

# Rebound effects from a psychological perspective – A theoretical framework

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## Introduction

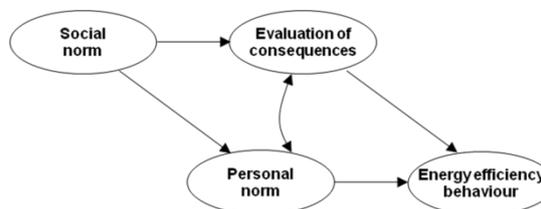
The purchase of energy efficiency of appliances and other energy using products is generally regarded as an effective strategy to reduce energy demand. However, the potentials realized by this strategy can be lower than those theoretically expected or calculated from a technological point of view due to parallel changes of behaviour following the acquisition. This effect is known as the rebound effect. While scientists generally agree on the existence of rebound effects, size, relevance and explanations of such effects are controversially discussed.

From an economical point of view, if a product or service becomes more efficient, lower operation costs are the result and may in turn elicit increased use.

However, individuals do not only react to changes of energy price and costs; also psychological factors might induce rebound effects. Empirical studies analysing psychological factors in relation to the rebound effect are scarce. Thus, it is the aim of our study to develop a psychological framework to study rebound effects and explore variables that might enhance or lower these effects.

## Theoretical background

The use of energy consuming products or services can be explained by psychological action theories such as models (e.g. Bamberg & Möser, 2007) integrating the theory of planned behaviour (Ajzen, 1991) and the norm-activation model (Schwartz, 1977). In order to explain rebound effects, we assume that psychological variables which influence individual behaviour could change due to the energy efficiency improvement. In particular, the following variables might be relevant (cp. Figure 1): The attitude towards the respective behaviour, i.e. the expectation and evaluation of consequences, might change: e.g., more



*Fig. 1: Psychological variables influencing the rebound effect*

intensive usage might be perceived as less harmful due to the higher efficiency of the product. Additionally, personal and social norms, i.e. the intrinsic and the perceived social obligation to engage in certain kinds of behaviours, may be weakened after an investment in energy efficiency.

## Methodology

This framework will be explored and further developed based on focus groups conducted with individuals who have invested in energy efficiency improvements of their homes or their mobility. In a next step, it will be analysed quantitatively by a survey of German households.

## Results and discussion

In our presentation we will present results from the focus groups and discuss implications for the modification of the model as well as for the design of the quantitative questionnaire study.

## Acknowledgements

This research is funded by the German Federal Ministry of Education and Research (BMBF) as part of the project REBOUND under project number 01UV1002C.

## References

- Bamberg, S., & Möser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of Environmental Psychology*, 27, 14–25.