

Structural decomposition analyses: the differences between applying the semi-closed and the open input-output model

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The open and the semi-closed model are two widely used types in input-output analysis. When also induced effects are important, researchers usually choose the semi-closed input-output model for their analysis. This paper examines the differences between using the semi-closed and the open input-output model in a structural decomposition analysis. The empirical part considers the decomposition of the growth in gross output and in labor compensation, both for China (1997-2007) as well as for 35 other countries and regions. Our main findings are threefold. First, we find that for gross output growth, both models yield very similar results for the factors they have in common, such as the changes in the domestic input coefficient matrix. If only the contribution of these common factors is of interest, it does not matter whether the semi-closed or the open input-output model is used. However, the semi-closed input-output model also allows for determining the effects of changes in the labor compensation coefficients on gross output growth, which is not possible in the open model. Second, for the analysis of labor compensation growth, both models include the changes in labor compensation coefficients as one of the explanatory factors and yield significantly different results. Third, unlike the open model, the semi-closed model is able to decompose sectoral consumption growth.