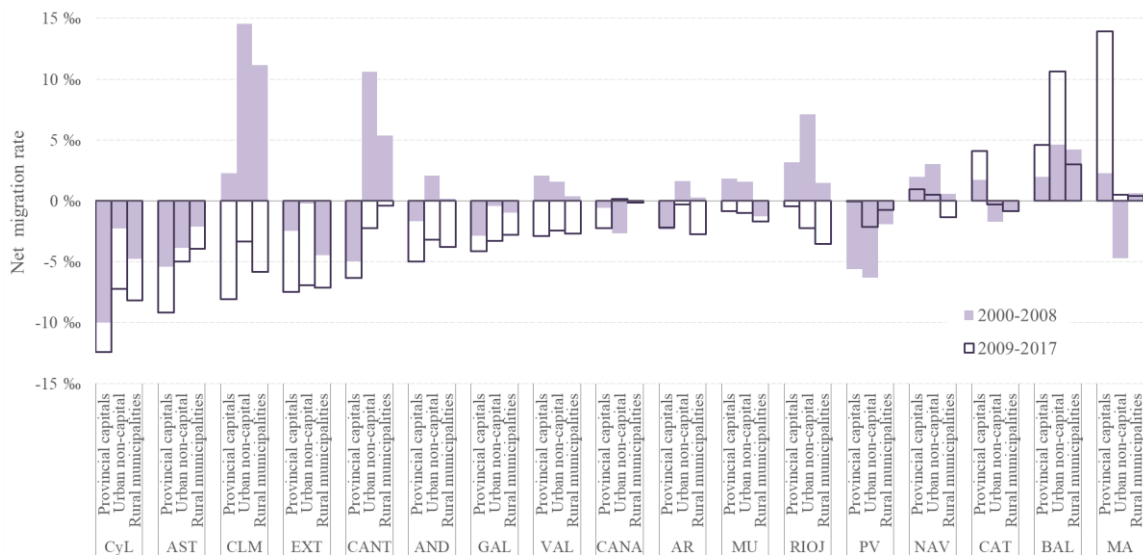
Main results

Figure 1 details the net rate of migration in each autonomous community by territorial category and supports the hypothesis regarding regional migratory dynamics. Net-migration rates are shown to be more imbalanced in the second temporal period, 2009-2017. Negative rates of migration are shown to be most significant in the autonomous communities of inland and Northern Spain, particularly Castile and León (CyL), Asturias (AST), Castile-La Mancha (CLM), Extremadura (EXT) and Cantabria (CANT). The out-flow of the young population remains most significant in urban areas of sending regions, small and medium size cities, and this dynamic has increased over time. The figure highlights a stark migratory change of Castile-La Mancha (CLM), where the deconcentration process of Madrid arrived during the economic growth until 2008. The net-migration rate of the Madrid municipality saw a remarkable increase, with similar, but significantly smaller, trends observed in the provincial capitals of the Balearic Islands and Catalonia regions, where growing immigration flows towards the city of Barcelona are highlighted.

Figure 2 depicts the correlation between net-migration rate and the brain gain index for both temporal periods. In 2000-2008, there is no association between the variables, although some regions with negative migration rates show values of brain gain index less than zero. The deconcentration process from Madrid to Castile-La Mancha is again evident, with negative

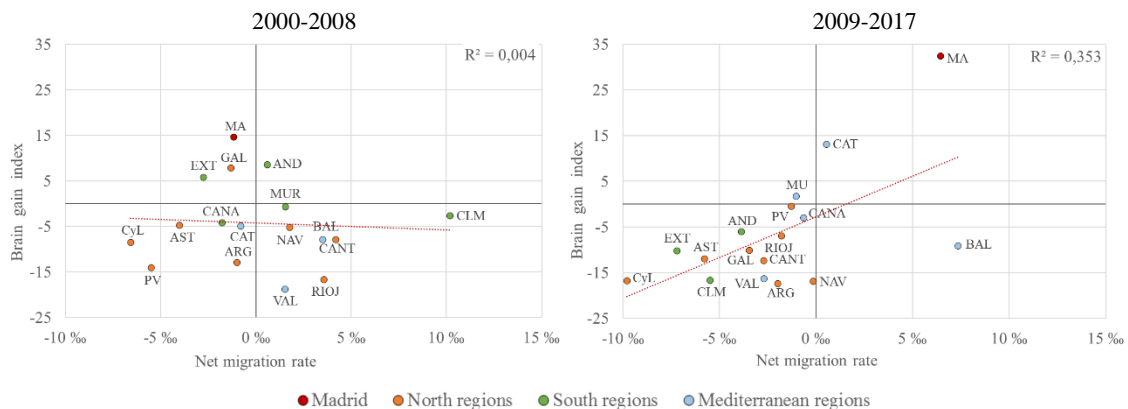
migration rates in the first region and positive in the second. Nevertheless, the level of education of out-migrants from Castile-La Mancha was lower than the immigrants that arrived, and the opposite case occurred in Madrid, where there was a negative selectivity in the emigration process. In 2009-2017, a positive correlation of 0,35 is observed. In this period, further decreases in negative net-migration rates in out-flow regions have developed concurrently with growing educational decapitalization. In other words, Spanish youth populations in sending regions are now more likely to emigrate but also have higher educational attainment, meanwhile entry flows to these regions are growing smaller, and immigrants have lower levels of education than those leaving. The autonomous community of Madrid displays both the highest rate of net-migration and brain gain index. Interestingly, The Balearic Islands have a positive migration rate comparable to Madrid, but the brain gain index is negative. This can be explained by the concentration of tourist-sector jobs which do not necessitate high educational qualifications.

Figure 1. Net annuals rates of migration (interregional + abroad) for the Spanish-born population of between 25 and 39 years old, by autonomous community and kind of municipality: 2000-2008, 2009-2017



Source: Compiled by authors using *Estadística de Variaciones Residenciales and Padrón Municipal de Habitantes (INE)*.

Figure 2. Brain gain index and net annual rates of migration for the Spanish born population of between 25 and 39 years old, by autonomous community: 2000-2008 y 2009-2017



Source: Compiled by authors using *Estadística de Variaciones Residenciales, Padrón Municipal de Habitantes and Encuesta de Población Activa (INE)*.

Discussion and conclusion

Since the change of the century and after decades of low migration intensity, the long distance mobility of the Spanish youth has increased. This paper demonstrates the increase in net-migration imbalances across the autonomous communities of Spain over time and the growth of the gap between the educational attainment of immigrants and out-migrants. Out-flow regions are negatively affected as result of this brain drain phenomenon, and small and medium sized cities in these autonomous communities are most impacted. Previous studies on shrinking cities have not recognized the association between depopulation and brain drain processes (Martínez-Fernández, Audirac, Fol and Cunningham-Sabot, 2012; Pallagst, Wiechmann and Martínez-Fernández, 2013) Moreover, this study highlights the extent of human capital accumulation in the municipality of Madrid, as the provincial capital is consolidated as the chief agglomeration of talent coming from other parts of Spain. The results draw attention to a marked and increasing polarization of the Spanish territory and testify to the inherent tendency of the processes of globalization to concentrate capital, activities of high added value and highly educated population in just a few global cities. Meanwhile, many small and medium urban areas have been excluded from big capital investments and have not been able to create an economy based on the new technologies. In many cases, these are cities that have not recovered from the processes of deindustrialization, or that are still trying to sustain a production system with certain degree of obsolescence and a deficit of qualified jobs.

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