Resilience in a Behavioural/Keynesian Regional Computable General Equilibrium Model

Topic: IO modeling: Computable General Equilibrium Modeling and Social Accounting Matrices
Author: Gioele Figus
Co-Authors: Grant Jordan Allan, Kim Swales, Peter McGregor

Regional resilience can be defined as a regionâ€™s resistance to, and ability to recover from exogenous disturbances. Martin and Sunley (2015) identify a group of key factors that affect resilience comprising perception, expectation and business confidence. We analyse the role of expectation formation on regional resilience by using a flexible Computable General Equilibrium (CGE) modelling framework. In this instance, the CGE framework is employed as a test bed in order to study the effect of varying a key determinant of resilience in a controlled theoretical and empirical environment.
We develop a dynamic regional CGE with an eclectic, broadly Keynesian, flavour following Joan Robinson, is influenced by the work of Daniel Kahneman in the treatment of consumption and investment. The model can encompass a range of specification in investment expectation formation going from standard neoclassical where agents are perfect foresight, to a setting where investment are made using some heuristics-based process.
The model is calibrated using a 2010 social accounting matrix for Scotland based on Input Output accounts produced by the Scottish Government. To identify the impact of expectations and business confidence on regional resilience we compare the evolution of the regional economy after a temporary negative export shock under a range of investment functions. The subsequent time paths of economic activity are then reported and compared. Our results suggest that expectation in investment decisions is fundamental in determining regional resilience. Specifically, the mainstream neo-classical perfect-foresight form generates a reduction in activity which is small and is limited to the duration of the shock. The heuristic-based, imperfect-information investment models produce more negative, longer-lasting and unstable adjustment paths.