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INFORGE:
Model description and simulations

Christian Lutz

GWS (Gesellschaft für Wirtschaftliche Strukturforschung) mbH
Weissenburger Str. 4               D 49076 Osnabrück
Tel.: +49/541/4093312             Fax: +49/541/4093311
email: lutz@gws-os.de            http: www.gws-os.de
Overview

1. Model philosophy and data sources
2. System of GWS models
3. Overview of INFORGE
4. Details: Private consumption
5. Simulation scenarios
1 Philosophy and data sources

Philosophy
- Evolutionary (not neoclassical)
- Bounded rationality of agents on imperfect markets (e.g. mark-up pricing)
- Interindustry modeling
- Bottom-up structure (macro variables by adding up)
- Full integration
- Simultaneous model solution
- Econometric parameter specification (time series)
Philosophy and data sources

Data sources

- Federal Statistical Office
  - Input-Output-Tables (time series 1991 - 2000)
  - System of National Accounts (SNA)
  - Value added and its components and investment by sectors
  - Consumption by purpose
  - Population

- Deutsche Bundesbank
  - Interest rates
  - Consumer price index

- Institute for Employment Research (IAB)
  - Labour supply

=> Standardized and automatic construction of data set
2 System of GWS Models

- INFORGE is the core of a system of econometric models
  - INFORGE
    - Interindustry model of the German economy
    - Updated every year
  - INFORGE needs world trade data
    - German exports and import prices
    - International financial variables
  - INFORGE drives other modules and sub-models
    - PANTA RHEI (energy, environment)
    - Region sub-models (states, regions)
    - Sector sub-models (branches)
System of Models

- **Districts and regions**
- **Federal States**
  - SNA + primary inputs by sectors
- **Rating**
- **Branches**
  - 200

**INFORGE**
- 59 sectors

**PANTA RHEI**
- energy-environment

**World Trade Model**

- France
- Japan
- UK
- USA
- ...
3 Overview of INFORGE

- **Input-Output module (59 sectors)**
  - Endogenous final demand:
    - private consumption, public consumption, construction, equipment investment, exports, imports
  - Variable input coefficients
  - Endogenous *value added*:
    - depreciation, wages, profits, employment
  - Endogenous price vectors for gross production, intermediate demand, every component of final demand and for value added
  - Production =
    - Intermediate demand + final demand - imports
Labour market and prices

Productivity
Consumer prices
Unemployment

Wages
Labour costs

Labour costs
Producer prices
Production

Employment

Labour costs
Production

Unit costs
Producer prices
Consumer prices

Value added
Employment

Productivity
Overview of INFORGE

≤ SNA module

δ Aggregating the components of value added by 59 sectors for
  β Private households (and non-profit institutions)
  β General government
  β Financial corporations
  β Non-financial corporations
  β Rest of the world

δ Explaining income redistribution between the sectors (social security, taxes, etc.)

δ Calculating important macro variables like
  β Disposable income
  β Financial surplus/deficit
Overview of INFORGE

SNA module

<table>
<thead>
<tr>
<th>Private Households</th>
<th>General Government</th>
<th>Financial Corporations</th>
<th>Non-Financial Corporations</th>
<th>Rest of the World</th>
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<td>Capital Account</td>
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Inland | International
4 Details: Private consumption

Consumer prices

- Unit costs and import prices
- Basic prices (59 goods)
  + Value added tax on consumption (59)
  + Other indirect taxes on consumption (59)
  + Costs of trade and transport (59)

= Market prices (59 goods)

= Market prices (43 purposes)
Final consumption expenditures of households

- Total Consumption expenditures explained by
  - Disposable income of households (SNA),
  - Consumer price index (CPI)
  - and interest rates

- Shares of 43 consumption purposes are estimated by
  - Consumer prices by purpose/CPI,
  - Trends
  - and demography

- Bridge matrix to convert consumption expenditure by purpose to consumption expenditures by 59 goods
5 Simulations

Changes against the base simulation

- Value added tax increase
  - Increase of 10% from 2003 on (base run: constant)
  - Additional revenues do not increase government expenditures

- Income tax reduction
  - Linear decrease of tax rate from 2006 to 2015 up to 5%

- Labour supply reduction
  - Linear decrease from 2003 to 2015 up to 1%