

Demand decomposition and input-output subsystems analysis of Philippine industrial carbon dioxide emissions

Topic: Environmental IO models 4

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The paper is an extension of the subsystems input-output model applied to carbon dioxide emissions through demand decomposition. Input-output analysis of variables with adverse environmental consequences, like carbon dioxide, presents useful information on their links with the productive structure of the different sectors of the economy. Particularly, subsystems model offers more details by decomposing emissions of a group of sectors into demand volume, feed-back, internal and spill over components. This study proposes a further decomposition of the subsystems model by demand components so that the impact of changes in domestic consumption and trade are also accounted for, recognizing the importance of trade in the economy and its corresponding trade policies. It utilizes the most recent Philippine input-output accounts for year 2000 and computes for sectoral carbon dioxide emissions from combustion of petroleum, coal and natural gas.

The results obtained shall provide insights on the impact of the different demand components on emission generation of the services and manufacturing subsystems from which to draw policy implications for the Philippine carbon dioxide mitigation program, although the country only contributes around 0.3% of world emissions. Even marginal carbon dioxide reduction remains relevant for this economy that is identified as one of the most vulnerable to the detriments of climate change.