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RISK-AVERSION AND WILLINGNESS TO PAY FOR ENERGY SAVING MEASURES IN RESIDENTIAL BUILDINGS

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Overview

This paper analyzes the data from a choice experiment on the preferences of individuals about the energy-saving measures in residential buildings. These measures include the new enhanced insulation and air renewal systems. Despite the efforts made by the Swiss authorities in promoting energy efficiency in buildings, the owners and investors hardly use such energy-saving systems. Therefore the market for these systems is quite limited. The readiness of investors and owners in using energy saving systems in apartment buildings is expected to depend upon the amount of additional rent the end-consumers such as tenants are willing to pay for the benefits of such systems. These benefits include the future savings in energy costs but also the comfort benefits such as better air quality and reduced noise.
A few studies have explored the problem from the end consumer's point of view in order to assess their willingness-to-pay for energy saving systems (see Banfi et al., 2007). Virtually all these studies have focused on linear utility model commonly used for estimating the willingness to pay for non-market goods. This paper extends the linear utility to a non-linear model with decreasing marginal utility. The proposed approach relaxes the assumption of constant rate of substitution between income and non-market commodities, an assumption which can be especially restrictive in cases when the non-market good is a luxury commodity or a new good whose benefits are not completely known. The adopted non-linear formulation can therefore accommodate risk-averse behavior with respect to non-market goods particularly when the non-market attributes are measured by discrete variables.

Methods

The linear utility model as in Bateman et al. (2002) has been extended to several non-linear functional forms. Cooper (2002) has considered several forms with non-linearity in income. Some of proposed models in this paper are extensions of those models to include non-linearity both in income and in non-market good's attributes. The models have been applied to the data on the stated choices of a sample of tenants who have recently moved apartments. The econometric specification is based on a fixed-effect logit model. The fixed effects are expected to capture the heterogeneity across individual preferences.

Results and Conclusion

The results suggest that ignoring consumers' risk-aversion toward new non-market goods could lead to an underestimation of the marginal willingness to pay. However, consistent with previous studies the non-linear effect of income does not have a considerable effect on the estimation results.

References

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