Factors of electric vehicle adoption: A comparison of conventional and electric car users based on an extended theory of planned behavior

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Increasing the share of battery electric vehicles (BEV) in the total car fleet is regarded as a promising way to reduce local car emissions. Based on online surveys in Denmark and Sweden, this study compares BEV users’ (n = 673) and conventional vehicle (CV) users’ (n = 1794) socio-demographic profiles, attitudinal profiles, and mobility patterns. In line with previous research, BEV users are typically male, highly educated, have high incomes, and often more than one car in their household. Additionally, BEV users perceive less functional barriers toward BEV use and have more positive attitudes and norms than CV users. The different profiles of these user groups suggest a separate analysis of potential factors of BEV adoption in both groups. In regression analyses, CV and BEV users’ intention to use/purchase a BEV is modeled based on factors of the Theory of Planned Behavior extended by personal norm, perceived mobility necessities, and BEV experience. For CV users, symbolic attitudes related to BEVs are the most important factor of intention, while perceived functional barriers in terms of driving range are most relevant for BEV users’ intention. How BEV users cope with trips of longer distance seems of particular relevance. In multiple car households, we found the percentage of actual BEV usage related to the type of other cars in the household, perceived functional barriers of BEVs as well as (successful) behavioral adoption to longer trips by BEVs. Based on the results, we discuss ways to increase BEV adoption for current users and non-users.

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