THE INTERNATIONAL SCHOOL
OF INPUT-OUTPUT ANALYSIS

MODULES
20th International Input-Output Conference
Bratislava, Slovakia – June 2012

1. Historical Roots and Theoretical Background of Input-Output Analysis

Lecturers: Christian Lager and Heinz D. Kurz
University of Graz (Austria)

Outline: Some if not most studies in the field of input-output are usually not embedded or even linked with economic theory. The proposed module aims at (i) exploring the historical roots of Leontief's approach to input-output and (ii) providing a sound theoretical background for input-output analyses.

As a starting point the contributions of the Classical economists and their view of a multi-sectoral and circular economy where commodities are produced by means of products and original factors of production are explored. Important concepts such as long run position, prices of production, capital and a uniform rate of profits are to be discussed. Scrutiny reveals that Leontief's predecessors such as François Quesnay, Adam Smith, David Ricardo, Karl Marx, Vladimir K. Dmitriev, Ladislaus von Bortkiewicz and other scholars share common concepts which constitute the core of Classical economic theory. It is demonstrated that Classical economics differ from the contemporary Neoclassical model in many aspects, such as methodology, the notion of equilibrium, the concept of value and distribution, the set of exogenous and endogenous data as well as the underlying crucial assumptions or beliefs. Hence, it seems to be an important issue for scholars working in the field of input-output whether Leontief was a Classical or a Neoclassical economist, to decide which paradigm provides the adequate background for input-output analysis and to conclude which theoretical model should be utilized for one or the other application. Finally the different routes to the theory of production, value and distribution are discussed. Tools and concepts, such as sectoral (dis)integration or period of production, which were developed and utilized in the various contributions of Leontief, von Neumann and Sraffa or some Austrian and Neo-Austrian scholars are discussed and compared and similarities as well as dissimilarities are revealed.

We propose the following sessions:

1. Input-output analysis ante literam: The contributions of the Classical economists (Heinz D. Kurz)

2. Classical and Neoclassical Economics: Two paradigms and many differences (Christian Lager).

3. Switching and re-switching in Leontief´s approach to input-output economics (Heinz D. Kurz).

4. The Austrians, Leontief, von Neumann and Sraffa: Different routes to the theory of production, value and distribution (Christian Lager).

2. Dynamic Econometric Input-Output Modelling

Lecturer: Kurt Kratena
Austrian Institute for Economic Research - WIFO (Austria)

Outline

Module 1: Modelling within an Supply-Use framework

(i) Introduction: history of modelling, classification for extended IO models (type II, econometric IO, CGE…), examples for dynamic IO/CGE models
(ii) The quantity model with supply/use matrices: formulation and solution
(iii) The price model with supply/use matrices: formulation and solution

Module 2: Basic building blocks of a dynamic econometric IO (DEIO) model: private consumption

(i) Introduction: closing IO models with endogenous consumption and the history of demand systems
(ii) The dynamic optimization model of consumption in an IO context
(iii) Formulating and estimating demand systems

Module 3: Basic building blocks of a dynamic econometric IO (DEIO) model: production and factor demand

(i) Introduction: history of flexible forms in an IO context
(ii) Formulating and estimating cost functions and factor demand
(iii) Capital markets and investment
(iv) Including imported inputs

Module 4: Further extensions of the DEIO model

(i) External trade
(ii) Labour market
(iii) Physical satellites for environment

3. Compilation of Symmetric Input-Output Tables

Lecturer: Jaroslav Sixta
Czech Statistical Office (Czech Republic)

General objectives

The participants should fully understand the process of symmetric input-output (SIOT) compilation including the methods of transformation. The course is practically oriented to show the experiences and limits of different approaches. The process of construction is based on the current practice when symmetric input-output tables are derived from national accounts. The aim is to show the links with sectors, valuation matrices and possible allocations of import to the use. Finally, the participants should be able to construct symmetric input-output table from supply and use tables (SUT).

Session 1 – SUT and construction of valuation matrices

The fist session is aimed at short repetition of supply and use tables and the links with sectors. It is mainly the link between transport and trade margins and output of transport and trade industries and the issue of taxes and subsidies on products. This session covers also both theoretical approach to valuation matrices and practical procedures. Different methods for VAT, transport margins, trade margins, other taxes on products and subsidies will be presented. The key of this session is to illustrate that valuation matrices have to be consistent and mutually linked. As well as computation procedures, possible data sources will be discussed, namely trade survey, VAT regulation, physical indicators for transport. After this session, participants should be able to move to supply and use tables in basic prices.

Session 2 – SUT at basic prices and SIOT

The second session is aimed at the shift from supply and use tables at basic prices to symmetric input-output tables. It includes the division of supply table into output for export and output for domestic use. Similarly, use table is constructed for imported products and for domestic output. The borderline cases like re-export and non-residents purchasers' from import will be presented. This session build up on the bases prepared in the Session 1. Interpretation differences between SUT and symmetric input-output tables will presented on examples. Prepared data will be used to construct symmetric input-output tables.

Session 3 – Methods of construction of SIOTs

The third session is devoted to the methods of construction of input-output tables. Both concepts (product x product and industry x industry) will be presented. Similarly, the case of symmetric input-output table for imports and symmetric input-output tables for domestic output will be presented. Examples will be based on real data to illustrate also both data availability and computational issues. After this session, participants should be able to compile symmetric input-output table.

Session 4 – Specific problems of SIOTs and their users

The last session will be focused on specific problems of symmetric tables. At first, the participants will try to solve problems of negatives. The differences between different input-output tables will be discussed. Finally, symmetric input-output tables will be presented from the users' view and some techniques based on these tables will be shown.

Assignment

Each participant should prepared scientific paper, 10 – 15 pages aimed at compilation of symmetric input-output table for participants' country.