



Energy justice, unequal access to affordable warmth, and capability deprivation: A quantitative analysis for Belgium



Françoise Bartiaux^{a,b,*}, Christophe Vandeschrick^b, Mithra Moezzi^c, Nathalie Frogneux^d

^a National Fund for Scientific Research, Belgium

^b Institute of Analysis of Change in Contemporary and Historical Societies, Université catholique de Louvain, Place Montesquieu 1, Box L2.08.03, B-1348-Louvain-la-Neuve, Belgium

^c School of Urban Studies and Planning, Portland State University, 506 SW Mill Street, Suite 350, Portland, OR 97201, USA

^d Institut Supérieur de Philosophie, and Institute of Analysis of Change in Contemporary and Historical Societies, Université catholique de Louvain, Place D. Mercier, 14, Box L3.06.01, B-1348-Louvain-la-Neuve, Belgium

HIGHLIGHTS

- A conceptual and quantifiable framework on energy justice and capability is proposed.
- It is tested with statistical analyses that are replicable in other countries.
- Energy poverty is significantly associated with deprivation of many capabilities.
- Social stigma against energy poor is thus evident in many aspects of daily life.
- Energy-justice policy should equalise capability deployment, not energy consumption.

ARTICLE INFO

Keywords:

Energy justice
Energy poverty
Capability
Capability's deprivation
Low-carbon energy systems
Generation and Gender Programme

ABSTRACT

This paper explores the energy justice nexus, drawing on Sen and Nussbaum's concept of capabilities. Our contribution operationalises most of the ten capabilities defined by Nussbaum, and examines them for all households of a single country (Belgium) in relation to household access to energy and especially to affordable warmth. We argue that the three dimensions highlighted by environmental-justice theories – income distribution, procedures producing unequal distributional outcomes, and cultural and political recognition of vulnerable and marginalised social groups – are more evident when posed contra the range of differences between energy-poor households and other types of households of a country. Thus, we propose a five-group typology of households that also takes into account the social aid granted in the country. Using Belgium as an example, this typology is used to compare across these five groups with respect to the extent to which energy poverty is associated with other difficulties of daily life beyond just housing and health. A new simple statistical index is developed to summarise these comparisons. The approach of the energy justice nexus is thus systemic rather than causal between access to energy and potential capabilities' deprivation. The data used is a large-scale quantitative survey that is part of the Generation and Gender Programme (GGP), and it enables to proxy most of Nussbaum's capabilities with several questions asked in this GGP survey. As these GGP surveys are standardised and realised in 16 countries, our approach is transferable to other nations/regions as well. Results show that energy poverty in Belgium is associated with deprivation of several capabilities, in more areas than expected: not only regarding housing, health, and mobility, but also regarding access to culture and recreational activities, as well as the feeling of fulfilment and ontological security. Furthermore, the comparison between energy-poor people and other energy-access groups makes the issue of social stigma clearer, and thus so the dimension of political recognition. In terms of policy, these results suggest to fighting energy poverty as a transversal issue.

* Corresponding author at: IACCHOS, UCL, Place Montesquieu 1, Box L2.08.03, B-1348-Louvain-la-Neuve, Belgium.
E-mail address: francoise.bartiaux@uclouvain.be (F. Bartiaux).

1. Introduction

Low-carbon energy systems are now seen as a necessity, in a more and more global system of massive fossil fuel-based energy production and consumption, given their adverse consequences on climate change, air quality and health, among others. At the same time, social injustice is increasing both within and across countries and it needs to be related to global injustices (Bauman, 2013) [1]. Environmental injustices are part of this social injustice.

Energy poverty is also an important aspect of these social and environmental injustices that deserve more attention in this global frame. Since 2005, energy poverty has at last been recognised as an important issue in continental Europe, both as an academic field of research and as an area for policy intervention. Indeed, since Boardman's landmark book on fuel poverty (Boardman, 1991) [2], much research had been devoted to households living in energy poverty in the United Kingdom and in Ireland (Bouzarovski and Petrova, 2015 [3], Thomson et al., 2017 [4]).

Most such work focuses only on energy-poor households. In contrast, in this paper we broaden the scope by studying all households in our example country of Belgium, looking at the full distribution of access to energy and especially to affordable warmth for energy-poor and less energy-poor households alike. The objective is to highlight energy inequalities, if any, which is a first and necessary step before contributing to solve them. To measure these energy inequalities, we draw on Sen and Nussbaum's concept of capability (the possibility to live a good life, more in Section 2.3). We operationalise this concept through various perceptions and daily life practices of households, and observe whether capabilities are developed by groups of people that we define according to their different access to affordable warmth. In doing so, this paper aims to contribute an empirical exploration of the energy justice paradigm. A second aim here is to discuss the implications of the revealed deprivation of capabilities to imagine otherwise transitions to low-carbon energy systems. Indeed, our hypothesis is that capability theory complemented with input from Castoriadis can lead to more just energy transitions (Castoriadis calls for democratic ways to thinking otherwise our future, more in Section 2.4).

These research objectives result from collaboration in a multi-disciplinary team (as recommended by Jenkins et al., 2017: 632) [5], composed of one philosopher, one sociologist-demographer, one demographer-statistician, and one statistician-anthropologist. This collection of five disciplines across a four-person team provides a basis through which to more firmly place energy poverty in the context of a welfare state and in relationship to people's daily lives and their aspiration to dignity and respect, made concrete by virtue of statistical analyses on a large and representative database.

Our conceptual framework thus articulates a critical presentation of energy poverty definitions and measurements, the energy justice paradigm, and the concepts of capability and of capability deprivation, as well as the notion of energy needs to introduce the reflexion on low-carbon energy systems.

More precisely, this research addresses the following four groups of questions. The first three refer to the first aim above, and the fourth, to the second aim. The first group of questions is oriented toward methodology and operationalisation while the others focus on the results of the research:

1. How can we operationalise and measure both energy poverty and Nussbaum's capabilities at the household level and for the same period of time? And more specifically, is it possible to combine a self-perceived energy poverty measure with a more procedural definition of poverty?

2. Is living in energy poverty associated with deprivation of capabilities? For which capabilities? In other words, how does daily life in energy-poor households differ from that in households having better access to affordable warmth?
3. In terms of capability deprivation, do energy-poor households differ from those generally poor households who receive a social aid?

The fourth group of questions refer to exploring how the lens of capability deprivation allows imagining otherwise low-carbon energy systems:

4. Last but not least, where does this comparison of energy-poor households with other households lead in terms of creating a new social imaginary (see Section 2.4) to favour new thinking about ecological transitions and low-carbon energy systems?

The following is the outline of this article. The first section builds the conceptual framework of this research by reviewing the literature and highlighting what is more relevant for our research. The next section on data and methods shows how this conceptual framework and its systemic point of view are operationalised via our quantitative approach. This section answers to the first group of research questions. Section 4 is devoted to presenting the empirical results obtained for Belgium and accordingly answering the second and third research questions above. Finally, the concluding discussion explores some paths opened by these quantitative results, also contributing to the discussion posed by the fourth research question.

2. Conceptual framework

Given the aims of this paper, this section reviews primarily the literature pertaining to the nexus of energy poverty and capability; it is also devoted to some measurement issues and the country under study, Belgium.

2.1. Energy poverty: toward a unified definition?

There are several definitions of energy poverty that have been reviewed and brilliantly synthesized by Bouzarovski and Petrova (2015) [3] and Day et al. (2016) [6]. Both reviews underline that the term 'fuel poverty' is generally used in Northern (and colder) countries while in less developed countries, the term 'energy poverty' is preferred and encompasses larger issues (e.g. governance, electrification...). But Bouzarovski and Petrova (2015: 37) [3] conclude that their review "hint[s] at the theoretical obsolescence of the notion of 'fuel poverty', even if the concept is widely recognised in policy and scientific circles". They propose instead a concept of "energy service poverty". They argue that, in a given context, energy service poverty is caused by problems of access to infrastructure and affordability depending on the energy mix and its "conversion to 'useful' energy", which in turn raises the issues of efficiency and flexibility. This 'useful' energy provides the households with various energy services (such as space and water heating, cooling, drying and so forth): these energy services are then structured and normalised by norms and needs for energy that shape household final demand (Bouzarovski and Petrova, 2015: 36) [3]. This conceptual framework has many advantages – it is applicable to both more-developed countries and less-developed ones, it takes into account the infrastructures for energy provision, the (in-)efficiency of the housing stock, and to some extent, the social practices of households. But they do not discuss the notion of 'energy needs' that is rather taken for granted, instead of being discussed (see our discussion below in Section 2.4).

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