Who is supposed to save the planet?

A quantitative research about fear of climate change and the responsibility of combatting the climate crisis

Figure 1: Climate strike (Klimaatmars, 2021).

Name:	**Ishara Jairam**
Student number:	**6738207**
Program:	**Social Policy and Public Health**
University:	**Utrecht University**
Supervisor:	**Jaap Bos**
Second reader:	**Marcel Hoogenboom**
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Abstract

Individual change and systemic change are both important to combat climate change. Given that citizen's concerns dictate how climate policies should be presented, this should be included in research. Therefore, this research will provide an answer to the question: *How does fear of climate change influences the perception of Dutch citizens on whether they are responsible or the government is responsible for combatting climate change?* This will be done by performing a T-test, a simple regression analysis and a multiple regression analysis with the variables 1) fear, 2) individual responsibility and 3) government responsibility. The results show that fear is positively related to individual responsibility and negatively related to government responsibility. This remains the same when direct fear and indirect fear are separated, with a stronger effect for direct fear. That being said, the differences are minor. Based on these findings, I advise policymakers to enable the Dutch to make personal changes to combat climate change and focus on the direct impact of climate change. For example, by making organic food available at supermarkets and placing second-hand shops in local shopping centres, but also by reporting on the effect of these acts. In addition, the minor differences found indicate that restoring trust in the government might change preferences towards systemic change.

1. Introduction

Climate change is a popular and global topic, visible in the public eye via the media, brands and climate strikes. This visibility can be seen as the result of growing awareness globally about the climate crisis. In 2010, the world population used about a third more resources than the earth's ecosystems can renew within a year (Assadourian, 2010). That must change in order to preserve earth and its inhabitants. Changes should be targeted at the causes of environmental threats. These causes entail the growing population, consumerism and use of space (Ölander & Thorgensen, 1995). In November 2021, international political leaders were discussing their plans to combat climate change during the COP26 (United Nations Climate Change, n.d.). Simultaneously, people worldwide were marching on the streets, like in Amsterdam where the biggest national climate strike took place (Klimaatmars, 2021).

Individual change (Kent, 2009) and systemic change (Meadowcroft, 2009) are both important to combat climate change. Therefore, individual responsibility and governmental policies should be studied. The public plays a key role in this issue through their energy use, consumer behaviour, social norms and support for climate and energy policies (Smith & Leiserowitz,

2014). When presenting climate change policies, the level of citizens' concerns dictates how this should be presented (Howell, Capstick, & Whitmarsh, 2016). Putting emphasis on individual responsibility has proven to be relevant, namely by attracting the attention from diverse audiences and promote thinking about the climate crisis (Rickard, Yang, Seo & Harrison, 2014). On top of that, when consumers feel responsible for climate change, this is reflected in their consumer behaviour (Wells, Ponting, & Peattie, 2011).

In sum, the literature tells us that it is important to change our way of organising our society with regards to the impact that it has on the planet. This change needs to come from an individual level and a governmental level. However, the literature does not state to what extent people fear the climate crisis, how individual responsibility and government responsibility relate to each other and how this impacts who respondents perceive as responsible. Therefore, the variables 1) fear, 2) individual responsibility and 3) government responsibility will be analysed in this research. The Dutch context is unique in the sense that they are organised in a liberal democratic manner (Achterberg, 2002), emphasizing individual responsibility at a national level. On top of that, access to knowledge about climate change is available, but the Dutch have yet to experience the consequences first-hand. This, all taken together, leads me to the following research question:

> *How does fear of climate change influences the perception of Dutch citizens on whether they are responsible or the government is responsible for combatting climate change?*

This question will be answered by answering the following sub-questions:

1) *To what extent are the Dutch willing to personally combat climate change?*
2) *To what extent do the Dutch expect the government to combat climate change?*
3) *To what extent does direct fear and indirect fear influence a preference towards personal action and expectations from the government?*

To analyse this issue, theories and concepts from different social disciplines will be used to provide an interdisciplinary answer to the research question. More specifically, psychological, sociological and insights from political science will be used in this thesis. This is necessary, because the topic climate change is too broad to fall within disciplinary borders.

Psychological perspectives will provide knowledge that explain the individual factors in this problem. The discipline sociology provides clarification from a structural point of view. Lasty, political science provides knowledge about the influence of the political climate in the Netherlands on this topic.

To answer the research question data will be downloaded from the LISS panel. The dataset that will be used for this study is collected through a survey about the state of the environment and environmental policy. I will use the computer program SPPS to create a T-test and regression models to analyse to what extent people are in favour of personal action towards climate change and governmental action and if there are differences between direct and indirect fear of climate change.

I expect to gain knowledge about the fears, personal contributions and political expectations of Dutch citizens in terms of climate change. The goal of this research is to demonstrate whom Dutch citizens perceive as responsible for solving this crisis. After discussing the findings, recommendations will be made for future policy designs that can be used by Dutch governmental bodies.

2. Theoretical framework

2.1 Fear of the climate crisis

Fear consists of various attributes such as invisibility, losing control and insecurity (Barker, 2009). This conceptualisation is especially relevant in a context where climate change has not manifested physically yet, such as in the Netherlands. However, knowledge about the climate crisis is available to Dutch citizens and therefore might create a feeling of losing control and insecurity. In a similar context, the United States, researchers found that a little more than half of the sample indicated being afraid of climate change (Firebaugh, Zolnikov, Furio & Ng, 2021).

Fear of the climate crisis can be a key factor in driving individual change. When fear is combined with a high sense of being able to effectively deal with the threat, behaviour change is likely (Witte & Allen, 2000). Behaviour change was found when climate change is seen as a threat to oneself, but a stronger effect was found when this crisis was perceived as a threat to others (Hunter & Röös, 2016). For example, poorer countries or animals (Hunter & Röös, 2016; Leiserowitz, 2006). To the contrary, Moser (2007) found that people are more likely to

change their attitude and behaviour through fear when they feel personally at risk. In addition, confronting people with the consequences of climate change on a global level will not lead to individual action (O'Neill & Nicholson-Cole, 2009). The fear of personal risk and short term consequences will later be referred to as direct fear and the threat to others and long term consequences will be referred to as indirect fear.

Not only can fear lead to action, it can also dictate how climate change policy should be presented (Howell et al., 2016). Fearful respondents respond better to mitigation and non-fearful respondents respond better to adaptation. That being said, other research has found that fear does not necessarily increase policy support (Smith & Leiserowitz, 2014). Instead, worry, interest and hope were positively related to policy support. Similarly, exposure to fear loaded messages about climate change decreases pro-environmental behaviour in comparison to exposure to non-fear loaded messages (Chen, 2016).

In terms of the climate crisis, the psychological concept "finite pool of worry" of Linville and Fischer (1991) can be applied. This concept entails that there are a limited number of things that people can be worried about. As soon as you start worrying about one problem, your concerns about a different problem diminishes. In the context of the climate crisis, it can be that as soon as you start worrying about air pollution, you will not be as concerned anymore about migration flows. People often replace more indirect problems with fears of things that threaten their wellbeing more directly. For example, Americans started fearing terrorism more after 9/11 than restrictions of civil liberties or climate change (Leone, Anrig & Sullivan, 2003).

In sum, fear consists of attributes such as invisibility, losing control and insecurity. These attributes can be linked to the climate crisis as we know it today. On the one hand, some studies find that fear can lead people towards individual action and climate policy support. On the other hand, studies find that fear does not lead to pro-environmental behaviour, nor will it lead to policy support. This means that fear can lead to individual responsibility, demand government accountability or both. This research will examine whether one or both of these possibilities are true in the Dutch context. In the thesis that follows, I will refer to individual action and pro-environmental behaviour as individual responsibility and individual change. Policy support will be referred to as government's accountability or responsibility and systemic change. This leads me to the following three hypotheses:

H_1: Fear of climate change will lead Dutch citizens to take individual responsibility to combat climate change.
H_2: Fear of climate change will lead Dutch citizens to hold the government accountable to combat climate change.
H_3: The distinction between direct fear and indirect fear influences the preference towards individual responsibility and holding the government accountable.

Not only will I study the relationship between fear and the responsibility for action, I will also differentiate between fear of the direct (e.g. summers getting hotter and drier) and indirect (e.g. climate refugees) impact of climate change to see how these fears influence a preference for individual change or systemic change. In the following two paragraphs I will elaborate on these two types of change based on theories and empirical findings from various social disciplines.

2.2 Individual change

Psychological insights are important when analysing individual change due to the behavioural explanations on a micro-level. The cognitive dissonance theory was proposed in the 1950s by the American social psychologist Leon Festinger. This theory entails that people tend to solve the uncomfortable feeling of having contradictory beliefs, attitudes or knowledge by either changing their mind about one belief or by creating a third belief (Gray & Bjorklund, 2014, p. 533). This is useful when analysing believes about climate change and the actions that do or do not result from these believes. For example, an individual might fear sea levels rising, but does not want themselves or the government to act on climate change. This will lead them to create the believe that climate change is not real or change the believe that they are afraid of sea levels rising, because this would result in someone taking action.

Another useful insight from this discipline is the locus of control theory from the American behaviour and personality psychologist Julian Rotter. According to this theory, people are more willing to make an effort if they believe that the outcome of an action is based on skill, this is called internal locus of control (Gray & Bjorklund, 2014, p. 605). When they believe that outcomes are influenced by other factors, they are less likely to make an effort, this is referred to as external locus of control. In terms of climate change, this means that people

want to take individual responsibility or expect the government to take responsibility when they have a strong internal locus of control. It can be argued that it is even stronger when people are strongly in favour of taking individual action.

When people believe that climate change is beyond everyone's control, they might believe that it is unnecessary for anyone to take responsibility. In this case we can speak of an external locus of control. For example, Moser (2007) found that the effect of fear of climate change on behaviour change is limited, not only because people feel personally invulnerable, but also because they believe that personal or collective action will not change anything or is too difficult. In another example, Australian researchers found that 40% of respondents believe that climate change is real, but caused naturally (Leviston & Walker, 2012). This means that they do acknowledge the crisis, yet do not feel like it is their responsibility to do something about it. Beliefs are therefore important, given that they predict behaviour. This again, shows that the external locus of control influences behaviour.

When zooming out to a sociological macro level, research shows that consumers can individually change practices of companies through political consumerism (Micheletti & Stolle, 2008). Consumers can make a statement by either consuming sustainably or boycotting unsustainable companies or products. The conscious decision to boycott unsustainable companies or products is often motivated by the harm that can be done to the environment (Sandıkcı, & Ekici, 2009). In other words, consumers' political values are reflected in their consumer behaviour. This type of conscious consumer behaviour is found among individuals who feel responsible for climate change (Wells et al., 2011). Accordingly, Cherrier and Murray (2007) describe anti-consumerism and consumerism as a way to express one's identity, ideas, values and beliefs.

To conclude, the cognitive dissonance and the locus of control theory can provide a psychological explanation for whether the Dutch perceive themselves as responsible to solve the climate crisis. Individual change can also be created by changing the practices of companies through political consumerism. The preference for individual change will be tested in the first hypothesis.

2.3 Systemic change

In political science it can be argued that multiple countries, mostly European democracies, are dealing with political crises that consists of populist parties rising (Mudde, 2004), the questioning of the legitimacy of political parties and a withdrawal of support (Mair, 2008). Populist parties are sceptic of the existence of climate change (Lockwood, 2018) and try to please people on the short term (Mudde, 2004). These changes in the political climate might influence to what extent citizens believe in climate change and to what extent they expect the government to take responsibility for the climate crisis.

This expectation can only exist when there is trust in the government. From the beginning of the century, government trust among Dutch citizens started to decline (Bovens & Wille, 2013). However, from 2006 trust levels started to rise again and in 2008 they were back on the same level as they were before the century turn. In general, Bovens and Wille find a wavering trend of governmental trust in the Netherlands. They argue that these changes are being influenced by structural changes such as changes in society and citizens, changes in government and changes in media. Besides that, short term changes such as shifts in consumer confidence, shifts in political processes and crises also influence government trust. Given that the LISS panel data was collected during the COVID-19 pandemic, this could mean that the findings are influenced by this crisis.

Recent research (Rieger & Wang, 2021) tested government trust around the same period that the data from the LISS panel was collected. They compared the perceptions of citizens on their governments in several countries during the COVID-19 pandemic. Results show that the Netherlands scored average when it comes to *too little reaction* on the pandemic, but they also scored average to high when people were asked if they believed that *the government measures were sufficient*. These findings indicate that the Dutch have a limited level of trust in their government and therefore it can be expected that they perceive the climate policies as either not enough or sufficient.

That being said, climate change is a challenging problem for political and administrative systems (Meadowcroft, 2009). Local governments are expected to bear many responsibilities in preparing their cities for climate change (Mees, 2016). Among these responsibilities are to engage private actors such as businesses, citizens and civil society in order to mitigate the impacts of climate change. Besides that, governments should take an active role in shifting

perspectives of majorities, so that mitigation and adaption policies to combat climate change can be maintained (Meadowcroft, 2009). This includes changing the status quo for powerful groups who have benefitted from the way things have been arranged until now.

Empirical findings on the responsibility of the government vary per country. Canadian environmentalist mentioned the government as the most important actor in addressing climate change, due to the power that the government holds (Stoddart, Tindall & Greenfield, 2012). Similarly, in South-Korea the government was mentioned as responsible as well, because people believe that climate change is too large a phenomenon to be caused by them (Chang et al., 2016). The Canadians also acknowledged that citizens should pressure governments into acting upon this crisis (Stoddart et al., 2012). For example, individuals can take action through collective action and re-balancing existing power inequalities that currently exist in climate change regimes (Kent, 2009).

In the United States, public opinion polls demonstrate that citizens acknowledge global warming, yet rank this issue exceptionally low when asked to rank several problems that the country faces (Leiserowitz, 2006). Like the citizens of South-Korea, they do recognize this threat, but they want the government to prioritize other issues that the nation faces. Which comes back to the previously mentioned finite pool of worry (Linville & Fischer, 1991) that demonstrates that people can only worry about a limited number of problems and will opt for threats that directly affect them.

In sum, political crises might influence how much citizens trust their government to solve the climate crisis. Besides that, short term changes such as the COVID-19 pandemic might also influence to what extent citizens have faith in government policies. International research shows that the government is seen as an important actor to solve the climate crisis in some countries, but in other contexts the government is expected to focus more on other problems. These inconclusive findings make it difficult to predict if the Dutch perceive their government as responsible for solving the climate crisis. Therefore, this will be tested in the second hypothesis.

3. Method

3.1 Research design

In this thesis I will use the quantitative research method, because I want to find relations between fear, individual change and systemic change and generalize the findings (Bryman, 2016, p. 163). In order to do so, I need statistical data from a relatively large sample from the Dutch population. The gained knowledge can then be used in new policies.

3.2 Dataset

To answer the research question, data will be downloaded from the LISS (Longitudinal Internet Studies for the Social Sciences) panel administered by CentERdata (Tilburg University, The Netherlands). Their panel consist of approximately 7500 Dutch individuals who get paid to complete questionnaires on a monthly basis. These individuals represent a true probability sample and are drawn from the population register by Statistics Netherlands.

The dataset is collected through a survey about the state of the environment and environmental policy (LISS panel, n.d.). It measured attitudes and opinions among Dutch citizens in 2020 as part of the Balans voor de Leefomgeving (Balance for the Environment). The research was conducted by Jetske Bouma between April 6th 2020 and April 24th 2020.

3.3 Sample

The sample consists of Dutch citizens of 18 years and older.

Table 1: Sample

	Amount	Percentage
Total participants	2278	100
Non response	658	23,7
Response	2120	76,3
Completed	2092	75,3

3.4 Variables

The variables that will be studied are fear, individual responsibility and governmental responsibility. Based on the concept finite pool of worry (Linville & Fischer, 1991), I have reason to believe that fear of the direct impact of climate change and the indirect impact of climate change can lead to different findings, therefore this variable will be separated.

Appendix A demonstrates the operationalization of all variables. All variables were measured on a point scale.

3.5 Data analysis

The data will be analysed with the computer program SPSS version 28. First, I will create the variables fear, individual responsibility and government responsibility as previously explained. Then, I will remove the answer *I don't know* from all three variables given that it does not indicate anything. To test the hypotheses, I will perform a T-test to find out whether people demand individual change or systemic change based on fear. To find out how fear relates to individual responsibility and government responsibility, I will create a simple regression model for each dependent variable. In order to draw conclusions on the effect of direct and indirect fear, I will split the variable fear into these two categories and create a multiple regression model. See appendix B for the syntax of this research.

3.6 Ethics

This research uses data of which the respondents gave consent to the LISS panel, but they did not give me consent (Bryman, 2016: p. 129) to use their data. It should be considered that consent should be renegotiated given that it is not for ever valid (Tripathy, 2013). Related to this ethical issue is deception (Bryman, 2016: p. 133). It should be acknowledged that the respondents were not aware that their data would be used in this research. Both issues can be considered to fall in the marginal area of decision making (Bryman, 2016: p. 138).

When these implications in terms of the participants are considered, data storage should be given thought too. Data should be kept safe from destruction, loss or unauthorized access (Tripathy, 2013). On top of that, the data should not be stored for longer than is necessary. I will store the data on my U-drive which only I am able to use given that it is protected with a password. After analysing the data, the dataset will be deleted.

4. Results

4.1 Descriptive data

To test the hypotheses, the variables fear, individual responsibility and government responsibility are used in multiple analyses. They are created by combining several questions regarding these three themes. Fear was measured on a 4-point scale and functions as the independent variable and both types of responsibility were measured on a 5-point scale and

function as dependent variables. Consult appendix A for an overview of the operationalization. See table 2 for the descriptive data. The table shows a mean of 2.484 for the variable fear. This entails that the respondents reported being fearful, given that any answer above 1 (not concerned) indicates some level of fear of climate change. Tables 3 to 5 demonstrate to what extent this fear influences their perception on who should take responsibility for the climate crisis.

Table 2: Descriptive data of all variables used

Variables	N	Min	Max	Mean	Std. deviation
Fear	2081	1.00	4.00	2.484	.692
Individual responsibility	2085	1.00	5.00	3.368	.574
Government responsibility	2057	1.00	5.00	2.539	.540
Direct fear	2075	1.00	4.00	2.400	.750
Indirect fear	2079	1.00	4.00	2.552	.731

4.2 Fear leading to a preference

First, two independent T-tests show whether fear of climate change will lead to a preference for individual change or systemic change (table 3). The first test compared the individual responsibility scores for fear and no fear of climate change. There is a significant difference in scores for fear (M = 3.224, SD = .571) and no fear (M = 3.511, SD = .571; t (466) = -5.410, p = <.001, two-tailed). Cohens's d (-.501) shows that there is a medium effect. The second test compared the government responsibility scores for fear and no fear of climate change. There is a significant difference in scores for fear (M = 2.715, SD = .535) and no fear (M = 2.371, SD = .583; t (458) = 6.601, p = <.001, two-tailed). Cohens's d (.617) shows that there is a medium effect. The significant difference in scores for both dependent variables indicate that fear does lead to a preference for change. Table 4 will show to what extent this is the case.

Table 3: Independent T-test on the effect of fear on individual responsibility and government responsibility.

Dependent variable	Fear		No fear		*t*	*P*	Cohen's *d*
	M	*SD*	*M*	*SD*			
Individual responsibility	3.224	.571	3.511	.571	-5.410	<.001	-.501
Government responsibility	2.715	.535	2.371	.583	6.601	<.001	0.617

4.3 Individual change versus systemic change

Second, two linear regression models demonstrate to what extent individual and government responsibility are affected by fear of climate change (table 4). Individual responsibility increases by .237 and government responsibility decreases by .274. All results are significant (<.001). The first result proves that the first hypothesis can be accepted, because fear does lead Dutch citizens to prefer individual change. The second result leads to the rejection of the second hypothesis, because fear does not lead Dutch citizens to prefer systemic change.

Table 4: Linear regression individual responsibility and government responsibility.

	Unstandardized B	*R squared*	*P (ANOVA)*
Individual responsibility	.237	.082	<.001
Government responsibility	-.274	.125	<.001

4.4 The distinction between direct fear and indirect fear

Lastly, a multiple regression model demonstrates how individual responsibility and government responsibility are influenced when fear is separated into direct and indirect fear of climate change (table 5). The model shows that direct fear makes individual responsibility increase by .132 and government responsibility decrease by .168. Indirect fear makes individual responsibility increase by .102 and government responsibility decrease by .106. All results are significant (<.001). These results show that the third hypothesis can be accepted, because the distinction between direct fear and indirect fear does influence the preference for

individual change and systemic change. The distinction does not change the results from the previous table, but it shows a stronger effect for direct fear in comparison with indirect fear (.132>.102; -.168>-.106).

Table 5: Multiple linear regression individual responsibility and government responsibility direct and indirect fear

	Unstandardized B	*R squared*	*P (ANOVA)*
Individual responsibility			
Direct fear	.132	.081	<.001
Indirect fear	.102	.081	<.001
Government responsibility			
Direct fear	-.168	.126	<.001
Indirect fear	-.106	.126	<.001

5. Discussion

5.1 Findings

The results of this research confirm the hypothesis that *fear of climate change will lead Dutch citizens to take individual responsibility to combat climate change.* Fear will increase individual responsibility by .237. Meanwhile, the hypothesis that *fear of climate change will lead Dutch citizens to hold the government accountable to combat climate change* can be rejected based on the results of this research. Fear makes the expectations of Dutch citizens from the government decrease by .274. Lastly, the hypothesis that *the distinction between direct fear and indirect fear influences the preference towards individual responsibility and holding the government accountable* can be confirmed. Direct fear makes individual responsibility increase by .132 and government responsibility decrease by .168. Indirect fear makes individual responsibility increase by .102 and government responsibility decrease by .106.

5.2 Individual change

As also found by Hunter and Röös (2016), fear of the climate crisis leads to a tendency for individual change. However, this preference is relatively small. This indicates that fear is not

combined with a high sense of being able to deal with a threat (Witte & Allen, 2000), because that would mean that the Dutch would have a higher preference for individual change then they have now. This also indicates a limited sense of internal locus of control (Gray & Bjorklund, 2014, p. 605). Dutch citizens do not strongly believe that pro-environmental behaviour can actually solve the climate crisis. The high amount of fear in the sample in combination with the low preference for individual change also indicates the relevance of the cognitive dissonance theory (Gray & Bjorklund, 2014, p. 533). Despite being fearful of the climate crisis, the creation of an extra believe to sooth their minds and avoid having to take responsibility might explain the low preference for individual action. On a sociological level, the results of this research indicate that Dutch citizens have a small preference for participating in political consumerism to make a statement (Micheletti & Stolle, 2008) and reduce the harm that can be done to the environment (Sandıkcı, & Ekici, 2009). This comes back to the lack of feeling that you can effectively deal with a threat by individually trying to change the practices of corporations through your consumption pattern.

5.3 Systemic change

Contrary to the findings of Howell et al. (2016) and Stoddart et al. (2012), but in line with Smith and Leiserowitz (2014), this study finds that fear decreases expectations from the government. Currently, a lot of European democracies are dealing with declining levels of support (Mair, 2008). This may also impact the decrease in expectations for the system to change when it comes to combatting climate change.

The Netherlands in particular have been dealing with a wavering trend when it comes to government trust (Bovens & Wille, 2013). The data of this research was collected during the COVID-19 pandemic, so it is possible that the disappointment in how the government managed the corona crisis explains the decrease in government expectations. This is in line with Rieger and Wang (2021) who found that the Netherlands score average on *too little reaction* during the corona pandemic. However, they also found average to high scores on *the government measures were sufficient*, meaning that Dutch citizens do believe that their government is competent at crisis-management. Note that this might still hold some truth given that the decrease in preference for systemic change was relatively minor.

Another explanation for the rejection of the second hypothesis could be that the Dutch have not encountered the physical consequences of climate change. Therefore, they might not

believe that systemic change is needed. Besides that, the Dutch liberal democratic context (Achterberg, 2002) might lead them to perceive themselves as responsible for this crisis.

5.4 The effect of direct and indirect fear

The results show a stronger effect for direct fear than for indirect fear. Contrary to Hunter and Röös (2016) and in line with Moser (2007), this thesis shows that Dutch citizens have a stronger preference for change when they feel personally at risk. This leads to the conclusion that the psychological concept "finite pool of worry" of Fischer (1991) is relevant in explaining the differences between direct fear and indirect fear of climate change. There is only a limited number of things that people can be worried about and therefore people will replace indirect problems by problems that threaten their wellbeing directly.

5.5 Limitation

A limitation of this research is that the data was collected during the COVID-19 pandemic. The rejection of the second hypothesis might be influenced by this, due to citizens losing fate in the government during the corona crisis. This threatens the external validity of this research, given that the outcomes might have been different or will be different in the same study, but in a setting before the pandemic or a few years after. This could have been mitigated by finding a similar data set that was collected before the pandemic. If the findings are the same, we can conclude that the corona crisis did not interfere with the findings of this research.

5.6 Implications

This study finds a preference towards individual change. Fear increases things such as willingness to pay more for food or buy second-hand. Thus, policymakers would be well advised to make individual changes accessible by for example providing organic food at supermarkets and placing second-hand shops in shopping centres. Secondly, based on the reported fear in combination with the minor preference for individual change, it would be productive to prove the effect of individual action and stimulate a sense of internal locus of control. For example, by creating posters that report how buying second-hand clothing saves water. Besides that, awareness of the personal and short term impact of climate change, increases pro-environmental behaviour.

To add nuance to these recommendations, I would like to reiterate that the minor differences found in this study indicate that restoring government trust might help equally as much with changing preferences towards systemic change. Future research should focus on effect of the corona crisis on government trust and how this affects government trust regarding climate change.

5.7 Conclusion

This study tried to shine light on the individual change versus systemic change debate when it comes to combatting the climate crisis and answer the question: *how does fear of climate change influences the perception of Dutch citizens on whether they are responsible or the government is responsible for combatting climate change?* The results show that the Dutch perceive themselves as responsible for the climate crisis. This remains the same when direct fear and indirect fear are separated, with a stronger effect for direct fear. This means that policies should enable individuals to make personal changes, but policymakers should keep in mind that restoring trust in the system might change preferences.

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Appendix A: Variables

Variable		**Operationalization**
Fear - Independent variable	Direct (visible/short term/personal impact)	- Summers getting hotter and drier - Greater chance of flooding - Rising sea levels
	Indirect (less visible/long term/ impact on others)	- Increase in diseases and plagues - Extinction of some animal and plant species - Climate refugees - Increasing risk of food shortages
Individual responsibility - Dependent variable	Critical awareness/ conscious decisions	- Willing to pay more for food - Buy second-hand products - Open to long-term leasing of products - Buying products made from used parts or materials, - I am willing to change my lifestyle to help the environment.
Governmental responsibility - Dependent variable	Government trust	- Greenhouse gas emissions - Increase the amount of energy generated from clean sources - Keep the costs of this climate policy down - Protect the Netherlands against the impact of climate change - Reduce waste - Encourage recycling

Appendix B: Syntax

```
* Encoding: UTF-8.
*Compute fear variables into 1.
DATASET ACTIVATE DataSet1.
COMPUTE
Fear=MEAN(qk20a018,qk20a019,qk20a021,qk20a020,qk20a022,qk20a023,qk20a025).
EXECUTE.

* Define Variable Properties.
*Fear.
VARIABLE LEVEL  Fear(SCALE).
EXECUTE.

*Compute individual responsibility variables into 1.
COMPUTE
Individual_responsibility=MEAN(qk20a056,qk20a135,qk20a141,qk20a147,qk20a175).
EXECUTE.

* Define Variable Properties.
*Individual_responsibility.
VARIABLE LEVEL  Individual_responsibility(SCALE).
EXECUTE.

*Compute government responsibility variables into 1.
COMPUTE
Government_responsibility=MEAN(qk20a001,qk20a002,qk20a003,qk20a004,qk20a131,qk20
a132).
EXECUTE.

* Define Variable Properties.
*Government_responsibility.
VARIABLE LEVEL  Government_responsibility(SCALE).
EXECUTE.

*Mean fear.
DATASET ACTIVATE DataSet1.
DESCRIPTIVES VARIABLES=Fear
  /STATISTICS=MEAN STDDEV MIN MAX.

*Mean individual responsibility.
DATASET ACTIVATE DataSet1.
DESCRIPTIVES VARIABLES=Individual_responsibility
  /STATISTICS=MEAN STDDEV MIN MAX.

*Mean government responsibility.
DATASET ACTIVATE DataSet1.
DESCRIPTIVES VARIABLES=Government_responsibility
  /STATISTICS=MEAN STDDEV MIN MAX.

*Change I don't know into mean for fear.
```

```
RECODE Fear (5=2.4839).
EXECUTE.

*Change I don't know into mean for individual responsibility.
RECODE Individual_responsibility (6=3.3687).
EXECUTE.

*Change I don't know into mean for government responsibility.
RECODE Government_responsibility (6=2.5385).
EXECUTE.


*Dummy variable fear.
RECODE Fear (1=1) (2=1) (3=2) (4=2) INTO Fear_new.
EXECUTE.

VARIABLE LEVEL Fear_new(SCALE).
Execute.

VALUE LABELS Fear_new 1 'concerned' 2 'not concerned'.


*T-test individual responsibility.
T-TEST GROUPS=Fear_new(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=Individual_responsibility
  /ES DISPLAY(TRUE)
  /CRITERIA=CI(.95).

*T-test government responsibility.
T-TEST GROUPS=Fear_new(1 2)
  /MISSING=ANALYSIS
  /VARIABLES=Government_responsibility
  /ES DISPLAY(TRUE)
  /CRITERIA=CI(.95).


*Compute direct fear.
COMPUTE Direct_fear=MEAN(qk20a018,qk20a019,qk20a021).
EXECUTE.

VARIABLE LEVEL Direct_fear(scale).

*Mean direct fear.
DESCRIPTIVES VARIABLES=Direct_fear
  /STATISTICS=MEAN STDDEV MIN MAX.

*Change I don't know into mean.
RECODE Direct_fear (5=2.3996).
EXECUTE.
```

```
*Compute indirect fear.
COMPUTE Indirect_fear=MEAN(qk20a020,qk20a022,qk20a023,qk20a025).

VARIABLE LEVEL Indirect_fear(scale).

*Mean indirect fear.
DESCRIPTIVES VARIABLES=Indirect_fear
  /STATISTICS=MEAN STDDEV MIN MAX.

*Change I don't know into mean.
RECODE Indirect_fear (5=2.5524).
EXECUTE.

*Simple linear regression fear and individual responsibility.
DATASET ACTIVATE DataSet1.
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT Individual_responsibility
  /METHOD=ENTER Fear.

*Simple linear regression fear and government responsibility.
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT Government_responsibility
  /METHOD=ENTER Fear.

*Multiple regression individual responsibility, fears separated.
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT Individual_responsibility
  /METHOD=ENTER Direct_fear Indirect_fear.

*Multiple regression government responsibility, fears separated.
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT Government_responsibility
  /METHOD=ENTER Direct_fear Indirect_fear.
```

```
*Descriptive of all variables used.
DESCRIPTIVES VARIABLES=Fear
  /STATISTICS=MEAN STDDEV MIN MAX.

DESCRIPTIVES VARIABLES=Individual_responsibility
  /STATISTICS=MEAN STDDEV MIN MAX.

DESCRIPTIVES VARIABLES=Government_responsibility
  /STATISTICS=MEAN STDDEV MIN MAX.

DESCRIPTIVES VARIABLES=Direct_fear
  /STATISTICS=MEAN STDDEV MIN MAX.

DESCRIPTIVES VARIABLES=Indirect_fear
  /STATISTICS=MEAN STDDEV MIN MAX.
```