MODELLING THE GREAT TRANSITION

EMANUELE CAMPIGLIO; JAMES MEADWAY
NEW ECONOMICS FOUNDATION, LONDON, UNITED KINGDOM

Abstract:

The purpose of this paper is to introduce the first version of the Great Transition (GT) model. The GT model is being developed at the New Economics Foundation as part of the Great Transition Initiative, a wider effort of research aimed at envisioning a new economic system – more sustainable, fair and stable – and seeking the appropriate policies to manage the transition.

The need for a new economic system stems from the multiple crises that are affecting the current one, of which the financial crisis that burst through in 2008 and the consequent crisis of sovereign debt are presently the most critical. This has to be added to the deep environmental emergency driven by the increasing scarcity of resources and climate change, to the stagnation of wellbeing levels in advanced economies and to the strong inequality in the distribution of income and wealth. The economic crisis has also shown the inherent limitations of the dominating economic theories, which have been unable to predict the crisis and currently appear to be incapable of conceiving credible solutions to restore stability and employment.

The gravity of the situation has led many – in governments, universities and civil society – to seek for alternative economic strategies and for new tools for analysis. We want to contribute to this debate by building a sound and reliable macroeconomic model of the UK economy, to be used as policy-analysis tool in the pursuit of a new economic system, characterized by high levels of prosperity and wellbeing, a just distribution of resources and a low impact on our environment.

The final output of the research (due for May 2012) work will be a comprehensive macro model of the UK economy, capable of offering scenario-based simulations of societal and economic interactions. The model is made of a "core" unit, containing all the relevant economic sectors of the UK system (the process of production and consumption, the dynamics of employment and investment, the role of the government and the main features of the mechanisms of credit creation), and a range of sub-models that can be integrated to the core one in order to analyze specific issues.

In particular, we intend to concentrate the future modelling work on three main topics:

• Environmental limits. One of the main purposes of the complete model is to analyze the functioning of a market economy when considered as inserted in a bigger framework constituted by the surrounding environment. We sketch the interactions between the economic systems and the environment by concentrating the analysis on energy (energy consumption and energy prices, energetic efficiency and the diffusion of renewable sources of energy) and climate (adopting a framework similar to Integrated Assessment Models)

• Well-being and non-monetised outputs. The underlying goal of the model is to demonstrate how a transition can be made to a low-carbon economy that respects environmental limits but maintains high levels of wellbeing. Given the macroeconomic framework that we use, we build an index of societal wellbeing, capable of capturing a

set of variables which we consider important for good social functioning (e.g. income level, employment, amount of polluting emissions, an index of inequality, etc.).

• Finance. It is our intention to capture the dynamics of credit creation and the interactions of the banking sector with the rest of the economic system, as these topics turn out to be crucial when imagining how an alternative economic system could work.

• Social policies. The model is intended to be used to analyze some important socio-economic variables. In particular, it is our intention to include: a) distributional issues; and b) changes in work hours.

The model is being developed using system dynamics methodology, and simulated up to 2050. System dynamics is particularly apt to grasp the functioning of the multiple connections and feedbacks that exist between different sectors of the economic system, allowing for a larger analytical power than most of the widespread macroeconomic theories and methods.

We will aim, in a finished version of the model, to present it interactively, providing a user-friendly interface through which the users can simulate different policy choices, impose potential shocks and test different assumptions on calibrated parameters. In this sense, the model is likely to serve educational purposes for the less experienced public and to stimulate alternative thinking in trained economists.