

Special session: “Resource efficiency: What are we measuring?”

A common structure for the measurement of socio-ecological performance

Transformation processes need to go hand in hand with a broadening of measurement concepts of economic activity. It has become commonplace to question the adequacy of current measures of economic performance. This search for new ground is augmented by a rising urgency to account for environmental change, social justice and inclusion. These challenges are important in themselves and they have an increasing impact on the wellbeing of citizens. A lively debate about competing concepts for measuring socio-ecological performance has unfolded in recent decades. What we measure affects what we do; and if our measurements are flawed, decisions may be distorted.

Besides the doubts about the desirability of GDP growth everywhere and all the time, doubts about the possibility to achieve GDP growth are growing. Increasingly we observe difficulties in achieving economic growth, especially in industrialised countries. Current forecasts range just above 1% (OECD 2013). Given that recent high growth periods have not contributed to resolving ongoing environmental crises and that income distribution has become more uneven, boosting per capita GDP is too narrow a focus.

Due to the failure to realise absolute resource and energy decoupling, economic growth continues to cause increased resource use and emissions. We risk or are already trespassing significant biophysical planetary boundaries. The problems are well documented, the need for measuring the impacts is widely accepted, the literature on sustainability indicators is vast and statistics offices are reporting biophysical data in more details and ever more swiftly. Yet socio-ecological sustainability indicators are barely used in macroeconomic models. For supporting the socio-ecological transition better, the underlying models need to account for at least some key socio-ecological variables.

The reasons for the low uptake of an augmented range of socio-ecological indicators in macroeconomic models include path dependencies in modeling, technical limitations, indicator lists being long and unworkable, the choice of indicators appearing ad hoc and secondary data missing. In our view, the literature on socio-ecological indicators lacks theoretical underpinnings. This is why we start by reviewing four approaches from sustainability science and ecological economics, notably happiness economics, the capabilities approach, eco-system services and energy services. These approaches have a promising conceptual base and have been used for empirical analyses. While drawing on a range of widely used approaches helps us to address socio-ecological transitions in a more systematic way, we wish to emphasize that they rest on strong normative foundations, as does neoclassical economics. In a second step we identify in this paper specific indicators that account for key aspects to foster socio-ecological transitions. We focus on four areas of provision, notably housing, food, mobility and social inclusion. While other domains could be added, these cover the majority of energy and resource use. The paper ends with a short list of

candidate variables that we suggest for inclusion in ecological macroeconomic models and – as much as possible – offers data sources.

We conclude that it is necessary to (1) widening the lens in macroeconomic modeling, (2) a better conceptual base which we search for in this paper by reviewing four approaches; and (3) conceptually accounting for and measuring stocks and flows (and possibly funds and services as well).

We develop a short list of stock-flow indicators that we think suitable for inclusion in macroeconomic models. Our approach tries to overcome two key shortcomings of the literature: lack of theoretical underpinning and lack of operationality / proximity to data.

In reviewing four approaches from sustainability science, happiness research and ecological economics, we find that they have different starting points and foci, but can be useful in identifying key indicators of wellbeing and sustainability. Following the different approaches leads sometimes to similar indicators or even the same indicators. We see these as indicators with multiple justifications pointing in the same direction. While we tried to identify data sources relating to the variables and indicators chosen, for some data are not available (yet); we see this more as a future task for statistics offices than a weakness of the indicator list.

We illustrate how this extended basis of socio-ecological indicators can be offered in such a way that it is conducive to integration in macroeconomic models.