# Exploring age-specific and cumulative cohort rates using composite fertility lattice plots: an international comparison of Human Fertility Database and Human Fertility Collection data

## BACKGROUND

The Human Fertility Database (HFD), and the related Human Fertility Collection (HFC), provide highly disaggregated data on age-specific fertility rates for 45 countries. These sources provide a wealth of opportunity for learning about the development of different pathways of transition to low fertility both within and between countries and geographic regions.

## OBJECTIVE

The aim of this paper is to use composite fertility lattice plots, which combine information from different visualisation methods of the Lexis surface, such as heat maps and shaded contour plots, to explore changes in age-specific fertility rates and derived cumulative cohort fertility rates across countries and geographic regions.

## METHODS

Standard shaded contour maps use both shade and contour to represent the same variable. In our plots we instead use colour/shade to indicate age-specific fertility rates, and a series of distinct contour lines to indicate the cumulative fertility rates reached by different cohorts at different ages. These figures are then ranked by cumulative cohort fertility rates in the last commonly observed period, and colour coded according to geographic region.

## RESULTS

By looking first at the thick solid contour lines from left to right in each population figure, we can see at which age different cohorts either reached or last reached replacement fertility levels. Other contours help understand the degree of shortfall below replacement levels for different cohorts. It appears that, once countries have fallen below a replacement fertility level, they tend to not return to it. Exceptions are Norway and the USA, which saw rising fertility rates for cohorts born after 1950s and late 1960s, respectively. The age-specific fertility trends, as well as broader political and socioeconomic conditions in these countries, are very different, suggesting different paths by which replacement fertility rates can be achieved.