



Does France have a fuel poverty trap? ☆

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ABSTRACT

In this article, we focus on fuel poverty dynamics by answering two questions: Does France have a fuel poverty trap and what are the determinants of staying in or moving out of fuel poverty? First, we define three states into which individuals may be placed, which are as follows: the non-fuel-poverty state, the fuel poverty state and the severe fuel poverty state. Second, we use a mover-stayer model that divides the population into the following two types of individuals: those who remain in the same state during the observation period (the stayers) and those who move across states (the movers). This model applies to longitudinal data from mainland France showing that fuel poverty is not an absorbing state. Indeed, a majority of the fuel-poor and the severely fuel-poor move to another, better state. Therefore, we can argue that France has no fuel poverty trap. Using two econometric models (logit and multinomial logit), we identify the stability and mobility determinants in different states. As expected, there is a relationship between income and the likelihood of an individual remaining in a particular state. Furthermore, poor housing implies a greater likelihood of stability in fuel poverty or severe fuel poverty. Another result is that deterioration in fuel poverty status seems to stem more from difficult financial situations than from bad dwelling conditions.

1. Introduction

In mainland France, 5.1 million households (12.5 million people or approximately 19% of the total population) experienced fuel poverty in 2013 (ONPE², 2016). That same year, according to the first barometer of fuel poverty published by the King Baudouin Foundation (2015), 21.3% of Belgian households were experiencing fuel poverty. In 2014, 34.9% of Scottish households were fuel-poor and 9.5% were living in extreme fuel poverty (The Scottish Government, 2015). Who are these households? What is fuel poverty? The matter is not a simple one because this phenomenon is difficult to qualify and quantify.

Fuel poverty can take many forms because it involves so many different interrelated factors such as poor energy efficiency; poor housing conditions; cold and damp living conditions; increasing unavoidable expenditure and less purchasing power and health problems. Thus, the above ONPE estimate is based on a set of indicators including, inter alia, the income level and feeling cold, just as there is no official indicator for national statistics on fuel poverty in France. The Buildings Performance Institute Europe (BPIE, 2014) assesses the problem in European countries using three indicators: “the inability of

people to keep their homes adequately warm, to pay their utility bills and to live in a dwelling without defects (leakages, damp walls, etc.).” According to Eurostat data, in 2014, 10.2% of Europeans were unable to keep their homes adequately warm, 9.9% were in arrears on their utility bills and 15.7% lived in a dwelling with a leaking roof, damp walls, floors or foundation, or rot in window frames or floors. On the one hand, these percentages are not close; on the other hand, the individuals concerned only partially overlap and their characteristics can vary widely.

Fuel poverty is a complex and difficult phenomenon to measure. Indeed, this phenomenon includes economic, social and energetic matters. This may partially explain why there is no common European definition of fuel poverty. The lack of consensus on a definition obviously makes it difficult to determine how to measure fuel poverty. In addition, in many countries such in France, national statistics have not explicitly considered this phenomenon. Consequently, there are rarely sufficient data available to fully measure the scale of the phenomenon. Despite this twofold problem of qualification and quantification, many programmes have emerged to confront the rise in fuel poverty. Moreover, the existence of substantial percentages of households in fuel poverty can lead to governmental responses.

☆ The views, assumptions and opinions expressed in this paper are those of the authors.

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¹ <<http://www.fime-lab.org/an/presentation>>.

² ONPE: Observatoire National de la Précarité Énergétique (French National Observatory of Energy Poverty).

In France, the 12 July 2010 definition of national commitment to the environment (Article 11, Grenelle II law³) is as follows: *a household* that has difficulties obtaining the necessary energy to satisfy his basic needs due to the inadequacy of his resources or his living conditions is in fuel poverty under this Act. Therefore, this definition focuses on housing and ignores the energy cost of necessary mobility (i.e., the daily commute to and from the office, health, public services...). Once a fuel poverty definition has been chosen, one or more indicators should also be chosen to identify and characterise households in fuel poverty and to examine the dynamics of this poverty. The goal is to analyse fuel poverty not as an immutable and irreversible state but as a dynamic process.

Whereas other goods and services can often be substituted by cheaper alternatives, households in fuel poverty can be locked into their position. They do not have the resources to improve their homes' energy efficiency (Boardman, 2010; Hills, 2011). Increased income (the direct policy) could have a temporarily positive impact on the ability to pay bills, whereas improved energy efficiency (the indirect policy) will contribute to a permanent and sustainable reduction in fuel poverty (Hills, 2011). However, for poor households living in highly energy-efficient housing, that is to say, for households in social insecurity,⁴ the opposite approach applies. Thus, these households' situations can be improved by increasing their income: improving their homes' energy efficiency is unnecessary (Hills, 2011).

To mitigate the impact of energy prices on vulnerable households, France established two types of means-tested assistance: the special gas solidarity tariff⁵ (Tarif Spécial de Solidarité - TSS) and the basic necessity tariff⁶ (Tarif de première nécessité - TPN) for electricity. These social arrangements in favour of the poorest households, which are direct policies, are not gas / electricity supply offers as such but flat-rate reductions that apply to the annual bill. These short-term measures will expire on 31 December 2017, and should be replaced by an energy voucher. Thus, since 1 May 2016, the energy voucher, new aid for payment of gas and electricity bills, has been available in 4 of France's 101 departments. One of the most important novelties of France's policy is that this aid concerns not only electricity and gas bills but also wood and fuel oil bills. The voucher used to pay bills has a temporary positive effect. It can also be used to fund energy-efficiency work in the home, thus providing a permanent effect. As a result, a voucher that represents a short-term measure to fight fuel poverty can be used as a long-term measure. Other long-term measures, such as the programme "Habiter Mieux"⁷ (the indirect policy), partially funds renovations if they reduce energy consumption by at least 25%, are offered to low-income households.

This study on the dynamics of fuel poverty and identifying key determinants of either remaining fuel-poor or moving in and out of fuel poverty will provide relevant information to policy makers who wish to implement effective policies for reducing fuel poverty through a better targeting of people who are fuel-poor. Indeed, if fuel poverty is a transitory state, short-term measures such as direct subsidies for energy costs might be the most appropriate. However, if fuel poverty is a chronic phenomenon, long-term measures such as improving buildings' energy performance, must be taken. Nevertheless, for low-income households living in energy-inefficient housing, short- and long-term

measures can be complementary.

As Roberts et al. (2015) note, it is important to understand the dynamics of fuel poverty "because the welfare implications and thus policy measures will be different depending on how such poverty is experienced." These authors investigate urban/rural differences in fuel poverty levels and dynamics in the UK through both a descriptive analysis of the British Household Panel Survey and the estimation of discrete hazard models of energy poverty exit and re-entry. They note, inter alia, that on average, fuel-poor households in urban areas remain in their condition longer than fuel-poor households in rural areas. The latter nevertheless appear to be more vulnerable to rising energy prices. The authors conclude that policy effectiveness might be different in rural and urban areas.

Nevertheless, most studies on fuel poverty rely on one-time surveys⁸—in other words, surveys in a static context (e.g., housing surveys)—instead of panel data. Consequently, few studies on fuel poverty have been carried out in a dynamic environment.

To the best of our knowledge, aside from Roberts et al. (2015), there is only one study on the dynamics of fuel poverty that uses longitudinal data. Phimister et al. (2015) analyse transitions into and out of fuel poverty in Spain from 2007 to 2010 using a Markov matrix that provides the probabilities of moving from fuel poverty to non-fuel poverty and vice versa. They observe, "the proportion of the sample that can be characterised as persistently energy poor is substantially less than the proportion that is persistently income poor."

Our study's objective is similar to that of Phimister et al. (2015) and Roberts et al. (2015). Indeed, we want to know whether fuel poverty is transitory or chronic. However, our approach is slightly different than those mentioned above. On the one hand, we calculate the probability of moving from a fuel poverty situation (or state) to a non-fuel-poverty state, or vice versa, along with the probability of remaining in the same state. In addition, we identify individuals who are at risk of fuel poverty. The probability calculation addresses the following question: Does France have a fuel poverty trap or is it mostly a transitory state? On the other hand, we identify the stability and mobility determinants between different states in the fuel poverty phenomenon. After this first analysis, we perform econometric estimations (logit and multinomial logit estimations) based on the same sample to identify the determinants that influence the probability that individuals will remain in fuel poverty (stayers) and the determinants that influence the probability that individuals will move between different states (i.e., movers). This analysis formally identifies determinants of individual stability or transition.

The results show that, in France, fuel poverty is not an absorbing state. Indeed, a majority of the fuel-poor move to another, better, state. Therefore, fuel poverty is usually a transitory state and we can argue that France has no fuel poverty trap. Nevertheless, more than one-third of households are stayers in fuel poverty states and the proportion of vulnerable individuals to fuel poverty is approximately 15%. As expected, on the one hand, there is a relationship between income and the likelihood of an individual remaining in the same state. Indeed, a high income level increases the probability of remaining in the non-fuel-poverty state. In contrast, a low income level increases the probability of remaining fuel-poor. Moreover, poor housing implies a greater likelihood of stability in fuel poverty. Another result is that the deterioration in fuel poverty status seems to stem more from difficult financial situations than from bad dwelling conditions. We find that certain determinants (e.g., divorced, students and single-parent families) have different impacts on fuel poverty dynamics. Consequently, it is important to consider different sub-populations—i.e., the chronic fuel-poor (stayers) and the transitory fuel-poor (movers)—to best address fuel poverty.

The remainder of this paper is organised as follows. In Section 2, we

³ <http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000022470434&categorieLien=id>.

⁴ It is possible that households are living in a high energetic performance accommodation and are facing extreme financial condition (e.g. after job losses, divorce etc.). It should be mentioned that tenants of social housing tend to be in housing that is already relatively efficient from an energy performance. Just because they are poor and live at a given time in energy-efficient housing doesn't mean they will be excluded from our study, quite the contrary. They should be seen as fuel poor households according to the official definition in France (article 11; Grenelle II law).

⁵ This tariff was set up by the Decree of 13 August 2008.

⁶ This tariff was set up by the Decree of 8 April 2004.

⁷ In English that is "to live better".

⁸ Notable among these studies are those discussing measures of fuel poverty in France (such as Legendre and Ricci (2015)).

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