

FUEL FOR POVERTY: A MODEL FOR THE RELATIONSHIP BETWEEN INCOME AND FUEL POVERTY

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Fuel for poverty: A model for the relationship between income and fuel poverty¹

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BACKGROUND AND CONTEXT

The inability of households to afford a warm home is a growing concern across the world. The UK and Ireland are forerunners in establishing fuel poverty in the policy and academic debate. Previous ESRI research showed that fuel poverty is not a distinct type of deprivation in Ireland, and therefore may not warrant a policy response separate to that of addressing poverty and deprivation in general. However, our understanding of the relationship between fuel and income poverty is still limited. The two concepts are closely related and understanding their determinants is key to designing effective policy instruments.

However, existing surveys on income and poverty do not contain information on household energy expenditure. In addition, expenditure surveys do not provide detailed information on household income. This imposes a real challenge when modeling fuel poverty. The methodology used in this research overcomes this problem by linking data on household expenditure and living conditions from two different sources: the Household Budget Survey (HBS) and Survey on Income and Living Conditions (SILC).

Eradicating fuel poverty is a goal in Europe. The European Commission has established the Just Transition Fund to protect households most affected by the climate transition. The fund will invest in measures to protect vulnerable households and reduce fuel poverty; however, environmental policies such as carbon taxation could increase the challenge of reaching this goal. Little is known about the effects of carbon taxation, improvements in energy efficiency, changes in energy consumption, and lump-sum transfers on fuel poverty or poverty in general. The results of this research add to our understanding of how increases in carbon taxes via energy prices, changes in fuel efficiency, and energy consumption levels affect fuel poverty and income poverty.

¹ This Bulletin summarizes the findings from: Tovar Reaños, M.A., "Fuel for poverty: A model for the relationship between income and fuel poverty. Evidence from Irish microdata. ", Energy Policy, Available online: <https://doi.org/10.1016/j.enpol.2021.112444>

RESULTS

Using data from the HBS and SILC, the results show that being a single adult with dependent children, having low education levels, low income levels, and having darkness or dampness in the dwelling increases the probability of being fuel poor. Among income-poor households, fuel-poor households have the lowest income levels, have issues with dampness, and are less likely to have double glazing in their dwellings compared to other income-poor households. The estimates show that a 1% increase in fuel prices for residential heating due to carbon taxation will raise the proportion of people experiencing fuel poverty from 11.5% to 12%. The research also finds that while increases in lump-sum transfers are progressive (i.e., they benefit lower income households), increases in energy prices and in the amount of energy required to heat a dwelling have a relatively larger negative effect on lower-income households. The results show that losses in real income as a result of increases in carbon taxes on fuel are key to understanding the link between fuel poverty and income poverty.

POLICY DISCUSSIONS

Previous ESRI research shows that levels of deprivation and dwelling quality are key to explaining fuel poverty. In line with that research, the results of this analysis show that reducing general levels of income poverty of the most vulnerable households is an important step forward reducing fuel poverty. In addition, improving energy efficiency levels will also have an important contribution to reducing fuel poverty. When designing policies to tackle fuel poverty, it is important to consider dwelling quality, a broad range of retrofit measures, and to avoid regressive funding mechanisms. In addition, it is important to consider that while carbon taxes can increase the number of fuel poor, this can be overcome by using the additional revenues to finance lump-sum transfers and to encourage investment in energy efficiency by vulnerable households.

The public acceptability of low-carbon policy instruments partially depends on how distributional effects are addressed. The model developed here shows that increases in carbon taxes can increase income poverty through a number of different channels: current energy consumption, energy prices, the existing level of poverty, and changes in the number of households experiencing fuel poverty. Understanding the distributional effects of environmental policies is therefore important for a better-informed public debate, and for the design of effective policies to counter negative distributional impacts.

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