

Green is not neutral: How stereotypes shape consumer willingness across high- and low-impact pro-environmental behaviours

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Abstract:

Although pro-environmental behaviours (PEBs) are essential for sustainable consumption, many consumers still avoid certain behaviours. One important yet understudied barrier concerns the social meanings attached to PEBs, particularly stereotypes that link behaviours to specific social groups and discourage engagement when these associations are perceived as undesirable. With a nationally representative sample of Spanish consumers ($N = 1,487$), we analysed five stereotypes (gender, sexual orientation, lifestyle, social class, political orientation) across seven behaviours. We found that stereotypes significantly shape willingness, but their influence is highly behaviour-specific. Sexual-orientation stereotypes were the most consistent negative predictor, reducing willingness for behaviours such as electric vehicle adoption. Lifestyle and social-class stereotypes consistently reduced willingness for high-impact behaviours. The results highlight the need for policies and campaigns that reduce identity-based stigma and promote PEBs as broad, socially acceptable norms.

Keywords: Stereotypes, pro-environmental behaviour, sustainable consumption.

Track of paper: Social Responsibility & Ethics

1. Introduction

Household consumption accounts for nearly 65% of global greenhouse gas emissions (Ivanova et al., 2020), yet consumers disproportionately adopt low-impact, pro-environmental behaviours (PEBs) such as recycling, while high-impact actions involving transportation or dietary changes remain less common (European Commission, 2024; Wynes & Nicholas, 2017; Cologna et al., 2022). Cognitive explanations highlight systematic misperceptions: individuals overestimate the impact of easy behaviours and underestimate high-impact ones based on perceived effort and perceived potential (Acuti et al., 2022; Winterich et al., 2024). However, consumers sometimes avoid effective behaviours even when they acknowledge their benefits. This is because PEBs also carry social meaning, signalling identity and group membership (Berger & Heath, 2007; Fielding & Hornsey, 2016). These stereotypes can make certain PEBs feel identity-incongruent or socially risky (Brough et al., 2016), as PEB is often associated with femininity, assumptions about sexual orientation (Swim et al., 2020), lifestyle extremism (Bashir et al., 2013), elitism or low-status cues (Nielsen et al., 2021; Uren et al., 2021), and political liberalism (Peyton et al., 2022). Yet existing research examines these stereotypes in isolation and rarely across different types of PEBs. Understanding these social meanings is therefore essential for explaining persistent gaps in sustainable consumption beyond cognitive barriers.

This study contributes in three ways. First, by identifying which stereotypes are linked to each behaviour, we provide a comprehensive analysis of how five stereotypes, related to gender, sexual orientation, lifestyle, social class and political orientation, shape willingness across seven PEBs commonly studied for their mitigation potential (Ivanova et al., 2020; Wynes & Nicholas, 2017; Cologna et al., 2022). Second, we advance theory by integrating these stereotype processes with established cognitive predictors such as perceived effort and perceived potential (Acuti et al., 2022; Cologna et al., 2022), demonstrating that identity-based associations act as additional, behaviour-specific barriers to PEBs. Third, we address an empirical gap by showing that stereotypes do not form a single ‘green stereotype,’ but instead vary systematically by behaviour: sexual-orientation stereotypes emerge as the most consistent negative predictor (Swim et al., 2020), while lifestyle and social-class stereotypes primarily hinder high-impact behaviours that require visible lifestyle change (Nielsen et al., 2021; Bashir et al., 2013). Together, these contributions clarify why consumers adopt some PEBs but resist others and highlight the need for interventions that reduce identity threat and frame PEBs as socially inclusive and mainstream.

2. Theoretical Background

Consumers often misjudge the impact of PEBs. A growing body of literature shows that these evaluations rely on intuitive heuristics rather than accurate emission information (Acuti et al., 2022; Winterich et al., 2024). Perceived effort and perceived potential strongly shape these judgments, leading to systematic overestimation of behaviours with a low impact on emission reduction, such as recycling and reusable bags, and underestimation of high-impact actions involving mobility or diet change (Cologna et al., 2022; Wynes & Nicholas, 2017). These distortions reflect limited “carbon numeracy,” whereby individuals rely on intuition rather than objective information when ranking PEBs (Johnson et al., 2024). Mechanisms such as availability heuristics, effort-based reasoning, motivated reasoning, and moral licensing reinforce these misperceptions: highly visible actions appear more impactful, effortful actions feel more effective, and inconvenient actions are discounted to reduce discomfort (Cologna et al., 2022; Winterich et al., 2024). Research building on Cologna et al. (2022) and Sahari et al. (2024) shows that these cognitive shortcuts reliably predict willingness across PEBs. Yet, they cannot explain why consumers avoid high-impact actions even when they believe they matter. To understand this inconsistency, it is necessary to move beyond individual evaluations and consider the social contexts in which behaviours are interpreted.

Cognitive evaluations operate within social environments where behaviours signal identity and group membership. The theory of reasoned action shows that subjective norms shape intentions alongside attitudes (Fishbein & Ajzen, 1975). Identity-based models further support this assumption: social identity theory proposes that individuals protect valued group memberships, while self-categorisation theory explains that people follow norms associated with salient identity categories (Tajfel & Turner, 1979; Turner et al., 1987). As a result, PEBs function as social signals. Consequently, consumers may avoid behaviours that imply undesired identities or threaten valued ones. Within this context, stereotypes play a central role in shaping willingness to engage in PEBs. Stereotypes are socially shared beliefs linking traits or behaviours to particular groups (Fiske & Taylor, 2020). Applied to PEBs, stereotypes define ‘the kind of person’ who performs them, adding social meaning to the behaviour. Consumers may therefore avoid certain PEBs not because of effort or impact, but to prevent unwanted social meaning.

The most established evidence relates to gender stereotypes. The “green-feminine stereotype” associates environmental concern with femininity, making PEBs identity-

incongruent for some men (Brough et al., 2016; Bloodhart & Swim, 2020). Brough et al. show that men reduce their willingness to engage in PEBs, including adopting electric vehicles (EVs), when these behaviours are perceived as feminine. Relatedly, dietary choices such as vegetarianism are rejected when they threaten masculinity (Gal & Wilkie, 2020). Survey evidence confirms a persistent eco-gender gap, with women reporting higher engagement across everyday PEBs (OECD, 2024). A distinct but related mechanism involves sexual-orientation stereotypes. Some studies implicitly merge gender and sexuality by treating masculinity violations as cues of homosexuality (Brough et al., 2016). Others examine sexual-orientation stereotypes directly. Swim et al. (2020) show that men using reusable bags or eco-labelled products were judged as less masculine and had their sexuality questioned. Crucially, the mechanism also applied to women: when women performed “masculine” behaviours, observers assumed they were homosexual. Thus, sexual-orientation stereotypes affect both genders. Furthermore, research shows that class and lifestyle stereotypes are especially likely to influence high-impact PEBs that involve visible lifestyle change. Public transport, car-free living, and second-hand consumption often carry low-status associations, signalling financial constraint rather than environmental motivation (Barnhart & Mish, 2017; Sexton & Sexton, 2014). Meat reduction and sustainable diets can also be interpreted as “low-cost substitutes,” triggering class-based perceptions of deprivation rather than choice. Lifestyle stereotypes further mark certain high-impact PEBs, particularly car-free living, reduced flying, or vegan diets, as “alternative,” “hippie,” or activist-aligned behaviours (Bashir et al., 2013; Nielsen et al., 2021), which may discourage consumers from engaging in these PEBs. Lastly, political stereotypes frame PEBs as left-leaning (Peyton et al., 2022) or portray them as radical or moralistic, reducing willingness (Bashir et al., 2013).

Although prior research has highlighted the role of stereotypes in sustainable consumption and PEBs, it has mostly focused on isolated stereotypes and specific behaviours, leaving limited understanding of how multiple stereotypes affect PEBs. To address this gap, the present study examines five stereotypes alongside established cognitive predictors across seven behaviours. The study aims to (1) identify which stereotypes are linked to each PEB, (2) assess how they increase or reduce willingness, and (3) determine whether and how these patterns differ across behaviours. Based on prior research, we expect that cognitive factors predict willingness but that stereotypes offer additional explanatory power. Gender and sexual orientation stereotypes may reduce willingness when they create identity incongruence. Class and lifestyle stereotypes should hinder high-impact behaviours, and political stereotypes

should primarily impact behaviours that carry ideological meaning. As the PEBs may convey different social meanings, we also assume that stereotypes may vary across behaviours.

3. Methodology

We conducted a national online survey in Spain using the NetQuest panel (March–April 2025). Spain is a relevant context as climate concern is high, yet adoption of high-impact PEBs, such as car-free living, reduced flying, and dietary change, remains low relative to other European countries (Mikuła et al., 2021). Quotas for age, gender, region, and income approximated national distributions. After excluding cases with extreme completion times, participants under 18, and straight-line responses from the initial 1,756 respondents, our final sample consisted of 1,487 participants with 51.5% women and a mean age of 48.7 years ($SD = 15.5$; range 18-95), with regional and income distributions closely matching national benchmarks.

Participants first viewed short descriptions of each PEB and then rated their willingness to engage in seven behaviours commonly used in mitigation research (Cologna et al., 2022; Ivanova et al., 2020; Wynes & Nicholas, 2017): four high-impact (car-free living, EV adoption, fewer flights, sustainable diet) and three low-impact actions (efficient lighting, recycling, reusable bags). Measures of perceived effort, perceived potential, subjective knowledge, and trust in scientists and government were adapted from Cologna et al. (2022) and assessed on 7-point Likert scales. Objective knowledge was assessed by correlating participants' rankings of behavioural impact with the actual mitigation potential following Cologna et al. (2022), coding straight-lining as zero accuracy. Impact consideration was measured with one item from Sahari et al. (2024).

Stereotypes were measured for each PEB across five dimensions: gender, sexual orientation, lifestyle, social class, and political orientation (see Table 1). Participants used nine-point bipolar scales to indicate which group was more likely to perform each PEB (e.g., masculine vs. feminine; heterosexual vs. homosexual; conventional vs. alternative; high-class vs. low-class; right-wing vs. left-wing). This approach follows prior work linking stereotype perceptions to sustainability judgments (Brough et al., 2016; Tan et al., 2022). Higher scores reflected a stronger association with the right-side anchor. We randomised behavioural descriptions, cognitive items, and stereotype measures to reduce order effects.

We first computed descriptive statistics and correlations. To examine the stereotypes, we calculated mean stereotype scores per PEB. To examine how cognitive factors and stereotypes relate to willingness for each PEB, we estimated separate multiple regression

models for each PEB, entering socio-demographics, cognitive predictors, and stereotypes in blocks.

Stereotype	Opposing groups used as scale anchors		
<i>Gender</i>	Men	vs.	women
	Masculine	vs.	feminine
<i>Sexual orientation</i>	Heterosexuals	vs.	homosexuals
	Straight	vs.	gay
<i>Lifestyle</i>	Materialists	vs.	hippies
	Conventional	vs.	alternative
<i>Social class</i>	Status-driven	vs.	humble
	Higher social status	vs.	lower social status
<i>Political orientation</i>	Right-wing	vs.	left-wing
	Traditionalist	vs.	forward-thinking

Table 1. Overview of stereotypes and scale anchors.

4. Results

Table 2 reports the regression results. Across all seven PEBs, perceived effort was the strongest negative predictor ($\beta = -.578$ to $-.337$, all $p < .001$), while perceived potential showed consistent positive effects ($\beta = .141$ to $.310$, all $p < .01$). Impact consideration was positive for five behaviours ($\beta = .144$ to $.310$, all $p < .01$) but nonsignificant for efficient lighting ($\beta = -.016$, $p = .535$) and marginal for reusable bags ($\beta = .046$, $p = .062$). Environmental attitudes and visibility also increased willingness for the majority of PEBs. Other cognitive variables played a minor role: subjective knowledge showed only one small effect, and objective knowledge predicted willingness for just three behaviours. Trust in scientists was generally positive, whereas trust in government mattered only for sustainable diets and recycling.

Stereotype effects were weaker than cognitive predictors but explained additional behavioural variance in willingness. Gender stereotypes had positive associations with living car-free ($\beta = .046$, $p = .054$), flying less ($\beta = .056$, $p = .041$), and reusable bags ($\beta = .049$, $p = .079$). Sexual-orientation stereotypes showed consistent negative effects for efficient lighting ($\beta = -.047$, $p = .096$), recycling ($\beta = -.091$, $p < .001$), reusable bags ($\beta = -.054$, $p = .043$), and EV adoption ($\beta = -.054$, $p = .037$). Lifestyle stereotypes were positive for low-impact behaviours (lights: $\beta = .085$, $p = .004$; recycling: $\beta = .074$, $p = .006$) but strongly negative for car-free living ($\beta = -.094$, $p < .001$). Social-class stereotypes reduced willingness to adopt sustainable diets ($\beta = -.036$, $p = .049$) but increased willingness to use reusable bags ($\beta = .043$, $p = .069$). Political stereotypes were largely absent, with only one marginal positive effect for EVs ($\beta = .054$, $p = .061$). Model R^2 values ranged from .32 to .54.

	<i>High-impact PEB</i>				<i>Low-impact PEB</i>		
	Live car-free	Switch to using EV	Take fewer flights	Switch to sustainable diet	Install efficient lightbulbs	Recycling	Use of reusable shopping bags
<i>Predictors</i>	β	β	β	β	β	β	β
Men	-0.028	-0.044**	-0.050**	0.020	0.028	0.019	0.021
Age	0.054**	-0.054**	0.044**	-0.004	0.049**	0.061**	0.076**
Education	0.008	0.038*	-0.026	0.008	0.037	0.024	0.047**
Income	-0.059**	-0.009	-0.069**	-0.041**	-0.021	0.002	-0.017
Political orientation	-0.050**	-0.007	-0.040*	-0.012	0.052**	0.002	0.013
Region	0.003	0.017	0.034*	-0.027	-0.019	-0.008	-0.007
Social desirability bias	0.010	-0.032	0.026	-0.018	-0.006	0.028	0.024
Subjective knowledge	-0.024	-0.008	-0.025	0.031	0.069**	0.025	0.001
Objective knowledge	-0.010	0.032	-0.015	0.045**	0.075**	0.032	0.062**
Trust in scientists	0.036*	0.067**	0.052**	-0.008	0.074**	0.056**	0.073**
Trust in government	0.016	-0.004	0.022	0.071***	0.007	0.045**	0.028
Environmental attitude	0.033	0.073**	0.070**	0.073***	0.188***	0.203***	0.190***
Impact consideration	0.121***	0.089***	0.144***	0.065**	-0.016	0.078***	0.046*
Perceived effort	-0.578***	-0.378***	-0.420***	-0.439***	-0.360***	-0.369***	-0.337***
Perceived potential	0.141***	0.310***	0.222***	0.280***	0.169***	0.212***	0.151***
Visibility	0.050**	0.055**	0.064**	0.068***	0.029	0.031	0.098***
<i>Stereotypes</i>							
Gender stereotype	0.046*	0.017	0.056**	-0.012	-0.037	0.029	0.049*
Sexual orientation stereotype	-0.030	-0.054**	-0.026	-0.027	-0.047*	-0.091***	-0.054**
Lifestyle stereotype	-0.094***	-0.011	-0.004	0.021	0.085**	0.074**	0.039
Social class stereotype	0.010	0.034	-0.013	-0.036**	-0.009	0.004	0.043*
Political stereotype	0.009	0.054*	-0.026	-0.008	0.036	-0.016	-0.017
<i>R² adjusted</i>	53%	44%	44%	54%	32%	49%	37%

Table 2. Predictors of willingness across pro-environmental behaviours (N = 1487).

Note. Behaviours are sorted based on their impact on reducing emissions, starting with the highest-impact.

5. General discussion

Consistent with prior work, perceived effort and perceived potential were the strongest predictors across behaviours, confirming the central role of cognitive evaluations in sustainable decision-making (Acuti et al., 2022; Cologna et al., 2022). However, these predictors alone did not account for the pattern of results. Our findings show that stereotypes add an additional, behaviour-specific layer of influence, supporting theories that emphasise the social meaning and identity-signalling of PEBs (Berger & Heath, 2007; Li et al., 2023).

A key contribution concerns gender and sexual orientation stereotypes. Prior research often treated femininity and presumed homosexuality as a single stereotype, interpreting

reduced willingness among men as a response to feminine associations (Brough et al., 2016). By separating these constructs, our results show a different mechanism. Gender stereotypes did not reduce willingness and were even positively associated with several behaviours. In contrast, sexual-orientation stereotypes emerged as the strongest and most consistent negative predictor, affecting both high- and low-impact PEBs. This suggests that earlier findings attributed to femininity may, at least in part, reflect a broader fear of being misclassified as homosexual (Swim et al., 2020). This theoretical clarification challenges prior interpretations of the green-feminine stereotype and highlights the need to distinguish gender from sexual orientation in future work.

Both lifestyle and social class stereotypes showed a mixed pattern across high- and low-impact PEBs. Lifestyle stereotypes decreased willingness for car-free living, a high-impact behaviour requiring visible lifestyle change, yet increased willingness to adopt normalised low-impact actions such as recycling and efficient lighting. This pattern is consistent with work showing that people distance themselves from “activist” or “hippie” identities when a behaviour signals a contrasting lifestyle (Barnhart et al., 2017; Bashir et al., 2013), but readily comply with everyday, routinised actions that carry little social risk. Similarly, social-class stereotypes reduced willingness for sustainable diets but increased willingness to use reusable bags, aligning with research that links some PEBs to low-status or “deprivation” cues (Barnhart & Mish, 2017; Sexton & Sexton, 2014) while others become class-neutral once widely adopted and supported by policy (Nielsen et al., 2021). These findings suggest that lifestyle and class stereotypes do not operate uniformly across PEBs; instead, they depend on the specific social meanings, status implications and perceived lifestyle disruption of each behaviour. Political stereotypes were largely absent, which may reflect weaker ideological polarisation around PEBs in Spain compared to more politicised contexts such as the U.S. (Fielding & Hornsey, 2016; Peyton et al., 2022).

6. Conclusion

Overall, the results show that stereotypes can act as meaningful barriers to PEB, and their influence is highly behaviour-specific. Sexual-orientation stereotypes emerged as the strongest and most consistent negative predictor. In contrast, gender stereotypes were weaker, suggesting that what has been interpreted as a “green-feminine” effect may be driven more by assumptions about sexuality than femininity. Lifestyle and social-class stereotypes reduced willingness to engage in high-impact behaviours requiring visible lifestyle change, whereas

normalised low-impact behaviours were largely unaffected. In Spain, political stereotypes were weaker than expected, showing no negative effects on willingness.

Theoretically, this paper extends PEB research by demonstrating that the social meanings, in the form of stereotypes, are crucial to consider when examining barriers to adoption. Recognising these social-cognitive barriers is essential to understanding, and ultimately counteracting, the identity threats hindering engagement. Furthermore, our findings show that stereotypes shape willingness in distinct, behaviour-specific patterns, advancing theory beyond the notion of a single, undifferentiated “green stereotype.” The study also refines understanding of the green-feminine stereotype (Brough et al., 2016), revealing that its effects are driven more by sexual orientation than by femininity. Practically, interventions should emphasise identity-safe framings, avoiding related stereotype cues. Communication should focus on highlighting benefits such as competence, modernity and health to make PEBs socially attractive and inclusive. The main limitations of this study concern the measurement of stereotypes and PEBs. First, stereotypes were assessed explicitly. As stereotypes often operate subconsciously, future research could incorporate implicit or neurophysiological measures to more accurately capture stereotypes and validate our findings. Second, we examined willingness rather than actual behaviour. Future studies could therefore assess actual or observed behaviour to increase the validity of our findings. Furthermore, testing communication strategies that reduce or neutralise stereotype-based barriers would offer practical guidance for more effective interventions.

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