Keep Out the Cold: An analysis of potential gaps in fuel poverty policies in Ireland

Arya Pillai, Miguel Angel Tovar, John Curtis

June 18, 2023

Research questions

- We investigate the effect of governmental support targeting the fuel poor, including fuel allowances and BEWHS, on fuel poverty in Ireland. We analyze the impact of such support on fuel poverty experienced.
- In addition, we investigate whether the targeting of such supports can be improved.
  - Firstly, we build on Karpinska and Śmiech (2020) to identify the different clusters of the vulnerable population who experience fuel poverty in Ireland.
  - We further identify the household types experiencing fuel poverty that are potentially overlooked by current schemes implemented in Ireland to tackle fuel poverty.

Data and methods

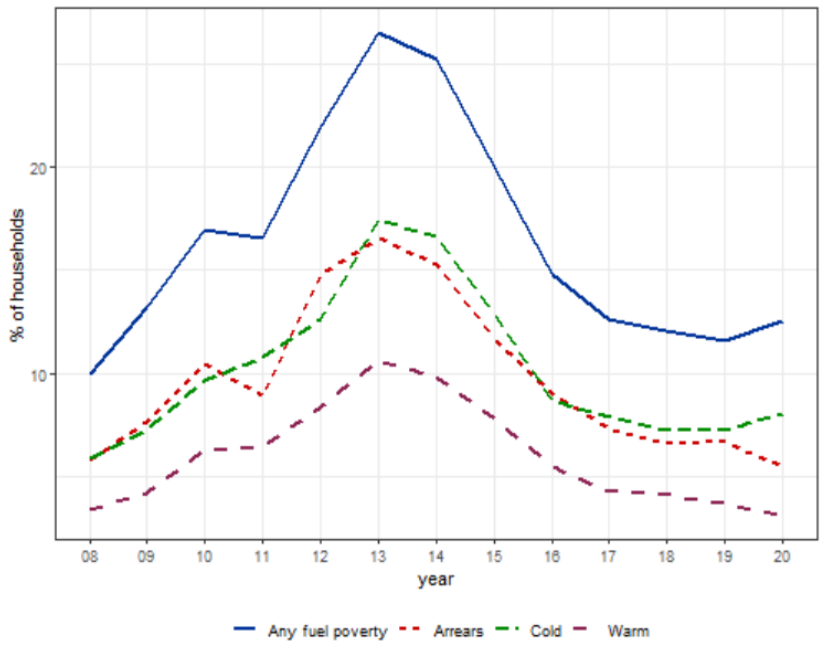
- Irish SILC datasets from 2008 to 2020 were used for analysis (54,809 observations).
- Fuel poverty measures employed include 3 SILC indicators for fuel poverty

Definition of fuel poverty indicators used in the study.

	Indicator in SILC	Survey question/ definition
Home not warm	dep_warm_hsehh	Was the household deprived of their ability to keep home adequately warm?
Cold home	dep_cold_hh	Did the household go without heating during the last 12 months through a lack of money?
Arrears	hs021	Were there any arrears on utility bills (in the past 12 months)?
Fuel poverty		Any of the above three indicators' answer was 'Yes'

Data and methods

- Households receiving fuel allowance and other allowances included in the eligibility criteria for retrofit grants were identified.



Impact of government support

- Due to endogeneity, identification is difficult at the household level.
- At the aggregate level, we find an association between the declining trend in fuel poverty and the proportion of households receiving support (aggregated at the region-year level).
- We conducted regression analysis and PSM.
- We further found that there is an association between the reduction in fuel poverty and reduction in poor home conditions reported by households.

Impact of government support

Table 5
Results for IV regression involving aggregated variables (full sample results reported). IV used is allowance amounts (including old age pensions) obtained.

	(1) Fuel poverty	(2) Fuel poverty
Fuel Allowance (mean)	−0.33***	
	(0.09)	
BEWHS eligible (mean)		−0.32***
		(0.08)
Equivalised income (log)	−0.26***	−0.23***
	(0.03)	(0.02)
Bills equivalised	−0.00	−0.00*
	(0.00)	(0.00)
Rural (Yes)	−0.04***	−0.01
	(0.01)	(0.01)
Home condition poor (mean)	0.24***	0.21***
	(0.04)	(0.05)
Central heating	0.11***	0.11***
	(0.03)	(0.03)
Constant	2.63***	2.41***
	(0.29)	(0.23)
Observations	824	824
R-squared	0.57	0.56
Year dummies	Yes	Yes
Region dummies	Yes	Yes

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1.

Profiles of fuel poor

- Below-median income households were included in the sample.
- K-means clustering and LPA applied.
- Cluster analysis revealed two profiles in the sample.
- One cluster identified includes income poor households who live in energy inefficient buildings.
- The second cluster is not strictly income poor, and they live in homes with better energy efficiency. However, they are unable to pay bills and do not necessarily qualify for government support.

Profiles of fuel poor

Typical characteristics of the two identified clusters based on the proportion of fuel poor households in each category.

Characteristics based on relative proportions	Cluster 1	Cluster 2
Home condition	Better	Colder/ Poor
Fuel poverty type	Arrears	Cold dwelling
Equivalised bills	Lower	Higher
Bills proportional to income	Lower	Higher
Poverty	Lower	Higher
Equivalised income	Higher	Lower
Unemployment	Lower	Higher
Allowances	Other grant eligible	Fuel Allowance
Age	Younger	Older
Education	Higher	Lower
Job type	Skilled	Unskilled
Household type	All adults/ Couple with children /Single parents	Live alone
Dwelling size	Bigger	Smaller
Homeownership	Tenants/ Mortgaged	Fully owned/ social housing
Location	Dublin/ Urban	Rural/ Border
Dwelling age	After 2000	Before 2000

Who are targeted

- In the below-median income sample, the targeted group includes income-poor households.
- However, the non-targeted group has a higher proportion of bills compared to income as well (and a high CV of this as well)
- The proportion of targeted households who do not own their dwellings may not be eligible for retrofit grants.
- On the other hand, the non-targeted group who are not income poor may not qualify for free retrofits. They may not be able to afford partially subsidized retrofits due to their precarious situation.

Sensitivity analysis

- We replicated the analysis on a full sample of fuel poor.
- We also tested the robustness of our results with alternate specifications such as LPA and clustering techniques employing alternate distance specifications.
- The results were robust.

Conclusion

- The increased proportion of government supports show a correlation with the declining trend of fuel poverty.
- The policies target the subsection who are extremely vulnerable to fuel poverty well.
- However, another subsection who have higher bills compared to income (while being below median income) are largely excluded.
- Tax credits, energy efficiency obligations, expansion of energy audits, and low-cost loans for retrofits can improve the targeting of energy efficiency schemes.