Ecological Economics 141 (2017) 43–52

Contents lists available at ScienceDirect

Ecological Economics

journal homepage: www.elsevier.com/locate/ecolecon

Methodological and Ideological Options

A Framework for Decoupling Human Need Satisfaction From Energy Use

Lina I. Brand-Correa *, Julia K. Steinberger

Sustainability Research Institute, School of Earth and Environment, University of Leeds, Leeds LS2 9JT, UK

ARTICLE INFO

Article history:
Received 12 July 2016
Received in revised form 10 May 2017
Accepted 12 May 2017
Available online 25 May 2017

Keywords:
Energy services
Human needs
Well-being
Development
Climate change
Mixed methods

ABSTRACT

Climate change poses great challenges to modern societies, central amongst which is to decouple human need satisfaction from energy use. Energy systems are the main source of greenhouse gas emissions, and the services provided by energy (such as heating, power, transport and lighting) are vital to support human development. To address this challenge, we advocate for a eudaimonic need-centred understanding of human well-being, as opposed to hedonic subjective views of well-being. We also argue for a shift in the way we analyse energy demand, from energy throughput to energy services. By adopting these perspectives on either end of the wellbeing-energy spectrum, a "double decoupling" potential can be uncovered. We present a novel analytic framework and showcase several methodological approaches for analysing the relationship between, and decoupling of, energy services and human needs. We conclude by proposing future directions of research in this area based on the analytic framework.

1. Introduction

Human societies require materials and energy for their activities, and these biophysical requirements (known as "social metabolism") have been increasing with population, economic growth and technological demands (Krausmann et al., 2009). The extent of global social metabolism is such that, during the last century, the physical scale of energy and material inputs and outputs from human societies has come to dominate important planetary biogeochemical cycles. This has led to the definition of a new geological era: the Anthropocene (Hamilton, 2013; Steffen et al., 2015).

Energy systems are recognized to be a core component of societies (Ayres and Warr, 2009; Cook, 1971; Cottrell, 1955; Smil, 2008; White, 1943) and necessary for development. Energy access was recently included in the UN's Sustainable Development Goals (UN, 2016) and the Sustainable Energy for All initiative (UN SE4ALL, 2014). Despite the importance of energy use, vast segments of the world's population live under conditions of severe energy deprivation, preventing them from living healthy lives or fully participating in their society (Karekezi et al., 2012; Pachauri et al., 2012), while an increasingly international consumer class drives the majority of emissions associated with energy systems (Chakravarty et al., 2009; Chancel and Piketty, 2015).

Energy systems are a key intermediary between environmental impacts and the functioning of societies, and thus the well-being of their members. The pivotal role of energy becomes even clearer in the context of a climate-constrained world, where fossil-fuelled energy systems are the largest contributors to GHG emissions (IEA, 2012a) and hence main drivers of climate change (IPCC, 2013). The challenge of achieving human well-being in the Anthropocene era has been summarised by Raworth (2012): can we live above social foundations but below an environmental ceiling, or within the "doughnut" of sustainability?

The centrality of energy in fuelling both human development and climate change can lead to pessimism regarding the achievability of universal social development and keeping climate change below harmful levels (Jakob and Steckel, 2014). In contrast, we believe that more optimism may be warranted. If instead societies' efforts –and energy systems- would be focused towards the satisfaction of human needs, it might well be possible to achieve universal well-being within planetary boundaries. In order to shape societies' efforts as outlined above, however, we need to understand more clearly the relationship between energy and human well-being. Day et al. (2016) have made significant advances in this direction from an energy poverty perspective, by applying the capabilities approach to conceptualize why energy is used and needed, as well as proposing a definition of energy poverty that is multi-dimensional and relevant to global North and South contexts.

The main objective of this paper is to present an analytical framework for exploring the complex problem outlined above, as well as for conducting research that can lead to relevant policy recommendations. To this end, we advocate for a need-centred understanding of human well-being (Section 2). We also need to change the way we analyse energy demand, from energy throughput to energy services (Section 3). By adopting these perspectives on either end of the wellbeing-energy spectrum, a "double decoupling" potential can be uncovered (Section 4).

* Corresponding author.
E-mail addresses: eelibc@leeds.ac.uk, librand@unal.edu.co (L.I. Brand-Correa), j.k.steinberger@leeds.ac.uk (J.K. Steinberger).

http://dx.doi.org/10.1016/j.ecolecon.2017.05.019

Several methodological approaches are showcased in Section 5 for analysing the relationship between, and decoupling of, energy services and human needs. The final section of the paper concludes and proposes directions for future research in this area.

2. Human Well-Being Through a Human Needs Lens

Defining and measuring human well-being (HW) are highly debated research areas. No single approach is likely to bring consensus: our goal in this section is simply to summarise two major schools of thought (hedonic and eudaimonic), and explain why we have selected the eudaimonic tradition as the most suitable for this research. We articulate our argument around three main points: the advantages of a eudaimonic[1] perspective in the definition of HW in relation to sustainability (Section 2.1), the suitability of non-subjective assessments to measure HW (Section 2.2), and the relation of human needs to HW (Section 2.3). In this way, following O'Neill (2006, 2008a, 2011), we make the case for the superiority of the eudaimonic approach in sustainability research in general, and in relation to our specific question of energy requirements for human well-being in particular.

2.1. Eudaimonic and Hedonic Definitions of Well-Being

Not many would argue against policies that aim at improving human well-being. The wide range of meanings of well-being leads to confusion in research outcomes and policy implementations. Well-being is often equated to economic welfare (GDP per capita for example), it can be used to mean happiness (an individual state of mind), or it can have a more holistic meaning (like flourishing). The meaning societies give to well-being will directly influence the pathways they choose to follow in order to improve it, and these pathways will necessarily have some sort of environmental consequences. In the last centuries, improved well-being in capitalist economies has been seen through the lens of individual purchasing power rather than overall social outcomes. This is a direct consequence of a particular understanding of well-being (hedonic) and has translated into very serious environmental impacts.

Conceptualisations of well-being can be broadly categorised as either "hedonic" (pleasure-seeking) or "eudaimonic" (flourishing), reflecting their lineage back to the Greek philosophers Epicurus and Aristotle respectively (Ryan and Deci, 2001). The Hedonic school of thought sees well-being primarily as maximising pleasure (and minimising pain) (Dolan et al., 2006; Thompson and Marks, 2008): its principal modern representatives can be found in neoclassical economics utility theory, and in the area of subjective happiness research (Layard, 2010), whose flagship output is the World Happiness Report (Helliwell et al., 2016). It is fair to say that the hedonic school is dominant in research as well as ongoing popular and policy discourses. In contrast, the eudaimonic school of thought sees well-being as the enabling of humans to reach their highest potential within the context of their society: it's most well-known modern representatives are Amartya Sen and Martha Nussbaum, whose capabilities approach (Nussbaum, 2015; Sen, 1999) has been implemented in the UN's Human Development Index – HDI (UNDP, 2016).

The hedonic understanding of well-being became dominant in social philosophy and economics with the development of the concept of utility by Jeremy Bentham in the 18th century – "utility is the property of any object that tends to produce the happiness or reduce the unhappiness of the party whose interest is considered" (Beckerman, 2011, p. 83). As economics developed, utility theory became grounded in a system of commensurable, continuous and transitive preferences, based on potentially infinite and insatiable individual wants (Kamenetsky, 1992). Thus utility maximisation became tightly interlinked with preference satisfaction through market consumption,[2] which has two major implications: it creates an ethical void in which any consumption behaviour is justified in terms of individual well-being (Richards, 2013), and it paves the way for increased economic activity to become "the primary national policy goal in almost every country" (Costanza, 2014, p. 283).

Hedonism and its modern proponents have clear consequences for sustainability: effectively, any limits to consumption (e.g. limits on resource use, on environmental impacts or economic growth) can be immediately perceived as limits to HW from a mainstream economic perspective.[3] Many attempts to reconcile a hedonic understanding of HW with environmental sustainability result in policy instruments that are aimed at influencing individual behaviour (e.g. eco-labelling, education on energy efficiency, etc.). That is because, in a hedonic world, the path for improving an individual's well-being is psychological or cognitive: either improving a person's state of mind or changing their understanding of what contributes to well-being (i.e. their utility function) (O'Neill, 2008a; Trebeck, 2015). It is in this respect that hedonism has become especially attractive for some mainstream environmental circles: it should be possible to decouple well-being from increased consumption simply by shifting utility functions: by convincing people what other elements (beyond consumption after a minimum level has been reached) are constituents of well-being (O'Neill, 2006). This viewpoint overlooks the many institutional and technological factors that lock people in certain lifestyles. In contrast, other approaches emphasise the importance of everyday social practices as key determinants of consumption patterns which are not easily changed (Røpke, 2009; Shove et al., 2008). By doing so, these approaches focus on the co-evolution of social norms and technologies, in which the role of individual choice is very limited.

Furthermore, the lack of stability in people's preferences makes hedonic well-being a poorly suited assessment of social policies. Adaptation and relativity are common criticisms of the logic of preferences (O'Neill, 2008a): The former refers to adaptation to different circumstances, whilst the latter refers to the positional relativity of an individual's self-assessment of the impact of income and material possessions on their well-being (Easterlin, 1974, 2001). This lack of stability does not allow for intercultural (or even interpersonal) comparisons, and thus makes the overall assessment of any social policy (e.g. redistributional policies) virtually impossible (Richards, 2013). Likewise, in a hedonic world, intergenerational factors cannot be considered when assessing well-being, since it is a static evaluation of an individual's particular experience(s). This is especially relevant for environmental and climate considerations, in which current actions inevitably have future impacts (O'Neill, 2008b).

In contrast, eudaimonic approaches are based on ancient Greek Hellenistic philosophers after Aristotle that aimed at describing "the good life" (*eudaimonia*) (Richards, 2013). For an individual to be well, she must be able to flourish and fully participate in her chosen form of life (Doyal and Gough, 1991). "Well-being is not just a matter of subjective experiences, it is a matter of what one can do or be in one's life" (O'Neill, 2006, p. 165). Eudaimonic well-being focuses on the individual in the broader context of her society (as opposed to atomic and isolated in time and space). Such a broadening of the unit of analysis allows for social institutions and political systems to be studied in light of their ability to enable individuals to flourish within them. Therefore, a eudaimonic understanding of well-being is better suited to address questions of sustainability and climate governance, where long term

[1] Eudaimonia is a Greek word that can be translated as "human flourishing". As Ryan et al. (2008, p. 143) explain, "eudaimonia is thus not conceived of as a mental state, a positive feeling, or a cognitive appraisal of satisfaction, but rather as a way of living".

[2] The market is the institution that allows for the observation of people's choices, and therefore it is through market transactions that people's preferences are revealed.

[3] Not all economic theory understands consumption through utility maximisation. Contributions from heterodox economics that consider "systems of provision" address material and cultural elements of consumption by adopting a systemic and institutional view of the links between production and consumption (Fine, 2013).