

Gender Gap in Life Expectancy. Time Trends and Geographical Differences

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Abstract

There has been extensive research on the geographical variation of mortality over the years, with numerous studies focusing on specific regions and countries. Notable works include those by Barbieri (2013) and Bonnet-d'Albis (2020) for France, Kibele (2012) and Kibele et al. (2015) for Germany, and Wilmoth et al. (2010) and Couillard et al. (2021) for the USA. Additionally, international atlases like EUROSTAT (2009) have contributed to this body of literature.

Concurrently, there has been a substantial body of research on the gender gap in mortality, examining its extent and changes over time. Scholars have explored various explanations for this gender difference and its evolution. Noteworthy contributors in this area include Waldron (1995), Luy (2003), Baum et al. (2021), and Pinho-Gomes et al. (2022).

However, it is worth noting that there has been relatively less attention given to the interaction between gender differences and geographical variations, despite the intriguing paradoxes that arise in this context. For instance, when examining sex differences in life expectancy among French départements, Figure 1 reveals an interesting trend: during the second half of the 20th century, where life expectancy was lowest, the gender gap in mortality was the widest. Conversely, when national life expectancy increased over time, so did the gender gap. This paradox can be attributed to the fact that the primary drivers of geographical variations in the gender gap were alcohol-related causes of death, while the increase in life expectancy was largely due to the cardiovascular revolution, which benefited women more than men. This was because women adapted their health behaviors more rapidly and effectively than men did during this period.

However, in the most recent decades, this paradox has faded away. The patterns observed in the département-level data remain consistent with the past – that is, where the gender gap is more pronounced, male life expectancy tends to be lower. However, the national-level trends have undergone a significant transformation. After a brief period of stagnation in the 1980s, the gender gap in mortality has experienced a remarkable decline. Geographical and temporal trends have now aligned.

Today, the geographical variation in the gender gap is no longer solely attributed to alcohol-related causes. It is influenced by a combination of factors, including cardiovascular and other causes, comparable to causes of life expectancy progress in time (Figure 2)

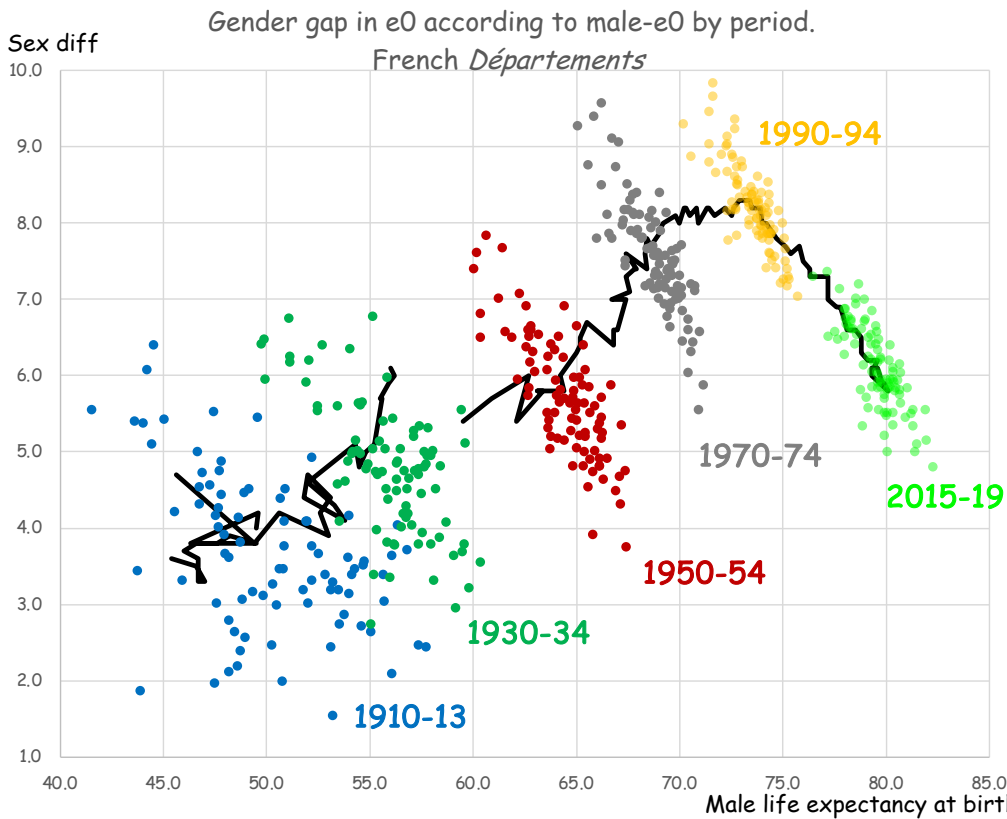


Figure 1. Gender gap in life expectancy according to the level of male life expectancy. French *départements*.

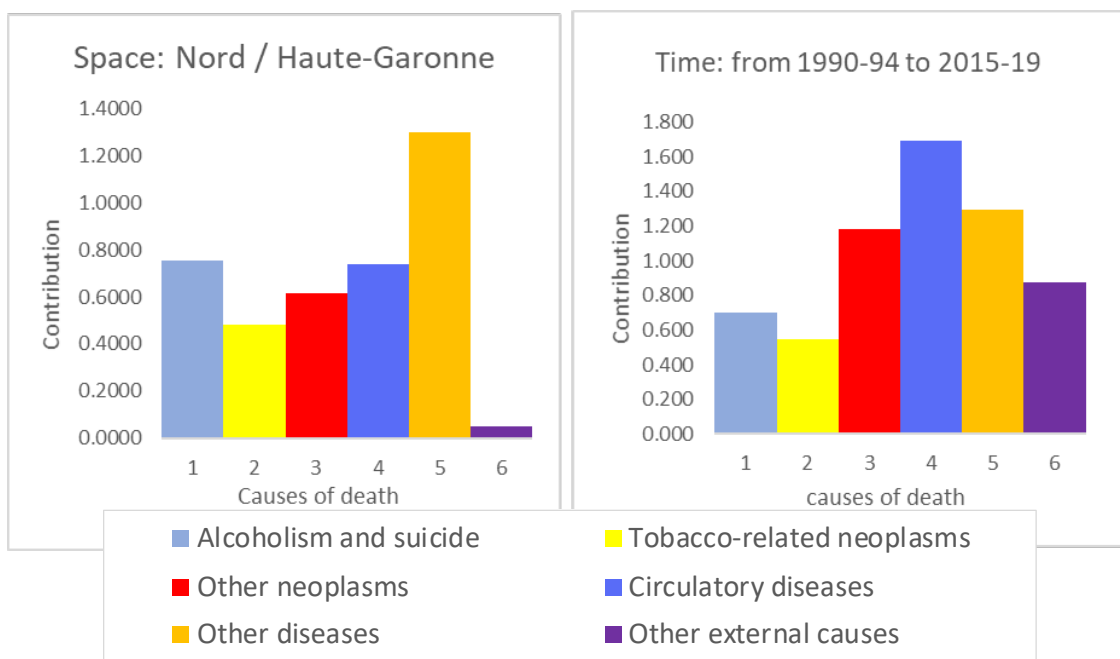


Figure 2. Contribution of groups of causes of death to geographical differences and to time trends in life expectancy at birth in France

Is this phenomenon observed across different age groups and in other countries?

To delve deeper into the analysis of these changes, the proposed paper aims to utilize subnational mortality databases linked to the Human Mortality Database (HMD) and other national sources. An initial exploration has revealed that similar trends can be identified in Japan and the USA, despite the substantial differences in life expectancy at birth between these two countries. This analysis will be extended to include other nations, such as Australia and Canada (which are available in the HMD subnational databases) and Germany (thanks to the REDIM¹ project). The objective is to determine whether the same causes of death that have been identified in France can account for the temporal trends and geographical variations in these different countries.

Of particular focus in this research will be the gender gap in life expectancy at age 75 (e75). This gap has been decreasing, especially in the most advanced countries, albeit more recently. At age 75, there is no evident correlation between the gender gap and the level of male e75 across regions. However, there is a slight positive correlation with female e75. Progress in life expectancy at older ages is still primarily driven by women, while men continue to lag behind. The paper will delve into the main reasons behind this male lag.

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¹ Regional Disparities in Cause-Specific Mortality in Europe: The Role of Local Context and National Health Policies. <https://www.bib.bund.de/P/redim/EN/Project/Project.html>

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