The impact of population ageing on household structure: evidence from the Czech Republic

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Structure of the presentation

- Demographic ageing in the Czech Republic
- Data from the censuses
- General trends of development of households in the Czech Republic
- Population forecast
- Methodology and results of the forecast of households and their structure
Population ageing

Age-structure of the Czech population 31. 12. 2011

Source: Czech Statistical Office, 2013
Population ageing

Age-structure of the Czech population 31.12.2040

- More than 65 years: 27.2 %
- 15–64 years: 60.7 %
- Less than 15 years: 12.1 %

Source: Czech Statistical Office, 2013c
Population ageing

Life expectancy by sex, Average age, Czech Republic, 1989-2040

Note: to 2012 real data, from 2013 population forecast
Source: Czech Statistical Office, 2013, 2013c
Households in Czech census

- Population census 1961–2001: data according to place of permanent residence
  - Dwelling household
  - Housekeeping household
  - Census household
    - family relationships among household residents
- Population census 2011: data according place of usual residence
  - only dwelling and housekeeping households
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Households by 1961–2011 censuses

<table>
<thead>
<tr>
<th>Census year</th>
<th>Housekeeping households</th>
<th>One-couple families</th>
<th>Lone-parent families</th>
<th>One-person households</th>
<th>One-couple families</th>
<th>Lone-parent families</th>
<th>One-person households</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>3035</td>
<td>2405</td>
<td>250</td>
<td>515</td>
<td>79.2</td>
<td>8.2</td>
<td>17.0</td>
</tr>
<tr>
<td>1970</td>
<td>3365</td>
<td>2488</td>
<td>307</td>
<td>669</td>
<td>73.9</td>
<td>9.1</td>
<td>19.9</td>
</tr>
<tr>
<td>1980</td>
<td>3791</td>
<td>2557</td>
<td>325</td>
<td>939</td>
<td>67.5</td>
<td>8.6</td>
<td>24.8</td>
</tr>
<tr>
<td>1991</td>
<td>3984</td>
<td>2513</td>
<td>434</td>
<td>1090</td>
<td>63.1</td>
<td>10.9</td>
<td>27.4</td>
</tr>
<tr>
<td>2001</td>
<td>4216</td>
<td>2334</td>
<td>576</td>
<td>1276</td>
<td>55.4</td>
<td>13.7</td>
<td>30.3</td>
</tr>
<tr>
<td>2011*)</td>
<td>4375</td>
<td>2193</td>
<td>612</td>
<td>1422</td>
<td>50.1</td>
<td>14.0</td>
<td>32.5</td>
</tr>
</tbody>
</table>

*) one-couple and lone-parent families without families in households consisting of three or more families

Source: Czech Statistical Office, 2013b
Forecast of selected housekeeping households

• Based on:
  – Population census 2011
  – Population projection till 2100

• Method
  – Headship rate
  – Modification of Ediev (2007)

• Projected housekeeping households by type and size
  – One-couple families, lone-parent families, one-person household

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**Forecast assumptions**

- **Population projection – assumptions**

<table>
<thead>
<tr>
<th>Year</th>
<th>Total fertility rate</th>
<th>Life expectancy at birth (males/females)</th>
<th>Migration balance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>2012*</td>
<td>1.45</td>
<td>1.45</td>
<td>1.45</td>
</tr>
<tr>
<td>2015</td>
<td>1.45</td>
<td>1.45</td>
<td>1.45</td>
</tr>
<tr>
<td>2030</td>
<td>1.45</td>
<td>1.50</td>
<td>1.52</td>
</tr>
<tr>
<td>2050</td>
<td>1.45</td>
<td>1.56</td>
<td>1.61</td>
</tr>
<tr>
<td>2100</td>
<td>1.45</td>
<td>1.56</td>
<td>1.61</td>
</tr>
</tbody>
</table>

**Source:** Czech Statistical Office, 2013c
Population outside housekeeping households by sex and age, Population census 2011, the Czech Republic

Source: Czech Statistical Office, 2013a
Projection of the number of household

Source: Scherbov S.; Ediev, D. 2008
Projection of the household size by type

1. Household average size by type \((n)\)
2. Conditional average size excess \(\eta_k = n_{k+} - k\), where \(k\) is a household size
3. \(\alpha\)-method
   \[
   \alpha_k = -\frac{\ln \left(\tilde{v}_{k/k+}\right)}{\tilde{\eta}_k}, \quad \text{where} \quad \tilde{v}_{k/k+} = \frac{H_k}{H_{k+}} \quad \text{is a conditional share of private households with size equal to or higher than} \ k
   \]
4. Correction \(v_{k/k+} = \max(e^{-\alpha \ast \eta_k}; 1 - \eta_k)\)
5. Afterwards: calculation of \(\alpha_k, v_{k/k+}\) and \(\eta_k\) to the highest values – recurrent procedure of calculation

Main assumption: distribution of households by size is a function of the average size of households
The overall number of selected housekeeping households by variants, the Czech Republic, 2011, 2013-40

Note: 2011 real data
Source: Authors’ calculation
Projected housekeeping households by type and size, the Czech Republic, 2013-2040, medium variant

Source: Authors’ calculation
Conclusion

• Impact of population ageing on household structure is significant in the Czech Republic

• The overall number of one-person households, one-couple families and lone-parent families will be most likely higher in 2040 in comparison with the state 2011 in all projected variants
  – One-person households are the main contributor
  – Size of one-couple families shrinks
    • Higher relevance of couples without children
  – Size of lone-parent household also diminishes
Sources


Thank you for your attention

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