

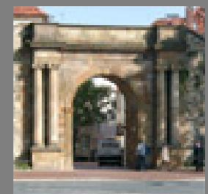
IIOA conference 14<sup>th</sup> – 18<sup>th</sup> July,  
Lisbon, Portugal

# Socio-economic consumption modelling in an input-output model

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Thomas Drosdowski

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# Content

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1. Reporting on socioeconomic development (soeb3)
2. Private consumption in Germany
3. Socio-economic modeling (soem)
4. Outlook

# Content

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## 1. Reporting on socioeconomic development (soeb3)

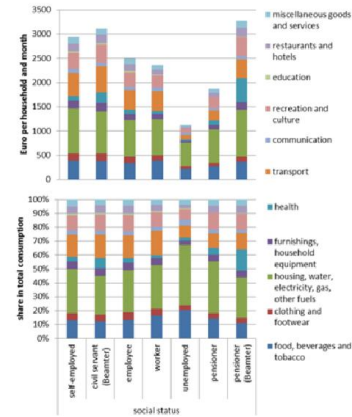
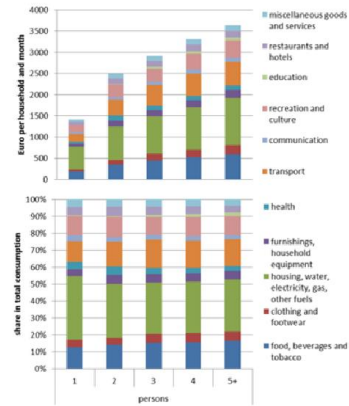
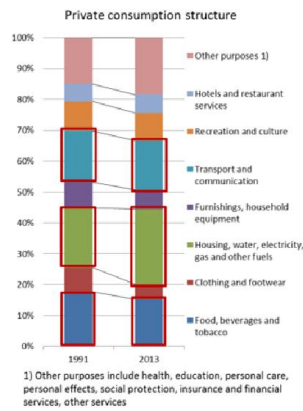


<http://www.soeb.de/en/>

- ▶ Third reporting on socioeconomic development in Germany:  
**Research association** funded by the Federal Ministry of Education and Research (BMBF) 
- ▶ Coordination: **SOFI** | Soziologisches Forschungsinstitut Göttingen  
an der Georg-August-Universität
- ▶ Objectives:
  - ⇒ Better understanding of the German society in **transformation**
    - Changing interaction between economy, politics, institutions and individuals
    - Increasing diversity of work and lifestyles
  - ⇒ Consequences for **participation** (focus on consumption and labor)
  - ⇒ Development of **inequality** and **exclusion**
- ▶ Work packages of gws: economic projections (2030), **private consumption projections by socioeconomic households (2030)**, scenario analysis, coordination, public relation

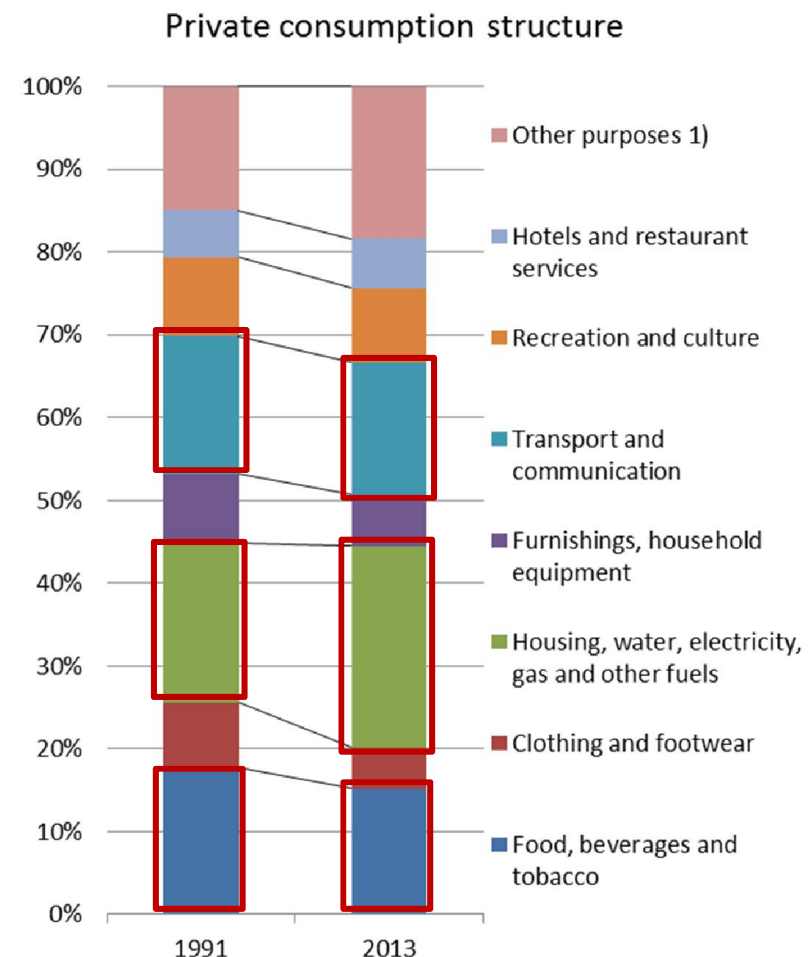
# Content

1. Reporting on socioeconomic development (soeb3)
2. Private consumption in Germany



# Private consumption in Germany

- ▶ Contributes about 60% (1.6 trillion Euro) to domestic uses (2013)
- ▶ Consumption structure changes
  - ⇒ Food, clothes and furniture lose importance
  - ⇒ More expenditures on habitation and other purposes
- ▶ Changes due to
  - ⇒ Prices, income, behavior
  - ⇒ Household structure

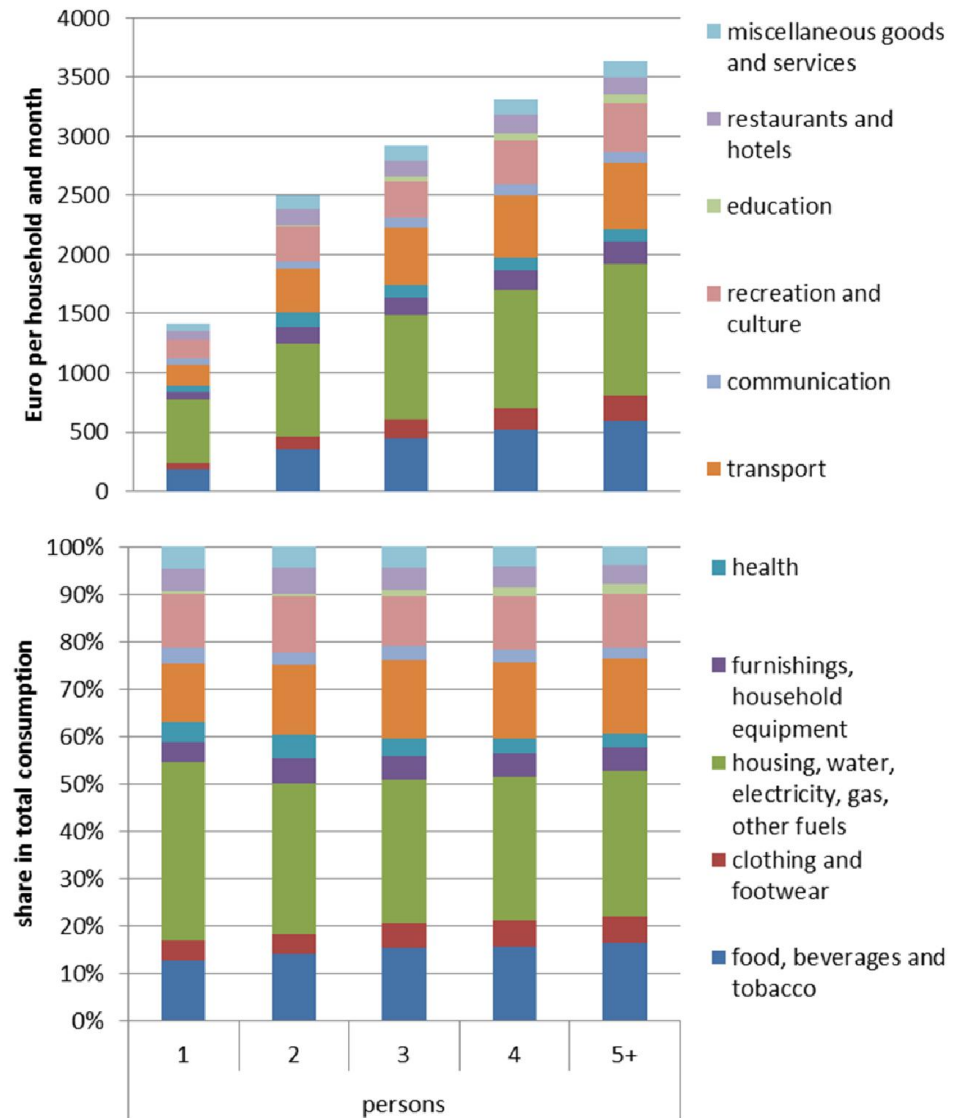


1) Other purposes include health, education, personal care, personal effects, social protection, insurance and financial services, other services

Source: Federal Statistical Office (SNA 2014)

# Consumption by different household types

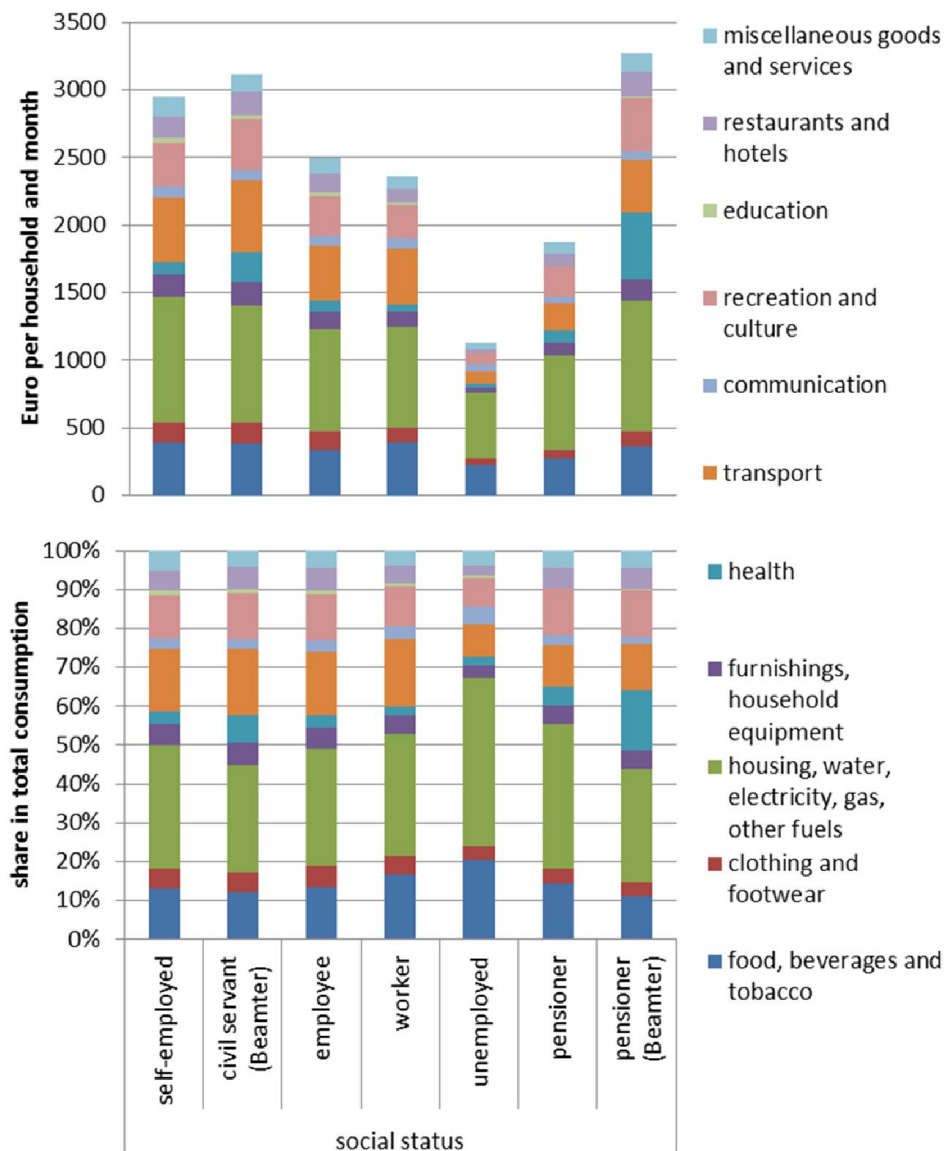
- ▶ Consumption increases with household size, but not linearly
- ▶ Economies of scale
  - ⇒ 5+ hhold only with 2.6 more expenditures than a single hhold
  - ⇒ Especially for habitation
  - ⇒ Less valid for groceries, clothing, transport and education
- ▶ Health
  - ⇒ 2 pers. and single hhold often older couples/ singles  
→ higher exp./share



Source: Federal Statistical Office (HBS 2010)

# Consumption by different household types

- ▶ Social status corresponds with income and age
- ▶ Higher income → more consumption
  - ⇒ Higher quality goods
  - ⇒ Necessities lose importance (food, housing)
  - ⇒ More luxuries (transport, recreation, furniture, restaurants and hotels)
- ▶ Health
  - ⇒ Expenditures increase with age (pensioners)
  - ⇒ Special health security system for *Beamte*





# Consumption by different household types

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- ▶ Changes in the population composition have impact on consumption
- ▶ Demographic change → more pensioner households
  - ⇒ Change in consumption structure (more health and housing)
  - ⇒ Change in consumption level/ expenditures (lower income)
  
- ▶ Consumption structure and level/ expenditures
  - ⇒ depend on household types
  - ⇒ Their different needs and preferences
  - ⇒ And their **income**

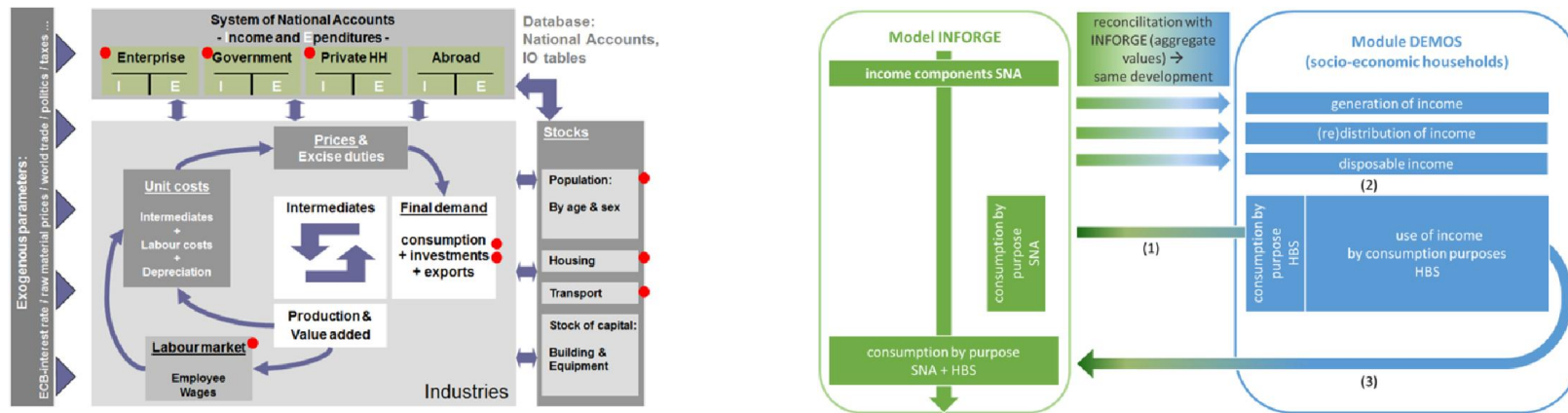
# Consumption by different household types

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- ▶ Income components depend on
  - ⇒ Labor market situation
  - ⇒ Development of property income
  - ⇒ Redistributive policies (taxes, social security contributions, transfers)
- ▶ Affect households and their income differently, depending on the income structure
- ▶ Income and consumption by different household types should be considered in economic modelling

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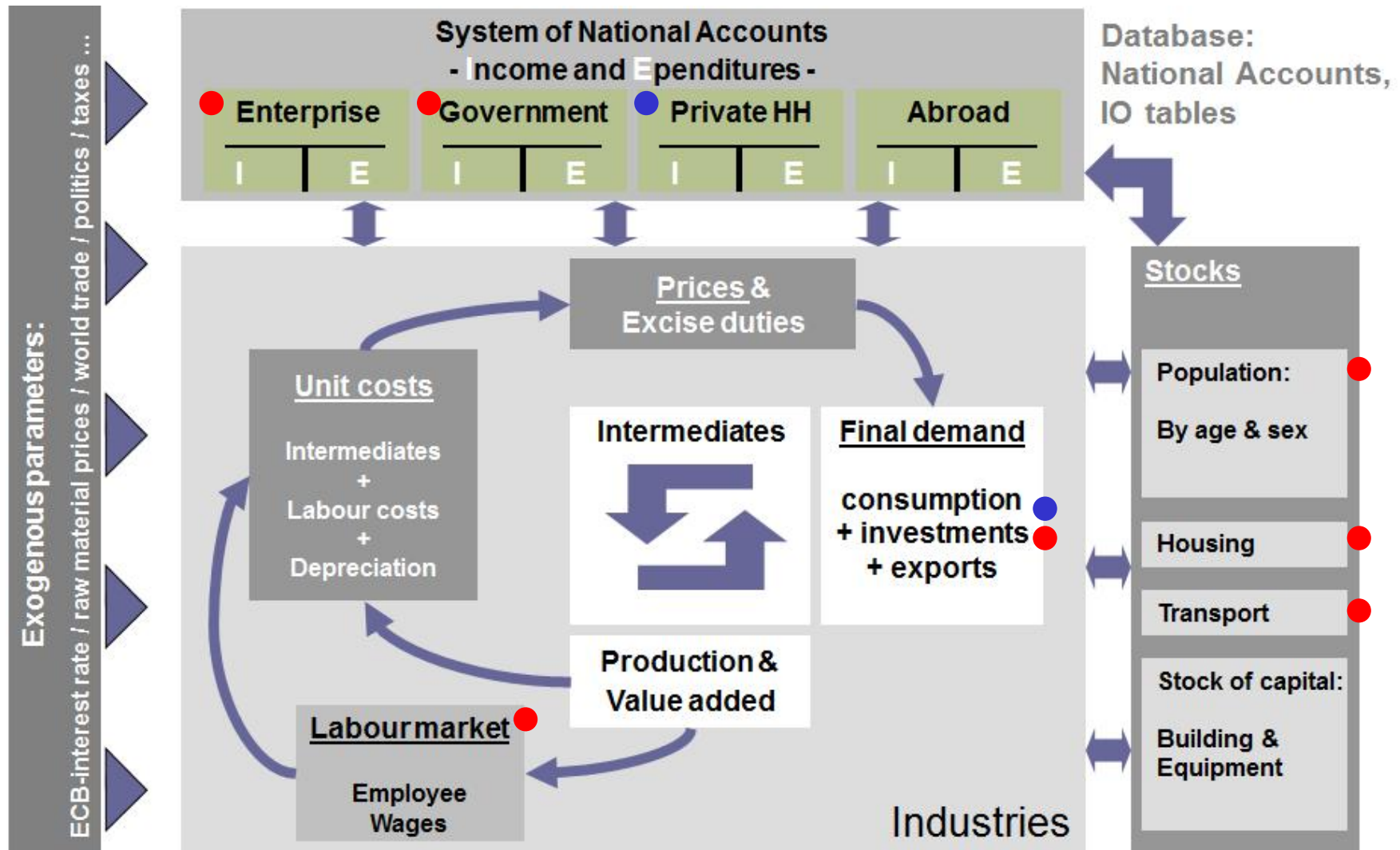
# The macro-econometric model INFORGE

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- ▶ Used and annually updated since the 1990s
- ▶ Bottom up (sum of value added of economic activities is GDP)
- ▶ No emphasis of either demand or supply side
- ▶ Mutual interdependency between final and intermediate demand, investment and income
- ▶ Trade covered by TINFORGE (more than 60 countries)
  
- ▶ BUT:
  - ⇒ Aggregate of private households (consumption and income)
  - ⇒ No differentiation between socioeconomic household types
  - ⇒ Additional information could enhance the model output
  - ⇒ Socioeconomic information interacts with various parts of INFORGE

# The macro-econometric model INFORGE

- Interaction ● with add. socioeconomic information ●



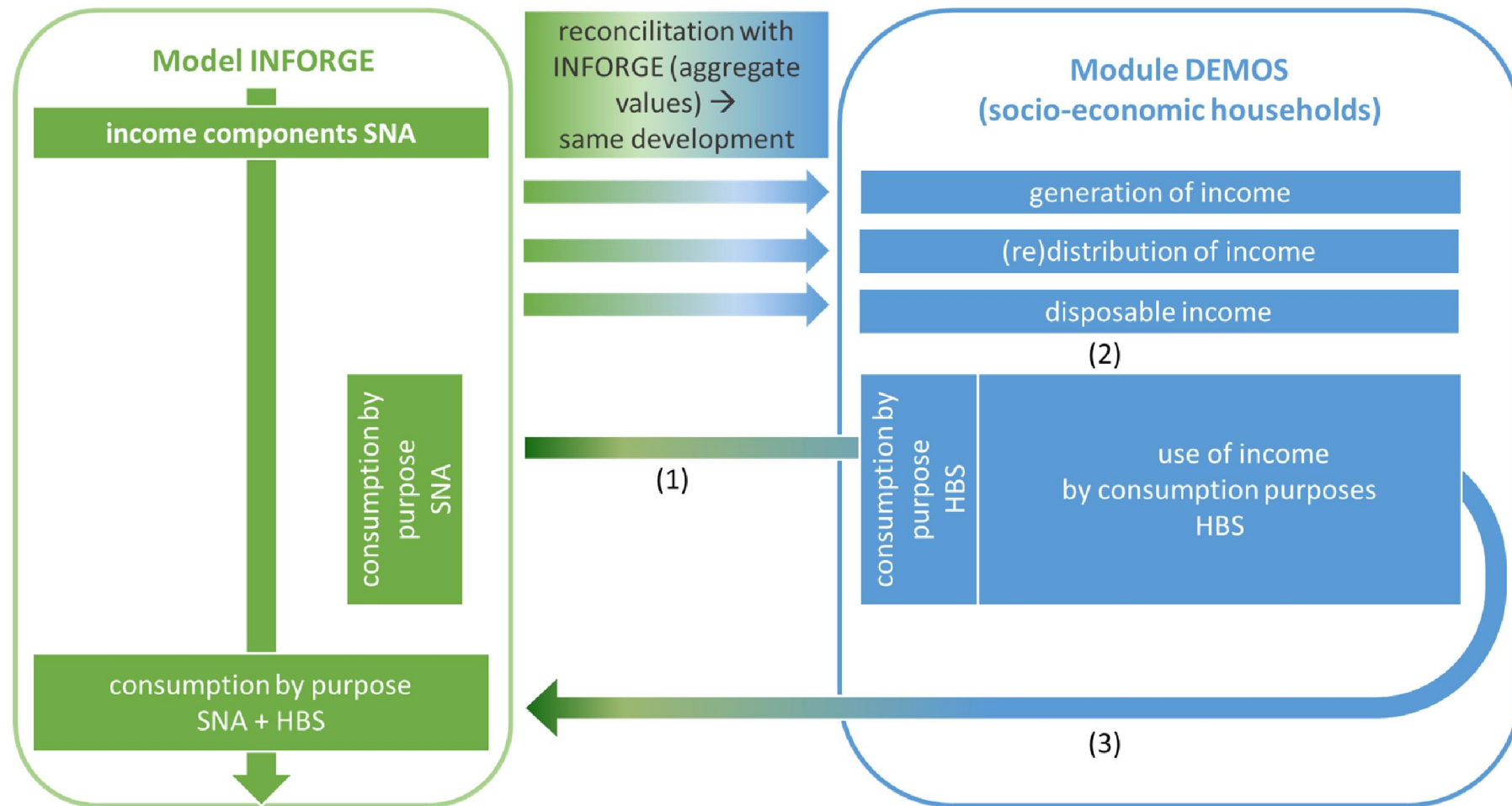
# Socio-economic consumption module DEMOS

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- ▶ Challenge: Combination of two different data sets (System of National Accounts SNA and Household Budget Survey HBS)
  - ⇒ Times series vs. few data points
  - ⇒ Data sets differ in level of consumption and income (method of data collection)
- ▶ Good news: classifications (income components, consumption purposes) are the same
- ▶ Procedure
  - ⇒ Consumption module (DEMOS) with socioeconomic household information (household size combined with social status)
  - ⇒ Gets input from the model
  - ⇒ Results of the module are given back to the model INFORGE
  - ⇒ Consequences for the other economic sectors are calculated

# Socio-economic consumption module DEMOS

## ► Interaction between model and module



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# Outlook

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- ▶ Areas of application:
  - ⇒ Evaluation of demographic change
  - ⇒ Scenario analysis related to sustainable and poverty consumption
  - ⇒ Policy analysis
  - ⇒ Improvement of indicators for social transformation

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# Thank you for your attention

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# Income by different household types

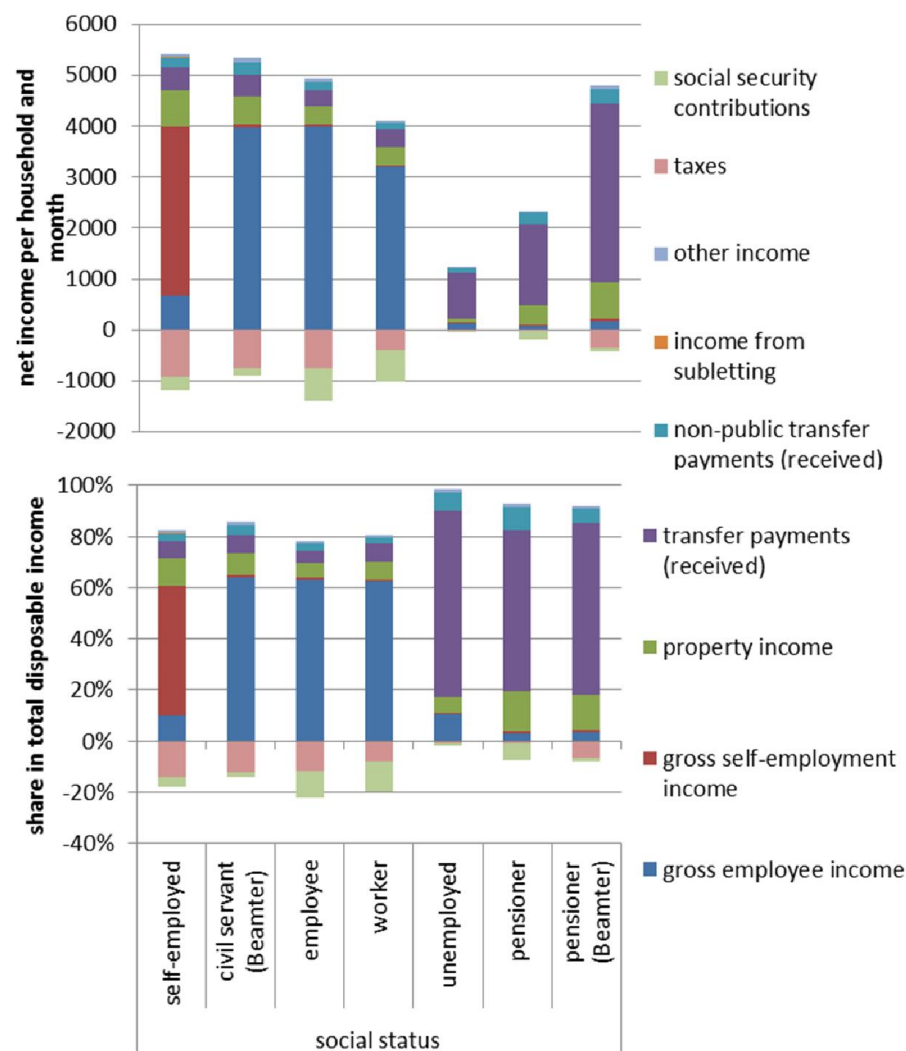
- ▶ Gross employee income is most important income component
  - ⇒ Highest in 3-person hhold
- ▶ Lowest incomes in small households (1-2 persons)
  - ⇒ Often older (retired → transfer payments)
  - ⇒ Or very young (students)
- ▶ Bigger households → children
  - ⇒ Received public transfers gain weight
  - ⇒ Property income (mainly imputed rents) → own house



Source: Federal Statistical Office (HBS 2010)

# Income by different household types

- ▶ Working households → main income from work
- ▶ Pensioner and unemployed → transfer payments
- ▶ Property income is positively related to
  - ⇒ Income level (self-employed, Beamte)
  - ⇒ Age (pensioners own finally the house)
- ▶ Social security contributions mainly paid by employees/workers



Source: Federal Statistical Office (HBS 2010)

# Why this exercise?

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The

*Report by the Commission on the Measurement of Economic Performance and Social Progress, Joseph E. STIGLITZ, Amartya SEN, Jean-Paul FITOUSSI, Coordinator*

Suggests:

***Recommendation 1: Look at income and consumption rather than production.***

***Recommendation 2: Consider income and consumption jointly with wealth.***

It further emphasizes

Measuring **sustainability** differs from standard statistical practice in a fundamental way: to do it adequately, we need **projections**, not only observations.

# Outlook

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- ▶ Huge data set has been recently supplied by partner (Dr. Irene Becker)
  - ⇒ 5x14 matrix (household size x social status) for each income component and consumption purpose
- ▶ Integration into the model
- ▶ Areas of application:
  - ⇒ Evaluation of demographic change
  - ⇒ Scenario analysis related to sustainable and poverty consumption
  - ⇒ Policy analysis
  - ⇒ Improvement of indicators for social transformation

# Outlook

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► Questions:

⇒ Is it sufficiently detailed? Right details?

⇒ Is a connection to welfare possible (welfare indicator)?

⇒ Which other parts of the model should be extended related to household information (except labor market)?

# Consumption by different household types

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