

Structural Decomposition and Shift-Share Analyses: Let the Parallels Converge

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Intuitively, structural decomposition analysis (SDA) demonstrates strong similarities to shift-share analysis (SSA). Both examine the effects of industry shifts due to growth (or decline) and some sort of difference in industry shares. But SSA works its shares across space while SDA works its shares again across industries via technology change (fabrication effects). Suffice it to say, SDA and SSA are related, and this chapter will formally combine the two disparate strands of literature. In particular, it will show how changes in regional growth differentials can be included into a structural decomposition analysis.

For example, Oosterhaven and Escobedo-Cardenas (2011) have demonstrated that regional I-O tables can be forecasted fairly well. One innovation they applied was lagging the "remainder" from the biproportional adjustment technique. This remainder looks remarkably like the "regional component" (also termed the "competitive effect") in SSA. More recently, Arto and Dietzenbacher (2014) performed what might be termed a "dynamic" SDA to examine the effect of trade changes on the growth of global CO₂ emissions. This harkens parallels to dynamic SSA (Thirlwall, 1967; Barf and Prentice, 1988).

Suffice it to say, SDA and SSA are related and this paper formally combines the two disparate strands of literature. In particular, we show how changes in regional growth differentials can be included into an additive structural decomposition analysis. Moreover, the present availability of a large number of input-output table panels appears to enable the detection of even more parallels between the two approaches. Between the formalization of the SSA-SDA relationship and the available I-O data, a wide range of new, policy-relevant empirical applications is possible. We conclude the paper by suggesting several avenues for future research.