

TIME USE, LIFESTYLE AND ENERGY CONSUMPTION: LESSONS FROM TIME USE AND BUDGET DATA FOR FRENCH HOUSEHOLDS

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Overview

Because households' consumptions are key drivers of energy demand and therefore of greenhouse gas emissions, changes in consumption patterns are increasingly regarded as necessary to meet emissions reduction objectives beyond the grasp of mere energy efficiency improvements.

Analyses of households' consumptions are usually based on income and expenditure data. Time may however be another binding constraint. It is indeed a budget irrevocably set for all individuals alike, and future consumption choices might be limited more by the availability of time than by the availability of monetary resources. For this reason, combining time use and budget data may be required to study possible changes in consumption patterns and their impacts on energy use. In this study, we consider energy demand not as consumption of energy *per se*, but as the result of the time-consuming activities in which the members of the household engage.

We define a set of thirteen everyday activities and we consider that they require time as well as material consumption in order to be carried out, following the household production approach presented by Becker (1965). We match time use and expenditure data of more than 14000 French households, allocating yearly expenditures and time use to the activities. Then, we compare the results for different income levels, household compositions and types of dwelling. We devote special attention to linking energy and transport expenditures to different activities, by using additional, dedicated surveys to allocate residential energy consumptions, fuel expenses and other transport expenses to our everyday activities.

Methods

Statistical matching of time use and budget data for France 2010-2011 using regressions.

Results

The same activities have non-energy expenditure intensities ("goods intensities") and energy expenditure intensities ("energy intensities") that vary considerably among different income levels, household types and types of dwelling. For example, for the activity "eating out", goods intensity of the tenth income decile is more than three times the intensity of the first decile, and energy intensity is 40% higher. For the same activity, goods intensity and energy intensity of couples without children are more than twice the intensities for single-parent families : these differences in intensity are smaller but still significant when we compare household types of the same income group. If we consider average intensities for each activity, the most goods intensive activities are eating at home and eating out, whereas the most energy intensive ones are "sport and outings" (for fuel expenditures) and "meal preparation" (for domestic energy expenditures). The least goods intensive activities are sleep and housework (meal preparation and clothes cleaning/maintenance), the least energy intensive activities are sleep and caring for children or adults.

Conclusions

The same activities can be carried out using different amounts of goods, energy and time. An analysis of the combinations of these input factors gives useful insight about the possible impacts of changes in household consumption habits. We can look into the possibility of interpreting the more energy- and consumption- efficient practices of some activity as best practices that could be generalized to more households, and the impact of such a generalization on energy consumptions.

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