Waste Input-Output tables as an effective tool to examine circularity in production processes: evidence from Italy

Topic: Recent Developments in Stock-Flow Consistent Input-Output Modelling - II
Author: Luca Secondi
Co-Authors: Guido Ferrari, Mengting Yu

Achieving circularity in economic processes is recognised as one of the most important challenges of the modern developed economy. However, for the Circular Economy Action Plan to be effective, a greater understanding of the link between economic activity and waste generation is required. Indeed, increasing resource efficiency, preventing waste generation and using waste as a resource are at the heart of the circular economy with considerable potential to reduce environmental pressure. Circular strategies and business models can also help alleviate the growing concern over dependence on imported resources and access to critical raw materials, some of which play a key role in the development of renewable and low-carbon energy technologies.

The aim of this paper is to obtain and examine the Waste Input Output table for the Italian economy, linking data from waste generation sources to the national and territorial economic accounts. The lack of data for the same time requires the use of the Cross-Entropy approach to carry out meaningful data merging and integration.

The availability of a waste input-output table will make it possible to examine different aspects of waste accountability, starting on whether and to what extent the length of the supply chain affects the waste generation rate and to better understand the flow of resources through the various supply chains up to the estimation of industry-output waste coefficients and impact multipliers.