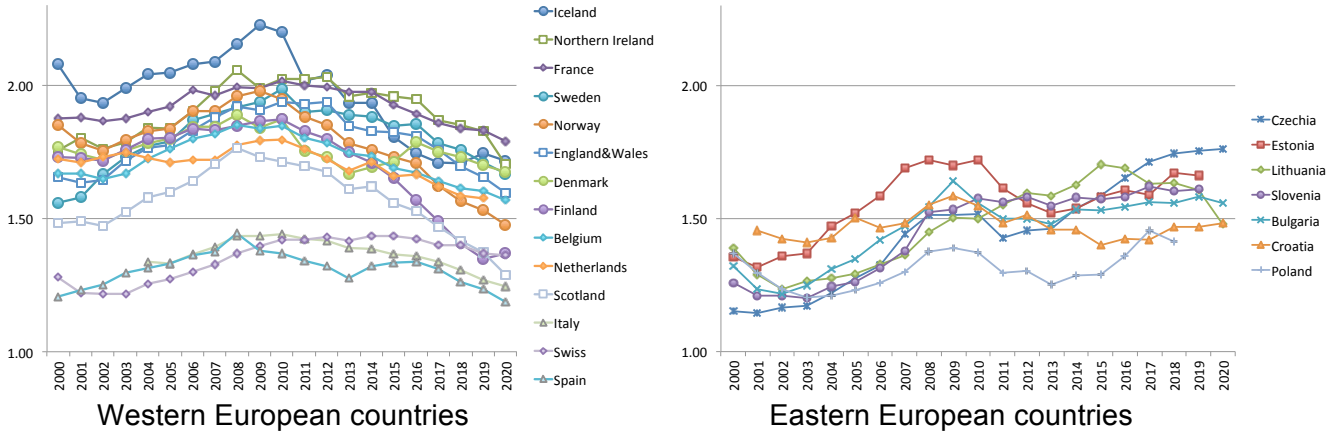
Fertility Trends 2000-2020:
Similarities and Differences between Western and Eastern European Countries

Over the first decade of the new millennium, countries across Europe followed a similar trajectory. After bottoming out around 2001-2002 the TFRs rose consistently to achieve peak fertility in the 2008-2010 period; then the Great Recession hit. However, since hitting those maxima, the fertility trends of Western Europe and Eastern Europe have diverged. Across Western Europe, TFRs fell steadily up to the disruptions of the Covid pandemic in 20021. In contrast, in the Eastern European countries, after a short downturn in the 2009-2013 period, there was a renewed rise in fertility rates.

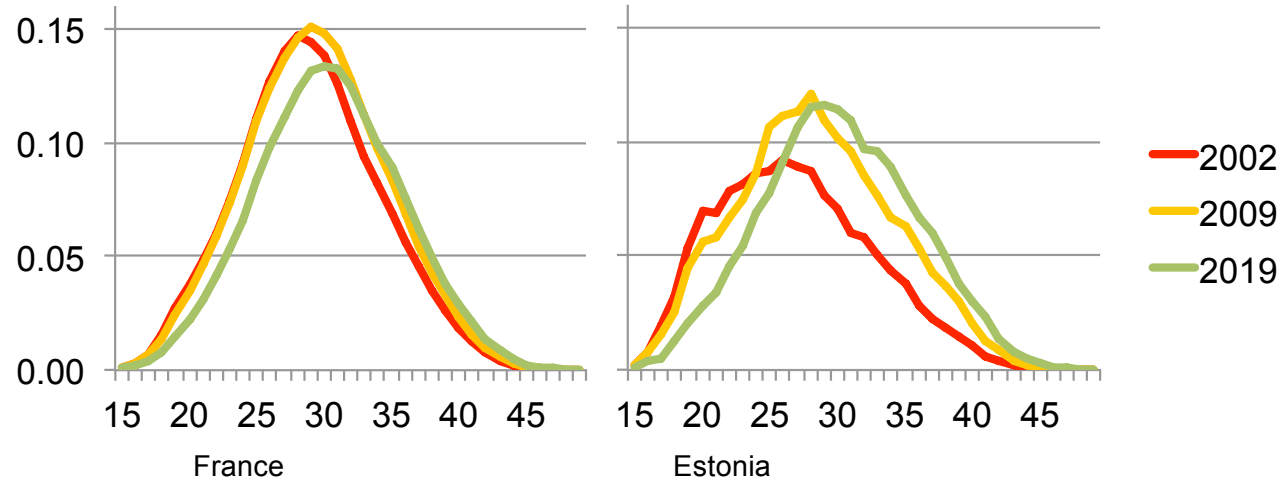
Figure 1: Trends in TFR



The aim of this piece of research is to investigate the demographic details of why the TFR trends differ between Western and Eastern Europe. We use the Human Fertility database, specifically the age-specific fertility rates (ASFRs), to construct fertility curves for each country. For Switzerland we used data available from their national statistical office looking specifically at the Swiss national subpopulation: this enables us to minimise the distorting impact of high migration on the TFR and examine a population group with one of the world's highest mean age of childbearing.

Figure 2 shows two examples which typify the two halves of Europe: France as a Western European country and Estonia as an Eastern European country.

Figure 2: Fertility curves (age-specific fertility rates by age)

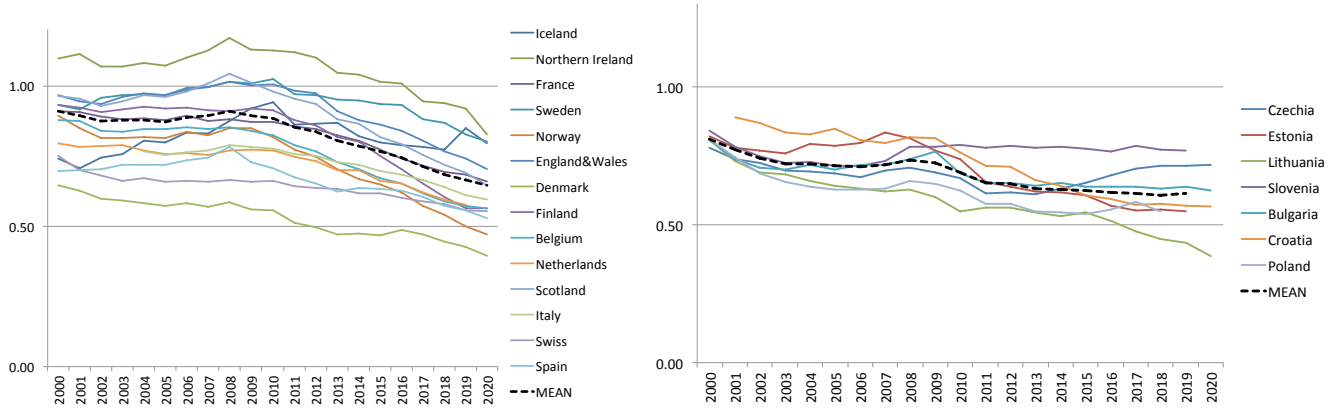


For the French fertility curves we see that the pre-modal (left side) of the curves for 2002 and 2009 (red and yellow) almost overlap and the post-modal (right side) of the curve for 2009 and 2019 (yellow and green) also overlap. The area under the curve, which defines the TFR measure, increased over the 2002-2009 period because early (pre-modal age) fertility stabilised whilst post-modal fertility increased. After 2009 late fertility stabilised but early fertility declined. In addition the height of the curve rose modestly in the early years but fell in the decade after 2009.

The Estonia curve exemplifies the trends for Eastern European countries. Over the first decade there was an increase in both the height and width of the fertility curve. However, since 2009, the fertility curve has not changed significantly in shape: shrinkage on the pre-modal side of the curve has been balanced by growth on the post-modal side. Thus the TFR has remained close to the peak it reached around 2009.

The following graphs illustrate the applicability of these conclusions for countries of Western and Eastern Europe.

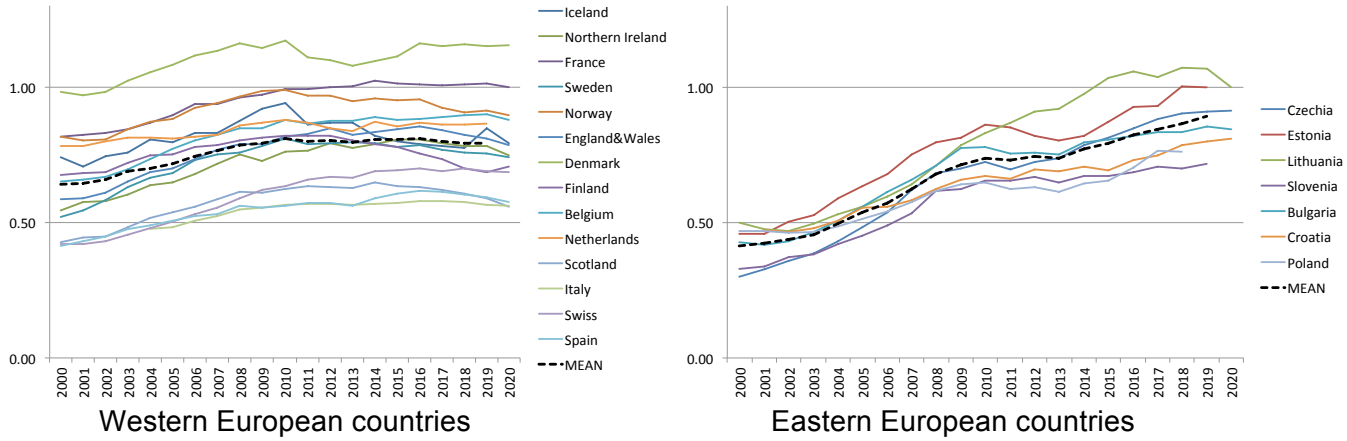
Figure 3: Trends in pre-modal fertility rates



These are the sum of the ASFRs for ages up to the peak rate (age relating to peak in 2009)

The early fertility trends are somewhat similar across Europe although the falls since 2009 have been somewhat more modest in Eastern European countries.

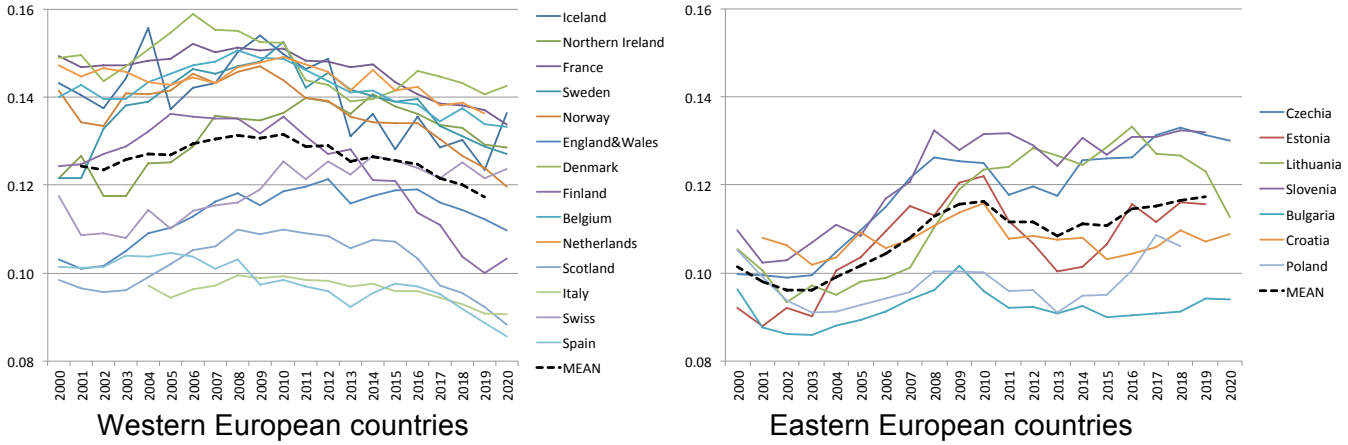
Figure 4: Trends in post-modal fertility rates



These are the sum of the ASFRs for all ages above the peak rate (age relating to peak in 2009)

The trends in late fertility differ: in Western Europe there has been stability after the initial decade of growth, whereas in Eastern Europe late fertility has risen steadily over the whole period except for a short period of relative stability (or slight falls) immediately post-2009.

Figure 5: Trends in peak fertility rates (ASFR at modal age of fertility in each year)



Trends in peak fertility have also trended differently across Europe after the initial decade of rises. The post-2009 falls seen across Western Europe leading up to the pandemic years were not reflected in the Eastern European countries, which have generally seen stability or increases.

As to why the two halves of Europe have experienced differing trends in the second decade of the millennium, we can make some deductions from the fertility curve. The Eastern European countries traditionally had a pattern of much younger childbearing than has been the case in Western Europe for decades, and so the fertility curve could simply progress rightwards as childbearing trended later. However, it appears as though the Western European countries may be hitting a barrier as to how much late fertility can increase. Whereas the left side of the fertility curves are quite variable between countries, the right side (over age 34) are very similar for these highly developed countries. As can be seen in the graph for France in Figure 2, late fertility has stayed almost the same between 2009 and a decade later, and this pattern was observed across all the Western European countries. Has a biological barrier been hit with late fertility? Or is it a societal one, determined by childbearing norms and/or the impact on women from career and partnering challenges?

Two final postscripts. First, a few countries do not follow the usual pattern for their region: Austria and Hungary, with relatively stable TFR across the whole period; Russia and Belarus with rising TFRs up to 2016 followed by very sharp declines; and Portugal, with a declining TFR to 2013 followed by a rise. Secondly, three other developed countries, all Anglophone, follow similar trends to the Western European countries: New Zealand, the USA and Canada: an initial post-millennial rise in TFR followed by decline.