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TITLE: A GENERALIZED HYPOTHETICAL EXTRACTION ANALYSIS

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ABSTRACT:

We explicitly formulate (optimization) problems of finding a key sector and a key group of sectors within the framework of a hypothetical extraction method (HEM), and derive their solutions in terms of simple measures termed industries' factor worths. It is shown that the top $k > 1$ sectors with the largest total contributions to some factor, in general, do not constitute the key group of k sectors, the issue which is totally ignored in the input-output linkage literature. The link to the fields of influence approach is discovered, which gives an alternative economic interpretation for the HEM problems in terms of sectors' input self-dependencies. Further, we examine how a change in an input coefficient affects the importance of an industry. The key group problem is applied to the Australian economy for factors of water use, CO₂ emissions, and generation of profits and wages.