This project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration under grant agreement no 613247.

NATIONAL TIME TRANSFER ACCOUNTS (NTTA): HOUSEHOLD SATELLITE ACCOUNTS BY AGE AND GENDER

AGENTA Workshop, Vienna, November 22, 2017

Lili Vargha
Hungarian Demographic Research Institute
The majority of economic activity performed in the household (i.e. home production or unpaid household labour) is not covered by NA and NTA.

Especially problematic, since...
The majority of economic activity performed in the household (i.e. home production or unpaid household labour) is not covered by NA and NTA.

Especially problematic, since

1. A *considerable amount* is produced by households (25-50% of GDP)
### Table 1: Total aggregate value of household production by type of activity and country as share of GDP in 2002 (%)

<table>
<thead>
<tr>
<th>Country</th>
<th>Housework</th>
<th>Childcare</th>
<th>Interhh</th>
<th>Total prod.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>32.1</td>
<td>2.9</td>
<td>1.0</td>
<td>36.0</td>
</tr>
<tr>
<td>Estonia</td>
<td>30.8</td>
<td>3.9</td>
<td>2.1</td>
<td>36.9</td>
</tr>
<tr>
<td>Italy</td>
<td>46.5</td>
<td>6.0</td>
<td>2.2</td>
<td>54.7</td>
</tr>
<tr>
<td>Sweden</td>
<td>37.2</td>
<td>5.2</td>
<td>1.7</td>
<td>44.1</td>
</tr>
</tbody>
</table>

Values represent the total labour cost of hh production activities
Source: Vargha, Gál & Crosby-Nagy (2017)
The majority of economic activity performed in the household (i.e. home production or unpaid household labour) is not covered by NA and NTA. Especially problematic, since:

1. A considerable amount is produced by households (25-50% of GDP)
The majority of economic activity performed in the household (i.e. home production or unpaid household labour) is not covered by NA and NTA.

Especially problematic, since

1. A **considerable amount** is produced by households (25-50% of GDP)
2. Mostly **women’s total economic contribution** remains invisible
## WOMEN’S CONTRIBUTION IN HH PRODUCTION

<table>
<thead>
<tr>
<th>Country</th>
<th>Housework</th>
<th>Childcare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulgaria</td>
<td>64</td>
<td>75</td>
</tr>
<tr>
<td>Estonia</td>
<td>62</td>
<td>78</td>
</tr>
<tr>
<td>Italy</td>
<td>77</td>
<td>70</td>
</tr>
<tr>
<td>Sweden</td>
<td>57</td>
<td>64</td>
</tr>
</tbody>
</table>

Table 2: Women’s share in the different household production activities around 2000 (%)

Source: Vargha, Donehower & Istenic (2017)
The majority of economic activity performed in the household (i.e. home production or unpaid household labour) is not covered by NA and NTA.

Especially problematic, since:

1. A considerable amount is produced by households (25-50% of GDP)
2. Mostly women’s total economic contribution remains invisible
The majority of economic activity performed in the household (i.e. home production or unpaid household labour) is not covered by NA and NTA.

Especially problematic, since

1. A considerable amount is produced by households (25-50% of GDP)
2. Mostly women’s total economic contribution remains invisible
3. Services provided to other household members such as care, cooking, shopping and cleaning constitute an important part of intergenerational transfers
Figure 1: Net transfers by age in nine European countries (Average of 9 EU countries in early 2000s: AT, DE, ES, FI, FR, HU, SE, SI, UK Source: Gál, Vanhuysse & Vargha (2018)
Household Satellite Account (HHSA) methodology has been developed in order to account for home production in total economic output since 1990’s.

HHSA calculations are based on time use surveys and a pricing procedure.

National Time Transfer Accounts (NTTA) calculations are also based on the original HHSA methodology, but they are not only gender specific, but also age specific.
NTTA age profiles for 32 time points from 17 European countries
- Comparable across countries and time
- Based on publicly available harmonized time use and wage data

Main sources:
- HETUS (Harmonised European Time Use Survey Tables) & MTUS (Multinational Time Use Study)
- SES (Structure of Earnings Survey) and World Bank wage data
<table>
<thead>
<tr>
<th>Country</th>
<th>Year of time use survey</th>
<th>Source of time use</th>
<th>Wage data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>1992</td>
<td>MTUS</td>
<td>WB</td>
</tr>
<tr>
<td>Belgium</td>
<td>2005</td>
<td>HETUS</td>
<td>SES</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>2002</td>
<td>HETUS</td>
<td>SES</td>
</tr>
<tr>
<td>Denmark</td>
<td>1987, 2001</td>
<td>MTUS</td>
<td>SES, WB</td>
</tr>
<tr>
<td>Estonia</td>
<td>2000</td>
<td>HETUS</td>
<td>SES</td>
</tr>
<tr>
<td>Finland</td>
<td>2000</td>
<td>HETUS</td>
<td>SES</td>
</tr>
<tr>
<td>France</td>
<td>1999</td>
<td>HETUS, MTUS</td>
<td>SES</td>
</tr>
<tr>
<td>Germany</td>
<td>1992, 2002</td>
<td>HETUS, MTUS</td>
<td>SES, WB</td>
</tr>
<tr>
<td>Italy</td>
<td>1988, 2003</td>
<td>HETUS, MTUS</td>
<td>SES, WB</td>
</tr>
<tr>
<td>Latvia</td>
<td>2003</td>
<td>HETUS</td>
<td>SES</td>
</tr>
<tr>
<td>Lithuania</td>
<td>2003</td>
<td>HETUS</td>
<td>SES</td>
</tr>
<tr>
<td>Netherlands</td>
<td>1975-2005, 7 time points</td>
<td>MTUS</td>
<td>SES, WB</td>
</tr>
<tr>
<td>Poland</td>
<td>2004</td>
<td>HETUS</td>
<td>SES</td>
</tr>
<tr>
<td>Slovenia</td>
<td>2001</td>
<td>HETUS, MTUS</td>
<td>SES</td>
</tr>
<tr>
<td>Spain</td>
<td>2003, 2010</td>
<td>HETUS, MTUS</td>
<td>SES</td>
</tr>
<tr>
<td>Sweden</td>
<td>2001</td>
<td>HETUS</td>
<td>SES</td>
</tr>
<tr>
<td>UK</td>
<td>1974-2005, 6 time points</td>
<td>HETUS, MTUS</td>
<td>SES, WB</td>
</tr>
</tbody>
</table>
SPECIAL NTTA METHODOLOGY

- **Aim:** summarize the methodology and some of the main results of the European AGENTa NTTA estimations.

---

**AGENTa**

Ageing Europe – An Application of National Transfer Accounts for Explaining and Projecting Trends in Public Finances

**Project Acronym:** AGENTa

**Full Title:** Ageing Europe: An application of National Transfer Accounts (NTA) for explaining and projecting trends in public finances

**Grant Agreement:** 615247

**Duration:** 01/01/2014-31/12/2017

**DELIVERABLE D.2.3:** Manual of NTTA methodology and guidelines to the AGENTa NTTA data explorer

**Submission date:** 30 June 2016

**Project month:** 30

**Dissemination Level:** PU

**Authors:**
- Lili Vargha (HDRI): vargha@demografia.hu
- Ana Šeme (UL): seme.ana@gmail.com
- Robert L. Gál (HDRI): gal@demografia.hu
- Bernhard Hammer (OEAW-ViD): Bernhard.Hammer@oeaw.ac.at
- Jože Sambt (UL): joze.sambt@sf.uni-lj.si

**DEMOROGRIFIC RESEARCH**

VOLUME 36, ARTICLE 32, PAGES 905–944
PUBLISHED 23 MARCH 2017
http://www démographic-research.org/Volumes/Vol36/32/
DOI: 10.4054/DemRes.2017.36.32

**Research Article**

Household production and consumption over the life cycle: National Time Transfer Accounts in 14 European countries

Lili Vargha
Robert Ivan Gál
Michelle O. Crosby-Nagy

Calculations are based on methods of National Time Transfer Accounts by Donehower (2011/2014)

The main steps of this method are

1. Identifying time spent on household production activities by age and gender in time use surveys
2. Estimating consumption of household labour by allocating the goods and services produced through unpaid work to the members of the household
3. Finding appropriate wages to impute the value of time spent on the chosen activities
- **General housework activities**: cooking, dish washing, cleaning, laundry, ironing, gardening, construction and repairs, shopping, etc.

- **Childcare**: physical care and supervision of child; Teaching, reading and talking to child, playing with child, helping with homework, transporting a child

- **Inter-household activities (HETUS)**: unpaid household work performed for other households

- **Total household production**: sum of all the above mentioned activities
HOUSEHOLD PRODUCTION BY GENDER AND AGE IN EARLY 2000s

Average of 16 countries. Source: Vargha, Seme, Gal, Hammer & Sambt (2016)
CHILDCARE PRODUCTION BY GENDER AND AGE IN EARLY 2000s

HOUSEHOLD PRODUCTION BY GENDER AND AGE IN EARLY 2000s

Average hours per day

- Men (16 European country average)
- Women (16 European country average)

Source: Vargha, Seme, Gal, Hammer & Sambt (2016)
HOUSEHOLD PRODUCTION BY GENDER AND AGE IN EARLY 2000s

Source: Vargha, Seme, Gal, Hammer & Sambt (2016)
HOUSEHOLD PRODUCTION BY GENDER AND AGE IN EARLY 2000s

Source: Vargha, Seme, Gal, Hammer & Sambt (2016)
HETUS and MTUS do not contain the detailed household composition of the producer (i.e. household roster).

By supplementing the original methodology, we have introduced a special imputation method.
HETUS and MTUS do not contain the detailed household composition of the producer (i.e. household roster)

By supplementing the original methodology, we have introduced a special imputation method

- We imputed harmonised time use data (values of household production by age groups, gender and a detailed household structure) to nationally representative survey samples in order to allocate time spent on home production among consumers in the household

Additional surveys used: EU-SILC, IPUMS, LFS, ECHP
ESTIMATING CONSUMPTION BY AGE

- HETUS and MTUS do not contain the detailed household composition of the producer (i.e. household roster)
- By supplementing the original methodology, we have introduced a special imputation method
  - We imputed harmonised time use data (values of household production by age groups, gender and a detailed household structure) to nationally representative survey samples in order to allocate time spent on home production among consumers in the household
- Additional surveys used: EU-SILC, IPUMS, LFS, ECHP
- Housework services are enjoyed equally by hh members
- Childcare is allocated by using age-specific eq. scales
Average of 16 countries. Source: Vargha, Seme, Gal, Hammer & Sambt (2016)
CHILDCARE CONSUMPTION IN EARLY 2000S

CONSUMPTION OF HOUSEHOLD GOODS AND SERVICES BY GENDER AND AGE IN EARLY 2000s

Source: Vargha, Seme, Gal, Hammer & Sambt (2016)
CONSUMPTION OF HOUSEHOLD GOODS AND SERVICES BY GENDER AND AGE IN EARLY 2000s

Source: Vargha, Seme, Gal, Hammer & Sambt (2016)
CONSUMPTION OF HOUSEHOLD GOODS AND SERVICES BY GENDER AND AGE IN EARLY 2000s

Source: Vargha, Seme, Gal, Hammer & Sambt (2016)
NET TIME TRANSFERS

- Who gives the services to whom?
- Net time transfers by gender and age are calculated by subtracting production from consumption, age group by age group.
- Net time transfers show whether an age group is a net beneficiary or net giver of household products and services.
THE PROVIDERS AND BENEFICIARIES OF UNPAID HOUSEHOLD LABOUR
BY GENDER AND AGE IN EARLY 2000s

Source: Vargha, Seme, Gal, Hammer & Sambt (2016)
THE PROVIDERS AND BENEFICIARIES OF UNPAID HOUSEHOLD LABOUR BY GENDER AND AGE IN EARLY 2000s

Source: Vargha, Seme, Gal, Hammer & Sambt (2016)
THE PROVIDERS AND BENEFICIARIES OF UNPAID HOUSEHOLD LABOUR BY GENDER AND AGE IN EARLY 2000s

Source: Vargha, Seme, Gal, Hammer & Sambt (2016)
Pricing Unpaid Household Labour

- 'Specialist replacement wage' method by using the average market wage of the unpaid activities (Ironmonger 1996)
- For HETUS age profiles from the early 2000s we used Structure of Earnings Survey data on wages by ISCO occupational categories
- For MTUS age profiles, starting from 1970s, we used Occupational Wages around the World data on wages from the World Bank Data website
NTTA AGE PROFILES IN MONETARY TERMS BY GENDER AND AGE IN EARLY 2000S

Household production

Consumption of household services

Net time transfers

Age profiles are normalised using per capita GDPs of the respective countries

Source: Vargha, Seme, Gal, Hammer & Sambt (2016)
This project has received funding from the European Union’s Seventh Framework Programme for research, technological development and demonstration under grant agreement no 613247.