The Human Fertility Database:
New resource for demography

K. Zeman[*], T. Sobotka[*], A. Jasilioniene[**], V. Shkolnikov[**],
D. Jdanov[**], E. Andreev[**], and J. Goldstein[**]

[*]Vienna Institute of Demography, Austrian Academy of Sciences, Vienna
[**]Max Planck Institute for Demographic Research, Rostock

EXTENDED ABSTRACT FOR EPC conference in Vienna, September 2010

25th December 2009

www.humanfertility.org

The Human Fertility Database (HFD) is a joint project of the Max Planck Institute for Demographic Research (MPIDR) and the Vienna Institute of Demography (VID), based at the MPIDR in Rostock, Germany. It provides open and user-friendly access to detailed, well-documented and high-quality data on period and cohort fertility. Special focus is put on birth order-specific data that are frequently not available from usual data sources.

Work on the Human Fertility Database began in 2007, largely inspired by the success story of the Human Mortality Database (HMD; www.mortality.org). The first version of the Database, available at www.humanfertility.org, was launched at the IUSSP conference held in Marrakech (Morocco) in September 2009. The website initially featured period and cohort fertility data as well as parity-specific fertility tables for six countries with total population around 500 million (United States, Russian Federation, Austria, the Czech Republic, the Netherlands, and Sweden).

The database has been expanding rapidly during following months. By the end of 2009 the project team has established contacts with research experts and statistical agencies from more than thirty countries. At the time of the EPC conference in Vienna (September 2010), it is planned to have about fifteen countries included in the database (see figure 1).
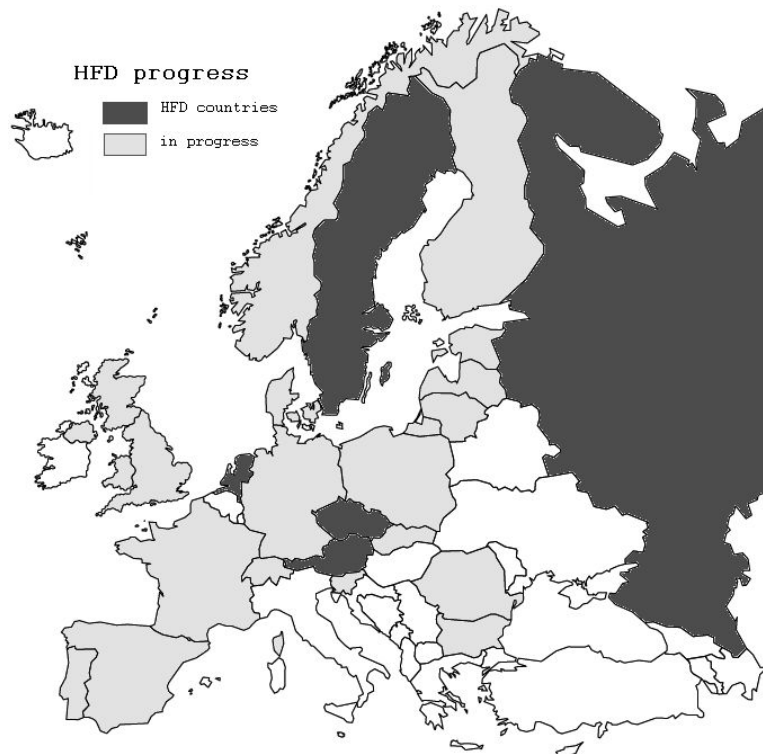
Figure 1: **The map of European HFD countries in progress and those already included (does not show overseas countries: USA; Canada and Australia in progress)**

The main goal of the Human Fertility Database is to provide access to detailed high-quality data on cohort and period fertility to a broad audience of users. We are trying to develop the HFD into an important resource for monitoring, analyzing, comparing, and forecasting fertility as well as for studying causes and consequences of fertility change in the industrialized world. We believe that the uniform format of HFD data will facilitate comparative analysis across countries and regions and will encourage analysts to move beyond the simplest indicators such as the period total fertility rate (TFR).

The Human Fertility Database incorporates fine level of detail, especially with respect to age and birth order dimensions. The aim of this poster is to display in series of figures the power of the database in depicting the fertility behaviour across countries and in a comparative view. The HFD provides fertility rates in fixed format for as long as possible time series: data are organised by single years of age (12–55), by mother's birth cohort, and by birth order (from 1 to 5+, when available) (see figure 2). Summary indicators are computed for periods (see figure 3 for illustration of trends in mean ages at birth in the current HFD countries) as well as birth cohorts. In addition, the HFD provides input data from which these measures and tables are being computed. The input data consist of detailed birth counts and estimates of female population exposure obtained from officially recognized sources. A complete description of the HFD methodology is given in the Methods Protocol (available at http://www.humanfertility.org/Docs/methods.pdf). For each country, the description of data sources is given in the References document posted on the respective country page. General country-specific

information (completeness, coverage, data quality issues, definitions, etc.) can be found in Background and Documentation files within each country section.
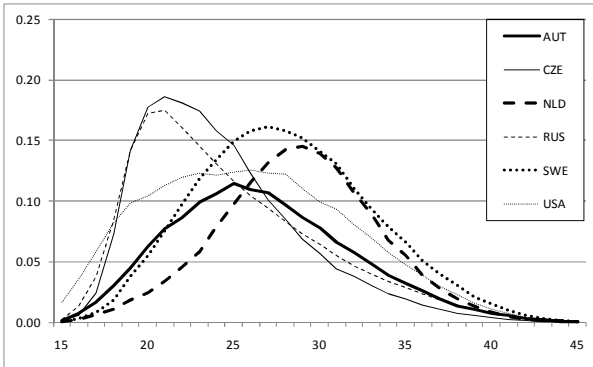

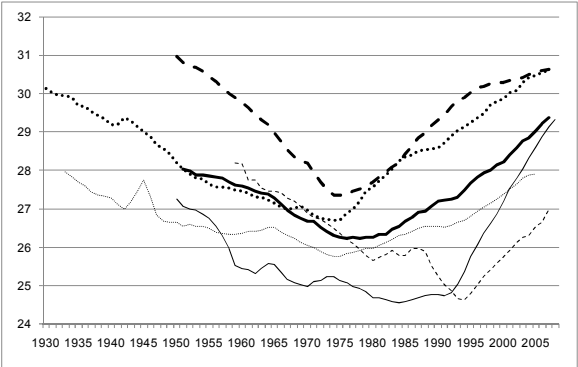**Figure 2: Age-specific fertility rates, 1990**

Figure 3: Mean age at birth, 1930-2008

All data are provided not only in a period perspective, but also for birth cohorts. This allows users to analyse changes in fertility patterns across cohorts (see figure 4 for the comparison of first birth order age-specific fertility rates of two cohorts – born in 1950 and in 1975) or to compare summary indicators across countries (e.g., cohort childlessness or cohort mean ages at childbearing, as shown in figure 5 and figure 6).
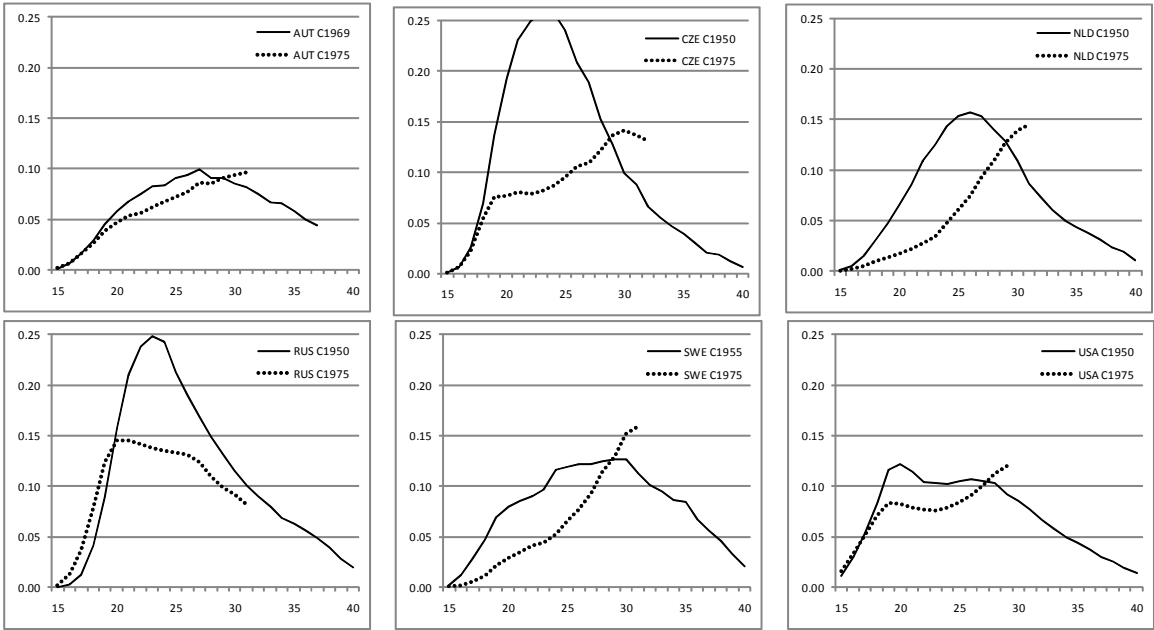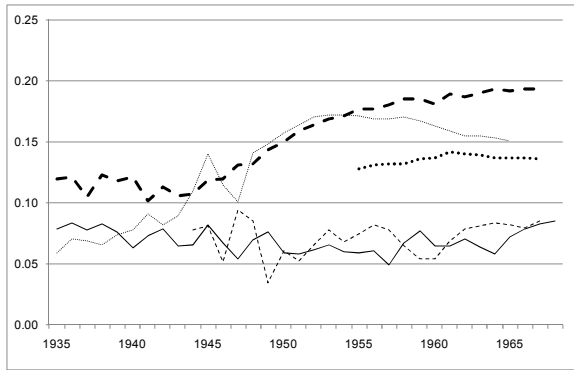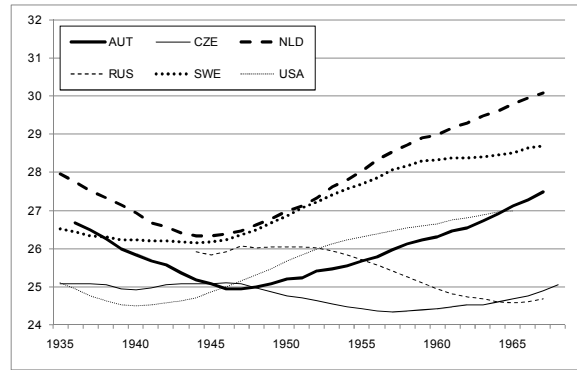

Figure 4: Cohort age-specific fertility incidence rates of first birth order, comparison of 1950 cohort (or the oldest included) with 1975 cohort

Figure 5: Cohort childlessness at age 40 (no data available for Austria)


Figure 6: Cohort mean age at childbearing (by age 40)

Moreover, fertility tables are calculated for periods and cohorts, for which population exposure (the age- and parity-specific distribution of the female population of reproductive age) is available. These are increment-decrement life tables, which model the process of childbearing by age and parity. In principle, they describe a two-dimensional progression toward older age and higher parities. Women are moving from parity zero (i.e., from being childless) to parity one, from parity one to parity two, and to subsequent parities, by giving births of the corresponding birth orders. Apart from the conventional TFR, computed from the unconditional fertility rates (also known as incidence rates where births of a given birth order are related to all women irrespective of their parity), the main input to fertility tables are 'conditional' fertility rates, or occurrence-exposure rates, which relate births of a given birth order to women of corresponding parity (e.g., first children to childless women). See figure 7 for the main output of the period fertility tables – "summary index of period fertility controlling for age and parity" – PATFR, and its first birth order component – $PATFR_1$.
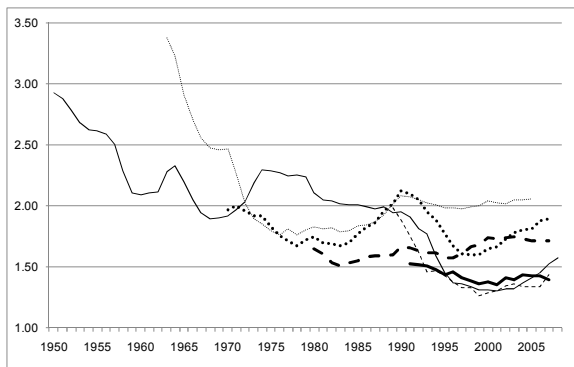
Figure 7: PATFR
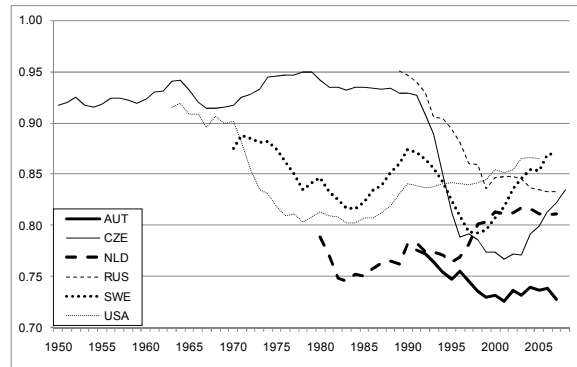
Figure 8: $PATFR_1$ of first birth order

Human Fertility Database provides data that are not available in such a formalised and comparative view from any other online database. Our goal is to establish the HFD as a respected and widely used source of high-quality fertility data that will become a key resource for cross-country comparative studies and that will also stimulate innovative research on fertility data, indicators and methods.

The following features should make the HFD particularly attractive to its users:
- High level of detail, providing the possibility to address different data needs and research questions
- Uniformity of methods and data design, which guarantees comparability of all the data across countries, cohorts, and periods
- Availability of order-specific fertility indicators (whenever possible), which encourages and enables a higher level of sophistication in fertility analyses and forecasts as well as further innovation in methodological research on fertility
- Free access to all data upon registration