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Are Food Waste Policies Based on the Right Behaviour? Evidence from Objective Household Waste Measurement in Spain

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Abstract

Household food waste reduction policies are primarily designed around cognitive-behavioural models, yet whether attitudinal and intentional factors explain objectively measured waste remains largely untested. This study presents the first paired design in Spain combining direct waste weighing and behavioural survey data, based on 456 households in Catalonia across two seasonal measurement rounds. Households discarded an estimated 42.73 kg of food waste per capita per year. Behavioural determinants were tested using Partial Least Squares Structural Equation Modelling (PLS-SEM) with an extended Theory of Planned Behaviour model incorporating personal norms, food-related habits, good provider identity and socioeconomic household characteristics. The model explained 46.5% of variance in food waste reduction intention and 30% in self-perceived waste behaviour, but only 5.8% of objectively measured waste. This reveals a substantial gap between the determinants of perceived and actual food waste. Socioeconomic household structure emerges as the dominant predictor of measured waste, while habit constructs are non-significant. Households with stronger reduction intentions report higher perceived waste, consistent with increased awareness. These findings indicate that policies based primarily on awareness and attitude change risk targeting mechanisms that are weakly associated with material outcomes, and should be complemented with structural approaches addressing food provisioning contexts.

Keywords: Household food waste, direct weighing, PLS-SEM, intention-behaviour gap, food policy, behavioural determinants