The effect of inequality and gender on sustainable behaviour

The relation between socioeconomic status and sustainable behaviour, moderated by gender.

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Abstract

Climate change has in the last decade become more important and urgent. As its consequences are harmful to the environment and humanity. The only way to slow this down is by sustainable behaviour. However, there is a lack of involvement which cause governments and organisations to look for solutions to promote sustainability. Literature suggests that sustainable behaviour can be influenced by SES level but does not go into detail about this possible effect. In addition, the moderation effect of gender is not researched in combination with SES for the Netherlands. It is argued that women show more sustainable behaviour, especially those with a high SES background and that the height of one's SES background can either positively or negatively affect their sustainable behaviour depending on the gender. It is expected that those with low SES show less sustainable behaviour. Therefore, the purpose of this research is to investigate the effect of SES on sustainable behaviour and if this is moderated by gender.

Using the LISS dataset called "the energy transition from a citizen's perspective" from 2019. This is examined by performing a multiple linear regression analysis on N=2175 Dutch citizen respondents.

Results are partially in line with the expectations. There is an effect found of SES on sustainable behaviour but only when measuring SES through education. This states that low SES individuals show the least amount of sustainable behaviour. Furthermore, results showed no moderation effect of gender. However, there was found an effect of gender on sustainable behaviour. This means that women generally show more sustainable behaviour as expected, however, this is not a moderation effect on the relation between SES and sustainable behaviour. These findings were used to form policy recommendations aimed at creating more awareness and urgency surrounding climate change and sustainable behaviour.

Ethical statement

This research has been approved by the Ethical Board of Utrecht University (reference number 23-0578).

Introduction

Climate change is one of the greatest global challenges of our time, with far-reaching impacts on society and the environment (United Nations, 2013; United States. Congress. House. Committee on Science and Technology, 2007). The evidence for climate change and the drastic changes it brings have been presented by scientists for decades and have become more imminent with time. Climate change is primarily driven by human activities which release greenhouse gasses such as burning fossil fuels and deforestation (Füssel, 2009; Smith et al., 2009; United Nations, 2013; United States. Congress. House. Committee on Science and Technology, 2007). It shows humanity's inability to fit activities into the changing planetary systems. Climate change is causing changes in the environment that can already be experienced through life-threatening hazards (Morelli, 2011). These include rising sea levels and frequent and severe weather changes (Bollen & Van Humbeeck, 2002). Many have already endured environmental disasters with catastrophic damages (Smith et al., 2009). With a further incline on greenhouse emissions, it causes severe changes to the ecosystem, with impacts on human health, food security, and economic prosperity (Morelli, 2011).

Sustainability has become increasingly important in response to the urgency to address climate change (Morelli, 2011). The definition of environmental sustainability is important to understand to be able to grasp the concept of the situation and solutions. Environmental sustainability is defined as meeting the resources and services needs of current and future generations without compromising the health of the ecosystems that provide them (Morelli, 2011; Tapia-Fonllem et al., 2013). Proper environmentally sustainable behaviour is described by Tapia-Fonllem and colleagues (2013) as behaviour that promotes environmental sustainability and reduces the negative impact on the planet's environment. These include reducing energy consumption, conserving resources, using renewable energy, and reducing waste (Tapia-Fonllem et al., 2013). Sustainable behaviour can help reduce green gas emissions, protect natural resources and ecosystems, and create more resilient communities that can adapt to the impact of climate change in the future (Tapia-Fonllem et al., 2013; Morelli, 2022; Pertsova, 2007; Bollen & Van Humbeeck, 2002). Additionally, sustainable behaviour can provide economic benefits, by reducing energy costs and creating jobs in the growing green energy industry (Atz et al., 2021). Given the urgent need to address climate change as seen in the Paris Agreement (2013), it is critical that individuals, organisations, and governments take meaningful and sustained action and behaviour (Fischhoff, 2007; United Nations, 2013).

Numerous solutions facilitating climate change mitigation have already been found such as extracting energy through solar power (Atz et al., 2021; Hillerbrand, 2018). However, these solutions are expensive and therefore not affordable for everyone (Hillerbrand, 2018; Mertens, 2022). As more sustainable solutions come onto the market, some individuals no longer have a clear overview of the necessary next steps (Hanss & Böhm, 2012). To implement these sustainable changes people must change the way they execute their daily activities. It requires a certain amount of willingness to change their habits and invest their time and financial resources (Hulscher et al., 2023; Hanss & Böhm, 2012).

According to the most recent report by the WRR (2023), the divide between sustainable changes and costs needs to be transparent and equal in policy and government for a sufficient support base from the public (Hulscher et al., 2023). There is concern about the inability of daily human systems to adapt to these necessary and complex changes to stop climate change (Berrang-Ford et al., 2011). Combating climate change is experienced as being less urgent because it is more abstract to understand than immediate crises of everyday needs (Lerner & Rottman, 2021). The lack of understanding, resources and belief in a beneficial outcome affects the attitude and ability to take part (Van Zutphen, 2022). A variety of factors such as lack of financial resources, information overload, economic inequality and education can affect individuals' willingness to participate in sustainable behaviour (Van Zutphen, 2022). These factors merge in socioeconomic status (SES) as this is measured by income, occupation, and educational level (Eom et al., 2018). It measures an individual's economic and social status in relation to society. Research shows that high SES individuals can understand difficult and abstract information quicker and apply this easier than those with a low SES level (Tichenor et al., 1970; Korous et al., 2020; Qian et al., 2014). In most cases the higher the level of SES the more resources one possesses. This ensures they use and apply the learned information quicker than those who lack these same resources (Korous et al., 2020; Qian et al., 2014)

Unfortunately, most people with a low SES will need some kind of help in taking the first step. The Dutch government has started an enormous number of policies to help them. These policies include subsidies and campaigns with sustainable tips and information (Ministerie van Infrastructuur en Waterstaat et al., 2021). Apart from the right intentions, policy evaluations and research show that access to sustainable alternatives is unequal (Van Zutphen, 2022; Ministerie van Infrastructuur en Waterstaat et al., 2021). Sustainable alternatives like organic foods can be expensive or harder to find and acquire extra effort. Additionally, many information resources on policies are difficult to understand for those with a low SES (Van Zutphen, 2022; Wiebes, 2019).

Existing scientific literature focuses more on the impact of SES on attitudes towards climate change instead of behaviour. Furthermore, previous research is focused on other specific target groups such as third-world countries or students. It is important to understand what affects and motivates sustainable behaviour and if this can be linked to previous findings. The results contribute to a better understanding of the effect of SES on sustainable behaviour and insight into important indicators that lead to sustainable behaviour. A new target group will be researched as the Netherlands has not been researched on this topic. Additionally, the moderation effect of gender will be looked at. The impact of gender has been researched before but never as a moderator for SES and sustainable behaviour in the Netherlands. Earlier research has found results that women worry more about the environment than men (Robichaud et al, 2003; Davidson & Freudenburg, 1996). However, it is not clear if this leads to an increase in sustainable behaviour. This study will, therefore, create an understanding of the difference in sustainable behaviour between SES levels and genders. Thus, this thesis will attempt to answer the following questions. Firstly, the descriptive question: *What is the amount of sustainable behaviour in The Netherlands?* Secondly, the two explanatory questions: *To what extent does socioeconomic status affect sustainable behaviour and is this moderated by gender?*

Additionally, an assessment will be made on how these results can be implemented to provide fitting insights to promote sustainable behaviour through policy implications. This will be done through the following policy question: *How can the knowledge of the effect of socioeconomic status and gender on sustainable behaviour, be utilized to tailor sustainable policy and supporting policies?*

It is important to note that the relationship between SES and sustainable behaviour is complex and multifaceted and that there is significant variation within and between socioeconomic groups. However, understanding these relationships can be valuable for policymakers, government officials, and individuals seeking to promote sustainable behaviour and address environmental challenges. These results aim to provide insight into how policy and implementations can be improved to mitigate climate change.

Theory

Sustainable behaviour is an essential aspect of climate change mitigation. It includes actions aimed at reducing negative impacts on the environment. Previous research has suggested that SES affects sustainable behaviour (Van Zutphen, 2022; Eom et al., 2018). The relationship between SES and sustainability has been studied with varying results. Additionally, gender has been identified as a potential moderator for the relationship between SES and sustainable behaviour (Bord & O'Conner, 1997; Zelezny, 2000). Studies have shown that men and women respond divergent to environmental concerns and worry differently based on their SES, which may result in contrasting sustainable behaviour per gender (Bord & O'Conner, 1997; Zelezny, 2000). The theoretical framework aims to analyse the relationship between SES and sustainable behaviour, including the moderation of gender.

The effect of socioeconomic status on sustainable behaviour

The planned behaviour theory

It is believed that personal values and judgment of a subject influence behaviour (Ajzen, 1985, 1991; Dietz & Stern, 2015; Stern, 2000). This is done through beliefs, norms, and attitudes (Price et al., 1951; Steg & De Groot, 2012; Stern, 2000). It will predict all sorts of behaviour including sustainability. An example of this mechanism is the denialist attitude towards climate change which often results in no sustainable behaviour (Lerner & Rottman, 2021). Climate change is not perceived as having recognizable, immediate safety risks. Instead, these denialist individuals see climate change as something which causes harm to geographic and temporally distant individuals (Lerner & Rottman, 2021). Furthermore, climate change is sometimes experienced as less urgent because it is more abstract to understand than immediate everyday needs. Most adults will see information on climate change and sustainability daily but will lack an understanding of the problem and their personal impact (Lerner & Rottman, 2021). Especially those with low SES levels, who struggle to meet everyday needs, might not see climate change as an immediate problem (Lerner & Rottman, 2021). Therefore, sustainable behaviour will not hold the same urgency and can be seen by those with a lower SES as a luxury problem (Lerner & Rottman, 2021).

The *planned behaviour theory* could account for this mechanism. According to the first version, *the theory of reasoned actions,* individuals possess an array of personal values, each of which is held to a weight of importance according to that individual's hierarchy. This is

dependent on their social status and context (Ajzen & Fishbein, 1980; Heller et al., 2013). If, for example, being able to pay rent is seen as more urgent and attainable than sustainable behaviour the individual will not choose to participate (Kotchen & Reiling, 2000).

The *theory of reasoned actions* is later expanded to the *theory of planned behaviour* (Heller et al., 2013). Ajzen (1985, 1991) states that the individual's attitude originates in beliefs which guide corresponding behaviour. There are three factors which have an influence on the individual's consideration to participate in certain (sustainable) behaviour. First, is the *attitudes* an individual holds towards certain behaviours (Ajzen, 1985, 1991). The attitude is determined by their beliefs about sustainability. Belief, in this case, is seen as the subjective probability that specific behaviour will lead to a certain outcome (Ajzen & Fishbein, 1980). Secondly, is the extent to which the individual believes that their behaviour falls under the *moral norm* (i.e. what is normally considered right or wrong) (Ajzen, 1985, 1991). Thus, individuals would have to believe that sustainable behaviour is the morally normal thing to do for them to participate (Kotchen & Reiling, 2000). If sustainable behaviour is not seen as the moral norm, individuals are less likely to participate. An example of this is the opposition against a vegetarian diet because this is not seen as normal. Lastly is *perceived control:* the extent to which the individual might feel that they control something that will have an impact (Ajzen & Fishbein, 1980; Ajzen, 1985, 1991).

The theory of planned behaviour applies to where lower SES individuals will not show as much sustainable behaviour, as it is not one of their higher priorities. They have given sustainability a lower personal weight of importance (Hagger & Hamilton, 2021; Ajzen & Fishbein, 1980; Ajzen, 1985, 1991). Their attitude holds the belief that the execution of sustainable behaviour will not lead to a beneficial outcome and therefore the priority given will be low (Eom et al., 2018; Kraus et al., 2009, 2012). This overlaps with the *expectancy-value model*, where the expectancy needs to be positive for behaviour to occur just like the attitude needs to be positive according to the *planned behaviour theory*. (Eccles & Wigfield, 2020; Ajzen & Fishbein, 1980)

Unfortunately, low SES individuals will expect adverse consequences for sustainable behaviour (Kortenkamp & Moore, 2006; Ajzen & Fishbein, 1980). Diekman and Preisendorfer (1998) state that there are often barriers that prevent sustainable behaviour. These are barriers such as (high) costs and invested time to be able to participate (Hagger & Hamilton, 2021; Lien et al., 2002). Low SES individuals see these barriers as too high and out of their control for them to believe the outcomes will be beneficial (Hagger & Hamilton, 2021; Lien et al., 2002; Terry & O'Leary, 1995; Brug et al., 1995 Grandin et al., 2022).

It is therefore suggested that *perceived control* over one's life and environment will vary per SES level. *Perceived control* for outcomes has been coined as the ability to translate attitudes into relevant behaviour (Kruglanski et al., 2015). Studies found that low SES individuals feel less control as they are often dependent on others for resources (Eom et al., 2018; Terry & O'Leary, 1995; Trafimow et al., 2002). Coincidentally, high SES individuals will show more sustainable behaviour as they have a higher sense of perceived control (Ko & Jin, 2017; Ateş, 2020). Aspects, such as attitude, control and beliefs become more important for implementing behaviour with access to greater resources and autonomy (Eom et al., 2018; Riemer, Shavitt, Koo, & Markus, 2014; Snibbe & Markus, 2005). High SES individuals will have access to the right resources and lack barriers, which makes sustainable behaviour more accessible to them (Terry & O'Leary, 1995; Trafimow et al., 2002; Hagger & Hamilton, 2021; Lien et al., 2002).

The value-belief-norm theory

Stern (2000) explains the *value-belief-norm theory* (VBN) as the theory of pro-environmentalism as the individual's values influence their sustainable behaviour through beliefs and personal norms (Stern, 2000; Hawcroft & Milfont, 2010; Hiratsuka et al., 2018). The theory contains three factors that can be linked to the feeling of accountability. Firstly, *awareness of consequences* can be understood as the understanding of the consequences of certain actions. Secondly, is *responsibility* which looks at an individual's accountability for negative consequences. The last factor is *personal norms*, which reflect an individual's feelings of moral obligations to specific actions (Stern, 2000). These factors can differ per socioeconomic background (Kraus et al., 2009, 2012). Different contexts and characteristics per SES levels will predict an individual's attitude and feeling of responsibility towards sustainable behaviour (Wardle, 2003; Kraus et al., 2009, 2012). Particularly low SES individuals are influenced by *social norms* more strongly than high-SES individuals (Eom et al., 2018; Stephens et al., 2007; Snibbe & Markus, 2005). Low SES individuals will often have the same attitude as the majority (Stephens et al., 2007; Na et al., 2016; Eom et al., 2018). Low SES individuals are part of a more interdependent social network in their social and material conditions (Stephens et al., 2007). They depend on others as they possess less income and access to resources. As a result, low SES individuals will feel less responsibility to protest and have a different opinion than the majority as this holds too many risks in their dependent position (Na et al., 2016). Furthermore, an important aspect of this theory is the *awareness of consequences* from an individual. As low SES individuals find climate change too abstract to

understand it might cause them to have a lower awareness of consequences that might motivate them to behave sustainably (Peterson 1992, Peterson & Kern 1996). While high SES individuals have a better grasp of the situation and therefore feel more responsible (Diekmann & Preisendörfer, 1998; Na et al., 2016).

Cultural capital

When looking into individual aspects that shape behaviour, individual cultural capital is impactful. Cultural capital is defined by Bourdieu (2011) as familiarity with the legitimate culture of society. This is obtained through previous generations and participation in cultural activities like theatres and galleries. Most of these activities are seen as high culture, which means that they are associated with high SES (Huang, 2019). This is a way of showing status through the capability to participate. Similarly, sustainable behaviour could be used the same as individuals with high SES show their capability to participate in the "luxury" of sustainable behaviour (Kingston, 2001).

Furthermore, cultural capital has expanded as it was found to include empathy for others and the environment (Peterson, 1992; Peterson & Kern, 1996). This is the result of exposure to more diverse perspectives and interests (Peterson, 1992; Peterson & Kern, 1996). Thus, *cultural capital* encompasses that individuals' cultural background, knowledge, and experience shape their attitudes, behaviour, and interests in a wider variety of subjects. Moreover, participation in cultural activities can increase an individual's open-mindedness and curiosity (Kingston, 2001; Bourdieu, 2011). It expands their awareness about socially relevant issues and might motivate them to actively participate in sustainable behaviour (Bourdieu, 2011; Huang, 2019). Generally, individuals with a higher SES level possess more cultural capital because of their higher educational level than those with a lower SES level (Yang et al., 2022; Sampson, 2009). Thus, individuals with a high SES level are more likely to participate in sustainable behaviour as they have a higher level of cultural capital which will increase all necessary elements for individuals to participate in sustainable behaviour (Kingston, 2001).

Information overload theory

When individuals want to participate in sustainable behaviour, they often need additional information or subsidies to be able to participate (Kohon, 2018). Especially those with a lower educational level or financial resources are not fully aware of all options available (Kohon, 2018). Additionally, in the Netherlands, individuals must apply for subsidies themselves, if they are eligible. This is where the *information overload theory* can be applied.

Information overload occurs when it is difficult for individuals to understand an issue and the correct decisions (Speier et al., 1999). According to Speier and colleagues (1999), the input will exceed the processing capacity of an individual which makes information overload occur. Roetzel (2018) added, that when an individual is given too much information, with a certain complexity level, the quality of their decision will decrease because they have limited resources to process the information and make the optimal decision. Predictors that are found to affect the occurrence of information overload are all elements which can be found in low SES individuals such as low(er) education level, low(er) literacy, and poor searching skills (Khaleel et al., 2020). According to Deckers and colleagues (2017), these factors are all indicators of how individuals make decisions. The excessive ability of information about sustainability can confuse low SES citizens, instead of motivating them.

To conclude, a difference is expected in sustainable behaviour between individuals with low SES and high SES. According to previous sources, high SES individuals are more likely to participate in sustainable behaviour as they have more access to resources that can support sustainable behaviour. Furthermore, literature shows that there is a difference in the urgency individuals feel when it comes to sustainability. As individuals with low SES will feel a higher urgency with fulfilling more basic needs such as paying rent, sustainable behaviour is seen as less important.

H1: High SES individuals are more likely to show more sustainable behaviour than low SES individuals.

The moderated effect of gender on the relationship between SES and sustainable behaviour

It is generally believed that there is a difference per gender in how they few sustainable behaviours (Baranov et al., 2018). Most elements of sustainable behaviour are not seen as traditionally masculine such as eating meat, while sustainability is seen as altruistic and thus feminine (The Guardian, 2022; Bouazzouni, 2021; Baranov et al., 2018). This section will, therefore, look at the moderation effect of gender on the relationship between SES and sustainable behaviour.

The planned behaviour theory on gender

Previous research found that women express greater concern for the well-being and safety of others. In other words, they show a higher level of altruism (Sundström & McCright, 2014). Altruism is the act to participate to enhance someone else's welfare (Griskevicius et al., 2010). Altruism has been found as an effective trigger for participating in sustainable behaviours (Bolderdijk et al., 2013; Dietz, 2015). According to the *planned behaviour theory* the personal values of an individual will be held to a certain hierarchy according to what they deem as important (Ajzen, 1985, 1991). As research showed that women possess more altruism and see risk vulnerability better than men, women will, as per the *planned behaviour theory,* show more sustainable behaviour than men (Ajzen, 1985, 1991).

What makes women with a low SES differ from women with a high SES can be found in the *planned behaviour theory* as well. As stated, an individual's attitude towards sustainable behaviour is determined by their belief about the subject. Belief is explained as the opportunity that behaviour will have the wanted outcome (Ajzen & Fishbein, 1980). Thus, if a woman feels a higher level of altruism within sustainability than a man, this feeling will be even stronger if they believe their behaviour will have the effect they want (Ajzen & Fishbein, 1980). The difference between high SES and low SES women is coming forward as it was found that the feeling of belief is higher if there is accessibility to the right resources (Derksen & Gartell, 1993; Diekmann & Preisendörfer, 1998; Kraus et al., 2009, 2012). High SES women will have more access to resources as they possess a higher income and educational level (Derksen & Gartell, 1993; Diekmann & Preisendörfer, 1998; Kraus et al., 2009, 2012). To conclude, it could be argued that High SES women participate more in sustainable behaviour than low SES women because of their high altruism and better access to resources.

Gender socialization theory

Women's possession of altruism and insight into risk vulnerability can be linked to the *gender socialization theory*. This states that there is a difference in values and social expectations between men and women created through society (Collins, 2011; Carter, 2014). Even within sustainability, the difference in gender roles can be found. Generally, women are framed as affectioned, and altruistic, while men are framed as tough, and indifferent (Collins, 2011; Reskin & Roos 1990; McPherson & Smith-Lovin, 1986). In a study by Zelenzy (2000), it was found that young girls report stronger attitudes and beliefs towards sustainability and climate change than young boys do. This shows the influence of early projected gender roles

on both men and women and the influence these roles can have. In turn, women would be more likely to participate in sustainable behaviour as an adult (Zelenzy, 2000). Additionally, there are certain lifestyle elements framed as being masculine and fitting into the traditional male gender role. These are products and activities such as eating meat and driving a (non-electric) car (Bloodhart & Swim, 2020). When looking at the influence of SES on enforced gender roles one element is interesting to note. High SES women will have the resources to put their sustainable behaviour into action, while man value hierarchy and achievement, and they like to show off their higher status and masculinity (Bloodhart & Swim, 2020; Schwartz & Rubel, 2005). Because most masculine products are non-sustainable this results in greater spending and the consumption impact of non-sustainable behaviour (Bloodhart & Swim, 2020; Medina & Toledo-Bruno, 2016). Thus, high SES men will show less sustainable behaviour than low SES men because of their access to resources which enables them to follow traditional gender roles in their consumption.

H2: Women are more likely to show sustainable behaviour than men.
H3: The effect of socioeconomic status on sustainable behaviour is stronger for women than for men.

Method

This section will discuss the methodological justification of this study. Firstly, the research method will be explained, and a description will be given of the data analysis used. Additionally, how the data is used ethically, and the variable operationalization will be discussed.

Dataset and sample

Data for this research is sourced from LISS (Longitudinal Internet Studies for the Social Sciences). The panel is based on a true probability sample among households taken from the Statistics Netherlands population register. Every respondent must fill in a questionnaire with background information every year to make sure it is up to date. The background information will be combined with the used survey for this analysis. The LISS survey used is called "the energy transition from a citizen's perspective". It asked Dutch citizens about their participation and opinion regarding the energy transition (De Kluizenaar & De Wilde, 2019). The survey contains a single wave and is conducted by the Netherlands research institute for social research on behalf of the researchers from the Sociaal Cultureel Planbureau (SCP) (De Kluizenaar & De Wilde, 2019). The survey is conducted in 2019 to get an idea about the perception of citizens on the energy transition and their experience. It helps gain insights into how the citizens of the Netherlands think about climate change, its possible impact and what behaviour they perform to participate in the energy transition.

The original sample contained 3,480 respondents between 18 and 95 years old. In this sample, only one member of each household was randomly selected and questioned. This gave a response rate of 70 %. Some respondents were excluded because of a vacation, illness or non-response which made the questionnaire response rate be presented to 2480 respondents in the end. After applying a filter for respondents who did not meet all requirements for this analysis the total number of respondents entails N = 2175.

Operationalisation and variables

  In this section, all used variables will be explained and how these are measured with the LISS data set to make sure the right effects are measured.

Sustainable behaviour - dependent variable

  To measure sustainable behaviour a variety of questions were asked. These give insight into the sustainable behaviour respondents are performing or want to perform. Sustainable behaviour is described as behaviour that promotes environmental sustainability and reduces the negative impact on the environment (Tapia-Fonllem et al., 2013). These include reducing energy consumption, conserving resources, using renewable energy, and reducing waste (Tapia-Fonllem et al., 2013). This data gives more information than asking the question directly. When asking questions on sustainability directly, for example: "Do you drive an electric car?", it does not capture the possible want from the individual to do this. As a result, the following questions capture sustainable behaviour and want to do so. The dependent variable "sustainable behaviour" is measured with the following questions: '*Would you try to drive your car (even) less often?', 'Would you try to fly (even) less often?', 'Would you try to eat (even) less meat?', 'Would you try to shower (even) less long?', and 'Would you want to try to buy one of the most energy-efficient versions more often when you buy a new electric household appliance?'*. All these questions are answered by respondents with a 4-category scale: (1) *Yes, definitely* (2) *Yes, maybe* (3) *No, probably not* (4) *No, definitely not*. Some of the questions contain a fifth category which includes answers such as (88) *not applicable.* These categories will be excluded. Only for the question measuring meat consumption, there are 2 categories combined. These are (1) *Yes, definitely* and (5) *No, I don't eat meat*. These categories show a vegetarian diet which is measured as sustainable behaviour. Before computing the questions to measure sustainable behaviour, a reliability test was conducted with a Cronbach alpha of α =.645. The questions are computed together through the measurement mean and will be recoded so that a higher score resembles more sustainable behaviour.

Socioeconomic status (SES) - independent variable

  Socioeconomic status is measured, as recommended by research institutes, through education, income, or occupation (American psychological association, 2015). Because the theory touches most on both education and income these will be used to measure SES. Firstly, SES will be measured using the highest concluded educational level with a diploma. To

measure education the official level of education categories will be used within the Netherlands, (1) *"primary school"*, (2) *"VMBO (intermediate secondary education, US: junior high school)"*, (3) *"HAVO/VWO (higher secondary education/preparatory university education, US: senior high school)"*, (4) *"MBO (intermediate vocational education, US: junior college)"*, (5) *"HBO (higher vocational education, US: college)"*, (6) *"wo (university)"*, (7) *"other"*, (8) *"Not (yet) completed any education"*, (9) *"Not yet started any education"*. These categories will be transformed into 3 levels: low, middle, and high. (0) low contains individuals who have completed no education up to lower secondary education, (1) Middle will comprise individuals who have completed upper secondary education. Lastly (2) high will contain all tertiary education. Categories such as "other" will be excluded.

Secondly, income will be used to measure SES. Income will be measured using the monthly net income from a household. The respondent was able to answer this question by entering the net amount of monthly household income. The SES level will be measured with household income in this analysis because of its focus on the Netherlands (Centraal Bureau voor de Statistiek, n.d.). In the Netherlands, the number of part-time workers is relatively high. This results in the fact that some will have a high SES but will not have a high income (Centraal Bureau voor de Statistiek, n.d.). To make sure these individuals are still counted as having high SES the household income is measured. Income will be divided by 1000 to make sure the difference in sustainable behaviour is shown per 1000 Euro instead of 1 Euro. A higher income will result in a higher SES level measure.

Gender - moderator

The moderator in this research is gender. Respondents were able to answer (1) male and (2) female. This variable is later transformed into a dummy variable with (0) male and (1) female. This makes males the reference group in this study.

Control variables

Several variables are added to the research to correct confounding factors in the relationship between socioeconomic status (SES) and sustainable behaviour - moderation by gender. The control variables that are included are migration background, age, and urbanity of residence.

Migration background

Sustainable behaviour can be influenced by migration background. Various aspects of an individual life help shape their behaviour through their cultural capital (Bourdieu, 2011). This cultural capital is stated as 'the familiarity with the legitimate culture within a society.' (Bourdieu, 2011). This familiarity is obtained through previous generations and participation in cultural activities. Thus, individuals with a migration background and who are non-Dutch natives might be less likely to perform sustainable behaviour. For the measurement of migration background, the variable 'origin group' will be used. This variable contains (0) *native origin*, (101) *first-generation western origin*, (102) *first-generation non-western origin*, (201) *second-generation western origin*, (202) *second-generation non-western origin*, and (999) *origin unknown*. This variable will be computed into a dummy with (0) native origin and (1) non-native origin. The non-native group will contain all non-Dutch categories.

Age

Sustainable behaviour can come with many changes, which might be challenging to implement. Especially for an older individual, it can be challenging to comprehend what is deemed sustainable and what isn't. Studies have shown that older individuals have more difficulty implementing sustainable behaviour (Kim, 2021). While younger individuals, particularly millennials, were found to be the most sustainable (Sleight, 2022). Thus, age can likely influence the relationship between SES and sustainable behaviour with the moderation of gender (Kim, 2021). Age will be measured using the variable question 'age' where the respondent has inserted their age at the time of answering the survey.

Urbanity of residence

The final control variable will be focusing on the urbanisation of residence. This entails if the individual lives in a city or countryside. According to research by Centraal Bureau van de Statistiek (CBS) (2020), individuals who live in cities are more aware of climate change and are more likely to implement sustainable behaviour. Thus, the urbanisation of residence can influence the relationship between SES and sustainable behaviour. The level of urbanisation will be measured using the variable 'urbanity of residence'. The urbanity of a residential area is measured using the environmental address density per km². This variable consists of five categories (1) *'Very strongly urban' (2500 or more)*, (2) *'strongly urban' (1500 to 2500)*, (3)

'medium urban' (1000 to 1500), (4) *'little urban' (500 to 1000)*, (5) *'not urban' (500 or less)*.
This means that a higher score entails a less urban environment.

Analytical strategy and assumptions

For this research, multiple linear regression analysis with a moderator was performed using IBM SPSS version 27. To test the hypotheses, regression models will be used to see whether sustainable behaviour is affected by SES and if the interaction between SES and sustainable behaviour is moderated by gender.

The first model addresses the relationship between SES and sustainable behaviour. The second model will test the effect of SES on sustainable behaviour including control variables. The third model looks at the moderation effect of gender on the relationship between SES and sustainable behaviour. This will include the interaction effect between SES and the moderator gender. Before executing the analyses, the assumptions were checked. Assumptions of linearity, homoskedasticity, independence of errors, normality and independence of independent variables came back without any errors, which means the analyses can be conducted.

Results

Table 1 presents the descriptive statistics of all variables included in the analyses on sustainable behaviour. For this study, a sample of 2175 respondents was used. From this sample 50.8 % of the respondents were female. This is slightly bigger than the percentage of men in this sample (49.2 %) (min=0, max=1). The average age of all respondents is 57 years old (57.5), with the youngest respondent being 18 and the oldest 93. The average monthly household net income is 3000 euros (min = 0, max = 112.470, SD = 2.840). Only a small percentage of the respondent are non-Dutch natives (15.5%), this means that most of the sample consisted of people with a Dutch background (84,5%). Furthermore, the mean for Urbanisation of residence is 3.06. This states that most respondents live in medium urban cities or towns (min=1, max=5). Out of all respondents, 26.2% have completed up to a lower secondary educational level. Furthermore, 32.1% have completed upper-secondary education and 41.7% have completed tertiary education. Sustainable behaviour has a mean of 2.56, (mean=2.56, min=1, max=4, SD=.603).

Table 1. Descriptive statistics

	N	Min	Max	Mean	S.D.
Low education	2175	0	1	.262	
Mid education	2175	0	1	.321	
High education	2175	0	1	.417	
Sustainable behaviour	2175	1	4	2.56	.603
Income	2175	0	112.470	3.000	2.840
Female	2175	0	1	.508	
Non native	2175	0	1	.155	
Age	2175	18	93	57.5	17
Urban characteristics	2175	1	5	3.06	1.42

Table 2. Regression analyses for SES (income) predicting sustainable behavior

	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
Constant	2.552***	.015	2.531***	.056	2.548***	.058
Income	.003	.002	.003	.002	-.002	.005
Female			.151***	.026	.131***	.031
Urban characteristics			-.024**	.009	-.024**	.009
Age			.000	.001	.000	.001
Non-native			.039	.036	.038	.036
Income * Female					.006	.006
R²		.001		.021		.021
F		1.762		9.376***		8.019***

Note: p <.05*, p<.01**, p<.001***
Reference category gender (male = 0, female = 1).
Reference category migration background (0 = native, 1=non-native)

For this research, SES (Socioeconomic Status) is measured using income in the first analysis and educational level in the second. Table 2 presents the results of the three regression models. The first model shows the regression analysis results for the effect of SES (measured with household income) on sustainable behaviour. This model can only explain that there is an effect of SES on sustainable behaviour, it cannot yet support the first hypothesis. The first regression model was not significant (R2 = .001, F (1) = 1.762, p = .185). The model explains .1% of the variance of sustainable behaviour. When compared to the second model, which explains 2.1%, this explains a larger part of the effect. Both models show low variance explained, which is important to note. The meaning of this is that there is only a small part of the variance explained by the model of an individual's SES measured with income when it comes to sustainable behaviour. The results of the first model show that there is no significant effect of income on sustainable behaviour (B= .003, p .185).

Model 2 shows the regression analyses of the effect of SES through income level on sustainable behaviour while controlling for the effect of gender, migration background, age, and the urbanisation of residence. This model shows a significant effect and explains, 2.1 % of the variance with sustainable behaviour (R2= .021, F (5) = 9.376, p <.001). When looking at this model in more detail, it firstly shows no significant effect of income on sustainable behaviour (B= -.002, p = .134). This means that when an individual has a higher household income and thus SES level, it does not result in more sustainable behaviour. Therefore, the first hypothesis which stated: *High SES individuals are more likely to show more sustainable behaviour than low SES individuals* cannot be supported in the case of SES measured through income.

Furthermore, there is a significant negative effect on sustainable behaviour for the urbanisation of residence (B= -.024, p <.01). It is important to note that a higher value means

a less urban area for this variable. The next line shows the results for the effect of the control variable age. This shows no significant effect. Additionally, the effect of age is so small that it does not show a score higher than B= .000 (p= .799). Thus, age does not influence the relation between SES and sustainable behaviour. When looking at migration background there is no significant negative effect on sustainable behaviour (B= .039, p=.274). Lastly, the model shows a significant effect for gender (B= .151, p <.001). This means that being woman results in a positive effect on sustainable behaviour. Thus, women show more sustainable behaviour than men. Therefore hypothesis 2 can in this analysis be confirmed: *Women are more likely to show sustainable behaviour than men.*

In the third model, the moderation effect by gender is added and tested. The third model is significant and shows a variance of 2.1% (R2=.021, F (6) 8.019, p <.001). The lower variance shows that there could be another element that explains a bigger part of the variance of sustainable behaviour. It shows that higher income has a significant effect on sustainable behaviour in the third model. In line with the previous model, almost no control variables are significant. The only significant control variable is urban characteristics (B= -.024, p <.01). A higher score means fewer urban characteristics of an environment, those who live in the countryside show less sustainable behaviour. Gender still shows a significant effect. This states that being a woman has a positive effect on sustainable behaviour scores (B= .131, p<.001).

Lastly, the interaction effect of SES, measured through income, and being a female was added to assess whether there is a moderation effect of gender. The results show that there was no significant interaction effect (B = .006, p=.268). This means that the effect of SES on sustainable behaviour is not significantly moderated by gender. Furthermore, the third hypothesis, which stated: *The effect of socioeconomic status on sustainable behaviour is stronger for women than for men* can therefore be rejected.

Table 3. Regression analyses for SES (education) predicting sustainable behavior

	Model 1		Model 2		Model 3	
	B	SE	B	SE	B	SE
Constant	2.478***	.024	2.378***	.064	2.374***	.067
Mid education	.080*	.032	.098**	.033	.131**	.048
High education	.119***	.031	.141***	.032	.125**	.045
Female			.148***	.025	.154***	.048
Urban characteristics			-.020*	.009	-.020*	.009
Age			.001	.001	.001	.001
Non-native			.028	.034	.028	.034
Mid education * female					-.063	.065
High education * female					.036	.062
R^2	.006		.024		.025	
F	7.504***		9.673***		7.622***	

Note: $p <.05*$, $p<.01**$, $p<.001***$
Reference category gender (male = 0, female = 1).
Reference category migration background (0 = native, 1=non-native).

Table 3 presents the results of the three regression models using education to measure SES. The first model shows the regression analysis results for the effect of SES on sustainable behaviour, with the use of an educational level to measure SES. The overall model was significant ($R2=.006$, F (2) 7.504, $p<.001$). The model explains a proportion of 0.6 % of the variance for SES with the measure of education on sustainable behaviour. The second and third models explain a much larger variance compared to 2.4 % and 2.5 %. All models show again a low amount of variance, which is important to note. For the first model, the results show that there is a significant effect of SES on sustainable behaviour. This is split into 2 measures of education level in comparison to the lowest educational level. Firstly, mid-education shows a positive significant effect (B= .080, $p<.05$). While in the next line high education also shows a positive significant effect (B= .119, $p<.001$). Because, for the highest level of education, there is the biggest effect compared to the lowest level of education, this entails that the higher one's educational level the more sustainable behaviour they will participate in.

Model 2 shows the regression analyses for the effect of SES on sustainable behaviour while controlling for the effect of gender, urban characteristics, age, and migration background. Overall, the second model also shows a significant effect with a 2.4% variance ($R2=.024$, F (6) = 9.673, $p<.001$). For the specific effect of SES measured with education, it firstly shows a significant effect for mid education in comparison to low educational levels on sustainable behaviour (B= .098, $p <.01$). For the highest level of education, there is also found a significant effect of high SES on sustainable behaviour (B= .141, $p <.001$). This means that the higher the educational level, and as a result the SES level, the more sustainable behaviour is shown.

Therefore, there is support found for the first hypothesis which states: *High SES individuals are more likely to show more sustainable behaviour than low SES individuals.*

Furthermore, there is a significant positive effect for gender (B= .154, p<.001). This is the same general effect found in the last analyses and states that men show less sustainable behaviour than women. As a result, also for this analysis, the second hypothesis can be confirmed. The control variables in this analysis, show no significant effect except for urban characteristics. This shows that controls or age, and non-native Dutch background do not have an effect. Urban characteristics show a significant negative effect (B=-.020, p<.05). This gives the same effect as in the last analyses.

Finally, model 3 shows the effect of SES on sustainable behaviour as well with this time also adding the moderation effect of gender on this relation. The overall model is found to be significant with a variance of 3.6% (R2=.036, F (8) = 7.622, p<.001). This is a higher variance than the previous models but is still very large. This would mean that there are other elements that also affect sustainable behaviour. Furthermore, there is again found a significant effect in both middle and higher education in comparison to low education for sustainable behaviour. Middle education levels show a positive significant effect which means that they show more sustainable behaviour than lower educational levels (B= .131, p<.01). High educational levels also show a positive significant effect which means that these individuals also show a more sustainable behaviour than the lower education individuals (B= .125, p<.01). Gender was again found with a significant effect (B= .154, p<.001).

 As previously found almost no control variables were significant. Urban characteristics were the only significant control variable (B= -.020, p <.05). Age was again not found to be significant (B=.001, p=.119). Migration background was also not found to have a significant effect when used as a control variable (B= .028, p= .424).

Lastly, the interaction effect of both middle and high educational levels as a measure for SES was not shown to have a significant effect (B= -.063, p=.334; B= .036, p=.559). This means that there is no moderation effect of gender on the relation between SES measured through education and sustainable behaviour. As a result, the third hypothesis cannot be supported in this analysis, which stated that: *The effect of socioeconomic status on sustainable behaviour is stronger for women than for men.*

Conclusion

Using data from a recent and nationally representative study, this research aimed to understand whether there is an effect of SES on sustainable behaviour. Both education and household income were used as measurements of SES. Additionally, this research theorised on the possible moderation of gender in the relationship between SES and sustainable behaviour. The hypotheses were taken from the *planned behaviour theory, value-belief-norm theory, cultural capital, information overload theory, and gender socialisation.*

Based on the result presented, it can be concluded that SES influences sustainable behaviour. However, this effect is solely found when SES is measured using education instead of household income. The effect of education can be substantiated by the *information overload theory, cultural capital theory and the theory of planned behaviour*. Results stated that women show more sustainable behaviour than men. This is in line with the *gender socialisation theory*, which declares that women show more altruistic characteristics than men. Which can cause them to worry more and act in favour of the environment and humanity (EEB, 2012; Kanyama et al., 2021; Meier & Christen, 2012; Zelenzy, 2000). Thus, resulting in women showing increased sustainable behaviour (EEB, 2012; Kanyama et al., 2021; Meier & Christen, 2012). However, when it comes to differences in sustainable behaviour between high SES and low SES individuals of the same gender there is no support found. Thus, the variation of SES does not differentiate per gender. In all levels of SES, women are more sustainable than men as found in the *gender socialisation theory*, this difference does not get larger or smaller in a different SES level.

Effect of SES on sustainable behaviour

As the effect of SES on sustainable behaviour is only significant when measuring SES through education, the conjecture of the effect of SES on sustainable behaviour is only partially supported. Reasoning can be found in the *planned behaviour theory,* which states that beliefs, norms, and attitudes predict behaviour (Lerner & Rottman, 2021). Low SES individuals often believe that climate change is not something recognizable or an immediate risk to them (Lerner & Rottman, 2021). Literature on this perspective states that those with a lower educational level might have a harder time grasping climate change and sustainable behaviour (Ajzen & Fishbein, 2000; Ajzen, 1985, 1991; Dietz & Stern, 2015; Stern, 2000). Their own impact on the solution is not something they can comprehend, which will lead them to participate less in sustainable behaviour (Van Zutphen, 2022; Ajzen & Fishbein, 1980).

It can be underpinned further when adding the *cultural capital theory,* which states that those with more cultural capital possess more interest in sustainability and are able to understand abstract information (Peterson 1992, Peterson & Kern 1996). Literature mentions more cultural capital as increasing all necessary elements to participate in sustainable behaviour (Kingston, 2001). Consequently, those with a high SES, possess more cultural capital as they possess a higher educational level (Yang et al., 2022; Sampson, 2009). It further shows how household income does not necessarily influence the analysis as cultural capital is more in line with education.

In addition, the *information overload theory* can be applied. Individuals with low SES and educational levels need additional information and explanation for them to be able to participate in sustainable behaviour Deckers et al. (2017); Roetzel, 2018). *Information overload* will occur when researching sustainable services and products (Speier et al, 1999). When given a significant amount of information of a certain complexity level too great for the individual, it affects the choices (Roetzel, 2018). Thus, the odds of sustainable information confusing low SES individuals are greater than helping and motivating them. It explains why just educational level as a measurement of SES is significant and not household income.

Differences in sustainable behaviour between gender

In the analyses, the variation in sustainable behaviour between men and women is confirmed. Women do indeed exhibit more sustainable behaviour than men. It validates the discussed *theories of planned behaviour* focused on gender and *the gender socialisation theory*. The *planned behaviour theory* stated that women exhibit a higher level of altruism and concern for the well-being of those around them as these are more profound in their personal values (Ajzen, 1985, 1991). This causes women to be more concerned with issues such as sustainability and climate change, which results in them showing more sustainable behaviour. It can be assessed to a greater extent when applying the *gender socialisation theory.* This confirms the difference in personal values and social expectations between men and women, which are partially created by society according to this theory. This confirms Zelenzy's (2000) results, that young girls report stronger attitudes and beliefs towards sustainability than boys do. All theories previously mentioned add to the results, which exhibit a variation in sustainable behaviour between men and women.

Moderation effect of gender

In the analysis, there is no significant effect of the moderation of gender on the relation of SES to sustainable behaviour. This shows that the difference in sustainable behaviour per gender is not affected by the SES level. As stated in the previous section there is an effect of gender on sustainable behaviour but not a moderation effect of gender between the relation of SES on sustainable behaviour.

Discussion

One limitation to emerge is the measuring of sustainable behaviour. In foundation, the questions used are good and fit within the topic. However, how the questions are asked leave room for interpretations which could influence the answers given. Currently, the questions are asked as follows: 'Would you like to drive your car (even) less?' For future research, it would be advised to revise the questions to possibly assess them differently to make sure the measurement of sustainable behaviour is precise. This could turn the questions into more direct versions like 'Do you drive your car less for sustainable purposes?'. Additionally, the review of questions would leave the possibility to add sustainable behaviour themes, such as vegan diet and fast fashion. This would make the measuring of sustainable behaviour more complete.

As the results of the analysis showed a significant effect of education in the measurement of SES instead of income it opens an interesting possibility for future research and how results can be used in policy. In many policies, the focus lies on the options of subsidies and discounts on sustainable products. However, as the results show, there is a bigger influence of education on sustainable behaviour. This offers an opportunity for future research to go into detail about understanding what this effect entails. This current research would act as a foundation for further research.

Lastly, the dataset contains some interesting questions and variables around individuals' attitudes toward sustainability and how much they believe it is a problem. These variables were out of scope for this current research but could be interesting to add to the analyses as a mediation effect as they would give further insight into the motivations and attitudes individuals possess about sustainability. An example of said questions is: *'Do you think there is too little or too much focus on climate change mitigation?'* As this research would act as a foundation in information, the mediation would further validate the results of this research and help shape policy.

Policy

In this section there will be looked at the answer and advice to the policy question: *How can the knowledge of the effect of socioeconomic status and gender on sustainable behaviour, be utilized to tailor sustainable and supporting policies?* Many actors are stakeholders in the policies surrounding sustainable behaviour. Sustainability policies are not just targeted at one specific area, some are in place for the affordability of sustainable housing or the promotion of a plant-based diet. In addition to the government of the Netherlands, which implements and evaluates policies to promote sustainability, other NGOs, and companies lobby for more sustainable behaviour. They partake in the supply of information, promotion of sustainability and advocate for financial aid for those who cannot afford sustainable solutions and alternatives.

Actors and current policies

Regarding sustainability, many policies are thus far implemented in The Netherlands. As this research focuses on sustainable behaviour from individuals and their SES background some of these pre-existing policies will not be discussed. These focus on industry and policies for companies. Furthermore, there will be an analysis made on how the implementation of sustainable behaviour can be improved based on the results of this research. The actors that will be discussed for the implementation and improvement of policy are the Dutch government and Urgenda. As Urgenda is the organisation of my internship they will be the main actor using this research.

The Dutch government

Within the Netherlands, one of the biggest actors in policies implemented on sustainability is the Dutch government. They have had a variety of policies in place going from policies such as 'iedereen doet wat' and the Green Deal initiatives (Ministerie van Economische Zaken en Klimaat, 2019, 2020). These policies focus on financial aid for those with fewer resources and the promotion of sustainable behaviour.

As the results of this research show that education is an important factor for individuals to participate in sustainable behaviour, the policy recommendation will focus on this perspective. Especially for those with a low SES, it showed that they show the least sustainable behaviour. Many policies in place are based on financial aid for projects such as solar panels.

While, according to the results, educational campaigns such as 'iedereen doet wat' are of more importance.

The campaign of 'iedereen doet wat' informs individuals how to make sustainable choices. They will explain why, for example, cycling to work is a better choice and they will explain possible subsidies people can apply for. Unfortunately, the campaign is not well known by the public. Furthermore, because of the substantive amount of information, it can be daunting for low SES individuals to understand everything presented.

Urgenda

Urgenda is an organisation for sustainability and innovation in the Netherlands. Together with companies, governments and societal organisations, their goal is to make the Netherlands sustainable. Urgenda does this through its 2030 report, and action plans. Most policies they execute are focused on bigger-scale operations like the distribution of trees, and the transition of Tata Steel (Urgenda, 2020). Regarding individual behaviour, there are two projects in which Urgenda acts. The first one is, "Samen sneller duurzaam" which translates to faster sustainable together. Through this campaign, Urgenda shares sustainable products and services. Urgenda wants to motivate and inspire people to pick sustainable choices and change their behaviour. Secondly, the director of Urgenda gives lectures at events and universities about sustainability and Urgenda's work. Lastly, through 'Thuisbaas' courses are being held to educate people on making houses sustainable.

Policy recommendations

In the results, education comes forward as an indicator of the difference in sustainable behaviour between high and low-SES individuals. For both Urgenda and the Dutch government there are recommendations formed to implement this information.

Lectures at lower secondary education

The first policy recommendation is bringing education to those who show the least sustainable behaviour. It is understood that low SES individuals show the least sustainable behaviour but also find it the most difficult to understand climate change and sustainability (Lerner & Rottman, 2021). Both Urgenda and their sister company Thuisbaas provide quite a few courses and lectures at universities and to volunteers. However, these are mostly higher educated individuals with a high SES background. To make sure the same information is told to those with low SES, it is recommended to do these same lectures in lower secondary schools. Students of lower secondary education might benefit more from these lectures, as they would contain information on general climate change, causes, and solutions. Additionally, the lectures can be expanded by adding the impact of certain sustainable behaviours and how this will benefit individuals in the long run. For sustainable behaviour to occur it is key to break certain routine behavioural actions (Brunsting et al., 2013). Studies have shown that to be able to do this it is necessary to educate individuals on their options and link these to desired outcomes (Brunsting et al., 2013). As stated by *the value-belief model*, Individuals will not change their routine behaviour if they do not believe that there are beneficial outcomes for them as a reward (Ajzen & Fishbein, 1980). Thus, educating them on their sustainable options and positive outcomes could motivate them to participate in sustainable behaviour.

Promotion of 'Samen sneller duurzaam' and 'Iedereen doet wat'

The second recommendation is the promotion of the 'Samen sneller duurzaam' and 'Iedereen doet wat' campaigns, and additional promotions of short facts about climate change and sustainability. Finding the right information on sustainability can be difficult. The saturation of all information from various sources will exceed the processing capacity of an individual with low SES, which makes information overload occur (Roetzel, 2018; Speier et al,1999). Especially with information, of a certain complexity level and contradiction, the quality of the decision will decrease because individuals have limited capabilities to digest the information (Roetzel, 2018; Speier et al,1999). By promoting verified information from both

Urgenda and the Dutch government it would be easier for low SES individuals to find the right sources to look for information on sustainability without possible (negative) opinions from others on the internet.

This promotion of the websites and their content can be done through multiple channels such as advertisements online and on social media. This will provide a queue for individuals to investigate these sustainable options (Brunsting et al., 2013). Furthermore, as stated, when promoting new routines, it is important to present the beneficial outcomes. By explaining the benefits of certain options, it can define appropriate behaviour and drivers. In most cases, the best enhancement of behaviour will be the future possibility of cost reduction. It is based on the *expectancy-value model*. If the expected outcome is negative then the behaviour holds no value for them (Eccles & Wigfield, 2020; Ajzen & Fishbein, 1980; Eccles & Wigfield, 2020).

With the promotion of both websites as a summary of sustainable services and products, it is important to re-evaluate how these are presented. As many low SES individuals might have trouble digesting difficult information it is key to make this smaller and easier to understand. Thus, as an extension of both campaigns, the final recommendation entails an additional campaign with ultra-short and easy informational facts on sustainability and climate change. When promoting said short informational campaigns it is important to not use words which are measured above a B1 language level and to keep necessary information short (Mahowald et al., 2013).

These short campaigns can again be done using posters or online ads in addition to the promotion of the 'Samen sneller duurzaam' and 'Iedereen doet wat' campaigns. For the content, nudging techniques can be applied. Nudges are simple interventions that can alter people's decision-making without attaching a reward or penalty (Thaler & Sunstein, 2008). For example, by giving visual cues or discounts. While the behaviour that comes forth out of these nudges can feel like individual choices, research has shown that consumers are sensitive to environmental and social cues (Adviescommissie Burgerbetrokkenheid bij klimaatbeleid, 2021). To educate people on sustainability it is recommended to shorten the information at hand to defeat information overload for low SES individuals.

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Appendix A

Ethical approval

P.O. Box 80140, 3508 TC Utrecht The Board of the Faculty of Social and Behavioural Sciences Utrecht University P.O. Box 80.140 3508 TC Utrecht	**Faculty of Social and Behavioural Sciences** Faculty Support Office Ethics Committee **Visiting Address** Padualaan 14 3584 CH Utrecht

Our Description	23-0578	
Telephone	030 253 46 33	
E-mail	FETC-fsw@uu.nl	
Date	07 March 2023	
Subject	Ethical approval	

ETHICAL APPROVAL

Study: Inequality in environmental sustainability

Principal investigator: E.R. Obbink

Supervisor: Weverthon Barbosa Machado

The study is approved by the Ethical Review Board of the Faculty of Social and Behavioural Sciences of Utrecht University. The approval is based on the documents sent by the researchers as requested in the form of the Ethics committee and filed under number 23-0578. The approval is valid through 26 June 2023. The approval of the Ethical Review Board concerns ethical aspects, as well as data management and privacy issues (including the GDPR). It should be noticed that any changes in the research design oblige a renewed review by the Ethical Review Board.

Yours sincerely,

Peter van der Heijden, Ph.D.
Chair
This is an automatically generated document, therefore it is not signed

Appendix B

Informed consent form LISS data panel

Note: this is a translated version. You can find the original Dutch version on the second page.

Declaration of consent LISS panel participation

Please read the following information and declaration of consent carefully.

The General Data Protection Regulation (GDPR) came into effect on 25 May 2018, applying automatically to all EU member states. Centerdata complies with these legal requirements.

You are a participant of the LISS panel, which is managed by Centerdata. Centerdata collects data that is made available to researchers for scientific, policy and social research. We collect your responses every time you complete a questionnaire. We treat your data with the utmost care and always keep your contact details (name, address, telephone number and email address) separately from your responses.

Researchers working for third parties (institutions other than Centerdata) are never given access to your contact details without your prior explicit consent. It is not possible to trace the data back to you. Your privacy is and will remain fully protected. Click here for more information about how we use your personal data.

Consent

Before you can participate in the LISS panel you need to give your official consent for us to save your responses and to make these responses available for scientific, policy and social research. Your responses will not be used for commercial research. You may discontinue your participation at any time without having to give us any reasons.

☐ *I hereby give my consent to Centerdata to use my responses and to make these responses available for scientific, policy and social research. The researchers will not be able to trace my responses back to me.*