Delft University of Technology
Industrial Design Engineering
MSc Strategic Product Design

NOT EVERYONE IS AVERAGE

The influence of accountability on pro-environmental behaviour across welfare groups.

Master thesis

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Abstract

Research on climate change increasingly highlights the importance of consumer behaviour in reducing greenhouse gas emissions. However, existing studies have mainly focused on either average consumers or the outsized objective environmental impact of high-welfare individuals, offering limited insight into how psychological factors shape pro-environmental behaviour across welfare groups. As a result, the relation between welfare, psychological measures, and pro-environmental behaviour remains insufficiently understood.

This study examines how individuals across welfare groups perceive self-accountability, agency, and efficacy, and how these psychological factors relate to pro-environmental intentions and behaviour across multiple consumption domains. Using a Dutch sample with a wide range of welfare levels, it also analyses how accountability is attributed to different societal actors and how welfare influences psychological predictors of behaviour in domains including fashion consumption, air travel, household heating, meat consumption, and green investment.

The findings show that perceptions of accountability to mitigate GHG emissions are broadly similar across welfare groups, with governments and large corporations seen as most accountable and individuals as least accountable. Welfare had no direct effect on perceived self-accountability, agency, or efficacy. These psychological factors were generally positive predictors of pro-environmental intentions and behaviour across domains. However, their predictive power weakened in specific domains, with the largest intention–behaviour gaps emerging in unbounded, identity-driven domains such as air travel and fashion consumption. Notably, it is also in these same domains that welfare showed significant direct effects on behaviour, with higher-welfare individuals engaging in more environmentally harmful consumption. While psychological measures were largely stable across welfare levels, this pattern suggests that welfare becomes more influential precisely in the domains where psychological factors are least explanatory. Overall, the results indicate that pro-environmental behaviour is shaped by both psychological processes and structural conditions, highlighting the need for integrated approaches that combine behavioural interventions with policies addressing consumption inequalities.

Finally, the findings indicate that climate interventions should focus on reducing the perception–reality gap in environmental impact. This may be achieved by aligning perceptions of “normal” consumption (through improved public information and reduced socio-economic segregation), strengthening carbon literacy (through education, point-of-decision information, and footprint comparison tools), and improving awareness of emission differences across income groups. At the same time, psychological interventions alone are unlikely to be sufficient in domains such as air travel and fashion consumption, where behaviour is strongly shaped by structural conditions. In these domains, policies such as aviation taxes, frequent flyer levies, improved access to low-carbon alternatives, and measures that slow fashion cycles while promoting more pro-environmental and appealing alternatives may be more effective.

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1.
INTRODUCTION

1. Introduction

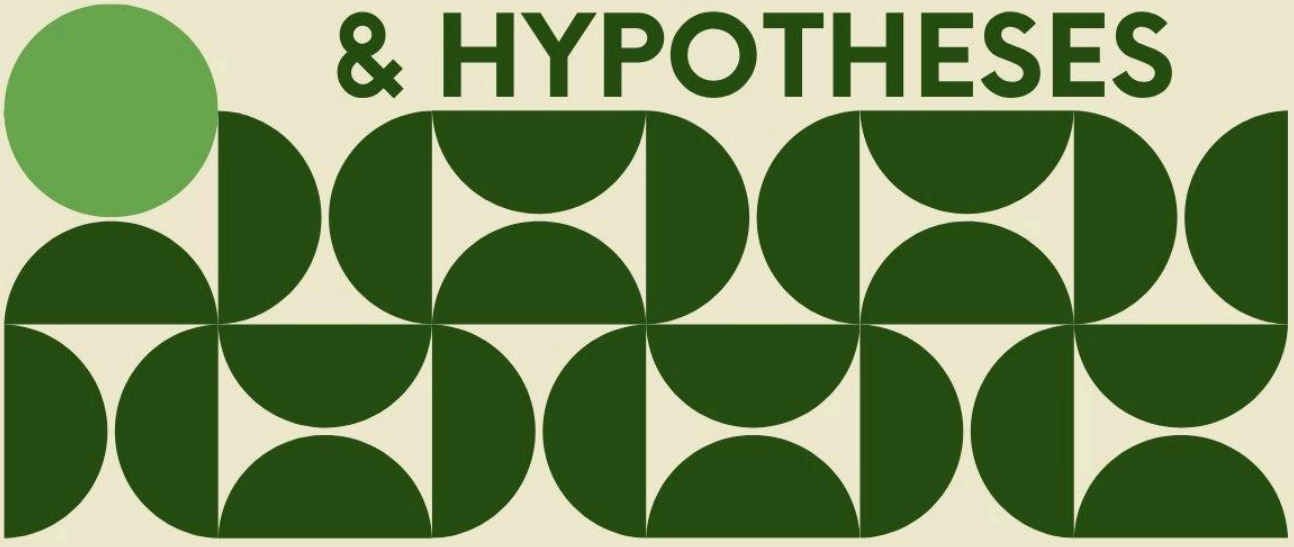
Problem statement

Climate change is one of the most urgent global challenges. While technological innovation is often presented as the primary solution (Whitmarsh & Hampton, 2024), multiple scholars emphasize that technological fixes provide only “partial and superficial solutions” to what are fundamentally social problems (Whatley, 2019). Many technological innovations have been available for years without wide adoption (*Climate Change and Individual Behavior*, 2009), and historical evidence shows that technological diffusion takes decades, while behaviour change can be swifter (Nelson & Allwood, 2021). Furthermore, keeping global warming within safe limits will require actively engaging people both in climate-related decision-making and in everyday behavioural change, as households account for two-thirds of global emissions and current trajectories remain far above international climate targets (Whitmarsh & Hampton, 2024). Consumer behaviour has therefore been studied extensively, often with a focus on the “average” consumer and everyday pro-environmental practices. However, much less is known about how consumer behaviour differs across welfare groups. This comparison is crucial, given that income is a primary driver of emissions (Parikh et al., 2014). In particular, wealthy individuals have been underrepresented in behavioural research, even though their role is disproportionately large: the top 10% of income earners are accountable for more than 50% of global emissions (Maitland et al., 2022; Schöngart et al., 2025). This share is expected to grow, since emissions from average consumers have declined since 1990, whereas emissions from wealthy consumers have risen significantly (Chancel, 2022). However, existing research on wealthy consumers has primarily focused on their substantial contribution to emissions and their objective capacity to drive climate action, while paying far less attention to the psychological constructs that shape their consumption behaviour. Consequently, there remains limited understanding of what drives high-emission lifestyles among high-welfare individuals and which behavioural levers may be most effective in reducing their environmental impact.

To fully understand these mechanisms, it is necessary to situate high-welfare behaviour within a broader welfare spectrum. Comparison with middle-welfare individuals allows for comparison with the large base of existing consumer behaviour research. Low-welfare individuals provide an essential point of comparison because they illustrate how behavioural levers translate into behaviour when financial resources are binding rather than abundant. This allows identification of where consumption reductions occur first when income is constrained, and which behavioural domains are most income-sensitive. These patterns are relevant for understanding the likely effects of income-based environmental policies, such as taxes on carbon-intensive activities. Furthermore, as low-welfare individuals are the most vulnerable to environmental impact (Triyana et al., 2026), it is crucial that this group with high interest is able to participate in the efforts to protect the environment, for themselves and for everybody else.

Therefore, it is crucial to address the underrepresentation of low- and high-welfare individuals in sustainable consumer behaviour research, as insights into the drivers of pro-environmental behaviour and the potential of financial restraint are increasingly vital for climate solutions.

2.
THEORETICAL BACKGROUND & HYPOTHESES



2. Theoretical background and hypotheses

2.1 Existing literature

Pro-environmental research that includes wealthy individuals often centers around two key questions: to what extent are wealthy individuals objectively accountable for the problem, and do they have the agency to be part of the solution (Maitland et al., 2022; Khalfan et al., 2023; Gössling & Humpe, 2022; Duncan et al., 2024; Nielsen et al., 2021)? Accountability and agency are included in Klöckner's (2015) adapted version of Schwartz and Howard's (1981) Norm-Activation Theory, through the concepts of situational responsibility and ability (see Figure 1). The Norm-Activation Theory (NAT), explains why people engage in prosocial or environmentally friendly behaviour. The theory argues that such behavior stems from personal norms: feelings of moral obligation to perform or avoid certain actions.

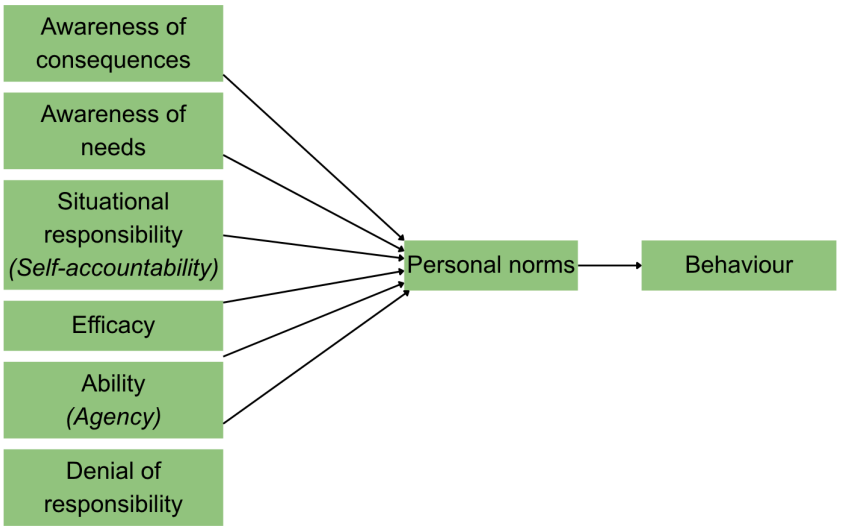


Figure 1. Klöckner's adapted Norm-Activation Theory (2015).

People may hold pro-environmental values, but they don't always act accordingly. For pro-environmental behavior to occur, these values must be activated as personal norms, making individuals feel morally compelled to act, independent of convenience or peer pressure. Once activated, they increase the likelihood of behavior consistent with one's values, regardless of personal desires or social pressure.

The process of norm activation follows several steps (Klöckner, 2015):

1. Awareness of need: recognizing that something requires action.
2. Awareness of consequences: realizing that one's behavior (or lack of it) has consequences.
3. Situational responsibility: feeling personally accountable for acting.
4. Efficacy: believing that acting will have significant positive results.
5. Ability: feeling one personally has the agency to act.
6. Denial of responsibility: a possible refusal to acknowledge responsibility.

In the context of climate change, most Dutch residents have already completed the first two steps of the norm-activation-theory model. Surveys show that about 86% of people across countries believe that climate change is happening (Vlasceanu et al., 2024), and 74% understand that it is primarily caused by human activities (Duffy et al., 2022). This means that, for most people, awareness of the need for action and awareness of the consequences of human behavior have already been established.

However, many people still do not feel personally accountable to act, lack confidence that their actions will have a meaningful impact (i.e. efficacy), or are uncertain about whether they have the agency to make pro-environmental choices. Because the first two steps are largely achieved in this population, this study focuses on the last three steps: feeling personally accountable for acting (i.e. self-accountability), believing that acting will have significant positive results (i.e. efficacy), and feeling one personally has the agency to act (i.e. agency). Efficacy is therefore included as a separate variable because even when people feel accountable and have the agency to act, they may still doubt that their actions will produce significant positive results. Assessing efficacy therefore helps capture the gap between self-accountability and agency.

2.1.1 Accountability

Accountability can be understood as “an obligation or willingness to accept responsibility or to account for one's actions” (“Accountability,” 2025). Accountability in the literature can be conceptualised along two dimensions: (1) an objective dimension, referring to the extent to which behaviour contributes to undesirable outcomes, and (2) a subjective dimension, referring to perceived responsibility, both in terms of self-accountability (how individuals view their own responsibility) and perceived accountability of others (the extent to which others are seen as responsible) (Chang, 2021).
In general, the stronger individuals feel self-accountable to reduce climate change, the more likely they are to take or support a wide range of specific climate actions (Bouman et al., 2020). Evidence of such a relation between perceived self-accountability to address climate change and increased pro-environmental attitudes, behaviours and policy support has been found across at least 23 countries (Syropoulos & Markowitz, 2022b).
In studies of “average” consumers, accountability is typically measured through these self-accountability perceptions (Tedaldi et al., 2024; Mata et al., 2023; Syropoulos & Markowitz, 2021a). However, where low- and middle-welfare individuals’ accountability is measured through subjective dimensions, this form of accountability is not applied uniformly across welfare groups. In contrast, research on wealthy individuals more often relies on objective indicators of accountability, particularly their disproportionate contribution to emissions and environmental impact (Maitland et al., 2022; Khalfan et al., 2023; Gössling & Humpe, 2022).

The little research that does include wealthy individuals in research on perceptions of self-accountability shows indecisive results. Some studies suggest that higher income and greater perceived control are associated with stronger self-accountability (Whillans et al., 2016; Daganzo & Bernardo, 2018), whereas other research indicates that high-welfare individuals may exhibit lower prosocial orientations, weaker perceived obligations, higher levels of climate skepticism, and a tendency to shift accountability onto external actors such as governments and corporations (Piff et al., 2010; Orton, 2006; Seider, 2008; Ballew et al.,

2019; Duncan et al., 2024). Taken together, these findings suggest that although wealthy individuals play a disproportionate role in driving climate change, research is indecisive about how they themselves perceive their climate self-accountability compared to other welfare groups.

Beyond how individuals across welfare groups perceive the accountability of themselves, perceptions of accountability for climate change differ across social actors. Climate accountability is frequently attributed to governments and corporations, rather than to individuals themselves (Hormio, 2023; Jin, 2023; Persson et al., 2021; Taubert, 2025). At the same time, there is evidence that people across income groups systematically underestimate the environmental impact of high-welfare individuals ("Perceived Climate Justice," 2024). This is particularly relevant given that high-welfare individuals not only generate disproportionately high emissions (Maitland et al., 2022; Khalfan et al., 2023; Gössling & Humpe, 2022), but also possess substantial objective capacity to influence climate outcomes through financial resources, political influence, and norm-setting power (Duncan et al., 2024).

2.1.2 Agency

A construct related to accountability is agency, which addresses the "capacity to independently execute an action" (Christoforakos et al., 2024). Just like accountability, the climate agency of high-welfare individuals is mainly measured objectively (the actual availability of means such as skills, resources and opportunities, to influence outcomes) rather than subjective perceptions (the experience of control and authorship over one's actions and their consequences). High levels of agency encourage pro-environmental norms to be transformed into pro-environmental behaviour (Dong et al., 2020) as well as encourage setting more challenging goals, and engaging more in pro-environmental behavior (Sawitri et al., 2015).

Beyond their outsized personal impact, high-welfare individuals show a high objective climate agency. They possess the financial resources to adopt and invest into new technologies quickly, the knowledge and networks to influence public awareness, and the political leverage to support ambitious climate policies (Moorcroft et al., 2025). Furthermore, high-welfare individuals can influence societal norms by defining "the good life" through symbolic goods, luxury lifestyles, and conspicuous travel (Barros & Wilk, 2021).

Regardless, among high-welfare individuals themselves, qualitative research suggests a tendency to downplay their agency and perceive climate change as a distant threat (Duncan et al., 2024). In contrast, lower-welfare individuals may perceive external factors as having the greatest impact on their life outcomes, leading to a reduction in their agency (Eom et al. 2018). Climate anxiety and frustration with governance structures further limit agency and discourage meaningful political participation (Wamsler et al., 2022).

2.1.3 Efficacy

High levels of efficacy positively influence one's sense of self-accountability (Y. P. N. Habets et al., 2023) and are "directly related to stronger intentions to take adaptive measures", and whether people actually take those actions within a year (van Valkengoed et al., 2023).

Giroux et al. (2016) emphasized that efficacy is becoming an increasingly important motivator as the difficulty of pro-environmental behaviors increases.
However, citizens often feel their personal engagement is irrelevant or uncontrollable, reinforcing passivity. This is only stronger with low-welfare individuals, as certain kinds of activities that request more money are not available, or are more difficult to be practiced, by poor people (Ferreira & Santana, 2020). Considering that low-welfare individuals are the most vulnerable to environmental impact (Triyana et al., 2026), it is crucial that this group with high interest are able to participate in the efforts to protect the environment, for themselves and for everybody else. Understanding perceptions of efficacy across consumption domains helps inform where support is needed.
It is unclear whether perceptions of efficacy keep increasing as welfare increases. Some research shows a strong link between welfare and efficacy (Fernández-Ballesteros et al., 2002; Bandura, 1999; Elder, 1995; Steinberger, 1981), while a more recent research showed no indirect effects of welfare via efficacy beliefs on pro-environmental behaviour (Vrselja et al., 2024). The mixed findings could be due to research finding this connection being outdated, but could also be due to differences in how welfare is defined. Research showing a link between welfare and efficacy, measured welfare across more measures compared to only income and education in the research of Vrselja et al. (2024).

2.1.4 Relation between accountability, agency and efficacy

High levels of self-accountability, agency, and efficacy are desirable as they are strongly related to increases in pro-environmental intentions and behaviour (Syropoulos & Markowitz, 2022b; Y. P. N. Habets et al., 2023; van Valkengoed et al., 2023; Giroux et al., 2016; Dong et al., 2020; Sawitri et al., 2015). Self-accountability, agency, and efficacy appear to reinforce one another through multiple interconnected psychological mechanisms. Research suggests that higher efficacy strengthens individuals' sense of self-accountability, indicating that people are more likely to feel accountable for pro-environmental outcomes when they believe their actions can meaningfully contribute to change (Stok, 2023). Similarly, agency is closely tied to self-accountability. When individuals experience weakened agency, their perceived self-accountability correspondingly decreases (Gu et al., 2020). Socioeconomic research further supports this relation, showing that income indirectly affects self-accountability through increased agency (Daganzo & Bernardo, 2018).

At the same time, agency and self-accountability do not always positively enforce each other. Experimental findings suggest that lower perceived agency in technological interactions can sometimes increase self-accountability for behavioural outcomes, which may subsequently strengthen pro-environmental behavioural intentions (Christoforakos et al., 2024). This indicates that individuals may compensate for reduced control by internalising greater self-accountability for outcomes.

Agency also appears to strengthen the behavioural effects of self-accountability and efficacy. Research shows that agency moderates the relation between self-accountability and behavioural intentions through efficacy, suggesting that self-accountability is more likely to translate into action when individuals believe they are capable of performing the behaviour effectively (Chang, 2021). Likewise, agency influences behavioural intentions both directly and indirectly through efficacy, indicating that these constructs operate synergistically rather than independently (Walker & Posner, 2014).

Finally, efficacy itself is linked to self-accountability. Lower levels of both individual and collective efficacy are associated with stronger relations between efficacy beliefs and self-accountability (Rui et al., 2021), further suggesting that perceptions of effectiveness shape how individuals interpret their own role in addressing environmental problems. Together, these findings indicate that self-accountability, agency, and efficacy mutually reinforce one another: agency and efficacy increase the likelihood that individuals feel accountable and capable of acting, while self-accountability can motivate individuals to translate perceived capability into pro-environmental intentions and behaviour.

2.2 Knowledge gaps in literature

Existing research has highlighted the objective accountability of governments, corporations, and high-welfare individuals in driving climate change (Khalfan et al., 2023; Timperley, 2022; Reckien & Petkova, 2018; Lorenzoni & Pidgeon, 2006). There is also a growing body of work on how the “average consumer” perceives their self-accountability in terms of environmental impact and climate change (Tedaldi et al., 2024; Munson et al., 2021; Bouman et al., 2020). However, as most existing research focuses either on self-perceptions of the “average consumer,” or objective measures of high-welfare individuals, there is little attention to how self-accountability differs across welfare groups. As a result, little is known about how different welfare groups perceive self- and other-accountability in terms of environmental impact and behavioral change.

This has theoretical, practical and policy related implications. Theoretically, ignoring welfare-related perspectives risks reproducing middle-class bias in sustainability scholarship. Practically speaking, if the views of high-welfare individuals are ignored, interventions may over-focus on lower-impact populations, missing opportunities to target the largest contributors. Policywise, learning how high-welfare individuals see themselves helps anticipate behavior, resistance, and cooperation.

Furthermore, understanding how individuals in different welfare groups view who is accountable for environmental harm is important because it reveals how people across society think responsibility should be fairly distributed between different actors, such as individuals, companies, and governments. These beliefs about fair responsibility shape how much public support there is for different climate policies, especially policies that place responsibility on specific actors to reduce emissions or change behaviour. In addition, mapping these perceptions of accountability makes it possible to compare what people believe about who is responsible for emissions with what research shows about the actual distribution of emissions across those same actors. Differences between perceived responsibility and measured emissions can highlight where public understanding is inaccurate or incomplete. Identifying these gaps between perception and evidence helps clarify common misconceptions and supports more effective, better-targeted communication and climate engagement strategies.

Existing research supports that high levels of self-accountability, efficacy and agency encourage pro-environmental intentions and behaviour for the “average consumer” (Syropoulos & Markowitz, 2022b; Sawitri et al., 2015; van Valkengoed et al., 2023). However, it is not known how these connections between self-accountability, efficacy and agency with pro-environmental intentions and behaviour change across income groups (Duncan et al., 2024).

This has theoretical, practical and policy related implications as well. Theoretically, it may reveal whether existing theories, largely based on “average consumers,” generalize across socioeconomic contexts and need adaptation. Practically speaking, it will reveal the extent to which the current focus on the accountability and agency of high-welfare individuals is effective at eliciting pro-environmental intentions and behaviour. Policywise, policymakers could design more inclusive environmental policies by recognizing that motivations for pro-environmental behaviour differ across welfare levels.

2.3 The current research

This research will examine how individuals across different welfare levels perceive self- and other-accountability (and related constructs of climate agency and efficacy) in terms of mitigating GHG emissions, and how these perceptions shape their pro-environmental intentions and behaviour across the five consumption domains of fashion consumption, air travel, household heating, meat consumption and green investment.

2.3.1 Research Questions (RQs)

RQ1: How do individuals across welfare groups perceive accountability (of themselves and others) as well as their own agency and efficacy in mitigating GHG emissions?
RQ2: To what extent do perceived self-accountability, efficacy and agency influence pro-environmental intentions and behaviour among individuals across welfare levels in the five consumption domains of fashion consumption, air travel, household heating, meat consumption and green investment?

2.3.2 Subquestions (SQs) and Hypotheses (Hs)

Perceptions across welfare groups (RQ1)
SQ1: How do perceptions of self-accountability, agency and efficacy differ across welfare groups?
SQ2: How is accountability ascribed across societal actors and welfare groups?
SQ3: How do perceptions of self-accountability, agency and efficacy differ across the five consumption domains of fashion consumption, air travel, household heating, meat consumption and green investment?

Predictors of pro-environmental behaviour and intentions (RQ2)
H1a: Higher perceived self-accountability leads to increased pro-environmental intentions and behaviours across domains and welfare groups.
H1b: Higher perceived agency leads to increased pro-environmental intentions and behaviours across domains and welfare groups.
H1c: Higher perceived efficacy leads to increased pro-environmental intentions and behaviours across domains and welfare groups.
H2a: Increases in welfare leads to decreased pro-environmental behaviour and intentions.
H2b: Welfare moderates the relation between perceived accountability, agency, and efficacy and pro-environmental intentions and behaviour, such that the positive relation between perceived accountability, agency, and efficacy and pro-environmental intentions and behaviour is stronger among individuals with lower welfare levels than among individuals with higher welfare levels.

H3: The strength of associations between perceived self-accountability, agency, efficacy and pro-environmental intentions and behaviour varies across consumption domains.

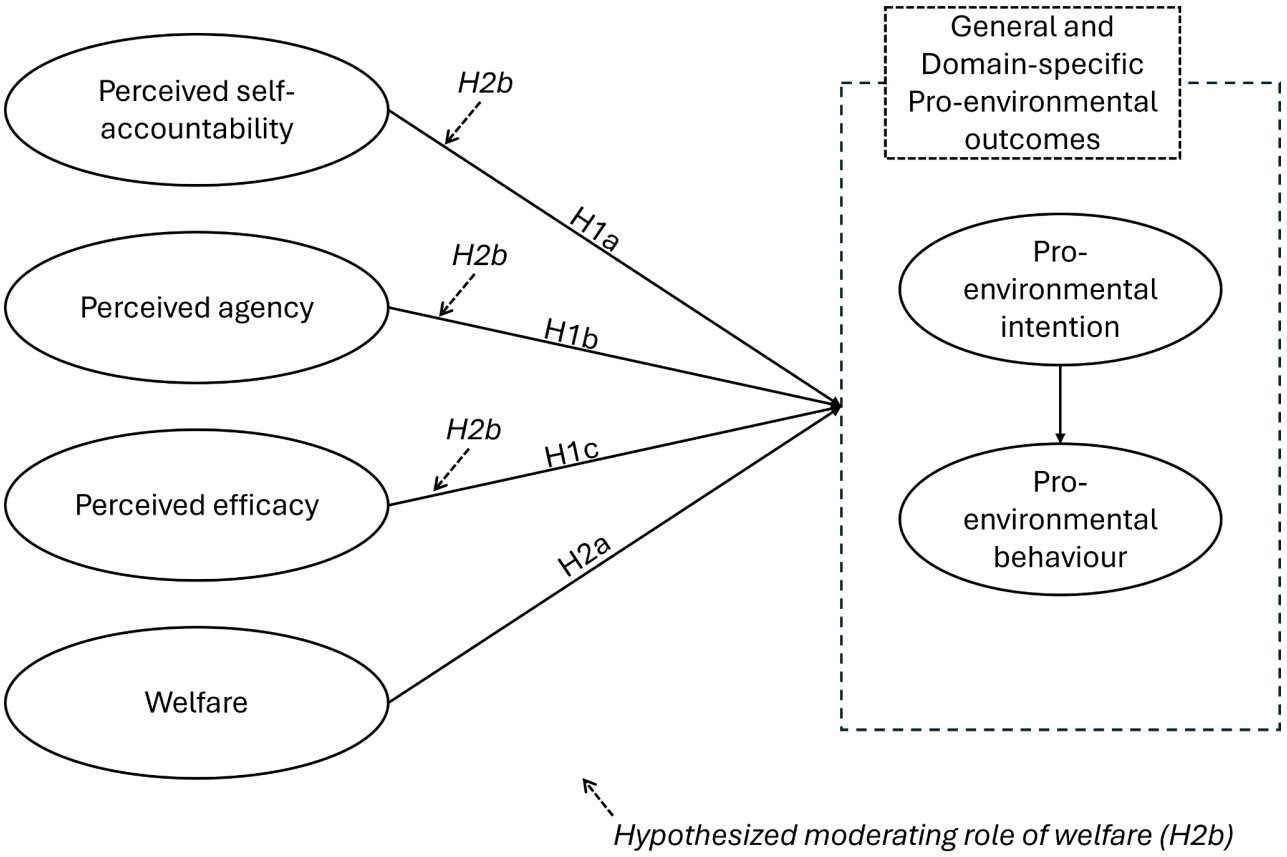


Figure 2. Research model of research question 2.

3.
METHOD

3. Method

3.1 Participants

A total of 536 participants were recruited, via a mix of online and offline recruitment. G-power calculations were conducted, suggesting a minimum sample size of 349 participants to achieve a sufficient power (>= .90) for detecting subtle effect sizes (f^2 = .03) at a significance level of p < .05 (Faul et al., 2007). More participants were recruited for a larger sample size.

Prolific sample: a total of 314 participants were recruited online via Prolific, with participants completing the survey hosted on Qualtrics between 17 Februari and 5 March 2026. Prolific participants were paid £3,50 for filling out the survey and were filtered by country of residence (i.e. living in the Netherlands) and household income (i.e. below €50.000,- or above €80.000,- a year). The range for the household income was opted to include low-, middle- and high-income. As the middle-income sector includes most citizens, it was chosen to narrow the section by leaving a gap between €50.000,- and €80.000,- household income per year to represent the three groups more evenly.
In person recruitment: a total of 222 participants were recruited in-person between 10 Februari and 5 March 2026 to ensure representation for the high-welfare group, as it was expected for high-welfare participants to be less present on survey platforms such as Qualtrics. Recruitment primarily took place in wealthy neighborhoods (i.e. Hof van Delft, Hillegersberg, Damcentrum and Amsterdam-Zuid) in the large cities on the coastline of the Netherlands (i.e. Delft, Rotterdam, The Hague, Amsterdam). In addition, limited snowball sampling was used, whereby participants were invited to refer acquaintances who they deemed financially comfortable.

Out of the total of 536 participants, 156 participants were excluded from the analysis as they did not finish the survey. Given that the primary objective of this research is to analyse the moderation of welfare on pro-environmental behaviour and the demographics were asked at the end of the survey, their answers could not be processed. After excluding 12 participants who did not pass both attention checks integrated in the study, a final sample of 368 participants was used for the data analysis (38.0% female; M_{age} = 34.8 years old, SD_{age} = 12.7 years; 85.1% Dutch).

3.2 Study procedure

Acceptable representation across the levels of welfare was checked by the division of participants into three household income groups (low, middle, high). Participants selecting categories "*Less than €20.000*" as well as "*€20.000 - €39.999*" were classified as low-income, based on the household income of the lowest 10% of Dutch society (CBS, 2024). As the threshold to enter the top 10% of Dutch society in terms of household income before tax is a bit more than €100.000,- (Van Essen et al., 2024), participants selecting the categories "*€100.000 – €119.999*" until "*More than €3000.000*" were classified as high-income. This leaves participants selecting the categories "*€40.000 - €59.999*" until "*€80.000 - €99.999*" to be classified as middle-income. Recruitment continued until approximately equal group sizes were achieved as well as the suggested minimal sample size was reached. The final sample size of 368 participants contained 97 low-income participants, 165 middle-income participants and 106 high-income participants. All participants completed the same survey administered online, ensuring procedural consistency across recruitment modes.

After providing informed consent, participants completed the main survey items. Participants were first asked about the dependent variables of this study: their pro-environmental behaviour and intentions across five domains. The selection of the five behavioural domains was informed by research from Bergsma et al. (2020) identifying the four most environmentally impactful consumption categories among Dutch households: (1) products (e.g., goods and clothing), (2) mobility (e.g., cars, air travel, and public transportation), (3) food and beverages (e.g., meat, dairy, and other consumables), and (4) residence (e.g., electricity, gas, water, and bathroom products). A fifth domain, green investment, was included as it represents a high-impact category particularly relevant for wealthier individuals (Maitland et al., 2022). Within each of the four categories from Bergsma et al. (2020), the most environmentally consequential subdomain was selected for inclusion in the survey: fashion consumption (products) (McFall-Johnsen, 2020), air travel (mobility) (Kommenda, 2021), meat consumption (food and beverages) (Milman, 2021), and household heating (residence) (Eurostat, 2025). Pro-environmental behaviour was asked before pro-environmental intentions to avoid participants reporting behaviour to be more in line with their own intentions. Within the pro-environmental behaviour and intention sections, the different domains were shown in a random order.
Following the sections about pro-environmental behaviour and intentions, participants answered questions about their perceived self-accountability, agency, and efficacy regarding the mitigation of greenhouse gas (GHG) emissions. Subsequently, perceived self-accountability, agency, and efficacy were assessed across the mitigation of GHG emissions due to the earlier mentioned five domains (fashion consumption, air travel, meat consumption, household heating and green investment). Thereafter, participants were asked to distribute accountability for reducing the negative impact of actions on GHG emissions across different societal actors.
Lastly, the control variable ecological worry was measured, followed by some demographic questions, including various measures for welfare. The study protocol was approved by the Human Research Ethics Committee at Delft University of Technology.

3.3 Measures

All measures included in this study were validated and used in previous research. An overview of all measures and their reliability scores can be found in Table A1, Appendix A.

3.3.1 Pro-environmental behaviour

A series of questions measuring current behaviours of respondents were measured to investigate how participants behave in the domains of fashion consumption, air travel, household heating, meat consumption and green investment, and to investigate how these practices differ across welfare levels. Within each domain, behaviour was assessed using two complementary forms of behavioural measurement: (1) concrete behavioural quantity measures, which required participants to report specific behavioural quantities (e.g., number of flights taken or number of clothing items purchased), and (2) behavioural description alignments, which required participants to indicate the extent to which descriptions of pro-environmental behaviour applied to their own behaviour.

Fashion consumption was measured through 1) a question asking the number of clothes purchased in the past three months and 2) a scale assessing agreement with descriptions of reduced fashion consumption behaviour.
For the first measurement, participants answered an open-ended question adapted from Frick et al. (2020): "*Please think about your shopping behaviour for clothes.*
How many pieces of clothing did you buy new (not second-hand) for your own use in the past 3 months (excluding underwear and socks)? Think of, for example, trousers, shorts, dresses, skirts, t-shirts, pullovers, vests, coats, pyjamas, scarves, hats… Insert here the estimated number:".
The second measurement was measured through the question "*Please state the extent to which you disagree or agree on the following statements about your shopping behaviour for clothes."* and answered on a 7-point scale (1= strongly disagree, 7= strongly agree) with four items: "*I avoid impulse buying when purchasing a garment"*; *"I think that purchase of a new garment has to be done to a minimum"*; *"I purchase a garment after checking its durability to use for a long time"*; *"I do not purchase a garment which does not match the one I have"*, which were adopted from Park and Lee (2020).

Air travel behaviour was measured through 1) a question asking the number of short- and long-distance flights in the past year and 2) a scale assessing agreement with descriptions of reduced air travel behaviour.
For the first measurement, participants answered two open-ended questions adapted from Aasen et al. (2022): *"Please think about your travelling behaviour. How many short-distance flights (<3.5 hours) have you taken in the past year? Please keep in mind that if you do a round trip by plane (flying on the way out and on the way back), it is considered 2 flights. Insert here the number of flights:"* and *"How many long-distance flights (>3.5 hours) have you taken in the past year? Insert here the number of flights:"*.
The second measurement was measured through the question *"Please state the extent to which you disagree or agree on the following statements about your air-travel behaviour."* and answered on a 7-point scale (1 = strongly disagree, 7 = strongly agree) with three items: "*Reducing the number of flights I take is an important part of who I am"*; "*I think of myself as the sort of person who reduces the number of flights I take"*; "*I am not the type of person who would reduce the number of flights I take"*, which were adapted from Morten et al. (2018).

Household heating behaviour was measured through 1) a question asking the set thermostat temperature and 2) a scale assessing agreement with descriptions of household heat-saving behaviour.
For the first measurement, participants answered one multiple-choice question adapted from Guerra-Santin and Itard (2010): "*Please think about your household heating consumption. When you are at home in winter, what temperature (in °C) do you typically set the main thermostat to? If your usual temperature is outside this range, please select the option that is closest to your usual setting.*". Response options for the multiple-choice questions ranged from 15°C to 25 °C, with increments of 0.5°C. Additionally, the option "*I don't know"* was included.
The second measurement was measured through the question *"How likely are you to do the following in order to save energy when heating your home?"* and answered on a 7-point scale (1= extremely unlikely, 7= extremely likely) with four items: "*I lower the temperature setting in all unused rooms when I am at home all day"*; "*I lower the temperature setting when I leave home"*; "*I keep the doors closed to prevent heat loss"*; "*I lower the temperature setting when I go to sleep"*, which were adapted from Conradie et al. (2023).

Meat consumption behaviour was measured through 1) a question asking to estimate the amount of beef eaten in the past two weeks and 2) a question asking how participants would classify themselves in terms of diet.
For the first measurement, participants were asked to report how often they ate meat in the past two weeks through the open-ended question that was fully adopted from Camilleri et al. (2025): *"Please think about your meat consumption. Please indicate approximately how many times you have eaten beef in the past 2 weeks. Insert here the estimated number:"*.
The second measurement was measured through a multiple-choice question adopted from (Granato & Wassmann, 2024): *"Please indicate here how you would classify yourself in terms of diet. I would classify myself as…"*. Response options for the multiple-choice questions included "*Meat-eater"*, "*Meat-reducer (flexitarian)"*, "*Pescetarian (no meat, okay with fish, egg, and dairy)"*, "*Vegetarian (no meat or fish, okay with egg and dairy)"*, and "*Vegan (no meat, fish, egg or dairy)". Additionally, the option "Other, namely:" was included.*

Green investment behaviour was measured through 1) a question asking the percentage of green investments in the past year and 2) a scale assessing agreement with descriptions of green investment behaviour.
Participants were first filtered on whether they had investments to begin with, through the question "*Please think about your investment behaviour. Do you currently have any investments (e.g., in stocks, bonds, mutual funds, or similar financial products)?*".
For the first measurement, participants answered one slider question adapted from Riedl and Smeets (2017): *"In the past year, about what percentage of your total investments were green (i.e. investments in businesses or projects that focus on environmental issues, such as renewable energy projects, or environmentally responsible companies)? 0%= no green investments that you are aware of, 100%= all investments were green"*. Response options ranged from 0% to 100%, increasing with 10% for each option. Additionally, the option "*I don't know"* was included.
The second measurement was measured through the question *"Please state the extent to which you disagree or agree on the following statements about your investment behaviour."* and answered on a 7-point scale (1 = strongly disagree, 7 = strongly agree) with three items: "*When investing, I give priority to green investment options"*, "*Green investment is important*

for me when I make an investment", "*I make a conscious effort to include green investments in my financial decisions"*, which were adapted from Malzara et al. (2023).

3.3.2 Pro-environmental intentions

Pro-environmental intentions were measured to assess how participants intend to change their overall consumption (reduce, maintain, increase) in ways that affect their greenhouse gas (GHG) emissions over the next 12 months. Pro-environmental intentions were measured both within these same five domains (intended reductions in clothing purchases, flight frequency, household heat usage, meat consumption, and intended increases in green investment) and more generally in terms of overall pro-environmental intentions (intentions to reduce one's overall environmental GHG emissions).

General pro-environmental intentions were measured through the question "*Thank you for your responses so far! Now, please think about your future behaviour. Over the next 12 months, how do you intend to change your overall consumption (reduce, maintain, increase) in ways that affect your greenhouse gas emissions?*", which was adjusted from Morten et al. (2018) and measured through a 7-point scale (1 = strongly reduce, 4 = keep as is, 7 = strongly increase).

Domain-specific pro-environmental intentions were measured through a 5-item 7-point scale (1 = strongly reduce, 4 = keep as is, 7 = strongly increase) also adjusted from Morten et al. (2018) through the question "*Please reflect on how you intend to change your behaviour over the next 12 months in ways that affect your greenhouse gas emissions. For each area below, indicate whether you plan to reduce, maintain, or increase your consumption:*". The five domains were phrased as "*The amount of clothes you buy*", "*The amount of flights you take*", "*The amount of household heating you use*", "*The amount of meat you consume*", and "*The share of green investments in your portfolio*".

3.3.3 Self-accountability

Self-accountability was measured to examine the extent to which participants feel personally responsible and obligated to reduce the negative impact of their personal actions on GHG emissions, both in general and across specific behavioural domains.

General self-accountability was measured through the question "*The following questions concern your sense of responsibility. Please state the extent to which you disagree or agree with the following statements about your sense of responsibility to mitigate greenhouse gas emissions.*" and answered on a 7-point scale (1 = strongly disagree, 7 = strongly agree). The five items included: "*I feel a personal sense of responsibility to help mitigate greenhouse gas emissions",* "*It's up to me to bring about improvements so we can better mitigate greenhouse gas emissions"*, "*I feel obligated to try to do my part to mitigate greenhouse gas emissions"*, "*Doing something to mitigate greenhouse gas emissions is really not my responsibility"*, "*I feel little obligation to do anything to mitigate greenhouse gas emissions*", which were fully adopted from Bateman and O'Connor (2016).

Domain-specific self-accountability was measured using the same source (Bateman & O'Connor, 2016); however, instead of employing the full 5-item scale, a single item was selected that most directly captured the core construct of self-accountability. Specifically, the

first item of the scale was adapted to each domain (i.e. introduced by the question "*Please state the extent to which you disagree or agree with the following statements about your sense of responsibility for the greenhouse gas emissions resulting from your personal actions across different domains. I feel a personal sense of responsibility to help mitigate greenhouse gas emissions due to...*" and the five domains were phrased as "*... Clothing consumption.", "... Air travel.", "... Household heating consumption.", "... Meat consumption.", and "... Green investments.*"). All items were measured on a 7-point scale (1 = strongly disagree to 7 = strongly agree).

3.3.4 Accountability of others

Perceived accountability of others was measured to examine how participants distribute responsibility for reducing the negative impact of actions on GHG emissions across different societal actors. Perceived accountability of others was measured through the question "*How much responsibility do you think that each of the following actors has for the negative impact of their actions on greenhouse gas emissions?*", which was adjusted from Persson et al. (2021). Participants graded (1 = no responsibility, 7 = full responsibility) all nine different actors (i.e. *"Yourself", "Low-income individuals (i.e. households or individuals with limited financial resources, whose choices are shaped by budget constraints)", "Average consumers (i.e. individuals representing the general population in their consumption patterns)", "High-income individuals (i.e. households or individuals with high financial resources and consumption levels)", "Local authorities (i.e. municipalities that implement policies and manage services within a community)", "The national government (i.e. the "Rijksoverheid" that creates national laws, regulations, and programs)", "International institutes (i.e. organizations that coordinate policies, agreements, and standards across multiple countries, such as the United Nations and the European Union)", "Large companies (i.e. organizations that produce goods or services and influence market offerings and resource use, such as KLM, Unilever and Shell)", "Environmental groups (i.e. organizations that advocate for environmental protection, promote awareness, and influence public and institutional decision-making, such as Milieudefensie and Greenpeace)"*.

3.3.5 Agency

Agency was measured to capture participants' perceived ability and autonomy to reduce the negative impact of their personal actions on GHG emissions, reflecting whether they believe to have the capacity to independently execute these actions.

General agency was measured through the question "*Please state the extent to which you disagree or agree with the following statements about your ability to mitigate greenhouse gas emissions.*" and answered on a 7-point scale (1 = strongly disagree, 7 = strongly agree) with three items: *"I am confident that I have the knowledge and time for mitigating the emissions caused by my personal actions", "It is completely up to me whether I mitigate the emissions caused by my personal actions", "It is difficult for me to mitigate the emissions caused by my personal actions"*, which were adapted from Qalati et al. (2022).

Domain-specific agency was measured using the same source (Qalati et al., 2022); however, instead of employing the full 3-item scale, a single item was selected that most directly captured the core construct of agency. Specifically, the second item of the scale was

adapted to each domain (i.e. introduced by the question "*Please state the extent to which you disagree or agree on the following statements about your ability to mitigate the greenhouse gas emissions caused by your behaviour across different domains. It is completely up to me whether..."* and the five domains were phrased as "*I reduce the amount of clothes I buy", "I reduce the number of flights I take", "I reduce the amount of household heating I use", "I reduce the amount of meat I consume",* and *"I increase participation in green investment"*). All items were measured on a 7-point scale (1 = strongly disagree to 7 = strongly agree).

3.3.6 Efficacy

Efficacy was measured to assess participants' beliefs about how effective changes in their personal actions (e.g., reducing consumption or increasing green investments) would be for the collective effort to reduce GHG emissions.

General efficacy was measured using an item adapted from the Subjective Dimension of Social Efficacy (SDSE) scale developed by Hanss and Böhm (2010). From the original item pool, the first statement was adapted (i.e. "*Please state the extent to which you disagree or agree on the following statement. I believe my actions have an influence on greenhouse gas emissions."*), as it directly captures perceived personal influence on environmental outcomes and aligns with the focus of the present study on GHG emissions. General efficacy was measured using this item on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree), adjusted from the original 4-point response format.

Domain-specific efficacy was measured by adapting the same item (Hanss & Böhm, 2010) to reflect perceived efficacy of specific behavioural decisions (i.e. "*Please state the extent to which you disagree or agree with the following statements about how influential you consider your own behaviour to be. I believe that..."*). Respondents indicated their agreement on a 7-point Likert scale (1 = strongly disagree to 7 = strongly agree) with items for each behavioural domain: *"if I reduce the amount of clothes I buy, it has an influence on greenhouse gas emissions", "if I take fewer flights, it has an influence on greenhouse gas emissions", "if I use less household heating, it has an influence on greenhouse gas emissions", "if I eat less meat, it has an influence on greenhouse gas emissions",* and "*if I hold more green investments, it has an influence on greenhouse gas emissions"*.

3.3.7 Welfare measures

To capture participants' socioeconomic position beyond income alone, welfare was measured using a multidimensional set of five indicators: (1) self-perceived welfare; (2) purchasing power: the expendable income that is corrected by the size and composition of the household; (3) property: homeownership, number of properties rented out and estimated property value; (4) assets: total invested financial assets excluding real estate; (5) occupation level.

Self-perceived welfare was measured using a subjective social position item adapted from the Board of Governors of the Federal Reserve (2025). The original item was reformulated to explicitly reference welfare relative to others in the respondent's country, thereby improving contextual relevance and simplifying the framing and response format. Respondents were

asked: "*If you think about yourself in terms of welfare, how would you position yourself compared to the average person in your country?*" Responses were recorded on a 7-point scale ranging from 1 = much less wealthy than the average, 4 = as wealthy as the average, to 7 = much more wealthy than the average.

Purchasing power was measured by adjusting household income for household composition. The measures of total household income and household composition were adapted from Nguyen and Hargittai (2023), while the calculation of the equivalence factor followed the formula provided by the Centraal Bureau voor de Statistiek (2020). Purchasing power was calculated using the following formula:

$$Purchasing\ power\ =\ \frac{Household\ income\ after\ taxes}{Equivalent\ factor}$$

The equivalent factor was calculated as:

$$Equivalent\ factor\ =\ (Number\ of\ adults\ +\ (0.8\ \times\ Number\ of\ children))^{0.5}$$

Total household income was assessed through the question adapted from Nguyen and Hargittai (2023): "*What is your total net household income per year (after tax), including the income of all household members and other income sources (e.g., rent, benefits, investments)?*" Income was collected using categorical response options ranging from "*Less than €10.000*" to "*More than €3000.000"*, with intermediate categories in €20,000 increments up until €500,000, continuing with €100,000 increments up until €1000,000, finally ending with increments of €1000,000 up until €3000,000, with the last categorical response being "*more than €3000,000*". Compared to the original instrument, income categories were converted from U.S. dollars to euros and adjusted to better reflect the income distribution of the study population.
Household composition was measured through the questions adapted from Nguyen and Hargittai (2023): "*Including yourself, how many adults live in your household?*" and "*How many children under the age of 18 live in your household?*" Both items were assessed using open-ended numeric responses to increase precision.

Property was measured using items adapted from the Board of Governors of the Federal Reserve (2025). Housing tenure and ownership were assessed through the question: "*Which of the following best describes the housing arrangement where you currently live in? Please select the one that applies most.*" Respondents selected the option that applied most closely to their situation. Response options included "*I own the home I live in outright (no mortgage)", "I own the home I live in with a mortgage", "I live in privately rented accommodation", "I live in social or affordable-rented accommodation", "I neither own the home nor pay rent"* and "*Other, namely:"*.
To capture housing wealth more comprehensively, respondents were additionally asked whether they had a property in renting that would generate money: "*Next to the house you live in, do you also have a house or apartment that you rent out to people?*". Response options included "*No", "Yes, one",* and *"Yes, more than one"*.
Moreover, participants were asked the value of their properties by the question: "*Approximately what is the total WOZ value (official property valuation) of all the properties you own? If you do not own any property, please enter 0. If you own more than one property (with or without a mortgage), please estimate the combined value.*" Answers were given in

an open-ended question format. This extension allowed for differentiation between property ownership and property value while remaining conceptually aligned with the original housing measure.

Financial assets were measured using an item adapted from Jiang et al. (2024). The original open-ended asset valuation question was converted into a categorical format to reduce respondent burden and preserve a degree of financial privacy. Respondents were asked: "*Approximately, what is the total value of your financial assets? Financial assets include all stocks, funds, bank deposits, and wealth management products, but exclude tangible, physical items (like land or buildings) with intrinsic value.*" Response options included 14 options i.e. "*I do not currently have any financial assets", "Less than €1.500", "€1.500 - €7.499", "€7.500 - €14.999", "€15.000 - €24.999", "€25.000 - €49.999", "€50.000 - €99.999", "€100.000 - €149.999", "€150.000 - €249.999", "€250.000 - €499.999", "€500.000 - €999.999", "€1.000.000 - €1.999.999", "More than €2.000.000",* and *"Rather not say"*. This adaptation preserved the focus on total financial assets while clearly distinguishing them from housing wealth.

Occupational level was measured using an item adapted from Buser et al. (2020). Respondents were asked: "*What best describes your current employment situation or main occupation? (Please choose the option that most closely matches your situation.)*". The original categories were enriched by an additional option for no paid employment. Furthermore, "*unskilled*" was rephrased to be "*manual"* to avoid potentially stigmatizing language while maintaining the distinction between occupational categories. Response options therefore included *"No paid employment (e.g., student, unemployed, retired, etc.)"*, *"Manual (e.g. cleaner, packer) or agrarian (e.g. farm worker)"*, *"Skilled manual (e.g. car mechanic, foreman, electrician) or semi-skilled manual (e.g. driver, factory worker)"*, *"Other mental work (e.g. administrative assistant, accountant, sales assistant, family carer)"*, *"Intermediate supervisory or commercial profession (e.g. head representative, department manager, shopkeeper)"*, *"Intermediate academic or independent profession (e.g. teacher, artist, nurse, social worker, policy assistant)"*, "*Higher supervisory profession (e.g. manager, director, owner of large company, supervisory civil servant)"* and "*Higher academic or independent profession (e.g. architect, physician, scholar, academic instructor, engineer)"*.

3.3.8 Control variable

The control variable ecological worry was included to account for individual differences in ecological worry that may influence perceptions of self-accountability, agency, efficacy, and pro-environmental behaviour (Bouman et al., 2020; Wamsler et al., 2022; Hussein et al., 2023). Ecological worry was measured through three items: "*I am concerned about the impact of my behaviours and lifestyle on the Earth", "Climate change makes me worry about my future and that of the people I care about", "I worry about the environmental crisis more than other people"*, which were all adopted from Vecina et al. (2025). The fifth question of the scale was left out as it was the only one answered on a different Likert scale. The fourth question of the scale was left out as it was measuring efficacy instead of ecological worry. The items were introduced by the question "*Thank you for your answers so far! Now we would like to ask you for some personal information. For the following statements, please indicate how much each one applies to you.*" and answered on a 7-point scale (1= not at all, 7= extremely).

3.3.9 Attention check

An attention check was included to identify participants who did not sufficiently attend to the survey questions and to ensure the reliability and quality of the collected data. The attention check from Y. Wang et al. (2025) was adopted (i.e. "*To show that you are paying attention, please select: "strongly agree"*"). The sole task was to select the option as instructed on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree).

3.3.10 Demographics

Demographic questions such as age, gender, nationality, educational level and political orientation were asked and collected to describe the sample characteristics (see Table 1 for an overview of descriptives of the respondents). The classification of the "other, namely" results can be found in Appendix B.

Age was measured with the question adapted from Aras et al. (2026) "*What is your age? Please specify in number of years.*". Answers were given in an open-ended question format.

Gender was measured with the question adapted from Aras et al. (2026) "*What is your gender?*". Response options included "*Man*", "*Woman*", "*Non-binary*", and "*Prefer not to say*".

Nationality was measured with the question adapted from Alshammari et al. (2025) "*What is your nationality?*". Response options included "*Dutch*", and "*Other, namely:*".

Educational level was measured using an item adapted from the Board of Governors of the Federal Reserve (2025). Respondents were asked: "*Which of these is the highest level of education you have completed?*". The original U.S.-specific educational categories were reformulated to align with recognizable educational levels for the Netherlands, while preserving the hierarchical structure of the original measure. Response options included *"No formal qualifications"*, *"Secondary education (e.g. VMBO/MAVO/MBO level 1)"*, *"High school diploma (e.g. HAVO/VWO/MBO levels 2)"*, *"Technical/community college (MBO levels 3-4)"*, *"Undergraduate degree (BA/BSc/other)"*, *"Graduate degree (MA/MSc/MPhil/other)"* and "*Doctoral degree (PhD/other)"*.

Political orientation was measured via the last-voted party, through the question "*What party did you vote for in the last elections?*", which was adjusted from Bauer et al. (2021). Options included all parties that got elected in the 2025 Dutch parliamentary elections, such as Democraten 66 (D66) and Partij voor de Vrijheid (PVV). The question included an "*other, namely*" option for parties that did not get voted in the chamber of commerce, such as Bij1, as well as an "*I did not vote in the last elections*" option and a "*I do not want to say*" option.

Table 1. Descriptives of the respondents.

Descriptives	Frequency (N=368)	Percentage
Gender		
- Female	Freq. = 140	38.0%
- Male	Freq. = 221	60.1%
- Non-binary	Freq. = 6	1.6%
- Prefer not to say	Freq. = 1	0.3%
Nationality		
- Dutch	Freq. = 313	85.1%
- Other	Freq. = 55	14.9%
Political orientation		
- Democraten 66 (D66)	Freq. = 78	21.2%
- Partij voor de Vrijheid (PVV)	Freq. = 17	4.6%
- Volkspartij voor Vrijheid en Democratie (VVD)	Freq. = 34	9.2%
- GroenLinks-Partij van de Arbeid (GL/PvdA)	Freq. = 73	19,8%
- Christen-Democratisch Appèl (CDA)	Freq. = 15	4.1%
- JA21	Freq. = 17	4.6%
- Forum voor Democratie (FvD)	Freq. = 4	1.1%
- Socialistische Partij (SP)	Freq. = 7	1.9%
- Boer Burger Beweging (BBB)	Freq. = 1	0.3%
- Denk	Freq. = 0	0%
- Partij voor de Dieren (PvdD)	Freq. = 22	6.0%
- Staatkundig Gereformeerde Partij (SGP)	Freq. = 0	0%
- ChristenUnie (CU)	Freq. = 1	0.3%
- 50PLUS	Freq. = 0	0%
- Volt	Freq. = 12	3.3%
- Nieuw Social Contract (NSC)	Freq. = 0	0%
- Other, namely:	Freq. = 2	0.5%
- Bij1	Freq. = 2	0.5%
- I did not vote in the last elections	Freq. = 70	19.0%
- Prefer not to say	Freq. = 12	3.3%
Education		
- No formal qualifications	Freq. = 0	0.0%
- Secondary education	Freq. = 7	1.9%
- High school diploma	Freq. = 48	13.0%
- Technical/community college	Freq. = 42	11.4%
- Undergraduate degree	Freq. = 138	37.5%
- Graduate degree	Freq. = 121	32.9.%
- Doctorate degree	Freq. = 12	3.3%

Welfare

- Low-welfare — Freq. = 76 — 20.7%
- Middle-welfare — Freq. = 152 — 41.3%
- High-welfare — Freq. = 140 — 38.0%

	Low-welfare	**Middle-welfare**	**High-welfare**	**Total**
	M (SD) **Freq. (%)**	***M (SD)*** **Freq. (%)**	***M (SD)*** **Freq. (%)**	***M (SD)*** **Freq. (%)**
Self-perceived welfare	*2.6 (1.1)*	*4.3 (1.0)*	*5.6 (0.9)*	*4.4 (1.5)*
- 1 (much less wealthy than the average)	11 (14.5%)	2 (1.3%)	0 (0.0%)	13 (3.5%)
- 2	24 (31.6%)	5 (3.3%)	0 (0.0%)	29 (7.9%)
- 3	27 (35.5%)	23 (15.1%)	0 (0.0%)	50 (13.6%)
- 4 (as wealthy as the average)	10 (13.2%)	56 (36.8%)	12 (8.6%)	78 (21.2%)
- 5	4 (5.3%)	56 (36.8%)	54 (38.6%)	114 (31.0%)
- 6	0 (0.0%)	9 (5.9%)	52 (37.1%)	61 (16.6%)
- 7 (much more wealthy than the average)	0 (0.0%)	1 (0.7%)	22 (15.7%)	23 (6.3%)
Purchasing power	*€21.819,11 (15.636,83)*	*€45.375,27 (29.609,31)*	*€87.354,13 (80.854,98)*	*€56.480,63 (59.583,85)*
- Low purchasing power (until €20.000,- p.a.)	35 (46.1%)	12 (7.8%)	0 (0.0%)	47 (12.8%)
- Middle purchasing power (between €20.000,- and €60.000,- p.a.)	39 (51.3%)	111 (73.0%)	47 (33.6%)	197 (53.5%)
- High purchasing power (more than €60.000,- p.a.)	2 (2.6%)	29 (19.1%)	93 (66.4%)	124 (33.7%)
Housing tenure				
- I neither own the home nor pay rent	24 (31.6%)	28 (18.4%)	3 (0.2%)	55 (14.9%)
- I live in social or affordable-rented accommodation	35 (46.1%)	33 (21.7%)	1 (0.7%)	69 (18.8%)
- I live in privately rented accommodation	16 (21.1%)	52 (34.2%)	13 (9.3%)	81 (22.0%)
- I own the home I live in with a mortgage	1 (1.3%)	33 (21.7%)	110 (78.6%)	144 (39.1%)
- I own the home I live in outright (no mortgage)	0 (0.0%)	6 (3.9%)	13 (9.3%)	19 (5.2%)
Financial Assets	*€8470,4 (16632,0)*	*€26.781,25 (46.738,06)*	*€319.025,00 (568.532,39)*	*€134.179,35 (380.080,22)*
- I do not currently have any financial assets	22 (76)	25 (16.4%)	5 (3.6%)	52 (14.1%)
- Less than €1.500	18 (23.7%)	10 (6.6%)	4 (2.9%)	32 (8.7%)
- €1.500 - €7.499	17 (22.4%)	26 (17.1%)	4 (2.9%)	47 (12.8%)
- €7.500 - €14.999	9 (11.8%)	25 (16.4%)	8 (5.7%)	42 (11.4%)
- €15.000 - €24.999	2 (2.6%)	27 (17.8%)	12 (8.6%)	41 (11.1%)
- €25.000 - €49.999	5 (6.6%)	16 (10.5%)	19 (13.6%)	40 (10.9%)
- €50.000 - €99.999	3 (3.9%)	18 (11.8%)	25 (17.9%)	46 (12.5%)
- €100.000 - €149.999	0 (0.0%)	0 (0.0%)	15 (10.7%)	15 (4.1%)
- €150.000 - €249.999	0 (0.0%)	4 (2.6%)	13 (9.3%)	17 (4.6%)
- €250.000 - €499.999	0 (0.0%)	1 (0.07%)	12 (8.6%)	13 (3.5%)
- €500.000 - €999.999	0 (0.0%)	0 (0.0%)	9 (6.4%)	9 (2.4%)
- €1.000.000 - €1.999.999	0 (0.0%)	0 (0.0%)	9 (6.4%)	9 (2.4%)
- More than €2.000.000	0 (0.0%)	0 (0.0%)	5 (3.6%)	5 (1.4%)

Occupation				
- No paid employment	38 (50.0%)	27 (17.8%)	8 (5.7%)	73 (19.8%)
- Unskilled	4 (5.3%)	5 (3.3%)	1 (0.7%)	10 (2.7%)
- (Semi-)skilled manual	7 (9.2%)	6 (3.9%)	2 (1.4%)	15 (4.1%)
- Other mental work	17 (22.4%)	53 (34.9%)	9 (6.4%)	79 (21.5%)
- Intermediate supervisory or commercial profession	4 (5.3%)	13 (8.6)	12 (8.6%)	29 (7.9%)
- Intermediate academic or independent profession	6 (7.9%)	33 (21.7)	31 (22.1%)	70 (19.0%)
- Higher supervisory profession	0 (0.0%)	5 (3.3%)	38 (27.1%)	43 (11.7%)
- Higher academic or independent profession (e.g. architect, physician, scholar, academic instructor, engineer)	0 (0.0%)	10 (6.6%)	39 (27.9%)	49 (13.3%)

	Mean	**Standard Deviation**
Age	34.83 years	12.74 years
Intentions to alter GHG emissions (1 = strongly reduce, 7 = strongly increase)	3.7	0.8
Perceived self-accountability (1 = low, 7 = high)	4.3	1.5
Perceived agency (1 = low, 7 = high)	4.1	1.1
Perceived efficacy (1 = low, 7 = high)	4.4	1.7
Ecological worry (1 = low, 7 = high)	4.0	1.6

3.4 Data analysis

All statistical analyses were performed using IBM SPSS Statistics Version 29.0.2.0. The following analyses were performed:

- Reliability analysis for multi-item scales: the items of the included scales were screened on reliability, using values of Cronbach's alpha (Cronbach, 1951) equal or above to .70 as acceptable. Scales that failed to reach this threshold were first checked to see whether deleting items would lead to increasing the reliability of the scale over the threshold. As all scales were adopted from existing research, scales that would not be raised over the threshold by deleting items were still kept in full in the analysis, however it should be noted that the outcomes of these variables are less reliable than desired.

  The dependent variables were also checked for normal distribution using the K-S test of normality where the significance needs to be above .05 to be considered normally distributed. None of the dependent variables were normally distributed as all K-S tests were significant (p = .000).

- Aggregating welfare variables: to construct a comprehensive measure of welfare, multiple indicators capturing different dimensions of socioeconomic position were combined into a single index. These indicators included self-perceived welfare, purchasing power, property-related measures, financial assets, and occupation. Given the multidimensional nature of welfare and the absence of a universally agreed-upon weighting scheme, a data-driven approach was adopted using Principal Component Analysis (PCA).

  A first PCA was conducted including three variables capturing property-related welfare (property type, property value, and the number of properties rented out). After confirming that the model had one underlying component, the three property measures were combined into a single component using PCA. This step was taken to prevent overrepresentation of property-related wealth in the overall welfare index, which could otherwise bias the results due to the inclusion of multiple closely related indicators. The resulting property component was then included alongside the other welfare indicators in a second PCA. The analysis from the second PCA indicated that two components would be required to adequately represent the data structure, largely driven by the inclusion of education. As the aim of this study was to construct a single, unified welfare measure, education was excluded from further analyses. This decision was theoretically defensible, as education reflects human capital and long-term socioeconomic potential rather than current material welfare, which was the primary focus of this study. After excluding education, the final PCA including self-perceived welfare, purchasing power, the aggregated property component, financial assets, and occupation revealed a single-component solution. This component was interpreted as representing overall welfare, as all included variables loaded positively and substantially on the same underlying dimension. Therefore, this component has been used to represent welfare for all regression analyses.

  To enhance interpretability and allow for group comparisons, the continuous welfare measure was subsequently categorised into three groups: low, middle, and high welfare. This categorization was used to give readers insights into the representation

across welfare groups in Table 1 as well as to compare accountability ratings across societal actors for the mixed Analysis of Variance (ANOVA) in paragraph 4.1. Given that the sample contained a significant amount of higher-welfare individuals, determining the cut-off points as the top and bottom 10% of the respondents of the survey would falsely classify high-welfare individuals as middle-welfare. Instead, the cut-off points between low-, middle- and high-welfare individuals were determined by using purchasing power as a reference point. More information on the aggregation of welfare can be found in Appendix C.

- A mixed ANOVA analysis was run with welfare as between-subject factors and nine different societal actors (such as average consumers, national government and large companies) as within-subject actors to assess whether there was a significant difference between the rating of different societal actors. Homogeneity of variance was assessed as in one-way ANOVA procedures. Sphericity was tested using Mauchly's test, where a significant result ($p < .05$) indicates a violation of the assumption. In cases of violated sphericity, Greenhouse–Geisser corrections were applied when $\varepsilon < .75$, and Huynh–Feldt corrections were applied when $\varepsilon \geq .75$.
- Linear regression analyses were conducted to assess the degree to which welfare, each of the independent variables (i.e. self-accountability, agency and efficacy (general and domain-specific)), and the covariate ecological worry predicted different types of pro-environmental behaviour and intentions. For the regression analyses, first the assumptions of the model were checked: (1) is the relation between the independent variables and the dependent variable linear, by checking whether Cook's distance remains under a maximum value of 1; (2) the independence of errors, by checking whether the Durbin-Watson test returns values between 1.5 and 2.5 as well as by checking the distribution in the normal p-p plot of regression standardised residual, whether no points fall outside the range of -3 to 3 in the scatter plot, whether the values of standard residual stay in that same rage; (3) homoscedasticity, by checking whether the points in the scatter plot are evenly distributed and by running the Levene's test (4) are the errors normally distributed, by running K.S. normality tests.
  Lastly, the significance of the entire model was checked by checking whether the significance of the Finding change was lower than .05 and the ANOVA, testing whether the slope of the line was zero, needed to have a significance smaller than .05.
  After checking the assumptions and significance of the model, the different independent variables were considered to be associated with their dependent variables if the different variables were significant ($p < .05$) and the Pearson correlation with the dependent variable was larger than .3. With the standardized coëfficient Beta it was then assessed which independent variables contributed to the dependent variable to what degree.
- Ordinal logistic regression analyses were conducted to assess the degree to which self-accountability, agency and efficacy (general and specific to meat consumption) were associated with the type of diet. For the ordinal logistic regression analyses, first assumptions were controlled. The proportional odds assumption was assessed using the test of parallel lines, with an non-significant result ($p \geq .05$) indicating varying slope coefficients across response categories. Model fit was evaluated by testing whether the model's significance level was below .05. Furthermore, goodness

of fit was evaluated by the Deviance and Pearson chi-square test, where models were a good fit when the significance was greater than .05. Lastly, evaluating the R-square of the Nagelkerke test, we can see how much of the variance of the dependence variable is explained by the model.
After checking the assumptions and significance of the model, the different independent variables were considered to be associated with their dependent variables if their significant test were greater than .05. The odds of being in a higher category on the dependent variable for every one unit increase on the independent variable, holding the remaining independent variables constant was reflected via the odds ratios. An odds ratio>1 suggests an increasing probability of being in a higher level on the dependent variable as values on an independent variable increases, whereas a ratio <1 suggests a decreasing probability with increasing values on an independent variable. An odds ratio = 1 suggests no predicted change in the likelihood of being in a higher category as values on an independent variable increase.

- Where linear regressions examined the influence of welfare as a continuous variable, one-way ANOVAs were conducted to examine whether the three different welfare groups (low-, middle- and high) significantly differed. The independent variable in all these analyses was the welfare group, which consisted of three categories: low-welfare, middle-welfare, and high-welfare. The dependent variables included the accountability ratings of nine different societal actors (such as average consumers, national government and large companies). Furthermore, one-way ANOVAs were conducted and reported in Appendix D of this report including 15 of the 16 pro-environmental outcome measures (excluding diet classification due to its ordinal nature) as dependent variables, including measures such as the number of clothing items purchased, household heat-saving behaviour description alignment, and intentions to alter the amount of beef consumed. In addition, one-way ANOVAs were conducted and reported in the Appendix D for general pro-environmental intentions, general self-accountability, general perceived agency, general perceived efficacy, and ecological worry.
  The assumption of homogeneity of variances was tested using Levene's test, where an non-significant result ($p > .05$) indicates equal variances. Where this assumption was violated, Welch's ANOVA was used instead of the standard F-test. When significant omnibus effects were found ($p < .05$), post hoc comparisons were conducted using Tukey HSD tests for equal variances or Games–Howell tests when homogeneity of variance was violated. The strength of the effects were calculated by either η^2 when the Levene's test showed a non-significant result, or ω^2 when the assumption of equal variances was violated. The formulas used to calculate η^2 and ω^2 were:

$$\eta^2 = \frac{Sum\ of\ squares\ between}{Total\ sum\ of\ squares}$$

$$\omega^2 = \frac{Sum\ of\ squares\ between - (Between\ groups\ df \cdot Mean\ square\ within)}{Total\ sum\ of\ squares + Mean\ square\ within}$$

- In order to examine differences in diet classifications across welfare groups, Chi-square tests of independence were conducted. Later on, Chi-square tests of independence were also conducted to examine associations between welfare groups and categorical variables, including investment ownership and knowledge of green

investment share. The assumption of expected cell counts (minimum expected frequency ≥ 5) was checked to ensure validity of the chi-square approximation. Effect sizes were reported using Cramér's V.

- To examine whether welfare moderated the relation between self-accountability, agency and efficacy and pro-environmental intentions and behaviour, moderation analyses were conducted across all relevant outcome measures. Across all moderation analyses, moderation was operationalised by including an interaction term between the independent variable (self-accountability, agency, or efficacy) and the welfare variable in the regression model. Interaction terms were created by multiplying the centred independent variable by the centred welfare variable. Moderation was evaluated by examining the statistical significance of the interaction term. A statistically significant interaction term ($p < .05$) indicated that the association between self-accountability, agency, or efficacy and the outcome variable differed as a function of welfare. Where interaction effects were significant, the nature of the moderation was further explored by running partial correlation analyses. An non-significant outcome ($p > .05$) while controlling for welfare indicated that that measure of welfare was moderating the independent variable.
- Hierarchical multiple linear regressions were run to include control variables as well as assess the degree of explained variance by the independent variables. Each hierarchical multiple linear regression included three models: the first including the independent variables of the research (self-accountability, agency and efficacy), the second adding on welfare, and the third adding on the control variable of the research (ecological worry). The same assumptions were tested as with the multiple linear regressions. The *R*-square value of the model shows how much of the variance of the dependent variable is explained by all the variables in each model. The *R*-square change value of the model shows the additional proportion of variance explained when a new block of variables is added compared to the previous model.
- Unlike the other dependent variables, diet classification consisted of ordered categorical response options rather than a continuous scale measure. Therefore hierarchical multiple linear regressions would not be appropriate. Instead, hierarchical ordinal logistic regression analyses were conducted to examine whether self-accountability, agency, and efficacy predicted diet classification, and whether the inclusion of welfare and ecological worry improved model fit across successive models. Diet classification was treated as an ordinal dependent variable ranging from lower to higher levels of pro-environmental dietary behaviour. Each hierarchical ordinal logistic regression consisted of three models: the first model included the independent variables of the research (self-accountability, agency, and efficacy), the second model added welfare, and the third model added ecological worry as a control variable.

  Before interpreting the models, the assumptions of ordinal logistic regression were assessed. The proportional odds assumption was tested using the test of parallel lines, where an non-significant result ($p \geq .05$) indicated that the relation between predictors and the dependent variable was consistent across response categories. Model fit was evaluated using the model fitting information chi-square test, where a significant result ($p < .05$) indicated that the model with predictors fit significantly better than the intercept-only model. Goodness-of-fit was additionally assessed using the Pearson and Deviance chi-square tests, where non-significant results ($p > .05$)

indicated adequate model fit. The explained variance of each model was evaluated using the Nagelkerke pseudo R-square statistic.

To assess whether the addition of welfare and ecological worry significantly improved model fit across hierarchical steps, changes in model chi-square values ($\Delta\chi^2$) between successive models were examined. A significant change in chi-square ($p < .05$) indicated that the newly added variable(s) significantly improved the explanatory value of the model compared to the previous step.

After establishing model fit and assumption validity, individual predictors were interpreted using odds ratios. Odds ratios reflected the change in the odds of being in a higher category of diet classification for every one-unit increase in the predictor variable, while holding all other variables constant. Odds ratios greater than 1 indicated an increased likelihood of belonging to a higher dietary classification category, whereas odds ratios below 1 indicated a decreased likelihood.

- Pearson correlation analyses were conducted to examine the associations between self-accountability, agency, efficacy, ecological worry, and welfare. These analyses were included to assess the degree to which the key psychological constructs and welfare were related to one another and to provide an indication of potential overlap between variables. Prior to conducting the analyses, the variables were assessed for suitability for Pearson correlation analysis. All variables were measured on continuous or approximately continuous scales, and scatterplots were inspected to verify that relationships between variables were approximately linear. Pearson's correlation coefficient (r) was used to assess the strength and direction of the associations. Correlations were interpreted using Cohen's (1988) guidelines, where values of approximately .10, .30, and .50 represent small, moderate, and large associations respectively. Correlations exceeding .70 may indicate potential multicollinearity concerns in subsequent analyses. Statistical significance was evaluated using two-tailed tests ($p > .05$). The resulting correlation matrix was used to identify the degree of association between the variables and to assess whether substantial overlap existed among the constructs.

4.
RESULTS

4. Results

The results section starts by examining general perceptions in paragraph 4.1, focusing on whether welfare is associated with broad measures of intention, (self-)accountability, agency and efficacy. This is followed by an analysis in paragraph 4.2 of the direct effects of welfare on a range of pro-environmental measures across the five domains (fashion consumption, air travel, household heating, meat consumption and green investment). Thereafter, the paragraphs 4.3 till 4.5 show the effects of the primary independent variables (self-accountability, agency, and efficacy) on pro-environmental behaviour and intentions, including tests of whether welfare moderates these relations. Subsequently, paragraph 4.6 incorporates ecological worry as a covariate, assessing its independent contribution to pro-environmental measures and its role in relation to the other predictors. Afterward, paragraph 4.7 investigates the correlations between the primary independent variables of self-accountability, agency and efficacy, the covariate ecological worry and welfare. Finally, the section concludes with more descriptive behavioural indicators in paragraph 4.8.

4.1 General perceptions of accountability, agency, and efficacy

To provide a broader context for the domain-specific analyses, this section first examines whether welfare level is associated with general intentions, self-accountability, perceived agency, and perceived efficacy. In addition, it presents how participants across the three welfare groups (low-, middle-, and high-welfare) attribute accountability to different societal actors, offering an overview of baseline differences in perceived accountability structures.

A series of linear regressions was conducted to examine whether welfare levels influenced participants' general intentions to mitigate greenhouse gas (GHG) emissions, as well as their perceived self-accountability, agency, and efficacy. As shown in Table 2, no significant differences were found across welfare levels on general intentions to mitigate GHG emissions (B = -0.05; SE = 0.04; β = -.07; $t(366) = -1.27$; p = .21), nor were there significant effects found of welfare on perceptions of self-accountability (B = 0.14; SE = 0.08; β = .09; $t(366) = 1.81$; p = .07), agency (B = -0.02; SE = 0.06; β = -.02; $t(366) = -0.34$; p = .73), nor efficacy (B = -0.05; SE = 0.09; β = -.03; $t(366) = -0.56$; p = .58). This finding indicates that welfare does not significantly influence general intentions to mitigate GHG emissions, nor does it influence perceptions of self-accountability, agency and efficacy.

Table 2. The influence of welfare on general intentions and perceptions of self-accountability, agency and efficacy.

Intentions to mitigate GHG emissions (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Welfare	-0.05	0.04	-.07	-1.27	.21
Self-accountability (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Welfare	0.14	0.08	.09	1.81	.07
Agency (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Welfare	-0.02	0.06	-.02	-0.34	.73
Efficacy (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Welfare	-0.05	0.09	-.03	-0.56	.58

To examine how accountability for GHG emissions is distributed across society, participants rated the accountability of nine different actors (see Table 3 and Figure 3). A mixed ANOVA revealed that there was a significant interaction effect between actors and welfare (F(8.807, 1607.281) = 3.857; p < .001; η_p^2 = .02), indicating that the extent to which accountability was attributed to the different actors varied across welfare groups. Furthermore, there was a significant within-subjects effect of actors (F(4.404, 607.281) = 308.905; p < .001; η_p^2 = .46), indicating that, across all welfare groups, some actors were consistently perceived as more accountable for GHG emissions than others. In contrast, there was no significant between-subjects effect of welfare found (F(2,365) = 2.590); p = .08; η_p^2 = .01), meaning that there were no overall differences between low-, middle-, and high-welfare participants in the average level of accountability they attributed across all actors combined. Thus, welfare groups did not differ in how much accountability they assigned overall, but rather in how accountability was distributed across specific actors.

Post-hoc comparisons further indicated that participants consistently differentiated between actors. The findings of the post-hoc test indicate that low-income individuals are deemed least accountable across all welfare groups (M = 3.3; SD = 1.5), followed by a shared second-to-last place between the accountability ascribed to oneself (M = 4.2; SD = 1.6) and the accountability of the average consumer (M = 4.3; SD = 1.4). Large companies were significantly held most accountable (M = 6.3; SD = 1.2), followed by a shared second place between international institutes (M = 6.1; SD = 1.1) and national government (M = 6.0; SD = 1.1).

Notably, several comparisons between different actors were not significant (i.e. self vs. average consumer (p = .34), high income individuals vs. local authorities (p = 1.00), high income individuals vs. environmental groups (p = .20), and national government vs international institutes (p = 1.00)), suggesting participants held these actors similarly accountable.

One-way ANOVAs across all nine actors showed three significant differences between the accountability ratings across different welfare groups: (1) middle-welfare (M = 4.3; SD = 1.6; p = .009) and high-welfare (M = 4.4; SD = 1.6; p = .002) participants significantly rated themselves as more accountable than the low-welfare group (M = 3.6; SD = 1.7); (2) low-welfare (M = 6.4; SD = 1.0; p = .007) and middle-welfare (M = 6.5; SD = 0.9; p < .001) participants rate large companies as more accountable than the high-welfare group (M = 5.9; SD = 1.4); (3) the middle-welfare group attributed greater accountability to environmental organisations (M = 5.3; SD = 1.4) than the high-welfare group (M = 4.8; SD = 1.7) (p = .011).

Table 3. The means of the accountability of different actors across the welfare groups.

				Low-welfare (n=76)	Middle-welfare (n=152)	High-welfare (n=140)	Total (n=368)
Actor	F(2,365)	p	η^2 /ω^2	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*
Yourself [a]	6.68	.001	.035	3.6 (1.7)[b]	4.3 (1.6)[a]	4.4 (1.6)[a]	4.2 (1.6)
Low-income individuals [e]	0.59	.56	.003	3.2 (1.6)[a]	3.4 (1.6)[a]	3.4 (1.4)[a]	3.3 (1.5)
Average consumer [a]	0.78	.46	.004	4.2 (1.4)[a]	4.4 (1.3)[a]	4.3 (1.3)[a]	4.3 (1.3)
High income individuals [b,c]	1.41	.25	.008	5.4 (1.3)[a]	5.4 (1.3)[a]	5.2 (1.5)[a]	5.3 (1.4)
Local authorities [b]	1.51	.22	.008	5.4 (1.3)[a]	5.5 (1.2)[a]	5.3 (1.2)[a]	5.4 (1.2)
National government [d]	2.52	.082	.014	6.1 (1.0)[a]	6.1 (1.0)[a]	5.9 (1.2)[a]	6.0 (1.1)
International institutes [d]	2.12	.12	.011	6.2 (1.0)[a]	6.2 (1.1)[a]	5.9 (1.2)[a]	6.1 (1.1)
Large companies [f]	9.47	<.001	.044	6.4 (1.0)[a]	6.5 (0.9)[a]	5.9 (1.4)[b]	6.3 (1.2)
Environmental groups [c]	4.21	.016	.023	5.1 (1.7)[a,b]	5.3 (1.4)[a]	4.8 (1.7)[b]	5.1 (1.6)

Note. Means in a row not sharing superscripts are significantly different at the .05 level.
Actors in a column not sharing superscripts are significantly different at the .05 level.

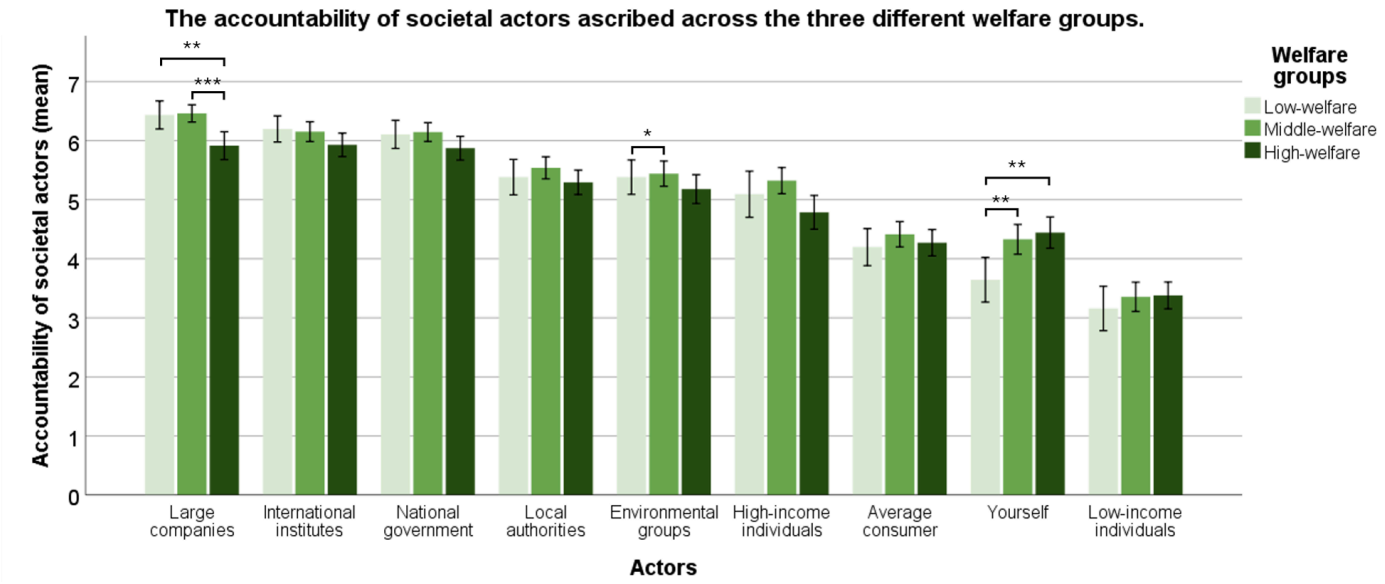


Figure 3. The accountability of societal actors ascribed across the three different welfare groups. Asterisk brackets above the bars indicate significant differences in accountability ratings (*p < .05, **p < .01, ***p < .001). Error bars indicate 95 % confidence interval.

Overall, the findings indicate that welfare level influences little of the examined outcomes. Welfare level did not significantly affect general intentions to mitigate greenhouse gas (GHG) emissions or perceptions of self-accountability, agency or efficacy.

Similarly, participants across welfare groups did not differ in how much accountability they assigned overall, but rather in how accountability was distributed across specific actors. Namely, middle-welfare and high-welfare participants significantly rated themselves as more accountable than the low-welfare group; low-welfare and middle-welfare participants rate large companies as more accountable than the high-welfare group; the middle-welfare group attributed greater accountability to environmental organisations than the high-welfare group.

4.2 Main effects of welfare on pro-environmental measures

To examine whether welfare level was associated with differences in pro-environmental intentions and behaviour, a series of linear regressions were conducted across five behavioural domains: fashion consumption, air travel, household heating, meat consumption, and green investment. Differences across welfare levels were examined for three types of outcomes within each domain: (1) concrete behavioural quantities, reflecting reported behavioural quantities such as the number of flights taken or clothing purchased; (2) behavioural description alignment measures, assessing the extent to which participants aligned with descriptions of pro-environmental behaviour within a domain such as "*I keep the doors closed to prevent heat loss.*" (1 = strongly disagree, 7 = strongly agree); and (3) intentions to alter future consumption behaviour through the question "*Over the next 12 months, how do you intend to change your behaviour in the following areas?*" with e.g. the

meat consumption domain being phrased as "*The amount of meat you consume*". Summary tables at the end of each subsection provide an overview of the observed significance levels and effect sizes across the analysed measures. In Appendix D the results of one-way ANOVAs are analysed, displaying whether individuals across welfare groups (low-, middle-, and high-welfare) rated significantly different across pro-environmental and psychological measures.

4.2.2 Effect of welfare on the fashion consumption domain

Overall, the regression analysis with welfare as independent variable and fashion consumption as dependent variable show different results across measurements of concrete behavioural quantities (number of clothing purchased in 3 months), a behavioural self-alignment scale (self-alignment scale for pro-environmental fashion behaviour) and consumers' intentions to alter the number of clothing purchases (see Table 4 for an overview).

Effect of welfare on the number of clothing purchases

Participants' welfare showed a significant main effect on the number of clothing purchased in the past 3 months (B = 0.53; SE = 0.26; β = .11; $t(366)$ = 2.01; p = .045). This result indicates that, if individuals' welfare increased, this led to significantly more clothing purchased (see Figure 4).

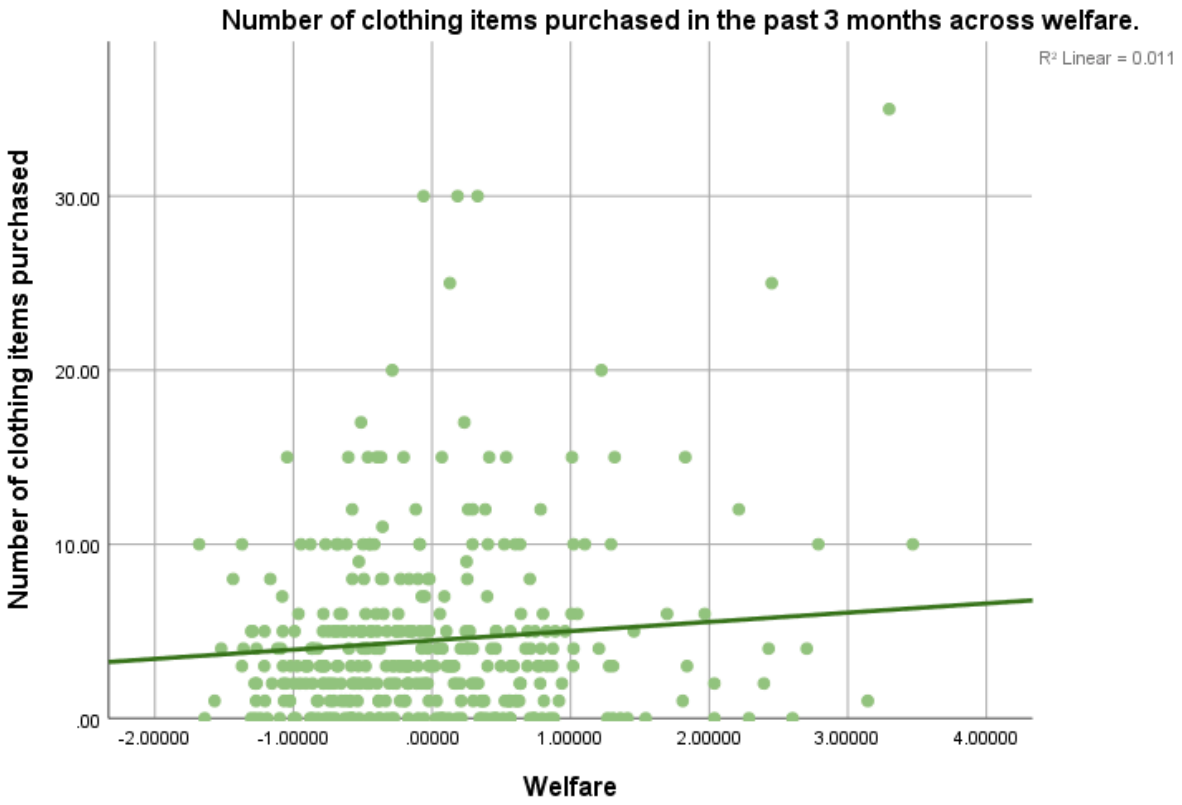


Figure 4. The number of clothing items purchased in the past 3 months across welfare.

Effect of welfare on the fashion behaviour self-alignment scale

The main effect of welfare on the self-alignment scale for pro-environmental fashion behaviour was significant (*B* = -0.15; *SE* = 0.06; β = -.13; *t*(366) = 2.54; *p* = .012). This scale assesses the extent to which participants perceive a range of pro-environmental fashion behaviours to reflect their own shopping behaviour for clothes. The negative effect indicates that individuals with higher levels of welfare reported weaker self-alignment with behaviours such as limiting new clothing purchases, avoiding impulse buying, and considering garment durability when making purchase decisions.

Effect of welfare on the intended number of clothing purchases

Participants' welfare showed no significant main effect on the intended number of clothing purchases for the upcoming 12 months (*B* = 0.01; *SE* = 0.05; β = .01; *t*(366) = 0.22; *p* = .83). This means that if individuals' welfare increased, there was no significant change in the intended number of clothing purchases in the upcoming year.

Conclusion

While higher welfare significantly predicts more environmentally harmful fashion behaviour, it does not translate into differences in fashion intentions.

Table 4. The effects of welfare on the fashion consumption domain.

Number of clothing purchases in the past 3 months					
	B	*SE*	β	*t*	*p*
Welfare	0.53	0.26	.11	2.01	.045
Self-alignment scale for pro-environmental fashion behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Welfare	-0.15	0.06	-.13	-2.54	.012
Intended change in clothing purchases over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Welfare	0.01	0.05	.01	0.22	.83

4.2.3 Effects of welfare on the air travel domain

Overall, the regression analysis with welfare as independent variable and air travel as dependent variable show different results across measurements of concrete behavioural quantities (number of short-distance and long-distance flights taken yearly), a behavioural self-alignment scale (self-alignment scale for pro-environmental air travel behaviour) and consumers' intentions to alter the number of flights they take (see Table 5 for an overview).

Effect of welfare on the number of flights taken

Inspection of the short-haul flight variable indicated a highly skewed distribution driven by one extreme observation (n = 144 short-distance flights taken in the past year). Based on the participant's demographic (69 year old woman) and socioeconomic characteristics (no investments, household income of no more than €50.000,- annually for two adults), and the absence of employment-related travel, this value appeared highly implausible, although not impossible. Sensitivity analyses were therefore conducted by re-running all primary analyses with this case excluded to assess the robustness of the findings.

Participants' welfare showed a significant main effect on the number of short-distance flights (B = 1.24; SE = 0.44; β = .15; t(366) = 2.81; p = .005) as well as the number of long-distance flights taken (B = 0.49; SE = 0.11; β = .23; t(366) = 4.60; p < .001) in the past year. This result indicates that, if individuals' welfare increases, they will increase the number of flights they take yearly. Excluding the extreme observation strengthened the effect of welfare on short-distance flights (B = 1.33, SE = 0.21, β = .31, t(365) = 6.20, p < .001), indicating that the observed relationship was robust and not driven by this single case (see Table 6 and Figure 5).

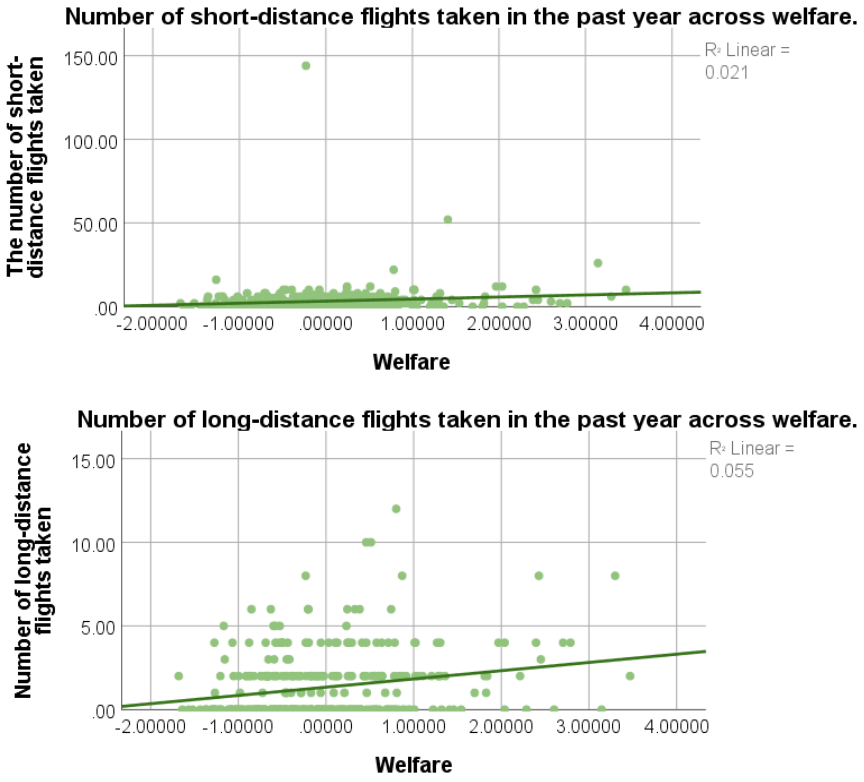


Figure 5. The number of short- and long-distance flights taken in the past year across welfare.

Effect of welfare on the air travel behaviour self-alignment scale

The main effect of welfare on the self-alignment scale for pro-environmental air travel behaviour was not significant (B = -016; SE = 0.09; β = -.09; t(366) = -1.73; p = .09). This scale assesses the extent to which participants perceive reducing air travel to be consistent with their self-concept and personal identity. The non-significant effect indicates that increases in welfare did not significantly change participants' self-identification with reducing air travel.

Effect of welfare on the intended flight frequency

Participants' welfare showed no significant main effect on the intended change in flight frequency over the next 12 months (*B* = 0.01; *SE* = 0.05; β = .01; *t*(366) = 0.25; *p* = .81). This means that if individuals' welfare increases, it does not significantly alter the number of flights they intend to take in the upcoming year.

Conclusion

While higher welfare significantly increases the predicted number of flights taken, it does not translate into a change in behavioural description alignment nor intentions.

Table 5. The effects of welfare on the air travel domain.

Number of short-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Welfare	1.24	0.44	.15	2.81	.005
Number of long-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Welfare	0.49	0.11	.23	4.60	<.001
Self-alignment scale for pro-environmental air travel behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Welfare	-0.16	0.09	-.09	-1.73	.09
Intended change in flight frequency over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Welfare	0.01	0.05	.01	0.25	.81

Table 6. Sensitivity analysis of welfare effects on the number of short-distance flights taken yearly.

Number of short-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Welfare	1.33	0.21	.31	6.20	<.001

4.2.4 Effects of welfare on the household heating domain

Overall, the regression analysis with welfare as independent variable and household heating as dependent variable show different results across measurements of concrete behavioural quantities (set thermostat temperature), a behavioural self-alignment scale (self-alignment scale for pro-environmental household heating behaviour) and consumers' intentions to alter the amount of household heating they use (see Table 7 for an overview).

Effect of welfare on the set thermostat temperature

Participants' welfare showed no significant main effect on the set thermostat temperature (*B* = -0.07; *SE* = 0.08; β = -.04; *t*(366) = -0.83; *p* = .41). This result indicates that increases in welfare do not translate in a significantly different thermostat temperature (see Figure 6).

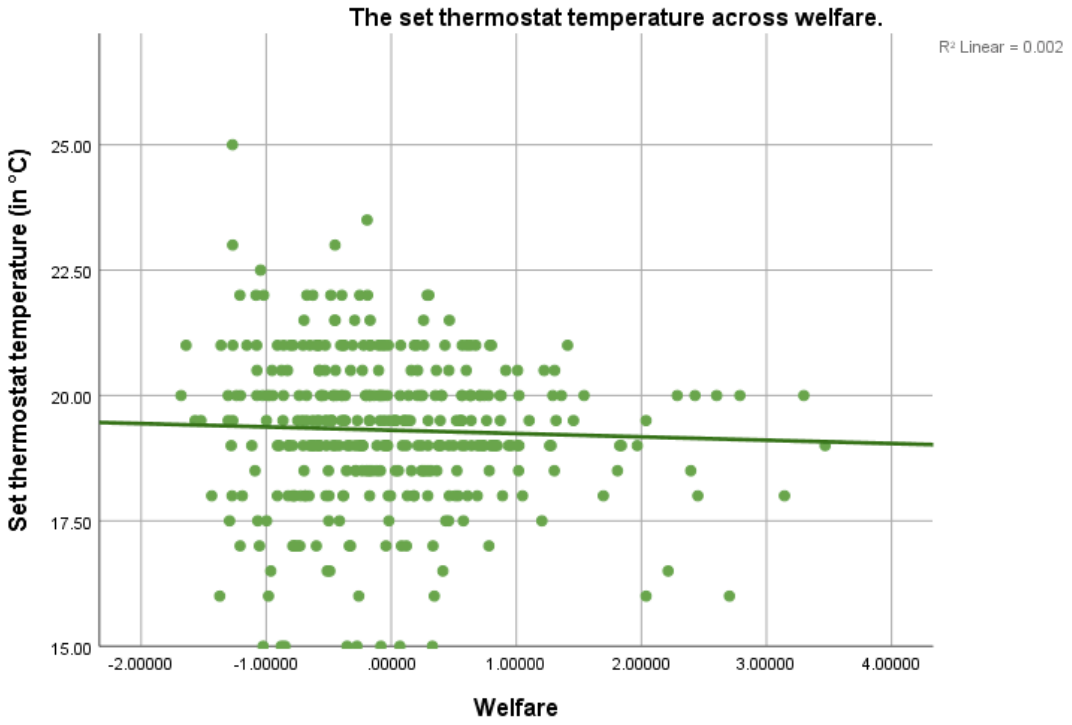


Figure 6. The set thermostat temperature across welfare.

Effect of welfare on household heating behaviour self-alignment scale

The main effect of welfare on the self-alignment scale for pro-environmental household heating behaviour was significant (*B* = -0.18; *SE* = 0.08; β = -.12; *t*(366) = 2.21; *p* = .03). This scale assesses participants' reported likelihood of engaging in a range of energy-saving household heating practices, including lowering heating levels in unused rooms, reducing heating when away from home or asleep, and preventing heat loss within the home. The negative effect indicates that individuals with higher levels of welfare reported weaker tendencies to engage in these household heat-saving behaviours.

Effect of welfare on intended household heating use

Participants' welfare showed no significant main effect on the intended amount of household heating usage for the upcoming 12 months (*B* = 0.04; *SE* = 0.04; β = .05; *t*(366) = 0.97; *p* =

.33). This means that if individuals' welfare increases, this does not translate into a significant change in their household heating usage.

Conclusion

1. While higher welfare significantly predicts an increase in pro-environmental behaviour descriptions, it does not translate into a significant change in concrete behavioural measures.
2. Welfare did not significantly predict intentions to reduce household heating consumption.

Table 7. The effects of welfare on the household heating domain.

Set thermostat temperature (in °C)					
	B	*SE*	β	*t*	*p*
Welfare	-0.07	0.08	-.04	-0.83	.41
Self-alignment scale for pro-environmental household heating behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Welfare	-0.18	0.08	-.12	-2.21	.03
Intended change in household heating use over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Welfare	0.04	0.04	.05	0.97	.33

4.2.5 Effects of welfare on the meat consumption domain

Overall, the regression analysis with welfare as independent variable and meat consumption as dependent variable shows significant results across measurements of concrete behavioural quantities (amount of beef eaten in the past 2 weeks), a behavioural self-alignment measure (categorical question on diet classification) and consumers' intentions to alter the amount of meat they consume (see Table 8 for an overview).

Effect of welfare on the amount of beef eaten

Participants' welfare showed no significant main effect on the amount of beef eaten in the past two weeks (B = 0.29; SE = 0.19; β = .08; $t(366)$ = 1.56; p = .12). This result indicates that increases in welfare do not translate in a significant change of the amount of beef eaten (see Figure 7).

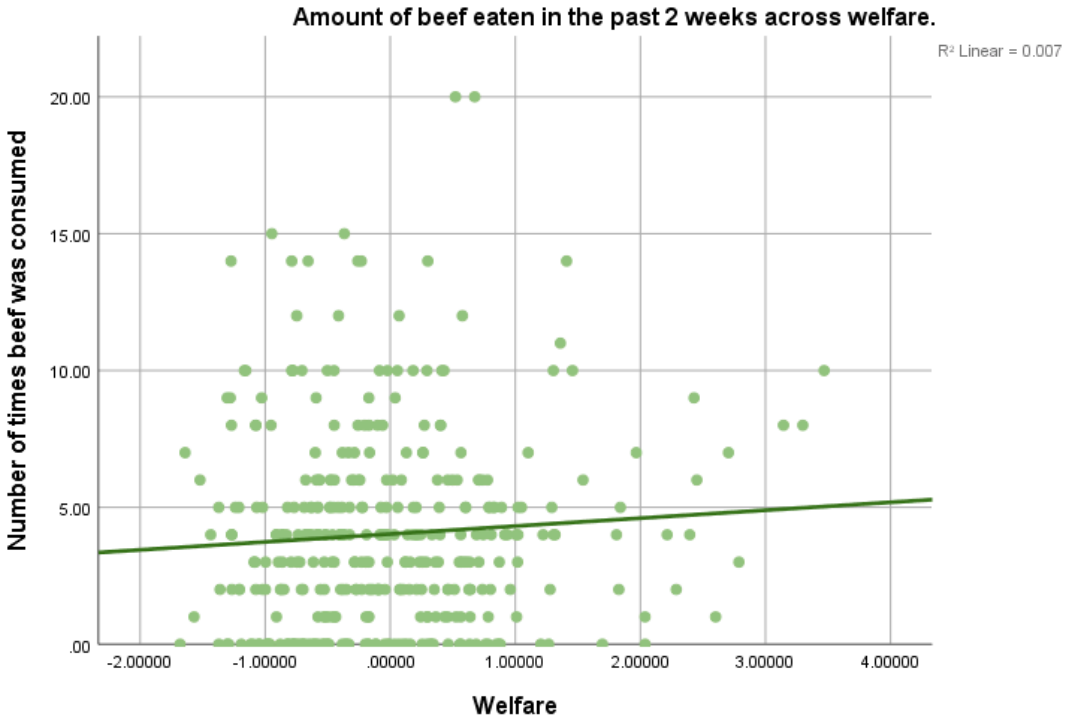


Figure 7. The amount of beef eaten in the past 2 weeks across welfare.

Effect of welfare on self-aligned diet classification

The main effect of welfare on self-aligned diet classification was not significant (*B* = 0.07, *SE* = 0.10, Wald = 0.42, *p* = .52, *OR* = 1.07). This diet classification assesses participants' self-reported dietary category, ranging from meat-eater to vegan, with higher categories indicating more pro-environmental dietary behaviour. The non-significant positive effect indicates that increases in welfare did not significantly shift participants' diet categories.

This is reflected in the B value being close to zero, indicating almost no change in the likelihood of reporting a more pro-environmental dietary category. The odds ratio being close to 1 similarly indicates no meaningful change in the probability of being classified in a higher dietary category. The Wald statistic reflects the ratio of the estimated effect to its uncertainty, and its low value indicates that the observed effect is weak relative to its variability, consistent with the non-significant result.

Effect of welfare on the intended meat consumption

Participants' welfare showed a significant main effect on the intended amount of meat consumed for the upcoming 12 months (*B* = -0.12; *SE* = 0.05; β = -.13; *t*(366) = -2.55; *p* = .011). This means that if individuals' welfare increases, they intend to consume significantly less meat.

Conclusion

While higher welfare significantly predicts an increase in pro-environmental intentions, it does not translate into a significant change in pro-environmental behaviour.

Table 8. The effects of welfare on the meat consumption domain.

Amount of beef eaten in the past 2 weeks					
	B	*SE*	β	*t*	*p*
Welfare	0.29	0.19	.08	1.56	.12
Pro-environmental diet classification (1 = low, 5 = high)					
	B	*SE*	Wald	*p*	*OR*
Welfare	0.07	0.10	0.42	.52	1.07
Intended change in meat consumption over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Welfare	-0.12	0.05	-.13	-2.55	.011

4.2.6 Effects of welfare on the green investment domain

Overall, the regression analysis with welfare as independent variable and investments as dependent variable show different results across measurements of concrete behavioural quantities (percentage of green investments), a behavioural self-alignment scale (self-alignment scale for pro-environmental investment behaviour) and consumers' intentions to alter their share of green investments (see Table 9 for an overview).

Effect of welfare on the percentage of green investments

Participants' welfare showed no significant main effect on the percentage of total investments that was green (*B* = 0.27; *SE* = 2.22; β = .01; *t*(220) = 0.12; *p* = .90). This result indicates that increases in welfare do not translate into a significant change in the percentage of green investments.

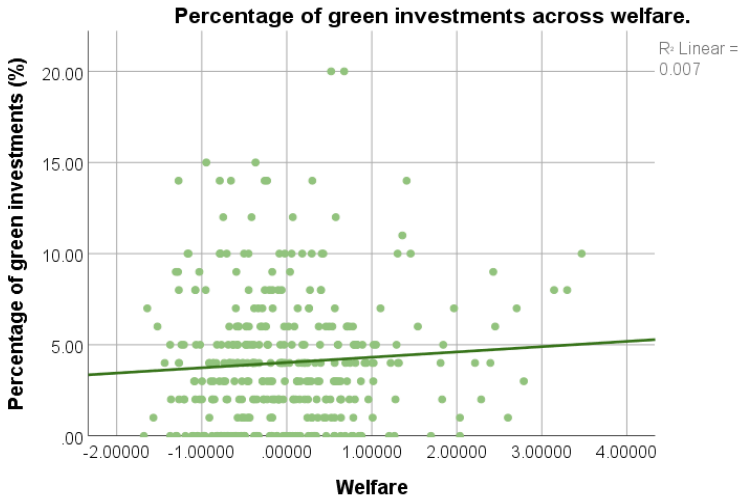


Figure 7. The percentage of green investments across welfare.

Effect of welfare on green investment behaviour self-alignment scale
The main effect of welfare on self-alignment scale for pro-environmental investment behaviour was not significant (*B* = 0.01; *SE* = 0.11; β = .01; *t*(220) = 0.11; *p* = .91). This scale assesses the extent to which participants perceive green investment practices to be characteristic of their own investment decision-making. The non-significant effect indicates that increases in welfare did not significantly change participants' self-reported alignment with prioritising and including green investment options in their financial decisions.

Effect of welfare on the intended share of green investments
Participants' welfare showed a significant main effect on the intended share of green investments for the upcoming 12 months (*B* = -0.10; *SE* = 0.05; β = -.14; *t*(220) = -2.10; *p* = .04). This means that if individuals' welfare increased, they significantly intended to decrease their share of green investments.

Conclusion
While higher welfare significantly predicts a decrease in pro-environmental intentions, it does not translate into a significant change in pro-environmental behaviour.

Table 9. The effects of welfare on the green investment domain.

Percentage of green investments (%)					
	B	*SE*	β	*t*	*p*
Welfare	0.27	2.22	.01	0.12	.90
Self-alignment scale for pro-environmental investment behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Welfare	0.01	0.11	.01	0.11	.91
Intended change in the share of green investments over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Welfare	-0.10	0.05	-.14	-2.10	.04

4.3 Effect of self-accountability on pro-environmental measures

Using the same analytical procedure described in Section 4.2, linear regression analyses were conducted to examine whether self-accountability predicted pro-environmental intentions and behaviour across domains. In addition to examining the direct effect of self-accountability on pro-environmental intentions and behaviour, moderation analyses were conducted to assess whether welfare moderated these relations. Significant interaction effects indicate that the relation between self-accountability and the outcome variable differed across welfare levels.

4.3.1 Effects of self-accountability on general intentions

Participants' self-accountability showed a significant main effect on the intended mitigation of GHG emissions for the upcoming 12 months (B = -0.07; SE = 0.03; β = -.12; t(366) = -2.37; p = .018) (see Table 10). This means that if individuals feel more accountable to mitigate GHG emissions, they intend to reduce their GHG emissions in the next year.

The moderation analyses showed that welfare did not moderate the relation between self-accountability and intentions to mitigate GHG emissions (B = 0.01; SE = 0.03; β = .06; t(366) = 0.38; p = .70). This means that the relation between self-accountability and general intentions was similar across welfare levels, indicating that welfare did not significantly change how self-accountability related to general intentions.

Table 10. The effect of self-accountability on intentions to alter GHG emissions.

Intentions to alter GHG emissions (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Self-accountability	-0.07	0.03	-.12	-2.37	.018
Self-accountability x welfare	0.01	0.03	.06	0.38	.70

4.3.2 Effect of self-accountability on the fashion consumption domain

Overall, the regression analysis with self-accountability as independent variable and fashion consumption as dependent variable show different results across measurements of concrete behavioural quantities (number of clothing purchased in 3 months), a behavioural self-alignment scale (self-alignment scale for pro-environmental fashion behaviour) and consumers' intended change in clothing purchases over the next 12 months (see Table 11).

Effect of self-accountability on the number of clothing purchases

Participants' self-accountability showed no significant main effect on the number of clothing items purchased in the past 3 months (B = -0.01; SE = 0.15; β = -.003; t(366) = -0.05; p = .96). This result indicates that, if individuals feel more accountable to mitigate GHG emissions due to clothing consumption, this higher level of self-accountability does not translate in a significant change in the number of clothing purchases (see Figure 8).

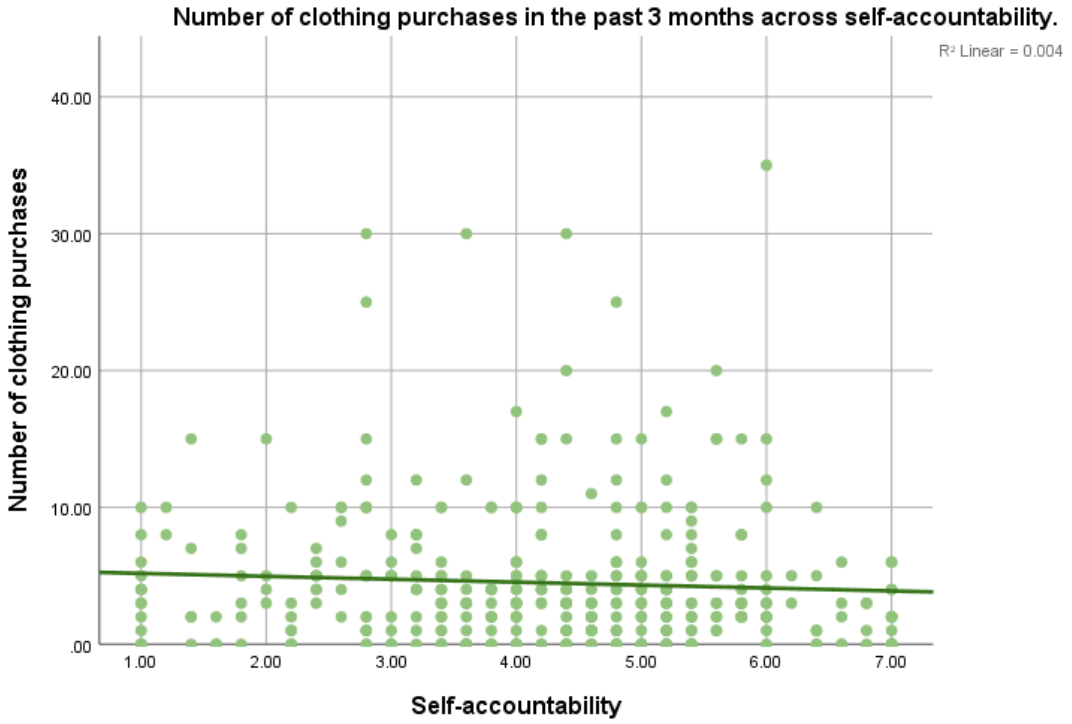


Figure 8. The number of clothing purchases in the past 3 months across self-accountability.

Effect of self-accountability on the fashion behaviour self-alignment scale

The main effect of self-accountability on the self-alignment scale for pro-environmental fashion behaviour was significant (B = 0.22, SE = .03, β = .34, t(366) = 6.94, p < .001). This scale assesses the extent to which participants perceive a range of pro-environmental fashion behaviours to reflect their own shopping behaviour for clothes. The positive effect indicates that individuals who felt more accountable for mitigating GHG emissions from clothing consumption reported stronger self-alignment with behaviours such as limiting new clothing purchases, avoiding impulse buying, and considering garment durability when making purchase decisions.

Effect of self-accountability on the intended number of clothing purchases

Participants' self-accountability showed a significant main effect on the intended change in clothing purchases over the next 12 months (*B* = -0.18; *SE* = .02; β = -.37; *t*(366) = -7.54; *p* < .001). This means that if individuals feel more accountable to mitigate GHG emissions due to clothing consumption, they intend to purchase significantly less clothing.

The moderating role of welfare on the fashion consumption domain

The moderation analyses showed that welfare significantly moderated the relation between self-accountability and the intended number of clothing purchases over the next 12 months (*B* = 0.06, *SE* = 0.03, β = .28, *t*(364) = 2.43, *p* = .02). The main effect of self-accountability indicated that, on average, higher self-accountability was associated with lower intended clothing purchases. The significant interaction indicates that this negative association depended on welfare levels. More specifically, the negative relationship between self-accountability and intended clothing purchases became weaker as welfare increased. In other words, while higher self-accountability was generally associated with reduced

purchase intentions, this reduction was less pronounced among individuals with higher welfare compared to those with lower welfare, for whom self-accountability was more strongly associated with lower intended clothing purchases.

In contrast, the moderation analyses showed that welfare did not moderate the relation between self-accountability and the number of clothing items bought (*B* = -0.20; *SE* = 0.16; β = -.15; *t*(366) = -1.21; *p* = .23), nor the self-alignment scale for pro-environmental fashion behaviour (*B* = 0.03; *SE* = 0.03; β = .11; *t*(366) = 0.99; *p* = .33). This means that the relation between self-accountability and these pro-environmental measures was similar across welfare levels, indicating that welfare did not significantly change how self-accountability related to fashion behaviour.

Conclusion

1. While higher self-accountability significantly predicts stronger alignment with pro-environmental fashion behaviour descriptions, it does not translate into differences in concrete behavioural quantities.
2. Individuals feeling more accountable to mitigate GHG emissions due to clothing consumption significantly predicts intentions to buy less clothing.
3. Welfare moderated between self-accountability and fashion intentions, although this relation was not found with behavioural measures.

Table 11. The effect of self-accountability on the fashion consumption domain.

Number of clothing purchases in the past 3 months					
	B	*SE*	β	*t*	*p*
Self-accountability	-0.01	0.15	-.003	-0.05	.96
Self-accountability x welfare	-0.20	0.16	-.15	-1.21	.23
Self-alignment scale for pro-environmental fashion behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Self-accountability	0.22	0.03	.34	6.94	<.001
Self-accountability x welfare	0.03	0.03	.11	0.99	.33
Intended change in clothing purchases over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Self-accountability	-0.18	0.02	-.37	-7.54	<.001
Self-accountability x welfare	0.06	0.03	.28	2.43	.02

4.3.3 Effect of self-accountability on the air travel domain

Overall, the regression analysis with self-accountability as independent variable and air travel as dependent variable show different results across measurements of concrete behavioural quantities (number of short-distance and long-distance flights taken yearly), a behavioural self-alignment scale (self-alignment scale for pro-environmental air travel behaviour) and consumers' intended change in flight frequency over the next 12 months (see Table 12).

Effect of self-accountability on the number of flights taken

Participants' self-accountability showed no significant main effect on the number of short-distance flights (*B* = 0.26; *SE* = 0.25; β = .06; *t*(366) = 1.07; *p* = .29) nor the number of long-distance flights taken (*B* = -0.003; *SE* = 0.06; β = -.003; *t*(366) = -0.05; *p* = .96) in the past year. This result indicates that, if individuals feel personally more accountable to mitigate GHG emissions due to air travel, this higher sense of self-accountability does not translate in a change in the number of flights they take yearly (see Figure 9).

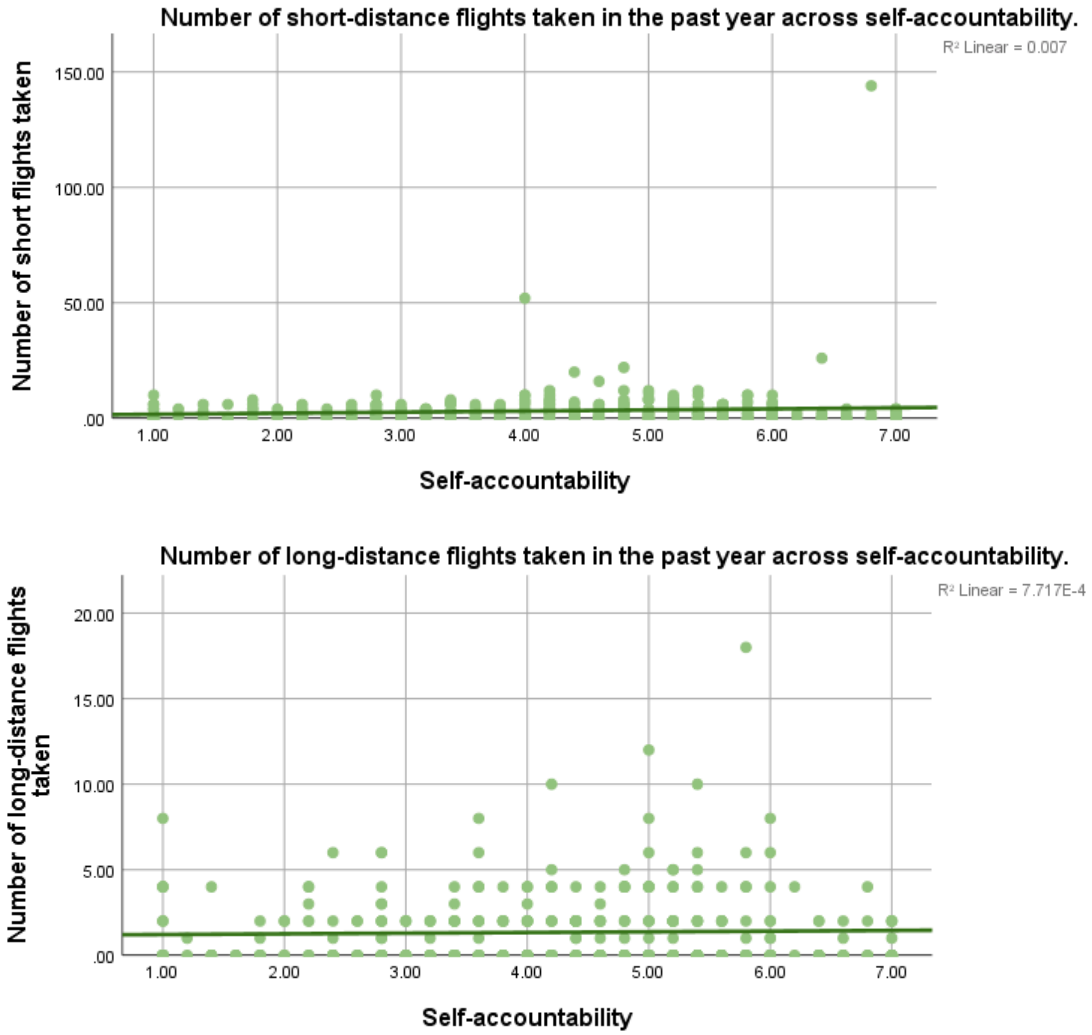


Figure 9. The number of short- and long-distance flights taken across self-accountability.

As a robustness check, the analysis was repeated excluding the extreme observation (144 short-distance flights) previously identified in paragraph 4.2.3. The effect on the number of short-distance flights remained non-significant (*B* = 0.02; *SE* = 0.11; β = .01; *t*(365) = 0.14; *p* = .89), indicating that the conclusion was not influenced by this outlier (see Table 13).

Effect of self-accountability on the air travel behaviour self-alignment scale
The main effect of self-accountability on the self-alignment scale for pro-environmental air travel behaviour was significant (B = 0.44, SE = 0.05, β = .44, t(366) = 9.47, p < .001). This scale assesses the extent to which participants perceive reducing air travel to be consistent with their self-concept and personal identity. The positive effect of self-accountability therefore indicates that individuals who felt more accountable for mitigating GHG emissions from air travel reported a stronger self-identification with reducing their air travel.

Effect of self-accountability on the intended flight frequency
Participants' self-accountability showed a significant main effect on the intended change in flight frequency over the next 12 months (*B* = -0.14; *SE* =0.03; β = -.27; *t*(366) = -5.35; *p* < .001). This means that if individuals feel more accountable to mitigate GHG emissions due to air travel, they intend to take significantly less flights.

The moderating role of welfare on the air travel domain
The moderation analyses showed that welfare did not moderate the relation between self-accountability and the number of short-distance flights taken (*B* = -0.01; *SE* = 0.26; β = -.01; *t*(366) = -0.05; *p* = .96), the number of long-distance flights taken (*B* = 0.03; *SE* = 0.06; β = .05; *t*(366) = 0.41; *p* = .68) the behavioural description alignment for reduced air travel (*B* = 0.08; *SE* = 0.05; β = .16; *t*(366) = 1.54; *p* = .13) nor the intentions to reduce flights (*B* = -0.002; *SE* = 0.03; β = -.01; *t*(366) = -0.08; *p* = .94). This means that across welfare levels there was a similar relation between individuals feeling more accountable to mitigate GHG emissions due to air travel and their flight behaviour and intentions, indicating that welfare did not significantly change how self-accountability related to flight behaviour and intentions.

Excluding the previously identified extreme observation (144 short-distance flights) did not alter this conclusion, as the moderation effect on the number of short-distance flights remained non-significant (*B* = 0.05; *SE* = 0.13; β = .04; *t*(365) = 0.37; *p* = .72).

Conclusion

1. While higher self-accountability significantly predicts stronger alignment with pro-environmental flight behaviour descriptions, it does not translate into their concrete behavioural quantities.
2. Individuals feeling more accountable to mitigate GHG emissions due to air travel did not significantly predict intentions to take less flights.
3. Welfare did not moderate between self-accountability and pro-environmental measures of the air travel domain.

Table 12. The effect of self-accountability on the air travel domain.

Number of short-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Self-accountability	0.26	0.25	.06	1.07	.29
Self-accountability x welfare	-0.01	0.26	-.01	-0.05	.96
Number of long-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Self-accountability	-0.003	0.06	-.003	-0.05	.96
Self-accountability x welfare	0.03	0.06	.05	0.41	.68
Self-alignment scale for pro-environmental air travel behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Self-accountability	0.44	0.05	.44	9.47	<.001
Self-accountability x welfare	0.08	0.05	.16	1.54	.13
Intended change in flight frequency over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Self-accountability	-0.14	0.03	-.27	-5.35	<.001
Self-accountability x welfare	-0.002	0.03	-.01	-0.08	.94

Table 13. Sensitivity analysis of self-accountability effects on the number of short-distance flights taken yearly.

Number of short-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Self-accountability	0.02	0.11	.01	0.14	.89
Self-accountability x welfare	0.05	0.13	.04	0.37	.72

4.3.4 Effects of self-accountability on the household heating domain

Overall, the regression analysis with self-accountability as independent variable and household heating as dependent variable show different results across measurements of concrete behavioural quantities (set thermostat temperature), a behavioural self-alignment scale (self-alignment scale for pro-environmental household heating behaviour) and consumers' intentions to reduce the amount of household heating they use (see Table 14).

Effect of self-accountability on the set thermostat temperature

Participants' self-accountability showed no significant main effect on the set thermostat temperature (*B* = -0.04; *SE* = 0.05; β = -.04; *t*(366) = -0.82; *p* = .41). This result indicates that, if individuals feel personally more accountable to mitigate GHG emissions due to household heating consumption, this higher sense of self-accountability does not translate in a reduction of the set thermostat temperature (see Figure 10).

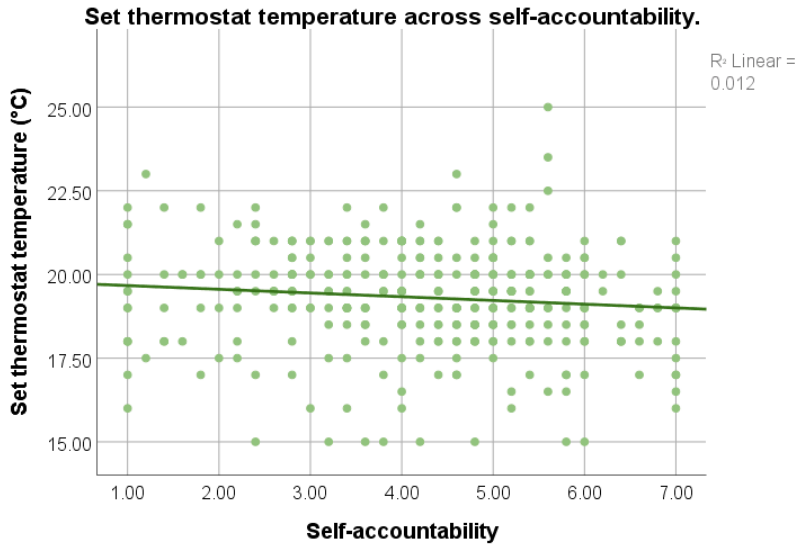


Figure 10. The set thermostat temperature across self-accountability.

Effect of self-accountability on the household heating behaviour self-alignment scale

The main effect of self-accountability on the self-alignment scale for pro-environmental household heating behaviour was significant (*B* = 0.15; *SE* = 0.05; β = .17; *t*(366) = 3.34; *p* = .001). This scale assesses participants' reported likelihood of engaging in a range of energy-saving household heating practices, including lowering heating levels in unused rooms, reducing heating when away from home or asleep, and preventing heat loss within the home. The positive effect indicates that individuals who felt more accountable for mitigating GHG emissions from household heating behaviour reported stronger tendencies to engage in these household heat-saving behaviours.

Effect of self-accountability on the intended household heating use

Participants' self-accountability showed a significant main effect on the intended change in household heating use over the next 12 months (*B* = -0.09; *SE* = 0.03; β = -.18; *t*(366) = -3.55; *p* < .001). This means that if individuals feel more accountable to mitigate GHG emissions due to household heating consumption, they intend to use significantly less household heating.

The moderating role of welfare on the household heating domain

The moderation analyses showed that welfare did not moderate the relation between self-accountability in the household heating domain and the set thermostat temperature (*B* = -0.02; *SE* = 0.05; β = -.07; *t*(366) = -0.48; *p* = .63) the behavioural description alignment for household heat-saving behaviour (*B* = -0.03; *SE* = 0.04; β = -.09; *t*(366) = -0.70; *p* = .49) nor the intentions to reduce household heating consumption (*B* = 0.02; *SE* = 0.02; β = .13; *t*(366) = 0.95; *p* = .34). This means that across welfare levels there was a similar relation between individuals feeling more accountable to mitigate GHG emissions due to household heating consumption and their household heating behaviour and intentions, indicating that welfare did not significantly change how self-accountability related to household heating behaviour and intentions.

Conclusion

1. While higher self-accountability significantly predicts stronger alignment with household heat-saving behaviour descriptions, it does not translate into their concrete behavioural quantities.
2. Individuals feeling more accountable to mitigate GHG emissions due to household heating consumption significantly predicts intentions to use less household heating.
3. Welfare did not moderate between self-accountability and pro-environmental measures of the household heating domain.

Table 14. The effect of self-accountability on the household heating domain.

Set thermostat temperature (°C)					
	B	*SE*	β	*t*	*p*
Self-accountability	-0.04	0.05	-.04	-0.82	.41
Self-accountability x welfare	-0.02	0.05	-.07	-0.48	.63
Self-alignment scale for pro-environmental household heating behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Self-accountability	0.15	0.05	.17	3.34	.001
Self-accountability x welfare	-0.03	0.04	-.09	-0.70	.49
Intended change in household heating use over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Self-accountability	-0.09	0.03	-.18	-3.55	<.001
Self-accountability x welfare	0.02	0.02	.13	0.95	.34

4.3.5 Effects of self-accountability on the meat consumption domain

Overall, the regression analysis with self-accountability as independent variable and meat consumption as dependent variable shows significant results across measurements of concrete behavioural quantities (amount of beef eaten in the past 2 weeks), a behavioural self-alignment scale (categorical question on diet classification) and consumers' intentions to reduce the amount of meat they consume (see Table 15).

Effect of self-accountability on the amount of beef eaten

Participants' self-accountability showed a significant main effect on the amount of beef eaten in the past two weeks (B = -0.48; SE = 0.10; β = -.25; $t(366)$ = -4.90; p < .001). This result indicates that, if individuals feel personally more accountable to mitigate GHG emissions due to meat consumption, this higher sense of self-accountability translates in a reduction of the amount of beef eaten (see Figure 11).

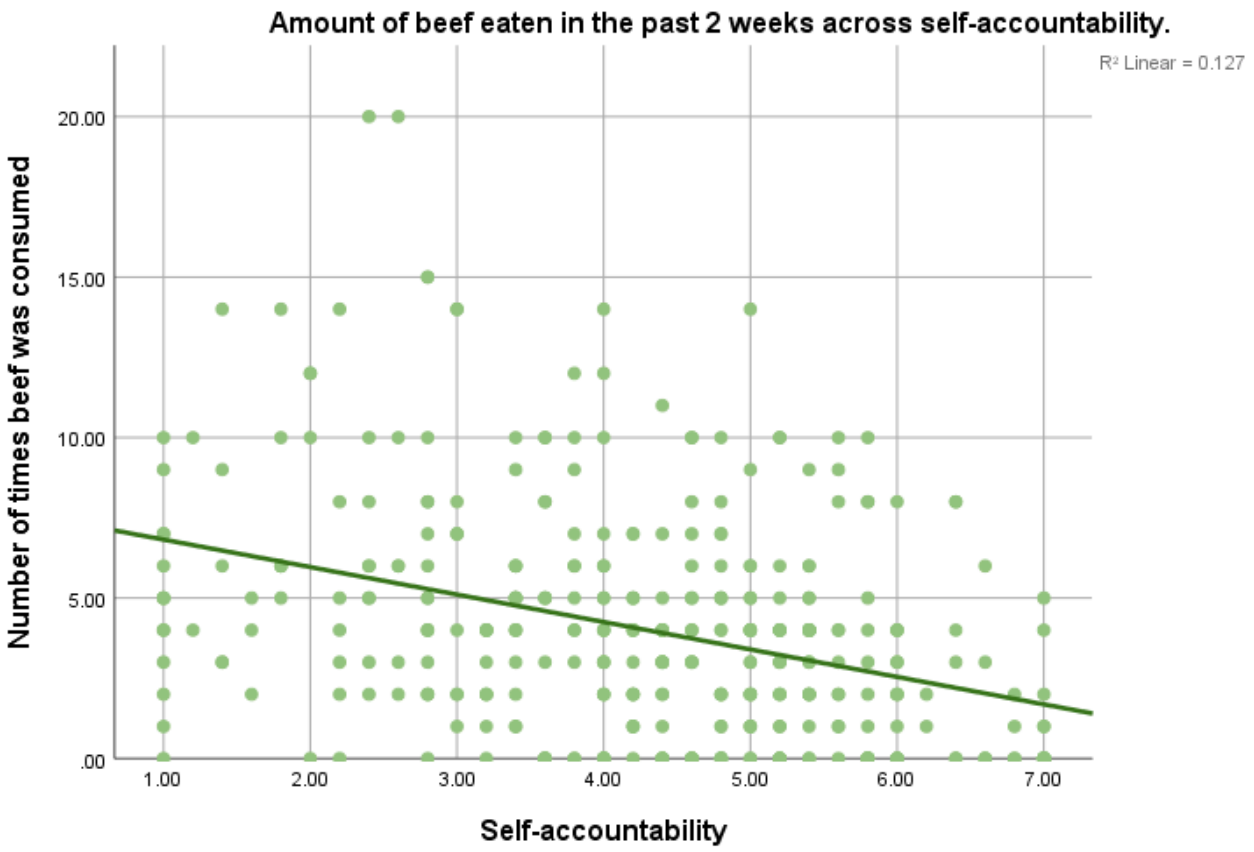


Figure 11. The amount of beef eaten across self-accountability.

Effect of self-accountability on self-aligned diet classification
The main effect of self-accountability on self-aligned diet classification was significant (*B* = 0.45; *SE* = .07; Wald = 44.99; *p* < .001; *OR* = 1.56). This diet classification assesses participants' self-reported dietary category, ranging from meat-eater to vegan, with higher categories indicating more pro-environmental dietary behaviour. The positive effect indicates that increases in self-accountability for mitigating GHG emissions from meat consumption were associated with a higher likelihood of reporting a more pro-environmental diet category.

This is reflected in the positive B value, indicating an increased probability of being classified in a more pro-environmental dietary category. The odds ratio of 1.56 indicates a substantial increase in likelihood. Specifically, higher self-accountability is associated with 56% higher odds of reporting a more pro-environmental diet category. The large Wald statistic indicates that this effect is strong relative to its uncertainty, consistent with the highly significant p-value.

Effect of self-accountability on the intended meat consumption
Participants' self-accountability showed a significant main effect on the intended change in meat consumption over the next 12 months (*B* = -0.17; *SE* = 0.02; β = -.35; *t*(366) = -7.12; *p* < .001). This means that if individuals feel more accountable to mitigate GHG emissions due to meat consumption, they intend to consume significantly less meat.

The moderating role of welfare on the meat consumption domain
The moderation analyses showed that welfare did not moderate the relation between self-accountability and the amount of beef consumed (*B* = -0.11; *SE* = 0.10; β = -.14; *t*(366) = -1.15; *p* = .25), the behavioural description alignment for diet classification (*B* = 0.14; *SE* = .08; Wald = 2.89; *p* = .09; *OR* = 1.15) nor the intentions to reduce meat consumption (*B* = 0.01; *SE* = 0.02; β = .07; *t*(366) = 0.62; *p* = .54). This means that across welfare levels there was a similar relation between individuals feeling more accountable to mitigate GHG emissions due to meat consumption and their meat consumption behaviour and intentions, indicating that welfare did not significantly change how self-accountability related to meat consumption behaviour and intentions.

Conclusion

1. Individuals feeling more accountable to mitigate GHG emissions due to meat consumption significantly predicts all types of pro-environmental behaviour and intentions towards meat consumption.
2. Welfare did not moderate between self-accountability and pro-environmental measures of the meat consumption domain.

Table 15. The effect of self-accountability on the meat consumption domain.

Amount of beef consumed in the past 2 weeks

	B	*SE*	β	*t*	*p*
Self-accountability	-0.48	0.10	-.25	-4.90	<.001
Self-accountability x welfare	-0.11	0.10	-.14	-1.15	.25

Pro-environmental diet classification (1 = low, 5 = high)

	B	*SE*	Wald	*p*	*OR*
Self-accountability	0.45	0.07	44.99	.001	1.56
Self-accountability x welfare	0.14	0.08	2.89	.09	1.15

Intended change in meat consumption over the next 12 months (1 = strongly reduce, 7 = strongly increase)

	B	*SE*	β	*t*	*p*
Self-accountability	-0.17	0.02	-.35	-7.12	<.001
Self-accountability x welfare	0.01	0.02	.07	0.62	.54

4.3.6 Effects of self-accountability on the green investment domain

Overall, the regression analysis with self-accountability as independent variable and green investment as dependent variable shows significant results across measurements of concrete behavioural quantities (percentage of green investments), a behavioural self-alignment scale (self-alignment scale for pro-environmental investment behaviour) and consumers' intentions to increase their share of green investments (see Table 16).

Effect of self-accountability on the percentage of green investments

Participants' self-accountability showed a significant main effect on the percentage of total investments that was green (B = 8.83; SE = 1.31; β = .48; $t(151)$ = 6.76; p < .001). This result indicates that, if individuals feel personally more accountable to mitigate GHG emissions due to investments, this higher sense of self-accountability translates into a higher percentage of green investments (see Figure 12).

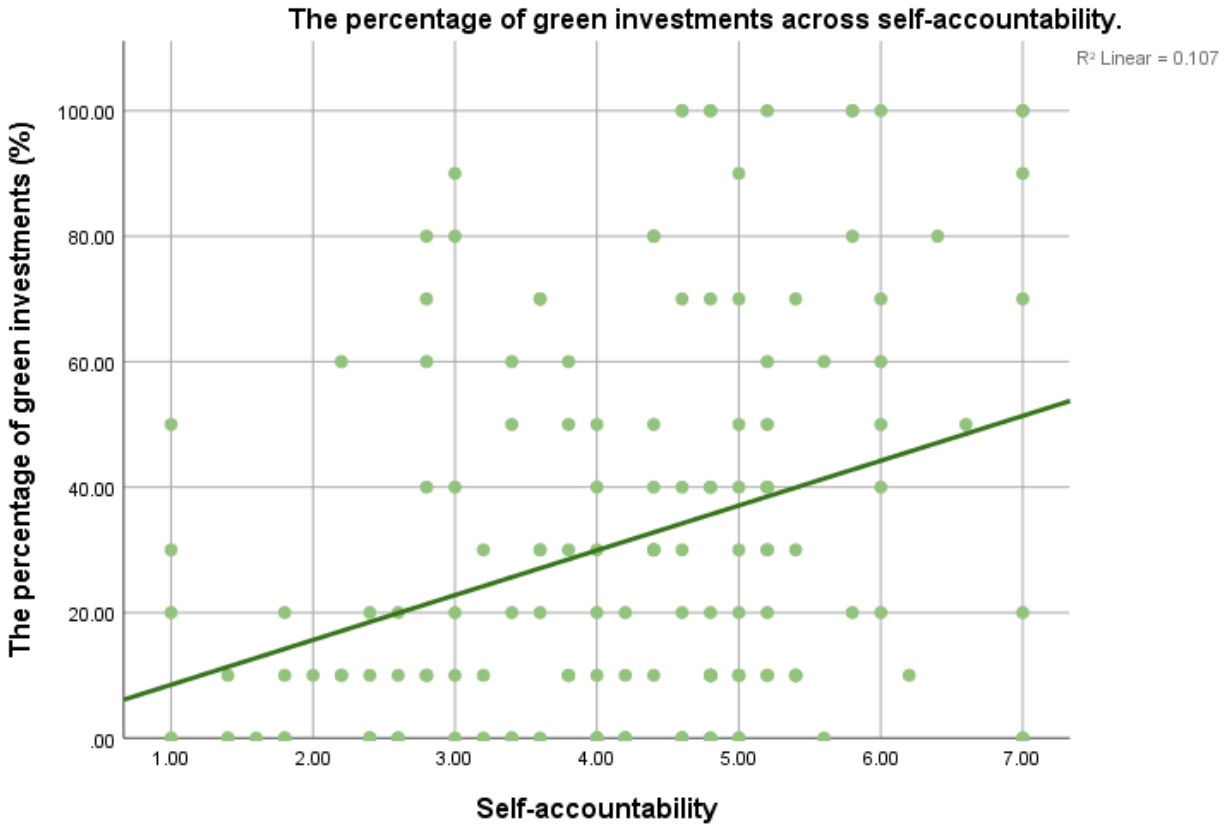


Figure 12. The percentage of green investments across self-accountability.

Effect of self-accountability on the green investment behaviour self-alignment scale
The main effect of self-accountability on the self-alignment scale for pro-environmental investment behaviour was significant (*B* = 0.66; *SE* = 0.06; β = .63; *t*(220) = 12.10; *p* < .001). This scale assesses the extent to which participants perceive green investment practices to be characteristic of their own investment decision-making. The positive effect indicates that individuals who felt more accountable for mitigating GHG emissions from investments reported stronger self-alignment with including and prioritising green investments.

Effect of self-accountability on the intended share of green investments
Participants' self-accountability showed a significant main effect on the intended change in the share of green investments over the next 12 months (*B* = 0.13; *SE* = 0.03; β = .31; *t*(220) = 4.75; *p* < .001). This means that if individuals feel more accountable to mitigate GHG emissions due to investments, they intend to increase their share of green investments.

The moderating role of welfare on the green investment domain
The moderation analyses showed that welfare did not moderate the relation between self-accountability and the percentage of green investments (*B* = 0.04; *SE* = 1.10; β = .01; *t*(149) = 0.04; *p* = .97), the behavioural description alignment for green investment behaviour (*B* = 0.04; *SE* = 0.05; β = .10; *t*(218) = 0.78; *p* = .44) nor the intentions to increase their share of green investments (*B* = -0.01; *SE* = 0.03; β = -.08; *t*(218) = -0.51; *p* = .60). This means that across welfare levels there was a similar relation between individuals feeling more accountable to mitigate GHG emissions due to investments and their investment

behaviour and intentions, indicating that welfare did not significantly change how self-accountability related to investment behaviour and intentions.

Conclusion

1. Individuals feeling more accountable to mitigate GHG emissions due to investments significantly predicts all types of pro-environmental behaviour and intentions towards investments.
2. Welfare did not moderate between self-accountability and pro-environmental measures of the green investment domain.

Table 16. The effect of self-accountability on the green investment domain.

Percentage of green investments (%)					
	B	*SE*	β	*t*	*p*
Self-accountability	8.83	1.31	.48	6.76	<.001
Self-accountability x welfare	0.04	1.10	.01	0.04	.97
Self-alignment scale for pro-environmental investment behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Self-accountability	0.66	0.06	.63	12.10	.001
Self-accountability x welfare	0.04	0.05	.10	0.78	.44
Intended change in the share of green investments over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Self-accountability	0.13	0.03	.31	4.75	<.001
Self-accountability x welfare	-0.01	0.03	-.08	-0.51	.60

4.4 Effect of agency on pro-environmental measures

Using the same analytical procedure described in Section 4.3, regression and moderation analyses were conducted to examine whether agency predicted pro-environmental intentions and behaviour across domains and whether these relations were moderated by welfare. Before presenting the results, it should be noted that the agency scale demonstrated relatively low internal consistency (Cronbach's α = .541). As a result, findings involving agency should be interpreted with some caution, as the measure may contain a greater degree of measurement error than is generally considered desirable. This may reduce the stability of observed associations and attenuate the estimated relationships between agency and pro-environmental outcomes.

4.4.1 Effects of agency on general intentions

Participants' agency showed no significant main effect on the intended mitigation of GHG emissions for the upcoming 12 months (*B* = -0.04; *SE* = 0.04; β = -.05; *t*(366) = -0.94; *p* = .35) (see Table 17). This means that if individuals feel more able to mitigate GHG emissions, this does not translate into intentions to reduce their GHG emissions in the next year.
The moderation analyses showed that welfare did not moderate the relation between agency and intentions to mitigate GHG emissions (*B* = 0.01; *SE* = 0.04; β = .03; *t*(366) = 0.17; *p* = .87). This means that the relation between agency and general intentions was similar across welfare levels, indicating that welfare did not significantly change how agency related to general intentions.

Table 17. The effect of agency on intentions to alter GHG emissions.

Intentions to alter GHG emissions (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Agency	-0.04	0.04	-.05	-0.94	.35
Agency x welfare	0.01	0.04	.03	0.17	.87

4.4.2 Effects of agency on the fashion consumption domain

Overall, the regression analysis with agency as independent variable and fashion consumption as dependent variable show different results across measurements of concrete behavioural quantities (number of clothing purchased in 3 months), a behavioural self-alignment scale (self-alignment scale for pro-environmental fashion behaviour) and consumers' intentions to reduce fashion consumption (see Table 18).

Effect of agency on the number of clothing purchases

Participants' agency showed no significant main effect on the number of clothing purchases in the past 3 months (*B* = -0.21; *SE* = 0.21; β = -.05; *t*(366) = -1.03; *p* = .30). This result indicates that, if individuals feel more able to mitigate GHG emissions due to clothing consumption, this higher sense of ability does not translate in a change in the number of clothing purchases (see Figure 13).

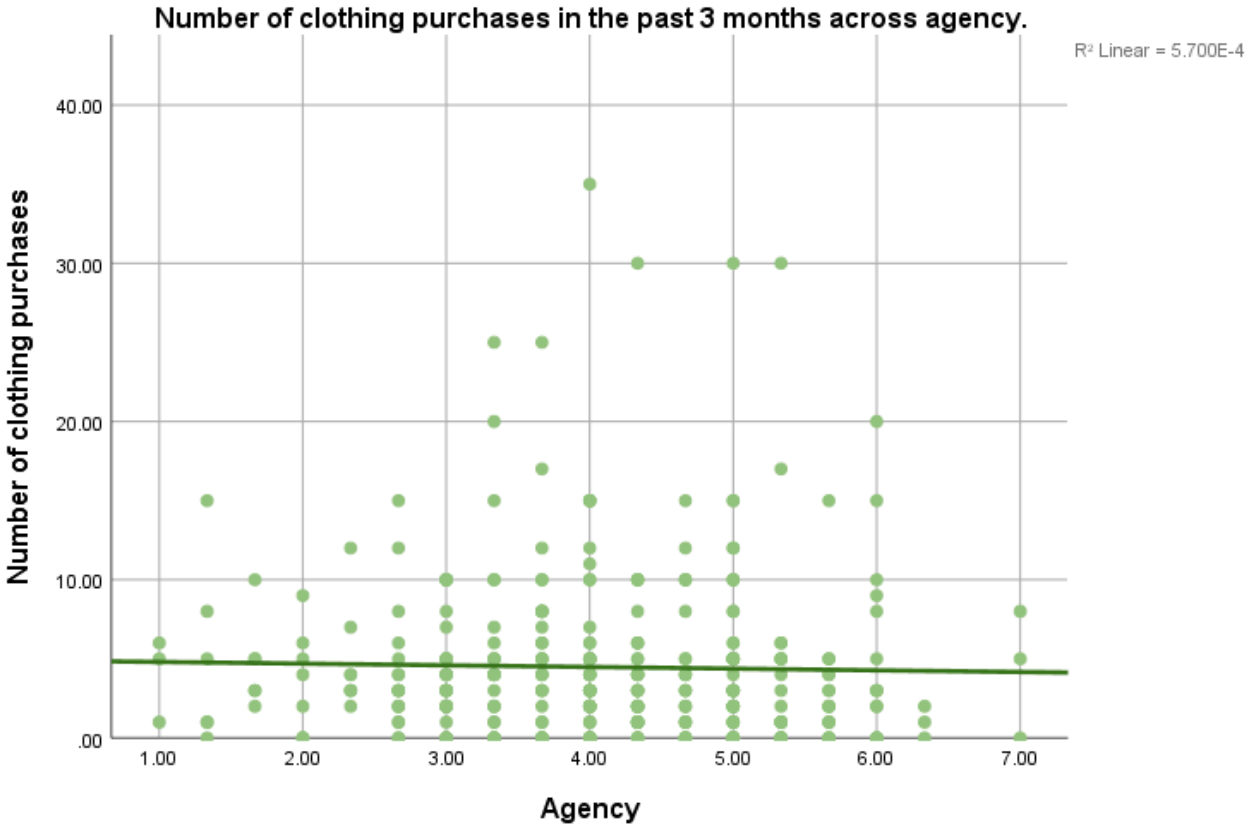


Figure 13. The number of clothing purchases in the past 3 months across agency.

Effect of agency on the fashion self-alignment scale

The main effect of agency on the self-alignment scale for pro-environmental fashion behaviour was not significant (*B* = 0.05; *SE* = 0.05; β = .06; *t*(366) = 1.13; *p* = .26). This scale assesses the extent to which participants perceive a range of pro-environmental fashion behaviours to reflect their own shopping behaviour for clothes. The non-significant effect indicates that increases in perceived ability to mitigate GHG emissions from clothing consumption did not significantly change participants' self-reported alignment with behaviours such as limiting new clothing purchases, avoiding impulse buying, and considering garment durability when making purchase decisions.

Effect of agency on the intended number of clothing purchases

Participants' agency showed a significant main effect on the intended change in clothing purchases over the next 12 months (*B* = -0.13; *SE* = 0.03; β = -.20; *t*(366)= -3.81; *p* < .001). This means that if individuals feel more able to mitigate GHG emissions due to clothing consumption, they intend to purchase significantly less clothing.

The moderating role of welfare on the fashion consumption domain

The moderation analyses showed that welfare did not moderate the relation between agency in the fashion consumption domain and the number of clothing items bought (*B* = -0.09; *SE* = 0.21; β = -.11; *t*(366) = -0.40; *p* = .67), the behavioural description alignment for reduced fashion consumption (*B* = -0.03; *SE* = 0.05; β = -.17; *t*(366) = -0.63; *p* = .53) nor the

intentions to reduce clothing consumption (*B* = 0.03; *SE* = 0.04; β = .20; *t*(366) = 0.75; *p* = .45). This means that across welfare levels there was a similar relation between individuals feeling more able to mitigate GHG emissions due to fashion consumption and their fashion behaviour and intentions, indicating that welfare did not significantly change how self-accountability related to fashion behaviour and intentions.

Conclusion

1. While feeling more able to mitigate GHG emissions due to clothing consumption significantly predicts a decrease in intended clothing purchases, it does not translate into their fashion behaviour.
2. Welfare did not moderate between agency and pro-environmental measures of the fashion consumption domain.

Table 18. The effect of agency on the fashion consumption domain.

Number of clothing purchases in the past 3 months					
	B	*SE*	β	*t*	*p*
Agency	-0.21	0.21	-.05	-1.03	.30
Agency x welfare	-0.09	0.21	-.11	-0.40	.67
Self-alignment scale for pro-environmental fashion behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Agency	0.05	0.05	.06	1.13	.26
Agency x welfare	-0.03	0.05	-.17	-0.63	.53
Intended change in clothing purchases over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Agency	-0.13	0.03	-.20	-3.81	<.001
Agency x welfare	0.03	0.04	.20	0.75	.45

4.4.3 Effects of agency on the air travel domain

Overall, the regression analysis with agency as independent variable and air travel as dependent variable show different results across measurements of concrete behavioural quantities (number of short-distance and long-distance flights taken yearly), a behavioural self-alignment scale (self-alignment scale for pro-environmental air travel behaviour) and consumers' intentions to reduce the number of flights they take (see Table 19).

Effect of agency on the number of flights taken

Participants' agency showed no significant main effect on the number of short-distance flights taken in the past year (*B* = -0.50; *SE* = 0.28; β = -.09 *t*(366) = -1.77; *p* = .07). However, participants' agency did show a significant main effect on the number of long-distance flights taken in the past year (*B* = -0.16; *SE* = 0.05; β = -.12; *t*(366) = -2.37; *p* = .02). This result indicates that, if individuals feel more able to mitigate GHG emissions due to air travel, this higher sense of ability translates only in a reduction of the number of long-distance flights they take yearly, while there is no significant reduction of the number of yearly short-distance flights (see Figure 14).

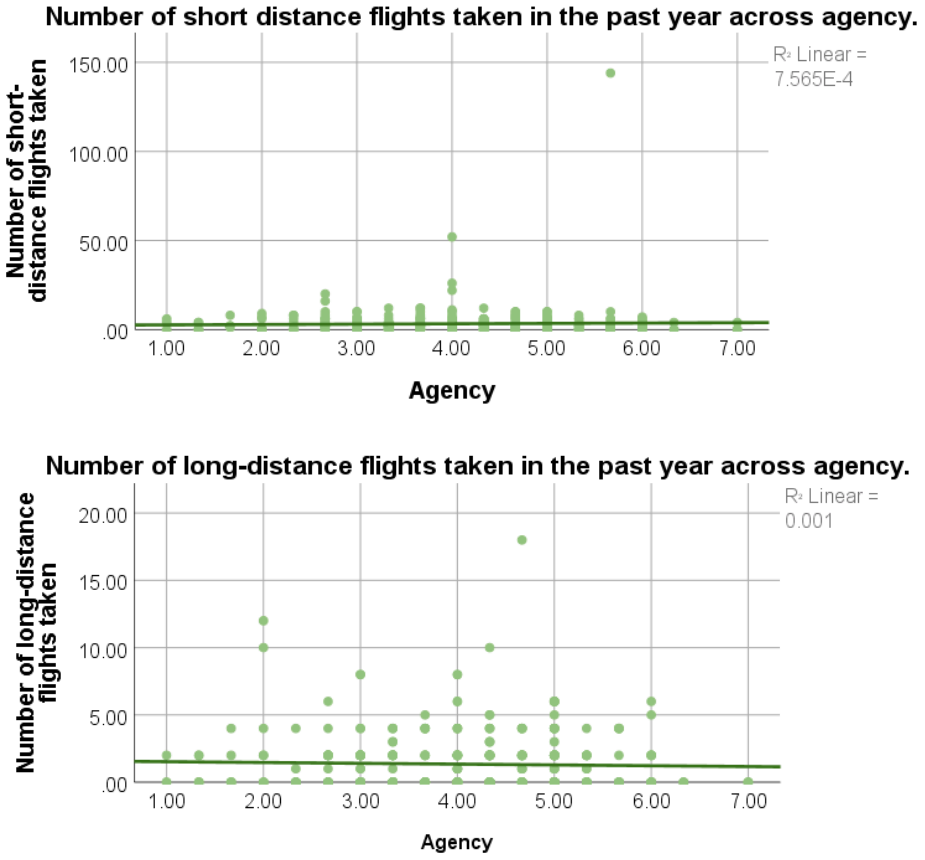


Figure 14. The number of flights taken in the past year across agency.

Sensitivity analyses indicated that this finding was influenced by the previously identified extreme observation. When this case was excluded, the effect of agency on the number of short-distance flights became significant (*B* = -0.42; *SE* = 0.14; β = -.16; *t*(365) = -3.02; *p* = .003), suggesting that greater agency may also be associated with fewer short-distance

flights see Table 20). This result should therefore be interpreted with some caution, as the significance of the effect depended on the inclusion of the extreme case (see paragraph 4.2.3).

Effect of agency on the air travel behaviour self-alignment scale

The main effect of agency on the self-alignment scale for pro-environmental air travel behaviour was significant (B = 0.14; SE = 0.06; β = .12; t(366) = 2.35; p = .02). This scale assesses the extent to which participants perceive reducing air travel to be consistent with their self-concept and personal identity. The positive effect indicates that individuals who felt more able to mitigate GHG emissions from air travel reported stronger self-identification with reducing their air travel.

Effect of agency on the intended flight frequency

Participants' agency showed no significant main effect on the intended change in flight frequency over the next 12 months (B = -0.03; SE = 0.03; β = -.05; t(366) = -0.94; p = .35). This means that if individuals feel more able to mitigate GHG emissions due to air travel, this higher sense of ability does not translate in intentions to change the number of flights they take yearly.

The moderating role of welfare on the air travel domain

The moderation analyses showed that welfare did not moderate the relation between agency in the air travel domain and the number of short-distance flights taken (B = -0.33; SE = 0.29; β = -.24; t(366) = -1.14; p = .26), the number of long-distance flights taken (B = -0.01; SE = 0.07; β = -.04; t(366) = -0.20; p = .84) the behavioural description alignment for reduced air travel (p = .16) nor the intentions to reduce flights (B = -0.03; SE = 0.03; β = -.18; t(366) = -0.84; p = .40). This means that across welfare levels there was a similar relation between individuals feeling more able to mitigate GHG emissions due to air travel and their flight behaviour and intentions, indicating that welfare did not significantly change how agency related to flight behaviour and intentions.

Sensitivity analyses indicated that this finding was influenced by the previously identified extreme observation (see paragraph 4.2.3). When this case was excluded, the interaction between agency and welfare on the number of short-distance flights became significant (B = -0.37; SE = 0.14; β = -.53; t(365) = -2.68; p = .008). This suggests that evidence for moderation emerged only after removal of the extreme case, and therefore the moderating role of welfare should be interpreted with caution. Further inspection of the interaction showed that agency influenced the relation between welfare and the number of short-distance flights taken, rather than welfare influencing the relation between agency and the number of flights. Therefore, this finding was not interpreted as evidence for welfare moderation. Instead, this finding shows that at higher levels of agency, higher welfare was more strongly associated with fewer short-distance flights, whereas at lower levels of agency this association was weaker.

Conclusion

1. While higher levels of agency predict behavioural description alignment for reduced air travel, it only translates into a reduction of the concrete number of long-distance flights taken, with no significant reduction in short-distance flights.

2. Feeling more able to mitigate GHG emissions due to air travel does not predict intentions to take fewer flights.
3. Welfare did not moderate between agency and pro-environmental measures of the air travel domain.

Table 19. The effect of agency on the air travel domain.

Number of short-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Agency	-0.50	0.28	-.09	-1.77	.07
Agency x welfare	-0.33	0.29	-.24	-1.14	.26
Number of long-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Agency	-0.16	0.05	-.12	-2.37	.02
Agency x welfare	-0.01	0.07	-.04	-0.20	.84
Self-alignment scale for pro-environmental air travel behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Agency	0.14	0.06	.12	2.35	.02
Agency x welfare	-0.09	0.06	-.29	-1.41	.16
Intended change in flight frequency over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Agency	-0.03	0.03	-.05	-0.94	.35
Agency x welfare	-0.03	0.03	-.18	-0.84	.40

Table 20. Sensitivity analysis of agency effects on the number of short-distance flights taken yearly.

Number of short-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Agency	-0.42	0.14	-.16	-3.02	.003
Agency x welfare	-0.37	0.14	-.53	-2.68	.008

4.4.4 Effects of agency on the household heating domain

Overall, the regression analysis with agency as independent variable and household heating as dependent variable show different results across measurements of concrete behavioural quantities (set thermostat temperature), a behavioural self-alignment scale (self-alignment scale for pro-environmental household heating behaviour) and consumers' intentions to reduce the amount of household heating used (see Table 21).

Effect of agency on the set thermostat temperature

Participants' agency showed a significant main effect on the set thermostat temperature (*B* = -0.12; *SE* = 0.05; β = -.13; *t*(353) = -2.45; *p* = .02). This result indicates that, if individuals feel personally more able to mitigate GHG emissions due to household heating consumption, this higher sense of ability translates in a reduction of the set thermostat temperature (see Figure 15).

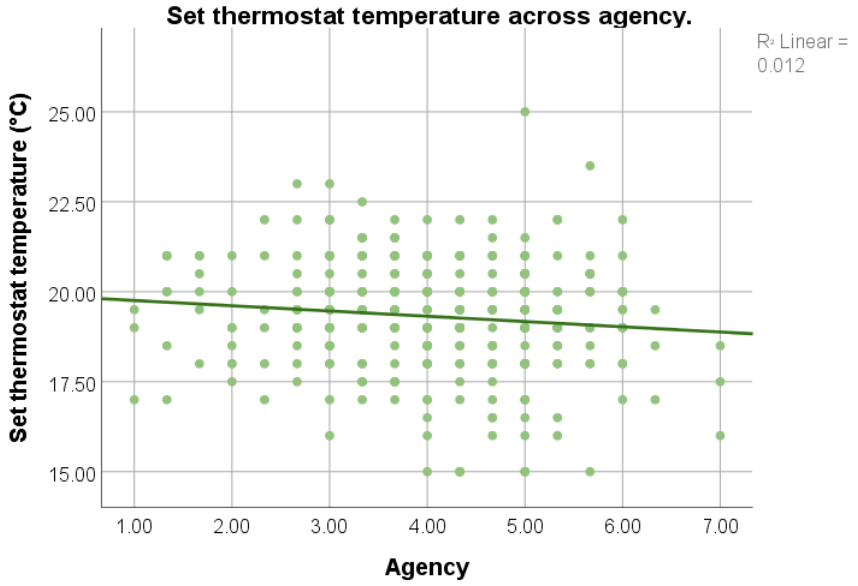


Figure 15. The set thermostat temperature across agency.

Effect of agency on the household heating behaviour self-alignment scale

The main effect of agency on the self-alignment scale for pro-environmental household heating behaviour was significant (*B* = 0.17; *SE* = 0.05; β = .18; *t*(366) = 3.43; *p* = .001). This scale assesses participants' reported likelihood of engaging in a range of energy-saving household heating practices, including lowering heating levels in unused rooms, reducing heating when away from home or asleep, and preventing heat loss within the home. The positive effect indicates that individuals who felt more able to mitigate GHG emissions from household heating reported stronger tendencies to engage in these household heat-saving behaviours.

Effect of agency on the intended household heating use

Participants' agency showed no significant main effect on the intended change in household heating use over the next 12 months (*B* = -0.04; *SE* = 0.03; β = -.07; *t*(366) = -1.31; *p* = .19). This means that if individuals feel more able to mitigate GHG emissions due to household

heating consumption, this higher sense of ability does not translate in intentions to use less household heating.

The moderating role of welfare on the household heating domain

The moderation analyses showed that welfare did not moderate the relation between agency and the set thermostat temperature (*B* = 0.05; *SE* = 0.05; β = .19; *t*(366) = 0.91; *p* = .36), the behavioural description alignment for household heat-saving behaviour (*B* = 0.07; *SE* = 0.05; β = .29; *t*(366) = 1.49; *p* = .14) nor the intentions to reduce household heating consumption (*B* = -0.003; *SE* = 0.03; β = -.02; *t*(366) = -0.11; *p* = .91). This means that across welfare levels there was a similar relation between individuals feeling more able to mitigate GHG emissions due to household heating consumption and their household heating behaviour and intentions, indicating that welfare did not significantly change how agency related to household heating behaviour and intentions.

Conclusion

1. Agency predicts individuals' behaviour towards household heating, such that a higher sense of ability to mitigate GHG emissions due to household heat consumption significantly leads to lower reported as well as concrete household heating consumption.
2. Feeling more able to mitigate GHG emissions due to household heating consumption does not predict intentions to use less household heating.
3. Welfare did not moderate between agency and pro-environmental measures of the household heating domain.

Table 21. The effect of agency on the household heating domain.

Set thermostat temperature (°C)					
	B	*SE*	β	*t*	*p*
Agency	-0.12	0.05	-.13	-2.45	.02
Agency x welfare	0.05	0.05	.19	0.91	.36
Self-alignment scale for pro-environmental household heating behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Agency	0.17	0.05	.18	3.43	.001
Agency x welfare	0.07	0.05	.29	1.49	.14
Intended change in household heating use over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Agency	-0.04	0.03	-.07	-1.31	.19
Agency x welfare	-0.003	0.03	-.02	-0.11	.91

4.4.5 Effects of agency on the meat consumption domain

Overall, the regression analysis with agency as independent variable and meat consumption as dependent variable shows significant results across measurements of concrete behavioural quantities (amount of beef eaten in the past 2 weeks), a behavioural self-alignment scale (categorical question on diet classification) and consumers' intentions to reduce the amount of meat they consume (see Table 22).

Effect of agency on the amount of beef eaten

Participants' agency showed a significant main effect on the amount of beef eaten in the past two weeks (*B* = -0.32; *SE* = 0.14; β = -.12; *t*(366) = -2.24; *p* = .03). This result indicates that, if individuals feel personally more able to mitigate GHG emissions due to meat consumption, this higher sense of ability translates in a reduction of the amount of beef eaten (see Figure 16).

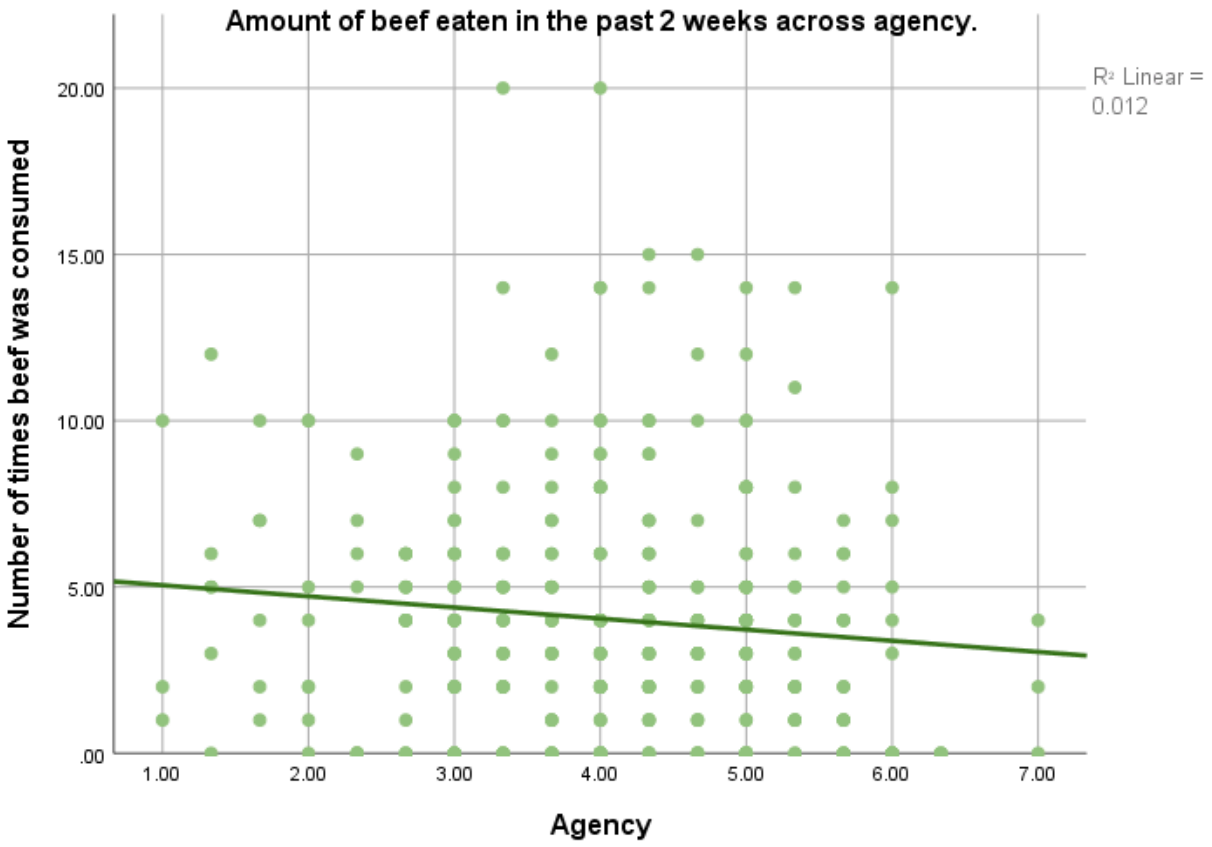


Figure 16. The amount of beef eaten across agency.

Effect of agency on self-aligned diet classification
The main effect of agency on self-aligned diet classification was significant (*B* = 0.29; *SE* = 0.09; Wald = 10.48; *p* = .001; *OR* = 1.34). This diet classification assesses participants' self-reported dietary category, ranging from meat-eater to vegan, with higher categories indicating more pro-environmental dietary behaviour.

The positive effect indicates that increases in perceived ability to mitigate GHG emissions from meat consumption were associated with a higher likelihood of reporting a more pro-environmental diet category.

This is reflected in the positive B value, indicating an increased probability of being classified in a more pro-environmental dietary category. The odds ratio of 1.34 indicates a moderate increase in likelihood. Specifically, higher perceived agency is associated with 34% higher odds of reporting a more pro-environmental diet category. The Wald statistic indicates that this effect is sufficiently large relative to its uncertainty to be statistically significant, consistent with the reported p-value.

Effect of agency on the intended meat consumption
Participants' agency showed a significant main effect on the intended change in meat consumption over the next 12 months (*B* = -0.08; *SE* = 0.04; β = -.12; *t*(366) = -2.27; *p* = .024). This means that if individuals feel more able to mitigate GHG emissions due to meat consumption, they intend to consume significantly less meat.

The moderating role of welfare on the meat consumption domain
Although a significant interaction effect was found between welfare and agency in the meat consumption domain in predicting the behavioural description alignment for diet classification (*B* = -0.26; *SE* = 0.10; Wald = 7.40; *p* = .007; *OR* = .77), further inspection of the interaction showed that agency influenced the relation between welfare and diet classification, rather than welfare influencing the relation between agency and diet classification. Therefore, this finding was not interpreted as evidence for welfare moderation. The moderation analyses showed that welfare also did not moderate the relation between agency and the amount of beef eaten (*B* = 0.06; *SE* = 0.14; β = .10; *t*(366) = 0.42; *p* = .67), nor the intentions to reduce meat consumption (*B* = 0.04; *SE* = 0.03; β = .32; *t*(366) = 1.31; *p* = .19). This means that across welfare levels there was a similar relation between individuals feeling more able to mitigate GHG emissions due to meat consumption and their meat consumption behaviour and intentions, indicating that welfare did not significantly change how self-accountability related to meat consumption behaviour and intentions.

Conclusion

1. Feeling more able to mitigate GHG emissions due to meat consumption significantly predicts all types of pro-environmental behaviour and intentions towards meat consumption.
2. Welfare did not moderate between agency and pro-environmental measures of the meat consumption domain.

Table 22. The effect of agency on the meat consumption domain.

Amount of beef eaten in the past 2 weeks					
	B	*SE*	β	*t*	*p*
Agency	-0.32	0.14	-.12	-2.24	.03
Agency x welfare	0.06	0.14	.10	0.42	.67
Pro-environmental diet classification (1 = low, 5 = high)					
	B	*SE*	Wald	*p*	*OR*
Agency	0.29	0.09	10.48	.001	1.34
Agency x welfare	-0.26	0.10	7.40	.007	0.77
Intended change in meat consumption over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Agency	-0.08	0.04	-.12	-2.27	.02
Agency x welfare	0.04	0.03	.32	1.31	.19

4.4.6 Effects of agency on the green investment domain

Overall, the regression analysis with agency as independent variable and investments as dependent variable show different results across measurements of concrete behavioural quantities (percentage of green investments), a behavioural self-alignment scale (self-alignment scale for pro-environmental investment behaviour) and consumers' intentions to increase their share of green investments (see Table 23).

Effect of agency on the percentage of green investments

Participants' agency showed a significant main effect on the percentage of total investments that was green (B = 4.09; SE = 1.66; β = .20; $t(151)$ = 2.46; p = .02). This result indicates that, if individuals feel personally more able to mitigate GHG emissions due to investments, this higher sense of ability translates into a higher percentage of green investments (see Figure 17).

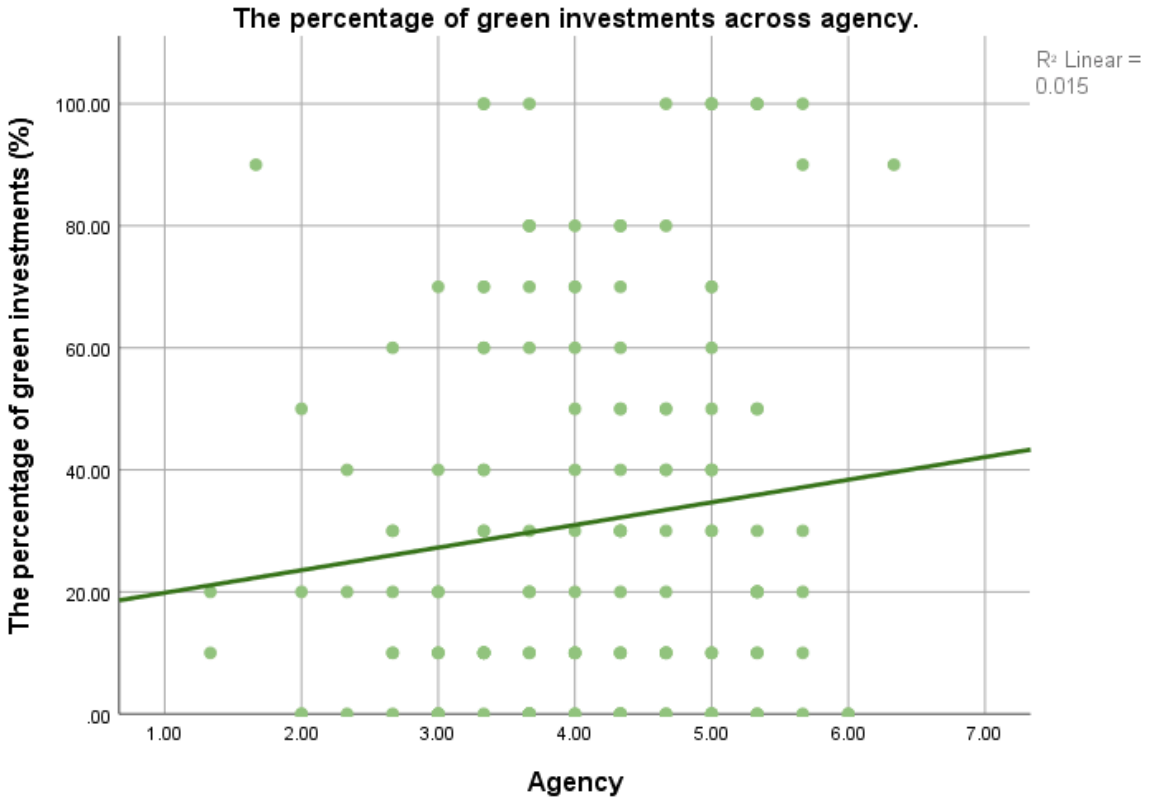


Figure 17. The percentage of green investments across agency.

Effect of agency on the green investment behaviour self-alignment scale

The main effect of agency on the self-alignment scale for pro-environmental investment behaviour was not significant (*B* = 0.13; *SE* = 0.08; β = .11; *t*(220) = 1.56; *p* = .12). This scale assesses the extent to which participants perceive green investment practices to be characteristic of their own investment decision-making. The non-significant effect indicates that increases in perceived ability to mitigate GHG emissions through investments did not significantly change participants' self-reported alignment with prioritising and including green investment options in their financial decisions.

Effect of agency on the intended share of green investments

Participants' agency showed no significant main effect on the intended change in the share of green investments over the next 12 months (*B* = 0.04; *SE* = 0.03; β = .08; *t*(220) = 1.19; *p* = .24). This means that if individuals feel more able to mitigate GHG emissions due to investments, this does not translate in an intention to change their share of green investments.

The moderating role of welfare on the green investment domain

The moderation analyses showed that welfare moderated the relation between agency and the self-alignment scale for pro-environmental investment behaviour (*B* = -0.22; *SE* = 0.09; β = -.77; *t*(218) = -2.51; *p* = .012). The significant interaction indicates that the relation between agency and self-aligned green investment behaviour depended on welfare levels. More specifically, as welfare increased, the positive association between agency and self-alignment became weaker. In other words, agency was more strongly related to higher

self-aligned green investment behaviour among individuals with lower welfare, whereas among individuals with higher welfare this association was weaker, indicating that higher agency was less strongly associated with pro-environmental investment behaviour at higher levels of welfare.

In contrast, the moderation analyses showed that welfare did not moderate the relation between agency and the percentage of green investments (*B* = -0.71; *SE* = 1.77; β = -.15; *t*(149) = -0.40; *p* = .69), nor the intentions to increase their share of green investments (*B* = 0.04; *SE* = 0.04; β = .31; *t*(218) = 1.02; *p* = .31). This means that the relation between agency and these pro-environmental measures was similar across welfare levels, indicating that welfare did not significantly change how agency related to concrete behavioural quantities or intentions to increase the share of green investments.

Conclusion

1. While agency predicts individuals' concrete behavioural quantities, such that a higher sense of ability to mitigate GHG emissions due to investments is associated with increased shares of green investments, it does not predict how individuals report their investment behaviour.
2. Feeling more able to mitigate GHG emissions due to investments does not predict intentions to increase shares in green investments.
3. Higher welfare weakened the relation between agency and behavioural description alignments for green investment behaviour, although this relation was not found with concrete behavioural quantities nor intentions to increase green investment share.

Table 23. The effect of agency on the green investment domain.

Percentage of green investments (%)					
	B	*SE*	β	*t*	*p*
Agency	4.09	1.66	.20	2.46	.02
Agency x welfare	-0.71	1.77	-.15	-0.40	.69
Self-alignment scale for pro-environmental investment behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Agency	0.13	0.08	.11	1.56	.12
Agency x welfare	-0.22	0.09	-.77	-2.54	.012
Intended change in the share of green investments over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Agency	0.04	0.03	.08	1.19	.24
Agency x welfare	0.04	0.04	.31	1.02	.31

4.5 Effect of efficacy on pro-environmental measures

Using the same analytical procedure described in Section 4.3, regression and moderation analyses were conducted to examine whether efficacy predicted pro-environmental intentions and behaviour across domains and whether these relations were moderated by welfare.

4.5.1 Effects of efficacy on general intentions

Participants' efficacy showed no significant main effect on the intended mitigation of GHG emissions for the upcoming 12 months (*B* = -0.03; *SE* = 0.02; β = -.07; *t*(366) = -1.31; *p* = .19) (see Table 24). This means that if individuals feel that their actions have an influence on GHG emissions, this does not translate into intentions to reduce their GHG emissions in the next year.

The moderation analyses showed that welfare did not moderate the relation between efficacy and intentions to mitigate GHG emissions (*B* = -0.01; *SE* = 0.02; β = -.04; *t*(366) = -0.30; *p* = .76). This means that the relation between efficacy and general intentions to mitigate GHG emissions was similar across welfare levels, indicating that welfare did not significantly change how efficacy related to intentions to mitigate GHG emissions.

Table 24. The effect of efficacy on intentions to alter GHG emissions.

Intentions to alter GHG emissions (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Efficacy	-0.03	0.02	-.07	-1.31	.19
Efficacy x welfare	-0.01	0.02	-.04	-0.30	.76

4.5.2 Effects of efficacy on the fashion consumption domain

Overall, the regression analysis with efficacy as independent variable and fashion consumption as dependent variable show different results across measurements of concrete behavioural quantities (number of clothing purchased in 3 months), a behavioural self-alignment scale (self-alignment scale for pro-environmental fashion behaviour) and consumers' intentions to reduce fashion consumption (see Table 25).

Effect of efficacy on the number of clothing purchases

Participants' efficacy showed no significant main effect on the number of clothing purchases in the past 3 months (*B* = -0.04; *SE* = 0.14; β = -.01; *t*(366) = -0.24; *p* = .81). This result indicates that, if individuals feel that reducing their clothing purchases has an influence on GHG emissions, this higher sense of influence does not translate in a change in the number of clothing purchases (see Figure 18).

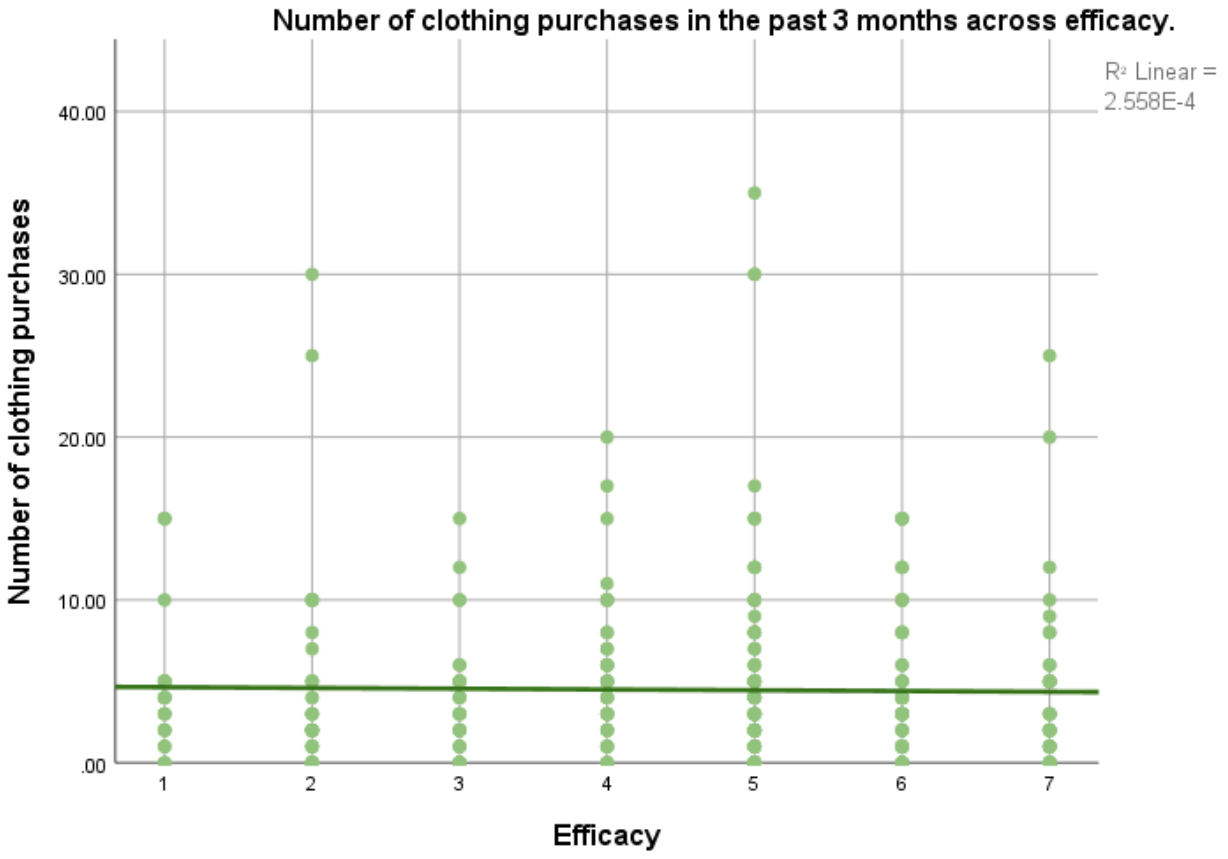


Figure 18. The number of clothing purchases in the past 3 months across efficacy.

Effect of efficacy on the fashion behaviour self-alignment scale

The main effect of efficacy on the self-alignment scale for pro-environmental fashion behaviour was significant (B = 0.17; SE = 0.03; β = .27; $t(366) = 5.44$; $p < .001$). This scale assesses the extent to which participants perceive a range of pro-environmental fashion behaviours to reflect their own shopping behaviour for clothes. The positive effect indicates that individuals who believed that reducing their clothing purchases has an impact on GHG emissions due to clothing consumption reported stronger self-alignment with behaviours such as limiting new clothing purchases, avoiding impulse buying, and considering garment durability when making purchase decisions.

Effect of efficacy on the intended number of clothing purchases

Participants' efficacy showed a significant main effect on the intended change in clothing purchases over the next 12 months (B = -0.12; SE = .02; β = -.26; $t(366) = -5.09$; $p < .001$). This means that if individuals feel that reducing their clothing purchases has an influence on GHG emissions, they intend to purchase significantly less clothing.

The moderating role of welfare on the fashion consumption domain

The moderation analyses showed that welfare moderated the relation between efficacy and the number of clothing items bought (B = 0.29; SE = 0.13; β = .22; $t(364) = 2.19$; $p = .03$). The significant interaction indicates that the strength of the relationship between efficacy and clothing purchase intentions depended on welfare levels.

More specifically, as welfare increased, the relationship between efficacy and intended clothing purchases became stronger and more positive. In other words, efficacy was more strongly associated with higher intended clothing purchases among individuals with higher welfare, whereas among individuals with lower welfare this association was weaker.

In contrast, the moderation analyses showed that welfare did not moderate the relation between efficacy and the behavioural description alignment for reduced fashion consumption (*B* = -0.05; *SE* = 0.03; β = -.15; *t*(366) = -1.59; *p* = .11), nor the intentions to reduce clothing consumption (*B* = 0.02; *SE* = 0.02; β = .08; *t*(366) = -0.87; *p* = .39). This means that the relation between efficacy and these pro-environmental measures was similar across welfare levels, indicating that welfare did not significantly change how efficacy related to behavioural description alignment or intentions to reduce the amount of clothing items bought.

Conclusion

1. While higher levels of efficacy significantly predict lower behavioural description alignment for reduced fashion consumption, it does not translate into their concrete purchasing amounts.
2. Feeling that reducing clothing purchases has an influence on GHG emissions does predict intentions to buy less clothing.
3. Welfare moderated between efficacy and concrete behavioural quantities, although this relation was not found with behavioural description alignments nor intentions to reduce fashion consumption.

Table 25. The effect of efficacy on the fashion consumption domain.

Number of clothing purchases in the past 3 months					
	B	*SE*	β	*t*	*p*
Efficacy	-0.04	0.14	-.01	-0.24	.81
Efficacy x welfare	0.29	0.13	.22	2.19	.03
Self-alignment scale for pro-environmental fashion behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Efficacy	0.17	0.03	.27	5.44	<.001
Efficacy x welfare	-0.05	0.03	-.15	-1.59	.11
Intended change in clothing purchases over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Efficacy	-0.12	0.02	-.26	-5.09	<.001
Efficacy x welfare	0.02	0.02	.08	-0.87	.39

4.5.3 Effects of efficacy on the air travel domain

Overall, the regression analysis with efficacy as independent variable and air travel as dependent variable show different results across measurements of concrete behavioural quantities (number of short-distance and long-distance flights taken yearly), a behavioural self-alignment scale (self-alignment scale for pro-environmental air travel behaviour) and consumers' intentions to reduce the number of flights they take (see Table 26).

Effect of efficacy on the number of flights taken

Participants' efficacy showed no significant main effect on the number of short-distance flights (B = 0.08; SE = 0.23; β = .02; $t(366)$ = 0.33; p = .74) nor the number of long-distance flights taken (B = 0.02; SE = 0.06; β = .02; $t(366)$ = 0.32; p = .75) in the past year. This result indicates that, if individuals feel that reducing their air travel has an influence on GHG emissions, this higher sense of influence does not translate in a reduction of the number of flights they take yearly (see Figure 19).

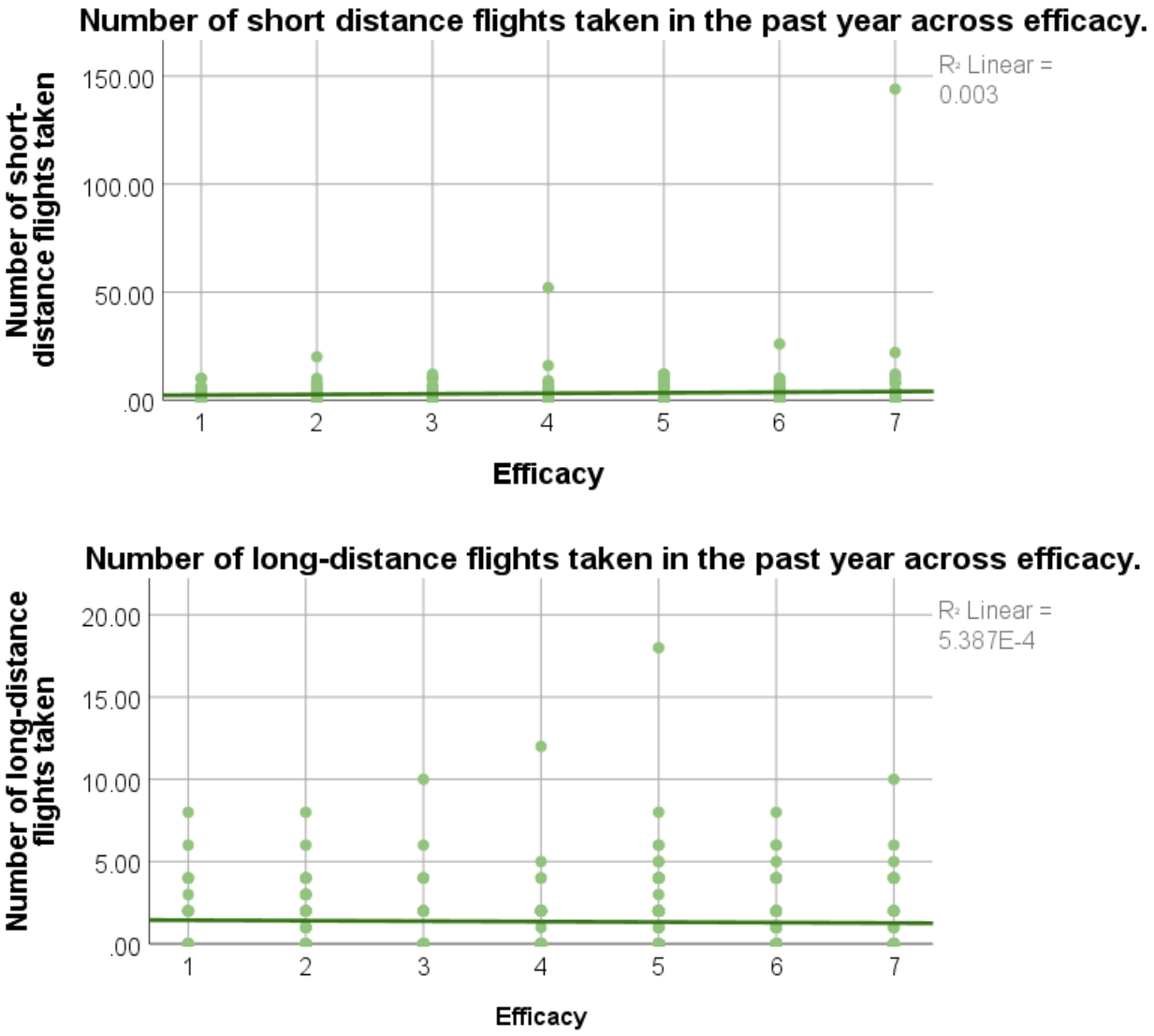


Figure 19. The number of short- and long-distance flights taken in the past year across efficacy.

Sensitivity analyses showed that excluding the previously identified extreme observation (see paragraph 4.2.3) slightly altered the effect on short-distance flights, but it remained non-significant (B = -0.18; SE = 0.12; β = -.08; t(365) = -1.54; p = .13), indicating that the overall conclusion was not affected by this case (see Table 27).

Effect of efficacy on the air travel self-alignment scale

The main effect of efficacy on the self-alignment scale for pro-environmental air travel behaviour was significant (B = 0.35; SE = 0.05; β = .37; t(366) = 7.54; p < .001). This scale assesses the extent to which participants perceive reducing air travel to be consistent with their self-concept and personal identity. The positive effect indicates that individuals who believed that reducing their air travel has an impact on GHG emissions reported stronger self-identification with reducing their air travel.

Effect of efficacy on the intended flight frequency

Participants' efficacy showed a significant main effect on the intended change in flight frequency over the next 12 months (B = -0.09; SE = 0.03; β = -.18; t(366) = -3.56; p < .001). This means that if individuals feel that reducing their air travel has an influence on GHG emissions, they intend to take significantly less flights.

The moderating role of welfare on the air travel domain

The moderation analyses showed that welfare did not moderate the relation between efficacy in the air travel domain and the number of short-distance flights taken (B = -0.31; SE = 0.21; β = -.16; t(366) = -1.49; p = .14), the number of long-distance flights taken (B = 0.08; SE = 0.05; β = .17; t(366) = 1.67; p = .10) the behavioural description alignment for reduced air travel (B = -0.02; SE = 0.04; β = -.04; t(366) = -0.36; p = .72) nor the intentions to reduce flights (B = -0.0001; SE = 0.02; β = -.01; t(366) = -0.06; p = .95). This means that across welfare levels there was a similar relation between individuals feeling that reducing their air travel has an influence on GHG emissions and their flight behaviour and intentions, indicating that welfare did not significantly change how efficacy related to flight behaviour and intentions.

Sensitivity analyses indicated that this conclusion was affected by the previously identified extreme observation (see paragraph 4.2.3). When this case was excluded, the interaction between efficacy and welfare on the number of short-distance flights became significant (B = -0.24; SE = 0.10; β = -.24; t(365) = 2.41; p = .02). This suggests that evidence for moderation emerged only after removal of the extreme case, and therefore the moderating role of welfare should be interpreted with caution. The negative interaction indicates that the association between efficacy and short-distance flights became weaker as welfare increased. In other words, at higher levels of welfare, efficacy was more strongly associated with fewer short-distance flights, whereas at lower levels of welfare this association was weaker.

Conclusion

1. While higher levels of efficacy significantly predict a behavioural description alignment for reduced air travel, it does not translate into their concrete behavioural quantities.

2. Feeling that reducing air travel has an influence on GHG emissions does predict intentions to take less flights.
3. Welfare did not moderate between efficacy and pro-environmental measures of the air travel domain.

Table 26. The effect of efficacy on the air travel domain.

Number of short-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Efficacy	0.08	0.23	.02	0.33	.74
Efficacy x welfare	-0.31	0.21	-.16	-1.49	.14
Number of long-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Efficacy	0.02	0.06	.02	0.32	.75
Efficacy x welfare	0.08	0.05	.17	1.67	.10
Self-alignment scale for pro-environmental air travel behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Efficacy	0.35	0.05	.37	7.54	<.001
Efficacy x welfare	-0.02	0.04	-.04	-0.36	.72
Intended change in flight frequency over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Efficacy	-0.09	0.03	-.18	-3.56	<.001
Efficacy x welfare	-0.001	0.02	-.01	-0.06	.95

Table 27. Sensitivity analysis of efficacy effects on the number of short-distance flights taken yearly.

Number of short-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Efficacy	-0.18	0.12	-.08	-1.54	.13
Efficacy x welfare	-0.24	0.10	-.24	2.41	.02

4.5.4 Effects of efficacy on the household heating domain

Overall, the regression analysis with efficacy as independent variable and household heating as dependent variable show different results across measurements of concrete behavioural quantities (set thermostat temperature), a behavioural self-alignment scale (self-alignment scale for pro-environmental household heating behaviour) and consumers' intentions to reduce the amount of household heating they use (see Table 28).

Effect of efficacy on the set thermostat temperature

Participants' efficacy showed no significant main effect on the set thermostat temperature (*B* = -0.02; *SE* = 0.04; β = -.02; *t*(366) = -0.43; *p* = .66). This result indicates that, if individuals feel that reducing their household heating consumption has an influence on GHG emissions, this higher sense of influence does not translate in a reduction of the set thermostat temperature (see Figure 20).

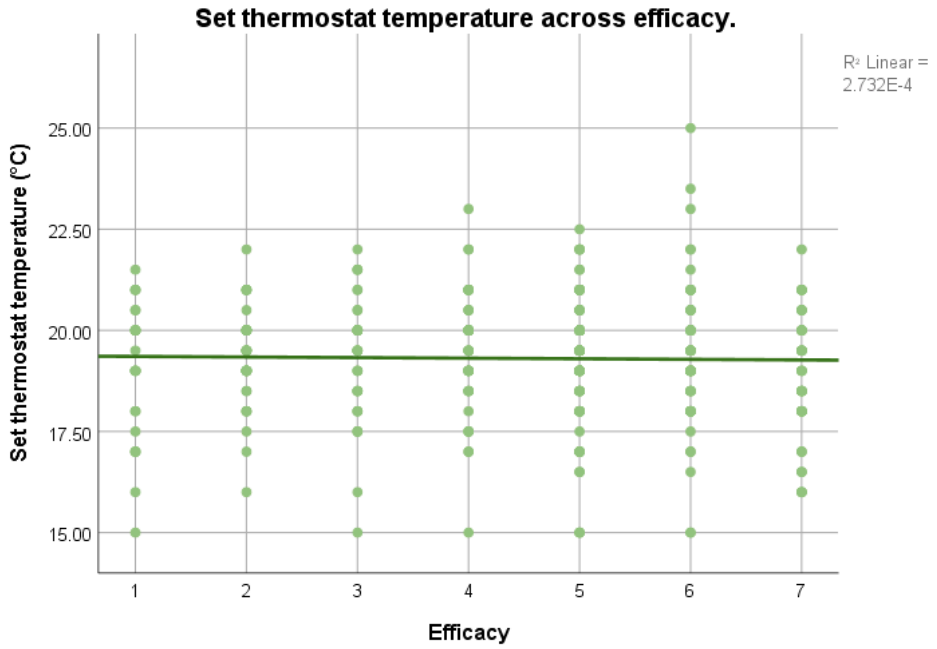


Figure 20. The set thermostat temperature across efficacy.

Effect of efficacy on the household heating behaviour self-alignment scale

The main effect of efficacy on the self-alignment scale for pro-environmental household heating behaviour was significant (*B* = 0.10; *SE* = 0.04; β = .12; *t*(366) = 2.37; *p* = .02). This scale assesses participants' reported likelihood of engaging in a range of energy-saving household heating practices, including lowering heating levels in unused rooms, reducing heating when away from home or asleep, and preventing heat loss within the home. The positive effect indicates that individuals who believed that reducing their household heating consumption has an impact on GHG emissions reported stronger tendencies to engage in these household heat-saving behaviours.

Effect of efficacy on the intended household heating use

Participants' efficacy showed a significant main effect on the intended change in household heating use over the next 12 months (*B* = -0.07; *SE* = 0.02; β = -.16; *t*(366) = -3.02; *p* =

.003). This means that if individuals feel that reducing their household heating consumption has an influence on GHG emissions, this higher sense of influence translates into a decrease of household heating consumption.

The moderating role of welfare on the household heating domain

Welfare did not moderate the relation between efficacy and the set thermostat temperature (*B* = -0.07; *SE* = 0.04; β = -.20; *t*(366) = -1.85; *p* = .07), the behavioural description alignment for household heat-saving behaviour (*B* = 0.04; *SE* = 0.04; β = .12; *t*(366) = 1.10; *p* = .27), nor the intentions to reduce household heating consumption (*B* = 0.04; *SE* = 0.02; β = .20; *t*(366) = 1.84; *p* = .07). This means that across welfare levels there was a similar relation between individuals feeling that reducing their household heating consumption has an influence on GHG emissions and their household heating behaviour and intentions, indicating that welfare did not significantly change how efficacy related to household heating behaviour and intentions.

Conclusion

1. While higher levels of efficacy significantly predict behavioural description alignment for household heat-saving behaviour, it does not translate into their concrete behavioural quantities.
2. Feeling that reducing household heating consumption has an influence on GHG emissions does predict intentions to use less household heating.
3. Welfare did not moderate between efficacy and pro-environmental measures of the household heating domain.

Table 28. The effect of efficacy on the household heating domain.

Set thermostat temperature (°C)					
	B	*SE*	β	*t*	*p*
Efficacy	-0.02	0.04	-.02	-0.43	.66
Efficacy x welfare	-0.07	0.04	-.20	-1.85	.07
Self-alignment scale for pro-environmental household heating behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Efficacy	0.10	0.04	.12	2.37	.02
Efficacy x welfare	0.04	0.04	.12	1.10	.27
Intended change in household heating use over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Efficacy	-0.07	0.02	-.16	-3.02	.003
Efficacy x welfare	0.04	0.02	.20	1.84	.07

4.5.5 Effects of efficacy on the meat consumption domain

Overall, the regression analysis with efficacy as independent variable and meat consumption as dependent variable shows significant results across measurements of concrete behavioural quantities (amount of beef eaten in the past 2 weeks), a behavioural self-alignment scale (categorical question on diet classification) and consumers' intentions to reduce the amount of meat they consume (see Table 29).

Effect of efficacy on the amount of beef eaten

Participants' efficacy showed a significant main effect on the amount of beef eaten in the past two weeks (B = -0.42; SE = 0.10; β = -.22; t(366) = -4.33; p < .001). This result indicates that, if individuals feel that reducing their meat consumption has an influence on GHG emissions, this higher sense of influence translates in a reduction of the amount of beef eaten (see Figure 21).

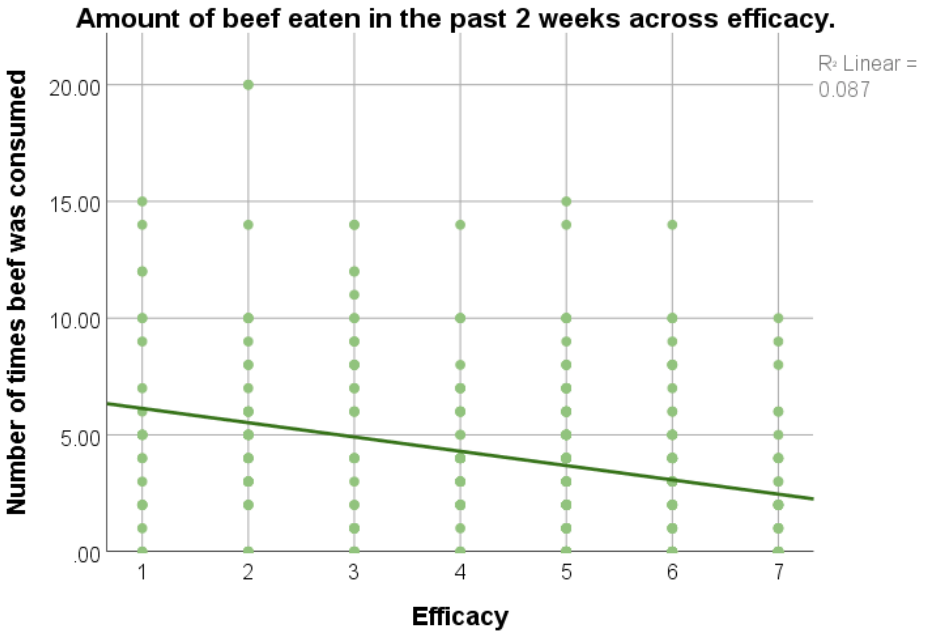


Figure 21. The amount of beef eaten in the past 2 weeks across efficacy.

Effect of efficacy on self-aligned diet classification

The main effect of efficacy on self-aligned diet classification was significant (B = 0.37; SE = 0.07; Wald = 36.15; p < .001; OR = 1.45). This diet classification assesses participants' self-reported dietary category, ranging from meat-eater to vegan, with higher categories indicating more pro-environmental dietary behaviour. The positive effect indicates that increases in perceived efficacy of reducing meat consumption on GHG emissions were associated with a higher likelihood of reporting a more pro-environmental diet category.

This is reflected in the positive B value, indicating an increased probability of being classified in a more pro-environmental dietary category. The odds ratio of 1.45 indicates a meaningful increase in likelihood. Specifically, higher efficacy is associated with 45% higher odds of reporting a more pro-environmental diet category. The Wald statistic indicates that this effect is large relative to its uncertainty, consistent with the highly significant p-value.

Effect of efficacy on the intended meat consumption

Participants' efficacy showed a significant main effect on the intended change in meat consumption over the next 12 months (*B* = -0.08; *SE* = 0.02; β = -.17; *t*(366) = -3.35; *p* = .001). This means that if individuals feel that reducing their meat consumption has an influence on GHG emissions, they intend to consume significantly less meat.

The moderating role of welfare on the meat consumption domain

The moderation analyses showed that welfare did not moderate the relation between efficacy and the amount of beef eaten (*B* = 0.08; *SE* = 0.09; β = .09; *t*(366) = 0.92; *p* = .36), the behavioural description alignment for diet classification (*B* = 0.09; *SE* = 0.07; Wald = 1.65; *p* = .20; *OR* = 1.09) nor the intentions to reduce meat consumption (*B* = 0.03; *SE* = 0.02; β = .13; *t*(366) = 1.27; *p* = .21). This means that across welfare levels there was a similar relation between individuals feeling that reducing their meat consumption has an influence on GHG emissions and their meat consumption behaviour and intentions, indicating that welfare did not significantly change how efficacy related to meat consumption behaviour and intentions.

Conclusion

1. Feeling that reducing meat consumption has an influence on GHG emissions significantly predicts all types of pro-environmental behaviour and intentions towards meat consumption.
2. Welfare did not moderate between efficacy and pro-environmental measures of the meat consumption domain.

Table 29. The effect of efficacy on the meat consumption domain.

Amount of beef eaten in the past 2 weeks					
	B	*SE*	β	*t*	*p*
Efficacy	-0.42	0.10	-.22	-4.33	<.001
Efficacy x welfare	0.08	0.09	.09	0.92	.36
Pro-environmental diet classification (1 = low, 5 = high)					
	B	*SE*	Wald	*p*	*OR*
Efficacy	0.37	0.07	36.15	<.001	1.45
Efficacy x welfare	0.09	0.07	1.65	.20	1.09
Intended change in meat consumption over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Efficacy	-0.08	0.02	-.17	-3.35	.001
Efficacy x welfare	0.03	0.02	.13	1.27	.21

4.5.6 Effects of efficacy on the green investment domain

Overall, the regression analysis with efficacy as independent variable and green investment as dependent variable shows significant results across measurements of concrete behavioural quantities (percentage of green investments), a behavioural self-alignment scale (self-alignment scale for pro-environmental investment behaviour) and consumers' intentions to increase their share of green investments (see Table 30).

Effect of efficacy on the percentage of green investments

Participants' efficacy showed a significant main effect on the percentage of total investments that was green (*B* = 8.92; *SE* = 1.21; β = .51; *t*(151) = 7.35; *p* < .001). This result indicates that, if individuals feel that holding more green investments has an influence on GHG emissions, this higher sense of influence translates into a higher percentage of green investments (see Figure 22).

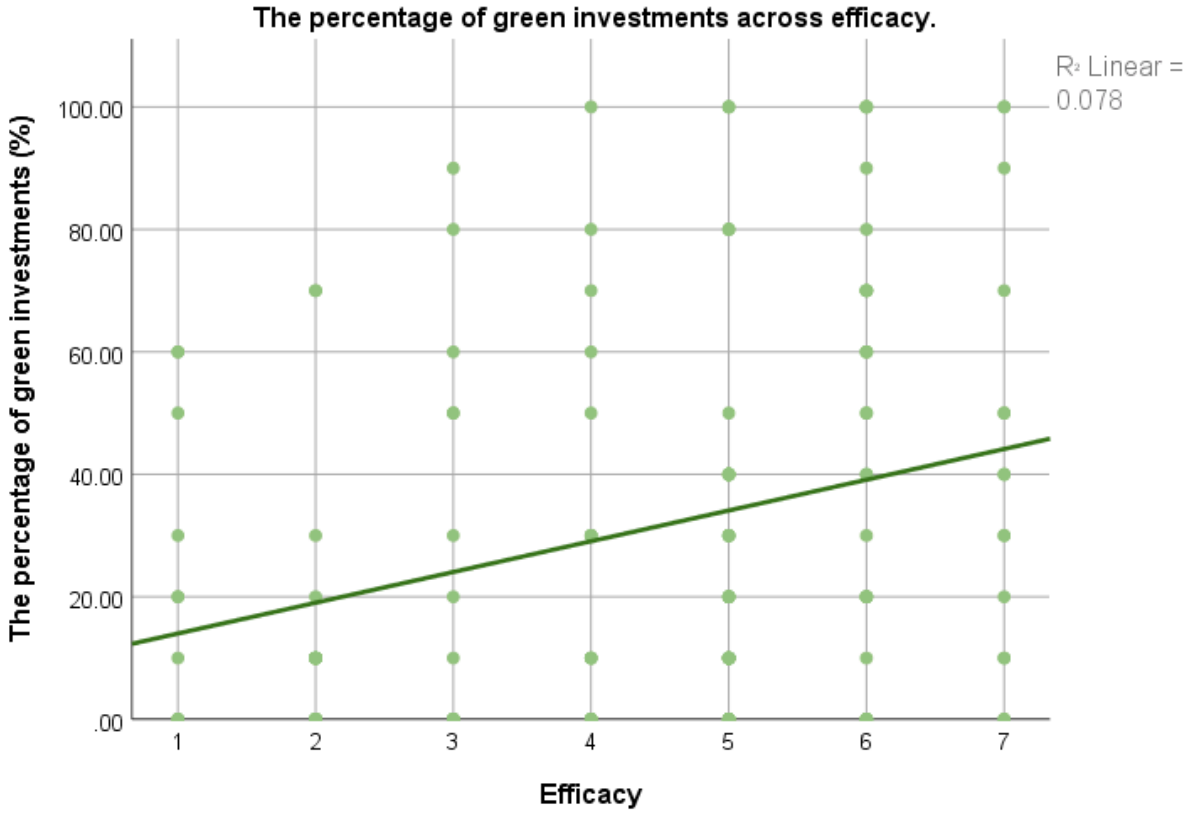


Figure 22. The percentage of green investments across efficacy.

Effect of efficacy on the green investment behaviour self-alignment scale

The main effect of efficacy on the self-alignment scale for pro-environmental investment behaviour was significant (*B* = 0.60; *SE* = 0.06; β = .59; *t*(220) = 10.76; *p* < .001). This scale assesses the extent to which participants perceive green investment practices to be characteristic of their own investment decision-making. The positive effect indicates that individuals who believed that holding more green investments has an impact on GHG emissions reported stronger self-alignment with prioritising and including green investment options in their financial decisions.

Effect of efficacy on the intended share of green investments

Participants' efficacy showed a significant main effect on the intended change in the share of green investments over the next 12 months (*B* = 0.08; *SE* = 0.03; β = .19; *t*(220) = 2.90; *p* = .004). This means that if individuals feel that holding more green investments has an influence on GHG emissions, they intend to increase their share of green investments.

The moderating role of welfare on the green investment domain

The moderation analyses showed that welfare did not moderate the relation between efficacy and the percentage of green investments (*B* = -0.14; *SE* = 1.23; β = -.02; *t*(149) = -0.11; *p* = .91), the behavioural description alignment for green investment behaviour (*B* = -0.02; *SE* = 0.05; β = -.06; *t*(218) = -0.40; *p* = .69) nor the intentions to increase their share of green investments (*B* = -0.03; *SE* = 0.03; β = -.21; *t*(218) = -1.20; *p* = .23). This means that across welfare levels there was a similar relation between individuals feeling that increasing their share of green investments has an influence on GHG emissions and their investment behaviour and intentions, indicating that welfare did not significantly change how efficacy related to investment behaviour and intentions.

Conclusion

1. Feeling that increasing the share of green investments has an influence on GHG emissions significantly predicts all types of pro-environmental behaviour and intentions towards investments.
2. Welfare did not moderate between efficacy and pro-environmental measures of the green investment domain.

Table 30. The effect of efficacy on the green investment domain.

Percentage of green investments (%)					
	B	*SE*	β	*t*	*p*
Efficacy	8.92	1.21	.51	7.35	<.001
Efficacy x welfare	-0.14	1.23	-.02	-0.11	.91
Self-alignment scale for pro-environmental investment behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Efficacy	0.60	0.06	.59	10.76	<.001
Efficacy x welfare	-0.02	0.05	-.06	-0.40	.69
Intended change in the share of green investments over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	SE	β	t	p
Efficacy	0.08	0.03	.19	2.90	.004
Efficacy x welfare	-0.03	0.03	-.21	-1.20	.23

4.6 Effects of ecological worry

This section examines the role of ecological worry in shaping pro-environmental behaviour across behavioural domains and measurement types. First, differences in ecological worry across welfare groups were examined to determine whether levels of environmental concern varied according to welfare status. Second, hierarchical regression analyses examined the covariance of ecological worry with self-accountability, agency and efficacy. Thereby, the hierarchical regression analyses assessed whether ecological worry explained additional variance in pro-environmental intentions and behaviour beyond self-accountability, agency, efficacy, and welfare. The direct effects of ecological worry on pro-environmental intentions and behaviour were analysed in Appendix E across four types of measures: concrete behavioural quantities, behavioural description alignment, behavioural intentions, and moderation effects with welfare.

4.6.1 Differences in ecological worry across welfare groups

Low-welfare (*M* = 3.9; *SD*=1.7), middle-welfare (*M* = 4.0; *SD* = 1.6), and high-welfare (*M* = 4.0; *SD* = 1.6) did not significantly differ from each other in terms of ecological worry (*p* = .98). This means that changes in welfare did not significantly lead to differences in how much ecological worry participants felt (see Table 31).

Table 31. The differences in ecological worry across welfare groups.

Dependent variable	*F*(2,365)	*p*	η²	Low-welfare (*n* = 76) *M (SD)*	Middle-welfare (*n* = 152) *M (SD)*	High-welfare (*n* = 140) *M (SD)*
Ecological worry (1 = low, 7 = high)	0.02	.98	.001	3.9 (1.7)[a]	4.0 (1.6)[a]	4.0 (1.6)[a]

Note. Means in a row not sharing superscripts are significantly different at the .05 level.

4.6.2 Covariance of ecological worry

Hierarchical (multiple linear and ordinal) regression analyses were conducted to examine the extent to which self-accountability, agency, and efficacy predicted pro-environmental intentions and behaviour across five behavioural domains, and whether these relations were further explained by welfare and ecological worry. Each analysis was built in three steps, with self-accountability, perceived agency and perceived efficacy entered in model 1, welfare added in model 2, and ecological worry included in model 3.

Hierarchical multiple linear regression on intentions to mitigate GHG emissions

A hierarchical multiple regression analysis was conducted to examine whether self-accountability, agency, and efficacy predicted the intended mitigation of GHG emissions for the upcoming 12 months, and whether the inclusion of welfare and ecological worry significantly improved model fit (see Table 32). For the intended mitigation of GHG emissions, model 1 was not significant (R^2 = .02; $F(3,364)$ = 1.89; p = .13). Adding welfare in model 2 did not significantly improve model fit (ΔR^2 = .004; $\Delta F(1,363)$ = 1.43; p = .23).

Adding ecological worry in model 3 significantly improved model fit, explaining an additional 2.0% of variance ($\Delta F(1,362) = 7.65$; $p = .006$, as well as significantly predicting the intentions to mitigate GHG emissions ($p = .012$).

Table 32. Model fit statistics on general intentions to mitigate GHG emissions.

Model	R^2	ΔR^2	F	ΔF	df	p_{change}	p_{model}
Model 1	.02	.02	1.89	1.89	(3,364)	-	.13
Model 2	.02	.004	1.78	1.43	(1,363)	.23	.13
Model 3	.04	.02	2.98	7.65	(1,362)	.006	.012

Regarding individual predictors, none of the variables significantly predicted general intentions to alter personal actions to reduce GHG emissions in model 1. Similarly, none of the variables significantly contributed to the model after adding welfare in model 2. In model 3, ecological worry emerged as a significant negative predictor ($\beta = -.20$, $p < .01$), indicating that greater environmental concern was associated with stronger general intentions to change personal behaviour in order to reduce GHG emissions. A summary of all predictors and their strength can be found in Table 33.

Table 33. Hierarchical multiple regression analyses on intentions to mitigate GHG emissions.

Model	Self-accountability	Agency	Efficacy	Welfare	Ecological worry
Model 1 β	ns	ns	ns	-	-
Model 2 β	ns	ns	ns	ns	-
Model 3 β	ns	ns	ns	ns	-.20**

Note: ns = not significant, *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

Hierarchical multiple linear regression in the fashion consumption domain

Hierarchical multiple regression analyses were conducted to examine whether self-accountability, agency, and efficacy predicted pro-environmental measures in the fashion consumption domain, and whether adding welfare and ecological worry improved the explanatory power of the models (see Table 34).

For clothing purchases, none of the regression models significantly predicted the outcome. Model 1, containing self-accountability, agency, and efficacy, did not significantly predict the number of clothing purchases ($R^2 = .005$; $F(3,364) = 0.37$; $p = .78$). Adding welfare in model 2 did not significantly improve model fit ($\Delta R^2 = .02$; $\Delta F(1,363) = 5.52$; $p = .16$). The addition of ecological worry in model 3 did not significantly improve model fit ($\Delta R^2 = .007$; $\Delta F(1,362) = 2.45$; $p = .11$).

For behavioural description alignment, all three models significantly predicted the outcome. Model 1 explained 13.3% of the variance ($F(3,364) = 18.54$; $p < .001$). Adding welfare significantly improved the model, explaining an additional 2.2% of variance ($\Delta F(1,363) = 9.39$; $p = .002$). Ecological worry further improved model fit in model 3, contributing an additional 3.5% explained variance ($\Delta F(1,362) = 15.50$; $p < .001$).
For intentions to reduce clothing purchases, model 1 significantly predicted intentions and explained 16.1% of the variance ($F(3,364) = 23.22$; $p < .001$). Adding welfare did not significantly improve model fit ($\Delta R^2 < .001$; $\Delta F(1,363) = 0.002$; $p = .97$), nor did ecological worry significantly improve the model fit in model 3 ($\Delta R^2 = .008$; $\Delta F(1,362) = 3.56$; $p = .060$).

Table 34. Model fit statistics in the fashion consumption domain.

Dependent variable	Model	R^2	ΔR^2	F	ΔF	df	p_{change}	p_{model}
Clothing purchases	Model 1	.003	-	0.37	-	(3,364)	-	.78
	Model 2	.02	.02	1.66	5.52	(1,363)	.02	.16
	Model 3	.03	.007	1.82	2.45	(1,362)	.12	.11
Behavioural description alignment	Model 1	.13	-	18.54	-	(3,364)	-	<.001
	Model 2	.15	.02	16.58	9.39	(1,363)	.002	<.001
	Model 3	.19	.04	16.89	15.50	(1,362)	<.001	<.001
Intentions to reduce clothing purchases	Model 1	.16	-	23.22	-	(3,364)	-	<.001
	Model 2	.16	<.001	17.37	.002	(1,363)	.97	<.001
	Model 3	.17	.008	14.71	3.56	(1,362)	.06	<.001

For behavioural description alignment in the fashion consumption domain, self-accountability was a significant positive predictor across model 1 (β = .27, $p < .001$), model 2 (β = .29, $p < .001$) and model 3 (β = .21, $p < .001$). This indicates that individuals who felt more personally accountable for mitigating GHG emissions reported stronger alignment with descriptions of pro-environmental fashion behaviour. Welfare was a significant negative predictor in both models 2 (β = -.15, $p < .01$) and 3 (β = -.14, $p < .01$), suggesting that higher welfare was associated with weaker alignment with descriptions of pro-environmental fashion behaviour. After controlling for ecological worry in model 3, ecological worry also emerged as a significant positive predictor (β = .22, $p < .001$), indicating that greater environmental concern was associated with stronger pro-environmental behavioural alignment.

For intentions to reduce clothing purchases, self-accountability significantly predicted stronger intentions to reduce fashion consumption in model 1 (β = -.30, $p < .001$), model 2 (β = -.30, $p < .001$) and model 3 (β = -.26, $p < .001$). This indicates that individuals who felt more personally accountable for mitigating GHG emissions reported intentions to purchase fewer clothing items. Agency also significantly predicted stronger intentions to reduce fashion consumption in model 1 (β = -.13, $p < .01$), model 2 (β = -.13, $p < .01$) and model 3 (β = -.14, $p < .01$). This indicates that individuals who felt more able for mitigating GHG emissions reported intentions to purchase fewer clothing items.

Efficacy, welfare and ecological worry did not significantly predict intentions to reduce fashion consumption in any model. A summary of all predictors and their strength can be found in Table 35.

Table 35. Hierarchical multiple regression analyses in the fashion consumption domain.

Dependent variable	Model	Self-accountability	Agency	Efficacy	Welfare	Ecological worry
Behavioural description alignment	Model 1 β	.27***	ns	ns	-	-
	Model 2 β	.29***	ns	ns	-.15**	-
	Model 3 β	.21***	ns	ns	-.14**	.22***
Intentions to reduce clothing purchases	Model 1 β	-.30***	-.13**	ns	-	-
	Model 2 β	-.30***	-.13**	ns	ns	-
	Model 3 β	-.26***	-.14**	ns	ns	ns

Note: ns = not significant, *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

Hierarchical multiple linear regression in the air travel domain

Hierarchical multiple regression analyses were conducted to examine whether self-accountability, agency, and efficacy predicted air travel-related pro-environmental intentions and behaviour, and whether the inclusion of welfare and ecological worry improved model fit (see Table 36).

For the number of short-distance flights, the models did not significantly explain the outcome at any step. Model 1, including self-accountability, agency, and efficacy, was not significant, (R^2 = .01; $F(3,364) = 1.51$; p = .21). Adding welfare in model 2 did not significantly improve model fit (ΔR^2 = .007; $\Delta F(1,363) = 2.46$; p = .12). The inclusion of ecological worry in model 3 did not significantly improve model fit either (ΔR^2 = .002; $\Delta F(1,362) = 0.76$; p = .38).

For the number of long-distance flights, model 1 was also not significant (R^2 = .02; $F(3,364) = 2.00$; p = .11). However, adding welfare in model 2 significantly improved model fit, explaining an additional 4.5% of variance ($\Delta F(1,363) = 17.36$; $p < .001$), as well as significantly predicting the number of long-distance flights ($p < .001$). The inclusion of ecological worry in model 3 did not further significantly improve model fit (ΔR^2 = .005; $\Delta F(1,362) = 1.94$; p = .17).

For behavioural description alignment in the air travel domain, all three models significantly predicted the outcome. Model 1 explained 23.9% of the variance ($F(3,364) = 38.21$; $p < .001$). Adding welfare in model 2 significantly improved model fit, explaining an additional 1.5% of variance ($\Delta F(1,363) = 7.54$; p = .006). Ecological worry further significantly increased an additional 8.9% explained variance in model 3 ($\Delta F(1,362) = 49.09$; $p < .001$).

For intentions to reduce flight frequency, model 1 was significant, explaining 7.8% of the variance ($F(3,364) = 10.32$; $p < .001$). Adding welfare in model 2 did not improve model fit ($\Delta R^2 < .001$; $\Delta F(1,363) = 0.17$; p = .68). Ecological worry in model 3 significantly improved model fit, explaining an additional 1.2% of variance ($\Delta F(1,362) = 4.88$; p = .03).

Table 36. Model fit statistics in the air travel domain.

Dependent variable	Model	R^2	ΔR^2	F	ΔF	df	p_{change}	p_{model}
Number of short flights	Model 1	.01	-	1.51	-	(3,364)	-	.21
	Model 2	.02	.007	1.75	2.46	(1,363)	.12	.14
	Model 3	.02	.002	1.55	0.76	(1,362)	.38	.17
Number of long flights	Model 1	.02	-	2.00	-	(3,364)	-	.11
	Model 2	.06	.05	5.91	17.36	(1,363)	<.001	<.001
	Model 3	.07	.005	5.13	1.94	(1,362)	.17	<.001
Behavioural description alignment	Model 1	.24	-	38.21	-	(3,364)	-	<.001
	Model 2	.26	.02	31.05	7.54	(1,363)	.006	<.001
	Model 3	.34	.09	37.95	49.09	(1,362)	<.001	<.001
Intentions to reduce flights	Model 1	.08	-	10.32	-	(3,364)	-	<.001
	Model 2	.08	<.001	7.77	0.17	(1,363)	.68	<.001
	Model 3	.09	.01	7.26	4.88	(1,362)	.03	<.001

Regarding individual predictors, agency significantly predicted the number of long-distance flights across model 1 (β = .13, $p < .05$) and 2 (β = .10, $p < .05$). However, the effects of agency became non-significant after ecological worry was added in model 3, suggesting that ecological worry may partially account for the relation agency has with the amount of long-distance flights. Welfare was a significant predictor in both model 2 (β = .22, $p < .001$) and model 3 (β = .22, $p < .001$), suggesting that higher welfare was associated with weaker alignment with descriptions of pro-environmental flight behaviour.

For behavioural description alignment in the air travel domain, only agency showed no significant predictions. Self-accountability was a significant positive predictor across model 1 (β = .35, $p < .001$), model 2 (β = .36, $p < .001$) and model 3 (β = .23, $p < .001$). This indicates that individuals who felt more personally accountable for mitigating GHG emissions reported stronger alignment with descriptions of pro-environmental flight behaviour. Efficacy was also a significant positive predictor across model 1 (β = .20, $p < .001$), model 2 (β = .21, $p < .001$) and model 3 (β = .14, $p < .01$). This indicates that individuals who felt more able to mitigate GHG emissions reported stronger alignment with descriptions of pro-environmental flight behaviour. Welfare was a significant negative predictor in both model 2 (β = -.13, $p < .01$) and model 3 (β = -.11, $p < .05$), suggesting that higher welfare was associated with weaker alignment with descriptions of pro-environmental flight behaviour. After controlling for ecological worry in model 3, ecological worry emerged as a significant positive predictor (β = .35, $p < .001$), indicating that greater environmental concern was associated with stronger pro-environmental behavioural alignment.

For intentions to reduce flights, self-accountability was a significant negative predictor in model 1 (β = -.23, $p < .001$), model 2 (β = -.24, $p < .001$), and model 3 (β = -.19, $p < .01$), indicating that individuals who felt more personally accountable for mitigating GHG emissions reported stronger intentions to reduce future flights. In model 3, ecological worry emerged as a significant negative predictor (β = -.13, $p < .05$), suggesting that greater environmental concern was associated with stronger intentions to reduce future flight consumption. A summary of all predictors and their strength can be found in Table 37.

Table 37. Hierarchical multiple regression analyses in the air travel domain.

Dependent variable	Model	Self-accountability	Agency	Efficacy	Welfare	Ecological worry
Number of long flights	Model 1 β	ns	-.13*	ns	-	-
	Model 2 β	ns	-.10*	ns	.22***	-
	Model 3 β	ns	ns	ns	.22***	ns
Behavioural description alignment	Model 1 β	.35***	ns	.20***	-	-
	Model 2 β	.36***	ns	.21***	-.13**	-
	Model 3 β	.23***	ns	.14**	-.11*	.35***
Intentions to reduce flights	Model 1 β	-.23***	ns	ns	-	-
	Model 2 β	-.24***	ns	ns	ns	-
	Model 3 β	-.19**	ns	ns	ns	-.13*

Note: ns = not significant, *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

Hierarchical multiple linear regression in the household heating domain

Hierarchical multiple regression analyses were conducted to examine whether self-accountability, agency, and efficacy predicted household heating-related intentions and behaviour, and whether the inclusion of welfare and ecological worry improved model fit (see Table 38).

For the set thermostat temperature, model 1 was not significant ($R^2 = .02$; $F(3,364) = 2.00$; $p = .11$). Adding welfare in model 2 did not significantly improve model fit ($\Delta R^2 < .001$; $\Delta F(1,350) = 0.02$; $p = .89$). However, adding ecological worry in model 3 significantly improved model fit, explaining an additional 1.5% of variance ($\Delta F(1,363) = 5.24$; $p = .02$), as well as significantly predicting the set thermostat temperature ($p = .048$).

For behavioural description alignment in the household heating domain, model 1 explained 5.1% of the variance ($F(3,364) = 6.46$; $p < .001$). Adding welfare in model 2 significantly improved model fit, explaining an additional 2.7% of variance ($\Delta F(1,363) = 10.56$ $p = .001$). Adding ecological worry in model 3 did not significantly improve model fit ($\Delta R^2 = .003$; $\Delta F(1,362) = 1.07$; $p = .30$).

For intentions to reduce household heating usage, model 1 was not significant (R^2 = .02; $F(3,364) = 1.80$; p = .148). Adding welfare in model 2 did not significantly improve model fit (ΔR^2 = .01; $\Delta F(1,363) = 3.56$; p = .060). Adding ecological worry in model 3 also did not significantly improve model fit (ΔR^2 = .001; $\Delta F(1,362) = 0.25$; p = .62).

For intentions to reduce household heating usage, model 1 explained 3.9% of the variance ($F(3,364) = 4.99$; p = .002). Adding welfare in model 2 significantly improved model fit, explaining an additional 1.1% of variance ($\Delta F(1,363) = 4.27$; p = .001). Adding ecological worry in model 3 did not significantly improve model fit (ΔR^2 < .001; $\Delta F(1,362) = 0.007$; p = .93).

Table 38. Model fit statistics in the household heating domain.

Dependent variable	Model	R^2	ΔR^2	F	ΔF	df	p_{change}	p_{model}
Set thermostat temperature	Model 1	.02	-	2.00	-	(3,351)	-	.11
	Model 2	.02	<.001	1.50	0.02	(1,350)	.89	.20
	Model 3	.03	.02	2.27	5.24	(1,349)	.02	.048
Behavioural description alignment	Model 1	.05	-	6.46	-	(3,364)	-	<.001
	Model 2	.08	.03	7.62	10.56	(1,363)	.001	<.001
	Model 3	.08	.003	6.31	1.07	(1,362)	.30	<.001
Intentions to reduce household heating usage	Model 1	.04	-	4.99	-	(3,364)	-	.002
	Model 2	.05	.01	4.84	4.27	(1,363)	.04	.001
	Model 3	.05	<.001	3.87	0.01	(1,362)	.94	.002

The only significant model for set thermostat was model 3. In this model, agency was a significant negative predictor of set thermostat temperature (β = -.13, p < .05). This indicates that individuals who felt more able to mitigate GHG emissions reported lower thermostat temperatures. In model 3, ecological worry emerged as a significant negative predictor (β = -.14, p < .05), suggesting that greater environmental concern was associated with lower set thermostat temperatures.

Agency significantly predicted behavioural description alignment for household heat-saving behaviour in model 1 (β = .14, p < .01), model 2 (β = .13, p < .05), and model 3 (β = .13, p < .05). This indicates that individuals who felt more able to mitigate GHG emissions reported higher behaviour description alignment for household heat-saving behaviour.
Self-accountability only significantly predicted behaviour description alignment for household heat-saving behaviour when controlling for welfare in model 2 (β = .14, p < .05). Welfare emerged as a significant predictor in both model 2 (β = -.17, p < .01) and model 3 (β = -.16, p < .01), indicating that higher welfare was associated with weaker behaviour description alignment for household heat-saving behaviour. None of the other predictors significantly contributed to the model.

Agency significantly predicted intentions to reduce household heating usage in model 1 (β = -.13, $p < .05$), model 2 (β = -.15, $p < .05$), and model 3 (β = -.15, $p < .05$). This indicates that individuals who felt more able to mitigate GHG emissions reported intentions to use less household heating. A summary of all predictors and their strength can be found in Table 39.

Table 39. Hierarchical multiple regression analyses in the household heating domain.

Dependent variable	Model	Self-accountability	Agency	Efficacy	Welfare	Ecological worry
Set thermostat temperature	Model 3 β	ns	-.13*	ns	ns	-.14*
Behavioural description alignment	Model 1 β	ns	.14**	ns	-	-
	Model 2 β	.14*	.13*	ns	-.17***	-
	Model 3 β	ns	.13*	ns	-.16**	ns
Intentions to reduce household heating usage	Model 1 β	-.13*	ns	ns	-	-
	Model 2 β	-.15*	ns	ns	.11*	-
	Model 3 β	-.15*	ns	ns	.11*	ns

Note: ns = not significant, *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

Hierarchical regression in the meat consumption domain

Hierarchical multiple regression analyses, as well as a hierarchical ordinal logistic regression analysis for diet classification, were conducted to examine whether self-accountability, agency, and efficacy predicted meat consumption related intentions and behaviour, and whether adding welfare and ecological worry improved model fit (see Table 40).

For the amount of beef consumed, model 1 was significant, explaining 8.3% of the variance ($F(3,364) = 10.93$; $p < .001$). Adding welfare in model 2 did not significantly improve model fit ($\Delta R^2 = .005$; $\Delta F(1,363) = 2.09$; $p = .15$). Ecological worry in model 3 significantly improved model fit, explaining an additional 4.8% of variance ($\Delta F(1,362) = 20.33$; $p < .001$).

For diet classification, model 1 was significant, explaining 19.7% of the variance ($\chi^2(3) = 70.00$; $p < .001$). Adding welfare in model 2 did not significantly improve model fit ($\Delta R^2 < .001$; $\Delta\chi^2(1) = 0.02$; $p = .90$). Adding ecological worry in model 3 did significantly improve model fit, explaining an additional 10.4% of variance ($\Delta\chi^2(1) = 43.25$; $p < .001$).

For intentions to reduce meat consumption, model 1 was significant, explaining 12.7% of the variance ($F(3,364) = 17.72$; $p < .001$). Adding welfare in model 2 did not significantly improve model fit ($\Delta R^2 < .001$; $\Delta F(1,363) = 0.12$; $p = .73$). Adding ecological worry in model 3 also did not significantly improve model fit ($\Delta R^2 = .002$; $\Delta F(1,362) = 1.01$; $p = .32$).

Table 40. Model fit statistics in the meat consumption domain.

Dependent variable	Model	R^2	ΔR^2	F/χ^2	$\Delta F/\Delta\chi^2$	*df*	p_{change}	p_{model}
Amount of beef consumed	Model 1	.08	-	10.93	-	(3,364)	-	<.001
	Model 2	.09	.005	8.74	2.09	(1,363)	.15	<.001
	Model 3	.14	.05	11.43	20.33	(1,362)	<.001	<.001
Diet classification	Model 1	.20	-	70.00	-	(3)	-	<.001
	Model 2	.20	<.001	70.02	0.02	(4)	.90	<.001
	Model 3	.30	.10	113.26	43.25	(5)	<.001	<.001
Intentions to reduce meat consumption	Model 1	.13	-	17.72	-	(3,364)	-	<.001
	Model 2	.13	<.001	13.29	0.12	(1,363)	.73	<.001
	Model 3	.13	.002	10.83	1.01	(1,362)	.32	<.001

Regarding individual predictors, self-accountability was a significant negative predictor of the amount of beef consumed across both model 1 (β = -.30, $p < .01$), model 2 (β = -.31, $p < .001$). This indicates that individuals who felt more personally accountable for mitigating GHG emissions reported consuming less beef. Efficacy also significantly negatively predicted the amount of beef consumed across both model 1 (β = -.13, $p < .05$), model 2 (β = -.14, $p < .05$). However, the effects of self-accountability and efficacy became non-significant after ecological worry was added in model 3, suggesting that ecological worry may partially account for the relation self-accountability and efficacy have with the amount of beef consumed. After controlling for ecological worry in model 3, ecological worry emerged as the only significant negative predictor (β = -.27, $p < .05$), suggesting that greater environmental concern was associated with lower levels of beef consumption. Welfare did not significantly predict beef consumption in any of the models.

Regarding diet classification, agency was a significant predictor across model 1 (*OR* = 1.27, $p < .05$), model 2 (*OR* = 1.27, $p < .05$) and model 3 (*OR* = 1.34, $p < .01$). This indicates that individuals who felt more able to mitigate GHG emissions classified more pro-environmental diets. Furthermore, self-accountability was a significant predictor across both model 1 (*OR* = 1.38, $p < .001$), model 2 (*OR* = 1.38, $p < .001$). This indicates that individuals who felt more personally accountable for mitigating GHG emissions classified more pro-environmental diets. Efficacy also significantly predicted diet classification across both model 1 (*OR* = 1.25, $p < .001$), model 2 (*OR* = 1.25, $p < .001$). This indicates that individuals who felt that reducing their meat consumption has an influence on GHG emissions classified more pro-environmental diets. However, the effects of self-accountability and efficacy became non-significant after ecological worry was added in model 3, suggesting that ecological worry may partially account for the relation self-accountability and efficacy have with the amount of beef consumed. After controlling for ecological worry in model 3, ecological worry emerged as the only significant negative predictor (β = -.18, $p < .001$), suggesting that greater environmental concern was associated with lower levels of beef consumption. Welfare did not significantly predict beef consumption in any of the models.

For intentions to reduce meat consumption, self-accountability was a significant negative predictor across model 1 (β = -.33, $p < .001$), model 2 (β = -.33, $p < .001$) and model 3 (β = -.31, $p < .01$). This indicates that individuals who felt more personally accountable for mitigating GHG emissions reported stronger intentions to reduce future meat consumption. None of the other predictors significantly contributed to the models. A summary of all predictors and their strength can be found in Table 41.

Table 41. Hierarchical multiple regression analyses in the meat consumption domain.

Dependent variable	Model	Self-accountability	Agency	Efficacy	Welfare	Ecological worry
Amount of beef consumed	Model 1 β	-.18**	ns	-.13*	-	-
	Model 2 β	-.19***	ns	-.14*	ns	-
	Model 3 β	ns	ns	ns	ns	-.27*
Diet classification	Model 1 OR	1.4***	1.3*	1.3***	-	-
	Model 2 OR	1.4***	1.3*	1.3***	ns	-
	Model 3 OR	ns	1.3**	ns	ns	1.8***
Intentions to reduce meat consumption	Model 1 β	-.33***	ns	ns	-	-
	Model 2 β	-.33***	ns	ns	ns	-
	Model 3 β	-.31**	ns	ns	ns	ns

Note: ns = not significant, *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

Hierarchical multiple linear regression in the green investment domain

Hierarchical multiple regression analyses were conducted to examine whether self-accountability, agency, and efficacy predicted investment related intentions and behaviour, and whether the inclusion of welfare and ecological worry significantly improved model fit (see Table 42).

For the percentage of green investments, model 1 was significant, explaining 32.3% of the variance ($F(3,149) = 23.71$; $p < .001$). Adding welfare in model 2 did not significantly improve model fit ($\Delta R^2 < .001$; $\Delta F(1,148) = 0.02$; $p = .89$). Adding ecological worry in model 3 also did not significantly improve model fit ($\Delta R^2 < .001$; $\Delta F(1,147) = 0.05$; $p = .83$).

For behavioural description alignment in the green investment domain, model 1 was significant, explaining 48.0% of the variance ($F(3,218) = 67.04$; $p < .001$). Adding welfare in model 2 did not significantly improve model fit ($\Delta R^2 = .004$; $\Delta F(1,217) = 1.87$; $p = .17$). Ecological worry in model 3 significantly improved model fit, explaining an additional 1.8% of variance ($\Delta F(1,216) = 7.91$; $p = .005$).

For intentions to increase the share of green investments, model 1 was significant, explaining 9.4% of the variance ($F(3,218) = 7.54$; $p < .001$). Adding welfare in model 2 significantly improved model fit, explaining an additional 2.8% of variance ($\Delta F(1,217) = 7.03$; $p = .02$). Adding ecological worry in model 3 did not significantly improve model fit ($\Delta R^2 = .005$; $\Delta F(1,147) = 1.21$; $p = .27$).

Table 42. Model fit statistics in the green investment domain.

Dependent variable	Model	R^2	ΔR^2	F	ΔF	df	p_{change}	p_{model}
Percentage of green investments	Model 1	.32	-	23.71	-	(3,149)	-	<.001
	Model 2	.32	<.001	17.67	.02	(1,148)	.89	<.001
	Model 3	.32	<.001	14.06	.05	(1,147)	.83	<.001
Behavioural description alignment	Model 1	.48	-	67.04	-	(3,218)	-	<.001
	Model 2	.48	.004	50.95	1.87	(1,217)	.17	<.001
	Model 3	.50	.02	43.64	7.91	(1,216)	.005	<.001
Intentions to increase share of green investments	Model 1	.09	-	7.54	-	(3,218)	-	<.001
	Model 2	.12	.03	2.57	7.03	(1,217)	.009	<.001
	Model 3	.13	.005	6.30	1.21	(1,216)	.27	<.001

Regarding individual predictors, self-accountability was a significant positive predictor of the percentage of green investments across model 1 (β = .28, $p < .001$), model 2 (β = .28, $p < .001$) and model 3 (β = .28, $p < .001$). This indicates that individuals who felt more personally accountable for mitigating GHG emissions reported allocating a greater share of their investments to green investments. Agency also was a significant positive predictor of the percentage of green investments across model 1 (β = .34, $p < .001$), model 2 (β = .34, $p < .001$) and model 3 (β = .35, $p < .001$). This indicates that individuals who felt more able to mitigate GHG emissions reported allocating a greater share of their investments to green investments. None of the other predictors significantly contributed to the models.

For behavioural description alignment in the green investment domain, self-accountability was a significant positive predictor across model 1 (β = .45, $p < .001$), model 2 (β = .45, $p < .001$) and model 3 (β = .40, $p < .001$). This indicates that individuals who felt more personally accountable for mitigating GHG emissions reported stronger alignment with descriptions of pro-environmental investment behaviour. Agency also was a significant positive predictor across model 1 (β = .34, $p < .001$), model 2 (β = .34, $p < .001$) and model 3 (β = .31, $p < .001$). This indicates that individuals who felt more able to mitigate GHG emissions reported stronger alignment with descriptions of pro-environmental investment behaviour. After controlling for ecological worry in model 3, ecological worry also emerged as a significant positive predictor (β = .16, $p < .01$), suggesting that greater environmental concern was associated with stronger pro-environmental behavioural alignment. Welfare did not significantly predict behavioural description alignment in any of the models.

For intentions to increase the share of green investments, self-accountability was a significant positive predictor across model 1 (β = .28, $p < .001$), model 2 (β = .30, $p < .001$) and model 3 (β = .27, $p < .001$). This indicates that individuals who felt more personally accountable for mitigating GHG emissions reported intentions to increase their share of green investments. Welfare emerged as a significant negative predictor in both model 2 (β = -.17, $p < .01$) and model 3 (β = -.17, $p < .01$), indicating that higher welfare was associated with weaker intentions to increase the share of green investments. A summary of all predictors and their strength can be found in Table 43.

Table 43. Hierarchical multiple regression analyses in the green investment domain.

Dependent variable	**Model**	**Self-accountability**	**Agency**	**Efficacy**	**Welfare**	**Ecological worry**
Percentage of green investments	Model 1 β	.28***	ns	.34***	-	-
	Model 2 β	.28***	ns	.34***	ns	-
	Model 3 β	.28***	ns	.35***	ns	ns
Behavioural description alignment	Model 1 β	.45***	ns	.34***	-	-
	Model 2 β	.45***	ns	.34***	ns	-
	Model 3 β	.40***	ns	.31***	ns	.16**
Intentions to increase share of green investments	Model 1 β	.28***	ns	ns	-	-
	Model 2 β	.30***	ns	ns	-.17**	-
	Model 3 β	.27***	ns	ns	-.17**	ns

Note: ns = not significant, *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

4.7 The correlation between self-accountability, agency, efficacy, ecological worry and welfare

Pearson correlation analyses were conducted to examine the relations between self-accountability, agency, efficacy, ecological worry, and welfare. As shown in Table 44, self-accountability was positively correlated with agency (r = .41, p < .01), efficacy (r = .65, p < .01), and ecological worry (r = .69, p < .01), but was not significantly related to welfare (r = .09, p = .07).

Agency was positively associated with self-accountability (r = .41, p < .01), efficacy (r = .324, p < .01) and ecological worry (r = .252, p < .01), and was not significantly correlated with welfare (r = −.018, p = .73).

Efficacy was positively correlated with self-accountability (r = .65, p < .01), agency (r = .324, p < .01), and showed a moderate positive correlation with ecological worry (r = .465, p < .01) and was not significantly associated with welfare (r = −.029, p = .58).

Ecological worry was positively correlated with self-accountability (r = .69, p < .01), agency (r = .252, p < .01), and efficacy (r = .465, p < .01), but not significantly related to welfare (r = −.046, p = .38).

Welfare was not correlated to self-accountability (r = .09, p = .07), agency (r = -.02, p = .73), efficacy (r = -.03, p = .58) nor ecological worry (r = -.05, p = .38).

Overall, all the IVs were moderately to strongly interrelated with each other, whereas welfare showed no significant associations with the psychological constructs.The positive correlations among self-accountability, agency, efficacy, and ecological worry suggest that these constructs are related but distinct dimensions. Individuals who report higher levels of one construct tend to report higher levels of the others as well.

Table 44. The correlations between the study's independent variables.

Variable	1	2	3	4	5
1. Self-accountability	-				
2. Agency	.41***	-			
3. Efficacy	.65***	.32***	-		
4. Ecological worry	.69***	.25***	.47***	-	
5. Welfare	$.09^{ns}$	$-.02^{ns}$	$-.03^{ns}$	$-.05^{ns}$	-

Note: ns = not significant, *$p \leq .05$, **$p \leq .01$, ***$p \leq .001$

4.8 Descriptive behavioural context

This section examines whether welfare level is associated with differences in categorical behavioural indicators. Unlike the previous sections, which focused on continuous measures of behaviour, intentions, and psychological predictors, the analyses in this chapter rely on chi-square tests of independence to assess whether the distribution of participants across discrete categories differs by welfare level. Specifically, this paragraph examines whether welfare is related to participants' investment-related behaviours, including whether they hold investments and whether they know the share of their investments that is allocated to green assets.

4.8.1 Influence of welfare on frequency of investment behaviour

A chi-square test of independence showed a significant association between welfare groups and whether they had investments ($\chi^2(2, N = 368) = 28.76$, $p < .001$, Cramér's V <.001). This means that increases in welfare had a significant influence on the amount of participants having investments. Specifically, high-welfare individuals significantly had more investments than middle- and low-welfare individuals ($p < .05$). Investment possession was distributed amongst the participants across welfare groups as displayed in Table 45.

Table 45. Frequency of investment possession across welfare groups.

			Welfare groups			
			Low-welfare (n = 76)	Middle-welfare (n = 152)	High-welfare (n = 140)	χ^2 (df = 2); *p*-value
Investment possession	Yes they do	Count	33[a]	81[a]	108[b]	28.76; $p < .001$
		Proportion frequencies/total	.15	.37	.49	
	No they don't	Count	43[a]	71[a]	32[b]	
		Proportion frequencies/total	.30	.49	.22	

Note: Columns sharing the same superscript letter are not significantly different at the .05 level (crosstabs with pairwise z-test Bonferroni corrected).

A chi-square test of independence showed no significant association between welfare groups and whether they knew their percentage of green investments ($p = .12$). This means that increases in welfare did not significantly alter whether participants knew their percentage of green investments. Knowledge of green investment share was distributed amongst the participants across welfare groups as displayed in Table 46.

Table 46. Frequency of knowledge of green investment share across welfare groups.

			Welfare groups			
			Low-welfare (n = 33)	Middle-welfare (n = 81)	High-welfare (n = 108)	χ^2 (df = 2); *p*-value
Knowing % of green investments	Yes they do	Count	25[a]	49[a]	79[a]	4.306; *p* = .12
		Proportion frequencies/total	.16	.32	.52	
	No they don't	Count	8[a]	32[a]	29[a]	
		Proportion frequencies/total	.12	.46	.42	

Note: Columns sharing the same superscript letter are not significantly different at the .05 level (crosstabs with pairwise z-test Bonferroni corrected).

5.
DISCUSSION

5. Discussion

5.1 Summary of findings

This thesis examined how individuals across different welfare groups perceive self- and other-accountability, as well as related constructs such as agency and efficacy, in relation to mitigating greenhouse gas (GHG) emissions. Self-accountability measured how individuals view their own responsibility to mitigate GHG emissions, while other-accountability measured the extent to which several societal actors were seen as responsible. Agency measured the perceived capacity to independently execute mitigation of GHG emissions, while efficacy measured whether participants believed that acting will have significant positive results on GHG emissions. This thesis further explored how the perceptions of self-accountability, agency and efficacy shape pro-environmental intentions and behaviours across several domains of consumption as well as across different welfare groups. The study focused on five environmentally impactful behavioural domains: fashion consumption, air travel, meat consumption, household heating, and green investment.

5.1.1 Perceptions of accountability, agency and efficacy across welfare groups

All welfare groups reported significantly similar mid-range levels of perceived self-accountability, agency, and efficacy to reduce GHG emissions. When welfare was measured continuously rather than in groups, no significant main effect of welfare on intentions to mitigate GHG emissions, perceptions of self-accountability, agency nor efficacy was found either. These results show that individuals' welfare did not significantly change how they viewed their self-accountability, agency nor efficacy, nor did it significantly change their intentions to change their GHG emissions.

Across all welfare groups, people saw large companies as most accountable for mitigating GHG emissions, followed by international institutions and national governments tied for second place. Low-welfare individuals were seen as least accountable in all welfare groups, followed by average consumers and rankings of themselves sharing the next lowest level of accountability. This suggests people across welfare levels did not distinguish much between their own accountability and that of the average consumer. Welfare had little influence on ascribed accountability. The only significant differences were that: (1) middle-welfare and high-welfare participants significantly rated themselves as more accountable than the low-welfare group; (2) low-welfare and middle-welfare participants rate large companies as more accountable than the high-welfare group; (3) the middle-welfare group attributed greater accountability to environmental organisations than the high-welfare group.

5.1.2 Effects of self-accountability, agency and efficacy on pro-environmental intentions and behaviour

Increased perceptions of self-accountability, agency, and efficacy led to more pro-environmental intentions and behaviour, although their influence was strongest for domain-specific behaviours and intentions rather than for general climate intentions. General intentions to alter GHG emissions were significantly predicted by self-accountability and ecological worry, but these variables explained only a modest proportion of the variance.

Increases in agency and efficacy to mitigate GHG emissions, as well as increases in welfare did not significantly influence intentions to alter GHG emissions. These findings provide overall support for H1a, while showing that H1b, and H1c are not supported on a general intention level.

Within domains, self-accountability, agency, and efficacy generally improved pro-environmental intentions and behavioural alignment. This further supports H1a–H1c at the domain level. In contrast, H2b received little support. Welfare rarely moderated the relations between psychological factors and pro-environmental outcomes. Only a small number of significant interaction effects emerged across the large number of moderation analyses conducted. Furthermore, two of these interaction effects became significant only after removing an extreme outlier who reported taking 144 short-distance flights, reducing confidence in their robustness. Overall, the findings suggest that the relations between self-accountability, agency, efficacy, and pro-environmental behaviour are largely similar across welfare levels. However, higher welfare levels were linked to some reductions in pro-environmental behaviour in terms of concrete behavioural quantities, supporting H2a. The relation between psychological perceptions and pro-environmental intentions and behaviour differed across behavioural domains, consistent with H3.

In the fashion consumption domain, an intention–behaviour gap emerged clearly. Self-accountability, agency, and efficacy significantly predicted stronger intentions to reduce clothing purchases and more pro-environmental behavioural descriptions, yet they did not significantly predict the actual number of clothing purchased in the previous three months. Welfare, however, did have a direct effect, as increases in individuals' welfare led to significantly more clothing purchased.

A similar intention–behaviour gap was found for the air travel domain. Self-accountability, agency, and efficacy predicted strong intentions to fly less and more pro-environmental behavioural alignment. However, self-accountability and efficacy did not significantly predict the actual number of flights taken. Instead, welfare was the only significant predictor of short-distance flights, with higher-welfare individuals taking more flights. Higher welfare also predicted an increase in long-distance flights. Agency was the only psychological factor of this research linked to long-distance flights, with higher agency associated with fewer long-distance flights.

In the household heating domain, self-accountability and efficacy again only predicted intentions to reduce household heating use and more pro-environmental behavioural alignment, showing another intention–behaviour gap. Similar to the air travel domain, high perceptions of agency did significantly predict household heating behaviour. However, in the household heating domain an increase in perceived agency did not affect the intended household heating use. Welfare did not significantly influence the set thermostat temperature nor the intended household heating use, but increases in welfare did lead to participants significantly reporting less pro-environmental household heating self-alignment.

In the meat consumption domain, higher perceptions of self-accountability, agency, efficacy, and ecological worry all positively predicted both intentions and behaviour, while increased welfare only predicted a small significant reduction in the intended meat consumption. This suggests that dietary behaviour may be especially responsive to psychological factors.

The green investment domain revealed that higher welfare levels significantly increased the likelihood of possessing investments. A notable finding was that approximately one third of participants with investments did not know what proportion of their investments was green. Among participants who did know the percentage of green investments in their portfolio, higher perceptions of self-accountability, agency, efficacy, and ecological worry were all associated with a higher share of green investments, while increases in welfare only predicted a small significant reduction in the intended share of green investments.

Across the psychological variables examined in this thesis, self-accountability emerged as the most consistent predictor of pro-environmental intentions and behaviours overall. It was significantly associated with the largest number of pro-environmental outcome measures across the study and showed the strongest correlations with the other psychological constructs, namely agency, efficacy, and ecological worry. This pattern suggests that self-accountability may occupy a relatively central position within the network of psychological factors examined. However, when considering concrete pro-environmental behaviours specifically (e.g., the number of flights taken, dietary choices, or other observed behavioural measures), agency was associated with the largest number of outcomes. This indicates that while self-accountability may be particularly important for explaining pro-environmental engagement across both intentions and behaviours, agency may play a more prominent role in translating pro-environmental motivations into tangible actions.

5.2 Theoretical implications

The findings of this thesis contribute to the two central knowledge gaps identified in the theoretical background, as well as contribute through additional knowledge found in the analysis of these two central knowledge gaps. First, little was known about how perceptions of self- and other-accountability differ across welfare groups, as previous research has largely focused either on objective measures of high-welfare individuals' self-accountability or on accountability perceptions among the “average consumer.” Second, although self-accountability, agency, and efficacy are established predictors of pro-environmental behaviour among average consumers, it was unclear whether these relationships generalize across welfare groups. Beyond addressing these knowledge gaps, this thesis also shed light on some limits of psychological measures in pro-environmental behaviour research.

5.2.1 How individuals across welfare groups perceive accountability, agency and efficacy

Perceptions of self-accountability, agency and efficacy in mitigating GHG emissions
The first knowledge gap concerned how individuals across welfare groups perceive self- and other-accountability, as well as their own agency and efficacy in mitigating GHG emissions. Existing literature suggested conflicting possibilities. Some studies indicated that higher income and perceived control may strengthen self-accountability (Whillans et al., 2016; Daganzo & Bernardo, 2018), whereas others suggested that high-welfare individuals may display weaker perceived obligations, lower prosocial orientations, and a tendency to shift accountability toward governments and corporations (Piff et al., 2010; Orton, 2006; Seider, 2008; Ballew et al., 2019; Duncan et al., 2024).

This thesis contributes to these debates by showing that participants across all welfare groups reported similar, mid-range levels of self-accountability, agency, and efficacy. When welfare was analysed as a continuous variable, no significant main effect of welfare on intentions to mitigate GHG emissions, perceptions of self-accountability, agency nor efficacy was found either. These results show that individuals' welfare did not significantly change how they viewed their self-accountability, agency nor efficacy, nor did it significantly change their intentions to change their GHG emissions. Together, these findings suggest a perception–reality gap. Relative to their objective influence on emissions, low-welfare individuals seem to overestimate their self-accountability, agency, and efficacy, while high-welfare individuals seem to underestimate their self-accountability, agency, and efficacy.

Perceptions of the accountability of others to mitigate GHG emissions

Regarding the perceptions of accountability of others, research showed (1) that people frequently attribute climate accountability primarily to governments and corporations rather than individuals themselves (Hormio, 2023; Jin, 2023; Persson et al., 2021; Taubert, 2025); (2) a tendency of high-welfare individuals to shift accountability onto external actors such as governments and corporations (Duncan et. al, 2024); (3) a tendency to underestimate the environmental impact of wealthy individuals ("Perceived Climate Justice," 2024).

This thesis supports these findings, showing that individuals across all welfare groups ranked large corporations as most accountable, closely followed by a shared second place of the national government and international institutes. Accountability was not only primarily put on corporations and governments, rankings of themselves and average consumers shared the second lowest level of accountability, with only low-welfare individuals being attributed less accountability. This supports earlier findings that people attribute climate accountability primarily to governments and corporations rather than individuals themselves (Hormio, 2023; Jin, 2023; Persson et al., 2021; Taubert, 2025).

Furthermore, participants across all welfare groups rated their own accountability similarly to that of the average consumer. Among high-welfare individuals, this is particularly noteworthy because of their objectively greater contribution to emissions and capacity to reduce them, high-welfare individuals would be expected to attribute more accountability to themselves than to the average consumer. Instead, by placing themselves at the same level as the average consumer, one of the least accountable actors in the rankings, they appear to downplay their own accountability. At the same time, they assign substantial accountability to governments and corporations, suggesting that some of the accountability they do not attribute to themselves is shifted onto these external actors. This finding supports previous research showing a tendency of high-welfare individuals to shift accountability onto external actors such as governments and corporations (Duncan et al., 2024).

The tendency to underestimate the environmental impact of wealthy individuals was also found across welfare groups by their rating of high-income individuals ("Perceived Climate Justice," 2024). High-income individuals were ranked at equal levels of accountability as local authorities and environmental groups in this research, whereas in reality high-income individuals have such a great influence that their decisions can have the same climate impact as nationwide policy interventions (Roston, Kaufman, & Warren, 2022). This research shows that perceptions found in previous research hold true in quantitative research in the Netherlands.

Moreover, it shows that individuals across welfare groups hold remarkably similar perceptions regarding climate accountability. At the same time, the findings also reveal an important theoretical tension. Although objective contributions to GHG emissions differ substantially between welfare groups, subjective perceptions of accountability do not differ to the same extent. This reveals the same perception-reality gap found in the perceptions of self-accountability, agency and efficacy earlier. In particular, high-welfare individuals did not perceive themselves as substantially more accountable despite their objectively larger environmental footprints, while low-welfare individuals perceived themselves as equally accountable despite their objectively lower environmental footprints and lack of resources.

5.2.2 The influence of self-accountability, agency and efficacy on pro-environmental intentions and behaviour across welfare groups

The second knowledge gap concerned whether self-accountability, agency, and efficacy influence pro-environmental intentions and behaviour differently across welfare groups. Existing research consistently showed that higher levels of accountability, agency, and efficacy encourage pro-environmental behaviour among average consumers (Syropoulos & Markowitz, 2022b; Y. P. N. Habets et al., 2023; van Valkengoed et al., 2023; Giroux et al., 2016; Dong et al., 2020; Sawitri et al., 2015). Research further suggested that these psychological constructs reinforce one another (Stok, 2023; Gu et al., 2020; Walker & Posner, 2014; Rui et al., 2021). However, it remained unclear whether these relations would function similarly across welfare groups (Duncan et al., 2024). The findings of this thesis largely support the idea that these psychological constructs generalize across socioeconomic contexts. Self-accountability, agency, and efficacy positively predicted several pro-environmental intentions and behaviours, while welfare showed relatively limited moderation effects. This suggests that self-accountability, agency, and efficacy had similar positive effects on pro-environmental intentions and behaviour in all welfare groups. Self-accountability emerged as the strongest and most interconnected psychological predictor, as it was significantly associated with agency, efficacy, and ecological worry while also predicting the largest number of pro-environmental outcomes. Agency, on the other hand, emerged to be the most consistent predictor of pro-environmental behaviour measured in concrete behavioural quantities, as it predicted both the number of long-distance flights taken and the set thermostat temperature, when all other psychological measures showed no significant influence.

At the same time, the findings also demonstrate important limits to psychological explanations of pro-environmental behaviour. Welfare showed relatively little moderation of psychological relations, but it still exerted direct effects on several environmentally impactful behaviours. Higher welfare was associated with more clothing purchases, more long-distance flights, less pro-environmental household heating behaviour, and greater likelihood of possessing investments. This distinction is theoretically important, because it suggests that welfare primarily shapes environmental behaviour through differences in consumption opportunities and lifestyles rather than through fundamentally different psychological mechanisms. High-welfare individuals may feel equally accountable or concerned compared to low- and middle-welfare individuals, yet their greater access to material resources enables more carbon-intensive consumption patterns. The findings therefore support perspectives emphasizing that pro-environmental behaviour is shaped both psychologically and structurally.

While psychological factors such as self-accountability, agency, and efficacy play an important role in shaping many forms of pro-environmental intentions and behaviour, they do not appear to significantly influence behaviour in all domains. In these domains, welfare emerges as the main predictor of environmental impact, with lower welfare being associated with more pro-environmental behaviour. This likely reflects the fact that welfare captures structural differences in access to resources and consumption opportunities. In domains such as fashion consumption and air travel, where consumption is relatively unconstrained (i.e. there is no fixed point of saturation such as feeling full, reaching thermal comfort or exhausting financial capacity) and closely tied to identity expression, additional resources may both increase individuals' capacity to consume and reinforce motivations to do so. As a result, differences in welfare are more directly translated into differences in consumption patterns in these domains, meaning that environmental outcomes are shaped to a greater extent by structural conditions than by psychological drivers alone. These results highlight that, where psychological factors are less influential, structural conditions linked to welfare play a more decisive role in shaping environmental behaviour.

5.3.3 Limits of psychological measures in pro-environmental behaviour

First of all, this thesis shows that the influence of psychological factors is not consistent across pro-environmental behaviour domains. While self-accountability, agency, and efficacy strongly predict behaviour in some domains, such as green investments, they show no significant effects in others, particularly in the fashion consumption and air travel domains, where they do not explain the number of clothing purchases, and only agency predict a small decrease in the number of flights taken. These differences indicate that generalising psychological predictors across all pro-environmental behaviours risks overlooking important domain-specific variation, which may lead to misleading conclusions when applied to specific behavioural contexts.

Secondly, this thesis found an important hamper in the green investment domain separate from the constructs of self-accountability, agency and efficacy. Namely, roughly a third of participants did not know the percentage of green investments in their portfolio. This shows that while existing research highlighted the objective climate importance of high-welfare individuals' investments (Maitland et al., 2022; Khalfan et al., 2023), public awareness of this impact appears limited. The finding suggests that awareness of consequences, one of the earlier stages of the Norm-Activation Theory (Klöckner, 2015), may not yet be activated in this behavioural domain.

Moreover, while self-accountability, agency, and efficacy often predicted pro-environmental intentions and behavioural descriptions, these relations did not consistently translate into concrete behavioural quantities (such as the number of long-distance flights) across all domains. This intention-behaviour gap was especially visible in the fashion and air travel domains. These findings align with research arguing that pro-environmental behaviour is constrained not only by attitudes and values, but also by habits, infrastructures and social norms (Whitmarsh & Hampton, 2024; Whatley, 2019). In domains such as flying and fashion consumption, structural and cultural influences may weaken the extent to which personal accountability translates into behavioural change.

By contrast, the meat consumption domain showed comparatively strong relations between psychological variables and both intentions and behaviour. This suggests that some domains may be more psychologically controllable than others. Dietary behaviour may provide individuals with more frequent opportunities for conscious decision-making, allowing accountability, agency, efficacy, and ecological worry to exert a stronger influence.

Regarding intentions, it should also be noted that the intentions in this research were very low in contrast to existing research (Schulz et al., 2024; Harland et al., 1999; Grimmer & Miles, 2016). Participants of this research generally intended to behave very similarly the next year, with only a small intended increase of pro-environmental behaviour. These intentions were found both in general intentions and domain-specific intentions. One possible explanation for the relatively low levels of intended behavioural change is related to how pro-environmental intentions are typically measured in existing research. Many studies measure pro-environmental intentions using scales ranging from no intention to change to strong intentions to act more pro-environmental, implicitly assuming that individuals either do not change or move toward greater environmental action, while leaving little conceptual space for reduced pro-environmental behaviour (Schulz et al., 2024; Harland et al., 1999; Grimmer & Miles, 2016). In contrast, the present study used a bidirectional scale ranging from “strongly reduce” to “strongly increase,” with “keep as is” as a meaningful midpoint. This likely reduces the implicit norm of expected improvement and makes stability a more psychologically acceptable response option. In addition, while many studies focus on a single salient behaviour or domain (Kühne et al., 2026), thereby increasing the cognitive and moral salience of environmental impact, this study assessed intentions across multiple domains and in general terms. This broader framing may have reduced the salience of any specific behavioural problem and, in turn, lowered the tendency for respondents to report systematic increases in pro-environmental intentions.

Overall, this thesis demonstrates that there is a perception-reality gap, in which high-welfare individuals misperceive their self-accountability, agency and efficacy to be lower than the reality. When individuals do feel increased self-accountability, agency or efficacy, this leads to an increase of pro-environmental behaviour and intentions across most domains. However, in the domains where self-accountability, agency and efficacy are not significant predictors on the conducted behaviour, increases in welfare did significantly predict individuals to act in ways that were more harmful to the environment. This indicated that while psychological measures drive behaviour in some domains, structural inequalities in consumption opportunities continue to shape environmental behaviour. The findings therefore support an integrated perspective that combines psychological explanations of environmental behaviour with structural analyses of inequality, affluence, and consumption.

5.3 Practical implications

5.3.1 Implications across behavioural domains

The findings of this thesis suggest several practical implications for policymakers, environmental organizations, and practitioners seeking to encourage pro-environmental behaviour.

Perception-reality gap among high-welfare individuals
First, this thesis revealed a perception–reality gap among low- and high-welfare individuals. Participants across all welfare groups reported similar, mid-range levels of self-accountability, agency, and efficacy. When analysed as a continuous variable, no significant differences emerged across welfare levels either, despite large differences in objective GHG emissions. This gap was also reflected in accountability ratings.

Across all welfare groups, participants viewed themselves as similarly accountable as the average consumer. Given their greater contribution to emissions and greater capacity to reduce them, high-welfare individuals would be expected to assign themselves more accountability. On the other side of the coin, low-welfare individuals would be expected to assign themselves less accountability given their lack of resources. Instead, individuals across all welfare groups placed themselves at the same level as one of the least accountable actors in the rankings. Relative to their objective influence on emissions, low-welfare individuals therefore seem to overestimate their self-accountability, agency, and efficacy, while high-welfare individuals seem to underestimate their self-accountability, agency, and efficacy.

These findings have important implications for the design of climate interventions, suggesting that perceptions of accountability are mostly shaped by social comparison and norms surrounding what is considered “normal” consumption, rather than by objective environmental impact. Two explanations may account for this.
First, people may lack a clear sense of what constitutes “normal” behaviour. Social norms are often shaped by one’s immediate environment (Rabb et al., 2022; Tolciu & Zierahn, 2012; Brook & Cohen, 1989), which tends to consist of individuals from similar socioeconomic backgrounds (Jackson, 2009; Browning et al., 2017; Lenormand & Samaniego, 2023). As a result, perceptions of average consumption and emissions may be systematically biased. This could be addressed in two ways: (1) improving public information on typical consumption and emission levels across society, and (2) reducing socioeconomic segregation, thereby increasing exposure to more diverse lifestyles and aligning perceptions of “normal” behaviour more closely with population averages.
Second, limited carbon literacy may contribute to why high-welfare individuals underestimate their GHG emissions and perceive it to be comparable to that of the average consumer. Many people struggle to translate everyday activities into their associated emissions and therefore have difficulty judging whether their lifestyle is above or below average in carbon intensity (Fizaine & Borgne, 2025; Schleich & Alsheimer, 2024; Kretschmer, 2022). As a result, the impact of high-emission behaviours may be overlooked. For example, avoiding a single long-distance flight reduces emissions by approximately 2.1 t CO_2e, which exceeds the combined savings from modernising a heating system and improving insulation (0.8 t CO_2e), abstaining from meat for a year (0.6 t CO_2e), avoiding food waste for a year (0.5 t

CO_2e), and recycling for a year (0.2 t CO_2e) (Kretschmer, 2022). Without an understanding of the disproportionate impact of such singular actions, individuals may fail to recognise how far their carbon footprint deviates from that of the average consumer. Improving carbon literacy could therefore not only help individuals develop a more accurate understanding of their relative climate impact, but also develop a more accurate understanding of the relative effectiveness of different pro-environmental actions. This is particularly important because perceptions of effectiveness are often stronger predictors of environmental action than objective effectiveness itself (Attari, 2018; White & Sintov, 2018). Individuals tend to act in accordance with their beliefs about which actions matter (Truelove & Parks, 2012), and are more willing to adopt behaviours and support climate policies that they perceive to be effective in addressing climate change (de Boer et al., 2016; Dechezleprêtre et al., 2022; Gardner & Stern, 2008; Kempton, 1993; O'Connor et al., 2002; Truelove & Parks, 2012). As a result, this would mean that improving carbon literacy in high-welfare individuals has both the potential to reduce their perception-reality gap and the potential to aid this high-emitting target group in more effective mitigation of their carbon footprint. Practical efforts to achieve this could take several forms. First, enhancing carbon literacy through education could help individuals develop a more accurate understanding of the relative impact of different consumption behaviours. This could be achieved both through early educational curricula and through workplace-based training programmes, thereby reaching individuals across different life stages and socioeconomic groups. Second, providing clear, accessible, and comparable carbon information at the point of decision-making (for example through emissions labels in retail settings or during air travel booking processes) could help translate abstract knowledge into actionable insights at the moment choices are made. Finally, developing widely accessible public tools that visualise and compare the carbon footprint of everyday activities could further support individuals in contextualising their behaviour within broader societal emission patterns.
However, it should be noted that while reducing the perception–reality gap may have positive effects for high-welfare individuals, it may also have unintended consequences. Because low-welfare individuals currently overestimate their self-accountability, agency, and efficacy, correcting this gap would likely reduce their perceived motivation to act. As a result, increases in pro-environmental behaviour among high-welfare individuals may be accompanied by decreases among low-welfare individuals. Nevertheless, given the substantially higher emissions of high-welfare groups, aligning perceptions more closely with actual impact is still likely to result in an overall beneficial outcome.

If these perception gaps were reduced, high-welfare individuals might better categorize themselves as high-income individuals, rather than average consumers. However, even with improved awareness, another challenge remains: individuals across all welfare groups still tend to underestimate the influence of welfare on emissions. One explanation is that, as shown by Hoffman et al. (2025), people generally prefer framing environmental issues in terms of system-level change rather than individual behaviour. System-level discussions are perceived as more effective, whereas focusing on individual behaviour may be seen as socially sensitive or morally accusatory. This challenge could be addressed by shifting towards descriptive and system-oriented communication that highlights differences in emissions across income groups without assigning blame. Instead of evaluating accountability at the individual level, interventions could emphasise how access to resources, infrastructure, and consumption opportunities structurally shape emissions outcomes. Using aggregated group-level comparisons based on clearly stated and easily

comparable categories (e.g. income deciles) may help reduce defensiveness while still making inequalities in climate impact visible. Focusing on where emission reductions are most effective may also provide high-emitting individuals with clearer guidance on how to most effectively mitigate their emissions.

Self-accountability and agency as complementary psychological levers
Self-accountability emerged as a particularly important psychological lever across multiple domains, predicting the largest number of pro-environmental intentions and behavioural outcomes overall. Agency, while generally showing weaker associations across measures, predicted more concrete behavioural outcomes, such as the number of long-distance flights taken. The psychological constructs were positively interrelated, and both self-accountability and agency were also positively associated with efficacy, indicating that increases in one are likely to be accompanied by increases in the other. Taken together, these findings suggest that interventions targeting self-accountability and agency may positively improve pro-environmental intentions and behaviours.

Limits to psychological explanations of pro-environmental behaviour
Importantly, however, the findings also demonstrate important limits to psychological explanations of pro-environmental behaviour. Welfare showed relatively little moderation of psychological relations, but it still exerted direct effects on several environmentally impactful behaviours. This distinction is theoretically important, because it suggests that welfare primarily shapes environmental behaviour through differences in consumption opportunities and lifestyles rather than through fundamentally different psychological mechanisms. This suggests that environmental policy should not rely solely on individual behavioural change, but should also address the structural conditions that enable carbon-intensive lifestyles.

Ascribed accountability of large companies and governments
Across welfare groups, large companies and governments were consistently seen as most responsible for climate mitigation, indicating a shared expectation that climate action should be driven by institutional actors. This has implications for policy communication, as measures targeting corporate emissions may be more readily accepted when framed as aligning with perceived accountability. Nevertheless, public support may still depend on how associated social and economic impacts, such as employment effects, are addressed.

However, the findings also indicate that interventions should be tailored to specific behavioural domains rather than treating pro-environmental behaviour as a single unified construct. Each domain presented distinct psychological and structural barriers, meaning that interventions effective in one area may not necessarily translate to another.

5.3.2 Implications within each behavioural domain

The green investment domain
The green investment domain deserves particular attention as it is the biggest contributor to the individual carbon footprints of the highest polluters (Maitland et al., 2022). Although investments contribute 50-70% of high-welfare individuals' carbon footprints, many participants lacked awareness regarding their percentage of green investments. Increasing transparency and visibility regarding the environmental impact of investments may therefore represent an important first step.

Among the participants that did know their percentage of green investments, increases in self-accountability, agency, efficacy and ecological worry positively predicted an increase in green investments. Therefore, once awareness is established, interventions targeting self-accountability, agency, efficacy, and ecological worry may help encourage greener investment decisions. Individuals who feel both accountable for and capable of influencing the environmental impact of their investments may be more likely to allocate a greater share of their portfolio toward green investments.

The air travel domain

Air transportation likely offers the largest opportunity for reducing household greenhouse gas emissions among higher-income individuals who fly frequently (Lacroix, 2018). However, the air travel domain revealed particularly persistent behavioural challenges. The number of short-distance flights was only significantly associated with welfare, with higher welfare linked to slightly more flights, while none of the psychological variables were significant predictors. For long-distance flights, higher welfare was associated with a moderate increase in flight frequency, whereas greater perceived agency was associated with a small decrease.

These findings indicate that the number of flights taken could be partially reduced by addressing the small-moderate effect of welfare with measures such as implementing aviation taxes and introducing frequent flyer levies (Z. Wang, 2026; Fouquet & O'Garra, 2021; Environmental Change Institute, 2006). However, as the direct effect of welfare was not large, it seems that reducing the number of flights taken may require interventions beyond welfare, accountability, agency, efficacy, or ecological concern.

A notable finding is that while higher-welfare individuals took significantly more short- and long-distance flights, they reported similar levels of accountability to the average consumer and showed little intention to change their flying behaviour. This suggests that the climate impact of flying may be insufficiently reflected in perceptions of personal accountability.

Such a disconnect is particularly striking given the disproportionate GHG emissions associated with air travel. First of all, the average consumer does not fly to begin with, given that less than 20% of the world population has ever flown in their lives (Gurdus, 2017). Secondly, flying is significantly more polluting than many other consumer decisions a person can make. For example, avoiding a single long-distance flight (2.1 t CO_2e) yields greater emissions reductions than the combined savings from modernising a heating system and improving insulation (0.8 t CO_2e), abstaining from meat for a year (0.6 t CO_2e), avoiding food waste for a year (0.5 t CO_2e), and recycling for a year (0.2 t CO_2e) (Kretschmer, 2022). The findings therefore suggest that, alongside economic measures, interventions should aim to challenge the normalisation of frequent flying and increase awareness of its disproportionate GHG emissions.

This normalisation process can be approached through two complementary strategies. First, increasing the visibility and understanding of flight emissions and their skewed division can help reposition flying as a relatively uncommon, high-impact behaviour rather than a normal form of consumption. This includes providing carbon labels at the point of booking, contextualising flight emissions relative to other household behaviours, and increasing awareness of how few people truly fly.

Second, normalisation processes can also be shifted by lowering the practical and perceived thresholds for lower-carbon alternatives, thereby supporting the uptake and social acceptance of replacement behaviours. Making alternatives such as train travel, remote communication, and closer-to-home holidays more accessible and convenient, to aid making it more socially common can help establish these options as default or normal choices. In combination, these strategies may help viewing flying as the exception instead of the norm.

The meat consumption domain

As less than 20% of the world population has ever flown in their lives (Gurdus, 2017), commercial aviation only accounted for 2.4% of total global CO2 emissions in 2018 (Environmental and Energy Study Institute (EESI) & Overton, 2022), while the food industry accounted for almost one-quarter of total global CO2 emissions (Graver et al., 2019). The meat consumption domain showed the strongest responsiveness to psychological variables among the five behavioural domains of this research. Higher levels of self-accountability, agency, efficacy, and ecological worry were all associated with more pro-environmental dietary behaviour. This suggests that interventions aimed at reducing meat consumption may be particularly effective when they combine awareness-building to increase self-accountability and efficacy with practical support to increase agency. For example, increasing access to affordable vegetarian and vegan options, while providing information about healthy plant-based diets could improve agency, as it gives individuals the knowledge and the means to shift to more pro-environmental diets. Clarifying the environmental impact of different diets could improve efficacy, given that many people severely underestimate the mitigation potential of reduced meat consumption (Kretschmer, 2022). Increasing feedback on the greenhouse gas emissions associated with individual dietary choices could improve self-accountability, as it makes the climate impact of personal food consumption more visible and directly attributable to one's own behaviour.

The fashion consumption domain

In the fashion consumption domain, self-accountability, agency, efficacy, and ecological worry did not significantly reduce the actual number of clothing purchases. Welfare was the only significant predictor in this research, with low-welfare individuals purchasing fewer clothing items overall. This challenges the widespread stereotype that high levels of fast fashion consumption are concentrated among lower-welfare groups. However, it is consistent with research showing that clothing consumption increases with income, reflecting its role as a discretionary good that expands with greater financial resources (Li et al., 1999; Kim, 2014). In addition, clothing is a highly visible form of consumption that is often used for identity expression and social signalling, and is therefore particularly sensitive to income and lifestyle factors (Heffetz, 2007). Higher-welfare individuals may therefore purchase more clothing not due to affordability, but mostly due to greater engagement with fashion cycles, variety-seeking behaviour, and the role of clothing in self-presentation. In contrast, lower-welfare individuals may face financial constraints that limit overall consumption, regardless of product quality or durability considerations.

Practical interventions could therefore include measures that slow down fashion cycles and reduce the social pressure to frequently update wardrobes. For example, policies that restrict ultra-fast fashion production cycles or limit the number of annual collections could reduce trend acceleration and novelty-driven consumption.

In addition, interventions that challenge identity-based consumption norms (such as promoting outfit repetition, normalising wardrobe reuse, and increasing the visibility of sustainable “capsule wardrobe” practices) may reduce the perceived need for constant renewal. Social norm campaigns could further support this by reframing repeated clothing use as socially acceptable or even desirable, particularly among high-consumption groups. Finally, strengthening clothing rental, resale, and repair markets could provide alternative ways to satisfy variety-seeking and self-presentation needs without requiring continual new purchases.

The household heating domain
Heating behaviour appeared particularly influenced by perceptions of agency and ecological worry. Interventions in this domain may therefore benefit from increasing individuals’ sense of control over their energy use. Informational campaigns clarifying effective heating practices, such as reducing unnecessary heating or improving insulation efficiency, may help individuals feel more capable of reducing emissions. Structural measures, including subsidies for insulation, heat pumps, and renewable energy systems, are also likely necessary.

Overall, the findings imply that effective climate interventions should combine psychological approaches with structural and policy-based measures. While increasing accountability, agency, efficacy, and ecological worry can encourage more pro-environmental intentions and behaviours, these psychological levers operate within broader socioeconomic systems that shape consumption opportunities and constraints.

5.4 Limitations and future research

Several limitations should be considered when interpreting the findings of this thesis.

One limitation of the present study concerns the sensitivity of the air travel measures to extreme values in the data. In particular, an extreme observation was identified in the air travel domain, where one participant reported an unusually high number of short-distance flights within the one-year reference period. Although this value was retained in the primary analyses, sensitivity analyses indicated that several effects in this domain were partially influenced by this single case, with some effects becoming stronger and others reaching statistical significance after its exclusion. This pattern highlights that findings involving rare, highly skewed behavioural outcomes such as flight frequency may be sensitive to extreme values. While such observations can reflect genuine behavioural variability, they can also disproportionately influence statistical estimates in relatively small samples. Future research using larger samples or administrative behavioural data (e.g., travel records) could help reduce this sensitivity and improve the robustness of estimates in high-variance behavioural domains.

A further limitation concerns the internal consistency of some measures. The agency scale ($\alpha = .541$) and the fashion behaviour self-alignment scale ($\alpha = .575$) both demonstrated lower reliability than is generally considered desirable. As a result, responses to the items within these scales may not have consistently captured the same underlying construct, introducing additional measurement error. Consequently, findings involving these measures should be interpreted with caution, as effect estimates may be less stable and may either

underestimate or obscure true relationships. Future research should seek to refine these measures or employ alternative validated scales with stronger psychometric properties.

Furthermore, there are several biases of the research' sample group. Particularly, the welfare groups used in this study do not fully capture the extremes of the socioeconomic distribution of Dutch society. Although the high-welfare group represented approximately the top 10% of participants, it included relatively few individuals belonging to the top 1% and up, whose lifestyles and environmental impacts may differ substantially even from other high-welfare groups. Similarly, the low-welfare group did not fully represent the most economically marginalized populations, as their average purchasing power was right on the edge of the bottom 10% of Dutch society. Future research should therefore examine how perceptions and behaviours differ at the even more extreme ends of the welfare spectrum. Moreover, the sample was biased toward urban participants. Offline data collection primarily occurred in larger cities near the Dutch coastal region, and snowball sampling likely did not reach a lot of participants outside of this area. Urban and rural populations may differ considerably in terms of infrastructure, transport options, social norms, and environmental attitudes. Future studies should therefore investigate whether the relations observed in this thesis differ across urban and rural contexts.
Because participation was voluntary or only minimally compensated, the sample may also contain a bias toward individuals already interested in environmental issues. Nevertheless, average levels of ecological worry were broadly comparable to findings from previous research conducted in Western countries, suggesting that the sample was not unusually environmentally worried (Office for National Statistics, 2021; Hickman et al., 2021). However, the sample size also included a higher degree of politically left individuals compared to the overall population in the Netherlands. This might be due to the bias toward individuals already interested in environmental issues, but it could also reflect the higher representation of individuals from urban areas (Broz et al., 2021).

Fourth, the study relied on relatively broad indicators across five behavioural domains. Because the questionnaire needed to remain manageable for participants, the measures necessarily simplified highly complex forms of consumption. For example, the air travel domain, representing the consumption category mobility, did not account for differences in car ownership, vehicle type, driving behaviour, public transportation use, or occupancy rates during travel. Similarly, household heating impacts are also influenced by housing size, insulation quality, ownership of energy-intensive amenities, access to renewable energy technologies, and the type of energy contract used. Future research could therefore employ more detailed behavioural measures to capture the complexity of environmental impact more accurately.

Fifth, all behavioural measures relied on self-reports. Because pro-environmental behaviour is socially desirable, participants may have overreported pro-environmental behaviour or underestimated environmentally harmful activities. Additionally, some individuals may have been better able than others to accurately estimate their own consumption patterns. Future research could reduce these limitations by using behavioural tracking methods, such as monitoring purchases, travel records, or energy use over time. However, such approaches should address other methodological challenges, including privacy concerns and the possibility that participants alter their behaviour because they know they are being observed.

Sixth, the study used a cross-sectional design based on a single measurement moment. As a result, the findings reflect participants' attitudes and behaviours at one specific point in time. Environmental worries and consumption patterns may fluctuate across seasons, economic conditions, or major societal events. Longitudinal research would therefore help determine whether the relations identified in this thesis remain stable over time.

Another limitation concerns causality. Although self-accountability, agency, efficacy, and ecological worry were significantly associated with several pro-environmental intentions and behaviour, the design of this study does not allow conclusions regarding causal direction. Experimental research would be necessary to determine whether changes in self-accountability, agency, or efficacy causally influence pro-environmental intentions and behaviour. A randomised controlled design could be used in which participants are assigned to a manipulation condition (designed to increase a specific psychological variable), a contrasting manipulation condition (designed to decrease or weaken the same variable), or a control condition. Following the manipulation, all participants would complete the same measures of pro-environmental intentions and behaviour, and group differences would be compared to assess causal effects. Possible manipulations include personalised carbon feedback to alter self-accountability (e.g., highlighting high versus low individual emissions), behavioural guidance interventions to influence agency (e.g., presenting pro-environmental actions as either highly feasible or highly complex), and impact-based messaging to manipulate efficacy (e.g., emphasising either strong or weak environmental effectiveness of individual actions through success or failure framing).

The finding that many participants did not know the percentage of green investments in their portfolio suggests that awareness of consequences, one of the earlier stages of the Norm-Activation Theory (Klöckner, 2015), may not yet be activated in this behavioural domain. Similar gaps in awareness may exist in other behavioural domains where environmental impacts are less visible or more complex to attribute to individual actions. Future research should therefore investigate whether increasing awareness of domain-specific environmental impacts changes accountability perceptions and behaviour.

Although many findings were similar across welfare groups, this does not necessarily imply that the underlying psychological mechanisms are identical. Similar outcomes may reflect different underlying reasoning processes across welfare levels, for example with high-welfare individuals potentially attributing lower efficacy due to ascribing the tie between wealth and consumption as a structural problem, while low-welfare individuals may perceive limited personal impact due to already low levels of consumption. Future qualitative research could therefore explore how individuals across welfare groups interpret and justify climate self-accountability, agency, and efficacy.

6. CONCLUSION

6. Conclusion

One of the most important findings of this thesis is that individuals across welfare groups perceived themselves as similarly accountable for mitigating greenhouse gas (GHG) emissions, despite large differences in their objective environmental impact. High-welfare individuals, whose consumption patterns contribute disproportionately to emissions, generally did not view themselves as substantially more accountable than the average consumer. This finding is societally relevant because self-accountability emerged as one of the strongest predictors of pro-environmental intentions and behaviour. Together, these results suggest that reducing the gap between perceived and actual self-accountability among high-welfare individuals may represent an important opportunity for GHG mitigation. If individuals with the largest environmental footprints develop a stronger awareness of their disproportionate impact, meaningful emission reductions may be achieved without requiring behavioural change from the population as a whole.

At the same time, the findings demonstrate that increasing accountability alone is unlikely to solve all environmental challenges. Although self-accountability, agency, and efficacy were associated with more pro-environmental intentions and behaviour in many domains, these relations often weakened when actual behavioural quantities were examined. In domains such as air travel and fashion consumption, welfare was a much stronger predictor of environmental impact than psychological variables. This suggests that environmental behaviour is shaped not only by what people believe and intend, but also by the opportunities and constraints created by their lifestyles and purchasing power. Climate policy therefore cannot rely solely on motivating individuals; it must also address the structural conditions that enable high-emission consumption.

Another noteworthy finding is that participants reported relatively limited intentions to reduce their environmental impact. This thesis differed from much prior research by measuring intentions within several behavioural domains and by using a bidirectional scale that allowed for both increases and decreases in pro-environmental behaviour, with “keep as is” as a meaningful midpoint. Across domains, participants generally reported intentions close to maintaining current behaviour, with only small shifts toward greater mitigation. This suggests that the intention–behaviour gap in prior research may be partly inflated by measurement approaches that implicitly encourage reports of increased pro-environmental intention. These results also imply that incremental intentions alone may be insufficient for substantial behavioural change, highlighting the potential importance of interventions that disrupt existing behavioural routines and reduce inertia in high-impact domains.

The findings also suggest that climate interventions may be more effective when they target specific behavioural domains rather than pro-environmental behaviour in general. Each behavioural domain had a unique combination of drivers and challenges, indicating that there is no single pathway to pro-environmental behaviour. When people with very different environmental impacts all see themselves as average consumers, climate action cannot rely on intentions alone but must also disrupt the perceptions, structures and routines that enable high-emission consumption.

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APPENDICES.

Appendix A: List of measures

Table A1. Measures with their sources and reliability.

Type of variable	Original phrasing	New phrasing	Loadings	α
Dependent variable, Pro-environmental behaviour, Fashion consumption domain	***Fashion consumption level*** Number of clothing items purchased in 3 months (Frick et al., 2020)	***Number of clothing purchases*** "Please think about your shopping behaviour for clothes. How many pieces of clothing did you buy new (not second-hand) for your own use in the last 3 months (excluding underwear and socks)? Think of, for example, trousers, shorts, dresses, skirts, t-shirts, pullovers, vests, coats, pyjamas, scarves, hats... Insert here the estimated number:" [Open-ended question]	N.A.	N.A.
	Buying-less-scale 1) I avoid impulse buying when purchasing a garment. 2) I think that the purchase of a new garment has to be done to a minimum. 3) I purchase a garment after checking its durability to use for a long time. 4) I do not purchase a garment which does not match the one I have. [1=Strongly disagree, 7=Strongly agree] (Park & Lee, 2020)	***Fashion consumption behavioural alignment*** "Please state the extent to which you disagree or agree on the following statements about your shopping behaviour for clothes." Original scale items [1=Strongly disagree, 7=Strongly agree]	.756 .771 .688 .420	.575
Dependent variable, Pro-environmental behaviour, Air travel domain	***Leisure travel the year before*** - Frequency of leisure air travel to Europe the year before (in 2018, reported in 2019 survey) - Frequency of leisure travel to Europe by other means -Frequency leisure air travel to other destinations (Aasen et al., 2022)	***Number of yearly flights*** "How many short-distance flights (<3.5 hours) have you taken in the last year? *Please keep in mind that if you do a round trip by plane (flying on the way out and on the way back), it is considered 2 flights. Insert here the number of flights:"*	N.A.	N.A.

		[Open-ended question] "How many long-distance flights (>3.5 hours) have you taken in the last year? *Please keep in mind that if you do a round trip by plane (flying on the way out and on the way back), it is considered 2 flights. Insert here the number of flights:"* [Open-ended question]		
	Behaviour specific self-identity 1: Reducing the number of flights I take for leisure, holidays or visiting family or friends is an important part of who I am. 2: I think of myself as the sort of person who would want to reduce the number of flights I take for leisure, holidays or visiting family or friends 3: I am not the type of person who would reduce the number of flights I take for leisure, holidays or visiting family or friends (reverse scored). [1=Strongly disagree, 7=Strongly agree] (Morten et al., 2018)	***Air travel behavioural alignment*** "Please state the extent to which you disagree or agree on the following statements about your air-travel behaviour." 1: Reducing the number of flights I take is an important part of who I am. 2: I think of myself as the sort of person who reduces the number of flights I take. 3: I am not the type of person who would reduce the number of flights I take. (reversed) [1= Strongly disagree, 7=Strongly agree]	.908 .945 .860	.888
Dependent variable, Pro-environmental behaviour, Household heating domain	***Thermostat*** Highest chosen setting Hours in the highest chosen setting (Guerra-Santin & Itard, 2010)	***Set thermostat temperature*** "When you are at home in winter, what temperature do you typically set the main thermostat to?" [Categorical response with options ranging from 15-25°C using increments of 0.5°C including an "I don't know" option]	N.A.	N.A.
	Willingness to engage How likely people assess their willingness to engage in a particular behaviour and includes four items: 1: You lower the temperature	***Household heating behavioural alignment*** "How likely are you to do the following in order to save energy when heating your home?"	.720 .858 x .841	.740 (.658 without deleting

	setting in all unused rooms when you are at home all day. 2: You lower the temperature setting when you leave home. 3: You keep the doors closed to prevent heat loss. 4: You go to sleep and you lower the temperature setting. [1= Extremely unlikely, 5= Extremely likely] (Conradie et al., 2023)	1: I lower the temperature setting in all unused rooms when I am at home all day. 2: I lower the temperature setting when I leave home. 3: I keep the doors closed to prevent heat loss. 4: I lower the temperature setting when I go to sleep. [1= Extremely unlikely, 7= Extremely likely]		item 3)
Dependent variable, Pro-environmental behaviour, Meat consumption domain	***Diet*** First, please indicate here how you would classify yourself in terms of diet. I would classify myself as… Meat-eater Meat-reducer (flexitarian) Pescetarian (no meat, okay with fish, egg, and dairy) Vegetarian (no meat or fish, okay with egg and dairy) Vegan (no meat, fish, egg or dairy) (Granato & Wassmann, 2024)	***Diet classification*** Original source, with an added "Other, namely…" option.	N.A.	N.A.
	Beef frequency "Please indicate approximately how many times you have eaten beef in the past 2 weeks:" [Open-ended question] (Camilleri et al., 2025)	***Amount of beef consumed*** "Please think about your meat consumption. Please indicate approximately how many times you have eaten beef in the past 2 weeks. Insert here the estimated number:" [Open-ended question]	N.A.	N.A.
Dependent variable, Pro-environmental behaviour, Green investment domain	***Percentage in SRI equity funds*** "In the past year, about what percentage of your total investments in equity funds went into socially responsible equity funds?" [0-100%, don't know as an option] (Riedl & Smeets, 2017)	***Percentage in green investments*** "In the past year, about what percentage of your total investments were green (i.e. investments in businesses or projects that focus on environmental issues, such as renewable energy projects or environmentally responsible companies)?" [Categorical response with options ranging from 0-100%	N.A.	N.A.

		using increments of 10% including an “I don’t know” option]		
	Attitude towards green investment 1: I prefer green investment. 2: I have a favourable attitude towards green investment. 3: Green investment is important for me when I intend to make an investment. 4: I think it is wise for me to get involved in green investment. 5: I think green investment is a great idea. [1= Strongly disagree, 6=Strongly agree] (Malzara et al., 2023)	***Green investment behavioural alignment*** “Please state the extent to which you disagree or agree on the following statements about your investment behaviour.” 1: When investing, I give priority to green investment options. 2: Green investment is important for me when I make an investment. 3: I make a conscious effort to include green investments in my financial decisions. [1= Strongly disagree, 7= Strongly agree]	.947 .951 .946	.943
Dependent variable, Pro-environmental intentions, Intentions to mitigate GHG emissions	***Intentions to reducing the number of flights taken*** “I intend to reduce the number of flights I take for leisure, holidays or visiting family or friends over the next 12 months.” [1= Strongly disagree, 7=Strongly agree] (Morten et al., 2018)	***Intentions to reduce personal emissions*** “Over the next 12 months, how do you intend to change the amount of greenhouse gas emissions you produce through your behaviour? Please move the slider to indicate your answer, where: 1= strongly reduce, 4= keep as it is, 7= strongly increase.” [1= Strongly disagree, 7=Strongly agree]	N.A.	N.A.
Dependent variable, Pro-environmental intentions, Domain-specific intentions		***Intentions to change domain-specific behaviour*** “Over the next 12 months, how do you intend to change your behaviour in the following areas? Please move the slider to indicate your answer, where: 1 = strongly reduce, 4 = no change, 7 = strongly increase.” 1: The amount of clothes you buy 2: The amount of flights you take 3: The amount of household heating you use	N.A.	N.A.

		4: The amount of meat you consume 5: The share of green investments in your portfolio [1= Strongly reduce, 7=Strongly increase]		
Independent variable, Felt responsibility, General felt responsibility	***Felt Responsibility*** 1: I feel a person sense of responsibility to help mitigate/adapt to climate change 2: It's up to me to bring about improvements so we can better mitigate/adapt to climate change 3: I feel obligated to try to do my part to mitigate/adapt to climate change 4:Doing something to mitigate/adapt to climate change is really not my responsibility (reverse score) 5: I feel little obligation to do anything to mitigate/adapt to climate change (reverse score) [1=Strongly disagree, 5=Strongly agree] (Bateman & O'Connor, 2016)	***Self-accountability towards negative impact on GHG emissions*** "Please state the extent to which you disagree or agree on the following statements about how responsible you feel for the negative impact of your personal actions on greenhouse gas emissions." Items were fully adopted, using only the mitigation variant. [1= Strongly disagree, 7=Strongly agree]	.906 .882 .896 .866 .845	.926
Independent variable, Felt responsibility, Domain-specific felt responsibility	***Felt Responsibility*** I feel a person sense of responsibility to help mitigate/adapt to climate change [1=Strongly disagree, 5=Strongly agree] (Bateman & O'Connor, 2016)	***Self-accountability towards domain-specific behaviour*** "Please state the extent to which you disagree or agree with the following statements about how responsible you feel for the greenhouse gas emissions resulting from your personal actions across different domains. I feel a personal sense of responsibility for the greenhouse gas emissions resulting from my…" 1: Fashion consumption. 2: Air travel. 3: Household heating consumption. 4: Meat consumption. 5: Green investment. [1=Strongly disagree,	N.A.	N.A.

		7=Strongly agree]		
Independent variable, Agency, General agency	***Perceived Behavioural Control*** 1: I am confident that I have the knowledge and time for household energy-saving behavior. 2: It is difficult for me to perform household energy-saving behavior. 3: It is completely up to me whether I save energy at home. [1=Strongly disagree, 5=Strongly agree] (Qalati et al., 2022)	***Agency over GHG emissions*** "Please state the extent to which you disagree or agree with the following statements about your ability to influence the greenhouse gas emissions caused by your behaviour." 1: I am confident that I have the knowledge and time for mitigating the emissions caused by my personal actions. 3: It is difficult for me to mitigate the emissions caused by my personal actions. (reversed) 2: It is completely up to me whether I mitigate the emissions caused by my personal actions. [1=Strongly disagree, 7=Strongly agree]	.748 .722 .696	.541
Independent variable, Agency, Domain-specific agency	***Perceived Behavioural Control*** It is completely up to me whether I save energy at home. [1=Strongly disagree, 5=Strongly agree] (Qalati et al., 2022)	***Agency over domain-specific behaviour*** "Please state the extent to which you disagree or agree on the following statements about your ability to reduce the negative impact your personal actions have on greenhouse gas emissions across different domains. It is completely up to me whether I…" 1: Reduce the amount of clothes I buy. 2: Reduce the number of flights I take. 3: Reduce the amount of household heating I use. 4: Reduce the amount of meat I consume. 5: Increase participation in green investment. [1=Strongly disagree, 7=Strongly agree]	N.A.	N.A.
Independent variable, Efficacy,	***Sustainable Development Self-efficacy, Influence on the environment***	***Efficacy on GHG emissions*** "Please state the extent to which you disagree or agree on the	N.A.	N.A.

General efficacy	I believe my actions have an influence on global warming and climate change. [1=Strongly disagree, 4=Strongly agree] (Hanss & Böhm, 2010)	following statement. I believe my actions have an influence on greenhouse gas emissions." [1=Strongly disagree, 7= Strongly agree]		
Independent variable, Efficacy, Domain-specific efficacy	***Sustainable Development Self-efficacy, Influence on the environment*** I believe my actions have an influence on global warming and climate change. (Hanss & Böhm, 2010)	***Efficacy on domain-specific behaviour*** "Please state the extent to which you disagree or agree with the following statements. I believe that if I [...] it has an influence on greenhouse gas emissions." 1: Buy fewer clothes 2: Take fewer flights 3: Use less household heating 4: Eat less meat 5: Hold more green investments. [1=Strongly disagree, 7=Strongly agree]	N.A.	N.A.
Independent variable, Responsibility of Others	***Responsibility ascriptions of actors*** The responsibility for informing the public about flood risks and possible adaptation measures should reside with a) Local governments b) County administrative boards c) The national government d) Experts e) Media f) Non-profit organizations (like tenancy associations, environmental organiza-tions and the Red Cross) g) Each individual, informing themselves (Persson et al., 2021) [1=Strongly disagree, 7=Strongly agree, "do not know"-option]	***Perceived accountability of actors*** "How much responsibility do you think that each of the following actors has for the negative impact their actions have on greenhouse gas emissions? Please place each actor into the bucket that reflects the level of responsibility you believe they carry." 1: Local authorities (e.g. municipalities) 2: The national government (e.g. the "Rijksoverheid" or ministries) 3: International institutes (e.g. the United Nations or the European Union) 4: Large companies (e.g. KLM, Unilever or Shell) 5: Environmental groups (e.g. Milieudefensie or Greenpeace) 6: Average consumers (e.g. households reducing heating use, people choosing public	N.A.	N.A.

		transport or plant-based food) 7: High-income individuals (e.g. frequent flyers, owners of multiple cars or large homes, CEOs of large companies) 8: Another actor, namely [1=No responsibility, 7=Full responsibility]		
Moderator, Welfare, Self-perceived welfare	***Self-perceived welfare*** Imagine a ladder showing where people stand in the United States. At the top are the people who are the best off—those who have the most money, the best education, and the most respected jobs. At the bottom are the people who are the worst off—those who have the least money, the least education, and the least respected jobs or no job. Where would you place yourself on this ladder? [1= Bottom of the ladder, 10= Top of the ladder] (Board Of Governors Of The Federal Reserve, 2025)	***Self-perceived welfare*** "If you think about yourself in terms of welfare, how would you position yourself compared to the average person in your country?" [1= Much less wealthy than the average, 7= Much more wealthy than the average.]	N.A.	N.A.
Moderator, Welfare, Purchasing power	***Household income*** "Which one of the following includes your total HOUSEHOLD income for last year, before taxes?" [Categorical response with options ranging from "Less than $10.000"- "$250,000 or more" using increments of $10.000,-] ***Living arrangements*** How many adults currently live in your household, including you? [Categorical response with 5 options, i.e. "1", "2", "3", "4", "5 or more"] ***Living arrangements*** How many children under the age of 18 currently live in your	***Purchasing power Household income*** "What is your total net household income per year (after tax), including the income of all household members and other income sources (e.g., rent, benefits, investments)?" [Categorical response with options ranging from "Less than €10.000"- "More than €300.000" using increments of €30.000,- including a "Rather not say" option] ***Number of adults in household*** "Including you, how many adults live in your household?" [Open-ended question] ***Number of children in***	N.A.	N.A.

	household, including those who live there part time? [Categorical response with 6 options, i.e. “None”, “1”, “2”, “3”, “4”, “5 or more” (Nguyen & Hargittai, 2023)	***household*** “How many children under the age of 18 live in your household?” [Open-ended question]		
Moderator, Welfare, Housing arrangement	***Housing arrangement*** “Please describe the housing arrangement where you currently live. Do you (and/or your spouse/partner):” [Categorical response with 4 options, i.e. “Own home with a mortgage or loan”, “”Own home free and clear (without a mortgage or loan)”, “Pay rent”, “Neither own home nor pay rent”] (Board Of Governors Of The Federal Reserve, 2025)	***Housing arrangement*** “Which of the following best describes your housing situation and property ownership? Please select the one(s) that apply most and indicate the number of properties where relevant.” [Categorical response with 7 options, i.e. “I own one or more properties outright (no mortgage)”, “I own one or more properties with a mortgage”, “I live in privately rented accommodation”, “I live in social or affordable-rented accommodation”, “I live with family who own the property”, “Other, namely”, “Prefer not to say”] “Approximately what is the total WOZ value (official property valuation) of all the properties you own? Please estimate the combined value if you own more than one property.” [Open-ended question]	N.A.	N.A.
Moderator, Welfare, Financial assets	***Financial assets*** “What is the total value of your financial assets? Financial assets include all stocks, funds, bank deposits, and wealth management products.” [Open-ended question] (Jiang et al., 2024)	***Financial assets*** “Approximately, what is the total value of your financial assets? Financial assets include all stocks, funds, bank deposits, and wealth management products, but exclude tangible, physical items (like land or buildings) with intrinsic value.” [Categorical response with 14 options, i.e. “I do not currently have any invested assets”,	N.A.	N.A.

		“Less than €1.500”, “€1.500 - €7.499”, “€7.500 - €14.999”, “€15.000 - €24.999”, “€25.000 - €49.999”, “€50.000 - €99.999”, “€100.000 - €149.999”, €150.000 - €249.999”, “€250.000 - €499.999”, “€500.000 - €999.999”, “€1.000.000 - €1.999.999”, “More than €2,000,000”, “Rather not say”]		
Control variables, Eco-worry	***Eco-worry scale*** I am concerned about the impact of my behaviours and lifestyle on the Earth. Climate change makes me worry about my future and that of the people I care about. I worry about the environmental crisis more than other people. I am worried that my pro-environmental actions will do little to fix the problem. [1=Strongly disagree, 5= Strongly agree] “How often do you have thoughts about environmental issues that concern you?” [1= Never, 5= Almost always] (Vecina et al., 2025)	***Eco-worry scale*** Original source, but removed the 5th question “How often do you have thoughts about environmental issues that concern you?” and adapted the scale to be: [1=Strongly disagree, 7=Strongly agree]	.878 .919 .918	.890
Control variables, political orientation	***Reported voting behaviour*** “Did you vote in the last national parliamentary election?” [Categorical response with 3 options, i.e. “Yes,” “No,” and “I do not want to say.”] “Name the party you voted for” [Open-ended, but with an option to keep this information private (“I do not want to say”)] (Bauer et al., 2021)	***Reported voting behaviour*** “What party did you vote for in the last elections?” [Categorical response with 19 options, i.e. “Democraten 66 (D66)”, “Partij voor de Vrijheid (PVV)”, “Volkspartij voor Vrijheid en Democratie (VVD)”, “GroenLinks-Partij van de Arbeid (GL/PvdA)”, “Christen-Democratisch Appèl (CDA)”, “JA21”, “Forum voor Democratie (FvD)”, “Socialistische Partij (SP)”, “Boer Burger Beweging (BBB)”, “Denk”, “Partij voor de Dieren (PvdD)”, “Staatkundig Gereformeerde Partij (SGP)”,	N.A.	N.A.

		“ChristenUnie (CU)”, “50PLUS”, “Volt”, “Nieuw Social Contract (NSC)”, “Other, namely:”, “I did not vote in the last elections”, “I do not want to say”]		
Attention check	***Attention check*** “To show that you are paying attention, please select: “strongly agree”” [1=Strongly disagree, 7=Strongly agree] (Y. Wang et al., 2025)	***Attention check*** Original source [1=Strongly disagree, 7=Strongly agree]	N.A.	N.A.
Demographics, age	***Age*** “How old are you?” [Open-ended question] (Aras et al., 2026)	***Age*** “What is your age? Please specify in number of years.” [Open-ended question]	N.A.	N.A.
Demographics, gender	***Gender*** “What is your gender identity?” [Categorical response with 4 options, i.e. “Man”, “Woman”, “Non-binary”, “Other”] (Aras et al., 2026)	***Gender*** “What is your gender?” [Categorical response with 5 options, i.e. “Man”, “Woman”, “Non-binary”, “Prefer not to say”] (Aras et al., 2026)	N.A.	N.A.
Demographics, nationality	***Nationality*** “What is your Nationality?” [Categorical response with 2 options, i.e. “Saudi”, “Non-Saudi”] (Alshammari et al., 2025)	***Nationality*** “What is your nationality?” [Categorical response with 2 options, i.e. “Dutch”, “Other, namely:”]	N.A.	N.A.
Demographics, education	***Education level*** “What is the highest level of school you have completed or the highest degree you have received?” [Categorical response with 9 options, i.e. “Less than high school degree”, “High school degree or GED”, “Some college but no degree (including currently enrolled in college)”, “Certificate or technical degree”, “Associate degree”, “Bachelor's degree”, “Master's degree”, “Professional degree (e.g. MBA, MD, JD)”, “ Doctoral Degree”]	***Education level*** “Which of these is the highest level of education you have completed?” [Categorical response with 7 options, i.e. “No formal qualifications”, “Secondary education (e.g. VMBO/MAVO/MBO level 1)”, “High school diploma (e.g. HAVO/VWO/MBO levels 2)”, “Technical/community college (MBO levels 3-4)”, “Undergraduate degree (BA/BSc/other)”, “Graduate degree (MA/MSc/MPhil/other)”,	N.A.	N.A.

	(Board Of Governors Of The Federal Reserve, 2025)	“Doctorate degree (PhD/other)”		
Demographics, occupation	***Occupation level*** “What is your current profession ?” We divide the answers into the following levels: [Categorical response with 7 options, i.e. “Higher academic or independent profession (e.g. architect, physician, scholar, academic instructor, engineer)”, “Higher supervisory profession (e.g. manager, director, owner of large company, supervisory civil servant)”, “Intermediate academic or independent profession (e.g. teacher, artist, nurse, social worker, policy assistant)”, “Intermediate supervisory or commercial profession (e.g. head representative, department manager, shopkeeper)”, “Other mental work (e.g. administrative assistant, accountant, sales assistant, family carer)”, “Skilled manual (e.g. car mechanic, foreman, electrician) or semi-skilled manual (e.g. driver, factory worker)”, “Unskilled (e.g. cleaner, packer) or agrarian (e.g. farm worker)”] (Buser et al., 2020)	***Occupation level*** “What best describes your current employment situation or main occupation? (Please choose the option that most closely matches your situation.)” [Categorical response with 8 options, i.e. all original source options with an additional “No paid employment (e.g., student, unemployed, retired, etc.), furthermore “*unskilled*” was rephrased to be “*manual*”]	N.A.	N.A.

Appendix B: Classification of “other, namely” variables

B1. Diet classification

There were 6 participants who wrote a personalized answer to the diet classification question. The original categorical responses were: *“Meat-eater”*, *“Meat-reducer (flexitarian)”*, *“Pescetarian (no meat, okay with fish, egg and dairy)”*, *“Vegetarian (no meat or fish, okay with egg and dairy)”* and *“Vegan (no meat, fish, egg or dairy)”*. These participants were categorized under the existing response format as displayed in Table B1.

Table B1: The divisions of personalized answers to diet classifications.

Personalized response	**Assigned diet classification**
Whole food, mainly plant based. Not 100% vegan, but still no dairy, no oil, but occasionally meat, fish and eggs.	Meat-reducer (flexitarian)
Plantaardig	Vegan (no meat, fish, egg or dairy)
Mostly pescetarian, only when I eat outside I sometimes eat meat	Pescetarian (no meat, okay with fish, egg and dairy)
Minder vlees, oké met vis, ei, zuivel	Meat-reducer (flexitarian)
I eat everything but I try to keep a balance. Mostly I eat vegetables, meat and fish once or twice a month but eggs more often	Meat-reducer (flexitarian)
Flexitarian, but definitely most often eat vegetarian (sometimes chicken and VERY seldomly beef)	Meat-reducer (flexitarian)

B2. Political orientation

There were 5 participants who wrote a personalized answer to the political orientation question. The original categorical responses included all parties that got elected in the 2025 Dutch parliamentary elections as well as “*I did not vote in the last elections*” and “*Prefer not to say*”. These participants were categorized as displayed in Table B2.

Table B2: The divisions of personalized answers to political orientation.

Personalized response	**Assigned political orientation**
PvdA	GroenLinks-Partij van de Arbeid (GL/PvdA)
GL/PvdA (but regretted it and will vote PvdD again next time, like I did before)	GroenLinks-Partij van de Arbeid (GL/PvdA)
Bij1	Bij1
Bij1	Bij1
Left the response field blank	Prefer not to say

B3. Housing arrangement

There were 14 participants who wrote a personalized answer to the housing arrangement question. The original categorical responses were: *"I own the home I live in outright (no mortgage)"*, *"I own the home I live in with a mortgage"*, *"I live in privately rented accommodation"*, *"I live in social or affordable-rented accommodation"* and *"I neither own the home nor pay rent"*. These participants were categorized as displayed in Table B3.

Table B3: The divisions of personalized answers to diet classifications.

Personalized response	**Chosen diet classification**
Woon bij mijn ouders	I neither own the home nor pay rent
Live with my parents	I neither own the home nor pay rent
Live at my parents	I neither own the home nor pay rent
Ik woon bij mijn moeder die de woning bezit zonder hypotheek	I neither own the home nor pay rent
Ik bezit de woning niet.	I neither own the home nor pay rent
i live with my parents who own the home (no mortgage)	I neither own the home nor pay rent
Zelfstandige studenten woning	I live in social or affordable-rented accommodation
Ik woon op een studentenkamer	I live in social or affordable-rented accommodation
Ik woon in een kamer van een studentenhuisvestingsorganisatie gedeeld met huisgenoten	I live in social or affordable-rented accommodation
I live with my mom in the house she owns and I pay €200 a month	I live in social or affordable-rented accommodation
I live in accommoation provided by a job agency	I live in social or affordable-rented accommodation
Bruikleen van een sociale koopwoning	I live in social or affordable-rented accommodation
Betaalbare anti-kraak woning	I live in social or affordable-rented accommodation
Partner bezit de woning waarin we wonen volledig (zonder hypotheek)	I own the home I live in outright (no mortgage)

Appendix C: The aggregation of welfare

C1. The Principle Component Analysis (PCA) as a tool to aggregate welfare

To construct a comprehensive measure of welfare, multiple indicators capturing different dimensions of socioeconomic position were combined into a single index. These indicators included self-perceived welfare, purchasing power, property-related measures, financial assets, and occupation. Given the multidimensional nature of welfare and the absence of a universally agreed-upon weighting scheme, a data-driven approach was adopted using Principal Component Analysis (PCA). PCA is commonly used in socioeconomic research to reduce a set of correlated variables into a smaller number of components, thereby capturing the shared variance between indicators while avoiding arbitrary weighting decisions (Vyas & Kumaranayake, 2006; Gupta et al., 2024; Asadi-Lari et al., 2023). PCA is particularly suitable for constructing composite welfare indices because it identifies the shared variance across indicators and derives weighted components based on the extent to which variables differentiate between participants (Vyas & Kumaranayake, 2006). Indicators that vary strongly across participants contribute more heavily to the resulting component, whereas variables with little variation contribute less to distinguishing welfare differences. For example, a variable which most individuals rate similarly (e.g. not renting out any property) would exhibit little variation between participants and would be lightly weighted, and therefore contributing less than variables with higher differentiation, such as property value. This makes PCA especially appropriate for socioeconomic constructs such as welfare, where meaningful variation between individuals emerges from the combined pattern across multiple partially related indicators rather than from any single measure in isolation.

C2. Aggregating property measures

A first PCA was conducted including three variables capturing property-related welfare (property type, property value, and the number of properties rented out). After confirming that the model had one underlying component (see Table C1 and Figure C1), the three property measures were combined into a single component using PCA (see Table C2). This step was taken to prevent overrepresentation of property-related wealth in the overall welfare index, which could otherwise bias the results due to the inclusion of multiple closely related indicators. The resulting property component was then included alongside the other welfare indicators in a second PCA.

Table C1: Total variance explained by the property measures.

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	1.78	59.27	59.27	1.78	59.27	59.27
2	0.83	27.55	86.82			
3	0.40	13.19	100.00			

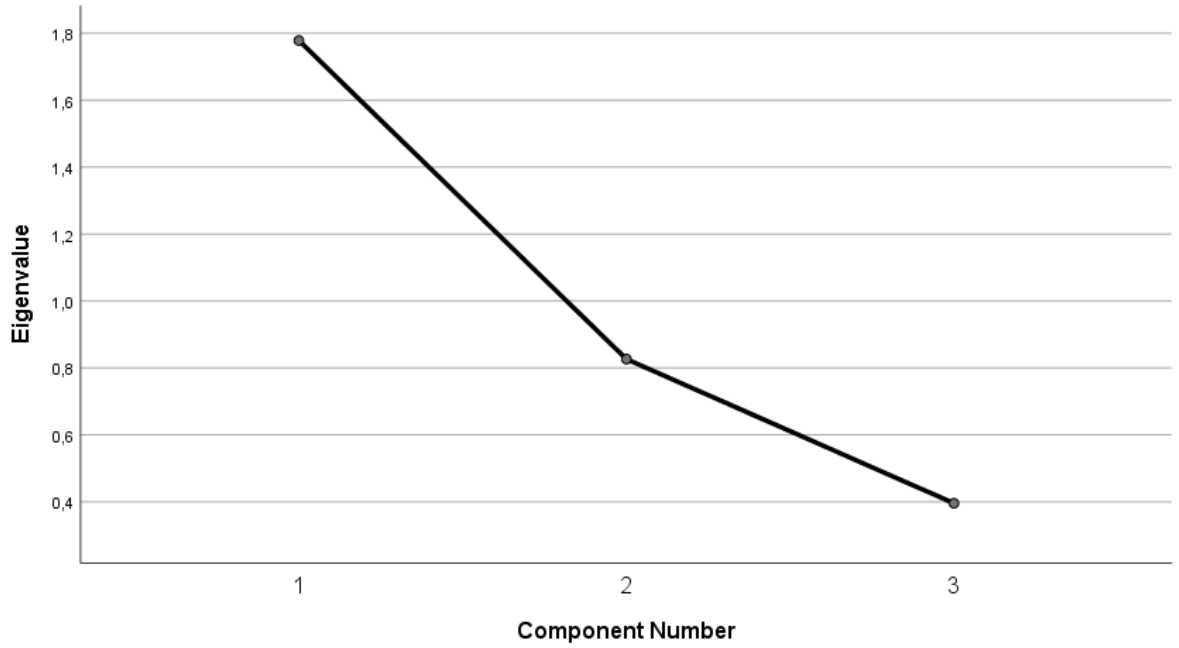

Figure C1. Scree plot of the property measures.

Table C2: The component matrix of the property measures.	
	Component 1
Property value	.88
Renting out property/properties	.70
Property type	.72

C3. Deciding what welfare measures to include

The second PCA was conducted including all welfare-related variables. This analysis indicated that two components would be required to adequately represent the data structure (see Table C3 and Figure C2), largely driven by the inclusion of education see Table C4). As the aim of this study was to construct a single, unified welfare measure, education was excluded from further analyses. This decision was theoretically defensible, as education reflects human capital and long-term socioeconomic potential rather than current material welfare, which was the primary focus of this study.

Table C3: Total variance explained by all potential welfare measures.

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	2.70	45.07	45.07	2.704	45.07	45.07
2	1.13	18.77	63.84	1.126	18.77	63.84
3	0.68	11.29	75.13			
4	.59	9.88	85.01			
5	.52	8.59	93.60			
6	.38	6.40	100.00			

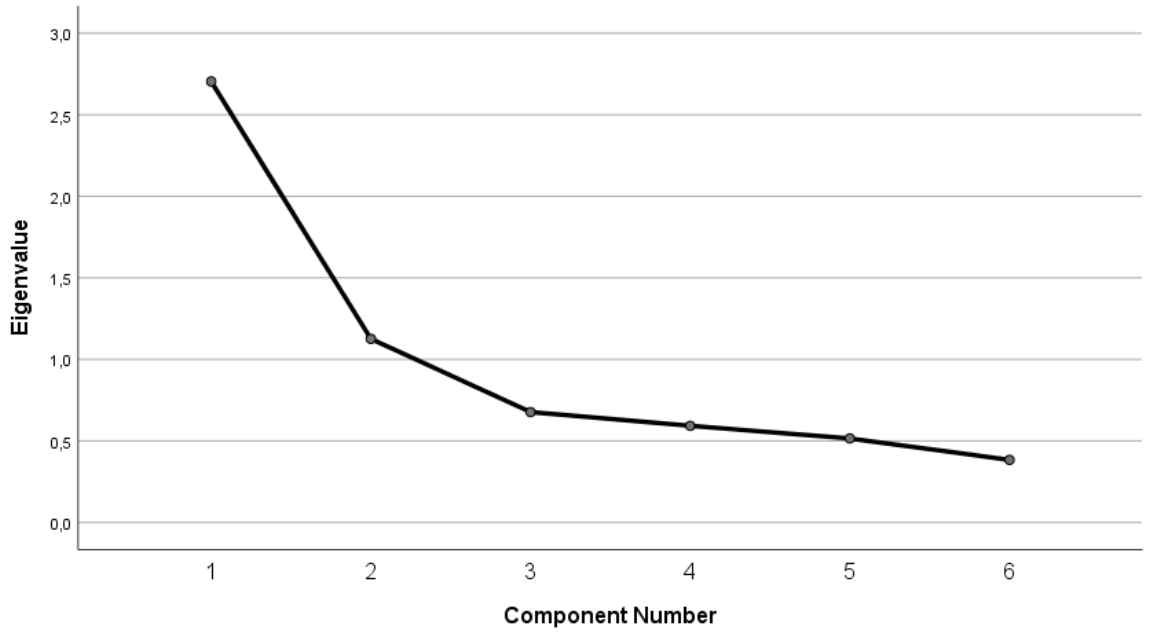

Figure C2. Scree plot all potential welfare measures.

Table C4: The component matrix of the property measures.

	Component 1	**Component 2**
Self-perceived welfare	.69	-.10
Purchasing power	.65	-.43
Combined property measure	.82	-.08
Financial assets	.70	-.41
Occupation	.61	.53
Education	.53	.68

C4. Aggregating welfare measures

After excluding education, the final PCA including self-perceived welfare, purchasing power, the aggregated property component, financial assets, and occupation revealed a single-component solution (see Table C5 and Figure C3). This component was interpreted as representing overall welfare, as all included variables loaded positively and substantially on the same underlying dimension (see Table C6).

Table C5: Total variance explained by all potential welfare measures.

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	2.51	50.21	50.21	2.511	50.21	50.21
2	0.86	17.25	67.46			
3	0.64	12.82	80.28			
4	0.59	11.85	92.13			
5	0.39	7.87	100.00			

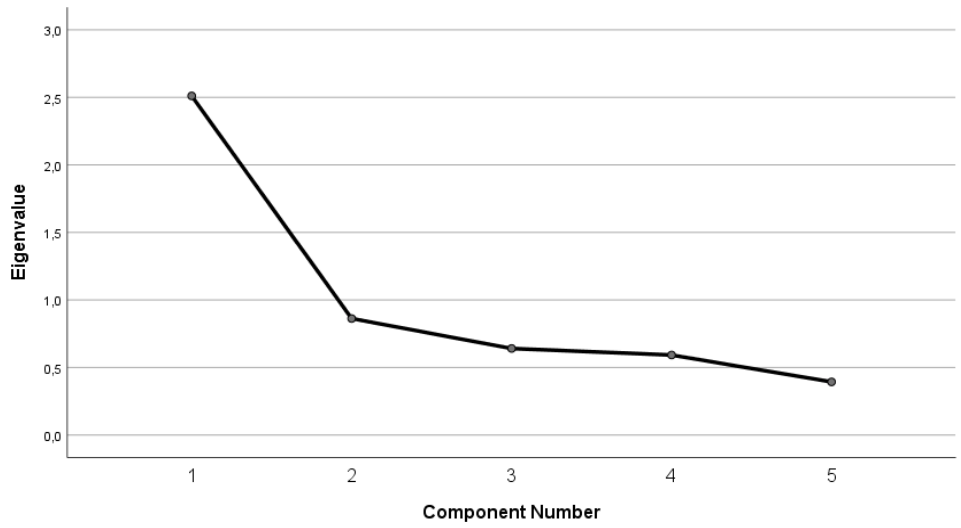

Figure C2. Scree plot of final welfare measures.

Table C6: The component matrix of the property measures.

	Component 1
Self-perceived welfare	.71
Purchasing power	.70
Combined property measure	.82
Financial assets	.75
Occupation	.54

C5. Categorizing the continuous welfare measure

To enhance interpretability and allow for group comparisons, the continuous welfare measure was subsequently categorised into three groups: low, middle, and high welfare. Given that the sample was not representative of the Dutch population and contained a disproportionate number of higher-welfare individuals, thresholds could not be based solely on the sample distribution. Instead, external calibration was applied using purchasing power as an anchor variable. The cut-off points for the purchasing power categories were determined by the purchasing power of the bottom and the top 10% of Dutch society (Centraal Bureau voor de Statistiek, 2024). This resulted in 47 participants with a purchasing power up to €20.000,- belonging to the low-income category, 197 participants with a purchasing power between €20.000,- and €60.000,- belonging to the middle-income category and 124 participants with a purchasing power higher than €60.000,- belonging to the high-income category.

The distribution of the PCA-based welfare scores was then examined within each of these purchasing power categories. First, percentiles of purchasing power across the combined welfare measure were analysed (see Table C7). Then, thresholds between low and middle welfare, and between middle and high welfare, were determined by identifying the overlap between these groups and selecting cut-off points at the midpoints between the 90th percentile of the lower group and the 10th percentile of the adjacent higher group (see Table C8). These final low-, middle-, and high-welfare categories (see Table C9) were subsequently used for the analyses and results of paragraph 4.1 and appendix D, where reference is made to comparisons between welfare groups. In paragraph 3.3.10, Table 1 there is an overview of how participants within the high-welfare categories score across the different welfare measures to give a better feel of what individuals constitute each welfare group.

Table C7: Percentiles of the purchasing power categories across the combined welfare measure.

		Categorized purchasing power	5	10	25	50	75	90	95
Weighted Average	Combined welfare	1	-1.61	-1.37	-1.19	-1.00	-0.67	-0.54	-0.45
		2	-1.10	-0.91	-0.65	-0.33	0.07	0.46	0.72
		3	-0.53	-0.25	0.11	0.58	1.02	2.04	2.74

Table C8: Cut-off points to divide the low-, middle-, and high-welfare categories.

	Division between	90th percentile lower group	10th percentile higher group	Midpoint
Combined welfare	Low-welfare and Middle-welfare	-0.54	-0.91	-0.72
	Middle-welfare and high-welfare	0.46	-0.25	0.11

Table C9: The final low-, middle-, and high-welfare categories.

Welfare group	N	Welfare values
Low-welfare	76	Up to -0.72
Middle welfare	152	-0.72 up to 0.11
High-welfare	140	Bigger than 0.11

Appendix D: One-way ANOVAs welfare

To examine whether welfare level was associated with differences in pro-environmental intentions and behaviour, a series of one-way ANOVAs were conducted across five behavioural domains: fashion consumption, air travel, household heating, meat consumption, and green investment. Participants were categorized into low-, middle-, and high-welfare groups, and differences between these groups were examined for three types of outcomes within each domain: (1) concrete behavioural quantities, reflecting reported behavioural quantities such as the number of flights taken or clothing items purchased; (2) behavioural description alignment measures, assessing the extent to which participants aligned with descriptions of pro-environmental behaviour within a domain; and (3) intentions to alter future consumption or behaviour within the upcoming 12 months. Where the assumption of homogeneity of variances was violated, Welch's ANOVA was used instead of the standard one-way ANOVA. Significant omnibus effects were followed by post hoc comparisons to identify differences between welfare groups. Summary tables at the end of each subsection provide an overview of the observed group differences, significance levels, and effect sizes across the analysed measures.

D1 Main effects of welfare on general intentions and perceptions of self-accountability, agency and efficacy

A series of one-way ANOVAs was conducted to examine whether welfare groups influenced participants' intentions to mitigate greenhouse gas (GHG) emissions, as well as their perceived self-accountability, agency, and efficacy. As shown in Table D1, no significant differences were found between low-, middle-, and high-welfare groups on any of these constructs (all $p > .05$). Means were highly comparable across groups, suggesting that welfare groups did not significantly influence these general measures.

Table D1. The means of intentions to mitigate GHG emissions, self-accountability, agency and efficacy across welfare.

				Low-welfare (n = 76)	Middle-welfare (n = 152)	High-welfare (n = 140)	Total (n = 368)
Dependent variable	*F*(2,365)	*p*	η²	*M (SD)*	*M (SD)*	*M (SD)*	*M (SD)*
Intentions to mitigate GHG emissions (1= strongly reduce, 7 = strongly increase)	1.45	.24	.008	3.9 (0.9)[a]	3.7 (0.8)[a]	3.7 (0.8)[a]	3.7 (0.8)
Self-accountability (1= low, 7 = high)	1.96	.14	.011	4.0 (1.6)[a]	4.3 (1.4)[a]	4.4 (1.5)[a]	4.3 (1.5)
Agency (1= low, 7 = high)	0.78	.46	.004	3.9 (1.2)[a]	4.1 (1.1)[a]	4.1 (1.1)[a]	4.1 (1.1)
Efficacy (1= low, 7 = high)	0.27	.76	.001	4.4 (1.7)[a]	4.4 (1.7)[a]	4.5 (1.8)[a]	4.4 (1.7)

Note. Means in a row not sharing superscripts are significantly different at the .05 level.

D2 Main effects of welfare on the fashion consumption domain

Effects of welfare on the number of clothing purchases

A one-way ANOVA was conducted to examine whether participants' number of clothing purchased in the past 3 months differed across welfare groups. Levene's test indicated that the assumption of homogeneity of variances was not met ($F(2, 365) = 4.18$; $p = .016$), therefore a Welch's ANOVA was run. Welch's ANOVA revealed a significant main effect of welfare on the number of clothing purchases ($F(2, 229.73) = 5.76$; $p = .004$; $\omega^2 = .012$). Games-Howell post-hoc test showed that participants in the low-welfare group ($M = 3.2$, $SD = 3.02$) reported significantly fewer clothing purchases compared to participants in the middle-welfare group ($M = 4.6$, $SD = 4.52$) ($p = .015$) and compared to participants in the high-welfare group ($M = 5.0$, $SD = 6.31$) ($p = .014$). The difference between middle-welfare and high welfare participants was not significant ($p = .83$).

Effects of welfare on the fashion behaviour self-alignment scale

A one-way ANOVA was conducted to examine whether participants' ratings on the self-alignment scale for pro-environmental fashion behaviour differed across welfare groups. This scale assesses the extent to which participants perceive a range of pro-environmental fashion behaviours to reflect their own shopping behaviour for clothes. Levene's test indicated that the assumption of homogeneity of variances was met ($F(2, 365) = 1.14$; $p = .32$). The ANOVA showed no significant main effect of welfare on the self-alignment scale for pro-environmental fashion behaviour ($F(2, 365) = 2.97$; $p = .052$; $\eta^2 = .016$).

Although the omnibus test did not reach conventional significance levels, Tukey post-hoc comparisons indicated that low-welfare participants ($M = 4.9$, $SD = 1.19$) reported stronger self-alignment with behaviours such as limiting new clothing purchases, avoiding impulse buying, and considering garment durability than participants in the high-welfare group ($M = 4.5$, $SD = 1.06$; $p = .045$). No significant differences were found between the low-welfare and middle-welfare groups ($M = 4.6$, $SD = 1.21$; $p = .13$) or between the middle-welfare and high-welfare groups ($p = .82$).

Effects of welfare on intended number of clothing purchases

A one-way ANOVA was conducted to examine whether participants' intended change in clothing purchases over the next 12 months differed across welfare groups. Levene's test indicated that the assumption of homogeneity of variances was not met ($F(2, 365) = 4.84$; $p = .008$), therefore a Welch's ANOVA was run. Welch's ANOVA showed no significant main effect of welfare on the intention to change the number of clothing purchases in the next year ($F(2, 196.88) = 1.38$; $p = .25$, $\omega^2 = .003$).

This non-significant effect was reflected in the Games-Howell post-hoc test, which found no significant differences in intended changes to clothing purchases between the low-welfare group ($M = 3.9$, $SD = 0.82$) and the middle-welfare group ($M = 3.7$, $SD = 0.99$) ($p = .23$), the low-welfare and high-welfare groups ($M = 3.8$, $SD = 0.70$) ($p = .62$), or the middle-welfare and high-welfare groups ($p = .57$). As scores below 4 represent reduced purchasing, the findings indicate only slight intentions to reduce clothing purchases, with no significant differences across welfare groups.

Conclusions

Overall, the findings suggest that welfare level is associated with differences in fashion consumption behaviour, but not with intentions to reduce future consumption (see Table D2). Specifically, low-welfare participants reported purchasing significantly fewer clothing than both middle- and high-welfare participants. In addition, while the main effect of welfare on the fashion behaviour self-alignment scale was not statistically significant (p = .052), pairwise comparisons indicated that low-welfare participants exhibited significantly higher alignment for reduced fashion consumption than high-welfare participants (p = .04). No significant differences between welfare groups were found for intentions to reduce clothing purchases in the upcoming year.

Table D2. The main effects of welfare on the fashion consumption domain.

				Low-welfare (n=76)	Middle-welfare (n=152)	High-welfare (n=140)
Dependent variable	**F(2,365)**	**p**	**η^2 /ω^2**	**M (SD)**	**M (SD)**	**M (SD)**
Number of purchased clothing items in 3 months	5.76	.004	.012	3.2 (3.0)[a]	4.6 (4.5)[b]	5.0 (6.3)[b]
Pro-environmental behaviour towards fashion (1 = low, 7 = high)	2.97	.052	.016	4.9 (1.2)[a]	4.6 (1.1)[a,b]	4.5 (1.2)[b]
Intentions to alter number of clothing purchased (1 = strongly reduce, 4 = keep as is, 7 = strongly increase)	1.38	.25	.003	3.9 (0.8)[a]	3.7 (1.0)[a]	3.8 (0.7)[a]

Note. Means in a row not sharing superscripts are significantly different at the .05 level.

D3 Main effects of welfare on the air travel domain

Effect of welfare on number of flights taken

A one-way ANOVA was conducted to examine whether participants' number of short-distance flights taken differed across welfare groups. Levene's test indicated that the assumption of homogeneity of variances was met (F(2, 365) = 0.91; p = .40). The ANOVA showed no significant main effect of welfare on the number of short-distance flights taken (F(2, 365) = 1.86; p = .16, η^2 = .01).

This non-significant effect was reflected in the Tukey post-hoc test, which found no significant differences in the number of short-distance flights taken in the past year between the low-welfare group (M = 1.7, SD = 2.61) and the middle-welfare group (M = 3.3, SD = 11.80) (p = .36), the low-welfare and high-welfare groups (M = 4.0, SD = 5.91) (p = .13), or the middle-welfare and high-welfare groups (p = .77). This means that there was no significant difference between the number of short-distance flights taken across welfare groups.

Sensitivity analyses indicated that this finding was influenced by the previously identified extreme observation (see paragraph 4.2.3). After excluding this case, the assumption of homogeneity of variances was no longer met (F(2, 364) = 5.54; p = .004), and a Welch's ANOVA revealed a significant main effect of welfare on the number of short-distance flights

taken (F(2, 201.99) = 8.01; p < .001, ω² = .04). Games-Howell post-hoc tests showed that participants in the low-welfare group (M = 1.7, SD = 2.61) reported significantly fewer flights than those in the high-welfare group (M = 4.0, SD = 2.70) (p < .001), and participants in the middle-welfare group (M = 2.4, SD = 5.91) also reported significantly fewer flights than those in the high-welfare group (p = .003), whereas no significant difference was found between the low- and middle-welfare groups (p = .46).

Another one-way ANOVA was conducted to examine whether participants' number of long-distance flights taken differed across welfare groups. Levene's test indicated that the assumption of homogeneity of variances was not met (F(2, 365) = 11.52; p < .001), therefore a Welch's ANOVA was run. Welch's ANOVA revealed a significant main effect of welfare on the number of long-distance flights taken (F(2, 217.904) = 10.26; p < .001; ω² = .045). Games-Howell post-hoc test showed that participants in the low-welfare group (M = 0.7, SD = 1.32) reported significantly fewer flights taken compared to participants in the middle-welfare group (M = 1.2, SD = 1.65) (p = .045). Similarly, participants in the middle-welfare group reported significantly fewer flights taken compared to participants in the high-welfare group (M = 1.9, SD = 2.69) (p = .015). Lastly, participants in the low-welfare group reported significantly fewer flights taken compared to participants in the high-welfare group (M = 1.9, SE = .23) (p < .001).

Effects of welfare on the air travel self-alignment scale

A one-way ANOVA was conducted to examine whether participants' ratings on the self-alignment scale for pro-environmental air travel behaviour differed across welfare groups. This scale assesses the extent to which participants perceive reducing air travel to be consistent with their self-concept and personal identity. Levene's test indicated that the assumption of homogeneity of variances was met (F(2, 365) = 0.34; p = .71). The ANOVA showed no significant main effect of welfare on the air travel self-alignment scale (F(2, 365) = 0.96; p = .38, η² = .01).

This non-significant effect was reflected in the Tukey post-hoc test, which found no significant differences in the air travel self-alignment scale between the low-welfare group (M = 3.7, SD = 1.91) and the middle-welfare group (M = 3.5, SD = 1.77) (p = .63), the low-welfare and high-welfare groups (M = 3.3, SD = 1.81) (p = .35), or the middle-welfare and high-welfare groups (p = .83). This means that participants across low-, middle-, and high-welfare groups reported comparable levels of self-alignment with pro-environmental air travel behaviour.

Effects of welfare on the intended flight frequency

A one-way ANOVA was conducted to examine whether participants' intended change in flight frequency over the next 12 months differed across welfare groups. Levene's test indicated that the assumption of homogeneity of variances was not met (F(2, 365) = 0.34; p = .034), therefore a Welch's ANOVA was run. Welch's ANOVA showed no significant main effect of welfare on the intended change in flight frequency over the next 12 months (F(2, 207.99) = 0.87; p = .92, ω² = -.01).

This non-significant effect was reflected in the Games-Howell post-hoc test, which found no significant differences in the intended change in flight frequency over the next 12 months between the low-welfare group (M = 3.8, SD = 0.82) and the middle-welfare group (M = 3.8, SD = 1.06) (p = .92), the low-welfare and high-welfare groups (M = 3.8, SD = 0.86) (p = .96), or the middle-welfare and high-welfare groups (p = .99).

As scores below 4 represent reduced flight frequencies, the findings indicate only slight intentions to reduce the number of flights taken over the next 12 months, with no significant differences across welfare groups.

Conclusions

Participants with higher welfare levels reported taking significantly more long-distance flights, with the number of flights increasing significantly across each welfare group from low to middle to high welfare. No significant differences between welfare groups were found for short-distance flights, ratings on the self-alignment scale for pro-environmental air travel behaviour, or intended change in flight frequency over the next 12 months (see Table D3 for an overview).

Table D3. The main effects of welfare on the air travel domain.

				Low-welfare (n=76)	Middle-welfare (n=152)	High-welfare (n=140)
Dependent variable	*F*(2,365)	*p*	η^2/ω^2	*M (SD)*	*M (SD)*	*M (SD)*
Number of short flights taken yearly*	1.86	.16	.010	1.7 (2.6)[a]	3.3 (11.8)[a]	4.0 (5.9)[a]
Number of long flights taken yearly	9.77	<.001	.045	0.7 (1.3)[a]	1.2 (1.7)[b]	1.9 (2.7)[c]
Pro-environmental behaviour towards flying (1 = low, 7 = high)	0.96	.38	.005	3.7 (1.9)[a]	3.5 (1.8)[a]	3.3 (1.8)[a]
Intentions to alter number of flights taken (1 = strongly reduce, 4 = keep as is, 7 = strongly increase)	0.08	.92	<.001	3.8 (0.8)[a]	3.8 (1.1)[a]	3.8 (0.9)[a]

Note. Means in a row not sharing superscripts are significantly different at the .05 level.
*A sensitivity analysis excluding one extreme observation is reported in Table D4.

Table D4. Sensitivity analysis of welfare effects on the number of short-distance flights taken yearly.

				Low-welfare (n=76)	Middle-welfare (n=152)	High-welfare (n=140)
Dependent variable	*F*(2,365)	*p*	η^2/ω^2	*M (SD)*	*M (SD)*	*M (SD)*
Number of short flights taken yearly	8.01	<.001	.04	1.7 (2.6)[a]	2.4 (2.7)[a]	4.0 (5.9)[b]

Note. Means in a row not sharing superscripts are significantly different at the .05 level.

D4 Main effects of welfare on the household heating domain

Effects of welfare on the set thermostat temperature

A one-way ANOVA was conducted to examine whether participants' set thermostat temperature differed across welfare groups. Levene's test indicated that the assumption of homogeneity of variances was not met ($F(2, 352) = 7.80$; $p < .001$), therefore a Welch's ANOVA was run. Welch's ANOVA showed no significant main effect of welfare on the set thermostat temperature ($F(2, 167.264) = 0.91$; $p = .41$, $\omega^2 = -.0004$).

This non-significant effect was reflected in the Games-Howell post-hoc test, which found no significant differences in the set thermostat temperature between the low-welfare group ($M = 19.2$, $SD = 1.95$) and the middle-welfare group ($M = 19.4$, $SD = 1.52$) ($p = .48$), the low-welfare and high-welfare groups ($M = 19.2$, $SD = 1.24$) ($p = .97$), or the middle-welfare and high-welfare groups ($p = .50$). This means that there was no significant difference between the set thermostat temperature across welfare groups.

Effects of welfare on the household heating behaviour self-alignment scale

A one-way ANOVA was conducted to examine whether participants' ratings on the self-alignment scale for pro-environmental household heating behaviour differed across welfare groups. Levene's test indicated that the assumption of homogeneity of variances was not met ($F(2, 365) = 5.26$, $p = .006$); therefore, a Welch's ANOVA was conducted. Welch's ANOVA revealed a significant effect of welfare on the household heating self-alignment scale ($F(2, 224.753) = 6.63$, $p = .002$, $\omega^2 = .019$). This scale assesses the extent to which participants report engaging in energy-saving household heating practices, such as lowering heating levels in unused rooms, reducing heating when away from home or asleep, and preventing heat loss within the home.

The significant effect indicates that self-reported alignment with pro-environmental household heating behaviours differed across welfare groups. In particular, participants in the low-welfare group ($M = 6.1$, $SD = 1.06$) reported stronger self-alignment with household heat-saving behaviours than both the middle-welfare group ($M = 5.6$, $SD = 1.48$) ($p = .024$) and the high-welfare group ($M = 5.40$, $SD = 1.77$) ($p = .002$). No significant difference was found between the middle- and high-welfare groups ($p = .52$). In other words, individuals with lower welfare reported greater alignment with pro-environmental household heating behaviours than those with higher welfare, while the middle- and high-welfare groups did not significantly differ from each other.

Effects of welfare on intended household heating use

A one-way ANOVA was conducted to examine whether participants' intended change in household heating use over the next 12 months differed across welfare groups. Levene's test indicated that the assumption of homogeneity of variances was not met ($F(2, 365) = 3.66$; $p = .027$), therefore a Welch's ANOVA was run. Welch's ANOVA showed no significant main effect of welfare on the intended change in household heating use over the next 12 months ($F(2, 194.34) = 2.56$; $p = .10$, $\omega^2 = .01$).

This non-significant effect was reflected in the Games-Howell post-hoc test, which found no significant differences in the intended change in household heating use over the next 12 months between the low-welfare group ($M = 3.5$, $SD = 0.86$) and the middle-welfare group ($M = 3.5$, $SD = 0.92$) ($p = .2$), the low-welfare and high-welfare groups ($M = 3.7$, $SD = 0.72$) ($p = .37$), or the middle-welfare and high-welfare groups (p = .09).

As scores below 4 represent reduced household heating use, the findings indicate only slight intentions to reduce the household heating use over the next 12 months, with no significant differences across welfare groups.

Conclusions

Overall, the findings suggest that welfare level is associated with differences in self-reported alignment with pro-environmental household heating behaviour, but not with concrete behavioural quantities or intentions to change household heating use (see Table D5). Specifically, low-welfare participants reported higher behavioural description alignment for household heat-saving behaviour than both middle- and high-welfare participants. However, no significant differences between welfare groups were found for set thermostat temperature or intentions to change household heating use in the upcoming year.

Table D5. The main effects of welfare on the household heating domain.

Dependent variable				Low-welfare (n=70-76)	Middle-welfare (n=146-152)	High-welfare (n=139-140)
	F(2,365)	*p*	ω²	*M (SD)*	*M (SD)*	*M (SD)*
Set thermostat temperature (°C)	0.93	.40	<.001	19.18 (1.95)[a]	19.43 (1.52)[a]	19.23 (1.24)[a]
Pro-environmental behaviour towards household heating (1 = low, 7 = high)	4.63	.010	.019	6.1 (1.1)[a]	5.6 (1.5)[a,b]	5.4 (1.8)[b]
Intentions to alter amount of household heating used (1 = strongly reduce, 4 = keep as is, 7 = strongly increase)	2.35	.096	.007	3.5 (0.9)[a]	3.5 (0.9)[a]	3.7 (0.7)[a]

Note. Means in a row not sharing superscripts are significantly different at the .05 level. The sample size for set thermostat temperature was lower, because some participants indicated that they did not know their set thermostat temperature.

D5 Main effects of welfare on the meat consumption domain

Effects of welfare on the amount of beef eaten

A one-way ANOVA was conducted to examine whether participants' amount of beef eaten in the past 2 weeks differed across welfare groups. Levene's test indicated that the assumption of homogeneity of variances was met ($F(2, 365) = 0.86$; $p = .42$). The ANOVA showed no significant main effect of welfare on the amount of beef eaten ($F(2,365) = .19$; $p = .83$, $\eta^2 = .001$). This non-significant effect was reflected in the Tukey post-hoc test, which found no significant differences in the amount of beef eaten in the past 2 weeks between the low-welfare group ($M = 3.9$, $SD = 3.90$) and the middle-welfare group ($M = 4.0$, $SD = 3.34$) ($p = .97$), the low-welfare and high-welfare groups ($M = 4.2$, $SD = 3.66$) ($p = .83$), or the middle-welfare and high-welfare groups (p = .90). This means that there was no significant difference between the amount of beef eaten across welfare groups.

Effects of welfare on self-aligned diet classification

A chi-square test of independence showed no significant main effect between welfare groups and their diet classification ($\chi^2(2, N = 368) = 9.94$, $p = .27$, Cramér's $V = .27$). This means that individuals across welfare groups reported similar diets. However, high-welfare individuals were significantly ($p < .05$) more likely to be meat-reducers than low-welfare individuals. Diet classification was distributed amongst the participants across welfare groups as displayed in Table D6.

Table D6. Frequency of diet classification across welfare groups.

			Welfare groups			
			Low-welfare (n = 76)	Middle-welfare (n = 152)	High-welfare (n = 140)	χ^2 (df = 2); *p*-value
Diet classification	Meat-eater	Count	45^{a}	89^{a}	67^{a}	9.94; $p = .27$
		Proportion frequencies/total	.22	.44	.33	
	Meat-reducer	Count	20^{a}	$47^{a,b}$	60^{a}	
		Proportion frequencies/total	.16	.37	.47	
	Pescetarian	Count	4^{a}	5^{a}	6^{a}	
		Proportion frequencies/total	.27	.33	.40	
	Vegetarian	Count	3^{a}	5^{a}	5^{a}	
		Proportion frequencies/total	.23	.39	.39	
	Vegan	Count	4^{a}	6^{a}	2^{a}	
		Proportion frequencies/total	.33	.50	.17	

Note: Columns sharing the same superscript letter are not significantly different at the .05 level (crosstabs with pairwise z-test Bonferroni corrected).

Effects of welfare on the intended meat consumption

A one-way ANOVA was conducted to examine whether participants' intended change in meat consumption over the next 12 months differed across welfare groups. Levene's test indicated that the assumption of homogeneity of variances was met ($F(2, 365) = 1.88$; $p = .16$). The ANOVA showed no significant main effect of welfare on the intended change in meat consumption over the next 12 months ($F(2, 196.88) = 0.96$; $p = .38$, $\eta^2 = .01$).

This non-significant effect was reflected in the Tukey post-hoc test, which found no significant differences in the intended change in meat consumption over the next 12 months between the low-welfare group (*M* = 3.7, *SD* = 1.14) and the middle-welfare group (*M* = 3.7, *SD* = 0.84) (*p* = .99), the low-welfare and high-welfare groups (*M* = 3.6, *SD* = 0.77) (*p* = .49), or the middle-welfare and high-welfare groups (p = .45). As scores below 4 represent reduced meat consumption, the findings indicate only slight intentions to reduce meat consumption over the next 12 months, with no significant differences across welfare groups.

Conclusions

Overall, the findings indicate that welfare level is not significantly associated with differences in beef consumption, self-reported alignment with pro-environmental diet classification, or the intended change in meat consumption over the next 12 months (see Table D7).

Table D7. The main effects of welfare on the meat consumption domain.

				Low-welfare (n=76)	Middle-welfare (n=152)	High-welfare (n=140)
Dependent variable	*F*(2,365)/ H(2)	*p*	η²/ ε²	*M (SD)/ Mdn (IQR)*	*M (SD)/ Mdn (IQR)*	*M (SD)/ Mdn (IQR)*
Amount of beef eaten in the past 2 weeks	0.19	.83	.001	3.9 (3.9)[a]	4.0 (3.3)[a]	4.2 (3.7)[a]
Intentions to alter amount of meat consumed (1 = strongly reduce, 4 = keep as is, 7 = strongly increase)	0.96	.38	.005	3.7 (1.1)[a]	3.7 (0.8)[a]	3.6 (0.8)[a]

Note. Means in a row not sharing superscripts are significantly different at the .05 level.

D6 Main effects of welfare on the green investment domain

Effects of welfare on the percentage of green investments

A one-way ANOVA was conducted to examine whether participants' percentage of total investments that was green differed across welfare groups. Levene's test indicated that the assumption of homogeneity of variances was met ($F(2, 150) = 0.04$; $p = .96$). The ANOVA showed no significant main effect of welfare on the percentage of green investments ($F(2, 150) = 0.20$; $p = .82$, $\eta^2 = .003$).

This non-significant effect was reflected in the Tukey post-hoc test, which found no significant differences in the percentage of green investments between the low-welfare group (*M* = 30.0%, *SD* = 31.36) and the middle-welfare group (*M* = 29.39'%, *SD* = 32.37) (*p* = .996), the low-welfare and high-welfare groups (*M* = 32.78%, *SD* = 30.29) (*p* = .92), or the middle-welfare and high-welfare groups (p = .82). This means that there was no significant difference between the percentage of green investments across welfare groups.

Effects of welfare on green investment behaviour self-alignment scale

A one-way ANOVA was conducted to examine whether participants' ratings on the self-alignment scale for pro-environmental investment behaviour differed across welfare groups. Levene's test indicated that the assumption of homogeneity of variances was met ($F(2, 219) = 0.56$; $p = .56$). The ANOVA showed no significant main effect of welfare on the green investment self-alignment scale ($F(2, 219) = 0.95$; $p = .39$, $\eta^2 = .01$).

This non-significant effect was reflected in the Tukey post-hoc test, which found no significant differences in the self-alignment scale for pro-environmental investment behaviour between the low-welfare group ($M = 3.6$, $SD = 1.95$) and the middle-welfare group ($M = 3.1$, $SD = 1.63$) ($p = .39$), the low-welfare and high-welfare groups ($M = 3.4$, $SD = 1.82$) ($p = .76$), or the middle-welfare and high-welfare groups (p = .64). In other words, across welfare groups reported similar alignment with pro-environmental investment behaviours.

Effects of welfare on the intended share of green investments

A one-way ANOVA was conducted to examine whether participants' intended change in the share of green investments over the next 12 months differed across welfare groups. Levene's test indicated that the assumption of homogeneity of variances was not met ($F(2, 219) = 4.28$; $p = .014$), therefore a Welch's ANOVA was run. Welch's ANOVA showed no significant main effect of welfare on the intended change in the share of green investments over the next 12 months ($F(2, 82.904) = 2.30$; $p = .11$, $\omega^2 = .01$).

This non-significant effect was reflected in the Games-Howell post-hoc test, which found no significant differences in the intended change in the share of green investments over the next 12 months between the low-welfare group ($M = 4.5$, $SD = 0.71$) and the middle-welfare group ($M = 4.4$, $SD = 0.88$) ($p = .84$), the low-welfare and high-welfare groups ($M = 4.2$, $SD = 0.59$) ($p = .19$), or the middle-welfare and high-welfare groups (p = .28). As scores above 4 represent increased share of green investments, the findings indicate only slight intentions to increase the share of green investments over the next 12 months, with no significant differences across welfare groups.

Conclusions

Overall, the findings indicate that welfare level is not significantly associated with differences in the share of green investments, self-reported alignment with pro-environmental investment behaviour, or intended change in the share of green investments over the next 12 months (see Table D8).

Table D8. The main effects of welfare on the green investment domain.

Dependent variable	$F(2,365)$	p	η^2/ω^2	Low-welfare (n=25-33)	Middle-welfare (n=49-81)	High-welfare (n=79-108)
				M (SD)	*M (SD)*	*M (SD)*
Percentage of green investments (%)	0.20	.82	.003	30.0 (31.4)[a]	29.4 (32.4)[a]	32.8 (30.3)[a]
Pro-environmental behaviour towards investments (1 = low, 7 = high)	0.95	.39	.010	3.6 (2.0)[a]	3.1 (1.6)[a]	3.4 (1.8)[a]
Intentions to alter share of green investments (1 = strongly reduce, 4 = keep as is, 7 = strongly increase)	2.08	.13	.001	4.5 (0.7)[a]	4.4 (0.9)[a]	4.2 (0.6)[a]

Note. Means in a row not sharing superscripts are significantly different at the .05 level. The sample size of the entire table is lower, because some participants indicated not to have any investments. The sample size for the percentage of green investments was lower, because some participants indicated that they did not know their percentage of green investments.

Appendix E: Direct effects of ecological worry

E1. Effects of ecological worry on general intentions

Participants' ecological worry showed a significant main effect on the intended mitigation of GHG emissions for the upcoming 12 months (*B* = -0.09; *SE* = 0.03; β = -.18; *t*(366) = 3.57; *p* < .001) (see Table E1). This means that if individuals feel more ecological worry, they intend to reduce their GHG emissions in the next year.

The moderation analyses showed that welfare did not moderate the relation between ecological worry and intentions to mitigate GHG emissions (*B* = -0.02; *SE* = 0.03; β = -.09; *t*(366) = -0.67; *p* = .51). This means that the relation between ecological worry and intentions to mitigate GHG emissions was similar across welfare levels, indicating that welfare did not significantly change how ecological worry related to intentions to alter their GHG emissions in the next year.

Table E1. The effects of ecological worry on intentions to mitigate GHG emissions.

Intentions to mitigate GHG emissions (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Ecological worry	-0.09	0.03	-.18	-3.57	<.001
Ecological worry x welfare	-0.02	0.03	-.09	-0.67	.51

E2. Effect of ecological worry on the fashion consumption domain

Overall, the regression analysis with ecological worry as independent variable and fashion consumption as dependent variable show different results across measurements of concrete behavioural quantities (number of clothing purchased in 3 months), a behavioural self-alignment scale (self-alignment scale for pro-environmental fashion behaviour) and consumers' intentions to reduce fashion consumption (see Table E2 for an overview). Welfare did not moderate between ecological worry and pro-environmental measures of the fashion consumption domain.

Effect of ecological worry on the number of clothing purchases

Participants' ecological worry showed no significant main effect on the number of clothing purchases in the past 3 months (*B* = -0.24; *SE* = 0.17; β = -.08; *t*(366) = -1.46; *p* = .15). This result indicates that increases in ecological worry do not translate in a significant change in the number of clothing purchases.

Effect of ecological worry on the fashion behaviour self-alignment scale

The main effect of ecological worry on the self-alignment scale for pro-environmental fashion behaviour was significant (*B* = 0.26; *SE* = 0.04; β = .36; *t*(366) = 7.36; *p* < .001). This scale assesses the extent to which participants perceive a range of pro-environmental fashion behaviours to reflect their own shopping behaviour for clothes. The positive effect indicates that individuals with higher levels of ecological worry reported stronger self-alignment with behaviours such as limiting new clothing purchases, avoiding impulse buying, and considering garment durability when making purchase decisions.

Effect of ecological worry on the intended number of clothing purchases
Participants' ecological worry showed a significant main effect on the intended change in clothing purchases over the next 12 months (*B* = -0.15; *SE* = 0.03; β = -.28; *t*(366) = -5.50; *p* < .001). This means that increases in ecological worry lead to intentions to purchase significantly less clothing.

The moderating role of welfare on the fashion consumption domain
The moderation analyses showed that welfare did not moderate the relation between ecological worry and the number of clothing items bought (*B* = -0.03; *SE* = 0.17; β = -.02; *t*(366) = -0.16; *p* = .87), the behavioural description alignment for reduced fashion consumption (*B* = -0.03; *SE* = 0.04; β = -.09; *t*(366) = -0.70; *p* = .49) nor the intentions to reduce clothing consumption (*B* = 0.03; *SE* = 0.03; β = .12; *t*(366) = 0.93; *p* = .36). This means that across welfare levels there was a similar relation between individuals feeling ecological worry and their fashion behaviour and intentions, indicating that welfare did not significantly change how ecological worry related to fashion behaviour and intentions.

Conclusion

1. While higher ecological worry significantly predicts stronger alignment with pro-environmental fashion behaviour descriptions, it does not translate into differences in concrete behavioural quantities.
2. Ecological worry does predict intentions to buy less clothing.
3. Welfare did not moderate between ecological worry and pro-environmental measures of the fashion consumption domain.

Table E2. The effects of ecological worry on the fashion consumption domain.

Number of clothing purchases in the past 3 months					
	B	*SE*	β	*t*	*p*
Ecological worry	-0.24	0.17	-.08	-1.46	.15
Ecological worry x welfare	-0.03	0.17	-.02	-0.16	.87
Self-alignment scale for pro-environmental fashion behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Ecological worry	0.26	0.04	.36	7.36	<.001
Ecological worry x welfare	-0.03	0.04	-.09	-0.70	.49
Intended change in clothing purchases over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Ecological worry	-0.15	0.03	-.28	-5.50	<.001
Ecological worry x welfare	0.03	0.03	.12	0.93	.36

E3. Effects of ecological worry on the air travel domain

Overall, the regression analysis with ecological worry as independent variable and air travel as dependent variable show different results across measurements of concrete behavioural quantities (number of short-distance and long-distance flights taken yearly), a behavioural self-alignment scale (self-alignment scale for pro-environmental air travel behaviour) and consumers' intentions to reduce the number of flights they take (see Table E3). Welfare did not moderate between ecological worry and pro-environmental measures of the air travel domain.

Effect of ecological worry on the number of flights taken

Participants' ecological worry showed no significant main effect on the number of short-distance flights (B = 0.34; SE = 0.28; β = .06; t(366) = 1.21; p = .23) nor the number of long-distance flights taken (B = 0.08; SE = 0.07; β = .06; t(366) = 1.08; p = .28) in the past year. This result indicates that, if individuals feel more ecological worry this does not translate in a reduction of the number of flights they take yearly. Sensitivity analyses indicated that excluding the previously identified extreme observation (see paragraph 4.2.3) had minimal impact on the effect for short-distance flights, which remained non-significant (B = 0.03; SE = 0.14; β = .01; t(365) = 0.19; p = .85), suggesting that the overall conclusion was not affected by this case (see Table E4).

Effect of ecological worry on the air travel behaviour self-alignment scale

The main effect of ecological worry on the self-alignment scale for pro-environmental air travel behaviour was significant (B = 0.57; SE = 0.05; β = .50; t(366) = 11.12; p < .001). This scale assesses the extent to which participants perceive reducing air travel to be consistent with their self-concept and personal identity. The positive effect indicates that individuals with higher levels of ecological worry reported stronger self-identification with reducing their air travel.

Effect of ecological worry on the intended flight frequency

Participants' ecological worry showed a significant main effect on the intended change in flight frequency over the next 12 months (B = -0.14; SE = 0.03; β = -.23; t(366) = -4.60; p < .001). This means that if individuals feel more ecological worry they intend to take significantly less flights.

The moderating role of welfare on the air travel domain

The moderation analyses showed that welfare did not moderate the relation between ecological worry and the number of short-distance flights taken (B = -0.12; SE = 0.29; β = -.05; t(366) = -0.40; p = .69), the number of long-distance flights taken (B = 0.03; SE = 0.07; β = .05; t(366) = 0.39; p = .70) the behavioural description alignment for reduced air travel (B = -0.004; SE = 0.05; β = -.01; t(366) = -0.08; p = .94) nor the intentions to reduce flights (B = 0.02; SE = 0.03; β = .08; t(366) = 0.61; p = .54). This means that across welfare levels there was a similar relation between individuals feeling ecological worry and their flight behaviour and intentions, indicating that welfare did not significantly change how ecological worry related to flight behaviour and intentions. Sensitivity analyses indicated that excluding the previously identified extreme observation (see paragraph 4.2.3) had minimal impact on the results, and the moderation effect on short-distance flights remained non-significant (B = -0.04; SE = 0.14; β = -.04; t(365) = -0.30; p = .77), leaving the overall conclusion unchanged.

Conclusion

1. While higher ecological worry significantly predicts stronger alignment with pro-environmental flight behaviour descriptions, it does not translate into their concrete behavioural quantities.
2. Ecological worry does predict intentions to take less flights.
3. Welfare did not moderate between ecological worry and pro-environmental measures of the air travel domain.

Table E3. The effects of ecological worry on the air travel domain.

Number of short-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Ecological worry	0.34	0.28	.06	1.21	.23
Ecological worry x welfare	-0.12	0.29	-.05	-0.40	.69
Number of long-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Ecological worry	0.08	0.07	.06	1.08	.28
Ecological worry x welfare	0.03	0.07	.05	0.39	.70
Self-alignment scale for pro-environmental air travel behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Ecological worry	0.57	0.05	.50	11.12	<.001
Ecological worry x welfare	-0.004	0.05	-.01	-0.08	.94
Intended change in flight frequency over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Ecological worry	-0.14	0.03	-.23	-4.60	<.001
Ecological worry x welfare	0.02	0.03	.08	0.61	.54

Table E4. Sensitivity analysis of ecological worry effects on the number of short-distance flights taken yearly.

Number of short-distance flights taken in the past year					
	B	*SE*	β	*t*	*p*
Ecological worry	0.03	0.14	.01	0.19	.85
Ecological worry x welfare	-0.04	0.14	-.04	-0.30	.77

E4. Effects of ecological worry on the household heating domain

Overall, the regression analysis with ecological worry as independent variable and household heating as dependent variable show different results across measurements of concrete behavioural quantities (set thermostat temperature), a behavioural self-alignment scale (self-alignment scale for pro-environmental household heating behaviour) and consumers' intentions to reduce the amount of household heating they use (see Table E5 for an overview). Welfare did not moderate between ecological worry and pro-environmental measures of the household heating domain.

Effect of ecological worry on the set thermostat temperature

Participants' ecological worry showed a significant main effect on the set thermostat temperature (B = -0.12; SE = 0.05; β = -.12; t(353) = -2.34; p = .02). This result indicates that increases in ecological worry translate in a lower set thermostat temperature.

Effect of ecological worry on the household heating behaviour self-alignment scale

The main effect of ecological worry on the self-alignment scale for pro-environmental household heating behaviour was significant (B = 0.14; SE = 0.05; β = .14; t(366) = 2.73; p = .007). This scale assesses participants' reported likelihood of engaging in a range of energy-saving household heating practices, including lowering heating levels in unused rooms, reducing heating when away from home or asleep, and preventing heat loss within the home. The positive effect indicates that individuals with higher levels of ecological worry reported stronger tendencies to engage in these household heat-saving behaviours.

Effect of ecological worry on the intended household heating use

Participants' ecological worry showed no significant main effect on the intended change in household heating use over the next 12 months (p = .051). This means that if individuals feel more ecological worry this does not translate into a significant change in their household heating usage.

The moderating role of welfare on the household heating domain

The moderation analyses showed that welfare did not moderate the relation between ecological worry in the household heating domain and the set thermostat temperature (B = -0.02; SE = 0.05; β = -.04; t(366) = -0.28; p = .78) the behavioural description alignment for household heat-saving behaviour (B = 0.01; SE = 0.05; β = .03; t(366) = 0.26; p = .80) nor the intentions to reduce household heating consumption (B = 0.003; SE = 0.03; β = .01; t(366) = 0.10; p = .92).

This means that across welfare levels there was a similar relation between individuals feeling ecological worry and their household heating behaviour and intentions, indicating that welfare did not significantly change how ecological worry related to household heating behaviour and intentions.

Conclusion

1. While higher ecological worry significantly predicts an increase in pro-environmental behaviour, it does not translate into a significant change in pro-environmental intentions.
2. Welfare did not moderate between ecological worry and pro-environmental measures of the household heating domain.

Table E5. The effects of ecological worry on the household heating domain.

Set thermostat temperature (°C)					
	B	*SE*	β	*t*	*p*
Ecological worry	-0.12	0.05	-.12	-2.34	.02
Ecological worry x welfare	-0.02	0.05	-.04	-0.28	.78
Self-alignment scale for pro-environmental household heating behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Ecological worry	0.14	0.05	.14	2.73	.007
Ecological worry x welfare	0.01	0.05	.03	0.26	.80
Intended change in household heating use over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Ecological worry	-0.05	0.03	-.10	-1.96	.051
Ecological worry x welfare	0.003	0.03	.01	0.10	.92

E5. Effects of ecological worry on the meat consumption domain

Overall, the regression analysis with ecological worry as independent variable and meat consumption as dependent variable shows significant results across measurements of concrete behavioural quantities (amount of beef eaten in the past 2 weeks), a behavioural self-alignment scale (categorical question on diet classification) and consumers' intentions to reduce the amount of meat they consume (see Table E6). Welfare did not moderate between ecological worry and pro-environmental measures of the meat consumption domain.

Effect of ecological worry on the amount of beef eaten
Participants' ecological worry showed a significant main effect on the amount of beef eaten in the past two weeks (*B* = -0.76; *SE* = 0.11; β = -.34; *t*(366) = -6.92; *p* < .001). This result indicates that increases in ecological worry translate in a reduction of the amount of beef eaten.

Effect of ecological worry on self-aligned diet classification
The main effect of ecological worry on self-aligned diet classification was significant (*B* = 0.71; *SE* = 0.08; Wald = 72.70; *p* < .001; *OR* = 2.04). This diet classification assesses participants' self-reported dietary category, ranging from meat-eater to vegan, with higher categories indicating more pro-environmental dietary behaviour. The positive effect indicates that increases in ecological worry were associated with a higher likelihood of reporting a more pro-environmental diet category.

This is reflected in the positive B value, indicating a clear shift toward more pro-environmental dietary categories. The odds ratio of 2.04 indicates a substantial increase in likelihood. Specifically, higher efficacy is associated with 104% higher odds of reporting a more pro-environmental diet category. The Wald statistic indicates that this effect is large relative to its uncertainty, consistent with the highly significant p-value.

Effect of ecological worry on the intended meat consumption
Participants' ecological worry showed a significant main effect on the intended change in meat consumption over the next 12 months (*B* = -0.12; *SE* = 0.03; β = -.22; *t*(366) = -4.22; *p* < .001). This means that if individuals feel more ecological worry they intend to consume significantly less meat.

The moderating role of ecological worry on the meat consumption domain
The moderation analyses showed that welfare did not moderate the relation between ecological worry and the amount of beef consumed (*B* = 0.06; *SE* = 0.12; β = .07; *t*(366) = 0.54; *p* = .59), the behavioural description alignment for diet classification (*B* = -0.01; *SE* = 0.08; Wald = 0.03; *p* = .86; *OR* = 0.99) nor the intentions to reduce household heating consumption (*B* = -0.03; *SE* = 0.03; β = -.11; *t*(366) = -0.88; *p* = .38). This means that across welfare levels there was a similar relation between individuals feeling ecological worry and their meat consumption behaviour and intentions, indicating that welfare did not significantly change how ecological worry related to meat consumption behaviour and intentions.

Conclusion

1. Ecological worry significantly predicts all types of pro-environmental behaviour and intentions towards meat consumption.
2. Welfare did not moderate between ecological worry and pro-environmental measures of the meat consumption domain.

Table E6. The effects of ecological worry on the meat consumption domain.

Amount of beef eaten in the past 2 weeks					
	B	*SE*	β	*t*	*p*
Ecological worry	-0.76	0.11	-.34	-6.92	<.001
Ecological worry x welfare	0.06	0.12	.07	0.54	.59
Pro-environmental diet classification (1 = low, 5 = high)					
	B	*SE*	Wald	*p*	*OR*
Ecological worry	0.71	0.08	72.70	<.001	2.04
Ecological worry x welfare	-0.01	0.08	0.03	.86	0.99
Intended change in meat consumption over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Ecological worry	-0.12	0.03	-.22	-4.22	<.001
Ecological worry x welfare	-0.03	0.03	-.11	-0.88	.38

E6. Effects of ecological worry on the green investment domain

Overall, the regression analysis with ecological worry as independent variable and investments as dependent variable show different results across measurements of concrete behavioural quantities (percentage of green investments), a behavioural self-alignment scale (self-alignment scale for pro-environmental investment behaviour) and consumers' intentions to increase their share of green investments. Welfare moderated between ecological worry and pro-environmental investment intentions, although this relation was not found with pro-environmental investment behaviour (see Table E7 for an overview).

Effect of ecological worry on the percentage of green investments

Participants' ecological worry showed a significant main effect on the percentage of total investments that was green (B = 4.92; SE = 1.58; β = .25; $t(151) = 3.12$; p = .002). This result indicates that increases in ecological worry translate into a higher percentage of green investments.

Effect of ecological worry on the green investment behaviour self-alignment scale

The main effect of ecological worry on the self-alignment scale for pro-environmental investment behaviour was significant (B = 0.55; SE = 0.07; β = .47; $t(220)=7.78$; $p < .001$). This scale assesses the extent to which participants perceive green investment practices to be characteristic of their own investment decision-making. The positive effect indicates that individuals with higher levels of ecological worry reported stronger self-alignment with prioritising and including green investment options in their financial decisions.

Effect of ecological worry on the intended share of green investments
Participants' ecological worry showed a significant main effect on the intended change in the share of green investments over the next 12 months (*B* = 0.10; *SE* = 0.03; β = .21; *t*(220) = 3.23; *p* = .001). This means that if individuals feel more ecological worry they intend to increase their share of green investments.

The moderating role of welfare on the green investment domain
Although a significant interaction effect was found between welfare and ecological worry in predicting intentions to increase the share of green investments (*B* = -0.07; *SE* = 0.03; β = -.36; *t*(218) = -2.11; *p* = .04), further inspection of the interaction showed that ecological worry influenced the relation between welfare and intentions to increase green investments, rather than welfare influencing the relation between ecological worry and these intentions. Therefore, this finding was not interpreted as evidence for welfare moderation.

The moderation analyses showed that welfare also did not moderate the relation between ecological worry and the percentage of green investments (*B* = -0.65; *SE* = 1.61; β = -.08; *t*(149) = -0.40; *p* = .69), nor the behavioural description alignment for green investment behaviour (*B* = -0.09; *SE* = 0.07; β = -.20; *t*(218) = -1.28; *p* = .20). This means that across welfare levels there was a similar relation between individuals feeling ecological worry and their investment behaviour and intentions, indicating that welfare did not significantly change how ecological worry related to investment behaviour and intentions.

Conclusion

1. Ecological worry significantly predicts all types of pro-environmental behaviour and intentions towards investments.
2. Welfare moderated between ecological worry and pro-environmental investment intentions, although this relation was not found with pro-environmental investment behaviour.

Table E7. The effects of ecological worry on the green investment domain.

Percentage of green investments (%)					
	B	*SE*	β	*t*	*p*
Ecological worry	4.92	1.58	.25	3.12	.002
Ecological worry x welfare	-0.65	1.61	-.08	-0.40	.69
Self-alignment scale for pro-environmental investment behaviour (1 = low, 7 = high)					
	B	*SE*	β	*t*	*p*
Ecological worry	0.55	0.07	.47	7.78	<.001
Ecological worry x welfare	-0.09	0.07	-.20	-1.28	.20

Intended change in the share of green investments over the next 12 months (1 = strongly reduce, 7 = strongly increase)					
	B	*SE*	β	*t*	*p*
Ecological worry	0.10	0.03	.21	3.23	.001
Ecological worry x welfare	-0.07	0.03	-.36	-2.11	.04

Appendix F: Project brief

TU Delft

IDE Master Graduation Project

Project team, procedural checks and Personal Project Brief

In this document the agreements made between student and supervisory team about the student's IDE Master Graduation Project are set out. This document may also include involvement of an external client, however does not cover any legal matters student and client (might) agree upon. Next to that, this document facilitates the required procedural checks:

- Student defines the team, what the student is going to do/deliver and how that will come about
- Chair of the supervisory team signs, to formally approve the project's setup / Project brief
- SSC E&SA (Shared Service Centre, Education & Student Affairs) report on the student's registration and study progress
- IDE's Board of Examiners confirms the proposed supervisory team on their eligibility, and whether the student is allowed to start the Graduation Project

STUDENT DATA & MASTER PROGRAMME

Complete all fields and indicate which master(s) you are in

Family name	van Schendel	7713
Initials	M.H.J.	
Given name	Merel	
Student number	4814355	

IDE master(s)	IPD ☐	DfI ☐	SPD ✔	
2nd non-IDE master	N.A.			
Individual programme *(date of approval)*	N.A.			
Medisign	☐			
HPM	☐			

SUPERVISORY TEAM

Fill in he required information of supervisory team members. If applicable, company mentor is added as 2nd mentor

Chair	Giulia Granato	dept./section	Marketing and Consumer research
mentor	Lise Magnier	dept./section	Marketing and Consumer research
2nd mentor	N.A.		
client:	N.A.		
city:	N.A.	country:	N.A.
optional comments	Lise brings a strategic lens on sufficiency and long-term change, while Giulia offers a more experimental, quantitative approach. Together, they complement each other in content and method.		

! Ensure a heterogeneous team. In case you wish to include team members from the same section, explain why.

! Chair should request the IDE Board of Examiners for approval when a non-IDE mentor is proposed. Include CV and motivation letter.

! 2nd mentor only applies when a client is involved.

APPROVAL OF CHAIR on PROJECT PROPOSAL / PROJECT BRIEF -> to be filled in **by the Chair** of the supervisory team

Sign for approval (Chair)

Giulia Granato

Digitally signed by Giulia Granato
Date: 2025.07.28 08:49:49 +02'00'

Name Giulia Granato Date 28 Jul 2025 Signature Giulia Granato

CHECK ON STUDY PROGRESS

To be filled in **by SSC E&SA** (Shared Service Centre, Education & Student Affairs), after approval of the project brief by the chair.
The study progress will be checked for a 2nd time just before the green light meeting.

Master electives no. of EC accumulated in total _____ EC

Of which, taking conditional requirements into account, can be part of the exam programme _____ EC

★	**YES**	all 1st year master courses passed
	NO	missing 1st year courses

Comments:

Sign for approval (SSC E&SA)

G. Janse Digitally signed by G. Janse Date: 2025.07.29 10:41:36 +02'00'

Name G. Janse Date 29 Jul 2025 Signature

APPROVAL OF BOARD OF EXAMINERS IDE on SUPERVISORY TEAM -> to be checked and filled in by IDE's Board of Examiners

Does the composition of the Supervisory Team comply with regulations?

YES	★	Supervisory Team approved
NO		Supervisory Team not approved

Comments:

Based on study progress, students is ...

★	**ALLOWED** to start the graduation project
	NOT allowed to start the graduation project

Comments:

Sign for approval (BoEx)

Monique von Morgen Digitally signed by Monique von Morgen Date: 2025.07.29 11:09:28 +02'00'

Name Monique von Morgen Date 29 Jul 2025 Signature

Personal Project Brief – IDE Master Graduation Project

Name student Merel van Schendel **Student number** 4,814,355

PROJECT TITLE, INTRODUCTION, PROBLEM DEFINITION and ASSIGNMENT

Complete all fields, keep information clear, specific and concise

Project title Investigating climate responsibility & agency-behaviour gaps across income groups

Please state the title of your graduation project (above). Keep the title compact and simple. Do not use abbreviations. The remainder of this document allows you to define and clarify your graduation project.

Introduction

Describe the context of your project here; What is the domain in which your project takes place? Who are the main stakeholders and what interests are at stake? Describe the opportunities (and limitations) in this domain to better serve the stakeholder interests. (max 250 words)

This project takes place in the domain of climate responsibility and sustainable behaviour change, focusing on how individuals across income groups perceive their own and others' responsibility and agency. While the wealthiest 10% are responsible for over half of global emissions (Chancel, 2021), climate action depends on participation across all socioeconomic levels. Individuals from different income groups interact with sustainability in different ways, shaped by material circumstances, political influence, and social norms. Affluent individuals may invest in low-carbon technologies or support climate policies while continuing high-emission behaviours (Gössling & Humpe, 2022), whereas lower-income groups often face more structural and financial barriers that constrain their choices (Beiser-McGrath & Busemeyer, 2023).

Main stakeholders include individuals from both high- and low-income groups, as well as organizations and institutions designing policies, campaigns, products and services to influence sustainable behaviour. Many current interventions assume shared values and capabilities, often overlooking income-related differences in perception and behaviour.

This creates an opportunity to identify perception -behaviour gaps across income groups and to use these insights to inform better-targeted, more effective interventions. A key limitation is that income intersects with other factors like political orientation or education, which may also influence behaviour and will be acknowledged where relevant. The urgency of climate mitigation alongside the outsized influence of high-impact individuals makes this an important time to explore how different people understand and act on their climate responsibility.

→ *space available for images / figures on next page*

introduction (continued): space for images

image / figure 1

image / figure 2

Problem Definition

What problem do you want to solve in the context described in the introduction, and within the available time frame of 100 working days? (= Master Graduation Project of 30 EC). What opportunities do you see to create added value for the described stakeholders? Substantiate your choice.
(max 200 words)

Current sustainability interventions often assume shared values, agency, and behavioural potential across the population. In reality, these factors vary significantly by income group. While affluent individuals have a disproportionately high climate impact, they remain under-addressed in behavioural research (Nielsen et al., 2021). Many express climate concern and adopt low-carbon technologies, yet continue high-emission consumption patterns (Moorcroft et al., 2025). This reflects a value -action gap that is not yet well understood.

One key reason for this gap may lie in how people perceive their own and others' climate responsibility and agency. However, little is known about how these perceptions differ across income groups, especially among the affluent, or how these perceptions translate to behaviour (Beiser-McGrath & Busemeyer, 2023). Without this insight, current interventions risk being misaligned with the beliefs, motivations, and constraints of the people they target.

This project addresses this gap by investigating how income shapes perceptions of responsibility and agency, and how these perceptions relate to both sustainable intentions and actual behaviours. By identifying these relationships, the research contributes new insight into the psychological and social dimensions of climate action, supporting more informed and equitable approaches to behaviour change.

Assignment

This is the most important part of the project brief because it will give a clear direction of what you are heading for. Formulate an assignment to yourself regarding what you expect to deliver as result at the end of your project. (1 sentence) As you graduate as an industrial design engineer, your assignment will start with a verb (Design/Investigate/Validate/Create), and you may use the green text format:

Investigate how income-specific perceptions of climate responsibility and agency translate into sustainable behaviour across socioeconomic groups.

Then explain your project approach to carrying out your graduation project and what research and design methods you plan to use to generate your design solution (max 150 words)

This project begins with a literature review to build a foundation on perceived climate agency, responsibility, and behaviour across income groups. A quantitative survey will follow, designed to answer two research questions:

RQ1: How do individuals across income groups perceive their own and others' climate responsibility and agency?

RQ2: How do these perceptions influence individuals' sustainable intentions and reported behaviours?

Survey results will be analysed to uncover perception–behaviour mismatches and differences between income groups. These insights will contribute to the academic understanding of income-based behavioural drivers and barriers in sustainability. Based on the findings, the project will outline strategic directions for future interventions tailored to diverse lived realities. While the study is primarily research-focused, it supports the industrial design field by identifying behavioural patterns that can inform future design strategies, services, or policies aimed at effective climate action.

Project planning and key moments

*To make visible how you plan to spend your time, you must make a planning for the full project. You are advised to use a Gantt chart format to show the different phases of your project, deliverables you have in mind, meetings and in-between deadlines. Keep in mind that all activities should fit within the given run time of 100 working days. Your planning should include a **kick-off meeting**, **mid-term evaluation meeting**, **green light meeting** and **graduation ceremony**. Please indicate periods of part-time activities and/or periods of not spending time on your graduation project, if any (for instance because of holidays or parallel course activities).*

Make sure to attach the full plan to this project brief.
The four key moment dates must be filled in below

Kick off meeting	10 Jul 2025
Mid-term evaluation	25 Sep 2025
Green light meeting	2 Dec 2025
Graduation ceremony	20 Jan 2025

In exceptional cases (part of) the Graduation Project may need to be scheduled part-time. Indicate here if such applies to your project

Part of project scheduled part-time	✔
For how many project weeks	26
Number of project days per week	4,0

Comments:
1 day a week reserved for therapy.

Motivation and personal ambitions

Explain why you wish to start this project, what competencies you want to prove or develop (e.g. competencies acquired in your MSc programme, electives, extra-curricular activities or other).

Optionally, describe whether you have some personal learning ambitions which you explicitly want to address in this project, on top of the learning objectives of the Graduation Project itself. You might think of e.g. acquiring in depth knowledge on a specific subject, broadening your competencies or experimenting with a specific tool or methodology. Personal learning ambitions are limited to a maximum number of five.
(200 words max)

I chose this project to explore how strategic design can contribute to climate action by targeting one of the most impactful and under-addressed groups: affluent consumers. This topic aligns with my ambition to use design not just for product innovation, but for systemic change. It reflects my belief that design should be directed where it can make the greatest environmental and social impact.

I aim to demonstrate my ability to lead a complex design research project, conduct mixed research, and translate behavioural insights into actionable strategies. I also want to improve in synthesising environmental, behavioural, and strategic data into compelling, design-led interventions.

Specifically, I want to:

1. Deepen my understanding of how to motivate behaviour change through design, especially in high-impact contexts.
3. Learn how to conduct more effective, comfortable, and insightful interviews, by making participants feel at ease and uncovering deeper behavioural drivers.
4. Develop my skills in translating behavioural insights into actionable, strategic design outputs that are clear, engaging, and grounded in real-world complexity.
5. Make a positive impact while learning, growing and having fun! :)