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TITLE: ENVIRONMENTALLY EXTENDED INPUT-OUTPUT ANALYSIS OF THE UK ECONOMY: KEY SECTOR ANALYSIS

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ABSTRACT:

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, NO_x, 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 NO_x 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. The results show that the following sectors: 117 Health and Veterinary Services 104 Letting of Dwellings 116 Education 121 Recreational Services 101 Insurance and Pension Funds 118 Social Work Activities 99 Telecommunications with relative stability appear within the top 10 most sustainable sectors of the UK economy from the point of view of both direct and indirect effects in the strong sustainability, weak sustainability and the neutral assessment. The paper offers a justification for a substantial governmental investment programme, that not only could stimulate the development of the economy, but also reduce the direct and indirect environmental consequences of such a development. Such a programme seems to be particularly desirable in the conditions of the current economic crisis, which on our opinion presents a challenge and at the same time offers an opportunity



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for reorientation of the governmental investment priorities towards more sustainable industries.