

Linking energy and macroeconomics: which ‘energy’ and which ‘macroeconomics’?

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The past years have seen considerable progress in research both with regard to the dependency of economic growth on energy as well as in the field of ecological macroeconomics, concerned with introducing ecological elements into heterodox macroeconomic theory and models. This special session will explore how the findings from both approaches can be more strongly integrated in future research. Thematically this special session is therefore associated with topic 4.5 (“social metabolism and system approaches”). More specifically it deals with the energy metabolism and its close connection to the production of economic value.

On the one hand the research on the relationship between energy use and economic growth has gained important insights on the strong dependency of economic growth on available primary energy (e.g. Stern & Kander 2012) or useful work (e.g. Ayres & Warr 2009; Serrenho et al. 2014). This research often draws on elements of orthodox growth theory, for example in the use of aggregate production functions, but also develops a strong critique of it, especially around the substitutability of energy by other factors of production. On the other hand, the newly emerging literature in ecological macroeconomics also investigates environment-economy interactions from a macroeconomic perspective. However it generally relies on heterodox macroeconomic approaches, especially demand-driven, post-Keynesian growth theory (Dafermos et al. 2015; Fontana & Sawyer 2016; Taylor et al. 2016). While ecological macroeconomics is starting to develop new models describing the relationship between energy and economic growth, it is currently not drawing strongly on the empirical work on the dependency of economic growth on energy mentioned above.

Therefore this special session aims to encourage discussion on what the different approaches can contribute to each other. This will involve a panel discussion with researchers from both research communities. Questions that will be discussed are:

- How can the insights gained from the research on dependency of economic growth on energy and useful work be interpreted from a post-Keynesian (and other heterodox) perspectives?
- What are the challenges of incorporating energy supply constraints in demand-driven theory and models?
- How would empirical research questions on the energy-economy relationship be different when approached from the perspective of post-Keynesian growth theory rather than orthodox growth models?

The special session is therefore relevant with regard to the overall conference theme (“building a reflective community”) as it aims to encourage constructive discussion between two largely separate communities of researchers which will hopefully benefit both of them and lead to closer cooperation in the future.