

## **Constructing a Flexible National Interstate Economic Model (FlexNIEMO)**

Topic: Interregional analysis

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As many have noted, a key limitation of IO models is that the coefficients in the models are fixed, and the models ignore substitution opportunities that should be prompted by market signals. Gordon et al (2009) suggested an approach to constructing new IO coefficients that captures substitution effects actually experienced in the labor sector. This new approach builds on both the demand- and supply- driven models. Their flexible approach relaxed the assumption of fixed coefficients in IO models by applying the RAS method to adjust coefficient matrices to account for empirical changes in value added and final demand. They demonstrated their approach via an example consisting of a two-by-two matrix of intersectoral flows. However, a more important implication of this approach is that it can be applied to extend the classic IO model, making the standard model a useful tool for studying economic resiliency. The coefficients in the resulting IO model can be adjusted across time periods to account for substitution-driven adjustments resulting from exogenous events such a natural disaster or a terrorist attack. This study suggests an approach for constructing such a resilient MRIO model that reflects substitution effects, based on the National Interstate Economic Model (NIEMO), an operational state-level MRIO model of the U.S. While many procedures have been developed over the years to update and/or regionalize coefficients of IO coefficients the flexible NIEMO (FlexNIEMO) approach extends similar procedures to a MRIO model.