# Wittgenstein Centre

## FOR DEMOGRAPHY AND GLOBAL HUMAN CAPITAL

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**The hybrid seminar will be held online via Zoom and in person at PSK, Georg Coch Platz 2, 1010 Vienna, Meeting room 3A.2, 3rd floor**

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## WIC Hybrid Colloquium

# Using hazard models and dynamic microsimulation to model aggregate trends in period fertility: a consideration of potential and challenges.

**Tuesday, 2 April 2024**
**11:00 – 12:00 (CEST)**

### Karel Neels

University of Antwerp, Belgium

## Abstract:

The period TFR is the most widely used aggregate indicator of period fertility, feeding directly into commonly used aggregate models of population dynamics. Although a myriad of factors affect the tempo and quantum of fertility, the aggregate nature of the period TFR and the fact that it solely considers age as the relevant time clock make it ill-suited to quantify the impact of various determinants on trends in period fertility, let alone the impact of anticipated changes in such determinants on future trends in period fertility. In contrast, hazard models can link tempo and quantum of various life course transitions to potential determinants at the individual, household and contextual levels, suggesting that individual-based models (IBMs) may be better suited to model aggregate fertility trends. Using population-wide longitudinal microdata for Belgium and a late entry design for the period 2001-2010, a compartmental hazard model of entry into parenthood and parity progression is combined with a dynamic microsimulation model to generate maternity histories for individual women aged 15-50 between 2011-2070. By aggregating simulated maternity histories, IBMs can be used to quantify the impact of anticipated changes in various determinants on aggregate fertility measures such as the period TFR.

Please click **here** to register.

Login information will be sent to registered participants shortly before the presentation.

### About the presenter:

Karel Neels is Full Professor of Social Statistics and Demography at the University of Antwerp (Belgium). His work has considered the effects of education, labour market trajectories, economic cycles and family policies on entry into parenthood and parity progression in both native and migrant populations, with a specific focus on (multivariate) modelling of period fertility trends.

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