Inequalities in Life Expectancy between Migrants and Natives across Europe

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INTRODUCTION

In many of the traditional in-migration countries, including Australia [1], Canada [2], and the USA [3,4], certain migrant groups appear to outlive native-born residents, despite their relatively low socio-economic positions within the receiving society. The longevity in immigrants has perplexed scholars as it contradicts the otherwise persistent trend for the richer and the better educated populations to live longer. A popular explanation for this paradoxical phenomenon is that migrants have the initial health advantage to natives as they are positively selected individuals who were able to choose and complete the migration [5,6]. Further, the inequalities in mortality between immigrants and natives becomes even more complicated when it comes to the social contexts, represented by the example of education. Previous studies have found that the health gap between individuals from different educational background is relatively smaller in immigrants than in natives [15,16]. Therefore, immigrants with less education do not show the same mortality patterns as the natives with less education, which complicates the investigation of immigrant-native disparities in mortality and life expectancy.

Immigrant populations throughout Europe are aging fast [8,9], which calls for attention from the public health sector on the longevity of migrants compared to the native-born population. There has been limited attempts to investigate immigrant-native mortality gap in European countries, in which mixed findings were reported [10,11]. Therefore, cross-national comparisons should be implemented to investigate this inconsistency on the immigrant-native mortality gap in Europe. However, the small number of studies on life expectancy of immigrants in Europe mostly took place in a single country or in a single European region [10,11,15,16].

The aim of this paper is to examine the immigrant-native gap in life expectancy across Europe, and to understand the role of education in explaining the regional disparities in the observed gap. Under the aim, this paper presents findings from 10 European countries using a newly harmonized register-based dataset. Findings from this study is expected to provide evidence for targeted policy interventions to reduce the mortality inequalities between immigrants and natives in Europe.

METHODS

This study uses harmonized administrative data on mortality from the statistics offices in 10 European countries (Austria, Belgium, Denmark, Estonia, Finland, Italy, Lithuania, Spain, Sweden, and Switzerland) between 2010 and 2019. We limited our analysis to the time before COVID-19 outbreak. Data from the most countries cover the full national population, except for Italy where the information is limited to the city of Turin. All data were collected in longitudinal follow-ups after the census. In the data, all-cause and cause-specific mortality were given by country, sex, age, country of birth, and education. As this study estimates the life expectancy by the immigrant status and educational attainment, we excluded data on persons with missing information on country of birth and education. The country of origin variable was categorized in two steps: immigration background (native- and foreign-born) and the detailed region of

origins (native-born, born in European countries, and born in non-European countries). The educational background was categorized into three groups of low, medium, and high education. We redefined the country of birth into two groups for the immigrant status (native versus migrant).

Statistical Analysis

In the first step, we estimated the age-specific mortality rate by 5-year age groups. As we calculated the mortality specific to immigrants, which generally have small population sizes, one major challenge was the decision of the final open ended age category, considering that the population structure at older ages can differ greatly between populations. To deal with this problem, we compute the mortality for ages between 35 and 80, only, which would in turn produce the partial life expectancy for those ages. The lower end of the age inclusion criteria was selected considering that the mortality information was unavailable at ages below 35 for some countries. Another issue for the mortality estimation in small populations is the impact of ages with zero deaths. In Estonia and Lithuania, the population size for immigrants from the non-European countries were very small, leading to reduced death counts at some ages. For this matter, we compared our estimates to the results from additional analysis, where we used smoothed mortality rate to calculate the life expectancy using the negative binomial models (results not presented).

Based on the mortality, the partial life expectancy was calculated for ages between 35 and 80 years by gender and the country of origin for each country. The Europe-wide value for mortality and the partial life expectancy was estimated as the population-weighted mean. For all partial life expectancies and immigrant-native life expectancy gap, we estimated 95% confidence intervals using bootstrapping based on the binomial assumption (1,000 repetitions).

Next, to identify the extent to which the mortality differences between immigrants and natives is attributable the educational structure of the population over age, we performed the traditional stepwise decompositions. To illustrate the regional patterns in the age and educational contributions to the final life expectancy difference between immigrants and natives, we group our countries into four regions: Northern (Denmark, Finland, and Sweden), Southern (Italy and Spain), Eastern (Estonia and Lithuania), and Western (Austria, Belgium, and Switzerland) Europe.

RESULTS

Our results showed that the partial life expectancy is longer among immigrants compared to the native-born population in almost all countries regardless of the sex, with varying statistical significance (Figure 1). The only exceptions were both male and female sexes in Estonia and the male population in Sweden, where we observed lower life expectancies for immigrants than natives. Figure 1 panel b shows the partial life expectancy by detailed countries of origin. For both sexes, immigrants from non-European countries had a higher partial life expectancy compared to the native- and European-born populations. These inequalities in life expectancy by origin appeared to be larger for the female than male population in general.

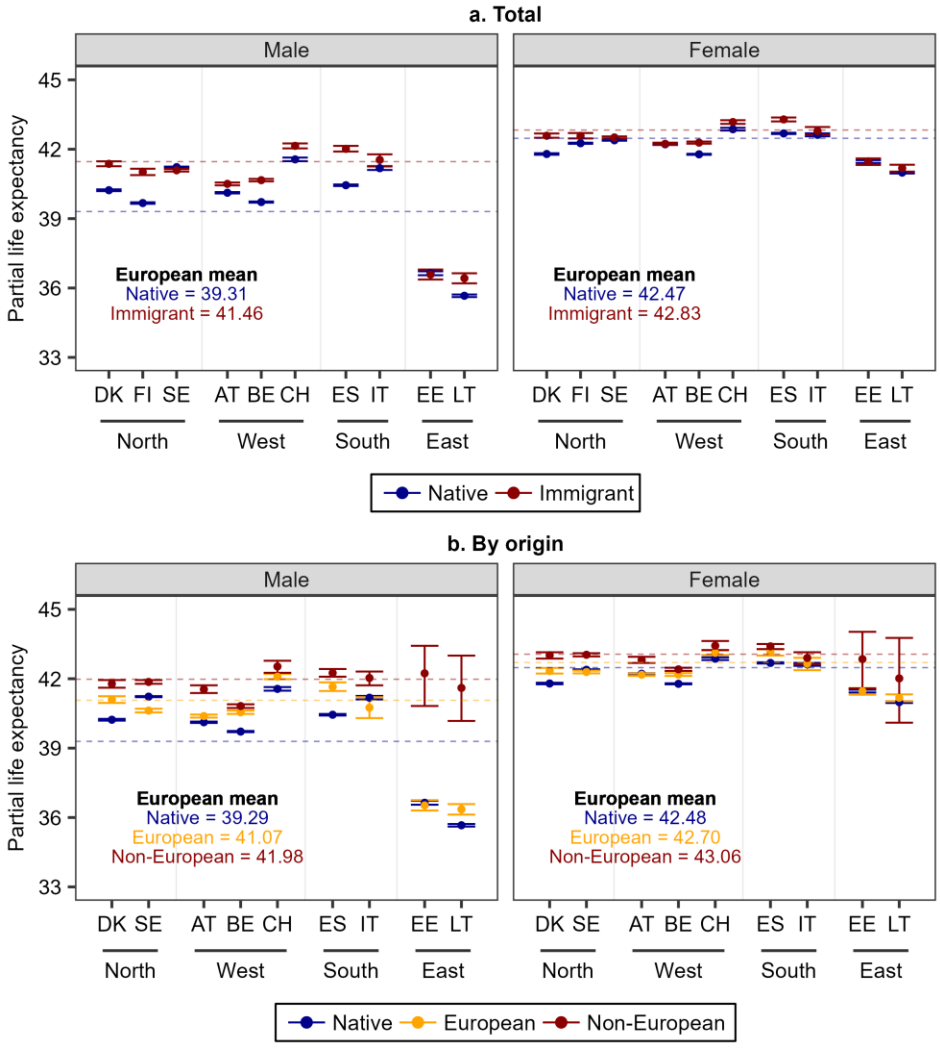

Fig. 1 Partial life expectancy by sex and country of origin. Dashed horizontal line in each panel represents the European mean of the partial life expectancy in each subgroup by sex and immigrant status (exact values on the lower left bottom of each panel).

Figure 2 shows the educational gradient in partial life expectancy. We found a smaller educational gradient in migrants than in natives for most of the countries. According to the bottom panel, these patterns were stronger for immigrants born in non-European countries than European countries across most countries. The only exceptions were Eastern European countries, where immigrants had a larger or similar partial life expectancy discrepancies across educational backgrounds compared to natives in both males and females. In particular, the educational gradient was flatter in natives compared to the foreign-born group – especially those born in European countries – among the male population in Estonia.

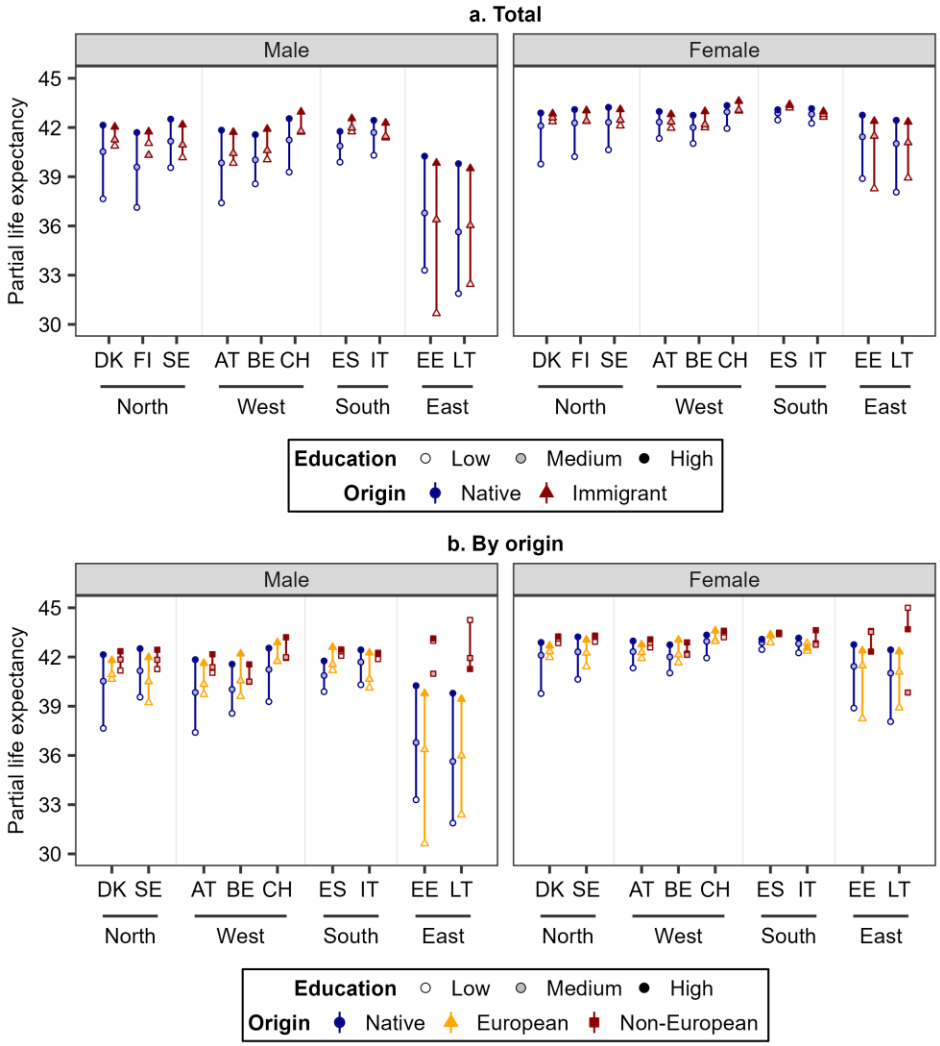

Fig. 2 Educational gradient of partial life expectancy in immigrants and natives by sex. Note: Each country on the x-axis is colored based on the geographic region

Figure 3 presents the results from the decomposition analysis of the immigrant-native mortality gap over age by the educational structure or the sex- and region-specific populations. In all panels, stacked bars show the contribution of different ages and the educational structure of mortality (low education in red, medium education in yellow, and high education in blue) to the immigrant-native gap in the partial life expectancy. If the bars are stacked above zero, it means that life expectancy in migrants from that grouping by age and education is longer than that of natives, while the opposite is true when stacked below zero. According to the results, mid-old populations around 60s contribute the most to the immigrant-native gaps in life expectancy across all regions. Also, low education group contributes to the immigrant advantage in partial life expectancy in the Northern, Southern, and Eastern Europe, and to the disadvantage in the Western Europe. Finally, deaths in the high educated group contributes to the higher life expectancy in natives in Northern and Eastern Europe, while this is true only for populations aged 55 and above for Southern Europe, and the opposite trend was found in Western Europe where the high educated mortality promotes longer life expectancy in migrants.

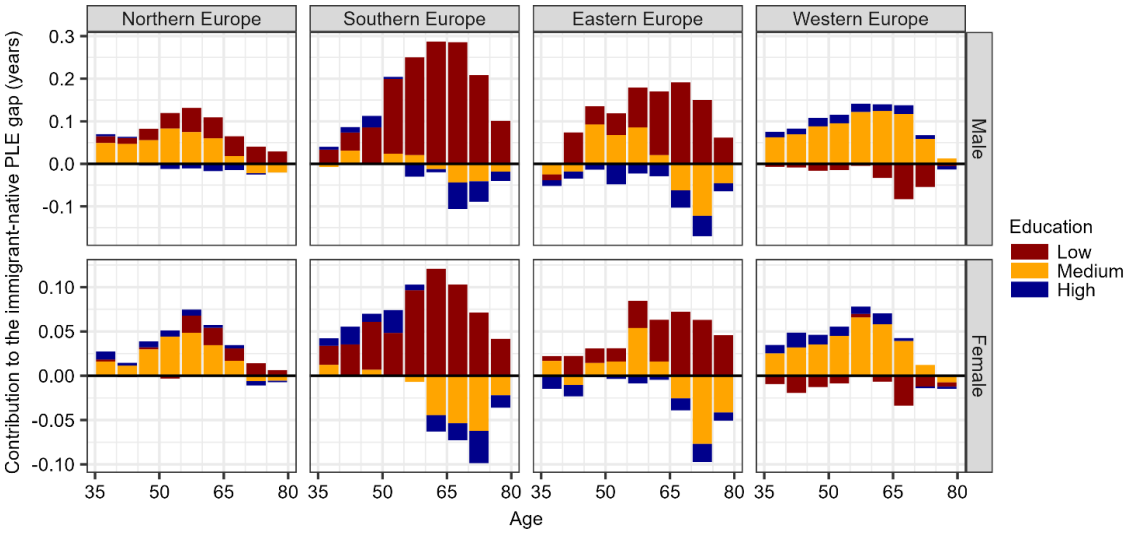

Fig. 3 Decomposition of immigrant-native mortality gap over age by the educational attainment in sex- and European region-specific subgroups.

CONCLUSION

Findings from this study shows that the partial life expectancy is generally longer among immigrants compared to the native-born population, while the educational gradient in life expectancy is smaller for immigrants than in natives. The negative impact of low education on the life expectancy of migrants is smaller in wealthier and migrant-friendlier countries. Further, the contribution of the age and educational structure to the immigrant-native life expectancy gap differs significantly between regions. To the best of our knowledge, this is the first cross-national paper to compare the immigrant-native mortality gap in a wide range of countries that includes multiple regions in Europe, which will contribute to the literature. Our findings can be used to inform the European social policy of the inequalities in life expectancy between immigrants and natives, and to identify the countries with the biggest inequalities.

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