

Assessing the Demographic Impact of Migration on the Working Age Population in European Regions

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ABSTRACT (200 words)

Ageing is central in the European Union (EU) policy debate, with all Member States being concerned about declining shares of working age populations (WAPs) and sustainability of welfare and health systems. Beyond this context, ageing patterns differ across EU territories because of distinctive demographic dynamics.

We study the relative contribution of migration in shaping the WAP at local level. Using Eurostat data from 2015 to 2019, we decompose changes occurred in the working age population into cohort turnover and net migration effects at national and NUTS3 level.

Net migration was able to compensate for the deficit in WAPs due to cohort turnover in only 27% of EU-NUTS3 regions, while the majority of EU territories experience negative cohort turnover effects alongside with positive net migration effects during the 2015-19 period. Distinct age patterns of net migration reveal urbanisation dynamics: older cohorts exhibit high propensity to move from urban to rural regions; in contrast, younger cohorts mainly move from rural towards urban regions.

Our contribution is twofold. First, we map EU regions where the WAP is declining rapidly. Second, we give an assessment of the role of migration in mitigating the effect of ageing and shrinking WAPs at EU-NUTS3 level.

CONFERENCE THEMSE: Human Capital and Labour Market, Population Ageing

1. THEORETICAL FOCUS

This contribution focuses on the demographic components of change in the working age population across the EU. Differences in the size of the active population are linked to the structure of local populations and regional migration flows that may significantly differ according to age, and between rural and urban areas. The analysis decomposes the changes in the working age population, distinguishing between cohort turnover and net migration effects, in order to investigate demographic dynamics of labour force supply (proxied by working age population) at NUTS3 levels (throughout this paper, the term 'regions' is used with respect to the NUTS3 level based on the EU NUTS classification (Eurostat, 2018)). Specifically, we seek to answer the following question:

To what extent do cohort turnover and migration effects shape the evolution of the working age population at the local level?

Using Eurostat datasets at NUTS3 level, changes in working age population are measured with respect to spatial demographic patterns. The comparative analysis of NUTS3 regions makes it possible to assess heterogeneity across the EU, and, within each MS, by rural and urban areas.

Our contribution to policy debate is twofold. First, we map regions where the working age population is declining rapidly. Secondly, we give a preliminary quantification of the role of migration in mitigating the effect of ageing and shrinking working age population at territorial level.

2. METHOD AND DATA

We adopt the approach proposed by de Beer, van der Erf, and Huisman (2011) for decomposing the changes in working age population, conventionally classified as 15-64 age groups (OECD 2021), into net migration and cohort turnover components. Using Eurostat annual data collection at NUTS3 resolution (Eurostat, 2021 a), the working age population in 2015 is compared with that recorded in 2019. Demographic changes occurred during the reference period are disaggregated by components, as follows:

(A) cohort turnover, computed as difference in absolute value between the entry cohort (15-19 age group) and the exit cohort (65-69 age group)

(B) mortality, as the age-specific number of deaths by 5-year age groups (15-64 years) is calculated using official statistics for the period 2015-18 (Eurostat, 2021 b); for 2019, due to the lack of completeness in validated data (at the time of the analysis), age and sex-specific deaths are estimated as the mean between the two latest available years (2017 and 2018); for the 60-64 age-group, we assume that only half of the deaths that occurred during the reference period are related to the working age population, while the other half concerns people out of the working age population;

(C) net migration, derived as the difference between (A), the cohort turnover, and (B) mortality.

The approach presents some limitations. Net migration does not allow any distinction neither between immigration and emigration flows, nor between intra-EU mobility and international migration. Therefore, residual method (A-B) applied to derive net migration may suffer from statistical biases. Furthermore, workers in the entry and exit

cohorts are implicitly assumed as interchangeable. Literature demonstrates that interchangeability between cohorts is negatively correlated with the age interval between them (Morin, 2015), and feasible only under certain conditions, such as narrow age ranges between entry and exit cohorts. Additionally, older workers might occupy high-skilled positions and their replacement would require extended periods of adjustment.

Beyond these caveats, the decomposition method is built upon a widely recognised approach differentiating between period and cohort effects, which makes it relevant and commonly applied to detect declines in the size of entry cohorts compared to exit cohorts. These in turn can generate substantial shifts in the relative size of active/inactive populations (Keiding, 2011) approximated by the working age groups.

3. RESULTS: NET MIGRATION AND COHORT TURNOVER ACROSS REGIONS

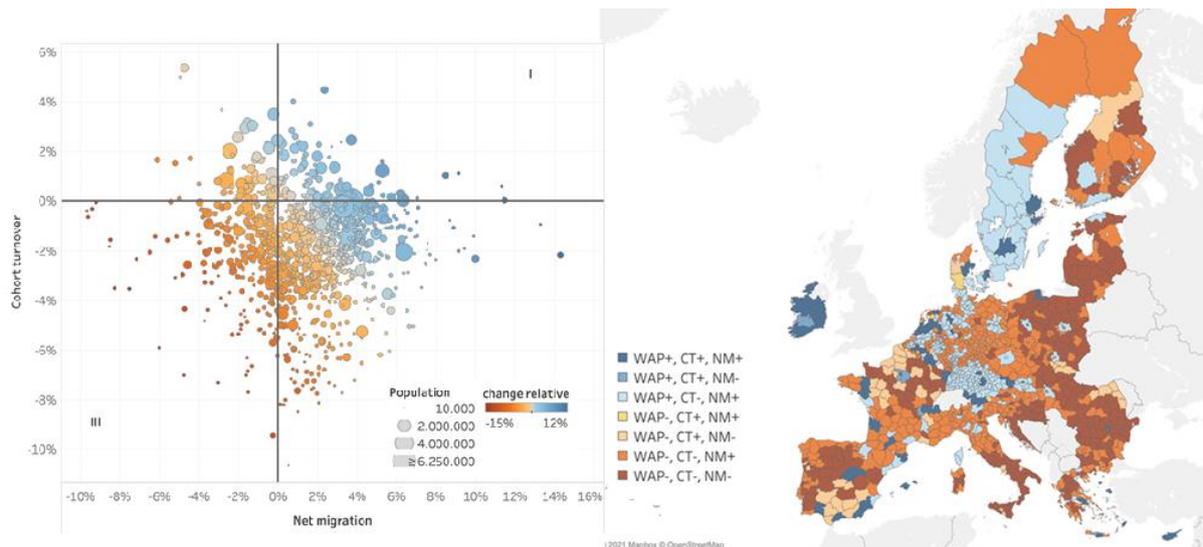
Through the period 2015-19, 22.9 million of EU young people entered the working age population, whereas 26.6 million people left it after becoming 65 years and older: this means that around 3.8 million potential workers were not replaced (Goujon et al. (2021).

Within this generalised trend for the EU, around 64% of EU regions experienced a decrease in their working age population. On the contrary, the remaining EU regions (420 out of 1,170) reported a positive change of their working age population. Among these, a small percentage (8%) combined a positive cohort turnover with a positive net migration balance. In general, the migration balance was positive in most EU regions (72%). In 316 EU regions (27% corresponding to 24% of total EU population), net migration counterbalanced the deficit due to a negative cohort turnover and contributed to an increase of the working age population. Negative cohort turnover dominated in the remaining regions, which led to the shrinking of the labour force supply.

The geographical distribution of relative changes in the working age population driven by cohort turnover and migration effects is shown in Figure-1. The scatter plot visualizes the change in the working age population during the period 2015-2019 as a proportion (percentage) of the population residing in the NUTS3 territorial unit in 2015, whereas the map displays its spatial distribution across the EU.

Figure 1.

Changes in the working age population across the EU regions, driven by changes in cohort turnover and net migration in the period 2015-19, scatter plot and geographical distribution.



Legend: gradient colour identifies the value of changes in the working age population: negative changes are displayed in red, whereas positive changes are displayed in blue. In the scatter plot, the bubbles' size depends on the relative size of the change in each EU region (NUTS3). The map shows the geographical distribution of these changes.

4. RESULTS: AGE AND SPATIAL PATTERNS OF NET MIGRATION

Overall, the age structure of EU inter-regional migration features two peaks: the first one at the age of entry onto the labour market (for age groups 20-24 and 25-29) and the second one at the ages close to retirement (for age groups between the age of 50-54 and 60-64). Net-migration-age specific patterns of rural regions only mirror the patterns in urban ones for intermediate ages. In the early phases of working age, young people exhibited negative net migration rates in rural regions (-5%) and intermediate regions (-3%) and a positive net migration rate in urban regions (+5%).

5. CONCLUSION

While ageing is visible across the entire EU, some regions did benefit from migration. This process has strong implications for the ageing of some rural territories that can be accelerated in correlation with a decline in labour force supply. The analysis presented here is able to capture the heterogeneity of regional demographic dynamics (in terms of intensity and timing), setting the basis for the definition of targeted interventions at local the level to attract a labour force into areas such as rural ones that are currently challenged by depopulation.

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