

## **EXIOBASE 3 - Compilation and analysis of an EE MRIO time-series in current and constant prices**

Topic: 514Z Special session: Compilation and Application of EXIOBASE 3 – a time series of highly detailed EE MRIOs

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Effective policies to facilitate sustainable development require a globally consistent accounting framework to assess the social and environmental impacts of our activities. Environmentally Extended Multi Regional Input Output tables (EE MRIOs) gradually emerged as the main framework to provide such a comprehensive description of the global economy and its effects on the environment. In the last years, EE MRIOs have been continuously refined to provide a complete and coherent description of our society.

Of the available EE MRIOs, EXIOBASE stands out in providing a SEEA compatible accounting scheme with a high sectorial detail matched with multiple social and environmental satellite accounts. However, the currently available EXIOBASE versions only give snapshots of the global economy. This impedes any analysis of sustainable development as for example decoupling over time.

This issue was addressed within the DESIRE (Development of a System of Indicators for a Resource efficient Europe) project. Here we present the work leading to the latest iteration of EXIOBASE: EXIOBASE 3 - a time-series of EE MRIOs in current and constant prices.

EXIOBASE 3 builds upon the previous versions of EXIOBASE: The main building blocks are rectangular Supply-Use Tables (SUTs) in a 163 industry by 200 products classification. In order to capture structural changes, we based the time-series on these available EXIOBASE 2 tables from 2007 and imposed the reported changes of the economy based on data from national statistical agencies. These initial estimates were further refined by incorporating detailed data on energy accounts (from IEA), agriculture production (FAOSTAT) and bilateral trade (BACI database). Balancing followed a three layered top-down approach: First, we setup a balanced macro-economic database based on the UN SNA main aggregate database with additional data on the Taiwanese economy. In the second step, a balanced, bilateral trade cube was constructed by combining various data sources (BACI/UN comtrade, IEA, UN service trade). Finally, the trade cube was collapsed into total import and export per country and incorporated into the initial SUT tables. These were then balanced respecting the macroeconomic and trade constraints.

EXIOBASE 3 is available in current and constant price data. The conversion was done by applying deflator values based on national account data, physical production data, price data and other auxiliary databases. EXIOBASE 3 inherits the high level of sector and environmental stressor detail from its precursor. The satellite accounts for resource extraction were further improved and now incorporate the full detail of resource extraction for agriculture commodities from the FAO data. To account for the expansion of the EU, EXIOBASE 3 was developed with the full EU28 country set (including the new EU member-state Croatia).

EXIOBASE 3 is a unique tool for analysing the dynamics of environmental impacts over human activity over time. We will highlight some top level results from a first analysis of EXIOBASE 3 and conclude by showing some potential applications of the new EE MRIO time series.