Recent demographic trends

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Outline

- Recent fertility change and current fertility patterns
- New phenomena: low fertility, postponement, extramarital fertility
- Country classification based on current fertility patterns
- Mortality change
- Population ageing as primarily the outcome of fertility change
- Population prospects
In the past forty years the rate and character of fertility in Europe has changed considerably.

The newly established model of fertility is historically unprecedented, as the small number of live births is insufficient to secure even simple demographic reproduction in the future.
Shift toward rare and late childbearing

- **Profound fertility decline** has occurred in Northern and Western European societies since the mid 1960s, was over by the end of the 1980s in Southern Europe, and has emerged since the beginning of the 1990s in Eastern Europe.

- **Late fertility** starts being a common widely accepted pattern.
Variations in TFR over time in 30 European countries

- Iceland
- Ireland
- Simple reproduction
- Low fertility
- Lowest low fertility
Two country groups in 2007: just below replacement level and very low fertility

![Graph showing total fertility rates for various countries](image-url)

- **Lowest-low fertility**
- **Low fertility**

Countries listed in the graph include:
- Slovakia
- Romania
- Poland
- Hungary
- Portugal
- Italy
- Lithuania
- Germany
- Malta
- Austria
- Slovenia
- Greece
- Spain
- Latvia
- Bulgaria
- Czech Republic
- Switzerland
- Cyprus
- Luxembourg
- Estonia
- Netherlands
- Belgium
- Finland
- Denmark
- Sweden
- United Kingdom
- Norway
- France
- Ireland
- Island

**LEAVE POLICIES & RESEARCH, Praha 10. - 11. 2009**
Low fertility trap:
two critical thresholds

- **Low fertility:** TFR less than 1.5
- **Lowest low fertility:** TFR less than 1.3

- **P. McDonald (2005):** It is much more difficult for a country to raise fertility when the total fertility rate has fallen below the critical level of 1.5 children per woman.

- **The situation becomes even more desperate when the lowest low fertility (below 1.3) is reached.**
If we look back in history it is clear that the current European fertility patterns have little to do with previous demographic development.
The correlation coefficient between total fertility and relative GDP (EU27=1) was 0.513 in 2007. This means that the richer the country within the EU, the more children it was possible to expect.
Fertility postponement a part of a postponement transition

Factors behind

- Longer education
- Building a professional career
- Reliable contraception
- ART treatment „solving“ also problems of postponed parenthood
Younger age does not more mean a higher fertility

Mean age at first childbirth in 2005

Bulgaria
Romania
Lithuania
Latvia
Estonia
Slovakia
Poland
Iceland
Czech Republic
Hungary
Austria
Portugal
Cyprus
Belgium
Ireland
Norway
Slovenia
Finland
Denmark
Greece
France
Sweden
Italy
Netherlands
Luxembourg
Germany
Spain
Switzerland
United Kingdom
Late parenthood (motherhood): miscellaneous impact on fertility levels

North and West of Europe: a higher age at the first childbearing does not imply low fertility levels.

East and South of Europe show a „negative correlation“ between an increasing age of mothers and final low fertility levels, thus confirming a classical theory as regards the relationship between age at first childbirth and final fertility rate.
2006: Cumulative age-specific fertility rates; (country order according to TFR)
Another new phenomenon

- Increase in extra-marital births
- Accelerating in last decades
- Reflecting cultural settings
Extra-marital births per 100 births:
uneven increase over time

Variations in share of extramarital births over time in 30 European countries
An increase of extra-marital births does not mean a rising cohabitation as an alternative to family legalized by marriage but more often means a lone motherhood.

Countries with low nonmarital fertility ratios (Italy, Spain, Belgium) tend to have also low overall childhood exposure to single parenting.

Parental cohabitation accounts for much nonmarital fertility in Northern Europe.

P.Heuveline, J.T. Timberlake, F.F.Furstenberg: Shifting childrearing to single mothers: Results from 17 Western countries, Population and Development Review, 29, 2003, 1
A country classification according to current levels of TFR, mean age at first childbirth, and the percentage of extramarital births.

Three most important recent changes: fertility decline, increase in mean age at first childbirth, increase in the share of extramarital births.

Three country groups and one outlier can be delimited.
<table>
<thead>
<tr>
<th>Country</th>
<th>TFR</th>
<th>MAB1</th>
<th>Extramar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria, Bulgaria, Czech</td>
<td>1,32</td>
<td>25,97</td>
<td>36,18</td>
</tr>
<tr>
<td>Republic, Estonia, Hungary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Latvia, Lithuania, Poland</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portugal, Romania, Slovakia,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovenia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iceland</td>
<td>1,40</td>
<td>28,56</td>
<td>16,92</td>
</tr>
<tr>
<td>Denmark, Finland, France,</td>
<td>1,80</td>
<td>28,50</td>
<td>42,08</td>
</tr>
<tr>
<td>Ireland, Luxembourg,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Netherlands, Norway,</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden, United Kingdom</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>1,51</td>
<td>27,43</td>
<td>33,80</td>
</tr>
</tbody>
</table>
Cluster characteristics show puzzled fertility patterns

1. **Group** (Austria, Bulgaria, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Portugal, Romania, Slovakia, Slovenia) shows the lowest low fertility level, the youngest age at first childbearing, and medium frequency of extramarital births.

2. **Group** (Belgium, Cyprus, Germany, Greece, Italy, Malta, Spain, Switzerland) displays low fertility, the oldest age at first childbearing, and low proportion of extramarital births.

3. **Group** (Denmark, Finland, France, Ireland, Luxembourg, Netherlands, Norway, Sweden, United Kingdom), experiences the highest fertility, high age at first childbirth, and a high share of nonmarital births.

Might this group represent forerunners of a suitable/sustainable fertility?

Traditional demographic correlations are violated: young age and low frequency of extra-marital births do no more correlate with high fertility levels!

Cohort fertility of women born in 1980: Possible future prospects?

Fertility rates for older ages estimated by using the rates observed for previous generations.
Is the expected TFR increase realistic in low fertility countries?

Sorted according to 2060

Europop2008: Convergence scenario (convergence year 2150)
Mortality change and its impact

- Decrease at older age in all countries

- Population 65+: pension system

- Population 80+: health care system
Survival in EU27+(2): 2005

Life expectancy at age 65

- Males
- Females
Population aging (increase in the proportion of people age 65+ or 60+) is the most challenging phenomenon in the 21st century.

It is the outcome of the demographic transition from high to low levels of fertility and mortality.

The role of international migration in this process has been less important than that of fertility and mortality.

The older population itself is aging and the oldest-old (age 80+) represent the fastest growing age group.

Population aging is a historically unprecedented and likely irreversible phenomenon.

Population aging has implications on family composition and living arrangements, intergenerational transfers, pension system, health care system, etc.
There is no correlation in the share of 65+ between 2009 and 2060

Sorted according to 2060

r = + 0,134
**Fertility is the key factor as regards the future population ageing**

Proportion of population aged 65 and over in 2050 is correlated with (based on EU27 countries):

<table>
<thead>
<tr>
<th>Metric</th>
<th>Correlation Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total fertility rate (2005)</td>
<td>-0.591**</td>
</tr>
<tr>
<td>Population 65+ (2005)</td>
<td>0.454*</td>
</tr>
<tr>
<td>Male life expectancy at 65 (2004)</td>
<td>-0.004</td>
</tr>
<tr>
<td>Female life expectancy at 65 (2004)</td>
<td>-0.043</td>
</tr>
</tbody>
</table>

** Correlation is significant at the 0.01 level (2-tailed)
* Correlation is significant at the 0.05 level (2-tailed)
Very low fertility levels if maintained will lead to rapid population loss and an extreme form of population ageing in individual countries.

The population is projected to become older in all EU member states, Norway and Switzerland.

The share of people age 65+ is currently between 12% (Cyprus) and 20% (Germany, Italy). However, the figure will at least double in all EU 27+2 countries.

In 2060, the share of people age 65+ is expected to reach a minimum of 24% (Luxembourg) and a maximum of 36% (Poland).

The oldest populations in 2060 will be: Poland (36.2), Slovakia (36.1), Romania (35.0), Lithuania (34.7), Latvia (34.4), Bulgaria (34.2).

The “youngest” in 2060: Luxembourg (23.6), United Kingdom (24.7), Denmark (25.0)
The oldest and the poorest

Old-age dependency ratio (population at age of: 65+/20-64*100)

Sorted according to 2060

Poland
Slovakia
Lithuania
Romania
Latvia
Bulgaria
Slovenia
Czech Republic
Spain
Italy
Malta
Germany
Hungary
Greece
Estonia
Portugal
Austria
Finland
Switzerland
Netherlands
Sweden
Belgium
France
Cyprus
Norway
Ireland
Denmark
United Kingdom
Luxembourg

2060
2009
Living more and reproducing less: conditions in 2007-2008

<table>
<thead>
<tr>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total fertility rate</td>
<td>0.762 0.021</td>
</tr>
<tr>
<td>Male life expectancy at birth</td>
<td>0.881 0.092</td>
</tr>
<tr>
<td>Old-age dependency ratio</td>
<td>0.019 0.986</td>
</tr>
<tr>
<td>Crude rate of population change</td>
<td>0.816 -0.478</td>
</tr>
<tr>
<td>Explained variability</td>
<td>51% 30%</td>
</tr>
</tbody>
</table>

Extraction Method: Principal Component Analysis

Lower OADR

Higher OADR

Lower fertility, shorter survival, negative population change

Higher fertility, longer survival, positive population change
Demographic continuum in 2060 for EU27+Norway+Switzerland

Lower fertility, shorter survival, negative population change, and high OADR

Higher fertility, longer survival, positive population change, and lower OADR

<table>
<thead>
<tr>
<th>Factor</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total fertility rate</td>
<td>0.844</td>
</tr>
<tr>
<td>Male life expectancy at birth</td>
<td>0.807</td>
</tr>
<tr>
<td>Old-age dependency ratio</td>
<td>-0.970</td>
</tr>
<tr>
<td>Crude rate of population change</td>
<td>0.969</td>
</tr>
</tbody>
</table>

Explained variability: 81.10%

Extraction Method: Principal Component Analysis
Prospective age assigns ages to people on the basis of their remaining life expectancies in a reference year, not on the number of years that they have already lived.
Two turning points for EU27: 2015 and 2035

2015: natural increase will convert in natural decrease
2035: start of the population decline

Change in total population over time

2015: natural increase will convert in natural decrease
2035: start of the population decline

Between 2009 and 2015 (or 2035 or 2060), the largest population decline is expected in Bulgaria, Latvia, Lithuania, and Romania.

The profound decrease will also be experienced by populations in Central Europe (Poland, Slovakia, Germany, Hungary, and the Czech Republic).

The previously high mortality in Eastern and Central Europe (with the exception of West Germany) will thus face a new threat of depopulation, this time primarily due to a long-term low or lowest low fertility.
EU Old and New Members: keep being divided

The most substantial percentage decrease will be experienced by the populations

- in the fresh newcomers (Bulgaria, Romania),
- then Baltic States (Latvia, Estonia, and Lithuania),
- followed by Central Europe (Czech Republic, Slovakia, Poland, and Hungary)
Can fertility be enhanced?

- The role of family policy
- The role of ART
Two scenarios for the future numbers of children conceived with ART

Projected numbers of ART infants

Assumptions: 2025 in each country 5% ART infants  2050 in each country 7% ART infants
Proposal I

- Building a society for all ages
- Enabling to have family at any age
- Reconciliation of work/education and family
- Freedom of choice

One standard life pattern should be avoided education-career-children
Proposal II

- Access to ART treatment for people in need and at any age
- Giving priority to policies slowing fertility ageing
Conclusions

■ Europe will remain the world’s oldest region into the 21st century.

■ In the process of population aging, fertility was and still remains the primary important driver while mortality starts gaining increased importance.


■ However, in the future, countries of former Eastern Europe will accumulate all of the disadvantages:
  Being the oldest, experiencing the lowest fertility, shorter life expectancy, and having the lowest GDP.
Thank you