

Working with Inter-Country Input-Output Tables and Policy-Oriented Trade in Value Added Indicators



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Background

Inter-Country Input-Output (ICIO) tables and related Trade in Value Added (TiVA) indicators provide a consistent framework for analysing global production networks, trade integration and value creation across countries and industries. They are widely used by researchers, governments and international organisations to examine participation in global value chains (GVCs) and the transmission of economic activity across borders.

Recent developments — including supply chain disruptions, shifting trade policies, energy transition dynamics and renewed industrial strategies — have increased the importance of robust, transparent and well-interpreted ICIO-based analysis. This course provides participants with a solid grounding in the structure and compilation of ICIO tables, the construction and interpretation of TiVA indicators, and their application to policy-relevant economic analysis.

The objective of this course is to enable participants to:

- Understand how inter-country input-output systems are structured and compiled;
- Understand how TiVA indicators are constructed and what they measure;
- Interpret TiVA indicators in relation to global value chain integration and positioning;
- Gain an overview of recent and emerging applications of ICIO and TiVA, including extensions beyond standard indicators; and
- Apply TiVA indicators in a practical exercise to assess a country's structural position in GVCs.

The course balances methodological foundations with applied interpretation and practical use.

Session Outline

Session 1 – Introduction: Economic Analysis Using Inter-Country Input-Output Systems

- What inter-country input-output systems represent: concepts, scope and analytical logic
- Understanding the universe of multi-regional models: Differences between MRIO, IRIO and ICIO.
- Why ICIO analysis matters: limitations of conventional trade statistics
- Typical analytical questions addressed using ICIO frameworks
- Structure and special features of OECD's ICIO tables

Session 2 – Structure and Compilation of OECD ICIO

- Outline of how OECD ICIO tables are constructed – national data requirements for inclusion.
- Balancing techniques and challenges, key modelling assumptions and data limitations.

Session 3 – From ICIO Tables to TiVA Indicators

- Trade in Value Added (TiVA) indicators: definitions, numerical examples and interpretation
- Construction logic of core TiVA indicators from the ICIO
- How they are interrelated and interconnected.

Session 4 – Application of TiVA Indicators and Recent Extensions

- Characterising integration in global and regional value chains (backward and forward linkages)
- Upstream and downstream positioning of countries and industries
- Employment and emissions embodied in trade
- Selected recent applications and extensions of ICIO and TiVA:
 - Granular product-level ICIO and extended classifications
 - Dynamic and scenario-based modelling approaches
 - Gross exports decompositions and alternative indicator frameworks
 - Visualisation approaches and examples from recent academic and policy publications

Session 5 – Practical Exercise: Working with OECD ICIO Hands-on on understanding and working with ICIO database in “R”.

Participants will undertake a guided group exercise using a prepared dataset of TiVA indicators (in Excel or R), selecting a country and a set of industries to investigate. The exercise will focus on characterising the country’s position within global value chains,

Pre-requisites

Basic understanding of economic databases e.g. National Accounts, Input-Output and Trade statistics.

Attendees are encouraged to browse the following OECD database: OECD Trade in Value Added

<https://www.oecd.org/en/tiva> , OECD Inter-Country Input Output Table <http://oe.cd/icio>, OECD Bilateral Trade by Industry and End-use (BTIGE) <http://oe.cd/btd>, OECD Input-Output tables <http://oe.cd/i-o>

Suggested reading:

- Economic Systems Research, Volume 25, 2013 - Issue 1: Global Multiregional Input–Output Frameworks. <https://www.tandfonline.com/toc/cesr20/25/1>
- Miller R.E. and P.D. Blair (2022) *Input-Output Analysis: Foundations and Extensions*. <https://doi.org/10.1017/9781108676212>
- Isard W et al. (1998) *Methods of Interregional and Regional Analysis*. Ashgate, Brookfield, VT
- OECD (2025) *Guide to OECD TiVA Indicators, 2025 edition*. <https://stats.oecd.org/wbos/fileview2.aspx?IDFile=2143f34e-6feb-41a9-abaf-cb52132608c4>