

Eurostat and EE IO: building an eeSUIOT from official statistics

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Final EXIOPOL Conference
Luxembourg, 12 October 2011

Overview

- Objectives
- Work achieved:
 - Data
 - Modelling
- Future work

Objectives

- Integration of environmental and economic information
 - => creating added value of Environmental Accounts
 - Providing consolidated and integrated data sets ...
 - ... target group (clients): policy makers and their advisors, researchers and analysts
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- current focus:
 - physical flow accounts + Input-Output framework
 - later: taxes, EGSS

Work achieved

- project since January 2010:
- environmentally-extended
Supply, Use, and Input-Output Tables
data and modelling framework
(eeSUIOT)
- Results:
- data sets for SUTs and Air Emissions (2000-2007)
- Leontief modelling results: carbon and other “footprints”

Data

■ Air Emissions Accounts:

■ Complete and gap-filled data set from 2010 survey

■ pollutants: 3 greenhouse gases (CO₂, N₂O, CH₄)
+ 5 air pollutants (SO_x, NO_x, NH₃, CO,
NMVOC);

■ time coverage: 1995-2007

■ geography: EU27 aggregates, and single 27 Member
States + NO and CH;

■ industries: 60 industries (NACE rev.1.1)
and private households

Data

- **Supply and Use Tables:**
- annually collected by ESTAT (ESA95)
- time coverage: 2000-2006
- geography: single 27 Member States;
- industries: 60 industries (NACE rev.1.1)

- => further compilation steps necessary !

Data

- **Supply and Use Tables:**

- Sequence of compilation/transformation steps:

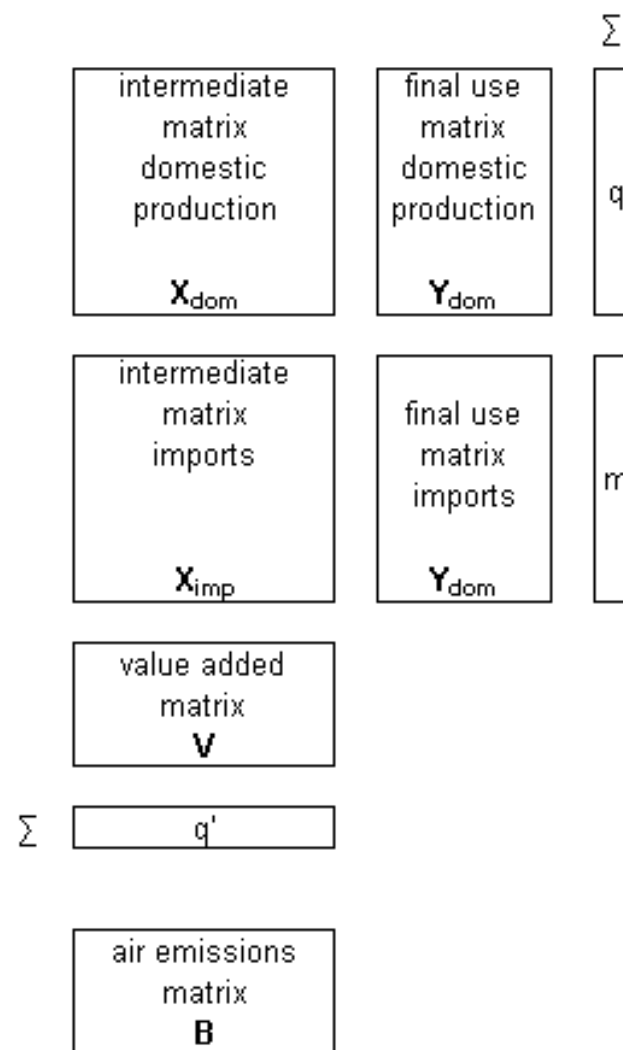
1. re-allocating trade and transport margins as well as taxes less subsidies to the Use Table in purchaser prices in order to arrive at basic prices;
2. gap-filling trade columns, distinguishing intra-EU, extra-EU, intra-EMU, and extra EMU;
3. simple summation of the 27 single countries' Supply and Use Tables leading to simply aggregated EU27;
4. balancing out intra-EU trade (becoming intermediate use);

- Result: consolidated pairs of SUTs in basic prices, EU27 (EMU17) for 2000-2006

Leontief modelling

- Adding Environmental Extensions to SUTs
=> symmetric eeIOTs
(products-by-product)

- (Industry Technology Assumption)



Leontief modelling

- **2 models:**

1. Assigning only domestic emissions to final use of products
2. Estimating global emissions induced by EU27 final use (what is imported?)

- **Results => EuroBase**

CO₂ emissions induced by EU's final use of products are estimated to be 9 tonnes per capita

Eurostat estimates the emissions of carbon dioxide (CO₂) induced by the EU's final use of products to be 9 tonnes per capita per year. The modelling-estimations are based on environmentally extended input-output tables which have been compiled for the very first time for the aggregated EU. The integrated data form a powerful basis for researchers and policy advisors – some illustrative examples related to environmental and macro-economic policies are presented in this Statistics in Focus.

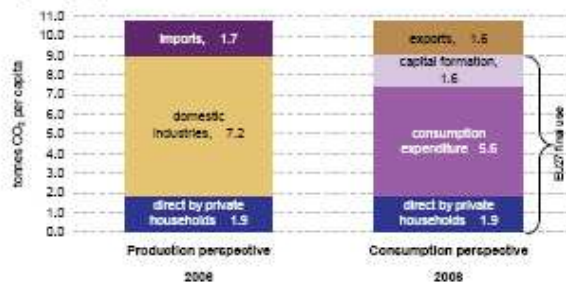
Carbon dioxide emissions associated with EU consumption

As an example, the environmentally extended supply, use and input-output tables (EE-SUIOT) have been used to estimate the CO₂-emissions induced by the final use of products within the EU (data on emissions of 7 other gases are also

available). Beside the CO₂-emissions emitted by EU industries in order to create products for final use, this estimate also takes into account CO₂-emissions "embodied" in imports to the EU. The latter arise along the worldwide production chains of imported products. CO₂-emissions "embodied" in products exported out of the EU go on the account of consumers abroad.

The total of 9 tonnes CO₂ per capita (t/cap) associated with EU final use in 2006 is composed of three main elements (see Figure 1, right hand bar, see also Table 1): the biggest part of 5.6 tonnes per capita is due to the consumption expenditures or goods and services purchased by households and governments. A further 1.9 t/cap are due to direct CO₂-emissions by EU's private households from burning fossil fuels for private cars and heating. Another 1.6 t/cap are due to investments (capital formation) in the EU economy (see also Table 1).

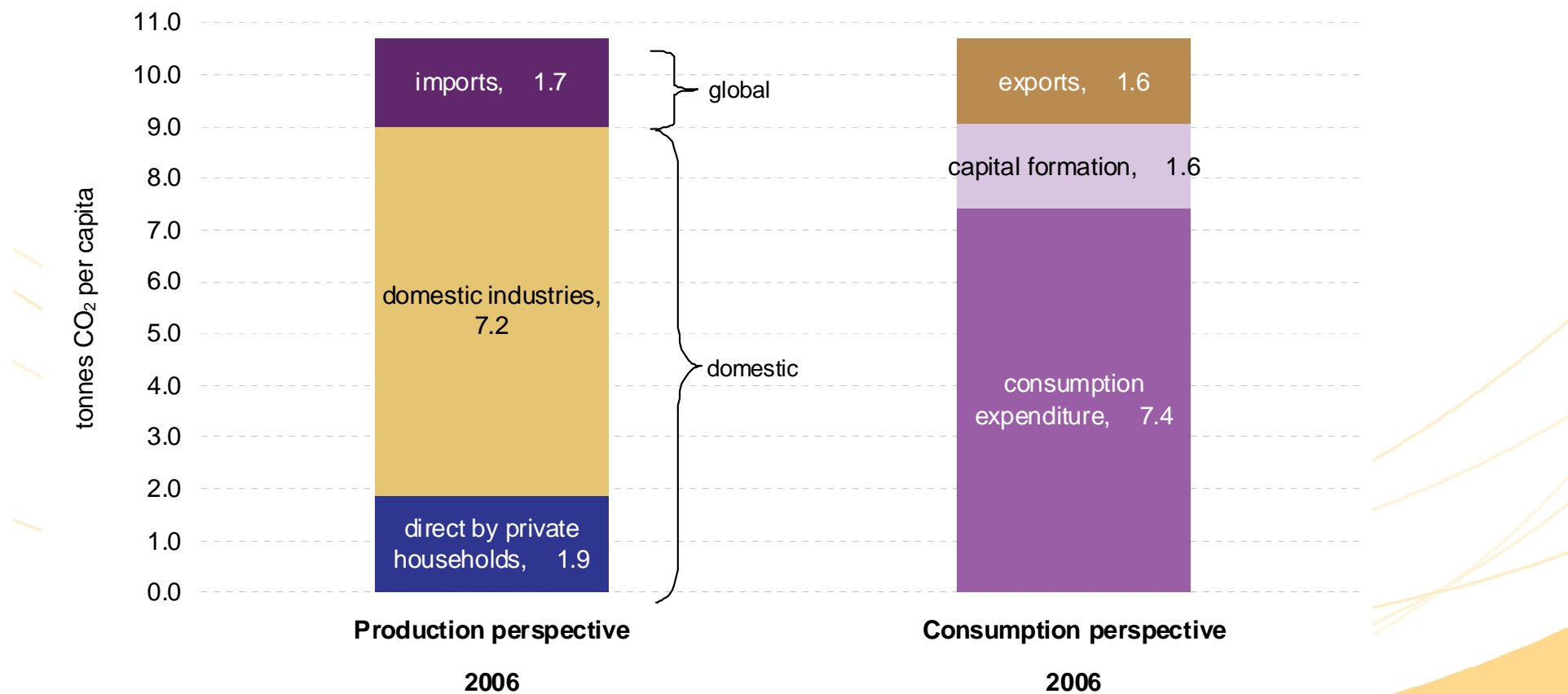
Figure 1: Domestic and global CO₂-emissions - production and consumption perspective, EU27 2006 (tonnes per capita)



Source: Eurostat (online data codes: [env_ac_sfnaceth](#), [env_ac_lo](#))

Example

Figure 5 Domestic and global CO₂-emissions - production and consumption perspective, EU27 2006 (tonnes per capita)
(tonnes per capita)



Future work

- Up-date for reference year 2007 (maybe 1995-1999)
- Up-dated Air Emissions Accounts (survey 2010)
- Transition to NACE rev2
- Adding physical parameters
 - (2011) indicators derived from economy-wide Material Flow Accounts (ewMFA);
 - (2012) agricultural and forestry land use;
 - (2012) key indicators on energy use derived from Energy Accounts;
 - (2013) key indicators on water use derived from Water Accounts;
 - (2013) nitrogen and phosphorus emissions into water, derived from Water Accounts.
- Improving modelling/estimation of “global” pressures (stepwise)
- Adding elements from monetary EA modules (taxes, EGSS)