World KLEMS initiative

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(presentation at World KLEMS conference,
Harvard, 9-10 August, 2012)
Extensions and applications
Countries currently involved in initiative

- US, Canada, Australia
- ASIA: China, India, Japan, Russia, South Korea plus more (Taiwan, Indonesia, Malaysia,...)?
- LAT AMER: Brazil, Chile, Mexico, Argentina plus more?
- EUROPE:
  - Denmark, Finland, Italy, Netherlands, Sweden (NSIs)
  - Germany, France, Spain, UK and others (EU KLEMS)
- AFRICA: ?
Extensions

- Extending the capital boundary beyond tangibles and software

- Linked national input-output tables through international trade: World Input-Output Database (WIOD-project)

- International level comparisons of output, inputs and productivity
Extending the capital boundary

- Extending the capital boundary beyond tangibles and software:
  - Non-reproducible assets: agricultural land; minerals
  - Intangible assets (Corrado, Hulten and Sichel), e.g.
    - Country level initiatives
    - Harmonised data set for EU at macro-level (Coinvest and Innodrive projects);
    - Industry-level datasets (Japan, South Korea)
  - Human capital: investments in and stocks of human capital for large set of countries (country and OECD projects)
World Input-Output Database (WIOD)

- New database to analyse the interdependencies between countries and the effects of fragmentation of production

**World Input-Output Table (WIOT):**
- Each use (intermediate and final) is broken down into Domestically produced and Imported (by partner country).
- Based on benchmark national supply and use tables extended with National Accounts time-series.
- These are linked using international trade statistics on goods and services.

**Socio-Economic Accounts:** Quantities and prices of capital and labour (low-, medium-, and high-skilled) use by industry and country.

**Environmental accounts:** 10 pollutants (e.g. greenhouse gas emissions by industry and country).
World Input-Output Database (WIOD)

- **DATA:** Period from 1995 to 2009:
  - 27 EU countries and 13 other major countries incl. US, China, India, Brazil, Russia, Mexico, overall covering more than 85% of world GDP
  - 35 industries and 59 products

- Various applications:
  - New measures of production fragmentation and competitiveness
  - Trade in value added
  - Impact of growth and trade on
    - Inequality across and within countries and production factors
    - Distribution of pollution activities

- WIOD Data made publicly available (for free) 16 April 2012, funded by European Commission.
- Research initiative taken forward by OECD and WTO
- More information on WIOD project at [www.wiod.org](http://www.wiod.org)
Level comparisons

- International level comparisons of output, inputs and productivity
  - The Conference Board Total Economy Database
  - Penn World Tables: new generation
  - Industry-level comparisons

- Projections
Extensions

- Extending the capital boundary beyond tangibles and software:
  - Non-reproducible assets: (agri) land; minerals
  - Intangible assets (Corrado, Hulten and Sichel), e.g.
    - harmonised data set for EU at macro-level;
    - industry-level datasets (Japan, South Korea)
  - Human capital (e.g. OECD project)
- Linking countries through international trade,
  - e.g. World Input-Output Tables (WIOD-project), linked national input-output tables for 40 countries, 1995-2009, 35 industries (www.wiod.org)
  - International level comparisons of output, inputs and productivity
    - The Conference Board Total Economy Database
    - Penn World Tables new generation (aggregate)
    - Industry-level comparisons
- Projections
World KLEMS

Aim of World KLEMS initiative:

- Establishing an international network of researchers involved in building KLEMS databases
- Bringing together national databases that facilitate the analysis of growth and productivity at the industry level.
- Create spillovers in knowledge for producers and added benefits to users of databases
- Incorporation of productivity measures in System of National Accounts
What can WORLD KLEMS do for you?

- Provide platform for releasing your productivity data and research through the website: www.worldklems.net
- Providing a link to the relevant webpages at your institute/project
- Posting relevant material concerning productivity statistics and research
- Posting your analytical database, prepared according to WORLD KLEMS conventions, and underlying reference material
### World KLEMS Database

This page contains databases on output, inputs and productivity at the industry-level for a set of countries. The data for each country for which the excel tables are posted on this page is structured and built up in the same industry database to allow for comparisons across a larger set of countries. This harmonisation process includes industry classifications, input definitions, price concepts, aggregation procedures and comparable measures.

Each dataset has been prepared by a dedicated research group of the World KLEMS consortium. More information on the consortium partner and the construction of each dataset can be found in the source descriptions. Files can be downloaded directly from the websites of the respective partners. For these countries or regions the link to the website of the research group is provided.

#### Content of the files when available

- **Basic File:** Includes standard industry aggregates according to the ISIC Rev.3 standardized industry classification.
- **Additional File:** Includes alternative industry aggregates such as market versus non-market, goods versus services and ICT production.
- **Capital Input File:** Contains information on investments and capital stocks in the same classification as the output file.
- **Labour Input File:** Contains information on share of several types of labour in total labour input (labour composition) in the same classification as the output file.
- **Sources and Notes:** Contains notes with source descriptions and additional notes.
- **Partner:** Reference to the website of the research group or consortium partner that constructed the data. Additional information can be found here.

#### France, Released July 2012

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#### Australia, Released in 2011

- **Experimental Estimates of Industry Multifactor Productivity, 2010-11**

  Data and sources can be downloaded directly from the website of the Australian Bureau of Statistics (ABS).

#### China, Released in 2011
## France, Released July 2012

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Standardisation in World KLEMS

- Broad guidelines (e.g. int. classifications, SNA, OECD manuals on productivity and capital, Eurostat handbooks, Jorgenson’s growth accounts etc.)

- Implementation conventions needed, e.g. as developed in the EU KLEMS project
  - Industry classification, level of industry detail and aggregation
  - Measurement of labour services (types, wage-concept)
  - Measurement of capital services (depreciation patterns and rates, rental prices, types)
  - Measurement of multi factor productivity (value added, gross output)
Experience of EU KLEMS

- Importance of difference between
  - Statistical database: solely based on published official statistics from National Accounts
  - Analytical databases: e.g. linking series over time, splitting industries and using world klems implementation rules that differ from national rules (e.g. calculation of capital stocks and types)

- Users not only interested in productivity series but also in underlying output, labour and capital input series.

- Users (academics, policy analysts, media) appreciate one-stop shop for international productivity statistics
Challenges and path ahead

- Major changes in statistical systems introducing time-series breaks and comparability problems across countries
  - ISIC revision 4: need for new industry list
  - SNA 2008

- EU KLEMS strategy:
  - Close cooperation with OECD
  - Use of international harmonised data if available, such as Eurostat Labour Force Surveys
Extensions

- Intangibles
- World input-output tables
- Level comparisons
- Micro-level indicators (number of firms, firm size, distribution statistics)

- Link to maintain is the industry-classification and industry-detail
WORLD KLEMS: Next steps

- The Groningen Growth and Development Centre will act as coordinator for the website
- Mail your contributions to World KLEMS website to me (m.p.timmer@rug.nl).
- Open for new suggestions and ideas