CENSUS HOUSEHOLD DATA: CHALLENGES TO KEEP IT UP TO DATE

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Is annual or quinquennial dissemination of the census household data possible?
Methodology and data processing

Stage I – Creation of dwelling and census households
• Households for register based and current residence
• Definition
• Sources and key variables
• Usage for register based and current residence
• Census household types

The outputs

Stage II – Analyzing the outputs
• Comparing households by register based and current residence
• Advantages and limitations of variables

Stage III – Insights for the future
• ESOPH
• Sustainability
STAGE I – CREATION OF DWELLING AND CENSUS HOUSEHOLDS
Households for register based residence

- 5 449 270 inhabitants
- de jure
- Source – Register of Natural Persons and other Administrative data sources
- Sustainable

Households for current residence

- 5 233 612 inhabitants
- Information for every 10 years (de facto)
- Source – Census forms
- Dissemination of households on national level
- Unsustainable

<table>
<thead>
<tr>
<th>Differences between register based and current residence</th>
<th>Number of inhabitants</th>
<th>Percentage from popul.</th>
</tr>
</thead>
<tbody>
<tr>
<td>inhabitants with different register based and current residence within Slovakia</td>
<td>573 058</td>
<td>10,52 %</td>
</tr>
<tr>
<td>inhabitants with current residence abroad</td>
<td>264 269</td>
<td>4,85 %</td>
</tr>
<tr>
<td>inhabitants living in Slovakia on current residence, but without residence in the RNP</td>
<td>48 611</td>
<td>0,89 %</td>
</tr>
</tbody>
</table>
Creation of dwelling households on address points

• Each occupied address points have one or more dwellings.
• Dwelling household consists of all persons who jointly occupy one dwelling, i.e. each occupied dwelling represents one dwelling household. Chief criterion: common housing.

**Dwelling households are created based on the current residence of their members (the factual residence at the decisive moment of the census).**

Key variables for dwelling household creation

• Flat number (Register + Census forms)
• Family relations (Register + Census forms)
<table>
<thead>
<tr>
<th>Sources &amp; Variables (multi-dwelling buildings)</th>
<th>Register based residence</th>
<th>Completeness - % of population of multi-dwelling buildings</th>
<th>If current residence is different than register based</th>
<th>Completeness - % of population of multi-dwelling buildings</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Register of Natural Persons</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>family relations</td>
<td>✔</td>
<td>83.9%</td>
<td>✔</td>
<td>79.9%</td>
</tr>
<tr>
<td>flat numbers (only multi-dwelling buildings)</td>
<td>✔</td>
<td>33.6%</td>
<td>×</td>
<td>-</td>
</tr>
<tr>
<td><strong>Cadasther</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>flat number of the owner (only multi-dwelling buildings)</td>
<td>✔</td>
<td>20.0%</td>
<td>×</td>
<td>-</td>
</tr>
<tr>
<td><strong>Census forms</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>flat number</td>
<td>✔</td>
<td>76.8%</td>
<td>✔</td>
<td>72.7%</td>
</tr>
<tr>
<td>relationships to persons living in the same dwelling household</td>
<td>×</td>
<td>-</td>
<td>✔</td>
<td>92.5%</td>
</tr>
</tbody>
</table>
Family relations from register (RNP)

Existing relations in the RNP

- Spouse
- Parent-child

![Diagram showing family relationships]

Created relations under an address point

- Siblings
- Cohabitants with common child
- Grandparents
- Mother-in-law / Father-in-law
- Uncle, niece
- And so on

Mirror relations from Census forms

- Spouse
- Parent-child
- Cohabitant couple
- Siblings
- Grandparents
- Mother-in-law / Father-in-law
- Uncle, niece
- And so on
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- Grandparents
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- Uncle, niece
- And so on

Mirror relations from census forms

Address point

Person 1
- With Mother
- With Father

Person 2
- With Cohabitant partner (m)
- With Daughter

Person 3
- With Cohabitant partner (w)
- With Daughter

Person 4
- I live alone

Person 5
- With Son
- With Daughter
- With Daughter

Further analyses were needed
Cluster of relations as starting point

- Clusters of relations in each address point
- Subsequently decided that the people in the cluster of relations are living together or living separately in dwellings

Inaccuracy of flat numbers

- There is no database of unique and accurate flat numbers of dwellings
- There is no standardized system for numbering dwellings
- Inhabitants often do not know the apartment number they live in or do not know where to find it

Prioritization of variables used in household creation:

1. Flat number (cadasther)
2. Relations from RNP
3. Relations from census forms
4. Flat number (RNP)
5. Flat number (census forms)

<table>
<thead>
<tr>
<th>Person</th>
<th>Flat number</th>
<th>Cluster of relation (RNP)</th>
<th>Cluster of relation (Census form)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
</tbody>
</table>

Case 1 – adjustment of flat numbers based on relations

<table>
<thead>
<tr>
<th>Person</th>
<th>Flat number (RNP)</th>
<th>Cluster of relation (Census form)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>B</td>
<td>2</td>
<td>NaN</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Case 2 – adjustment of relations based on flat numbers
Creation of census households

- Each occupied dwelling household consists of one or more census households
- Census household consists of persons who jointly occupy one dwelling and is determined on the basis of reciprocal family relations. The census households is the basic unit and is not further divided. Chief criteria: common housing and family relations. *Census households are created based on the current residence of their members (the factual residence at the decisive moment of the census).*

Key variables for census household creation

- Family relations from census forms
- Family relations from register
Couple census household

- Married couple households
  - Without a child
  - With dependent child
  - Without a dependent child
- Opposite-sex cohabiting couple households
  - Without a child
  - With dependent child
  - Without a dependent child
- Same-sex cohabiting couple households
  - Without a child
  - With dependent child
  - Without a dependent child

Lone parent census households

- Lone father households
  - With dependent child
  - Without a dependent child
- Lone mother households
  - With dependent child
  - Without a dependent child

Non-family census households

- More than one-person census households (without close family relationship)
  - Grandparents with grandchild
  - Siblings
  - Indirect family relationship
- One-person census household
  - With another member in the dwelling
  - Without another member in the dwelling
- Collective and institutional households
STAGE II - ANALYZING THE OUTPUTS
The differences between register based and current residence

<table>
<thead>
<tr>
<th>Types of census households</th>
<th>Register based res.</th>
<th>Current res.</th>
<th>Difference</th>
<th>Percentage of difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married couple without a child</td>
<td>262 933</td>
<td>360 007</td>
<td>97 074</td>
<td>36,92%</td>
</tr>
<tr>
<td>Married couple with child</td>
<td>656 170</td>
<td>584 257</td>
<td>-71 913</td>
<td>-10,96%</td>
</tr>
<tr>
<td>Opposite-sex cohabiting couple without a child</td>
<td>No data</td>
<td>49 705</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Opposite-sex cohabiting couple with child</td>
<td>67 390</td>
<td>83 793</td>
<td>16 403</td>
<td>24,34%</td>
</tr>
<tr>
<td>Same-sex cohabiting couple without a child</td>
<td>No data</td>
<td>1 087</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Same-sex cohabiting couple with child</td>
<td>No data</td>
<td>30</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Lone fathers</td>
<td>65 224</td>
<td>51 632</td>
<td>-13 592</td>
<td>-20,84%</td>
</tr>
<tr>
<td>Lone mothers</td>
<td>435 332</td>
<td>305 567</td>
<td>-129 765</td>
<td>-29,81%</td>
</tr>
<tr>
<td>Non-family households</td>
<td>58 012</td>
<td>52 472</td>
<td>-5 540</td>
<td>-9,55%</td>
</tr>
<tr>
<td>One-person household without another member in the dwelling</td>
<td>410 072</td>
<td>488 853</td>
<td>78 781</td>
<td>19,21%</td>
</tr>
<tr>
<td>One-person household with another member in the dwelling</td>
<td>353 040</td>
<td>346 761</td>
<td>-6 279</td>
<td>-1,78%</td>
</tr>
</tbody>
</table>
The similarity between register based and current residence

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dwelling households</td>
<td>66%</td>
</tr>
<tr>
<td>Census households</td>
<td>72%</td>
</tr>
<tr>
<td>Census household types</td>
<td>69%</td>
</tr>
<tr>
<td>Advantages</td>
<td>Flat number from registers (Cadasther &amp; RNP)</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------</td>
</tr>
</tbody>
</table>
| - Broad scale of family relations  
- Relatively precise family relations | - Precise and unique identifier for dwellings  
- High quality for flat number from Cadasther | - Only flat number for people with different current residence | - Only information about how people living together in one dwelling in current residence  
- Contains cohabitants |
| Limitations | - Do not completely cover cohabitants  
- Without census only for register based residence | - High missing rate  
- Low quality for flat number from RNP | - High non-response rate  
- High error rate | - High error rate |
Stage III – Insights for the future
ESOPH
Domain (f) – relationships between population, family, households and housing

„...Census statistics on housing should be available at least every five years and progressively move to annual frequency for specific variables of Union relevance....“

Position of the European Parliament, 17

„...For the ‘housing’ domain, the data shall be transmitted to the Commission (Eurostat) annually and every 5 and 10 years. The annual data collection shall start from the reference year 2031....“

Periodicity of data transmission, ANNEX III

Concept of Family nucleus
• a married couple, a couple in a registered partnership or a couple living in a consensual union without children
• a married couple, a couple in a registered partnership or a couple living in a consensual union with one or more unmarried children
• a parent living with one or more unmarried children.

Concept of Household
• a group of two or more persons who combine to share living quarters, or to share other specific resources
• an individual person who does not form part of any other household.

Possible list of variables
• Number of families
• Type of family
• Marital and partnership status
• Duration of marriage/consensual union
• Number of live-born children
• Household members – socio-economic status
• Housing patterns of homeless and persons without fixed housing
<table>
<thead>
<tr>
<th>What we can do</th>
<th>What we cannot do</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Create family relations from register</td>
<td>• We cannot create cohabitant couples (opposite-sex or same-sex) if they do not have a common child</td>
</tr>
<tr>
<td>• Create cohabitant couples if they have a common child</td>
<td>• We do not know family relations for foreigners and for people with missing information</td>
</tr>
<tr>
<td>• If meantime the data quality of flat numbers in Register of Natural Persons improve we could create dwelling households with high accuracy</td>
<td>• Without census we cannot know the actual (current) residence of the population</td>
</tr>
<tr>
<td>• Household data sampling</td>
<td></td>
</tr>
</tbody>
</table>
THANK YOU FOR YOUR ATTENTION!