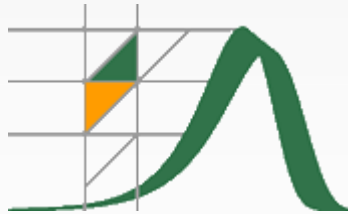
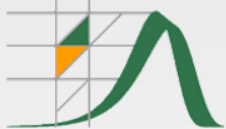

The Human Fertility Database



www.humanfertility.org

Aiva Jasilioniene
on behalf of the HFD team





Human Fertility Data Project

The Project is a joint endeavour of the **Max Planck Institute for Demographic Research** (MPIDR) and the **Vienna Institute of Demography** (VID).

Aim: to provide free and user-friendly access to a variety of fertility data

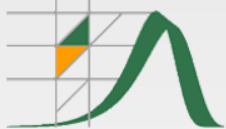
The Project consists of two companion databases, based at the MPIDR in Rostock:

- **Human Fertility Database (HFD)**, www.humanfertility.org
- **Human Fertility Collection (HFC)**, www.fertilitydata.org

Official launch:

- **HFD in September 2009** (IUSSP Conference, Marrakech, Morocco)
- **HFC in August 2013** (IUSSP Conference, Busan, Korea)

Inspiration: **Human Mortality Database (HMD)**
Human Life Table Database (HLD)



Motivation and aims

Ambition: supporting population-level fertility analysis
to bring it back to the spotlight

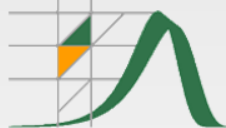
Motivating forces

- Low and lowest-low fertility
- Fertility postponement, its effect on period / cohort fertility
- New indicators of fertility *tempo* & *quantum*
- Parity-specific trends in fertility
- Policy debates on fertility, family policies and their effects

→ **Need for comparative, detailed, high quality data**

General aims

- Providing comparative & standardised data on fertility
- Open access
- Putting together datasets that were not easily accessible
- Going beyond the period TFR
- Expanding the range of available indicators: birth order and cohort dimensions



HFD at its launch in 2009

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Max Planck Institute
Vienna Institute
Human Mortality DB

General

Contact us

The Human Fertility Database

Joshua R. Goldstein
Director

Vladimir M. Shkolnikov
Co-Director

Tomas Sobotka
Co-Director

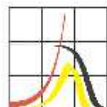
The Human Fertility Database (HFD) is a joint project of the [Max Planck Institute for Demographic Research](#) (MPIDR) in Rostock, Germany and the [Vienna Institute of Demography](#) (VID) in Vienna, Austria, based at MPIDR. We seek to provide free and user-friendly access to detailed, well-documented and high-quality data on period and cohort fertility and thus to facilitate research on changes and inter-country differences in fertility in the past and in the modern era.

The HFD is entirely based on one and the same type of initial data - officially registered birth counts by calendar year, mother's age (and/or cohort) and (whenever possible) biological birth order. These data, together with total female population exposure from the Human Mortality Database (www.mortality.org) and parity-specific female population exposure from selected population censuses, population registers, or large-scale surveys are further processed using a uniform set of methods. The major HFD output includes detailed data on births, unconditional and conditional fertility rates, cohort and period fertility tables as well as selected aggregate indicators such as total fertility rates, mean ages at childbearing, and parity progression ratios.

We seek to provide open, international access to these data. At present the database contains detailed population and mortality data for the following countries:

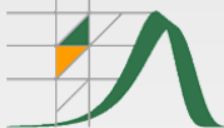
Austria	Czech Republic	Netherlands
Russia	Sweden	U.S.A.

For more information, please begin by reading an [overview](#) of the database. If you have comments or questions, or trouble gaining access to the data, please [contact us](#).

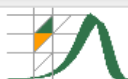


The Human Fertility Database is a joint project of the Max Planck Institute for Demographic Research and the Vienna Institute of Demography, based on the Max Planck Institute for Demographic Research





HFD in 2016



The Human Fertility Database

Directors: Vladimir M. Shkolnikov (MPIDR) and Tomáš Sobotka (VID)

Founding Director: Joshua R. Goldstein (UC Berkeley, formerly MPIDR)

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Human Fertility Collection
Max Planck Institute
for Demographic Research
Vienna Institute
of Demography
Human Mortality Database

EVENTS/PUBLICATIONS

PAA 2015 HFD Side Meeting
1st HFD Symposium
Technical Reports
HFD Publications

ANNOUNCEMENT: The Human Fertility Data Project team organizes the 2nd HFD Symposium on "Population-level fertility research: State of the art" to be held at the Wissenschaftsforum in Berlin, Germany, on 23-24 June 2016. Please see [the Symposium's programme](#).

The Human Fertility Database (HFD) is a joint project of the [Max Planck Institute for Demographic Research](#) (MPIDR) in Rostock, Germany and the [Vienna Institute of Demography](#) (VID) in Vienna, Austria, based at MPIDR. We seek to provide free and user-friendly access to detailed and high-quality data on period and cohort fertility and thus to facilitate research on changes and inter-country differences in fertility in the past and in the modern era. The HFD is entirely based on official vital statistics and places a great emphasis on data checking and documentation and on warranting data comparability across time and countries by means of uniform methodology. [Read more](#)

The MPIDR and the VID also collaborate on the Human Fertility Collection (www.fertilitydata.org), which is supplementing the HFD. The HFC incorporates a variety of valuable fertility data from diverse, not necessarily official, data sources. The major responsibility for the quality of data entering the HFC rests with data producers/providers. Therefore, HFC data, unlike those in the HFD, might be of lower quality.

For users who seek fast access to the most commonly used summary indicators of period and cohort fertility, we provide excel tables comprising the following indicators for all the HFD countries:

HFD summary indicators				
Total fertility rate	Mean age at birth	Mean age at first birth	Completed cohort fertility	Cohort childlessness

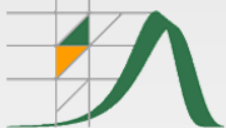
We seek to provide open, international access to these data. At present, the database contains detailed period and cohort fertility data for the following countries:

Detailed data by country				
Austria	Estonia	Italy	Russia	Ukraine
Belarus	Finland	Japan	Slovakia	U.K.
Bulgaria	France	Lithuania	Slovenia	U.S.A.
Canada	Germany	Netherlands	Sweden	
Chile	Hungary	Norway	Switzerland	
Czech Republic	Iceland	Portugal	Taiwan	

The HFD will be continually updated and more countries will be added with time. Below we present countries which are on our "coming next" list. For these countries we provide only age-specific fertility rates based on the original official data. Please be aware that these data have not been fully processed, checked, and corrected and may not be free of mistakes and biases.

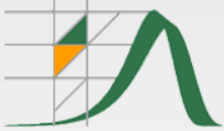
Preliminary release				
Denmark	Israel	Luxembourg		
Ireland	Latvia	Spain		

For more information, please begin by reading an [overview](#) of the database. If you have comments or questions, or trouble gaining access to the data, please [contact us](#).

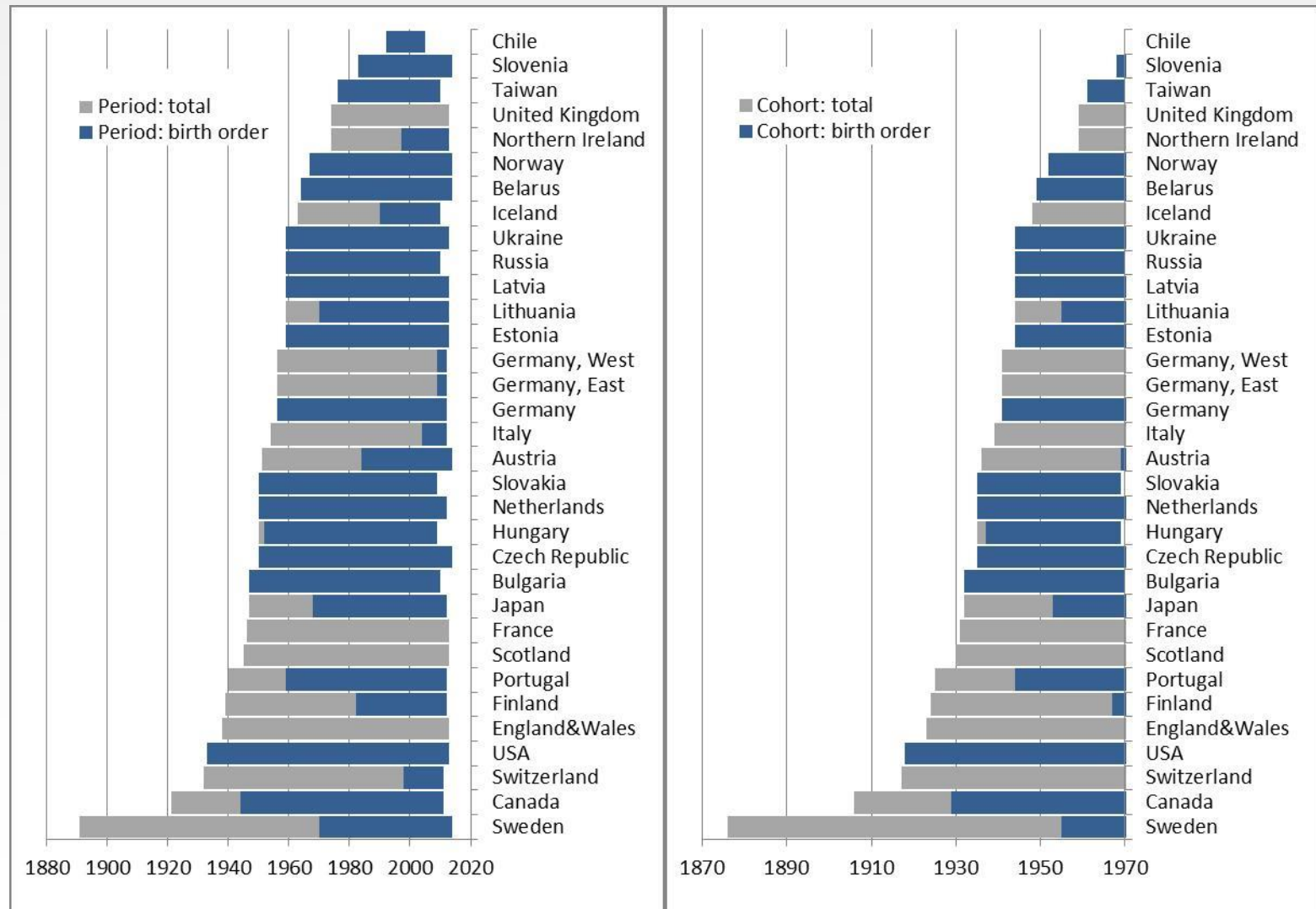


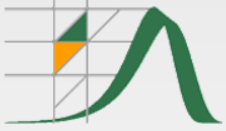
Basic facts about HFD

Initial number of countries (2009)	6
Current number of countries	27 + 5 subpopulations: Germany, East and Germany, West; England and Wales, Scotland, and Northern Ireland)
Foreseeable expansion	45-50 countries (limited by data quality)
Period (min – max)	1891-2014, continuous data series
Update of country series	Annual/biannual; depends on publishing of official data and on update of the population estimates in the HMD
Available indicators	Period and cohort ASFR, fertility tables and summary indicators, birth counts, pop exposures. Data by single age groups and birth order
Number of users	More than 4,500

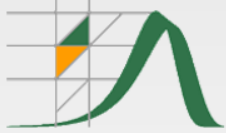


Data availability in HFD



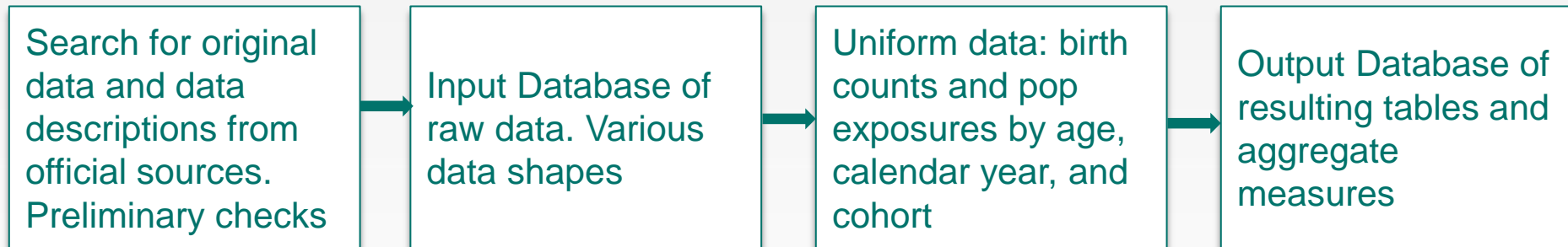


**Why prefer using HFD
over other data sources?**



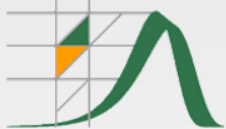
HFD – a new type of databases

Principal data flows

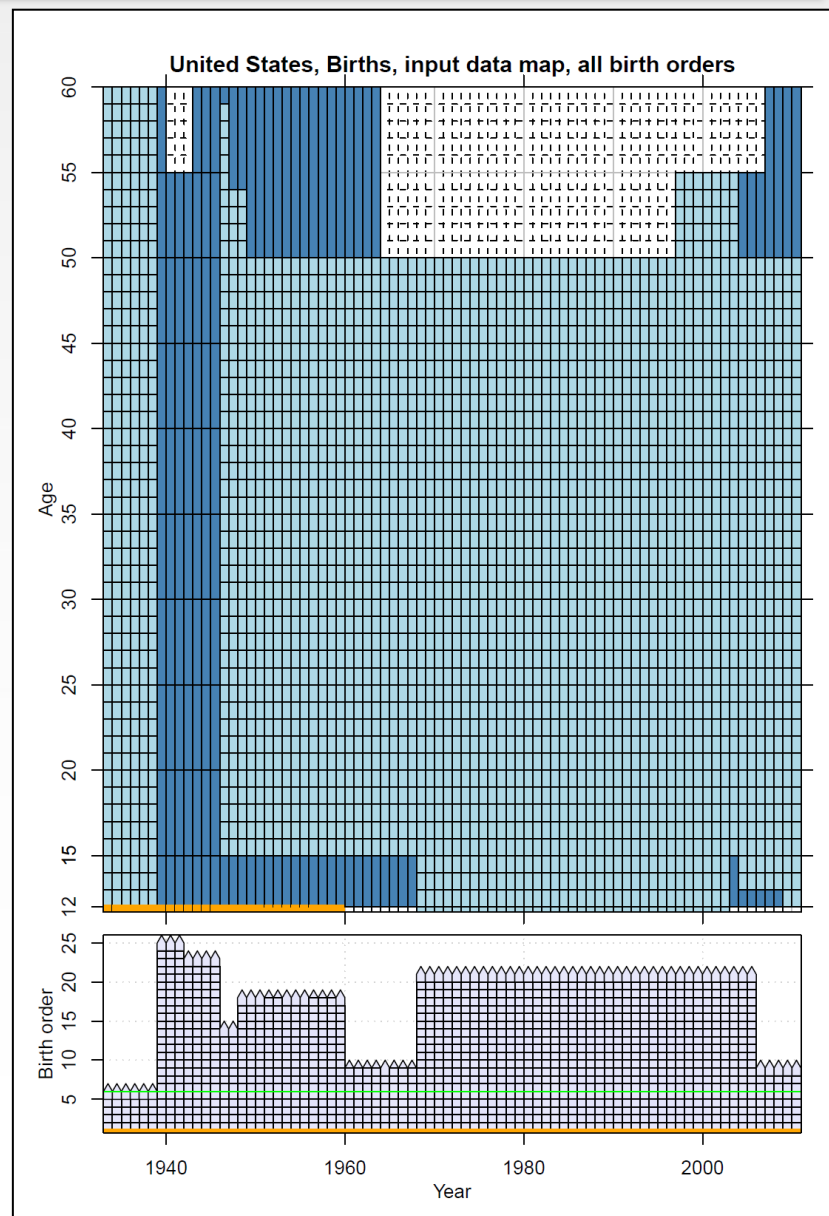
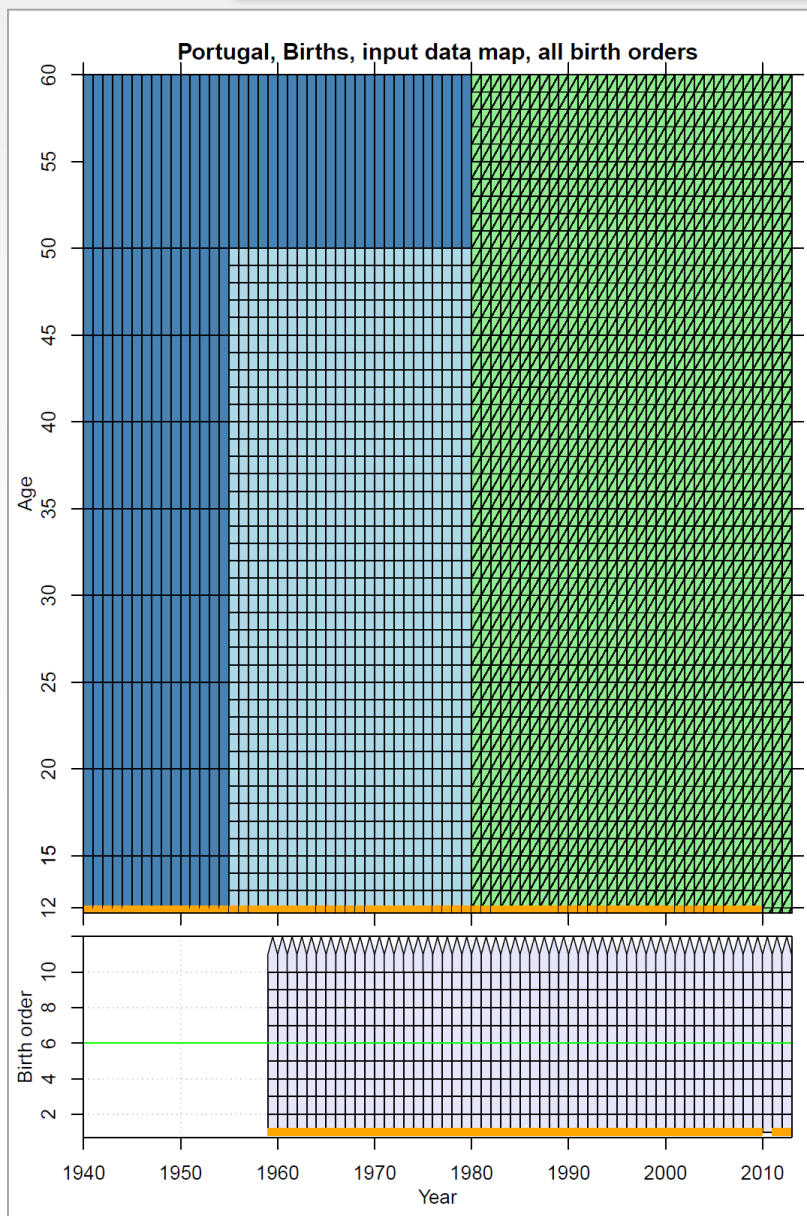


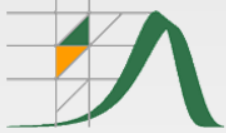
Massive effort involved in obtaining, standardising, processing, checking & documenting the data and communicating with the providers

- Extensive **data quality checks** at every step; B&D files for each country
- **Output:** detailed, documented, uniform, high quality data, comparable across time and space



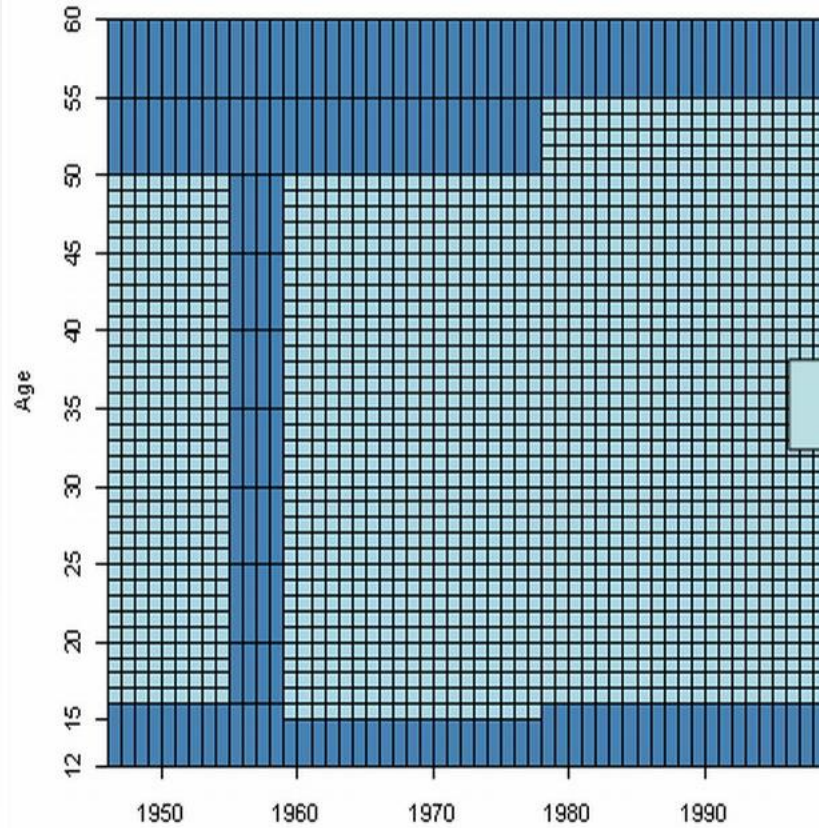
Input data map: variety of data formats



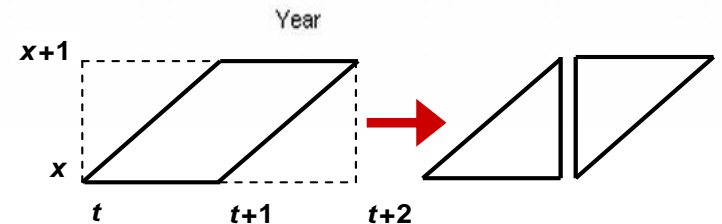
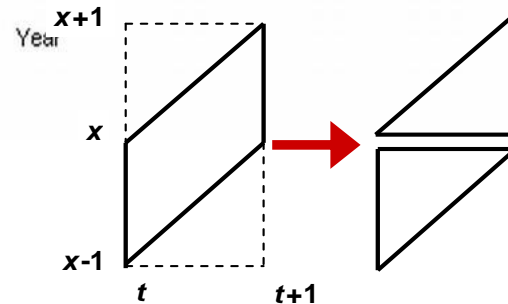
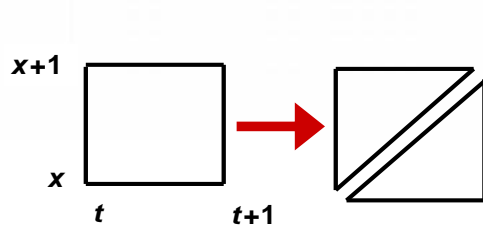
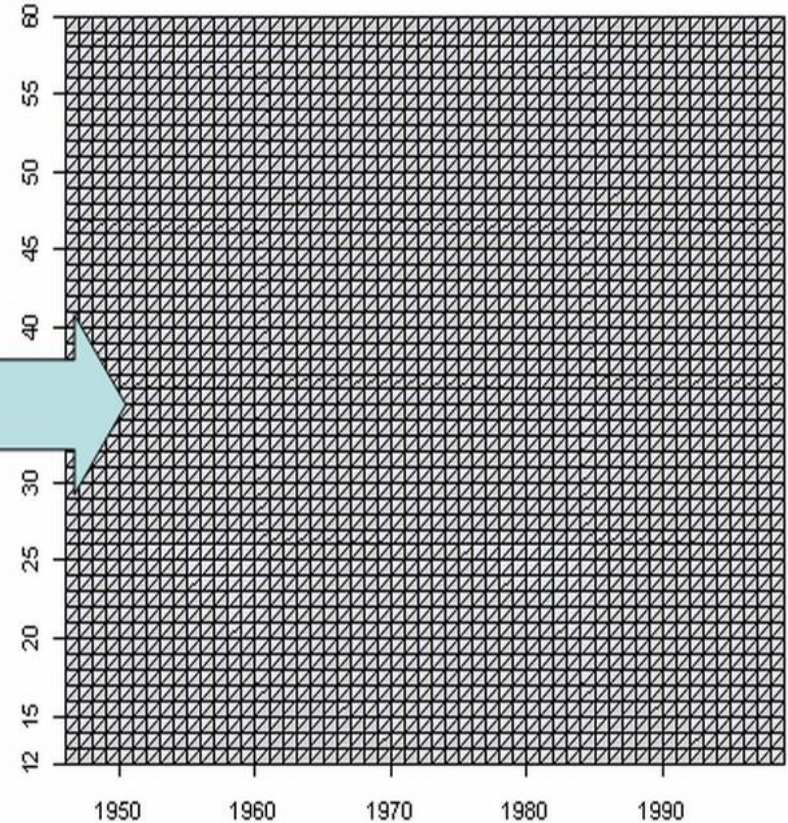


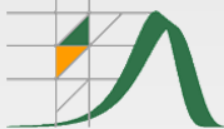
Data transformation. Lexis elements

Input Database



Lexis database





Data documentation in the HFD

HUMAN FERTILITY DATABASE DOCUMENTATION: U.S.A

Authors:

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Max Planck Institute for Demographic Research, Rostock, Germany

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Dmitri Jdanov

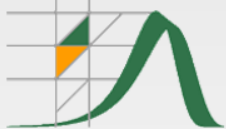
Max Planck Institute for Demographic Research, Rostock, Germany

E-mail: Jdanov@demogr.mpg.de

Last revision: 14 June 2016 (by Aiva Jasilioniene)

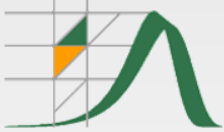
1. Organizational History of Birth Statistics

The system of vital registration in the U.S. developed gradually, starting from separate initiatives primarily at the local level in the colonial period, then gathering momentum in the 19th Century from public health concerns. Mortality held priority in terms of these interests. It was not until 1915 that a Birth Registration Area, consisting initially of 10 states, was established by the National Board of Health. A major milestone was reached in 1933, when Texas entered the Birth Registration Area, which from that point on encompassed all 48 of



HFD data strengths

- **High level of detail** in data and **documentation**
- **Uniformity** of methods and data design
- Extensive **input data** readily available
- **Birth order dimension, parity-specific** indicators
- Extensive collection of **cohort fertility data**
- **Free access** to all data upon registration
- **Regularly updated**
- Facilitating rapid downloads of large amounts of data: HFD output files are offered in **zipped files**
- **HFD scripts are published** as MPIDR Technical Reports
- **“HFD lite”** providing easy and quick access to the major summary indicators of period and cohort fertility without registration



Data quality and data selection

Population exposures may suddenly change after each population census or revision

- Problems for countries with intensive migration

Mismatch between births and population (exposure) data

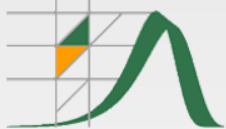
- Can inflate or deflate period fertility

Problems with definitions and reporting of birth order

Cohort fertility histories are based on summing up the data computed across long periods

- Fictional cohort trajectories in high-migration countries
- Assumption of non-selective migration and mortality may be violated

HFD deals with these and many others data issues by exploring & documenting them, adjusting or excluding the data & warning the users



HFD data limitations

Data limitations: countries, periods, cohorts covered

Data quality and structure requirements lead to:

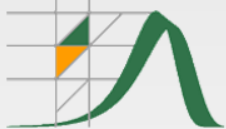
Limited number of countries, data dimensions, historical periods, cohorts covered (long-term series of period data needed)

Time-consuming acquisition, documenting, and processing of the data

- HFD data often lag behind the most recent published official statistics
- Depending on HMD population estimates

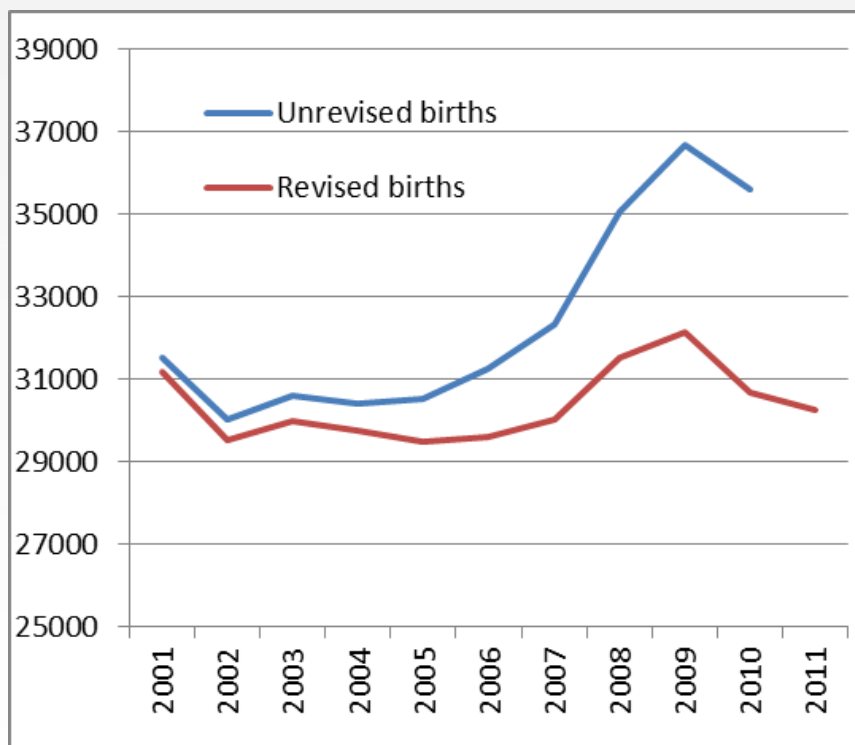
Persistent issues and discussions

- Splitting 5-year into 1-year data, developing splines
- Low and fluctuating childlessness estimates in some countries
- Problems with population estimates due to unreported outmigration:
 - CEE countries, but also Germany (Census 2011)
 - The most serious issue affecting the quality of HFD estimates



Illustrations of data issues: case of Lithuania

Unrevised and revised data on births,
2001-2011



TFR (2010) = 1.5
(includes mothers and births
de facto abroad but registered
as in Lithuania)

TFR (2011) = 1.8
(*excludes mothers abroad*, but
includes births abroad and/or
mothers residing abroad)

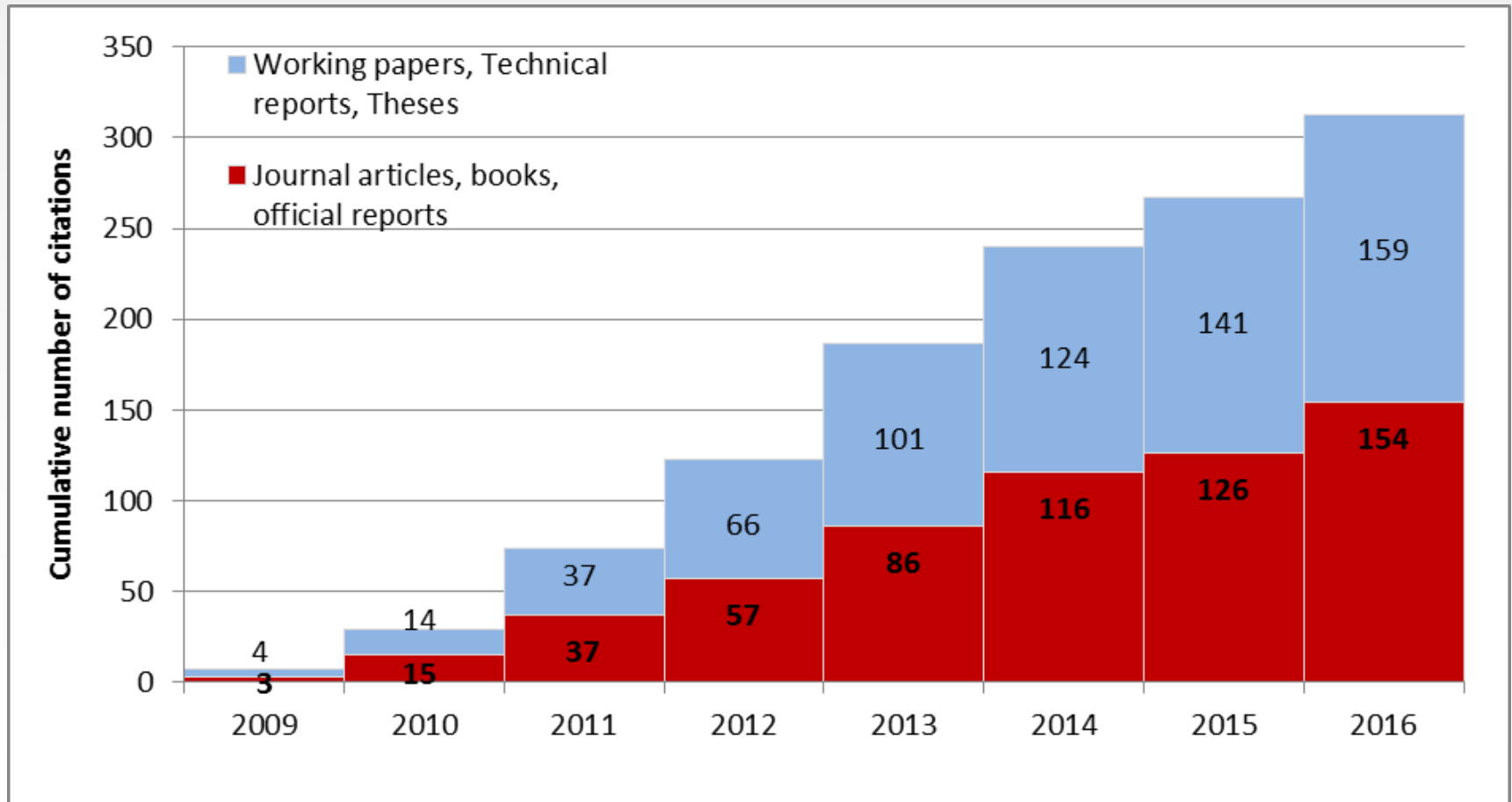
After the correction
TFR (2011) = 1.55

Identification of status of mothers'
residential status using registers:

Central Population Register
Social Security Register
Health Insurance Register
Tax Register

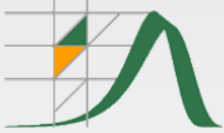


Increasing use and citing of the HFD



The full list of publications using the HFD/HFC data is available on the HFD website “HFD publications”

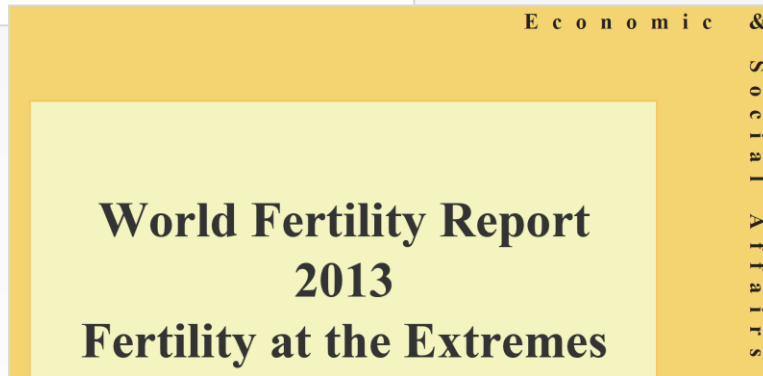
If you don't find your publication in the list, please send it to us!



Examples of studies using HFD data


A Demographic Explanation for the Recent Rise in European Fertility

JOHN BONGAARTS
TOMÁŠ SOBOTKA



Popul Res Policy Rev (2016) 35:287–304
DOI 10.1007/s11113-016-9387-z

The Emergence of Two Distinct Fertility Regimes in Economically Advanced Countries

Ronald R. Rindfuss^{1,2} · Minja Kim Choe² ·
Sarah R. Brauner-Otto³ 

New Cohort Fertility Forecasts for the Developed World: Rises, Falls, and Reversals

MIKKO MYRSKYLÄ
JOSHUA R. GOLDSTEIN
YEN-HSIN ALICE CHENG

DEMOGRAPHIC RESEARCH

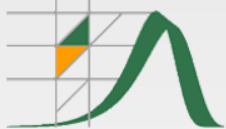
VOLUME 32, ARTICLE 21, PAGES 621–656
PUBLISHED 3 MARCH 2015

<http://www.demographic-research.org/Volumes/Vol32/21/>
DOI: 10.4054/DemRes.2015.32.21

Research Article

Europe-wide fertility trends since the 1990s:
Turning the corner from declining first birth
rates

Marion Burkimsher



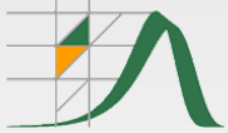
Human Fertility Collection: basic facts

Launched in 2013 to supplement the HFD

- Open access without registration
- Data often not meeting the quality standards of the HFD
- Diverse data sources; often overlapping (alternative) data sets
- Standardized format of data
- Wider geographical and time coverage; also less developed countries and historical data
- Updated on a rolling basis

The HFC includes the following period fertility indicators, also by birth order if available

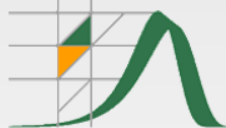
- Age-specific fertility rates (ASFR)
- Cumulative fertility rates (CPFR)
- Total fertility rates (TFR)
- Mean ages at birth (MAB)



Human Fertility Collection: basic facts

Key milestone:

Getting to **100 countries** as of
June 2016



Human Fertility Collection: basic facts



Human Fertility Collection

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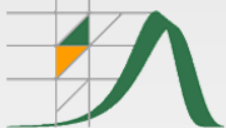
At present, data for **100 countries** are provided in the HFC. The HFC data can be downloaded either as a single zipped file for all countries or by country. Data for all birth orders combined and data by birth order are available for download separately. Please note that by downloading the HFC data you agree to be bound to *the terms of the user agreement*.

Zipped data files

Indicator	All birth orders combined	By birth order
ASFR and CPFR, standardized age scale	All HFC data (5Mb)	All HFC data (6.3Mb)
ASFR, original age scale	All HFC data (2.1Mb)	All HFC data (2.8Mb)
Total fertility rate and mean age at birth	All HFC data (120.7Kb) [graphs]	All HFC data (127.4Kb)
<i>References</i>	<i>Notes</i>	<i>Codes used in HFC</i>

Data by country

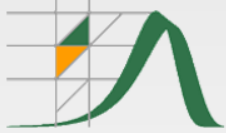
Albania	Croatia	Iceland	Micronesia	Seychelles
American Samoa	Cuba	India	Moldova	Singapore
Argentina	Cyprus	Indonesia	Mongolia	Slovakia
Armenia	Czech Republic	Iran	Montenegro	Slovenia
Aruba	Czechoslovakia	Ireland	Netherlands	Spain
Australia	Denmark	Israel	New Zealand	Sri Lanka
Austria	Egypt	Italy	Norway	Sweden
Azerbaijan	Estonia	Japan	Pakistan	Switzerland
Bahamas	Faroe Island	Jordan	Palau	Taiwan
Bahrain	Fiji	Kazakhstan	Panama	Thailand



Comparison of HFC and HFD

HFC		HFD
2013	Launched	2009
73	Initial number of countries	6
100	Current number of countries	27 + 5 subpopulations
110-140 countries	Foreseeable expansion	45-50 countries
1751-2015 discontinuous data series	Period (min – max)	1891-2014 continuous data series
On a rolling basis	Update of data series	Annual/biannual
ASFR, CPFR, Total fertility rates, Mean ages at birth	Available indicators	Period and cohort birth counts, ASFR, fertility tables and summary indicators
Unknown (open access without registration)	Number of users	More than 4,500 registered users

HFC covers fewer dimensions and indicators than HFD



HFD Project: Plans, Future Outlook

Human Fertility Database

Countries to be added in HFD:

Australia, Croatia, Denmark, Greece, Ireland, Israel, Latvia, Luxembourg, Poland, South Korea, Spain

Human Fertility Collection

Planned expansions: regional data

Discussions / ideas for improvement

How to provide most recent data estimates in user-friendly format?
How to provide up-to-date data sooner?



HFD Project Team



MAX PLANCK INSTITUTE
FOR DEMOGRAPHIC
RESEARCH



MPIDR:

- Vladimir Shkolnikov (Co-Director of HFD)
- Dmitri Jdanov (Co-Director of HFC)
- Aiva Jasilioniene (HFD coordinator)
- Olga Grigorieva (HFC coordinator)
- Pavel Grigoriev
- Sebastian Klüsener
- Karolin Kubisch
- Sigrid Gellers-Barkmann

VID:

- Tomáš Sobotka (Co-Director of HFD & HFC)
- Kryštof Zeman

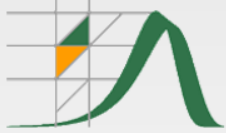
Founding Director: Josh Goldstein

HFD Advisory Board:

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Wolfgang Lutz (VID)
Laurent Toulemon (INED)
Jean-Paul Sardon (INED, ODE)

Other researchers involved:

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Evgueni L. Soroko (HSE, Moscow)
Tatiana Kharkova (HSE, Moscow)
Evgueni M. Andreev (NES, Moscow)
Edward Nash (Rostock)
E. E. Campos de Lima (Sao Paulo)



Acknowledgments

This project would not have been possible without the encouragement and financial support of the Max Planck Institute for Demographic Research (MPIDR) in Rostock, Germany and the Vienna Institute of Demography (VID) / Wittgenstein Centre.

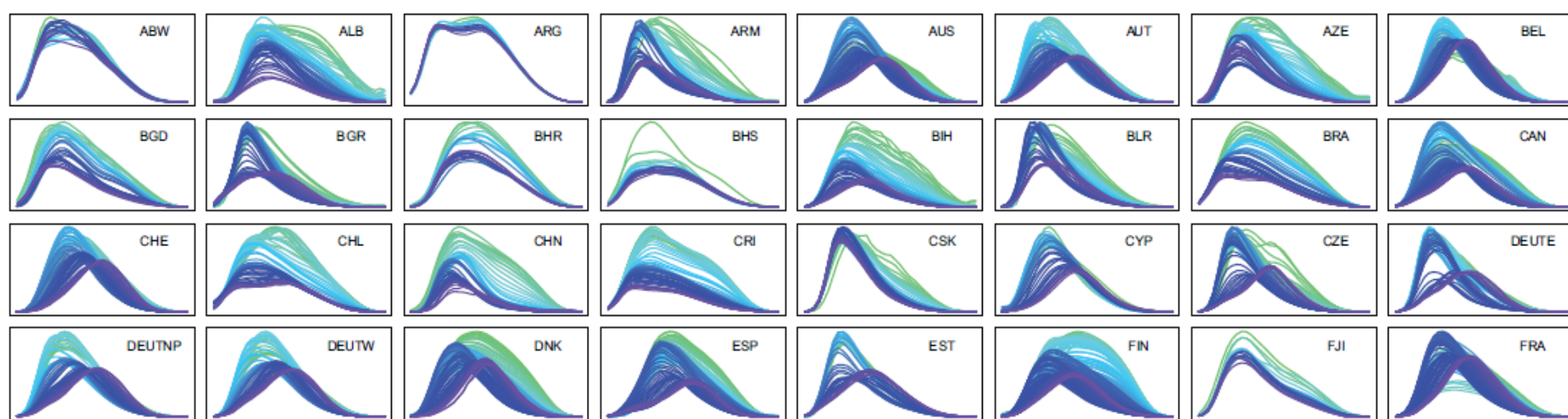
The work of the VID team was funded by the European Research Council under the European Union's Seventh Framework Programme (FP7/2007-2013)/ERC Grant agreement n° 284238 (EURREP project).



We acknowledge the key contribution of the HFD Founding Director Joshua R. Goldstein.

Many thanks to our data providers, advisory board members and country experts for their support.

Complete list of individual contributors is available at the HFD and HFC web sites.



HUMAN FERTILITY DATA PROJECT

A joint venture of Max Planck Institute for Demographic Research and Vienna Institute of Demography

