DTU Management Engineering
Department of Management Engineering

Motivational Factors in Residential Energy Efficiency Improvements

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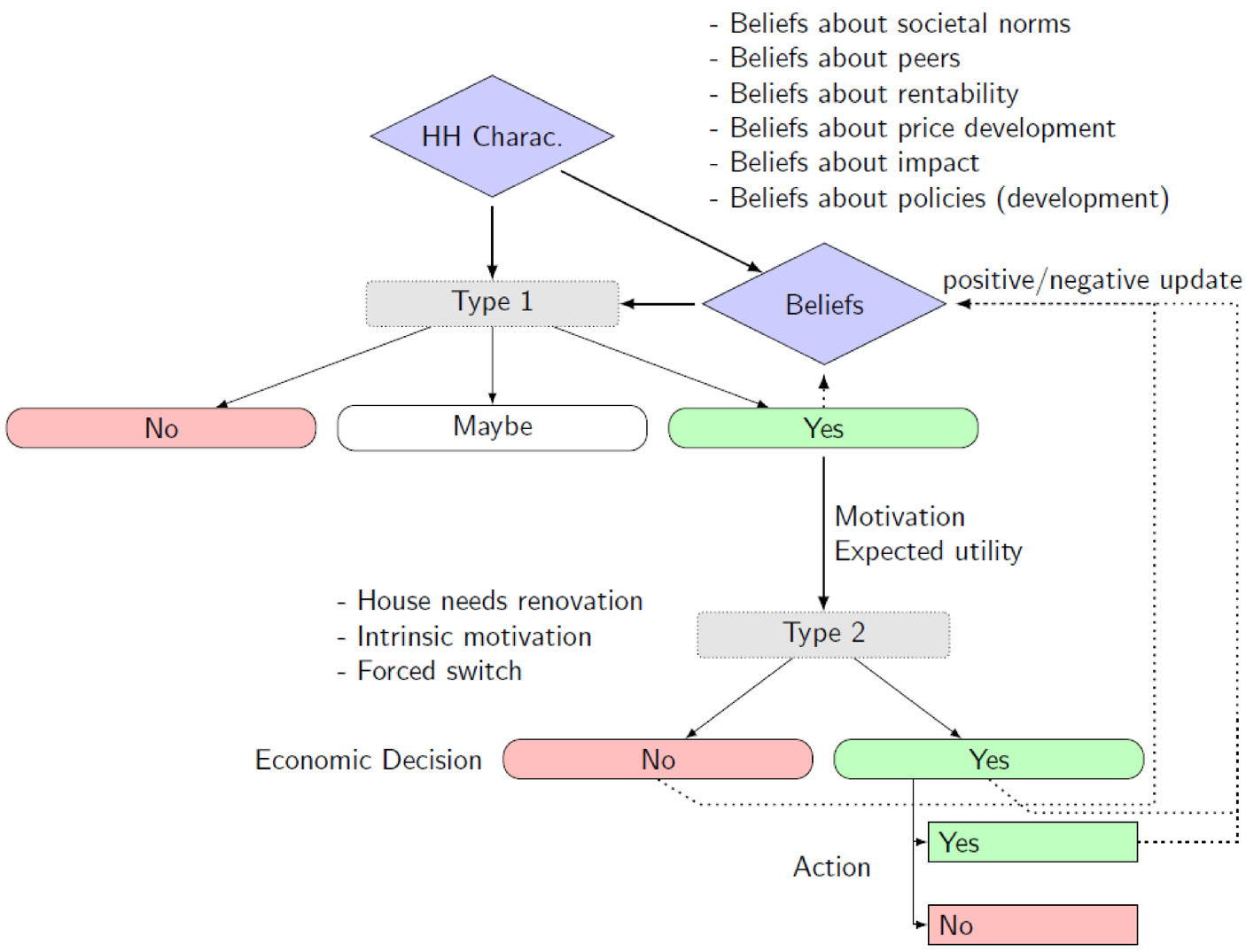
Untapped potentials for energy savings

Space heating accounts for 30% of total energy consumption in Denmark (cf. Kragh & Rose, 2011). Out of this about half is attributed to single-family houses. Encouraging this market segment to invest in energy renovations could make a large contribution towards reducing energy consumption. This has the potential to substantially reduce CO2 emissions and other pollutants, provide an increased security of energy supply, and reduce the demand on energy infrastructure, e.g. power plants and transmission lines.

Conceptualization of Decision Process



Research questions

- What characteristics make a household more likely to join a policy initiative and ultimately invest in energy efficiency measures in their house?
- What effect did the ProjectZero policy and the investments made have on the energy consumption of treated households?
- Can the effect of social comparisons in the field be replicated in a lab environment and are there unaccounted spill-over effects that have so far been missed?

Project Approach

A dataset collected from a policy intervention in Southern Denmark will be used as basis for an empirical analysis. 1100 households received free energy consulting and in a follow-up survey it was observed, whether these households invested in energy saving measures. This data will be merged with registry date and will be analysed with econometric methods to find out more about the factors that determine investment behaviour as a consequence of the intervention.
A somewhat recent development in economics is the use of lab experiment to get a deeper understanding of economic decision making in a controlled environment. It seems that so far the use of experimental methods to investigate residential energy investment behaviour is quite limited. The idea for this project is to conduct a framed experiment, which means that the experiment will attempt to simulate the real decision in a somewhat simplified way. By applying different treatments, it will be possible to test the effect of certain policy measures. The experiment is planned to be conducted in cooperation with the economic laboratory at Copenhagen University.

Expected Results

The project will expand the understanding of the economic and behavioral factors that drive households to invest in energy savings. This will make a contribution towards designing better targeted policies in the future.

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