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Energy affordability in the EU: The risks of metric driven policies☆

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ABSTRACT

This paper provides a pan-EU mapping of energy affordability using energy expenditure shares. Large variations in energy expenditure shares are identified, with the shares being significantly higher in New Member States than the EU15. First, these variations indicate that a single expenditure-based pan-EU fuel poverty metric is problematic; there is a trade-off between a metric identifying households in most need within individual Member States and one identifying households in a similar position across Member States. Second, household-level data from the UK, France and the Republic of Ireland are used to simulate the impact of 'policy interventions', involving energy expenditure reductions or income increases, on the recorded rate of fuel poverty. These simulations highlight that emphasising high-level fuel poverty metrics may distort policymakers' choices towards improving the 'picture' of fuel poverty rather than maximising welfare improvements. Robust impact assessments identifying the fuel poverty interventions which deliver the greatest welfare increases for a given cost offer a better means of policy evaluation.

1. Introduction

Energy affordability has become an increasingly important issue in the EU[1] with CEER-BEUC's 2020 Vision for Europe's Energy Customers[2] including 'Affordability' as one of its four core principles to which energy regulators should adhere. There is also increased focus on energy poverty at the EU level with the establishment of The Energy Poverty Taskforce[3] and the European Energy Poverty Observatory[4] in 2016. The present paper expands the discourse on energy/fuel poverty[5] towards the wider topic of energy affordability and the distribution of energy market outcomes across EU households. While fuel poverty is defined as "the phenomenon whereby a household struggles to afford adequate (energy) services",[6] the present paper assesses wider variations in the extent to which energy services are more or less affordable across household groups and Member States (MS). Here, fuel poverty is seen as a notable subset of the energy affordability topic.[7]

First, the paper maps differences in energy affordability across the EU using energy expenditure share (ENEXShr) data thereby complementing the existing literature which utilises European Union Statistics on Income and Living Conditions (EU-SILC)[8] to compare households' self-reported assessments of affordability. The average ENEXShr data presented in Section 5.1 emphasises a striking difference in energy affordability between the EU15 and New Member States (NMS). In 2010, the average ENEXShr across the EU15 was 4.6%, but among NMS it was 10.9%.

Second, the paper analyses individual household-level data from the

Abbreviations: MS, Member State; ENEXShr, energy expenditure share; NMS, New Member State; ENEX, energy expenditure; ENEX10, percentage of households with an energy expenditure exceeding 10%; LIHC, Low Income-High Cost; EU-SILC, European Union Statistics on Income and Living Conditions; RoI, Republic of Ireland

☆ This paper is a revised version of Deller (2016) which drew evidence from a report commissioned by the Centre on Regulation in Europe (CERRE). The report, Waddams and Deller (2015), is available at: http://www.cerre.eu/sites/cerre/files/Affordability_FinalReport.pdf (last accessed 29/8/17).

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[1] Thomson et al. (2016) document this increasing attention.

[2] See CEER (2014).

[3] Established at the European Policy Centre, see: http://www.epc.eu/prog_forum.php?forum_id=67&prog_id=8 (last accessed 29.8.17).

[4] Led by Manchester University, see: http://www.mui.manchester.ac.uk/cure/research/projects/euro-energy-poverty-observatory/ (last accessed 29.8.17).

[5] The terms "energy" and "fuel" have the same meaning in this paper, i.e. all fuel sources used within the home.

[6] See Section 2.1, pp. 564, Thomson and Snell (2013).

[7] While some may argue the fuel poor are automatically 'vulnerable', it is probably more useful to consider fuel poverty and vulnerability as distinct topics, i.e. someone can be fuel poor without being vulnerable and vice versa. For example, Ofgem, the UK energy regulator, does not have a statutory duty regarding the fuel poor, but does have an explicit legal duty to consider the interests of consumers who are of pensionable age, disabled, chronically sick, on low incomes or live in rural areas, see Ofgem (2015). The current paper's focus is affordability rather than vulnerability.

[8] This data (or its precursor survey) is used by Healy and Clinch (2002), Poggi and Florio (2010), Thomson and Snell (2013), Bouzarovski and Tirado Herrero (2015) and Thomson et al. (2017).

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UK, France and the Republic of Ireland (RoI) to highlight the main fuel poverty metrics provide only a *picture* of fuel poverty and households' welfare. Labelling a particular metric 'official' risks encouraging policymakers to implement policies delivering the largest improvements in the official metric rather than policies delivering the greatest welfare improvements to the households in most need.

While gathering further evidence on the extent of fuel poverty is important, Section 6.3 argues this evidence should be seen 'in the round' and the levels of individual indicators should not be used as 'targets' against which policy performance is assessed. This recommendation goes against a conclusion of Hills (2012), when designing the UK's Low Income-High Cost (LIHC) metric, that there should be greater integration between high-level metrics and fuel poverty policies.[9] Policymakers need to accept that most fuel poverty metrics are likely to be imperfect: metrics with desirable statistical characteristics may be difficult to communicate to non-specialists or require extensive, i.e. costly, data collection. Robust impact assessments comparing the energy expenditure (ENEX) reductions or welfare gains achieved against the costs of an intervention are a more direct way to assess the benefits of fuel poverty alleviation schemes.

The analysis for the UK, France and the RoI simulates the impact of 'policy interventions' on the percentage of households devoting at least 10% of their expenditure to energy (ENEX10).[10] The 'policy interventions' involve ENEX reductions or income increases targeted at alternative household groups. The simulations, presented in Section 5.3, demonstrate that:

(i) even 'large' interventions reduce ENEX10 by relatively small amounts;
(ii) the 'effectiveness' of interventions in reducing ENEX10 depends on the ENEXShr distribution and average income in the target group;
(iii) and increasing household income has virtually no impact on ENEX10 despite welfare gains for households.

This analysis complements the work of Heindl and Schuessler (2015), by extending fuel poverty simulations to additional MS and highlighting the factors affecting the ability to improve *recorded* fuel poverty.

Given the ENEXShr variations reported in Section 5.1, adopting a common ENEX based fuel poverty metric across the EU is likely to be problematic. If a common fixed ENEX threshold, such as ENEX10, were adopted, in some NMS such a high proportion of the population would be identified as fuel poor that the classification's usefulness for targeting within the MS would be lost. Equally, if a 'relative' ENEX metric was selected, the nature of households labelled as 'fuel poor' would vary considerably between MS. The large variations also suggest that a 'rational' EU-wide fuel poverty policy would require significant cross-border transfers, something which could face political obstacles. This paper's evidence provides support to the European Commission's position, expressed by Vice-President Maroš Šefčovič, that there should not be a common EU definition of energy/fuel poverty due to the differing circumstances of each MS.[11]

The current paper stands in contrast to Thomson's et al. (2016) arguments that a common EU fuel poverty definition would be beneficial by increasing fuel poverty's prominence[12] and clarifying the term's meaning. As any fuel poverty definition incorporates value judgements, and social policy is the responsibility of MS, it seems appropriate for democratically elected national governments to choose their preferred fuel poverty definition and policy. Also, having a common definition which is not optimised for specific MS's circumstances risks misdirecting resources. Nevertheless, the current paper agrees with Thomson et al. (2016) that the EU has a legitimate role in enabling policy synergies across MS. The EU can support synergies by increasing the availability of high-quality pan-EU affordability data, as argued by Thomson et al. (2017), and by collating robust impact assessments that identify effective policy interventions.

Section 5.2 also highlights how tracking EU-SILC indicators through time draws attention to challenges in these indicators' interpretation. The discussion of this point in Section 6.2 adds to Thomson et al. (2017) and Tirado Herrero (2017) by specifying lived experience indicators which capture tightly defined situations faced by fuel poor households.

2. Background – energy affordability indicators

There are a variety of ways to assess energy affordability and fuel poverty, as discussed by Thomson et al. (2017) and Tirado Herrero (2017). Fig. 1 shows how these indicators broadly fall into three categories: (a) ENEX-based indicators, (b) self-reports of the lived experience,[13] and (c) proxy indicators. As argued by Tirado Herrero (2017), it is difficult to identify a single 'best' affordability metric, with different indicators providing different pieces of evidence. The long-term task must be to triangulate the varying evidence to obtain a richer understanding of energy affordability and/or fuel poverty. The purpose of the present paper is to illustrate issues and questions surrounding the existing indicators of types (a) and (b). A detailed discussion of these issues and potential ways forward for policymakers is provided in Section 6.

When attempting to assess energy affordability across the EU, proxy indicators appear less desirable than indicators (a) and (b) since they are 'indirect': their validity is dependent on robust statistical relationships existing with indicators (a) and (b). These statistical relationships could vary between MS and through time, and establishing these relationships is beyond the scope of this paper. While proxy indicators are not used in Sections 5.1 and 5.2, they may be attractive for policy targeting as data on their prevalence may already be collected by governments. For this reason, proxy indicators are used to 'target' policies in Section 5.3.

Beyond proxy indicators, a major set of indicators not studied in this paper are those based on required ENEX, since only actual ENEX figures are available at the pan-EU level. Required ENEX is where the ENEX for a household to achieve a particular target temperature (and other specified energy services) is modelled on the basis of a dwelling's physical characteristics. Required ENEX has the intuitive attraction over actual ENEX that it is not depressed if a household consciously restricts energy consumption due to affordability difficulties. However, as Tirado Herrero (2017) notes, required ENEX is dependent on the quality of the assumptions and modelling employed to calculate it, hence, the advantage of required ENEX over actual ENEX is less clear than it first appears.

Two further points are worth noting. First, while population averages are useful indicators to assess energy affordability, they are less useful in identifying the fuel poor. Second, splitting self-reports of

[9] Hills (2012), Recommendation 6, page 11 states: "The Government should use the LIHC Indicator and fuel poverty gap as the basis for operational target setting".

[10] ENEX10 is analysed due to its intuitive behaviour when income and expenditure change, as noted by Heindl and Schuessler (2015). Deller and Waddams (2015a) report the results of identical simulations using the UK data for the alternative twice median ENEXShr and LIHC metrics. Deller and Waddams (2015a) highlight that these metrics may record an *increase* in fuel poverty following specific ENEX reductions/income increases due to movements in the position of the fuel poverty thresholds.

[11] See 'EU to tackle 'energy poverty'' by Peter Teffer, EUobserver, Brussels, 30 November 2016, available at: https://euobserver.com/energy/136095 (last accessed 29.8.17). Also see: 'Maroš Šefcovic: 2016 is the year of delivery on energy union' by Rajnish Singh, The Parliament Magazine, Brussels, available at: https://www.theparliamentmagazine.eu/articles/interviews/maro%C5%A1-%C5%A1efcovic-2016-year-delivery-energy-union (last accessed 29.8.17).

[12] Bouzarovski et al. (2012) argue the lack of an institutional centre has made fuel poverty's position within European institutions precarious.

[13] Indicators of type (b) are referred to as 'Consensual' by Thomson et al. (2017) and Tirrado Herrero (2017).