UNIKASSEL VERSITÄT

FB07 Economics and Management
Chair of Applied Microeconomics
and Empirical Energy Economics
Prof. Dr. Heike Wetzel

Master thesis

The impact of smart home technologies on preferences for dynamic electricity tariffs

In electricity grids, supply and demand must be balanced at all times. As a means of ensuring this grid stability, dynamic electricity tariffs are a frequently discussed tool of demand-side management. These tariffs send scarcity information to customers via price signals and thereby incentivize shifts in electricity consumption. This becomes increasingly important with higher shares of renewable energy production. In general, dynamic electricity tariffs are associated with several advantages. Besides supporting electricity grid stability, they enable CO_2 emission reductions, reduce peak demand and thereby the need for costly peak-load capacity, and increase economic efficiency.

Against this background, this thesis seeks to explore customer preferences for dynamic electricity tariffs. Furthermore, it analyzes the effect of automated instead of manual load shifting requirements on households' preferences for (or aversion to) dynamic pricing. The basis for this analysis is a stated choice experiment that was included in a representative household survey in 2021 (N = ca. 1.000). In contrast to a baseline group, where households indicated their preferences for dynamic tariffs based on their current living situation, they assumed a smart home environment in the included treatment group.

The main tasks of this master thesis are: 1) to get into the literature about preferences for dynamic electricity tariffs, 2) to empirically evaluate the stated choice experiment and test derived hypotheses (we provide the data set), 3) to discuss the results in light of the relevant literature, and 4) to derive policy implications.

Requirements:

- Intermediate knowledge of econometrics and a statistical software (Stata or R)
- Prior knowledge in choice experimental studies is highly recommended
- Independent and responsible way of working

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