

## **Assessing the localised socioeconomic impact of central government policy**

Topic: (2.7) Input-output analysis for policy making (1)

Author: Jonathan Stenning

Co-Authors: Hector B. POLLITT, Michael May-Gillings

Central government policymakers are often concerned primarily with the net socioeconomic impacts of policy at a national level. However, policies can have extremely local impacts; energy policy particularly can have major implications for a small number of large plants, and therefore have substantial implications for the local economy around each site.

This paper assesses the largest localised socioeconomic impacts of changes to the UK's carbon price floor. We apply a modelling approach, based on simulation properties, that allows for a combination of bottom-up modelling of the power sector and top-down models of the economy (and the interactions between the energy system, the economy and the environment). The global E3ME macro-econometric model ([www.e3me.com](http://www.e3me.com)) is coupled to the Future Technology Transitions (FTT) modelling framework for the power and road transport sectors, and the outputs used to shape local area outcomes captured in the LEFM model. This approach is qualitatively different from the optimisation tools that are used in other analyses and draws on theories from post-Keynesian and evolutionary economics. Instead of trying to find least-cost pathways, the model simulates the responses to policy inputs (including market-based instruments) and is parameterized on real-world time-series data.

E3ME is used to capture the national-level effects of policy, including second-order and international trade impacts, while the LEFM framework is then applied to estimate the manner in which these effects cycle through the local economy, focussing primarily upon the severe demand-side shock to the economy from the closure of coal-fired power plants and the subsequent impacts that this has on the local economy, modelled through an input-output framework with adjustments for local supply content. This presents, using the UK as an example, the potential for using similar local area models, linked to a global model such as E3ME, to estimate regional or local impacts of national or international policy in any country.