
Jakub Bijak*, Dorota Kupiszewska*
Marek Kupiszewski*, Katarzyna Saczuk*

*Central European Forum for Migration Research

Warsaw Regional Forum 2005
Institute of Geography and Spatial Organization, Warsaw, 7 October 2005

Project financed from the research grant of the Foundation for Population, Migration and Environment (BMU-PME) from Zurich
Contents

1. Aim and scope
2. Background
3. Model and data
4. Projection and simulation assumptions
   • Fertility and mortality
   • International migration
   • Labour force participation
5. Macro-indicators analysed
6. Results: population and labour force forecasts
7. Results: ‘replacement migration’ simulations
8. Conclusions
1. Aim and scope

Aim of the study:

• To project population and labour force resources for selected European countries for 2002–2052
• To analyse relations between international migration, population ageing and labour force dynamics with the ‘replacement migration’ concept
• To evaluate on that basis various policy options regarding population, migration, and labour force

Scope:

• 27 European countries: EU (without Cyprus and Malta), plus Bulgaria, Romania, Norway and Switzerland. Time horizon: 2002–2052
2. Background

- ‘Replacement migration’ report of the UN (2000) and its critique (Espenshade, 2001; Coleman, 2002)
- Other similar studies (Lesthaeghe et al., 1988; Wattelaar & Roumans, 1991; Gesano, 1994; Feld, 2000; McDonald & Kippen, 2000)
- What this study adds:
  - It focuses on a wide selection of European countries, including Central and Eastern Europe
  - It partially addresses the critique of the UN report by including scenarios of economic activity and produce ‘replacement’ simulations for targets of various aggregate demo-economic indicators
3. Model and data

Model:
- Multi-regional model of population dynamics “MULTIPOLES” (Kupiszewski & Kupiszewska, 1998)

Data:
- Demographic data: Eurostat and Council of Europe
- Labour force participation: ILO (Laborsta)
- Migration flows in Europe estimated as higher of the values reported by the sending and receiving countries
- Age schedules of migration assumed to follow German patterns for flows to/from a particular country (exceptions: migration to the Mediterranean, and between the countries of Central and Eastern Europe)
4. Projection and simulation assumptions

Fertility: Target TFR values assumed for 2052

<table>
<thead>
<tr>
<th>No.</th>
<th>Group</th>
<th>Countries</th>
<th>Target TFR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Eastern Balkans</td>
<td>BG, RO</td>
<td>1.4</td>
</tr>
<tr>
<td>2</td>
<td>Southern Europe</td>
<td>ES, GR, IT, SI</td>
<td>1.5</td>
</tr>
<tr>
<td>3</td>
<td>German-speaking countries</td>
<td>AT, CH, DE</td>
<td>1.5</td>
</tr>
<tr>
<td>4</td>
<td>Central Europe</td>
<td>CZ, HU, LT, LV, PL, SK</td>
<td>1.5</td>
</tr>
<tr>
<td>5</td>
<td>Estonia</td>
<td>EE</td>
<td>1.6</td>
</tr>
<tr>
<td>6</td>
<td>Portugal</td>
<td>PT</td>
<td>1.7</td>
</tr>
<tr>
<td>7</td>
<td>Western Europe</td>
<td>BE, LU, UK</td>
<td>1.8</td>
</tr>
<tr>
<td>8</td>
<td>Scandinavia</td>
<td>DK, FI, NL, NO, SE</td>
<td>1.9</td>
</tr>
<tr>
<td>9</td>
<td>High-fertility countries</td>
<td>FR, IE</td>
<td>1.9</td>
</tr>
</tbody>
</table>
4. Projection and simulation assumptions

Mortality: Average life expectancy

Abbreviations:
- MAX – reference maximum values (Japan)
- WE – average for Western Europe
- CEE – average for Central and Eastern Europe
4. Projection and simulation assumptions

Migration among the 27 countries under study

• Three scenarios: Base, High and Low, reflecting different pace of economic development, and of convergence of income in Central-Eastern and Western Europe


• Quantization of the assumptions:
  – Trend component: an increase of origin-destination migration rates by 0.5% (Base), 1% (High), or 0% (Low) a year
  – Temporary post-opening deviation component: small and short in the High scenario, large and durable in the Low one, intermediate in the Base scenario
4. Projection and simulation assumptions

Migration from the other countries of the world

- Three scenarios: Base, High and Low, reflecting different size of migration pressure on the European countries under study
- Assumptions based on the recent migration patterns and on a qualitative analysis of push and pull factors
- Quantization of the assumptions:
  - Assumptions made for net migration numbers (not rates)
  - Target values for 2052 set for groups of countries: highest for the Southern Europe, lowest for the Central and Eastern Europe, with Western and Northern Europe in-between
  - Exponential extrapolation from the 2002 to the target values
4. Projection and simulation assumptions

Labour force participation: patterns for 2052 (%)

Females: (A) “low participation countries” – BE, ES, CH, FR, GR, IE, IT, LU, PT, UK
(B) “high participation countries” – AT, DE, DK, FI, NL, NO, SE
(C) “Central-Eastern Europe” – BG, CZ, EE, HU, LT, LV, PL, RO, SI, SK
5. Macro-indicators analysed

- **Total size of the population**
- **Overall size of the labour force (labour supply)**
- **Potential Support Ratio (PSR)**
  Number of persons aged 15–64 to the population aged 65+
- **Economic Elderly Support Ratio (EESR)**
  Ratio of the size of the economically active population aged 15-64 to the economically inactive population aged 65+
  - measures the economic burden of the retired on the active pop.
- **Labour Market Support Ratio (LMSR)**
  Ratio of the size of the economically active population aged 15+ to the economically inactive one (also 15+)
  - measures the overall economic burden on the labour market
6. Results: population and labour force forecasts

Selected results for 2002 and 2052: Base scenario

<table>
<thead>
<tr>
<th>Country</th>
<th>Population (x1000)</th>
<th>Labour force (x1000)</th>
<th>PSR</th>
<th>LMSR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2002</td>
<td>2052</td>
<td>2002</td>
<td>2052</td>
</tr>
<tr>
<td>Austria</td>
<td>8 053</td>
<td>7 853</td>
<td>3 929</td>
<td>3 267</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>7 869</td>
<td>4 485</td>
<td>3 397</td>
<td>1 865</td>
</tr>
<tr>
<td>France</td>
<td>59 486</td>
<td>70 381</td>
<td>26 719</td>
<td>32 096</td>
</tr>
<tr>
<td>Germany</td>
<td>82 488</td>
<td>77 007</td>
<td>40 673</td>
<td>32 907</td>
</tr>
<tr>
<td>Italy</td>
<td>57 157</td>
<td>54 044</td>
<td>22 983</td>
<td>19 440</td>
</tr>
<tr>
<td>Poland</td>
<td>38 425</td>
<td>31 267</td>
<td>17 329</td>
<td>12 931</td>
</tr>
<tr>
<td>Sweden</td>
<td>8 925</td>
<td>9 993</td>
<td>4 526</td>
<td>4 700</td>
</tr>
<tr>
<td>UK</td>
<td>59 232</td>
<td>65 481</td>
<td>29 738</td>
<td>29 325</td>
</tr>
<tr>
<td>All 27</td>
<td>494 179</td>
<td>494 922</td>
<td>232 759</td>
<td>209 710</td>
</tr>
</tbody>
</table>
6. Results: population and labour force forecasts

Population and labour force in 27 countries: 3 scenarios
6. Results: population and labour force forecasts

Population and labour force in 2052: Base scenario
7. Results: ‘replacement migration’ simulations

Four ‘replacement’ scenarios, with non-decreasing:

- Total size of the population
- Potential Support Ratio (PSR)
- Economic Elderly Support Ratio (EESR)
- Labour Market Support Ratio (LMSR)
7. Results: ‘replacement migration’ simulations

‘Replacement’ in 27 countries: non-decreasing population

Cumulated ‘replacement’ volume 2002–2052: *32.8 million*
7. Results: ‘replacement migration’ simulations

‘Replacement’ in 27 countries: non-decreasing PSR

Cumulated ‘replacement’ volume 2002–2052: 839.6 million
7. Results: ‘replacement migration’ simulations

‘Replacement’ in 27 countries: non-decreasing EESR

Cumulated ‘replacement’ volume 2002–2052: 653.1 million
7. Results: ‘replacement migration’ simulations

‘Replacement’ in 27 countries: non-decreasing LMSR

Cumulated ‘replacement’ volume 2002–2052: 470.7 million
7. Results: ‘replacement migration’ simulations

Buying Time: ‘Maximum labour participation’ scenario

- Historical (1985–2002) cross-country maximum patterns of economic activity projected for the whole simulation period

- Results – no decline of LMSRs below its 2002 levels until:
  - the end of the simulation period (2052) for 21 countries,
  - 2047–2052 for four countries (CZ, ES, NL, SK),
  - 2042–2047 for Portugal,
  - 2022–2027 for Switzerland.
8. Conclusions

- Most of the simulations (again!) yielded implausible magnitudes of the ‘replacement migration’

- **Plausible policy options:**
  - Increase fertility – the long-term solution (Lesthaeghe, 2000). Problems: how to do it, and when it will start to work given the negative population momentum (Lutz et al., 2003)?
  - Increase labour force participation (Coleman, 2002) – a good option in the mid-term (< 50 years), ameliorating negative outcomes of ageing before any fertility policies give results.
  - Immigration – not a ‘solution against the negative outcomes of population ageing’, rather an instrument to cover labour shortages in certain sectors (Korcelli, 2003)
  - Rising the retirement age (*not covered by the current study*)
  - Raising the awareness of the ageing problems in the society
Thank you!

Further details of the study are to be found at:

www.cefmr.pan.pl