



The Future of EU KLEMS

May 24, 2016



History of EUKLEMS: what is available now?

- First full release of EUKLEMS database: March 2008
 - ✓ 1970-2005, 32 countries (DE and US twice), 6 country groups
 - ✓ ISIC Rev.3. 72 industries
 - ✓ 62 Industries (for LP post-1995), 48 industries (for LP pre-1995) and 31 industries (for growth accounts).
 - ✓ Alternative industry aggregations such as market versus non-market, goods versus services and ICT production
 - ✓ Basic files: including GO, II (split in EMS), contributions to VA and GO, TFP.
 - ✓ Detailed data on labor input (workers and wages by industry, age, gender and educational attainment), capital compensation, and consumption of real fixed capital
 - ✓ Capital input files: data on investment, capital stock and capital services



History of EUKLEMS: what is available now? Continued

- November 2009 Release, updated March 2011:
 - ✓ 1970-2007, 32 countries (DE and US twice), 6 country groups
 - ✓ ISIC Rev.3. 72 industries
 - ✓ Alternative industry aggregations such as market versus non-market, goods versus services and ICT production
 - ✓ Basic files: including GO, II (no split in EMS), only contributions to VA growth+TFP

- Rolling 2012 release:
 - ✓ 1970-2009, (some exceptions such as SE+basic variables), 12 countries
 - ✓ ISIC Rev.4. 34 industries
 - ✓ Basic files: excluding GO, II, only contributions to VA growth+TFP



Main elements of the current project

- DG ECFIN funding to provide two revised and updated versions of the EU KLEMS Productivity and Growth Accounts on industry level:
 - ✓ Phase 1: 2013 with headline estimates to 2014
 - ✓ Phase 2: 2014 with headline estimates to 2015
- Decompose output into the contributions of capital (K), labor (L), energy (E), material inputs (M) and service inputs (S), and TFP (Phase 2)
- Coverage: 34 industries, all EU-28 economies, several EU-aggregates, Japan, and the United States
- Switch to new European System of National Accounts (ESA 2010) in accordance with the latest industry classification (ISIC Rev. 4/NACE Rev 2)
- Establish linkages to the EU KLEMS historical series to optimize continuity and accuracy of the database



Sources

- Main source: Eurostat
- Additional sources:
 - ✓ National Statistical Institutes
 - ✓ Former EU KLEMS partners
 - ✓ EC – DG Joint Research Centre (mainly Isabelle Rémond-Tiedrez, Antonio F. Amores, and José Manuel Rueda-Cantuche) on aspects of capital accounts
 - ✓ NIESR: Ana Rincon-Aznar (with support of Mary O'Mahony) on labor quality ingredients. employment and wages by gender, age, and 19 industries 2008-2014
 - ✓ Former EU KLEMS files



Measuring labour composition

- We derive a *skill-adjusted measured of labour* input using a *Törnqvist* quantity index of a number s of individual labour types as follows:

$$l_{s,t} = \sum_s \bar{w}_{s,t} \Delta \ln H_{s,t} = \underbrace{\sum_s \bar{w}_{s,t} \Delta \ln \frac{H_{s,t}}{H_t}}_{\Delta LC} + \sum_s \Delta H_{s,t}$$

- We compute changes in the proportions of each labour type in the workforce, weighting them by their share in overall wage compensation.
- Data sources
 - ✓ Employment: Number of employees and hours worked from the European Labour Force Survey (EULFS), Eurostat.
 - Annual data up to 2014.
 - ✓ Certified skills measured by “*highest level of education attained*” variable.
 - ✓ Wages (per hour): Structure of Earnings Survey (SES), Eurostat.
 - SES data for 3 years: 2002, 2006 and 2010.
 - ✓ Other sources of annual variation for wages will be explored, such as Survey of Income and Living Conditions (SILC), based on a smaller sample.
 - ✓ Total economy and industry analysis.

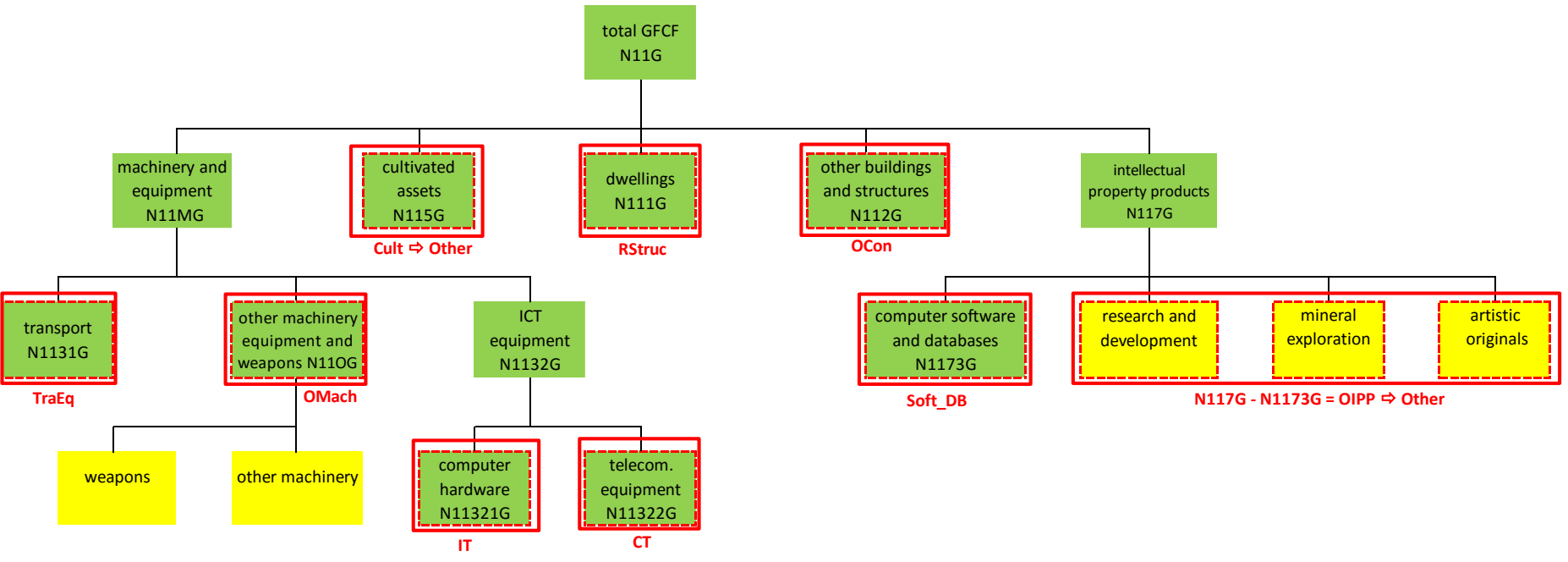


Specific concerns with regard to capital

- Changes in the asset boundary under ESA 2010
- Revision to the structure of the non-financial assets classification required: more assets, new asset types, existing assets have been redefined, re-organised and re-numbered in the nomenclature
 - ✓ ICT is a new category under machinery and equipment
 - ✓ Weapons systems are classified separately and recognized as an asset
 - ✓ “Intangible fixed assets” are renamed into “intellectual property products”
 - ✓ R&D products are included within intellectual property products
 - ✓ Computer software has been modified to include databases
 - ✓ R&D, min. exploration, and artistic originals are not always separately available. Must be estimated based on IPP and software and databases
- Capital data may not be available for all countries, especially small countries
- Not all asset types are available for all countries



GFCF by asset type based on ESA 2010



Note: green=available from Eurostat, yellow= not available.



Phase I: December 2015-July 2016: First update of the database

- First update of the database
 - ✓ Limited number of countries (depending on availability of data)
 - ⇒ start with 12 countries of last EU KLEMS release
 - ✓ Time period: 1995-2013/2014 based on ESA 2010 (where possible)
 - ✓ Collect variables with highest priorities (where possible)
 - ✓ Growth accounting: contributions to VA growth
- Transmission of the first update to DG ECFIN (July)
- Posting on EU KLEMS website - euklems.net (August)
- Preliminary documentation of the database in pdf format



Phase II: August 2016-April 2017: Second update of the database

- Second update of the database
 - ✓ Full set of countries / aggregates
 - ✓ Time period: 1995-2014/2015 based on ESA 2010 (where possible)
 - ✓ Establish linkages to the EU KLEMS historical series (where possible)
 - ✓ Collect variables with all priorities, including K, L, E, M, S (where possible)
 - ✓ Growth accounting: contributions to growth of GO, VA, VA/H_EMP, VA/EMP
- Transmission of the second update to DG ECFIN
- Posting on EU KLEMS website - euklems.net
- Full documentation of the database in pdf format



Country raw data coverage: Output, Capital, and Labor

Filling data gaps in progress...

Countries				
Full Coverage				
Output (VA, GO, II, EMP), Labor (EMP, LAB_QI), & Capital (by asset type)	Austria	Italy	Slovakia*	US
	Czech Republic	Japan	Spain*	
	Finland	Luxemburg	Sweden	
	France	Netherlands	UK*	
Partial Coverage	Capital/Investment assets missing	Sub-industries missing	Investment & Sub-industries missing	
Output (VA, GO, II, EMP), Labor (EMP, LAB_QI), BUT	Belgium (K confidential)	Slovenia*	Germany (IT,CT)	
	Bulgaria* (IT,CT,Soft,IPP, Omach)		Cyprus* (IT, CT, Soft, Omach)	
	Denmark (no I, K available)		Estonia* (IT, CT, Soft)	
	Greece (IT, CT, Soft, IPP, I_Omach)		Ireland* (IT,CT, Soft, IPP, Omach)	
	Hungary* (IT,CT)		Malta* (IT,CT,Soft, Omach)	
	Portugal (only 2010 onwards)		Latvia (Soft)	
			Lithuania* (IT,CT,Soft,IPP, Omach)	
			Poland* (IT,CT,Soft)	
Poor Coverage				
Only Output	Croatia* & Romania			

Notes: * GO and II deflators missing
 Part of 2016 EU KLEMS release



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