

Migration and the speeding dynamics of population change: urban and rural areas in Spain

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Introduction

With globalization, international migrations have become a primary driver of demographic change in Europe, and Spain is no exception. It is in fact, one of the most interesting cases since it has become an immigration country only in the last decades. Indeed, two intense immigration waves took place, separated by the Great Recession, that raised the foreign-born population from 4% in the year 2000 to 16% in 2022. All of this in a country with one of the lowest fertility rates in the world.

This new demographic phenomenon in the Spanish context is of a rather complex nature. On one hand, the intensity of international migration primarily affects younger working-age cohorts, especially the Millennial generation. On the other hand, pre-existing territorial imbalances in Spain may have been accentuated, with some regions benefiting from migration while others may have further exacerbated their disadvantages, both demographically and economically. Indeed, the urban-rural divide is one of the central dimensions of population change in 21st century Spain. In one hand, the literature has pointed out the increasing urbanization and speeding depopulation of rural areas or the so called rural “empty Spain” (Recaño, 2020), and in the other hand, others have indicated how international migrations have been “filling” labour gaps in local industries in rural areas that were not attractive to young Spaniards (Bayona-i-Carrasco and Gil-Alonso, 2012).

Furthermore, from a temporal perspective, the first migration wave (2000-2007) was dominated by pull factors driven by the economic growth experienced in Spain, which attracted a significant labour force. However, after the crisis (2014-2022), international inflows were primarily determined by push factors, especially in Latin America, and not by the attractiveness of the Spanish labour market.

What is certain is that the Spanish demographic system has recently become dependent on migration as a central component in demographic change and reproduction, solidifying the paradigm of 'fast demography' (Billari, 2022). Moreover, migrations can be disaggregated by different types of flows that help giving a more detailed idea about the intensification and diversification of migration component in the last two decades. This disaggregation can be carried out by differentiating between emigration and immigration; internal or international flows; or flows featured by people born in Spain or abroad.

These complex changing dynamics of population change pushed by new migration flows, could drive towards an increased polarisation following the urban-rural divide by progressively diverging and accentuating rural loses and urban gains. Conversely, regions could converge towards increasingly similar values making Spain becoming an “immigration country” where this component becomes crucial for demographic and thus social reproduction.

Objectives

- Determine which migration flows are the main driver of population change in rural and urban areas.
- Decompose in three periods and by age the contribution to population change of different components, focusing in migration flows.
- Establish a snapshot of population change by measuring how are different types of flows converging after two migration waves across urban/rural regions.

Data and methods

Demographic data concerning migrations and natural increase are obtained from the Spanish National Statistics Institute (INE). In the case of migrations, the Residential Variation Statistics (EVR) are going to be used from 2000 to 2022. More specifically, the temporal perspective will focus on the cyclical nature of the two migration waves 2000-2007 and 2014-2022 and the depression period 2008-2013.

The rural-urban classification is going to be carried out by grouping Spanish municipalities in 6 groups following the criteria of Goerlich et al 2016, that recently established a more detailed urban-rural typology (Open Urban, Closed Urban, Open Intermediate, Closed Intermediate, Accessible Rural and Remote Rural).

As a first approach, the “Fast demography” indicators Population Turnover Rate (PTR) and Migration Share of Turnover (MST) are expressed as follows:

$$PTR_j(0, t) = b_j(0, t) + d_j(0, t) + i_j(0, t) + e_j(0, t)$$

by summing inflows and outflows in a population, that is fertility rate (b_j), mortality rate (d_j), immigration rate (i_j) and emigration rate (e_j), and by dividing the migration component by the total PTR:

$$MST_j(0, t) = \frac{i_j(0, t) + e_j(0, t)}{PTR_j(0, t)}$$

As mentioned, emigration and immigration will be further disaggregated in internal or international flows or flows featured by population born in Spain or abroad, and each type of flow will be calculated in the same fashion.

The decomposition (Kitagawa, 1955; Das Gupta, 1978) will be applied to measure the contribution of different components) and the age composition effects in population in the periods mentioned above, and between and within different urban-rural typologies. The difference between two crude rates (population A and B) can be decomposed into the contribution of the difference in the age-specific rate at age x and difference in the population structure, as follows, the decomposition of the emigration rate e is taken as an example:

$$e(t)_A - e(t)_B = \sum_x \Delta e(x, t) \overline{p(x, t)} + \sum_x \Delta p(x, t) \overline{e(x, t)}$$

Where the age-specific emigration rates at age x and time t and $p(x, t)$ is the proportion of the population at age x is $p(x, t) = \frac{PY(x, t)}{PY(t)}$, being P the person years, i.e. $\sum_x p(x, t) = 1$. Δ is the difference and the bar $\overline{\quad}$ represents the average between populations. In the same fashion, the same decomposition can be applied to the crude birth, immigration, and emigration rates (and their further migration components). Finally, the decomposition of the total change is represented as follows:

$$\begin{aligned} PTR(t) = & \\ & \sum_x \Delta b(x, t) \overline{p(x, t)} - \sum_x \Delta d(x, t) \overline{p(x, t)} + \\ & \sum_x \Delta i(x, t) \overline{p(x, t)} - \sum_x \Delta e(x, t) \overline{p(x, t)} + \\ & \sum_x \Delta p(x, t) (\overline{b(x, t)} - \overline{d(x, t)} + \overline{i(x, t)} - \overline{e(x, t)}) \end{aligned}$$

Where the population structure weight, common to all components, can be rearranged in the last summation.

In the last step, the convergence analysis will be carried out through inequality indexes as in Dorius (2008), more specifically, we will use the Theil's L index, that emphasizes the average logarithmic differences between values and their deviations from the mean, allowing to capture the relative disparities and average proportional changes within the distribution, particularly at the tails. We will be able to compare the contribution of each component to the overall convergence over time. Theil L index T_L (1967;1979) is expressed as follows, where n is the number of observations, X_i denotes the value of the variable (in this case first for the total change and then for each decomposed component) and \bar{X} the average value. The first term in the formula calculates the average logarithmic differences between the observations and the mean, while the second term adjusts for the mean-centered logarithmic differences:

$$T_L = \frac{1}{n} \sum_{i=1}^n \left(\frac{X_i}{\bar{X}} \right) \cdot \ln \left(\frac{X_i}{\bar{X}} \right) - \frac{1}{n} \sum_{i=1}^n \left(\frac{X_i}{\bar{X}} - 1 \right) \cdot \ln \left(\frac{X_i}{\bar{X}} - 1 \right)$$

Convergence will help evaluating if regions with lower values in a component at the beginning of the period are catching up with regions with higher values in time 0, e.g., the show higher growth.

Expected Results

- A generalized increment of the migration weight of turnover is going to take place all over the country including rural regions.
- The above-mentioned differences between the two waves of immigration could be partially confirmed, where the second wave has been more urban, but where not all urbanised areas have been equally attractive
- Convergence (migrations of the foreign born) in which regions who were in the tails of the distribution are increasingly becoming more migratory at a faster rate than the ones in the heads of the distribution two decades ago.
- Regarding the convergence of Spanish born flows, they are expected to not converge at the same rate (or not converging at all), given that rural regions will continue to lose (young native) population in detriment of more urban regions.
- Socioeconomic characteristics like the labour market sectors could be a strong factor defining heterogeneity within an urban-rural category of regions. The socioeconomic trends in different regions can be crucial between same urban-rural categories, causing some regions (within the same urban-rural category) to diverge and others to converge.
- We expect to find complex age patterns in migrations that transcend the rural to urban exodus of young natives, and the attraction of young foreigners to the main urban poles.
- Finding “*winning and losing*” regions through this urban-rural classification, will be a fundamental for informing policy makers, and a robust basis for prospective studies on sociodemographic territorial polarization.

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