Green Gap in energy consumption: an experimental study

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Executive Summary

Despite growing individual concern for environmental and climate-related issues, there remains a persistent misalignment between attitudes, intentions, and actual behaviors—a discrepancy commonly referred to as the "Green Gap." This study examines the Green Gap within the context of energy conservation. While many investigations into pro-environmental behavior (PEB) rely on self-reported data to capture attitudes and intentions, such data are vulnerable to social desirability bias. In contrast, actual pro-environmental behaviors are often observed either through objective field methods (e.g., informant reports or measuring devices) or controlled laboratory experiments where participants are given real choices with environmental implications.

Behavioral predictors of PEB frequently include intrinsic economic preferences, such as altruism and risk aversion. Altruism is particularly relevant through mechanisms prioritizing others over the self, while risk aversion relates to how individuals perceive and respond to environmental risks. These preferences influence pro-environmental attitudes and intentions, and are increasingly studied as components of the external validity of risk preference measures.

Such economic preferences can be assessed using either self-reported questionnaires or experimental methods. While questionnaires offer broader accessibility and scale, they are more prone to bias. Experimental methods, though costlier, provide greater control and often include real monetary stakes, offering a more realistic representation of behavior. This study adopts an experimental approach to measure both risk preferences and altruism.

Various methods exist to assess risk preferences, including questionnaires, simple investment tasks, risk-taking simulations, and multiple price list techniques. Simple investment tasks are praised for their predictive validity, while multiple price list methods allow for the construction of more precise risk aversion indices. For altruism, the standard measurement tool is the dictator game, where participants allocate a monetary endowment between themselves and another individual. Variations of this game enable the exploration of dimensions such as inequity aversion, welfare enhancement, and reciprocity. More advanced designs introduce variable costs of giving, offering a refined measure of altruistic tendencies. These methodologies have even been adapted for use with young children to examine the role of social context in altruistic behavior.

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The primary aim of this research is to elucidate the mechanisms underlying the Green Gap, with the goal of identifying strategies to mitigate it. Behavioral interventions are frequently proposed as suitable responses to behavioral inconsistencies. In particular, nudges—subtle modifications in choice architecture designed to influence behavior—have shown promise in promoting PEB across various domains, including energy use, adoption of renewable energy, and waste reduction. However, limited attention has been given to their role in directly bridging the intention-behavior gap.

This study addresses three key objectives: (1) to analyze the role of economic preferences in the Green Gap, (2) to evaluate the effectiveness of behavioral interventions in narrowing this gap, and (3) to assess whether the impact of these interventions varies according to individual economic preferences.

The preliminary findings confirm the efficacy of nudges in reducing energy consumption and provide additional insights by demonstrating that individuals with stronger pro-environmental preferences—characterized by higher risk aversion and greater altruism—respond more positively to such interventions. These results contribute to a deeper understanding of the behavioral barriers to adopting PEB and inform the design and targeting of behavioral policy tools.