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Paper title: Housing poverty differences across European countries

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## Abstract.

This paper identifies, estimates, analyses and compares the role of housing poverty in four countries of the EU. Using EU-Silc database provided by Eurostat, the paper identifies relevant differences among countries to evaluate the role played by housing poverty and housing affordability in the probability of a household to fall under poverty. It is a crucial issue for European society as the affordability problems spread across all cities last decade and create a deep concern about the future of young generations. The experts disagree with the reasons to explain such a situation, so this paper contributes to the debate giving a new view from the housing sector.

The research questions to be answered are whether or not the housing tenure is associated with poverty and the conditions under which the poverty likelihood rise when housing and households characteristics are taken into account. The second aim of this paper is to approach energy issues in this framework and test whether or not housing poverty is also associated with fuel poverty, or there are other reasons for fuel poverty to appear.

The paper has two steps to fulfil its objectives. The first one develops an exploratory analysis in which several new indicators are defined and calculated using the information contained in the EU-Silc database. The definition of housing poverty requires the generation of three new variables to evaluate housing affordability ratios (all of them applied to the post-period after to enjoy a house), and the fuel poverty concept requires to generate an specific variable capturing such situation. The latter variable is estimated by using Principal Components methodology.

In the second step, the paper determines the likelihood to fall under poverty associated with housing tenancy (first model) and fuel poverty (second model). In the first model, a variety of panel regression tools are used to estimate the probabilities of fall into poverty controlled by country and region and let it vary by tenure type. We explore the likelihood to fall in poverty depending on income deciles by using quantile regression method and estimate time effects in housing poverty which could highlight whether the poverty spread is due to housing issues by applying ARDL methods and VAR tools. All models control by unobserved heterogeneity due to country and region.

The countries to be analysed are Poland, Italy, Spain and Germany. We use dynamic panel methodologies applied to a time-space(regional) panel built by using all available waves of the crossectional EU-Silc (2005-2018 until now) for those four countries and controlling for bias generated by the systematic data merging.

Some results are already available. For instance, there are large differences in tenure among the countries analysed which identify the market size for rent. Poland shows relatively small rental market due to a large ownership rate and a still large public stock diminishing the real market dimension. The likelihood to fall in poverty due to housing in Poland is very low due to this fact. However, the likelihood to fall in poverty and fuel poverty for homeowners is large due to the quality of houses. That market structure shows hard housing entrance effort for Polish households which generate poverty associated with housing needs coverage.

In the case of Spain, homeownership has protected from poverty to around 15% of households who have not housing cost charges. Fuel poverty shows a large effect on the likelihood to fall under the poverty line due to it is associated with medium-low income level households. The worsening on income distribution plays a leading role to explain this result together with the physical housing characteristics. The fact that around 30% of total fuel poor household identified are due to lack of housing quality, determine an investment needs on housing adaptation to energy efficiency which are difficult to fulfil in the future due to the low income available.