Stagnating mortality convergence across European regions in recent years

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While mortality is low in Europe, progress is slowing down and regional convergence, once notable, may have come to a halt. Markus Sauerberg, Florian Bonnet, Carlo-Giovanni Camarda, and Pavel Grigoriev fear that Europe may be at the eve of a new, and less favourable phase of survival evolution.

How many years can one expect to live? This question captivates both ordinary people and the scientific community (Olshansky et al. 2024), striving to unravel the mechanisms of human longevity. In the European Union, the average life expectancy has significantly increased since the early 1990s, reaching 81 years and six months in 2023 (for both sexes combined), according to the latest Eurostat data. This places Europe among the vanguard regions in the world in terms of longevity.

Mortality in Europe is low, but…

Encouraging as it may be, improving life expectancy across national populations masks substantial mortality variation at the subnational level. Meanwhile, the issue of regional convergence/divergence, including – among other aspects – population health, is of particular importance for policymakers. It lies at the heart of the European Union's objectives, which state in its Treaty on the Functioning of the European Union that "*the Union shall aim at reducing disparities between the levels of development of the various regions and the backwardness of the least favoured regions.*"

While monitoring the evolution of longevity at the national level is relatively straightforward, it is more complex to assess mortality trends at a finer geographical scale: considerable effort is required to collect and harmonize population and mortality data over extended periods, and the mortality estimates are unstable due to the small number of death events. Yet, it is

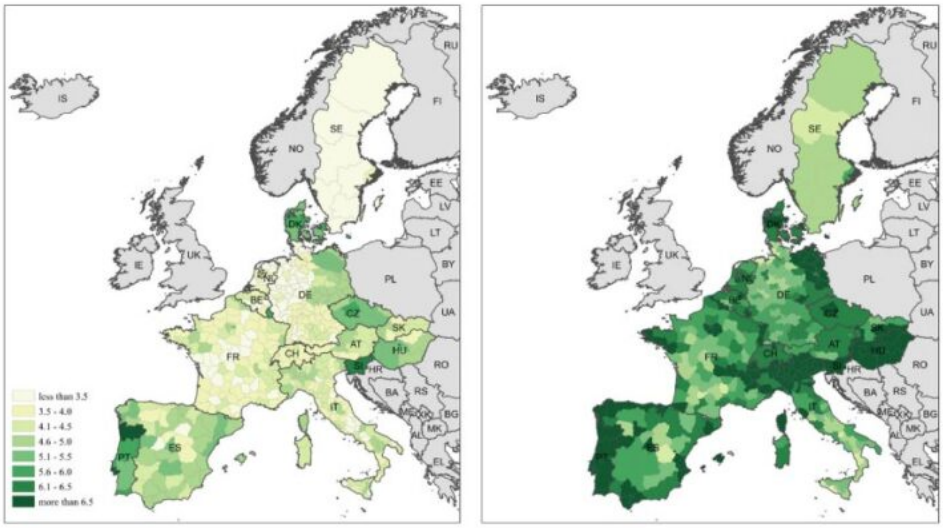
precisely at this geographic level that such studies are most meaningful, as significant mortality disparities exist even within countries with egalitarian welfare regimes.

In a recent study (Sauerberg et al. 2024), we collected mortality data from the national statistical agencies of 15 countries, covering 420 regions of Western Europe from 1995 to 2019. Our goal was to address a pressing question: is this part of Europe less unequal in terms of survival chances today than it was in the past?

Progress is slowing and convergence has halted

Figure 1 illustrates the total gains in life expectancy at birth between 1995 and 2019 for females (left) and males (right). The maps clearly highlight considerably higher life expectancy gains for men compared to women and reveals notable regional differences. Former socialist regions such as Slovenia, Czechia, Slovakia, and the eastern part of Germany enjoyed the highest life expectancy gains during this period (about 6 years for women). Likewise, northern Portugal and Denmark also achieved remarkable progress. Gains were much more modest, however, in Sweden, West Germany, most of the regions in France, and central Spain, (less than 3 years for women).

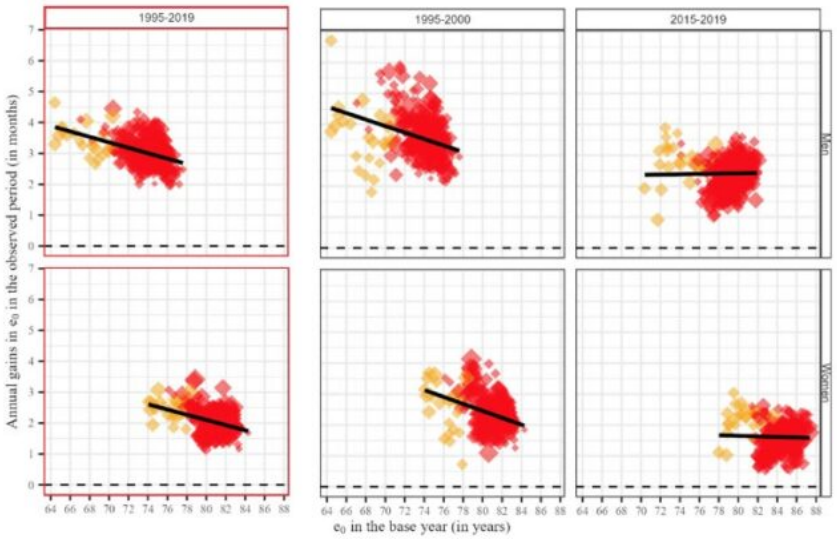
Figure 1: Gains in life expectancy at birth (e0) between 1995 and 2019 in 420 European regions for females (left panel) and males (right panel).



Source: Sauerberg et al. (2024)

But have these regional differences in life expectancy gains between 1995 and 2019 reduced inequalities across Western Europe today? The left panel of Figure 2 provides the answer. We plotted life expectancy levels in 1995 on the horizontal axis, and average annual life expectancy gains (in months) between 1995 and 2019 on the vertical axis for all regions. Regions of the countries that joined the EU in 2004 (Czechia, Hungary, Slovakia, Slovenia) are shown in yellow, while the rest are highlighted in red. If regions with the lowest life expectancy in 1995 achieved the highest gains over the period, life expectancy disparities in 2019 would be narrower than they were in 1995. Graphically, this relationship would appear as a downward-sloping line (in black). And this is exactly what we observe, for both men and women. In particular, regions of the countries that joined the EU in 2004 benefited from the highest life expectancy gains, significantly contributing to a reduction in longevity inequalities.

Figure 2: Annual gain in life expectancy at birth (e_0), regressed on life expectancy at birth in the base year, for men (top) and women (bottom). EU, 1995-2019.



Source: Sauerberg et al. (2024)

However, the question remains whether the process of mortality convergence observed over the entire period of our analysis was still operating in the most recent years. To answer this question, we focused on two sub-periods: 1995-2000 and 2015-2019 (beginning and end, respectively). While regions with the lowest life expectancy in 1995 enjoyed the highest gains between 1995 and 2000 (central panel in Figure 2), the same did not happen between 2015 and 2019. In the right panel of Figure 2, the black line is no longer downward-sloping: it is flat, or even slightly upward-sloping for men. Thus, the process of mortality convergence in Western Europe appears to have halted in the mid-2010s.

Another worrying observation compounds this negative trend. The central and right panels in Figure 2 also allow us to judge whether the annual rate of life expectancy gains changed between the two sub-periods. The points have noticeably shifted downward, suggesting a marked decline in gains. For women, life expectancy increased by less than a month a year in around 15% of the regions in our panel; this was the case for only one region over the 1995-2000 period.

Wrapping up

In conclusion, our analyses reveal three key findings.
• First, we observe mortality convergence across Europe's regions between 1995 and 2019. Regions of Eastern Europe with substantially lower initial life expectancy markedly reduced the gap with Western Europe, mostly due to faster mortality reduction during the 1990s.
• Second, during the last pre-pandemic years (2015-2019) mortality was no longer converging, as the regions lagging behind were no longer making faster progress in reducing mortality than the other regions.
• Finally, gains in life expectancy have generally decreased over time: 15% of regions show gains in longevity lower than one month per year for women between 2015 and 2019.
Thus, our results suggest that the *era of large gains in longevity* in European countries and their subnational entities came to an end even before the COVID-19 pandemic hit Europe (Bonnet et al 2024).

References

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