Title : « A dynamic approach of the fuel poverty phenomenon. Evidence from the French data of the European Union of Statistics of Income and Living Conditions (EU-SILC)»

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Overview :

The numbers of households in fuel poverty is increasing. To understand, quantify and contain the trend, more and more energy researchers are studying in this phenomenon. To the best of our knowledge, all of these analyses studied the fuel poverty with a static approach. Nevertheless, as the poverty concept, the dynamic aspect of the fuel poverty is crucial to understand the different stages of transition and at present no study has investigated the dynamic comprehension of the fuel poverty concept. Hence, in this study, we will be focusing on dynamic parts of the fuel poverty and we tried will answering following both questions: Does exist a "fuel poverty trap"? What are the major determinants of stability in the fuel poverty state and the major determinants of transition between different states (None fuel poverty, fuel poverty, severe fuel poverty)?

Method :

We use the 2009-2011 French longitudinal data of European Union statistics of income and living conditions (EU-SILC) which provides for a sample of 12134 observations including socioeconomic characteristics, dwelling condition etc. Using different questions in this database, we define three different states : None fuel poverty state, fuel poverty state and a severe fuel poverty state. For analyzing the dynamic aspect of the fuel poverty phenomenon, we make two different analyses. On one hand, we perform a " Movers/Stayers " model (Frydman, 1984 ; Fougière and Kamionka, 1992). This model characterizes the population in two different types : the " Stayers " ie individuals who never change state on all observations periods and the " Mover " ie individuals who transit between the different state with transition probability. This model permits to identify if the fuel poverty is a « trap » or not. On the other hand, an econometric analysis is carried out in order to identify the major determinants to be a " Stayer " or a " Mover ". For that purpose, logit regressions for the "Stayers" and multinomial logit regressions for the " Movers " are performed.

Results :
The " Movers/Stayers " model indicate that the fuel poverty phenomenon isn't an absorbing state. Furthermore, the probability of transition between different state for the " Movers " is important. So, this result indicate that fuel poverty state isn't a irreversible state. Also, the econometric analysis show that the net income and dwelling conditions are major determinant of stability and transition between the different states. Finally, these two complementary econometric specifications sophisticated the characterization of the fuel poor's with a dynamic dimension.

Conclusion :
This analysis indicates that the dynamic approach of fuel poverty is crucial. It permits a better understanding of the different stages and determinants of this concept. So, diferent measures could be taken depending on the individual state for a better efficacy and efficiency for this fuel poverty containment politics or even identify ex-ante the determinants that increased the risk to fall in the fuel poverty.

Keywords : Fuel poverty, movers-stayers model, logit/logit multinomial