

Choice of units in input-output analysis for applications in industrial ecology

Topic: Methodological aspects of input-output analysis 3

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In the field of industrial ecology, input output analysis is recognized as a useful tool for the estimation of upstream (or embodied) flows of emissions and resources for a given final demand of products. There has been some discussion on which units the input output tables should be compiled in when performing these life-cycle type analysis. Physical units have been preferred for the input-output tables, but as monetary input-output tables are often the only available, they are therefore used as a proxy for physical flows.

In this paper we discuss the differences between physical and monetary units in input-output tables and emphasize the implications for the estimation of upstream and actual flows. There are two main theoretical reasons why the resulting upstream flows depend on the units used in the input-output table. The first one is the different price of a product for different consumers and the second one is the aggregation of products with different prices. We present these two cases and argue that the main uncertainty related to IOA for this type of analysis is the aggregation of similar but different products and industries. We argue that this uncertainty cannot be removed by the use of physical units and that the main conceptual difference is in the application of different allocation principle. Finally, we discuss the differences between allocation via monetary and physical flows, and the arguments for and against monetary or physical allocation.