IMPACTS OF A MORE SUSTAINABLE CONSUMPTION
- SCENARIO ANALYSIS FOR GERMANY

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http://www.soeb.de/en/
Motivation

- Transition towards a Green Economy (UNEP): resource saving, low carbon, socially inclusive
- Consumers have enormous influence on economic development
  - GDP: Share of private consumption more than 50%
  - Final energy consumption:
    - Almost 30% of final energy consumption excluding mobility are attributed to private households
    - Almost 30% to transportation – half is due to private households (including company car)

Therefore:

- Potential importance of a more sustainable consumption
- Focus on “deeper” socioeconomic characteristics
- Enlarge analysis - labour market aspects
Modelling Approach
Modelling approach

- Focus on consumption of private households
- Applying socioeconomic consumption module DEMOS with socioeconomic information on income components and consumption structure for household types

◦ Based on survey data:
  ▪ Household Budget Survey (HBS)
    (detailed data about income generation and use of income by consumption purposes)
  ▪ Microcensus (e.g. number of households, size)

◦ Linked with economic model INFORGE
Socioeconomic consumption module DEMOS

Interaction between model and module

Model INFORGE

- income components SNA
- consumption by purpose SNA
- consumption by purpose SNA + HBS

Module DEMOS (socio-economic households)

- generation of income
- (re)distribution of income
- disposable income
- use of income by consumption purposes HBS

Reconciliation with INFORGE (aggregate values) → same development

(1)

(2)

(3)
Application for scenario analysis
Application for scenario analysis

Implementing a „more sustainable consumption“ in modelling context:

⇒ Simplified understanding of sustainable consumption
  ▪ Multidimensional concept -> difficult and controvert with regard to characteristics of sustainable consumption
  ▪ Restrictions concerning project volume
⇒ Focus on consumer behaviour of private households

⇒ More harmful to the environment
  → Consumption of physical goods (e.g. cars, furniture)

⇒ Less harmful to the environment
  → Consumption of services; immaterial goods (e.g. theatre visit)
### Application for scenario analysis

- **Selecting consumption purposes**
  - Consumer goods
  - Non-durable goods
  - Consumer durables
  - Services

- **Aggregation of consumption purposes** – partly mixed services and other goods

- **Plausibility checks

<table>
<thead>
<tr>
<th>Number</th>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Consumer goods</td>
<td>Food</td>
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<td>2</td>
<td></td>
<td>Non-alcoholic beverages</td>
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<tr>
<td>3</td>
<td></td>
<td>Alcoholic beverages</td>
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<tr>
<td>4</td>
<td></td>
<td>Tobacco</td>
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<td>29</td>
<td></td>
<td>Other recreational items and equipment, gardens and pets</td>
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<tr>
<td>31</td>
<td></td>
<td>Newspaper, books and stationery</td>
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<tr>
<td>36</td>
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<td>Personal care</td>
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<tr>
<td>5</td>
<td>Non-durable goods</td>
<td>Clothing</td>
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<td>6</td>
<td></td>
<td>Footwear</td>
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<td>11</td>
<td></td>
<td>Electricity, gas and other fuel</td>
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<td>13</td>
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<td>Household textiles</td>
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<td>15</td>
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<td>Glasmare, tableware, and household utensils</td>
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<td>37</td>
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<td>personal commodities</td>
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<tr>
<td>7</td>
<td>Consumer durables</td>
<td>Actual rentals for housing</td>
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<td>8</td>
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<td>Imputed rentals for housing</td>
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<td>9</td>
<td></td>
<td>Maintenance and repair of the dwellings</td>
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<tr>
<td>12</td>
<td></td>
<td>Furniture and furnishing, carpets and other floor coverings</td>
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<td>14</td>
<td></td>
<td>Household appliances</td>
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<td>16</td>
<td></td>
<td>Tools and equipment for house and garden</td>
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<tr>
<td>18</td>
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<td>Medical products, appliances and equipment</td>
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<tr>
<td>21</td>
<td></td>
<td>Purchase of vehicles</td>
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<tr>
<td>25</td>
<td></td>
<td>Telephone and telefax equipment, incl. repairing</td>
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<tr>
<td>27</td>
<td></td>
<td>Audio-visual, photographic and information processing equipment incl. repairing</td>
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<tr>
<td>28</td>
<td></td>
<td>Other major durables for recreation and culture (incl. Repairing)</td>
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<tr>
<td>10</td>
<td>Services</td>
<td>Water supply and miscellaneous services related to dwelling</td>
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<tr>
<td>17</td>
<td></td>
<td>goods and services for housekeeping</td>
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<td>19</td>
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<td>Outpatient services</td>
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<td>20</td>
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<td>Hospital services</td>
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<td>22</td>
<td></td>
<td>Operation of personal transport equipment</td>
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<td>23</td>
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<td>Transport services</td>
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<td>24</td>
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<td>Postal services</td>
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<tr>
<td>26</td>
<td></td>
<td>Telephone and telefax services, internet</td>
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<tr>
<td>30</td>
<td></td>
<td>Recreational and cultural services</td>
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<td>32</td>
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<td>Package holidays</td>
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<td>33</td>
<td></td>
<td>Education</td>
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<tr>
<td>34</td>
<td></td>
<td>Catering services</td>
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<tr>
<td>35</td>
<td></td>
<td>Accommodation services</td>
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<td>38</td>
<td></td>
<td>Services of social facilities</td>
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<tr>
<td>39</td>
<td></td>
<td>Insurance</td>
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<tr>
<td>40</td>
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<td>Financial services n.e.c.</td>
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<tr>
<td>41</td>
<td></td>
<td>Other services n.e.c.</td>
</tr>
</tbody>
</table>

Source: Federal Statistical Office.
Main assumptions:

Changes in household expenditures on consumption purposes

- Share of expenditures for less environmentally sustainable consumption purposes declines
- Share of expenditures for more environmentally sustainable consumption purposes rises
- Total amount of consumption expenditures stays constant within scenario time horizon
  - Uncover structural effect (not quantity)
- Linear increase of shift until 2030
  - 2030 less environmentally harmful consumption purposes: +5% of total consumption (price adjusted) compared to reference; others: -5%

Application for scenario analysis
Development of selected consumption patterns rated as more environmentally harmful

Shares of selected consumption patterns in total consumption in current prices for 1991, 2000, 2014 and 2030 (in %)

- operation of personal transport equipment
- purchase of vehicles
- furniture and furnishing, carpets etc.
- electricity, gas & other fuels
- clothing
- food

Shares already decline

Main results
Main results

- Impacts on **macroeconomic** development
- Shifts in final demand lead to changes in production
  - Positive impact on GDP
  - Decrease of German imports and exports
  - Weakens international competitiveness through **rising unit costs** and production prices

**Total deviation of GDP components between baseline and scenario for 2020 and 2030 (in € bn.)**

Source: Federal Statistical Office, INFORGE.
Impacts on employment development by industries

- Shifts in final demand lead to changes in employment
- Decrease in manufacturing industries; increase in service sectors
- Displacement from sectors with high labour productivity to more labour intensive service sectors

**Total deviation of number of employees between baseline and scenario by industries for 2020 and 2030 (1,000 persons)**

Source: Federal Statistical Office, INFORGE.
Main results

- Impacts on **household types I**
  - Shifts in final demand lead to changes for types of households
  - Increasing employment -> increasing disposable income
  - Long-term socioeconomic outcomes are predominantly positive

**Total deviation of annually disposable income for different types of households between baseline and scenario in 2030 (in bn €)**

- Pensioners
- Unemployed
- Employee
- Self-employed

Source: Federal Statistical Office, INFORGE.
Main results

**Impacts on household types II**

- Adjusted to effect of quantity – monthly per household
- Only self-employed have to face income losses -> less profits

**Total deviation of monthly disposable income for different types of households between baseline and scenario in 2030 (in €)**

- Pensioners
- Unemployed
- Employee
- Self-employed

Source: Federal Statistical Office, INFORGE.
More results

► More **aspects of labor market** to enlarge analysis
  ⇒ E.g. **job requirements** (also possible: gender, working hours, etc.)

► Max. deviation of employees in economic sectors:
  ⇒ T: Activities of households as employers (+160 000)
  ⇒ Q: Health and social services (+100 000)

**Structure of requirement levels of employee in sections T and Q and total**

- Changes in job requirements
- Different requirements will be needed

More results

- Employee in occupational main groups
  - Changes in required occupations
  - Different occupations will be needed

Top 4 of occupational main groups in sections T and Q and total

Source: Federal Employment Agency, INFORGE.
Conclusion
Conclusion

The reconstruction of the economy has an impact on...

- Economic development in general, sectors, qualifications, occupations and therewith on potential earnings

Analyses should look at:

- Not only employment
- But also jobs/occupations
- As well as redistribution between households

A combination of I-O and survey data enables to make deeper statements

Reconstruction is a “big” adventure due to globalization and digitization taking place at the same time

INFORUM can observe and model such a reconstruction “in concert” with all partners and accompany in a consultative way!
Thank you for your attention

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References

- A publication of the project “Sozioökonomische Berichterstattung III” (Reporting on socioeconomic development in Germany, third report) → www.soeb.de (also available in English)


## Annex

### Economic sections

<table>
<thead>
<tr>
<th>Section</th>
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</thead>
<tbody>
<tr>
<td>A. Agriculture, forestry and fishing</td>
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<tr>
<td>B. Mining and quarrying</td>
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<tr>
<td>C. Manufacturing</td>
</tr>
<tr>
<td>D. Electricity, gas, steam and air conditioning supply</td>
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<tr>
<td>E. Water supply; sewerage, waste management and remediation activities</td>
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<tr>
<td>F. Construction</td>
</tr>
<tr>
<td>G. Trade, maintenance and repair of vehicles</td>
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<tr>
<td>H. Transportation and storage</td>
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<tr>
<td>I. Accommodation and food service activities</td>
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<tr>
<td>J. Information and communication</td>
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<tr>
<td>K. Financial and insurance activities</td>
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<tr>
<td>L. Real estate activities</td>
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<tr>
<td>M. Professional, scientific and technical activities</td>
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<tr>
<td>N. Administrative and support service activities</td>
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<tr>
<td>O. Public administration and defence; compulsory social security</td>
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<tr>
<td>P. Education</td>
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<tr>
<td>Q. Human health and social work activities</td>
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<tr>
<td>R. Arts, entertainment and recreation</td>
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<tr>
<td>S. Other service activities</td>
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<tr>
<td>T. Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use</td>
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</tbody>
</table>