The Role of International and Intra-Regional Migration for Disparate Population Futures in the Countries of the European Union

Introduction

The size of the population of the European Union (EU) is reaching its peak according to projections from the United Nations (UNDESA 2024) and EUROSTAT (EUROSTAT 2023). Persistent low levels of fertility are the reason for the beginning decline. All 27 EU countries completed their demographic transition in the second half of the last century and EU fertility has been below the replacement level since the 1970s. Ireland was the last EU country to experience this shift, with fertility rates dropping below 2.1 children per woman in the 1990s.

Despite negative natural growth due to sustained low fertility across EU countries, not all of them are experiencing population decline or are projected to start to decline in the coming decades. This is due to migration, which is the main driver of continued population growth in several and mostly Northern- and Western EU countries. This migration counterbalances the otherwise declining population size, with increasing life expectancy and population momentum also playing minor roles. Conversely, migration has exacerbated population decline in several Eastern and South-Eastern EU countries, particularly in the course of substantial emigration to other EU countries following accession.

The emergence of migration as a significant driver of population change in post-demographic transition countries has prompted new or modified perspectives on population dynamics. Billari (2022) suggests that the demographic paradigm of slow-moving, inertial and self-contained population dynamics needs adjustment in the context of high-income countries with low fertility. Migration trends, which are more volatile and erratic than fertility and mortality trends, lead to faster and less predictable population change. Parr (2023) argues for a new perspective on the relationship of low fertility and migration and its impact on population growth.

This study aims to explore the role of migration for future population change in the EU and the differences across its member countries. It distinguishes between international migration from outside the EU and intra-regional migration. Unlike migratory movements from non-EU countries, intra-regional migration does not change the size of the total population of the EU, but merely redistributes the population across EU countries, where one country's population gain is another's loss.

Data and Methods

Our methodological approach consists of three steps. In a first step, we produce estimates of emigration and immigration for EU countries by sex and 1-year age group and by type of migration, non-EU and intra-EU. We integrate three datasets: emigration by sex and 1-year age group (EUROSTAT 2024a); emigration by sex and 5-year age group and next county of residence (EUROSTAT 2024b); and immigration by sex and 5-year group and previous country of residence (EUROSTAT 2024c). We take the average migration numbers between 2013 and 2022, excluding 2020 due to the significant impact of COVID-19 pandemic, and apply kernel-smoothing to produce immigration and emigration age schedules by sex and 1-year age group. Comparable, harmonised data for a majority of EU countries are not available before 2013.

In a second step, we explore the contribution of the demographic components of fertility, mortality, migration and population momentum to population change between 2024 and 2050 following the method of Andreev et al (2013). The contribution of each component is estimated by constructing a series of specific cohort-component population projections: A standard projection scenario, a

natural growth (zero-migration) scenario, and instant-replacement fertility scenario, and a population momentum (impact of the age structure) scenario. We separate the migration component into the two different contributions of non-EU and intra-EU migrants. To produce the projections, we use the assumptions on future fertility and mortality from the latest revision of the World Population Prospects (UNDESA 2024), while developing our own migration assumptions based on the estimates of non-EU and intra-EU migration.

In a third step, we analyse the relationship between migration and low fertility for long-term population change in countries. We apply a recent method developed by Parr (2019) to measure a migration-adjusted replacement fertility. The measure indicates what level of fertility is required for a population not to decline in the long-term given current migration and mortality patterns. We extend the method by distinguishing between two types of migrant populations, non-EU and intra-EU. We compare the results to current and projected levels of fertility.

Preliminary Findings

In order to sketch the analytical approach of the paper, we have produced preliminary results for all steps of the proposed methodology. Figure 1 shows the aggregated net migration figures for EU countries by type of migration based on the preliminary estimates of immigration and emigration by age and sex for non-EU and intra-EU migration. All EU countries receive more migrants from non-EU countries than people leaving their country to go outside the EU. It is particularly high in Sweden and tends to be lower in the eastern and south-eastern countries of the EU. Intra-EU net migration, which must be zero for all countries because the total number of emigrants must equal the number of immigrants within the EU, tends to be positive in central, northern and western EU countries, with Austria and Germany recording the highest net migration rates. Eastern and southern EU countries have negative intra-EU migration, with the Baltic States and the most recent EU accession countries (Romania, Bulgaria and Croatia) recording the highest net losses.

Figure 1: Netmigration rates by migration type (non-EU and intra-EU)
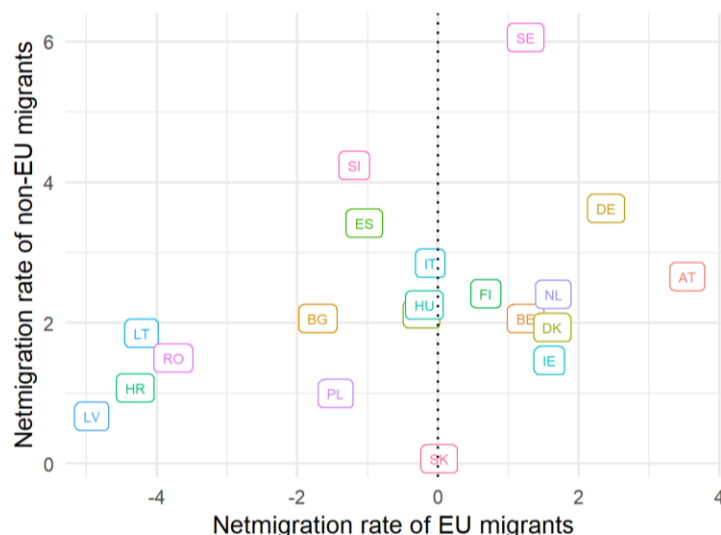
Note: Netmigration rates computed as netmigrants over 1000 population
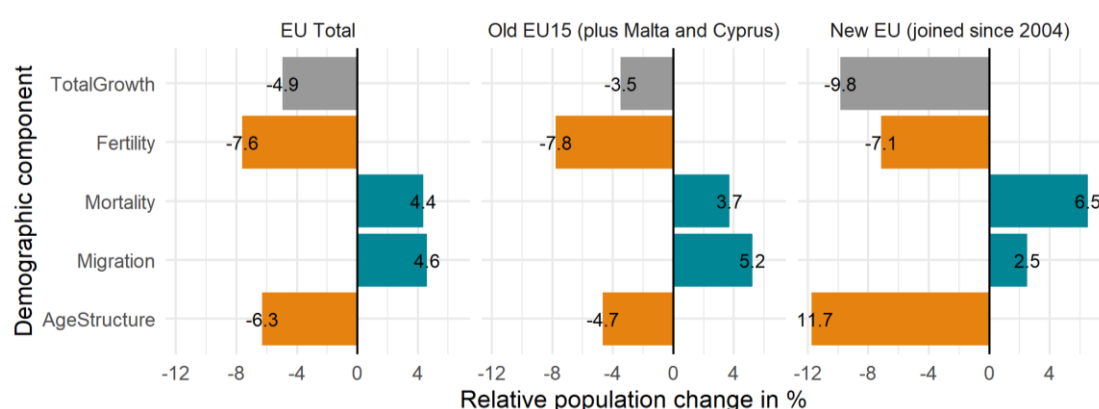Source: Authors' elaborations

We estimated the contribution of the demographic components to demographic change using existing projection scenarios from the UN World Population Prospects (UNDESA 2024). We still need to run our own projection scenarios that distinguish between non-EU and intra-EU migration. The

results presented here are based on the general migration assumptions in the UN projections. To summarise the preliminary results, we also categorised EU countries into two groups with broadly similar demographic dynamics: the old EU-15 member countries in plus Malta and Cyprus and the former socialist, Eastern European countries that have joined the EU since 2004.

The decomposition analysis of the contribution of the different demographic components shows that low fertility and the negative population momentum contribute equally to the projected decline of the EU population by 22 million by 2050. It highlights that population momentum has swung from a positive effect in the past to a negative effect in the future, which means that population decline in the coming decades is now pre-set by the current age structure. The positive effects of projected migration, which for the EU as a whole is only migration from outside the EU as intra-EU migration balances out, and projected improvements in mortality counterbalance the decline but do not fully compensate for the losses in population size. However, in the absence of further improvements in life expectancy and positive net migration, the projected decline of the EU population would not just be by 5% but by 14%, with a population of 383 million in 2050. The effect of migration is stronger for the old EU countries where both non-EU and intra-EU netmigration is positive. In the new EU countries, which have intra-regional negative netmigration, the counterbalancing effect of migration is weaker, but still positive.

Figure 2: Contribution of demographic components to population change until 2050

Source: Authors' elaborations

We produced migration-adjusted replacement fertility levels for the 22 EU countries for which we have so far produced migration estimates. Figure 3 shows that for almost all of the EU countries included, the migration-adjusted replacement level is lower than the generally assumed 2.1 births per woman. Only in Romania, Croatia, Latvia and Lithuania, the level is above 2.1 births per woman due to high emigration, especially to other EU Member States. For all countries, including these four, migration-adjusted replacement fertility would be below 2.1 children per woman if it were only for non-EU migration. However, only in four countries is the current fertility above its migration-adjusted replacement level (Sweden, Austria, Germany and the Netherlands). The gap between current fertility and the level needed to maintain population size in the future is particularly large in Spain, Italy and Poland, where gains from international migration cannot compensate for very low fertility.

Figure 3: Estimated migration-adjusted replacement fertility by migration type
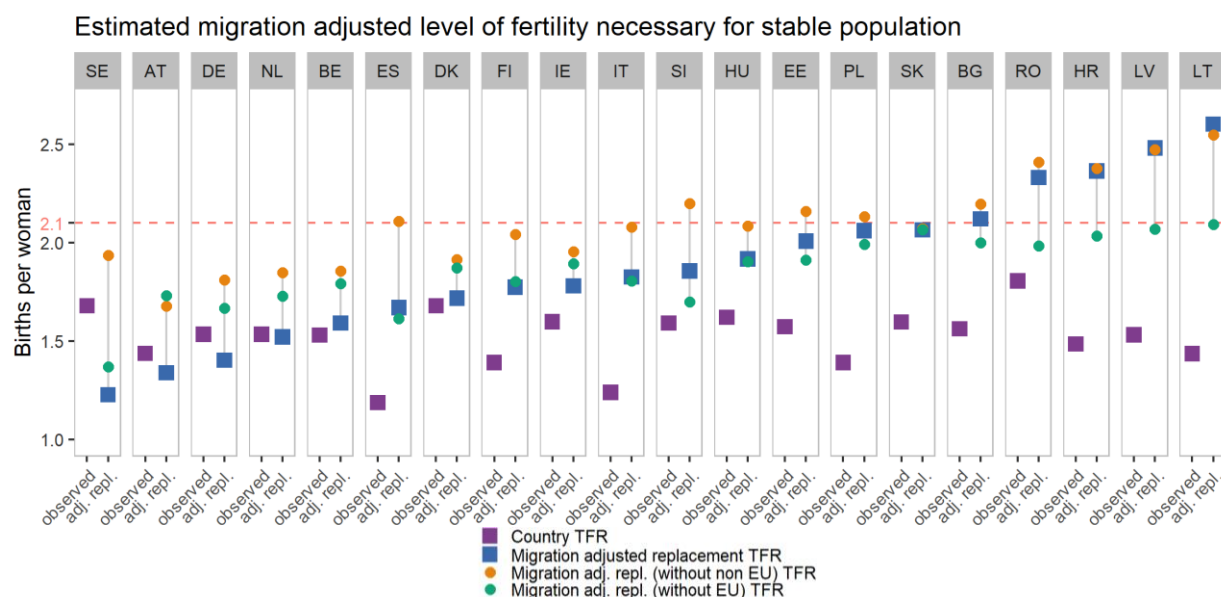
Source: Authors' elaborations

Further Work

- Expand country coverage and further refinement of the emigration and immigration estimates by sex and 1-year age group and by non-EU and intra-EU migration type.
- Produce population projections with own migration assumption by migration type for each EU country.
- Add projected fertility levels from the UN and EUROSTAT to the analysis of the relationship migration and fertility and test sensitivity to different levels of migration.

References

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