Input-Output Analysis

Dr. Suahasil Nazara
Faculty of Economics University of Indonesia
Jakarta - Indonesia

Session 2.3
Introduction to PyIO
Stories from the 1930s

“Leontief believed that the economy can be broken down into sectors [whose] interrelationship can be described in the form of a mathematical matrix…called an “input-output analysis.”

Leontief’s initial set of sectors led to a 12x12 matrix…to invert that … it took him [Cornfield] about a week, and the end result was the conclusion that the number of sectors had to be expanded. …

[With trepidation, they [Leontief and Cornfield] ended with the simplest matrix they thought would be feasible, a 24x24 matrix.

[It is estimated] that it would take him several hundred years of seven-day work-weeks to invert…”

Taken from David Salsburg (2001), The Lady Tasting Tea, pp. 177-8.

Computing environment

- That was in the 1930s
- Nowadays, inverting a matrix is a matter of seconds
  Other operations may even be faster
- Alternative softwares are Excel, Matlab, Stata, etc.
- Input-output analysis has come to a stimulating level – all comprises of routines
IO module in Python = PyIO

- PyIO is a module for Input-Output analysis, written in Python, a general-purpose open source computer programming language

- The punch line: Python is freely downloadable; open source means that you can actually look at the code, change, modify, and distribute it further if you want

- Developed by the Regional Economics Applications Laboratory (REAL), University of Illinois at Urbana-Champaign, Illinois, USA
  
  www.real.uiuc.edu

Let’s look at PyIO in practice…

Refer to manual