

WHY SYSTEM DYNAMICS MUST SUPPLANT EQUILIBRIUM MODELLING

Steve Keen

ISRS, University College London, UK

ABSTRACT

Mainstream economics is still dominated by equilibrium methodology. William Nordhaus, the person most responsible for trashing the intellectual standing of system dynamics was awarded that discipline's most prominent prize [1]. Yet economic policy today is dominated by real-world issues that defy its equilibrium, barter model of the economy. The need for system dynamics methods within economics has never been more pressing. I am working to bring this about via several interrelated research projects:

- The development of Minsky [2], an Open Source system dynamics platform with the unique capacity to generate coupled ordinary differential equations describing financial flows using a system of interlocking double-entry bookkeeping tables that we call Godley Tables;
- Developing a realistic foundation for an integrated approach to economics and ecology by incorporating the role of energy in economic models of production, springing from the insight that "labor without energy is a corpse; capital without energy is a sculpture"[3]; and
- Critiquing the appallingly bad work on climate change and economics that Nordhaus and his associates developed in place of the Limits to Growth study.

Though Neoclassical economics developed to defend capitalism against Marx's critique of it, today the main threat to the continued existence of capitalism is Neoclassical economics itself [4]. An alternative paradigm is desperately needed, and it will not come from within economics itself [5].

Keywords: system dynamics, neoclassical economics, Minsky, energy and economy

References

- [1] Nordhaus, W. (2018). "Nobel Lecture in Economic Sciences. Climate Change: The Ultimate Challenge for Economics." from <https://www.nobelprize.org/uploads/2018/10/nordhaus-slides.pdf>.
- [2] Minsky: <https://sourceforge.net/projects/minsky/>
- [3] Keen, S., R. U. Ayres, et al. (2019). "A Note on the Role of Energy in Production." *Ecological Economics* 157: 40-46.
- [4] Keen, S. (2011). *Debunking economics: The naked emperor dethroned?* London, Zed Books.
- [5] Kuhn, T. (1970). *The Structure of Scientific Revolutions*. Chicago, University of Chicago Press.