

Does feedback determine Energy saving? The role of motives in the use of a web portal for energy consumption

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Introduction

One successful approach to increase sustainable energy consumption in households -studied since the 1970's – is the feedback of consumption data to the consumer. It has to be acknowledged that provision of feedback lead to the effect of energy conservation. The size of effect depends on the frequency of provision, and the amount of energy consumed by a household absolutely. Latest study results from large field trials using Smart Metering technologies to provide feedback report that the saving effect was rather marginal and disappeared after a few months of provision.

Interestingly the present research about feedback is mainly characterized with the analyses of saving effects and some factors influencing the size of effect. More or less present psychological feedback research followed a „black box“ paradigm. However, motivation, cognitive processing and decision making as well as concrete behavioral adaptations and social and socio-economic constraints in relation to feedback use have not yet been at the center of scientific studies. The findings from our study are expected to highlight these topics and will contribute to a better understanding of the mechanisms of the feedback effect.

Methods

In this paper we want to present study results from a large field trial with Smart Metering and Feedback in Germany and Austria in the frame of the research project “intelliekon”. Structural variables as well as attitudes, norms and specific motives to use energy feedback have been measured in a

sample of users of a feedback web portal (N=564). Additionally the online activities within the web portal were tracked. In our analysis we examine whether socio-demographics, attitudes and motives concerning feedback use relate to the de facto feedback use generally. In a more detailed analysis the predictive value of the structural and psychological variables for the de facto use of specific feedback information provided within the web portal and the constancy of use over time is studied.

To evaluate the impact of feedback use on the energy behavior we econometrically estimate household electricity consumption. Explanatory variables include a wide range of socio-economic factors (income, education, age, etc.) as well as the household appliance stock and the assigned feedback use pattern variables (frequency, Preferred content and constancy over time).

Results

From both studies we can draw first conclusion of the relation between motives, attitudes towards feedback use and the effect of different feedback uses on the consumption behavior. Our findings may also help improving the design of future feedback instruments targeting different social groups among private households.

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