



Risk Behavior

Do Perceived Risk, Perception of Self-Efficacy, and Openness to Technology Matter for Solar PV Adoption? An Application of the Extended Theory of Planned Behavior

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Abstract

Solar PV (photovoltaic) technology has gained considerable attention worldwide, as it can help reduce the adverse effects of CO₂ emissions. Though the government of Pakistan is adopting solar PV technology due to its environmental friendliness nature, studies focusing on consumer's acceptance of solar PV are limited in the country. This research aims to close this knowledge gap by looking into the various considerations that may influence consumers' willingness to adopt (WTA) solar PV for household purposes. The study further contributes by expanding the conceptual framework of the theory of planned behavior by including three novel factors (perceived risk, perception of self-efficacy, and openness to technology). The analysis is based on questionnaire data collected from 683 households in Pakistan's provincial capitals, including Lahore, Peshawar, Quetta, Gilgit, and Karachi. The proposed hypotheses are investigated using the state-of-the-art structural equation modeling approach. The empirical results reveal that social norms, perception of self-efficacy, and belief about solar PV benefits positively influence consumers' WTA solar PV. On the contrary, the perceived risk and solar PV cost have negative effects. Notably, the openness to technology has an insignificant effect. This study can help government officials and policymakers explore cost-effective, risk-free technologies to lessen the environmental burden and make the country more



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sustainable. Based on research results, study limitations, as well as prospective research directions, are also addressed.

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