FEELS *LIKE A BARGAIN? THE ROLE OF EMOTIONS IN SHAPING COST PERCEPTIONS AND RENEWABLE ENERGY TECHNOLOGY ADOPTION*

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Overview

Fossil fuels still dominate as energy sources while renewable energy technologies (RETs) for private households exist, be it solar photovoltaic for electricity, heat pumps for heating, and electric vehicles for transport. To reach global decarbonization targets, these RETs need to be widely deployed. However, adoption of these RETs is still relatively low despite increasing interest in and adoption of several of these RETs. A recent survey[1] shows that many consumers see—some of—these RETs as bundles. Yet, existent literature has mostly focused on adopting one of these technologies separately [1] and on rational decision making [2], despite human decision-making being influenced both by analytical rules and associative, emotionally driven processes [3]. Hence, this paper investigates the role of emotions in shaping cost perceptions as a key driver or barrier in adopting one or more RETs.

Method

The paper draws on original consumer survey data collected in Switzerland and Germany (N=2500). The data sets for each country contain a representative sample (n=1000) and a boost for consumers interested in adopting within the next two years or having already adopted one or more RETs (n=250). The analysis is split into three parts: (1) A regression analysis will identify the relevance of emotions as an affective factor in shaping cost perceptions of RETs besides rational factors like income and assets. (2) Structural equation modelling (SEM) will investigate the relationship among latent variables; in this case among environmental and technology innovation values on emotions regarding RETs, moderated by the network's view on these RETs, and the relationship between these emotions on the likelihood of adoption, mediated by acquisition and maintenance cost perceptions. (3) A subgroup analysis only considering adopters of at least one RET will complete the SEM analysis by adding the relationship among satisfaction with an adopted RET and emotions regarding other RETs. The results for all three parts also compare the subsamples for Switzerland and Germany to evaluate whether the relationships among the investigated variables hold across countries.

Results

Preliminary Hayes PROCESS model 4 and 6 analyses in IBM SPSS show a significant effect of emotions on RET adoption mediated by (acquisition and maintenance) cost perceptions. Thus, I expect (1) to reveal a significant effect of emotions on cost perceptions: More positive emotions towards RETs will lower the perceived costs. With analyses (2) and (3) I can evaluate the fit of the model I propose for the role of emotions in shaping cost perceptions and RET adoption. In the SEM analysis in part (2), I expect to see a significant positive relationship between environmental and technology innovation values respectively and emotions regarding RETs, moderated by the network's perspective, be it supportive or critical, on these RETs. Furthermore, I expect this analysis to show a significant positive relationship between positive emotions and adoption of RETs, mediated by acquisition and maintenance cost perceptions with positive emotions being linked to lower cost perceptions and the latter implying a higher adoption likelihood. Finally, I expect (3) to show that high satisfaction with an adopted RET leads to more positive emotions regarding other RETs, and thereby an increased likelihood of adopting other RETs.

Conclusions

This paper contributes to better understanding individual consumers' drivers and barriers for adopting RETs to overcome the dependence on fossil fuels. The findings will highlight the importance of considering emotional components in the adoption process for policy formulation and market supply, and of analyzing RETs for the energy domains electricity together with heating and/or transport because consumers see them as bundles. Consequently, policymakers may consider focusing more on supporting RET packages to facilitate RET adoption and accelerating the decarbonization of individual energy consumption. Furthermore, assuming the expected findings hold, policy recommendations solely focusing on rational, financial factors may not effectively influence the decision of energy transition sceptics as the rational cost information may be overridden by emotions. Yet, positive emotions of adopters may be leveraged to stimulate further adoption through engaging with their environments, assuming the expected moderating role of the network's view on RETs holds in the analysis.

[1] 12th Consumer Barometer of Renewable Energy (https://iwoe.unisg.ch/wp-content/uploads/20221128_KuBa_Presentation_ENG_FINAL.pdf)

References

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