Environmentally Extended Input-Output Analysis of the UK Economy: Multicriteria Approach

Topic: Environmentally extended input-output analysis
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The paper presents a novel way of assessing relative sustainability of investment in particular economic sectors from the point of view of resource use and generation of emissions. The research carried out can be disaggregated into the following three steps: an environmentally extended static 123 sector UK input-output model has been created, which linked a range of physical flows: domestic extraction, use of water, emissions of CO2, CH4, NOx, with an economic structure of the UK. Secondly, following a pioneering study by Lenzen (Lenzen, 2003), a range of environmentally adjusted forward and backward linkage coefficients has been developed, with a particular focus on final demand, domestic extraction, publicly supplied and directly abstracted water, CO2 emissions and NOx emissions adjusted coefficients. Then the data on the final demand and environmentally adjusted forward and backward linkage coefficients was used in a multicriteria decision aid (MCDA) assessment, employing a Novel Approach to Imprecise Assessment and Decision Environments (NAIADE) method in three different sustainability settings: weak sustainability, strong sustainability and a neutral setting. The assessment was set in such a way that each of the 123 sectors of the UK economy was compared with each other using a panel of sustainability criteria, with final demand adjusted coefficients aimed at their maximum and environmentally adjusted – at their minimum values.
Additional results focued on particular sector groups will be presented for the first time.