The Impacts of a National Security Framing of Anthropogenic Climate Change on Public Support for Costly Climate Policies

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1. Introduction

Anthropogenic climate change is one of the most pressing challenges of our time. We experience anthropogenic climate change as human activities emit large amounts of greenhouse gases into the atmosphere. In turn, these greenhouse gases lead to continuous global warming (IPCC, 2021, pp. 5-6). This anthropogenic climate change results in the melting of glaciers and rising sea levels. Additionally, a changing climate leads to extreme weather occurrences. Thus, hot weather extremes, as well as heavy precipitation and floods, become more frequent (IPCC, 2021, pp. 6, 10-11). As such impacts of anthropogenic climate change negatively affect all life on earth, a stable climate can be perceived as a public good that benefits all societies around the globe (Kotchen, 2014, p. 2; Tavoni et al., 2011, p. 11825). Hence, governing authorities in all countries need to adopt costly climate policies to mitigate and adapt to the effects of anthropogenic climate change (Bernauer & Gampfer, 2015, p. 316).

However, on average, the populations of wealthier, industrial countries produce much more GHG emissions than those of poorer, developing countries. Yet, poorer, developing countries are most affected by a changing climate (WBG, 2021, p. 3). Hence, industrial countries not only need to implement extensive, costly climate policies in the domestic context but equally need to support the financing of climate policies in developing countries (Tavoni et al., 2011, p. 11828).

However, the general public in industrial countries does not necessarily support the introduction of costly climate policies (Beiser-McGrath & Bernauer, 2019, pp. 1, 5). Yet, at least in democratic states, governing authorities need the public's support if they wish to implement costly climate policies (Drews & van den Bergh, 2016, pp. 855-856).

The mass media is one of the most important information sources for the broad public. Thus, in this role, the mass media's communication about the anthropogenic climate change problem plays an important role in gathering public support for the implementation of costly climate policies (Chadwick, 2017, p. 9; Nerlich et al., 2010, p. 99). Here, the media's framing of anthropogenic climate change is essential (Nisbet & Scheufele, 2009, p. 1770). An important framing technique is the so called “thematic” framing, which connects a topic to a broader context (De Vreese, 2005, p. 56). In this regard, this study focuses on a national security frame of anthropogenic climate change. Such a national security framing of anthropogenic climate change highlights how, e.g., extreme weather events become more frequent and pose a threat to national security (Peters & Mayhew, 2016, p. 213-214). Yet, a national security framing of anthropogenic climate change

equally highlights how especially in developing countries, anthropogenic climate change can lead to resource scarcities, conflicts, and emigration (Peters & Mayhew, 2016, p. 213-214).
Hence, this study investigated a possible influence of a national security framing in media information on anthropogenic climate change on the public's willingness to support costly climate policies in the domestic and the foreign aid context. This study focuses particularly on public support for costly climate policies in industrial countries.

1.1. Research Question

In this study, I analysed the following main explanatory research question:
To what extent does a national security frame in media information on anthropogenic climate change influence the public's willingness to support costly climate policies in the domestic and foreign aid context?

Even though most people, especially in industrial countries, are concerned about ongoing anthropogenic climate change, diverging attitudes on anthropogenic climate change persist (Lee et al., 2015, p. 1016). Hence, a given framing of anthropogenic climate change, such as a national security framing, has possibly differing effects amongst citizens who hold diverging attitudes on anthropogenic climate change (McCright et al., 2016, p. 88, 92).
Hence, the main research question was accompanied by the following first sub-question:
To what extent does a national security frame in media information on anthropogenic climate change influence the willingness of citizens with diverging attitudes on anthropogenic climate change to support costly climate policies in the domestic and foreign aid context?

As the security frame of anthropogenic climate change highlights the nexus between a changing climate and emigration, especially from developing countries (Peters & Mayhew, 2016, p. 214), such a framing could differently affect citizens who hold differing attitudes on migration. Hence, the main research question was accompanied by the following second sub-question:
To what extent does a national security frame in media information on anthropogenic climate change influence the willingness of citizens with diverging attitudes on migration to support costly climate policies in the foreign aid context?

In this study, I answered these research questions by conducting a survey experiment. Such a survey experiment allowed me to investigate how a national security framing of anthropogenic climate change in a media-like text influenced my participants' support for costly climate policies in the domestic and foreign aid context. Furthermore, a survey experiment allowed me to investigate whether the effect of a national security framing of anthropogenic climate change differently affected the support for costly climate policies amongst citizens who hold differing attitudes on anthropogenic climate change and on migration.

As this study focused on the public's support in industrial countries, Germany served as a case for this study. In Germany, the urgency of anthropogenic climate change has gained traction and thus, the government's spending to implement climate policies increased (Umweltbundesamt, 2021). Furthermore, Germany is one of the most important net payers of foreign aid (OECD, 2021). However, Germany's contributions remain insufficient to combat climate change effectively. Furthermore, diverging attitudes on anthropogenic climate change persist in German society (Hein & Graichen, 2021, p. 3; Umweltbundesamt, 2022). Hence, to further increase Germany's efforts, it is essential to better understand public support for costly climate policies.

1.2. Academic & Societal Relevance

States around the globe need to implement climate policies which effectively mitigate and adapt to the ongoing anthropogenic climate change (Bernauer & Gampfer, 2015, p. 316). To gather this public support for such costly climate policies, successful media communication on the issue of anthropogenic climate change plays an important role (Chadwick, 2017, p. 9; Nerlich et al., 2010, p. 99). For such a successful media communication, the framing of information on anthropogenic climate change is essential (Nisbet & Scheufele, 2009, p. 1770). Hence this study has high societal relevance.

The topic of anthropogenic climate change framing has gained importance in academic research. In this regard, studies on a national security framing of anthropogenic climate change emerged (e.g., McCright et al. (2016), Feldman & Hart, (2018)). However, the connection between a national security framing of anthropogenic climate change and its effects on public support for costly climate policies in the domestic and foreign aid context is relatively new.

1.3. Thesis Structure

This thesis is organised as follows: Chapter 2 constitutes this study's problem definition, in which I introduce the causes and effects of anthropogenic climate change and outline the necessity and difficulty of implementing costly climate policies. Chapter 3 constitutes a literature review and theory section, presenting current research on anthropogenic climate change farming.

In Chapter 4, I discuss this study's methodology. In turn, Chapter 5 presents the results of this study's analysis. Chapter 6 presents a discussion of this study's findings. Lastly, in Chapter 7, I present a conclusion, in which I offer answers to the outlined research questions and outline suggestions for possible future research.

2. Problem Definition

In this chapter, I outline the causes and effects of anthropogenic climate change (Section 2.1.). Furthermore, I discuss the characteristics of a stable climate as a public good, which benefits all societies around the globe (Section 2.2.). Thus, I also discuss countries' responsibilities to implement efficient climate policies (Section 2.3). Moreover, I discuss the necessity of obtaining public support for costly climate policies and the need for successful communication to create such public support (Sections 2.4.-2.5.).

2.1 The Causes and Effects of Anthropogenic Climate Change

Human activities, especially in the energy, agriculture, industry, and waste sectors, cause considerable greenhouse gas (GHG) emissions (Climate Watch, 2022). An increasingly high concentration of heat-trapping GHGs in the atmosphere leads to an ongoing rise in the global average temperature. Thus, humans' GHG emissions, such as carbon dioxide or methane, are the primary driver of continuous global warming (Climate Watch, 2022; IPCC, 2021, pp. 5-8). This anthropogenic climate change leads to the melting of glaciers and rising sea levels. Furthermore, anthropogenic climate change affects weather occurrences. Thus, hot weather extremes, as well as heavy precipitation and floods, become more frequent (IPCC, 2021, pp. 6, 10-11). Additionally, anthropogenic climate change endangers many vulnerable maritime and terrestrial ecosystems. The damage to such ecosystems can lead to a loss of habitat and ultimately to a decline of wild species (IPCC, 2022, p. 11).

Hence, anthropogenic climate change severely damages the natural environment. In this thesis, the latter is defined as a "…complex of physical, chemical, and biotic factors (such as climate, soil, and living things) that act upon an organism or an ecological community and ultimately determine its form and survival" (Merriam-Webster Dictionary, 2022).

2.2. A Stable Climate as a Public Good

The damaging impacts of anthropogenic climate change on the natural environment will negatively impact the quality of all life on earth (IPCC, 2019, p. 7). Thus, stabilising the global climate by avoiding further GHG emissions is a global public good (Kotchen, 2014, p. 2; Tavoni et al., 2011, p. 11825). Public goods distinguish by 1) their non-rivalry, and 2) their non-excludability.

Therefore, an individual's consumption of a public good doesn't diminish anyone else's enjoyment of the same good. Furthermore, no one can be prevented from enjoying such a good (Kotchen, 2014, p. 1). In this sense, all people around the globe profit from a stable climate, and no one can be prevented from enjoying the benefits of a stable climate.

To successfully prevent further anthropogenic climate change, all countries around the globe need to collectively reduce GHG emissions (Bernauer & Gampfer, 2015, p. 316). However, such collective action can be difficult to achieve as countries perceive actions to prevent further anthropogenic climate change as a social dilemma (Milinski et al., 2008, p. 2292). Thus, on the one side, countries' emission reductions through, e.g., the abandonment of fossil fuel energy sources, will likely have negative short-term effects on economic growth (Beiser-McGrath & Bernauer, 2019, p. 2; Bernauer & Gampfer, 2015, p. 317). On the other side, a failure to reduce GHG emissions leads to the progression of anthropogenic climate change, which irreversibly damages the environment (Milinski et al., 2008, p. 2292). Thus, it is only possible to avoid long term losses through ongoing anthropogenic climate change if countries around the globe reduce their GHG emissions (Bernauer & Gampfer, 2015, p. 316).

2.3 Differentiated Responsibility

This problem of anthropogenic climate change is a collective responsibility of humanity, as each individual's environmentally damaging behaviour contributes to a changing climate (Banks, 2013, p. 46). However, on average, the populations of wealthier, industrial countries produce much more GHG emissions than those of poorer, developing countries (WBG, 2021, p. 3). Furthermore, wealthier industrial countries are responsible for a large share of the past GHG emissions (Tavoni et al., 2011, p. 11826). Yet, poorer, developing countries are most affected by a changing climate (WBG, 2021, p. 3). In these countries, the frequency of natural disasters increased, which poses risks to livelihoods, water, and food security. In turn, citizens of developing countries have a higher risk of facing displacement or having to migrate to a less affected country (WBG, 2021, pp. 2-3).

The United Nations acknowledged countries' differing responsibility for anthropogenic climate change and their unequal financial capabilities to finance climate policies, as the United Nations Framework Convention on Climate Change (UNFCCC) states: "The Parties (to the convention) should protect the climate system for the benefit of present and future generations of humankind, on the basis of equity and in accordance with their common but differentiated responsibilities and

respective capabilities." (United Nations, 1992). Hence, wealthier countries need to be willing to take on a large share of the financing of costly but necessary climate policies (Tavoni et al., 2011, p. 11828).

2.4. Climate Policies and Public Support

Countries need to adopt effective climate change mitigation policies, reducing further GHG emissions to protect the climate system. Hence, the effectiveness of a climate change mitigation policy relates to the amount of GHG emissions it can reduce (Newell, 2021, WBG, 2021, pp. 2-3) However, as anthropogenic climate change has already led to far-reaching damage to the environment, policies allowing countries to adapt to anthropogenic climate change are equally needed (WBG, 2021, pp. 2-3). An effective climate change adaptation policy can be defined as reducing vulnerability to the impacts of a changing climate and/or increasing the capacity to adapt to the latter (Singh et al., 2021, p. 4).

In democratic states, governing authorities responsible for developing climate policies, are generally responsive to the public's opinion (Burstein, 2003, pp. 29-30, 36). Hence, the public needs to support effective climate policies, allowing for significant climate change mitigation and adaptation (Drews & van den Bergh, 2016, pp. 855-856; Gampfer et al., 2014, p. 118). However, not all climate policies enjoy the same public support. Thus, the public is generally reluctant to support coercive and costly climate policies, obliging citizens to accept higher personal financial costs to combat anthropogenic climate change (Beiser-McGrath & Bernauer, 2019, pp. 1, 5; Drews & van den Bergh, 2016, p. 859). In turn, public support is higher for non-coercive, voluntary measures, such as subsidising environmentally friendly products and behaviours (Drews & van den Bergh, 2016, p. 859).

However, voluntary measures are presumably insufficient to attain the goal of significantly mitigating and adapting to anthropogenic climate change (Dubois et al., 2019, p. 148; Gugler et al., 2021, pp. 1, 18; Timperley, 2021). Hence, it is essential to understand how to increase the public's support for costly climate policies. In this study's scope, the focus lies on public support for costly climate policies in wealthier, industrial countries. Specifically, this study investigates public support for two costly climate policies 1) the introduction of a carbon taxation, and 2) contributions to the multilateral "Green Climate Fund".

2.4.1. Carbon Taxation

Fiscal policy reforms, such as an introduction of a carbon taxation, are widely regarded as necessary measures if countries aim to significantly reduce GHG emissions (Beiser-McGrath & Bernauer, 2019, p. 1). Next to an emissions trading system, a carbon taxation is the most important pricing mechanism to reduce GHG emissions, such as carbon dioxide and methane (Barnes, 2021, p. 3).

The member states of the Organisation for Economic Co-operation and Development (OECD) emit 80% of the global GHG emissions (Beiser-McGrath & Bernauer, 2019, p. 1). However, only 10% of GHGs, emitted in OECD's member states are priced at a level that assumably reduces GHG emissions to keep the global average temperature below an increase of 2 Degrees Celsius compared to pre-industrial times (Beiser-McGrath & Bernauer, 2019, p. 1).

With a carbon taxation, governing authorities price each tonne of GHG emissions and thus ask those who pollute the environment to pay for the damage (Banks, 2013, p. 44). Hence, businesses and consumers not only need to pay the price of fossil fuels per-se, but equally for the damage that the GHG emissions, associated with fossil fuel consumption, pose to the environment and society (Beiser-McGrath & Bernauer, 2019, p. 1). In turn, a higher price for fossil fuels through the introduction of a carbon taxation increases the demand for cost-effective, environmentally friendly products and activities (Barnes, 2021, pp. 3-4; Gugler et al., 2021, pp. 1, 18). Furthermore, governing authorities can gradually increase the price per tonne of GHG emissions, which further incentivises industry and consumers to opt for more climate-friendly choices (Barnes, 2021, p. 12). In that light, a carbon taxation can equally incentivise more research and development of alternative, renewable methods of energy production (Beiser-McGrath & Bernauer, 2019, p. 1).

Moreover, governing authorities can use the revenues of such a carbon tax to finance "green" investments that aim to mitigate and/or adapt to the effects of anthropogenic climate change (Marten & Van Dender, 2019, p. 4). Furthermore, in what is referred to as "revenue recycling", governing authorities can use the revenues of a carbon taxation to return direct benefits to society, whilst any GHG emission reduction through the introduction of a carbon taxation only benefits society in the long run. Thus, governing authorities can, e.g., use the revenues of a carbon tax to lower other tax burdens, which creates a direct benefit for the citizens (Beiser-McGrath & Bernauer, 2019, p. 1).

2.4.2. The Green Climate Fund

After a United Nations Conference on Environment and Development in 1992, almost all states signed the United Nations Framework Convention on Climate Change (UNFCCC). This convention is an international treaty aiming to prevent further anthropogenic climate change (United Nations Climate Change, 2022b). Once a year, the parties to the UNFCCC hold a conference (COP) to discuss the implementation of the convention (United Nations Climate Change, 2022a).

In 2010, at the COP in Cancun, the parties to the UNFCCC established the "Green Climate Fund" (GCF) (GCF, 2022a). This fund aims to support developing countries, which are most affected by anthropogenic climate change but do not have sufficient financial resources to implement effective climate policies. Hence, as developing countries will need trillions of dollars in foreign aid from wealthier, industrial countries, the GCF aims to mobilise finical resources from states and private investors to support developing countries with the implementation of efficient climate policies (GCF, 2022a; Timperley, 2021; WBG, 2021, p. 3). By the end of 2014, over USD 10 billion could be mobilised, and in 2015 the fund issued its first investment (GCF, 2022a). In total, the GCF could finance 192 projects in 128 developing countries, aiming at mitigating or adapting to a changing climate (GCF, 2022b). The GCF invests in eight strategic areas: The generation and access to energy, the transport and construction sectors, as well as in forests and land use. Furthermore, the GCF invests in health, water, and food security, the livelihoods of communities, the conservation of ecosystems, and infrastructure development (GCF, 2022b).

However, even though states and private investors made pledges to replenish the fund, these contributions are still far from sufficient to cover the needs of developing countries (GCF, 2022a; Yeo, 2019).

2.5. Communicating the Need to Support Costly Climate Policies

As the public is reluctant to support costly climate policies, the problem of a changing climate needs to be well communicated (Drews & van den Bergh, 2016, p. 859). As the (mass) media are an essential information source for the public, the media's communication of anthropogenic climate change and its consequences is crucial (Chadwick, 2017, p. 9; Nerlich et al., 2010, p. 99). In that sense, media information can raise the salience of a political issue, such as anthropogenic climate change (McCombs & Shaw, 1972, p. 177). The salience of a given political issue is

characterised by 1) increased public attention, and 2) the public's perception of a given issue as problematic (Bromley-Trujillo & Poe, 2020, p. 283).

Hence, the public's frequent confrontation with media content on anthropogenic climate change and its consequences increase the public's attention to the topic. In turn, such an extensive media coverage of anthropogenic climate change is likely to increase the public's understanding of the climate change problem (Bromley-Trujillo & Poe, 2020, p. 301; McCombs & Shaw, 1972, p. 181). This increased public attention and the problem perception of anthropogenic climate change lead to a higher salience of the issue amongst the public. In turn, a higher salience likely affects the public's support for adopting costly climate policies (Bromley-Trujillo & Poe, 2020, p. 298).

3. Literature Review & Theory

This chapter presents a definition of framing and outlines the importance of framing in media information (Section 3.1). Furthermore, this chapter highlights the impacts of anthropogenic climate change on national security (Section 3.2.). Moreover, it stresses the potential of a national security framing in media information on anthropogenic climate change to increase public support for costly climate policies (Sections 3.3.–3.5.). Furthermore, this chapter outlines hypotheses, which will be tested in this study's data analysis.

3.1. Framing Anthropogenic Climate Change in Media Information

The framing of information is: "… to select some aspects of perceived reality and make them more salient in the communicating text…" (Entman, 1993, p.52). Hence, a frame emphasises the importance of specific aspects of a given topic (De Vreese, 2005, p. 53). Thus, a particular frame can put forward a problem definition of a given issue or an interpretation, highlighting the causes of a given issue (De Vreese, 2012, p. 367; Entman, 1993, p.52). In this sense, framed information allows its receivers to shape opinions about a given topic (Hallahan, 1999, p. 207).

The framing of information can be used in various situations and can be applied by different actors, as almost no information can be regarded as unframed (Hallahan, 1999, p. 210; Nisbet & Scheufele, 2009, p. 1772). In this research, I focus on the framing of media information.

The framing of information is a crucial part of the communication between the media and their audience (De Vreese, 2005, p. 51). As (mass) media are important information sources for the public, a specific framing of information contributes to shaping public opinion on a given issue (Chadwick, 2017, p. 9; De Vreese, 2005, p. 51; Nerlich et al., 2010, p. 99).

When looking at the framing of media information, different types of media frames exist. Importantly, it is to distinguish between so called 'issue-specific frames' and 'generic frames' (De Vreese, 2005, p. 54). While issue-specific frames only apply to a specific topic, generic frames apply to a wide range of topics (De Vreese, 2005, p. 54). This study focuses on generic framing. Such generic frames often apply a thematic framing technique, which places a topic into a broader context (De Vreese, 2005, p. 56).

As the framing of media information is an essential tool when communicating complex policy issues like the need for effective climate policies, generic, thematic frames can well be used to communicate information on anthropogenic climate change (Nisbet & Scheufele, 2009, p. 1770).

This study looks at a generic, thematic framing that problematises the national security implications of an ongoing anthropogenic climate change (Peters & Mayhew, 2016, p. 213-214).

3.2. The Impacts of Anthropogenic Climate Change on National Security

Anthropogenic climate change poses considerable risks to national security. Some of the most important are: Rising sea levels, extreme weather events, resources scarcity, climate-induced conflicts, and migration (Peters & Mayhew, 2016, p. 214).

Anthropogenic global warming leads to sea level rise as more and more bodies of ice melt and oceans expand due to thermal expansion caused by higher water temperatures (IPCC, 2021, p. 14). Rising sea levels create a particular vulnerability of near-water territories (IPCC, 2022, p. 13). Furthermore, anthropogenic climate change leads to a higher frequency of extreme weather events, such as cyclones, heavy rains, flooding, heat waves and droughts (IPCC, 2021, pp. 8-9; 2022, p. 18). Such extreme weather events can considerably decrease the availability of natural resources, such as arable land and water (IPCC, 2021, p. 19; 2022, p. 27). In turn, in countries that are hardly hit by the impacts of anthropogenic climate change, the effects of extreme weather events and natural resource scarcities can contribute to the outbreak of violent conflicts for resources (IPCC, 2022, pp. 12, 15-16). Furthermore, the impacts of anthropogenic climate change endanger peoples' livelihoods and considerably shrink their economic perspectives. Thus, individuals can find themselves forced to migrate to a country which is less affected by the impacts of anthropogenic climate change (IPCC, 2022, pp. 12, 15-16; Koubi et al., 2016, pp. 197-198).

3.3. The Effects of a National Security Framing of Anthropogenic Climate Change in Media Information

Multiple entities, like scientific communities, think tanks, and NGOs, but equally political institutions on the national and international level, publish research and raise awareness of the impacts of anthropogenic climate change on national security. However, the mass media, as a bridging actor, can communicate the issue to the broad public (Schäfer et al., 2016, p. 80).

In this regard, the (mass) media can utilise a framing of anthropogenic climate change that highlights how the latter can cause a higher frequency of extreme weather events, resource scarcities, conflicts, and migration (Peters & Mayhew, 2016, p. 214). This communicative process can be understood as a securitisation of anthropogenic climate change (Schäfer et al., 2016, p. 80).

In turn, a successful media communication, confronting the public with a national security framing of anthropogenic climate change, can increase the public's support for costly domestic climate policies which aim to prevent further anthropogenic climate change (McCright et al., 2016, p. 92). In general, the public favours costly climate policies which target the domestic realm. Hence, wealthier industrial countries spend much more on climate policies in the domestic context than in the foreign aid context (Buntaine & Prather, 2018, pp. 83-84; Peterson, 2022, p. 107).
However, framing anthropogenic climate change as a threat to nations' security can equally increase the urgency of providing foreign aid to developing countries (Peters & Mayhew, 2016, pp. 223). As developing countries often do not have sufficient financial resources to implement effective climate policies, foreign aid can enable developing countries to implement climate policies which effectively reduce their GHG emission. As GHG emissions around the globe contribute to the ongoing anthropogenic climate change and its impacts, foreign aid to finance costly GHG emission reductions benefits the country receiving foreign aid, but equally the donor country itself (Gampfer et al., 2014, p. 120). Furthermore, foreign aid can aim to prevent and mitigate the impacts of natural disasters and resource scarcities which can lead to political instabilities in developing countries. In turn, higher political stability in developing countries can prevent conflicts and migration (Gampfer et al., 2014, p. 120; Peters & Mayhew, 2016, pp. 223-224). Thus, as citizens' from developing countries generally only migrate if they see no more opportunity to live with the impacts of a changing climate, financial resources for developing countries' climate change mitigation and adaptation policies can prevent further climate change induced migration (Koubi et al., 2016, p. 204).

From this theoretical outline, the following hypotheses can be derived:

Hypothesis 1a: *A national security frame in media information on anthropogenic climate change increases the public's willingness to support costly climate policies in the domestic context compared to a scientific, technical control scenario.*

Hypothesis 1b*: A national security frame in media information on anthropogenic climate change increases the public's willingness to support costly climate policies in the foreign aid context compared to a scientific, technical control scenario.*

Hypothesis 1c: *The public is more willing to support costly climate policies in the domestic than in the foreign aid context.*

Based on these hypotheses, the following results can be expected from this study's data analysis:

Expectations for hypothesis 1a:
Participants will be more willing to support costly climate policies in the domestic context when exposed to a national security frame in media-like information on anthropogenic climate change, than when exposed to a scientific, technical control scenario. This expectation is visualised in **Figure 1**.

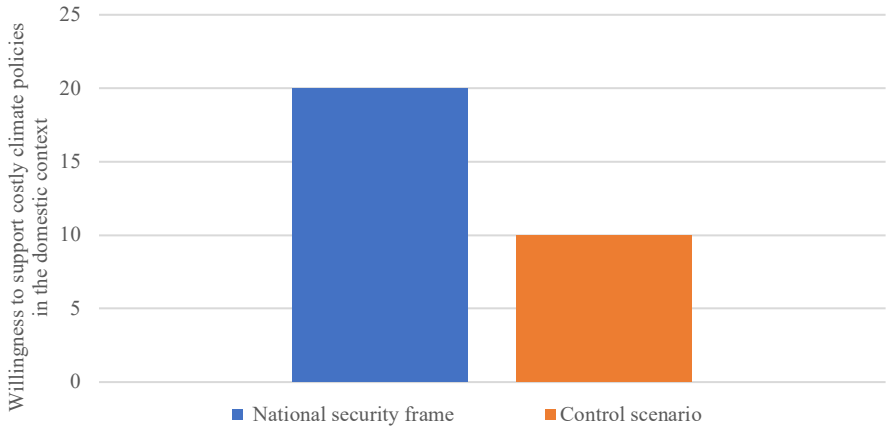

Figure 1: Expectation 1

Expectations for hypothesis 1b:

Participants will be more willing to support costly climate policies in the foreign aid context when exposed to a national security frame in media-like information on anthropogenic climate change, than when exposed to a scientific, technical control scenario. This expectation is visualised in **Figure 2.**

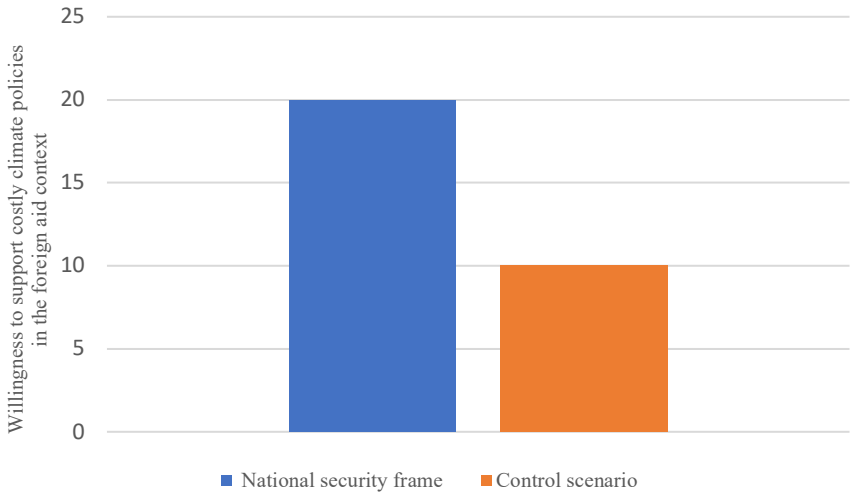

Figure 2: Expectation 2

Expectations for hypothesis 1c:

Participants will be more willing to support costly climate policies in the domestic context than in the foreign aid context. This expectation is visualised in **Figure 3**.

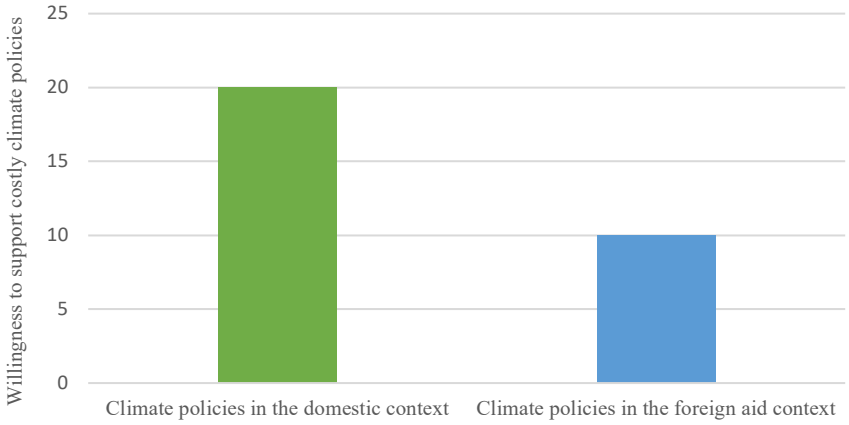

Figure 3: Expectation 3

3.4. The National Security Frame Amongst Citizens of Diverging Attitudes on Climate Change

Anthropogenic climate change is consequential for the future of non-human and human life on earth (IPCC, 2021, pp. 6-8). Hence, most people, especially in industrial countries, are concerned about ongoing anthropogenic climate change (Lee et al., 2015, pp. 1015-1017). However, equally in industrial counties, certain citizen groups do not perceive anthropogenic climate change as problematic. Instead, such groups have rather doubting attitudes on anthropogenic climate change or care little about it (Lee et al., 2015, pp. 1015-1017). Citizens who have rather doubting attitudes on anthropogenic climate change are less likely to support costly climate policies (Lee et al., 2015, p. 1016). Hence, when communicating the issue of anthropogenic climate change, it is of high importance to select frames which engage a broad public (Nisbet & Scheufele, 2009, p. 1770).

However, previous studies came to differing results regarding the effectiveness of a national security framing in engaging a broad public with the issue of anthropogenic climate. Here, a study by Feldman & Hart (2018) indicated that the national security frame was less effective at engaging particularly citizens who hold rather doubtful or careless attitudes on anthropogenic climate change (p. 518). The reason for this might be a negative reactance effect to a security frame that tries to connect the issue of anthropogenic climate change to an issue they potentially care more about (Feldman & Hart, 2018, p. 518).

In reverse, a study by McCright et al. (2016) indicates, that a national security frame can indeed engage a broad public to care about the impacts of anthropogenic climate change (92). In this regard, McCright et al. (2016) show that the national security frame can especially increase support for costly climate policies in the domestic context amongst citizens who are rather doubtful or careless of anthropogenic climate change (pp. 88, 92). Hence, this study will test the following hypothesis:

Hypothesis 2a: *Compared to a scientific, technical control scenario, a national security frame in media information on anthropogenic climate change leads to a larger increase in the willingness to support costly climate policies in the domestic context amongst citizens who have rather doubtful or careless attitudes on anthropogenic climate change than amongst citizens who have confirming attitudes on anthropogenic climate change.*

A national security framing also highlights how anthropogenic climate change impacts developing countries (e.g., resource scarcities, conflict, and migration) (Peters & Mayhew, 2016, p. 214). Hence, it is to test whether a national security framing can equally increase support for costly climate policies in the foreign aid context amongst citizens who hold rather doubtful or careless attitudes on anthropogenic climate change. Hence, this study will test the following hypothesis:

Hypothesis 2b: *Compared to a scientific, technical control scenario, a national security frame in media information on anthropogenic climate change leads to a larger increase in the willingness to support costly climate policies in the foreign aid context amongst citizens who have rather doubtful or careless attitudes on anthropogenic climate change than amongst citizens who have confirming attitudes on anthropogenic climate change.*

Based on these hypotheses, the following results can be expected from this study's data analysis:
Expectations for hypothesis 2a:
Compared to the exposure to a scientific, technical control scenario, the exposure to a national security framing of anthropogenic climate change in media-like information leads to a higher increase in the willingness to support costly climate policies in the domestic context amongst participants who have rather doubtful or careless attitudes on anthropogenic climate change than amongst participants who have confirming attitudes on anthropogenic climate change. This expectation is visualised in **Figure 4**.

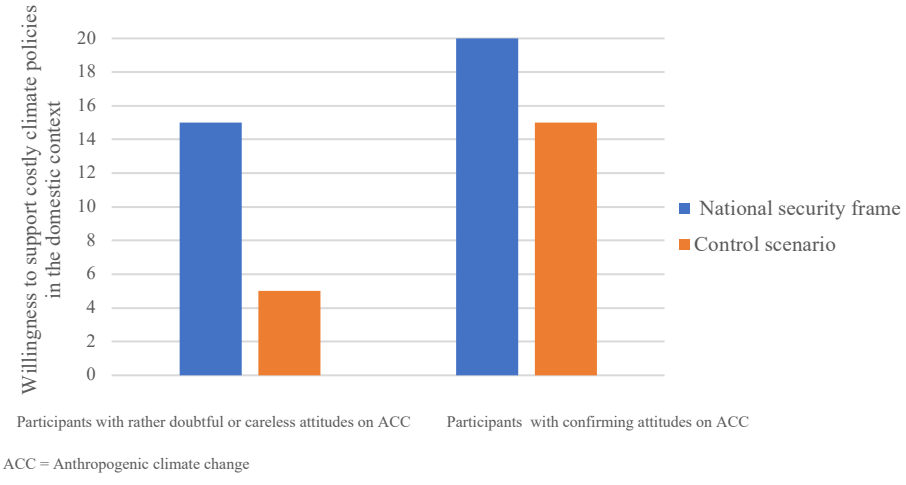

Figure 4: Expectation 4

Expectations for hypothesis 2b:

Compared to the exposure to a scientific, technical control scenario, the exposure to a national security framing of anthropogenic climate change in media-like information leads to a higher increase in the willingness to support costly climate policies in the foreign aid context amongst participants who have rather doubtful or careless attitudes on anthropogenic climate change than amongst participants who have confirming attitudes on anthropogenic climate change. This expectation is visualised in **Figure 5**.

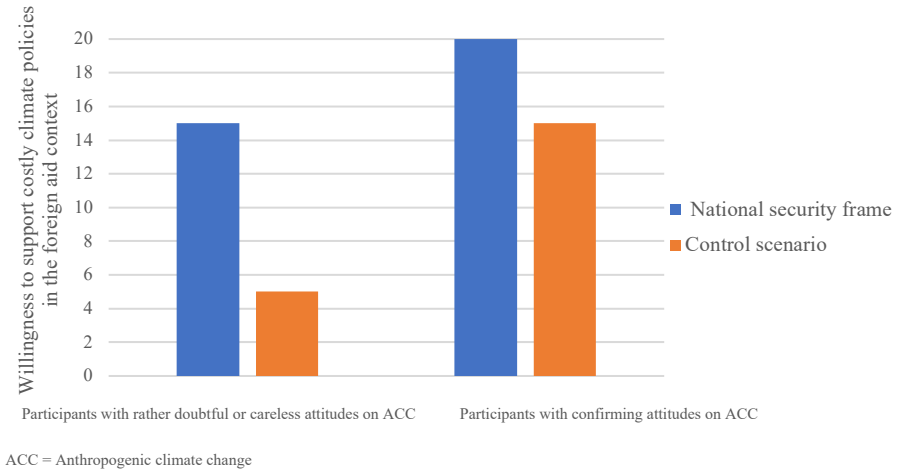

Figure 5: Expectation 5

3.5. The National Security Frame Amongst Citizens of Diverging Attitudes on Migration

Anthropogenic climate change causes extreme weather events and resource scarcities, leading to conflicts and migration. As developing countries are especially affected by the impacts of a changing climate, an increasing number of people from developing countries are and will be forced to leave their homes (IPCC, 2022, pp. 12, 15-16; WBG, 2021, pp. 2-3).

In industrial, wealthier countries, foreign aid is often perceived as a tool to slow down migration movements (Kiratli, 2021, p. 66). In this regard, a report by Schneider et al. (2021) shows that the public's perceived effectiveness of foreign aid for the financing of climate policies in developing countries tends to be higher when the latter can help slow down migration movements (p. 43-44). Thus, as the security frame of anthropogenic climate change highlights the nexus between a changing climate and migration, it can induce higher support for costly climate policies in the

foreign aid context (Peters & Mayhew, 2016, p. 223-224). Possibility, this effect will be especially prominent amongst individuals who are sceptical of migration. Hence, the following hypothesis can be formulated:

Hypothesis 3: *Compared to a scientific, technical control scenario, a national security frame in media information on anthropogenic climate change leads to a larger increase in the willingness to support costly climate policies in the foreign aid context amongst citizens who are sceptical of migration than amongst citizens who are open to migration.*

From this hypothesis, the following results can be expected from this study's data analysis: Expectations for hypothesis 3:
Compared to the exposure to a scientific, technical control scenario, the exposure to a national security framing of anthropogenic climate change in media-like information leads to a higher increase in the willingness to support costly climate policies in the foreign aid context amongst participants who are sceptical of migration than amongst participants who are open to migration. This expectation is visualised in **Figure 6**.

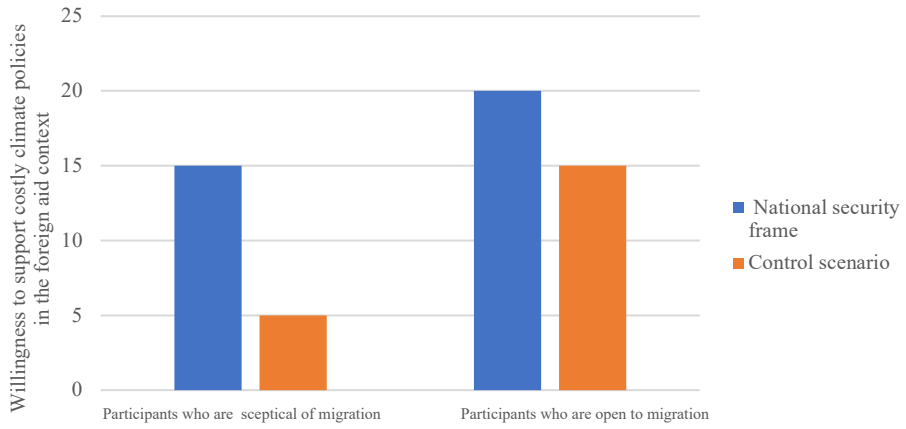

Figure 6: Expectation 6

4. Methodology

The following chapter outlines the methodology employed to investigate this study's research question. Thus, in Section 4.1., I will present the employed research design. Furthermore, in Section 4.2., I will outline the operationalisation of the main concepts used in this study. In Section 4.3., I will justify Germany as the selected case for this study. In turn, I present the sample of this study in Section 4.4.. Lastly, in Section 4.5., I will outline the method of analysis, employed in this study.

4.1. Research Design

I used a between-subjects experimental design to investigate the introduced research questions. Here, I take a quantitative research approach, which can be used to deductively test set-out hypotheses. A quantitative research approach can be rooted in a positivist research paradigm (Creswell, 2018, p. 29-30).

By using an experimental design, a researcher can study the differences in the effects of a deliberately created treatment and a control condition on an observed outcome (Creswell, 2018, p. 138). In this regard, I investigated to what extent participants' exposure to national security framing in media-like information on anthropogenic climate change (expected cause) influenced their willingness to support costly climate policies in the domestic and foreign aid context (observed outcomes). These effects were compared to the willingness to support costly climate policies in the domestic and foreign aid context (observed outcomes) amongst participants exposed to scientific information on anthropogenic climate change. Hence, this scientific, rather technical information on anthropogenic climate change served as a control condition in this study.

An experimental design allows randomly exposing a study's participants to the treatment or control condition. As this study presents a between-subjects design, participants were either exposed to the treatment or the control scenario (Allen, 2017, p. 91; Creswell, 2018, p. 138). Due to this random assignment to either treatment or control condition, experimental designs allow isolating the effects of the treatment on the outcome. Thus, due to this isolation of the treatments' effect, experiments can rule out third factors influencing the treatment's effect on the outcome. Hence, with an experimental design, a researcher can establish a causal effect of the treatment on the outcome (Creswell, 2018, pp. 57, 138).

Therefore, by using an experimental design, this study could investigate a possible causal effect of a national security framing of anthropogenic climate change on the participants' willingness to support costly climate policies in the domestic and foreign aid context. This makes the experimental design especially suited to study the outlined research question. Furthermore, as experimental designs allow isolating the tested effects to establish causality, the presented study has high internal validity (Creswell, 2018, p. 138; Lavrakas, 2008, p. 345).

However, the external validity of an experimental study is more difficult to establish. As samples for experimental studies often include only a limited variety in the participants' characteristics (especially if performed in the laboratory), it is difficult to apply a study's results to participants with different characteristics. Equally, it is difficult to generalise an experimental study's result to other settings than the one in which the study's participants were questioned (Creswell, 2018, p. 157, Mutz, 2011, 109). Furthermore, as societies evolve, the results of experimental research (as those of most research) need to be regarded as time-bound (Creswell, 2018, p. 157).

As such limitations equally affect this study's results, external validity could be attained by repeating this study with a different sample, including participants with different characteristics. Furthermore, to enhance this study's external validity, it would need to be repeated at a later time and in different settings or contexts (Creswell, 2018, p. 157).

This study used Likert-scales to measure the dependent variables in this study (see Section 4.3.2.). Using a Likert-scale, a researcher can measure participants' attitudes towards a question or statement on a dimension. Hence, a Likert-scale allows participants to choose the point on a scale that best suits their attitude or agreement with a given question or statement (Johns, 2010, pp. 1-2). Across disciplines, Likert-scales are frequently used to measure attitudes and opinions (Johns, 2010, pp. 1-2). However, the social desirability bias might affect the validity of the measurement of attitudes and opinions on Likert-scales. Thus, participants might feel the need to pick an item on the Likert-Scale that reflects attitudes and opinions desirably in society (Salkind, 2010, p. 1396). Hence, the validity of the participants' choices of items on the Likert-scale is compromised if the latter are motivated by social desirability instead of participants' genuine attitudes or opinions on a given statement or question (Salkind, 2010, p. 1396). For this study, I could not entirely rule out the possibility of obtaining answers biased by social desirability. However, I assumed that the fact that participants were questioned completely anonymously via an online platform might have reduced the number of responses biased by social desirability.

However, as experimental research can detect causal relationships between investigated variables (Creswell, 2018, p. 138; Lavrakas, 2008, p. 345), the benefits of a causal research design outweigh the presented limitations.

4.2. Case Selection

I chose to analyse Germany as the case for this study. Since the 1990s, a scientific consensus on the existence and causes of anthropogenic climate change has been established (Camier et al., 2021, p. 3). Thus, in German society, awareness of the existence and the impacts of anthropogenic climate change increased (Camier et al., 2021, p. 2).

The increasing awareness of anthropogenic climate change led the German government to initiate more climate policies. Thus, in October 2019, the German government agreed on a new climate protection program (Camier et al., 2021, p. 7). The latter includes the introduction of a national emissions trading system for energy intensive sectors and subsidies for energy-efficient renovations and low-emission transport (Camier et al., 2021, pp. 7,8; Die Bundesregierung, 2022). However, compared to other European countries (e.g., France), Germany has no carbon taxation (Voigt, 2021). For the year 2020, Germany's climate change performance was rated only medium on the Climate Change Performance Index (CCPI)[1]. In particular, the country's high energy consumption and slow transition towards more renewable energy sources hamper Germany's overall climate protection performance (Burck et al., 2020, p. 20).

Furthermore, diverging beliefs about anthropogenic climate change persist in German society (Hein & Graichen, 2021, p. 3; Umweltbundesamt, 2022). Thus, about 13% of the German population believes that anthropogenic climate change does not exist (Camier et al., 2021, p. 14). Moreover, once the implementation of climate policies leads to direct costs or other inconveniences, German citizens frequently disapprove and protest against costly climate policies (Camier et al., 2021, p. 14). Hence, to further increase Germany's efforts to combat human induced climate change, it is essential to better understand how to increase public support for costly climate policies.

Furthermore, in the international comparison, Germany is one of the most important contributors to the financial support for implementing developing countries' climate policies (Eckstein et al.,

[1] The Climate Change Performance Index (CCPI) is an independent monitoring tool that evaluates countries' climate protection performances.

2021). In 2020, Germany spent 7.64 billion Euros to support developing countries in financing climate policies (significant portions of this contribution were made in loans) (BMZ, 2022). However, as the urgency to finance climate policies in developing countries rises, Germany will most likely need to increase its contributions in the future (Eckstein et al., 2021). However, public support is required for higher German contributions to international climate finance for developing countries (Eckstein et al., 2021). Currently, most Germans do not perceive foreign aid for financing climate policies in developing countries as an essential aspect of foreign aid (Schneider et al., 2021, p. 76). Hence, it is crucial to investigate whether the framing of anthropogenic climate change and its impacts can increase the public's support to finance climate policies in developing countries.

4.3. Operationalisation

The main concepts in this study are: The 'framing anthropogenic climate change as a national security threat', 'public support', 'willingness to support costly climate policies in the domestic context', 'willingness to support costly climate policies in the foreign aid context', 'attitudes on anthropogenic climate change, and 'attitudes on migration'. To measure these concepts with variables, they need to be operationalised. Operationalisation entails defining concrete measurements for observations which can be used to empirically show the presence or effects of a theoretical concept (Allen, 2017, p. 3).

4.3.1. The Framing of Anthropogenic Climate Change

To operationalise the framing of anthropogenic climate change as a national security threat, I wrote a short vignette highlighting the impacts of anthropogenic climate change on national security (extreme weather events, resource scarcity, conflicts, and migration). In German, this vignette is 94 words long. This first vignette served as the treatment for this study's experiment:

Climate change threatens national security

Human-induced climate change is leading to a global increase in temperature. Therefore, the number of extreme weather events in Germany will increase in the future. Germany will experience more heat waves, but also more heavy rainfall. The increasing number of extreme weather events endangers national security, now and in the future. Furthermore, human-induced climate change

will threaten the livelihoods of many people, especially in developing regions. Climate change will exacerbate existing environmental crises such as droughts, water scarcity and desertification. This can foster or exacerbate social destabilisation as well as violent conflicts. As a result, there will be immense environmentally induced migratory movements.

To measure any effects of this treatment, I wrote a second vignette presenting technical, scientific information on anthropogenic climate change (humans' GHG emissions causing global warming, rising sea levels, melting glaciers, and the endangerment of vulnerable ecosystems). In German, this vignette is 95 words long. Hence, this second vignette served as the control scenario:

The impacts of climate change

Humans are the main cause of climate change, as industry, transport, agriculture, and households emit large amounts of greenhouse gases. These greenhouse gases are changing the heat balance of the Earth's atmosphere - it is heating up at an unprecedented rate. Global warming is causing glaciers to melt and sea levels to rise significantly. Climate change is also expected to damage forests, coral reefs, and low-lying wetlands. If the world warms even temporarily above the 1.5-degree Celsius mark, there may be irreversible effects on certain ecosystems - for instance in the polar, mountain and coastal regions.

To make the vignettes read like media information, I based them on German newspaper articles. I embedded a German version of these vignettes in my survey experiment (see Appendix 1).
To measure any differences amongst participants exposed to the treatment or the control scenario, I randomly allocated them to either a treatment group (which read the treatment vignette) or a control group (which read the control scenario). Thus, the participants 'allocation to the treatment or the control group' constituted the independent variable of this study.

4.3.2. Public Support & The Willingness to Support Costly Climate Polices

In this study, I analysed public support by conducting a survey experiment. Surveys and survey experiments are frequently used to measure public support for public policy issues (Bachner, 2019, p. 2; Berinsky, 2017, p. 310). However, for generalising the participants' responses to the public's support for a given public policy issue, the participants must be as representative as possible of the

general public (Berinsky, 2017, p. 311). In the scope of this study, I was not able to collect a representative sample of the German population. However, the study is expected to generate hints about German public support for costly climate policies (see Section 4.4.).

To operationalise the concept of 'public willingness to support costly climate policies in the domestic context', I measured the participants' willingness to support the introduction of a carbon tax in Germany ("Would you support the introduction of a carbon tax in Germany?"). Secondly, to operationalise the concept of 'public willingness to support costly climate policies in the foreign aid context', I measured the participants' willingness to support higher German contributions to the multilateral "Green Climate Fund" ("Would you support a higher German contribution to this (explained above) fund?"). The answers to both questions were measured on a 1-7 Likert-scale (from "no support" to "full support").

Hence, for this study, I had two dependent variables. The 'willingness to support the introduction of a carbon tax' was the first dependent variable, and the 'willingness to support higher contributions to the GCF' constituted the second dependent variable. The values measured on both variables were expected to differ (observed outcomes) for participants allocated to the treatment or the control group (expected cause).

4.3.3. Attitudes on Anthropogenic Climate Change

To operationalise the concept 'attitudes on anthropogenic climate change', I measured participants' beliefs about anthropogenic climate change and their personal engagement with the issue of climate change. I measured beliefs about anthropogenic by asking my participants question D22 from the European Social Survey, which reads, "to what extent do you think that climate change is caused by natural processes or human activity?" (ESS, 2022). To measure personal engagement with climate change, I used question D20 from the European Social Survey, which reads, "how much have you thought about climate change before today?" (ESS, 2022). The participants could assess these questions on a 1-7 Likert-scale (from "entirely by natural processes" to "entirely by human activity"/from "not at all" to "a great deal").

In this study, 'attitudes on anthropogenic climate change', and 'personal engagement with climate change', were employed as moderating variables. Hence, it was expected that participants' 'beliefs about anthropogenic climate change' and their 'personal engagement with climate change' could

moderate any effects of this study's treatment (expected cause) on the participants' willingness to support the introduction of a carbon tax/higher contributions to the GCF (observed outcomes).

4.3.4. Attitudes on Migration

To operationalise the concept ‘attitudes on migration’, I measured the participants' willingness to welcome migrants. Specifically, I measured this willingness to welcome migrants, by asking the participants the slightly modified question D30a from the European Social Survey: "To what extent do you think Germany should allow people from poorer countries to come to live in Germany?" (ESS, 2022). To measure the willingness to welcome migrants, I used a 1-7 Likert-scale (“from allow none to come to live in Germany" to "allow many to come to live in Germany"). The ‘willingness to welcome migrants’ was a moderating variable in this study. Thus, it was expected that participants 'willingness to welcome migrants' could moderate any effects of this study's treatment (expected cause) on the participants' willingness to support the introduction of a carbon tax/higher contributions to the GCF (observed outcomes).

Appendix 2 shows an operationalisation table, including all operationalised concepts, the variables, and their measurements.

4.4. The Sample

The unit of analysis and the units of observation in this study were German individuals. Hence, I collected primary data from sampled German individuals for this study. To gather my data, I used the platform "Prolific" (Prolific, 2022a). Prolific is a crowdsourcing platform that allows researchers to find participants for a given study. Furthermore, prolific enables researchers to specify the characteristics of participants (Prolific, 2022). Hence, for this study, I sent my survey to people located in Germany with German nationality and who speak German as their first language. This way, I could verify that only people from my target population (German individuals) responded to the survey. For a response to my 4 minutes long survey, each participant received £0.60. This sum was based on an hourly rate of £9.

Since the platform Prolific has a large participant pool, I obtained a diverse sample of German individuals, including people of all genders, different ages, and education levels (Prolific, 2022). However, to obtain a representative sample of the German population, I would need to guarantee

a random and stratified sampling (Allen, 2017, p. 1550; Creswell, 2018, p. 210). Since participants can sign up for crowdsourcing platforms like Prolific, they are not randomly selected from a population. Hence, crowdsourcing platforms usually cannot offer fully representative samples (Valliant et al., 2013, p. 6). Furthermore, Prolific chooses German participants on a first-come, first-serve basis and thus cannot guarantee a sample containing people representing all the characteristics of the people in the actual population. Therefore, a sample obtained via Prolific needs to be regarded as a convenience sample, albeit with good spread in main characteristics such as gender, age, and education (Prolific, 2018).

I used the power analysis calculator G*Power to calculate the target sample size (HHU, 2022). Based on this calculation, with a moderate effect size *d* of 0.4, a significance level of $\alpha = 0.05$, and a power of 0.8, I will need a sample of 100 participants per experimental group. As this study's design sets out for two experimental groups, 200 participants were the total sample size. However, as any testing of interaction effects requires a larger sample size, I could only tentatively test the latter with the presented sample size (Gelman, 2018). To make my sample more reflective of the German population, I chose the option ‘balanced sample' on the Prolific platform, which guarantees an approximate fifty-fifty split between male and female participants in the sample (Prolific, 2022b; Statistisches Bundesamt, 2022).

4.5. Method of Analysis

The following section outlines how this study’s survey experiment was conducted (Section 4.5.1.) and describes this study’s data analysis (Section 4.5.2.).

4.5.1. The Survey Experiment

To conduct a between-subjects survey experiment, I created a short survey on the platform "Qualtrics" (Qualtrics, 2022). After asking the participants to consent to their participation in my study, I asked the participants for a few demographic characteristics. Thus, I asked for the participants' gender, age, and their highest degree obtained. As I aimed to investigate any differences in the effects of a national security frame amongst participants who have differing attitudes on anthropogenic climate change and differing attitudes on migration (hypotheses 2 and 3), I included three questions on 1) the participants' beliefs about anthropogenic climate change, 2) their personal engagement with climate change, and 3) their willingness to welcome migrants.

Next, I embedded two vignettes into the survey. The first one constituted the treatment for this experiment and thus highlighted the impacts of anthropogenic climate change on national security. The second vignette constituted a control scenario for this experiment and thus only highlighted rather technical, scientific facts about the impacts of anthropogenic climate change.

As this study aimed to investigate the effects of anthropogenic climate change framing in media-like information, I wrote the two vignettes based on edited and assembled extracts from German newspaper articles (see Appendix 1). Additionally, I used the website "Free Newspaper Generator" to create vignettes in the optics of newspaper articles (Free newspaper generator, 2022). Both vignettes can be found in Appendix 1. Due to a randomising option on Qualtrics, the two vignettes, and thus this study's treatment and control scenario, were randomly assigned to the study's participants.

After the study's participants read the assigned vignette, I shortly presented the introduction of a carbon tax in Germany and asked the participants to assess their willingness to support such a policy. After that, I shortly presented the United Nations' GCF and asked the participants to assess their willingness to support a higher German contribution to this fund.

Before starting the actual data collection, I thoroughly tested the survey by launching a pilot version of the survey to receive feedback from people in my network. After implementing minimal changes to the survey flow, I launched it on the crowdsourcing platform prolific to collect the actual data.

4.5.2. Data Analysis

I analysed the collected data using the software R. Firstly, I loaded my data set into R and transformed some of the variables for the analysis. For the purpose of the main analysis, this study's dependent variables ‘willingness to support the introduction of a carbon tax' and 'willingness to support higher contributions to the GCF' could be treated as "continuous". The independent variable ‘allocation to the treatment or the control group' constitutes a binary variable. Equally, I transformed the demographic control variables 'age' (18-39 years/40-65+ years) and 'highest degree obtained' (non-university degree/university degree) into binary variables. The control variable 'gender' remained a categorical variable of three levels (male, female, non-binary/third gender). The three moderating variables 1) 'beliefs about anthropogenic climate change' (confirming or rather doubtful beliefs), 2) 'personal engagement with climate change' (high

or low personal engagement), and 3) ‘willingness to welcome migrants' (high or low willingness to welcome migrants) were initially measured on 1-7 Likert-scales. I transformed them into binary variables to facilitate the ensuing analysis of moderating effects. When transforming these 1-7 Likert-scale into binary variables, the median was chosen as a dividing point for all three variables. After the variables' transformation, I stored continuous variables as numeric and binary variables as factors. **Table 1** contains a summary of all utilised variables.

Variable	Type	Symbol	Measurement Scale
Willingness to support the introduction of a carbon tax	Dependent Variable	Y1	Treated as continuous: Measured on a 1-7 Likert-scale
Willingness to support higher contributions to the GCF	Dependent Variable	Y2	Treated as continuous: Measured on a 1-7 Likert-scale
Allocation to the treatment or the control group	Independent Variable	X	Binary: Control Group (0), Treatment Group (1)
Beliefs about anthropogenic climate change	Moderating Variable	Z1	Nominal categorical: Measured on a 1-7 Likert-scale. The variable was recoded as binary with the median of 6 as dividing point: Confirming beliefs about anthropogenic climate change (1), rather doubtful beliefs about anthropogenic climate change (0).
Personal engagement with climate change	Moderating Variable	Z2	Nominal categorical. Measured on a 1-7 Likert-scale. The variable was recoded as binary with the median of 5 as dividing point: High personal engagement with anthropogenic climate change (1), low personal engagement with anthropogenic climate change (0)
Willingness to welcome migrants	Moderating Variable	Z3	Nominal categorical variable. Measured on a 1-7 Likert-scale. The variable was recoded as binary variable with the median of 5 as dividing point: High willingness to welcome migrants (1), low willingness to welcome migrants (0)
Gender	Control Variable	V1	Nominal categorical variable: Male (0), Female (1), Non-binary / third gender (2)
Age	Control Variable	V2	Nominal categorical variable. Measured on a scale form 1-4. The variable was recoded as binary variable: 18-39 years (0), 40-65+ years (1)
Highest degree obtained	Control Variable	V3	Nominal categorical variable. Measured on a scale form 1-7. The variable was recoded as binary variable: Non-university degree (0), University degree (1)

Table 1: Summary of the Variables

Firstly, I checked for the balance of all the demographic control variables (gender, age, highest degree obtained) and all moderating variables (beliefs about anthropogenic climate change,

personal engagement with climate change, willingness to welcome migrants) across the two experimental groups. These checks are necessary to exclude the possibility of any confounding effects of such third variables on the treatment's effects on the outcomes.

Due to the central limit theorem, I could assume a normal distribution of the outcome variables. Thus, as this study's dependent variables can be treated as continuous, I conducted Ordinary Least Square (OLS) regression analyses to test hypotheses 1a and 1b. An OLS regression analysis delivers the most interpretable results when investigating the effects of an independent on a dependent variable. Thus, in this study, OLS regression analyses allowed me to study the effects of the participants' allocation to the treatment or the control group (X) on their willingness to support the introduction of a carbon tax/higher contributions to the GCF (Y1/Y2). Here, the average treatment effect (ATE) is denoted as b. The regression line's intercept is denoted by α (the intercept depicts the value of y if the value for x is zero). The regression equation for the simple OLS regression models is:

$$Y = \alpha + bX$$

Y = Dependent variable
α = Intercept
b = Average treatment effect (ATE)
X = Independent variable

In experimental studies with a good balance of participants' characteristics across treatment and control group, the random allocation of participants to either the treatment or the control group can rule out any third factors that could influence the treatment's effect on the outcome (Creswell, 2018, pp. 57, 138). However, it can still be reasonable to include control variables in a multiple linear regression model for two reasons: 1) control variables can increase the statistical power of a regression model, and 2) control variables that correlate with the outcome variable can show the reliability of the data.

Thus, as this is a student project, I could only gather a sample including 200 participants. This corresponds to the sample size needed to detect effects of moderate size (effect size $d = 0.4$) as statistically significant. However, the dependent variables are influenced not only by this study's experimental treatment but also by various third variables. Thus, with the inclusion of control

variables, one can explain some of the systematic variations in the dependent variable. In turn, such a suppression the of variation in the dependent variable can increase the investigated effect size of the independent on the dependent variable and reduce the standard errors of the regression coefficients. Thus, the inclusion of control variables can enhance the statistical power of a regression model (Coppock, 2020).

Various variables could potentially influence this study's dependent variables, 'willingness to support the introduction of a carbon tax' and 'willingness to support higher contributions to the GCF' (Y1, Y2). Hence, it is reasonable to include third variables that correlate with the dependent variable in a multiple regression model. In turn, a (statistically significant) effect of such a third variable on the study's dependent variable shows the reliability of the utilised data set.

Hence, I additionally ran multiple linear regression models to test hypotheses 1a, and 1b. In these models, I included all the demographic control variables, as well as the five moderating variables, functioning as control variables. The regression equation for these models is:

$$Y = \alpha + b1X + b2V1 + b3V2 + b4V3 + b5Z1 + b6Z2\ldots\ b7Z3$$

Y = Dependent variable

α = Intercept

b = Average treatment effect (ATE)

X = Independent variable

V/Z = Control variable

To test hypothesis 1c, I first calculated the differences between the values of the two dependent variables 'willingness to support the introduction of a carbon tax' and 'willingness to support higher contributions to the GCF'. After that, I performed a one sample t-test to compare the mean of these differences scores to 0. Hence, a statistically significant difference between the mean of the calculated differences scores and 0 would indicate a statistically significant difference in the average willingness to support the introduction of a carbon tax and the average willingness to support higher contributions to the GCF.

As hypotheses 2 and 3 are conditional hypotheses, I tested them by including interaction terms in two OLS regression models. This allowed me to analyse any differences in the effect of the

participants' allocation to the treatment or the control group (X) on their willingness to support the introduction of a carbon tax/higher contributions to the GCF (Y1/Y2) amongst participants with 1) differing beliefs about anthropogenic climate change (Z1) 2) differing personal engagement with climate change (Z2), and 3) differing willingness to welcome migrants (Z3). The regression equation for these models is:

$$Y = \alpha + b1X + b2Z + Z*X$$

Y = Dependent variable
α = Intercept
b = Average treatment effect (ATE)
X = Independent variable
Z = Moderating variable
Z*X = Interaction term

To verify the robustness of these baseline effects, I performed additional checks. Thus, even though I assumed a normal distribution in the dependent variables (central limit theorem), I performed several Wilcoxon tests. These are non-parametric tests that allow for the comparison in medians of the two dependent variables (willingness to support the introduction of a carbon tax/ higher contributions to the GCF) also across the treatment and the control group.

5. Results

This chapter presents the results of this study. In Section 5.1., I describe the balance of the sample. In Section 5.2., I present a series of descriptive statistics. After that, in Section 5.3., I discuss the results of a correlation analysis. In turn, in Sections 5.4-5.6., I consecutively present the results of my data analysis to test the outlined hypotheses. Lastly, in Section 5.7., I present robustness checks of this study's results.

5.1. Balance of the Sample

To analyse differences in the participants' willingness to support the introduction of a carbon tax and higher contributions to the GCF after their exposure to the treatment or control scenario, I had to ensure a balanced sample. Thus, the treatment and control group needed to be 1) approximately the same size, and 2) contain a similar distribution of participants' characteristics.

Firstly, Qualtrics offers the option to evenly present a survey experiment's treatment and control elements to the participants. Thus, using this function, I could ensure an approximate equal allocation of this study's participants to the treatment and control group.

As any imbalances of participants' characteristics across the treatment and control group could skew effects of a treatment on an observed outcome, I conducted balance checks to ensure a similar distribution of participants' characteristics across treatment and control group. These balance checks entailed several independent two-sample t-tests[2]. These tests showed that the means of three demographic control variables (gender, age, highest degree obtained) and the three moderating variables (beliefs about anthropogenic climate change, personal engagement with climate change, willingness to welcome migrants) did not statistically significantly differ across the treatment and the control group (see Appendix 3).

5.2. Descriptive Statistics

This section presents a series of descriptive statistics. Firstly, I show descriptive statistics to visualise the composition of the sample. Secondly, I present summary statistics to show the

[2] As only one participant indicated identifying as non-binary/third gender, I excluded this participant from the data set for the demographic control variable gender.

dispersion of the dependent variables, 'willingness to support the introduction of a carbon tax', and ‘willingness to support higher contributions to the GCF’.

5.2.1. Composition of the Sample

A first step to analysing sampled data is an investigation of the sample's composition regarding the individuals' characteristics. **Table 2** presents the distribution of the participants' characteristics across the entire data set and across the treatment and control group.

Since I selected the option' balanced sample' on Prolific, my sample contained 50.5% males, 49% females, and one person who identified as non-binary or of the third gender (0.5%). However, as mostly young people use online crowdsourcing platforms, 84% of my participants were aged between 18 and 39. Moreover, 55% of my participants obtained a high school diploma as their highest degree, whilst 45% indicated obtaining a university degree. Notably, none of the participants indicated having no education.

Regarding the participants' beliefs about anthropogenic climate change, 77.5% indicated holding confirming beliefs on anthropogenic climate change. Similarly, 72% of my participants stated that they are highly personally involved with climate change. Furthermore, 61% of the participants indicated a high willingness to welcome migrants to Germany.

Variable	Treatment group	Control group	Total	Percentage
Gender (V1)	101	99	200	100 %
Male	53	48	101	50,5 %
Female	48	50	98	49 %
Non-binary / third Gender	0	1	1	0,5 %
Age (V2)	101	99	200	100 %
18-39 years	86	82	168	84 %
40-65+ years	15	17	32	16 %
Highest degree obtained (V3)	101	99	200	100 %
Non-university degree	59	51	110	55 %
University degree	42	48	90	45 %
Beliefs about anthropogenic climate change (Z1)	101	99	200	100 %
Confirming beliefs about anthropogenic climate change	75	80	155	77.5 %
Rather doubtful beliefs about anthropogenic climate change	26	19	45	22.5 %
Personal engagement with climate change (Z2)	101	99	200	100 %
High personal engagement with anthropogenic climate change	74	70	144	72 %
Low personal engagement with anthropogenic climate change	27	29	56	28 %
Willingness to welcome migrants (Z3)	101	99	200	100 %
High willingness to welcome migrants	65	58	123	61.5 %
Low willingness to welcome migrants	36	41	77	38.5 %

Table 2: Distribution of the participants' characteristics across treatment and control group

5.2.2. Summary Statistics

To show the dispersion of the variables 'willingness to support the introduction of a carbon tax' and the 'willingness to support higher contributions to the GCF', I present summary statistics in **Table 3**.

As presented in **Table 3**, the minimum and maximum values for the variables 'willingness to support the introduction of a carbon tax' and 'willingness to support higher contributions to the GCF' were 1 and 7, respectively. The same holds for the minimum and maximum values of the two variables across treatment and control group.

As shown in **Table 3**, on a scale from 1 to 7, the average willingness to support the introduction of a carbon tax amongst the participants in this study was 5.125. In comparison, on a scale from 1 to 7, the average willingness to support higher contributions to the GCF amongst the participants was 4.93. Hence, the means of the two dependent variables varied by 0.195 units.

For the variable ‘willingness to support the introduction of a carbon tax', the mean in the treatment group (5.168) was 0.081 units greater than the mean in the control group (5.081). Reversely, for the variable ‘willingness to support higher contributions to the GCF', the mean in the treatment group (5.119) was 0.382 units greater than the mean in the control group (4.737).

Variable	Group	N	Mean	Median	SD	Min.	Max.
Willingness to support the introduction of a carbon tax	Total	200	5.125	5	1.553	1	7
	Treatment group	101	5.168	5	1.490	1	7
	Control group	99	5.081	5	1.621	1	7
Willingness to support higher contributions to the GCF	Total	200	4.93	5	1.612	1	7
	Treatment group	101	5.119	5	1.596	1	7
	Control group	99	4.737	5	1.614	1	7

Table 3: Summary Statistics

Next to the presented summary statistics table, it is useful to look at the distributions of the analysed dependent variables across treatment and control group in histograms.

Thus, as visible in **Figure 7** and **Figure 8**, on a Likert-scale of 1-7, most participants indicated values of 5 and above to express their willingness to support the introduction of a carbon tax and higher contributions to the GCF.

However, as visible in **Figure 7**, participants in the treatment group only indicated slightly higher support for the introduction of a carbon tax than individuals in the control group.

Figure 8 shows that participants in the treatment group indicated a higher willingness to support higher contributions to the GCF than participants in the control group.

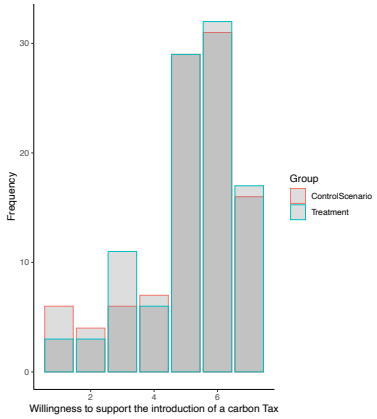

Figure 7 : Histogram 'willingness to support the introduction of a carbon tax'

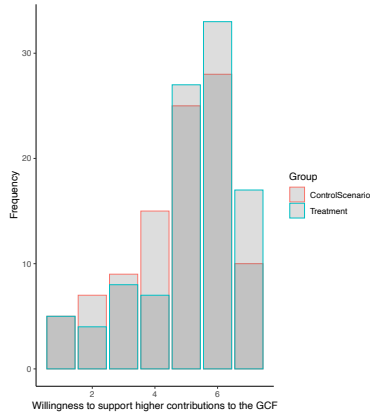

Figure 8: Histogram 'willingness to support higher contributions to the GCF'

5.3. Correlation Analysis

Before conducting OLS regression analyses in Sections 5.4., it is useful to conduct a correlation analysis for all the investigated variables. Here, I used the Pearson's correlation analysis, which shows a two-way linear association between any two variables in the data set (Mukaka, 2012, p. 69). As a Pearson's correlation analysis is unsuitable for nominal categorical variables, I removed the one participant who indicated identifying as binary/third gender from the data set (Mukaka, 2012, p. 69).

In the investigated data set, none of the variables were highly correlated. The highest correlation coefficient of 0.510 was obtained for the two dependent variables, 'willingness to support the introduction of a carbon tax' and 'willingness to support higher contributions to the GCF'. This correlation coefficient indicated a moderate positive correlation (Mukaka, 2012, p. 71). Furthermore, a low positive correlation could be detected between the variables ‘beliefs about anthropogenic climate change' and 'willingness to support the introduction of a carbon tax' (0.407). Equally, I could find a low positive correlation between the variables ‘willingness to welcome migrants' and 'willingness to support higher contributions to the GCF' (0.437) (Mukaka, 2012, p. 71). A full regression table can be found in Appendix 4.

5.4. Testing Hypotheses 1

In the following sections, I consequently test hypotheses 1a, 1b, and 1c. The hypotheses were outlined in Chapter 3.

5.4.1. Testing Hypothesis 1a

Hypothesis 1a states: *A national security frame in media information on anthropogenic climate change increases the public's willingness to support costly climate policies in the domestic context compared to a scientific, technical control scenario.*

To test this hypothesis, I firstly conducted a simple OLS regression analysis (Model 1). As the 'willingness to support costly climate policies in the domestic context' was operationalised by measuring the participants' willingness to support the introduction of a carbon tax, I regressed the dependent variable 'willingness to support the introduction of a carbon tax' (Y1) on the independent variable 'allocation to the treatment or the control group' (X). As shown in **Table 4** (Model 1), the average treatment effect (b) indicates that the participants' average willingness to support the

introduction of a carbon tax (Y1) was 0.088 units higher for participants in the treatment group (5.169) than for participants in the control group (5.081). This difference is not statistically significant at any conventional level.

Furthermore, I added a series of control variables to a second, multiple linear regression model to increase this model's statistical power. Hence, I added the control variables ‘gender', 'age', and 'highest degree obtained' to the multiple linear regression Model 2. Additionally, I added the set of moderating variables, 'beliefs about anthropogenic climate change', 'personal engagement with climate change', and 'willingness to welcome migrants', in the function of further control variables, to the multiple linear regression Model 2.

As shown in the correlation table (Appendix 4), variables, such as 'beliefs about anthropogenic climate change' or 'personal engagement with climate change', correlate with the dependent variable ‘willingness to support the introduction of a carbon tax'. Hence, as such variables can be expected to be associated with the dependent variable 'willingness to support the introduction of a carbon tax', a (statistically significant) effect of the former on the latter in the multiple regression Model 2 can underline the reliability of the used data set.

Table 4 shows that the inclusion of control variables in Model 2 slightly increased the average treatment effect (b) compared to Model 1. This average treatment effect indicates that, on average, the willingness to support the introduction of a carbon tax (Y1) was 0.108 units higher for participants in the treatment group (3.498) than for participants in the control group (3.390). This slight increase in effect size and the reduction of the standard error of the regression coefficient indicates a higher statistical power of Model 2. However, equally in Model 2, the control and treatment group did not show a statistically significant difference in their average willingness to support the introduction of a carbon tax. Hence, in the scope of this study, I could not find sufficient evidence to support the outlined hypothesis 1a.

Nevertheless, the statistically significant effect of 'beliefs on anthropogenic climate change' on the dependent variable ‘willingness to support the introduction of a carbon tax' is an indication of the data's reliability. For the variable 'personal engagement with climate change', a positive effect on the dependent variable 'willingness to support the introduction of a carbon tax' could be found. Though, this effect is small and not statistically significant. Conversely, I detected a statistically significant positive effect of the variable 'willingness to welcome migrants' on the dependent variable 'willingness to support the introduction of a carbon tax'.

Hypothesis 1a

	Willingness to support the introduction of a carbon tax	
	(1)	(2)
Group: Treatment Group	0.088	0.108
	(0.220)	(0.197)
Gender: Female		0.151
		(0.200)
Gender: Non-binary/Third Gender		-0.498
		(1.393)
Age: Over 40 Years		0.144
		(0.266)
Highest Degree Obtained: University Degree		-0.272
		(0.197)
Beliefs about ACC: Confirming		1.337***
		(0.242)
Personal Engagement with CC: High		0.291
		(0.228)
Willingness to Welcome Migrants: High		0.752***
		(0.209)
Constant	5.081***	3.390***
	(0.156)	(0.301)
N	200	200
R2	0.001	0.250
Adjusted R2	-0.004	0.219
Residual Std. Error	1.556 (df = 198)	1.373 (df = 191)
F Statistic	0.158 (df = 1; 198)	7.963*** (df = 8; 191)

*p < .1; **p < .05; ***p < .01

ACC = Anthropogenic Climate change; CC = Climate Change

Table 4: Hypothesis 1a: Models 1 & 2

5.4.2. Testing Hypothesis 1b

Hypothesis 1b states: *A national security frame in media information on anthropogenic climate change increases the public's willingness to support costly climate policies in the foreign aid context compared to a scientific, technical control scenario.*

To test this hypothesis, I firstly conducted a simple OLS regression analysis (Model 3). In this study, the willingness to support costly climate policies in the foreign aid context was operationalised by measuring the participants' willingness to support higher contributions to the GCF. Hence, I regressed the variable 'willingness to support higher contributions to the GCF' as the dependent variable (Y2), on the independent variable 'allocation to the treatment or the control group' (X). As shown in **Table 5**, in Model 3, the average treatment effect (b) indicates that the participants' 'average willingness to support higher contributions to the GCF' (Y2) was 0.381 units higher for participants in the treatment group (5.118) than for participants in the control group (4.737). **Table 5** indicates that this difference is statistically significant at a 10% level. This statistically significant difference between the averages for the willingness to support higher contributions to the GCF' in the control and treatment group is visualised in **Figure 9**.

Just like for testing hypothesis 1a, I added a series of control variables to a multiple linear regression model to increase the model's statistical power. In this sense, I included the control variables, 'gender', 'age', and 'highest degree obtained', in the multiple linear regression Model 4. Furthermore, I added all moderating variables, 'beliefs about anthropogenic climate change', 'personal engagement with CC', and 'willingness to welcome migrants', as control variables to the multiple linear regression Model 4.

As visible in the correlation Table in Appendix 4, the dependent variable 'willingness to support higher contributions to the GCF' correlates with the moderating variables, 'beliefs about anthropogenic climate change', 'personal engagement with climate change', and 'willingness to welcome migrants'. Thus, as these variables can be expected to be associated with this study's dependent variable, 'willingness to support higher contribution to the GCF', a (statistically significant) effect of the former on the latter in the multiple regression Model 4 can underline the reliability of the used data set.

As shown in **Table 5**, in Model 4, the average treatment effect (b) indicates that the participants' average willingness to support higher contributions to the GCF (Y2) was (0.344) units higher for participants in the treatment group (3.436) than for participants in the control group (3.082), and

thus decreased, compared to Model 3. However, this difference in average willingness to support higher contributions to the GCF amongst the participants in the treatment and the control group remained statistically significant at a 10% level. This decreased effect size after the inclusion of the control variables is due to a correlation (albeit small) between this study's independent variable 'allocation to the treatment or the control group', and the control variables included in Model 4 (see Appendix 4). However, as the inclusion of the control variables did reduce the standard error of the regression coefficient in Model 4, compared to Model 3, the inclusion of control variables increased the statistical power of Model 4.

Thus, in Models 3 and 4, the effect of this study's treatment (a national security framing of anthropogenic claimed change) on the participants' willingness to support higher contributions to the GCF was not statistically significant at the conventional 5% level. However, the effect's statistical significance at a 10% level indicates modest evidence to support the presented hypothesis 1b.

As visible in Model 4, the highly statistically significant effects of the moderating/control variables 'beliefs about anthropogenic climate change', 'personal engagement with climate change', and 'willingness to welcome migrants' on the dependent variable 'willingness to support higher contribution to the GCF', are further indications for the reliability of the investigated data.

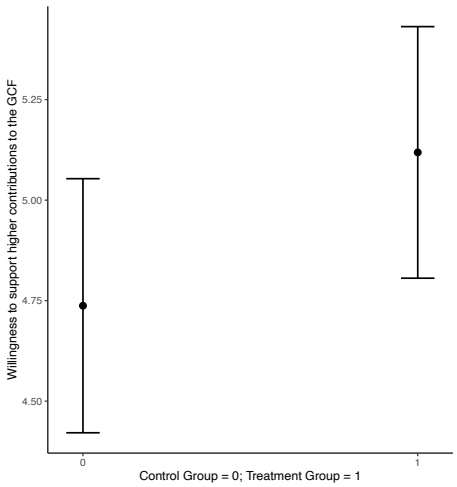

Figure 9: Predicted values for the 'willingness to support higher contributions to the GCF'

Hypothesis 1b

	Willingness to support higher contributions to the GCF	
	(3)	(4)
Group: Treatment Group	0.381*	0.344*
	(0.227)	(0.202)
Gender: Female		-0.071
		(0.205)
Gender: Non-binary/Third Gender		0.449
		(1.432)
Age: Over 40 Years		0.110
		(0.274)
Highest Degree Obtained: University Degree		-0.005
		(0.203)
Beliefs about ACC: Confirming		0.659***
		(0.249)
Personal Engagement with CC: High		0.611***
		(0.235)
Willingness to Welcome Migrants: High		1.205***
		(0.214)
Constant	4.737***	3.082***
	(0.161)	(0.309)
N	200	200
R2	0.014	0.143
Adjusted R2	0.009	0.111
Residual Std. Error	1.605 (df = 198)	1.519 (df = 192)
F Statistic	2.825* (df = 1; 198)	4.563*** (df = 7; 192)

*p < .1; **p < .05; ***p < .01

ACC = Anthropogenic Climate Change; CC = Climate Change

Table 5: Hypothesis 1b: Models 3 & 4

5.4.3. Testing Hypothesis 1c

Hypothesis 1c states: *The public is more willing to support costly climate policies in the domestic than in the foreign aid context.*

In this study, the 'willingness to support costly climate policies in the domestic context' was operationalised by measuring the participants' 'willingness to support the introduction of a carbon tax'. In turn, the willingness to support costly climate policies in the foreign aid context was operationalised as 'willingness to support higher contributions to the GCF'. To test whether there was a statistically significant difference between the participants' average willingness to support an introduction of a carbon tax (mean = 5.125) and their average willingness to support higher contributions to the GCF (mean = 4.93), I first computed the differences between the values of the two variables. In a one-sample t-test, I compared the mean of these differences scores to 0. As visible in **Table 6**, there is a statistically significant difference (10% level) of 0.195 units between the mean of the variables' differences scores and 0. This result indicates that the participants' average willingness to support the introduction of a carbon tax was statistically significantly (10% level) higher (0.195 units) than their average willingness to support higher contributions to the GCF. Thus, even though this difference was not statistically significant at the conventional 5% level, I could find some evidence to accept the outlined hypothesis 1c.

Notably, however, the analysis of hypothesis 1c did not follow the logic of an experimental research design. Hence, the difference between the participants' average willingness to support the introduction of a carbon tax and their average willingness to support higher contributions to the GCF is based on observational data as it cannot be causally linked to this study's experimental treatment.

			Test Value = 0	
Differences scores of the variables	**N**	**Mean Difference**	**t**	**p**
Willingness to support the introduction of a carbon tax Willingness to support higher contributions to the GCF	200	0.195	1.759	0.080

Table 6: One-sampled t-test: Testing for a difference between the average 'willingness to support the introduction of a carbon tax' and the average 'willingness to support higher contributions to the GCF'

5.5. Testing Hypotheses 2

In the following subsections, I consequently test hypotheses 2a and 2b.

5.5.1 Testing Hypothesis 2a

Hypothesis 2a states: *Compared to a scientific, technical control scenario, a national security frame in media information on anthropogenic climate change leads to a larger increase in the willingness to support costly climate policies in the domestic context amongst citizens who have rather doubtful or careless attitudes on anthropogenic climate change than amongst citizens who have confirming attitudes on anthropogenic climate change.*

In this study, the 'willingness to support costly climate policies in the domestic context' was operationalised by measuring the willingness to support the introduction of a carbon tax. In turn, 'attitudes on anthropogenic climate change' were operationalised by measuring 1) participants' beliefs about anthropogenic climate change and their 2) personal engagement with the issue of climate change.

In this study, I investigated how the effect of this study's treatment (a national security framing of anthropogenic climate change) on the participants' willingness to support the introduction of a carbon tax differed amongst participants' who hold 1) differing beliefs about anthropogenic climate change, and 2) indicated a differing personal engagement with climate change. Thus, I tested interaction effects, as shown in Models 5 and 6 (**Tables 7** and **9**). Furthermore, I conducted independent two-sample t-tests (**Table 8** and **10**).

5.5.1.1. First Results for Hypothesis 2a

Firstly, I tested whether, compared to a scientific, technical control scenario, the effect of this study's treatment on the participants' 'willingness to support the introduction of a carbon tax' differed amongst participants who hold differing beliefs about anthropogenic climate change.

As visible in **Table 7** and **Table 8**, in the control group, the average willingness to support the introduction of a carbon tax is 2.119 units higher amongst participants who have confirming beliefs about anthropogenic climate change (5.487) than amongst participants who have rather doubtful beliefs about anthropogenic climate change (3.368). Reversely, in the treatment group, the average willingness to support the introduction of a carbon tax is 1.055 units higher for participants who have confirming beliefs about anthropogenic climate change (5.439) than amongst participants

who have rather doubtful beliefs about anthropogenic climate change (4.384). Hence, the effect of this study's treatment on the average willingness to support the introduction of a carbon tax is, in total, 1.064 units higher amongst participants who have rather doubtful beliefs about anthropogenic climate change. This interaction effect is statistically significant at a 5% level.

The interaction effect is visualised in **Figure 10**. As visible from **Figure 10**, this variance in the treatment's effect is primarily due to the treatment's increase in the willingness to support the introduction of a carbon tax amongst participants who hold rather doubtful beliefs about anthropogenic climate change. This can also be read from **Table 8**. As visible, the average willingness to support the introduction of a carbon tax amongst participants who hold rather doubtful beliefs about anthropogenic climate change increased by 1.016 units in the treatment group. This difference is statistically significant at a 10% level. In reverse, amongst participants holding confirming beliefs about climate change, this study's treatment reduced the willingness to support the introduction of a carbon tax by 0.048 units. However, this difference is not statistically significant.

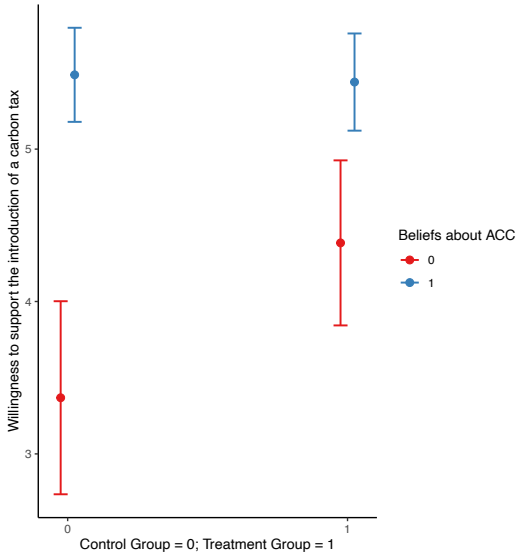

Figure 10: Interaction effect: 'Willingness to support the introduction of a carbon tax' & 'ACC beliefs'

Model 5: Hypothesis 2a

	Willingness to support the introduction of a carbon tax
Group: Treatment Group	1.016**
	(0.425)
Beliefs about ACC: Confirming	2.119***
	(0.360)
Group: Treatment Group*Beliefs about ACC: Confirming	-1.064**
	(0.482)
Constant	3.368***
	(0.323)
N	200
R2	0.189
Adjusted R2	0.177
Residual Std. Error	1.409 (df = 196)
F Statistic	15.254*** (df = 3; 196)

*p < .1; **p < .05; ***p < .01

ACC = Anthropogenic Climate Change; CC = Climate Change

Table 7: Hypothesis 2a: Model 5

Beliefs about anthropogenic climate change	N	Mean Treatment Group	Mean Control Group	Difference in Means	t	p
Rather doubtful beliefs about anthropogenic climate change	45	4.384	3.368	1.016	-1.787	0.082
Confirming beliefs about anthropogenic climate change	155	5.439	5.487	-0.048	0.235	0.814

Table 8: Two-sample independent t-test: Willingness to support the introduction of a carbon tax amongst participants, holding differing beliefs about anthropogenic climate change in the treatment and the control group

5.5.1.2. Second Results for Hypothesis 2a

Secondly, I tested whether, compared to a scientific, technical control scenario, the effect of this study's treatment on the participants' 'willingness to support the introduction of a carbon tax' differed amongst participants who are differently engaged with the issue of climate change.

As visible in **Table 9**, in the control group, the average willingness to support the introduction of a carbon tax is 0.748 units higher amongst participants who indicated high personal engagement with climate change (5.3) than amongst participants who indicated low personal engagement with climate change (4.552). Reversely, in the treatment group, the average willingness to support the introduction of a carbon tax is 0.684 units higher amongst participants who indicated high personal engagement with climate change (5.351) than amongst participants who indicated low personal engagement with climate change (4.667). In this regard, the effect of this study's treatment on the average willingness to support the introduction of a carbon tax is only 0.064 units higher amongst participants who indicated low personal engagement with the issue of climate change. This interaction effect is statistically insignificant, as also visualised in **Figure 11**.

This small variance in the treatment's effect is due to an only slightly higher increase in the treatment's effect on the willingness to support the introduction of a carbon tax amongst participants who indicated a low personal engagement with climate change. This is visible in **Table 10**, which shows that compared to the control group, in the treatment group, the average willingness to support the introduction of a carbon tax increased slightly more amongst participants who indicated low personal engagement with the issue of climate change (increase by 0.115 units) than amongst participants who indicated high personal engagement with the issue of climate change (increase by 0.051 units). These increases in the average willingness to support the introduction of a carbon tax are not statistically significant.

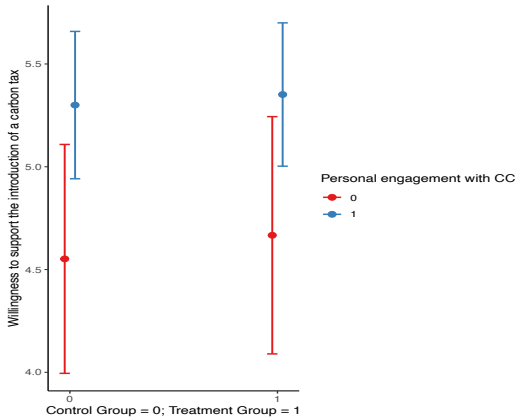

Figure 11: Interaction effect: 'Willingness to support the introduction of a carbon tax' & 'Personal engagement with CC'

Model 6: Hypothesis 2a

	Willingness to support the introduction of a carbon tax
Group: Treatment Group	0.115
	(0.409)
Personal Engagement with CC: High	0.748**
	(0.338)
Group: Treatment Group*Personal Engagement with CC High	-0.064
	(0.482)
Constant	4.552***
	(0.284)
N	200
R2	0.044
Adjusted R2	0.029
Residual Std. Error	1.530 (df = 196)
F Statistic	3.010** (df = 3; 196)

*p < .1; **p < .05; ***p < .01

CC = Climate Change

Table 9: Hypothesis 2a: Model 6

Personal engagement with climate change	N	Mean Treatment Group	Mean Control Group	Difference in Means	t	p
Low personal engagement with climate change	56	4.667	4.552	0.115	-0.252	0.802
High personal engagement with climate change	144	5.351	5.3	0.051	-0.212	0.814

Table 10: Two-sample independent t-test: Willingness to support the introduction of a carbon tax amongst participants showing different personal engagement with climate change in the treatment and the control group

5.5.1.3. Conclusion Hypothesis 2a

Different results can be derived from the examination of Models 5 and 6 and **Tables 7** and **9**.

This study's treatment (national security framing of anthropogenic climate change) had a statistically significant higher effect (5% level) on the willingness to support the introduction of a carbon tax amongst participants who hold rather doubtful beliefs about anthropogenic climate change. In line with hypothesis 2a, when compared to the control scenario, the treatment (national security framing of anthropogenic claimed change) led to a statistically significant (10% level) increase in the willingness to support the introduction of a carbon tax amongst participants who hold doubtful beliefs about anthropogenic climate change.

Furthermore, I could not find a statistically significant difference in the treatment's effect on the willingness to support the introduction of a carbon tax amongst participants who indicated a high and low personal engagement with climate change.

Hence, this data analysis found evidence to partly support the outlined hypothesis 2a. However, it is essential to note that the testing of interaction effects requires a sample size 16 times larger than for the detection of main effects (Gelman, 2018). Such a sample size could not be provided in the scope of this study. Hence, the results of the tested interaction effects need to be regarded as tentative and require further research.

5.5.2 Testing Hypothesis 2b

Hypothesis 2b states: *Compared to a scientific, technical control scenario, a national security frame in media information on anthropogenic climate change leads to a larger increase in the willingness to support costly climate policies in the foreign aid context amongst citizens who have rather doubtful or careless attitudes on anthropogenic climate change than amongst citizens who have confirming attitudes on anthropogenic climate change.*

In this study, the 'willingness to support costly climate policies in the foreign aid context' was operationalised by measuring the willingness to support higher contributions to the GCF. In turn, 'attitudes on anthropogenic climate change' were operationalised by measuring 1) participants' beliefs about anthropogenic climate change and their 2) personal engagement with the issue of climate change.

To test this conditional hypothesis 2b, I investigated how the effect of this study's treatment (a national security framing of anthropogenic climate change) on the participants' willingness to support higher contributions to the GCF differed amongst participants' who hold 1) differing beliefs about anthropogenic climate change, and 2) indicated a differing personal engagement with climate change. Thus, I tested the interaction effects shown in Models 7 and 8 (**Tables 11** and **13**). Furthermore, I conducted independent two-sample t-tests (**Table 12** and **14**).

5.5.2.1. First Results for Hypothesis 2b

Firstly, I tested whether, compared to a scientific, technical control scenario, the effect of this study's treatment on the participants' 'willingness to support higher contributions to the GCF' differed amongst participants who hold differing beliefs about anthropogenic climate change.

As shown in **Table 11**, in the control group, the average willingness to support higher contributions to the GCF is 1.368 units higher amongst participants who have confirming beliefs about anthropogenic climate change (5) than amongst participants who have rather doubtful beliefs about anthropogenic climate change (3.632). Reversely, in the treatment group, the average willingness to support higher contributions to the GCF is 0.781 units higher amongst participants who have confirming beliefs about anthropogenic climate change (5.32) than amongst participants who have rather doubtful beliefs about anthropogenic climate change (4.539). Thus, the effect of this study's treatment on the average willingness to support higher contributions to the GCF is 0.587 units higher amongst participants who hold rather doubtful beliefs about anthropogenic climate change.

This interaction effect is visualised in **Figure 12**. However, this interaction effect is not statistically significant.

This variance in the treatment's effect is due to the treatment's higher increase in the willingness to support higher contributions to the GCF amongst participants who hold rather doubtful beliefs about anthropogenic climate change. Thus, as shown in **Table 12,** the average willingness to support higher contributions to the GCF amongst participants who hold rather doubtful beliefs about anthropogenic climate change increased by 0.907 units in the treatment group. This difference is statistically significant at a 10% level. In reverse, amongst participants holding confirming beliefs about climate change, this study's treatment increased the willingness to support higher contributions to the GCF by 0.32 units. However, this difference is not statistically significant.

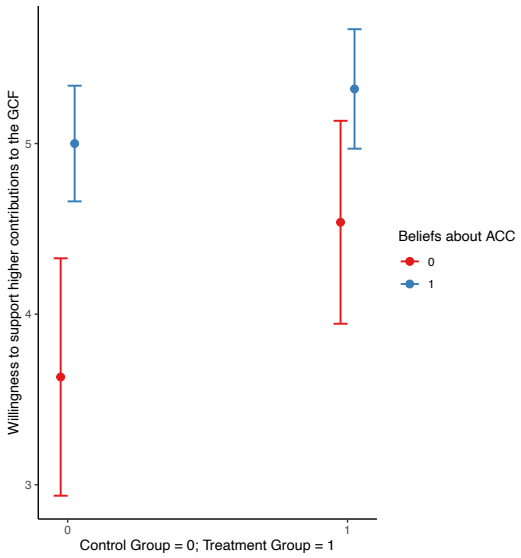

Figure 12: Interaction effect: 'Willingness to support higher contributions to the GCF' & 'ACC beliefs'

Model 7: Hypothesis 2b

Willingness to support higher contributions to the GCF	
Group: Treatment Group	0.907*
	(0.467)
Beliefs about ACC: Confirming	1.368***
	(0.395)
Group: Treatment Group*Beliefs about ACC: Confirming	-0.587
	(0.529)
Constant	3.632***
	(0.355)
N	200
R2	0.092
Adjusted R2	0.079
Residual Std. Error	1.547 (df = 196)
F Statistic	6.658*** (df = 3; 196)

*p < .1; **p < .05; ***p < .01

ACC = Anthropogenic Climate Change

Table 11: Hypothesis 2b: Model 7

Beliefs about anthropogenic climate change	N	Mean Treatment Group	Mean Control Group	Difference in Means	t	p
Rather doubtful beliefs about anthropogenic climate change	45	4.539	3.632	0.907	-1.697	0.098
Confirming beliefs about anthropogenic climate change	155	5.32	5	0.32	-1.346	0.180

Table 12: Two-sample independent t-test: Willingness to support higher contributions to the GCF amongst participants, holding differing beliefs about anthropogenic climate change in the treatment and the control group

5.5.2.2. Second Results for Hypothesis 2b

Secondly, I tested whether, compared to a scientific, technical control scenario, the effect of this study's treatment on the participants' 'willingness to support higher contributions to the GCF' differed amongst participants who are differently engaged with the issue of climate change.

As visible in **Table 13**, in the control group, the average willingness to support higher contributions to the GCF is 0.701 units higher amongst participants who indicated high personal engagement with climate change (4.942) than amongst participants who indicated low personal engagement with climate change (4.241). Reversely, in the treatment group, the average willingness to support higher contributions to the GCF is 1.274 units higher amongst participants who indicated high personal engagement with climate change (5.459) than amongst participants who indicated low personal engagement with climate change (4.185). Hence, the effect of this study's treatment on the average willingness to support higher contributions to the GCF is 0.573 units higher amongst participants who indicated high personal engagement with climate change. This interaction effect is not statistically significant. The interaction effect is visualised in **Figure 13.**

This variance in the treatment's effect is due to the treatment's increase in the willingness to support higher contributions to the GCF amongst participants who indicated high personal engagement with climate change and the treatment's decrease in the willingness to support higher contributions to the GCF amongst participants who indicated low personal engagement with climate change.

Thus, as visible in **Table 14**, compared to the control group, in the treatment group, the average willingness to support higher contributions to the GCF increased amongst participants who indicated high (increase by 0.517 units) personal engagement with the issue of climate change. This increase is statistically significant at a 5% level. However, compared to the control group, in the treatment group, the average willingness to support the introduction of a carbon tax decreased amongst participants who indicated low (decrease by 0.056 units) personal engagement with the issue of climate change. Though, this decrease is statistically insignificant.

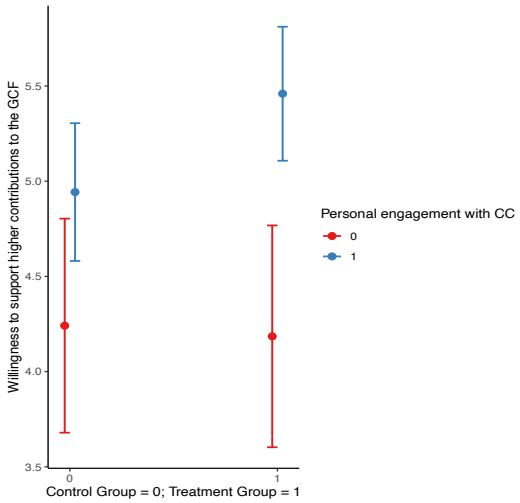

Figure 13: Interaction effect: 'Willingness to support higher contributions to the GCF' & 'Personal engagement with CC'

Model 8: Hypothesis 2b

	Willingness to support higher contributions to the GCF
Group: Treatment Group	-0.056
	(0.413)
Personal Engagement with CC: High	0.701**
	(0.341)
Group: Treatment Group*Personal Engagement with CC High	0.573
	(0.487)
Constant	4.241***
	(0.287)
N	200
R2	0.096
Adjusted R2	0.082
Residual Std. Error	1.544 (df = 196)
F Statistic	6.915*** (df = 3; 196)

*p < .1; **p < .05; ***p < .01

CC = Climate Change

Table 13: Hypothesis 2b: Model 8

Personal engagement with climate change	N	Mean Treatment Group	Mean Control Group	Difference in Means	t	p
Low personal engagement with climate change	56	4.185	4.241	-0.056	0.120	0.905
High personal engagement with climate change	144	5.459	4.942	0.517	-2.119	0.036

Figure 14: Two-sample independent t-test: Willingness to support higher contributions to the GCF amongst participants showing different personal engagement with climate change in the treatment and the control group

5.5.2.3. Conclusion Hypothesis 2b

Two results can be read from the examination of Models 7 and 8 (**Tables 11** and **13**)

Firstly, no statistically significant difference could be found for this study's treatment's (national security framing of anthropogenic climate change) effect on the willingness to support higher contributions to the GCF amongst participants who hold confirming and rather doubtful beliefs about anthropogenic climate change. However, the treatment led to a statistically significant increase (10% level) in the willingness to support higher contributions to the GCF amongst participants who hold rather doubtful beliefs about anthropogenic climate change.

Secondly, this study's treatment (national security framing of anthropogenic climate change) did not have a statistically significantly different effect on the willingness to support higher contributions to the GCF amongst participants who indicated a high and low personal engagement with climate change. However, the treatment led to a statistically significant increase (5% level) in the willingness to support higher contributions to the GCF amongst participants who indicated a high personal engagement with climate change.

Hence, in the realm of this study, I could not find sufficient evidence to support the outlined hypothesis 2b. However, in line with hypothesis 2b, I found a statistically significant effect of this study's treatment, increasing the willingness to support higher contributions to the GCF amongst participants who hold rather doubtful beliefs about anthropogenic climate change.

5.6. Testing Hypothesis 3

Hypothesis 3 states: *Compared to a scientific, technical control scenario, a national security frame in media information on anthropogenic climate change leads to a larger increase in the willingness to support costly climate policies in the foreign aid context amongst citizens who are sceptical of migration than amongst citizens who are open to migration.*

In this study, the 'willingness to support costly climate policies in the foreign aid context' was operationalised by measuring the willingness to support higher contributions to the GCF. In turn, 'attitudes on migration' were operationalised by measuring participants' willingness to welcome migrants.

To test this conditional hypothesis 3, I analysed whether, compared to a scientific, technical control scenario, the effect of this study's treatment on the participants' 'willingness to support higher contributions to the GCF' differed amongst participants who indicated a differing willingness to welcome migrants.

As visible in **Table 15**, in the control group, the average willingness to support higher contributions to the GCF is 0.24 units higher amongst participants who indicated a high willingness to welcome migrants (4.167) than amongst participants who indicated a low willingness to welcome migrants (3.927). Reversely, in the treatment group, the average willingness to support higher contributions to the GCF is 0.336 units higher amongst participants who indicated high personal engagement with climate change (5.647) than amongst participants who indicated low personal engagement with climate change (5.310). In this regard, the effect of this study's treatment on the average willingness to support higher contributions to the GCF is 0.096 units higher amongst participants who indicated high personal engagement with the issue of climate change. This interaction effect is statistically insignificant, as also shown in **Figure 14**.

This small variance in the treatment's effect is due to a slightly higher increase in the treatment's effect on the willingness to support higher contributions to the GCF amongst participants who indicated a high willingness to welcome migrants. This is visible in **Table 16**, which shows that compared to the control group, in the treatment group, the average willingness to support higher contributions to the GCF increased slightly more amongst participants who indicated a high willingness to welcome migrants (increase by 0.336 units) than amongst participants who indicated a low willingness to welcome migrants (increase by 0.24 units). These increases in the average willingness to support higher contributions to the GCF are statistically insignificant.

To conclude, it is to note that no statistically significant difference could be found between the treatment's effect on the average willingness to support higher contributions to the GCF amongst participants who indicated a high and low willingness to welcome migrants. Thus, in this study, I could not find sufficient evidence to support the outlined hypothesis 3.

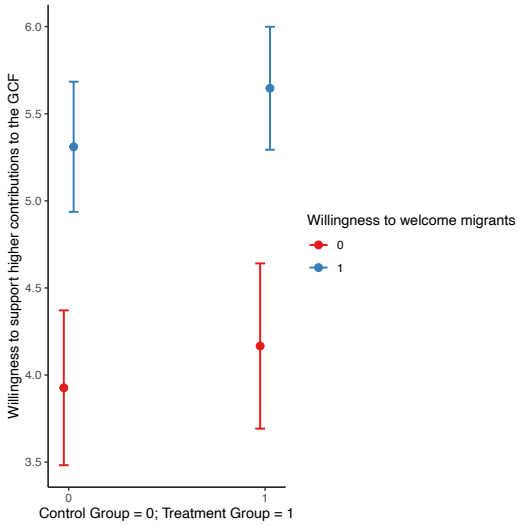

Figure 15: Interaction effect: 'Willingness to support higher contributions to the GCF' & 'Willingness to welcome migrants'

Model 9: Hypothesis 3

	Willingness to support higher contributions to the GCF
Group: Treatment Group	0.240
	(0.332)
Willingness to welcome migrants: High	1.384***
	(0.296)
Group: Treatment Group*Willingness to welcome migrants: High	0.096
	(0.423)
Constant	3.927***
	(0.227)
N	200
R2	0.201
Adjusted R2	0.189
Residual Std. Error	1.452 (df = 196)
F Statistic	16.444*** (df = 3; 196)

*p < .1; **p < .05; ***p < .01

Table 14: Hypothesis 3: Model 9

Willingness to welcome migrants	N	Mean Treatment Group	Mean Control Group	Difference in Means	t	p
Low willingness to welcome migrants	77	4.167	3.927	0.24	-0.594	0.554
High willingness to welcome migrants	123	5.647	5.311	0.336	-1.510	0.134

Table 15: Two-sample independent t-test: Willingness to support higher contributions to the GCF amongst participants showing different levels of willingness to welcome migrants in the treatment and the control group

5.7. Robustness Checks

Due to the central limit theorem, I assumed an approximately normal distribution of the data for the dependent variables ‘willingness to support the introduction of a carbon tax', and ‘willingness to support higher contributions to the GCF' in the preceding data analysis. However, to conduct robustness checks of this study's results, I performed two Shapiro-Wilk normality tests. In these tests, I obtained very low p-values for the variables ‘willingness to support the introduction of a carbon tax' and ‘willingness to support the introduction of a carbon tax'. Therefore, both p-values fall far below the 5% statistical significance level and thus show an abnormal distribution of the two dependent variables. The same results are visualised in the histograms shown in **Figures 7** and **8**. The data for the two dependent variables are skewed to the left. The full results of the Shapiro-Wilk tests are presented in Appendix 5.

Hence, I checked the robustness of the investigated hypotheses 1, 2 and 3 by performing three Wilcoxon tests. Wilcoxon tests can detect differences regarding rank sums, which indicate possible differences between the medians of two investigated data groups. Contrary to t-tests, Wilcoxon tests work without any parametric assumptions (Frey, 2018, pp. 1005-1007, 1814). As presented in the descriptive statistics section, the median for both dependent variables ‘willingness to support the introduction of a carbon tax’ and ‘willingness to support higher contributions to the GCF’ is 5. I obtained the same median of 5 for both dependent variables in the treatment and the control group. However, as Wilcoxon tests evaluate rank sums, a differing dispersion of the data across the compared groups can lead to a statistically significant result from a Wilcoxon test, even if the medians are alike (UCLA, 2021).

5.7.1. Robustness Check: Result of the Test for Hypothesis 1a

Firstly, I performed a Wilcoxon rank sum test to check the robustness of the results obtained when testing hypothesis 1a. Here, the Wilcoxon rank sum test ranked the observations for the variable ‘willingness to support the introduction of a carbon tax’ and compared the rank sums of the observations in the treatment and the control group. As shown in **Table 17**, I did not detect a statistically significant difference between the rank sums for the treatment and the control group. This result is in line with the results from the initial testing of hypothesis 1a (Section 5.4.1.). Furthermore, this result confirms that the medians of the variable ‘willingness to support the introduction of a carbon tax’ in the treatment and control group are alike.

Variable	N	W	p
Willingness to support the introduction of a carbon tax	200	4911.5	0.825

Table 16: Wilcoxon Rank Rum Test: Willingness to support the introduction of a carbon tax across control and treatment group

5.7.2. Robustness Check: Result of the Test for Hypothesis 1b

Secondly, I performed a Wilcoxon rank sum test to check the robustness of the results obtained when testing hypothesis 1b. Here, the Wilcoxon rank sum test ranked the observations for the variable ‘willingness to support higher contributions to the GCF' and compared the rank sums of the observations in the treatment and the control group. As shown in **Table 18**, I detected a statistically significant difference (10% level) between the treatment and control groups' rank sums. This result is in line with the results from the initial testing of hypothesis 1b (Section 5.4.2). Hence, a differing dispersion of the variable 'willingness to support higher contributions to the GCF' across the treatment and control group led to a statistically significant difference in rank sums, even though the medians for both groups are alike.

Variable	N	W	p
Willingness to support higher contributions to the GCF	200	4238.5	0.057

Table 17: Wilcoxon Rank Rum Test: Willingness to support higher contributions to the GCF across control and treatment group

5.7.3. Robustness Check: Result of the Test for Hypothesis 1c

Thirdly, I performed a Wilcoxon signed rank test to check the robustness of the results obtained when testing hypothesis 1c.

As for the performed one sample t-test (Section 5.4.3.), I used the calculated differences between the values of the two variables 'willingness to support the introduction of a carbon tax' and 'willingness to support higher contributions to the GCF'. Here, the Wilcoxon signed rank test ranks these differences scores and investigates whether the sum of the positive or negative ranked

differences scores statistically significantly differ from 0. As shown in **Table 19**, I obtained a statistically significant difference between the relevant sum of ranked differences scores from 0 (at a 10% level). This result is in line with the results from the initial testing of hypothesis 1c (Section 5.4.3.).

Hence, a differing dispersion of the variable ‘willingness to support the introduction of a carbon tax' and 'willingness to support higher contributions to the GCF' led to a statistically significant difference in the relevant sum of ranked differences scores from 0, even though the medians for both groups are alike.

			Test value = 0
Differences scores of the variables:	**N**	V	**p**
Willingness to support the introduction of a carbon tax	200	5356	0.058
Willingness to support higher contributions to the GCF			

Table 18: Wilcoxon signed rank test: Testing for a difference in the median of the variables ‘willingness to support the introduction of a carbon tax’ and ‘willingness to support higher contributions to the GCF’

6. Discussion

In this chapter, I contextualise and discuss the results of this study. Therefore, in Section 6.1. I discuss the sampled participants' attitudes on anthropogenic climate change as these are determining characteristics of the used sample. In Section 6.2. I discuss the obtained results regarding the effects of the national security frame of anthropogenic climate change on the participants' willingness to support the introduction of a carbon tax. In turn, in Section 6.3. I discuss the obtained results regarding the effects of the national security frame of anthropogenic climate change on the participants' willingness to support higher contributions to the GCF. Lastly, in Section 6.4., I discuss the limitations to this study's results.

6.1. Attitudes on Anthropogenic Climate Change Amongst the Sampled Participants

A large majority of the German population holds confirming attitudes on climate change and supports climate policies. However, the sample used in this study contained only very few individuals who have rather doubtful attitudes toward anthropogenic climate change (Hein & Graichen, 2021, p. 3; Umweltbundesamt, 2022). Hence, 75% of the sampled participants have confirming beliefs about anthropogenic climate change. Furthermore, 72% of the sampled participants are highly engaged with the issue of climate change. Hence, in general, on a 1-7 Likert-scale, the participants showed a relatively high willingness 1) to support the introduction of a carbon tax (mean = 5.125), and 2) to support the higher contributions to the GCF (mean = 4.93).

6.2. The National Security Frame of Anthropogenic Climate Change & The Willingness to Support the Introduction of a Carbon Tax

In the realm of this study, I did not find a statistically significant effect of a national security framing of anthropogenic climate change on the participants' willingness to support the introduction of a carbon tax (contrary to the assumption in hypothesis 1a). Hence, participants exposed to this study's treatment (a national security farming anthropogenic climate, presented in a media-like text) did not indicate a statistically significantly higher willingness to support the introduction of a carbon tax in Germany, compared to participants exposed to a control scenario (scientific, technical information on anthropogenic climate, presented in a media-like text). As

indicated above, however, a large majority of this study's participants indicated a generally high willingness to support the introduction of a carbon tax.

Thus, even though the national security frame alarms individuals to act against an ongoing climate change, the introduction of a tax is a policy that creates direct costs for the individual (Beiser-McGrath & Bernauer, 2019, p. 1). Thus, it is well conceivable that a more detailed description of the implementation of such a tax and governing authorities' use of the revenues weighs higher on the participants' support than a reminder of the national security threats, caused by a changing climate. At first, the pricing of fossil energy consumption affects all citizens equally (Frondel et al., 2021, p. 14). Thus, Frondel et al. (2021) indicate that an individual's income largely affects their willingness to support any introduction of carbon pricing (pp. 14-15). Hence, a clear indication of governmental redistribution policies can play an important role, especially if aiming to further increase the support for the introduction of a carbon tax amongst individuals with a lower income.

However, as assumed in hypothesis 2a, a national security framing of anthropogenic climate change had a statistically significantly (5% level) higher effect on the willingness to support the introduction of a carbon tax amongst citizens who hold rather doubtful beliefs on climate change. Thus, in line with the results of a study by McCright et al. (2016), the national security framing of anthropogenic climate change engages a broad public by increasing the willingness to support the introduction of a carbon tax amongst individuals who hold rather doubtful beliefs about anthropogenic climate change (10% significance level). Hence, in the realm of this study, I did not find signs of a negative reactance effect to a national security framing amongst participants who hold rather doubtful attitudes on anthropogenic climate change, as it was indicated by Feldman & Hart (2018, p. 518).

Interestingly, however, I could not find a statistically significantly higher effect of a national security framing of anthropogenic climate change on the willingness to support the introduction of a carbon tax amongst participants who indicated a low personal engagement with climate change (contrary to the assumption in hypotheses 2a). This insignificance of the interaction effect can be caused by a lack of statistical power due to a smaller sample size (Gelman, 2018). However, the national security framing of anthropogenic climate change is possibly also not sufficiently successful at engaging people who do not strongly engage with the climate change issue.

6.3. The National Security Frame of Anthropogenic Climate Change & The Willingness to Support higher Contributions to the GCF

Hypothesis 1c assumed that the public is more willing to support the introduction of a carbon tax than higher contributions to the GCF. In line with hypothesis 1c, amongst my participants, I found a statistically significantly higher (although only at the 10% level) willingness to support the introduction of a carbon tax than to support higher contributions to the GCF. Hence, this study could confirm the findings of previous studies, e.g., by Buntaine and Prather (2018), which equally detected higher public support for domestic than for foreign aid climate policies.

Furthermore, in line with hypothesis 1b, I found a statistically significant effect of a national security framing of anthropogenic climate change on the participants' willingness to support higher contributions to the GCF. Hence, participants exposed to this study's treatment (a national security farming anthropogenic climate, presented in a media-like text) did indicate a statistically significantly (10% level) higher willingness to support higher contributions to the GCF than participants exposed to a control scenario (scientific, technical information on anthropogenic climate, presented in a media-like text). As shown by Schneider et al. (2021), the broad German public does not necessarily perceive foreign aid as a necessary measure to finance climate policies in developing countries (p. 87). Thus, a national security framing of anthropogenic climate change can presumably successfully raise awareness and communicate the urgency of providing foreign aid to support the financing of developing countries' climate policies to the broad public.

However, I did not find statistically significantly higher effects of a national security framing of anthropogenic climate change on the willingness to support higher contributions to the GCF amongst participants 1) who hold rather doubtful beliefs about anthropogenic climate change, and 2) who indicated a low personal engagement with the issue (contrary to the assumption in hypotheses 2b). Equally here, a lack of statistical power due to a smaller sample size might have weakened the testing of the interaction effects (Gelman, 2018). Nevertheless, this study's results indicate that a national security framing of anthropogenic climate change especially increases the willingness to support higher contribution to the GCF amongst individuals who hold rather doubtful beliefs about anthropogenic climate change (10% statistical significance level). Thus, it can be assumed that a national security framing of anthropogenic climate change is utile in increasing the broad public's support for higher contributions to the GCF.

Nevertheless, I did not find a statistically significantly higher effect of a national security framing of anthropogenic climate change on the willingness to support higher contributions to the GCF amongst participants who indicated a low personal engagement with climate change (contrary to the assumption in hypotheses 2b). Instead, the exposure to a national security framing of anthropogenic climate change decreased the support for higher contributions to the GCF amongst participants who indicated a low personal engagement with climate change (not statistically significant). Again, this finding suggests that a national security framing of anthropogenic climate change is not sufficiently successful at engaging people who do not strongly engage with the climate change issue.

Furthermore, contrary to the assumption in hypothesis 3, I did not find a statistically significantly higher effect of a national security framing of anthropogenic climate change on the willingness to support higher contributions to the GCF amongst participants who are sceptical of migration. Instead, a national security framing of anthropogenic climate change increased (even though not statistically significantly) the willingness to support higher contributions to the GCF amongst participants who are open and sceptical of migration. These results could be linked back to the findings by Schneider et al. (2021). They indicate that in the broad German public, foreign aid is not necessarily seen as a measure to finance developing countries' climate policies (p. 87). Thus, highlighting the nexus between anthropogenic climate change, conflicts, and migration could increase the willingness to support higher contributions to the GCF, regardless of the attitudes on migration.

6.4. Limitations to this Study's Results

The size of the collected sample sets limitations to this study's results. As this is a student project, I could only gather a sample including 200 participants. This corresponds to the sample size needed to detect effects of moderate size (effect size $d = 0.4$) as statistically significant. Thus, using this sample, the statistical power of performed tests was too low to detect any smaller effects as statistically significant. Furthermore, compared to the investigation of main effects, a larger sample size is needed to detect interaction effects as statistically significant (Gelman, 2018). Hence, this study would need to be repeated with a larger sample size to detect more nuanced impacts of a national security framing of anthropogenic climate change on the willingness to support costly climate policies.

Furthermore, the collected sample poses limitations to this study's external validity. As outlined in Section 4.1., establishing external validity of experimental studies is difficult to achieve, as samples are rarely truly representative of a given population. This makes the generalising of the results difficult (Creswell, 2018, p. 157).

The used sample mainly contained young individuals (84% 18-39 years). As this is not representative of the German population, this study's results need to be read as applying principally to younger Germans. Hence, as assumably older generations have different attitudes on anthropogenic climate change and the introduction of costly climate policies, it would be worth repeating this study with a sample containing (more) older people.

Furthermore, in this study, I did not check for numerous characteristics of the participants, which could affect their attitudes on anthropogenic climate change and their support levels for costly climate policies (e.g., income, political orientation, regional differences in Germany, rural or urban residence, workplace dependent on fossil fuel consumption etc.). Hence, different, but more adequate results could be obtained by repeating this study with a more representative sample of the German population. Such results could then lead to more nuanced conclusions about the German population (Berinsky, 2017, p. 311). Hence, due to the collected sample's lack of representativeness, it is not possible to generalise this study's results to the general German population.

7. Conclusion

This study investigated a possible influence of a national security framing in media information on anthropogenic climate change on the public's willingness to support costly climate policies in the domestic and foreign aid context. As Germany served as a case for this study, I investigated this research problem by conducting a survey experiment on the German individuals I sampled for this research project. In the following chapter, I firstly consecutively answer the outlined research questions (Sections 7.1., 7.2., 7.3.). Secondly, I will present recommendations for future research (Section 7.4).

7.1. Answering the Main Research Question

In the realm of this study, I investigated the following main explanatory research question:

To what extent does a national security frame in media information on anthropogenic climate change influence the public's willingness to support costly climate policies in the domestic and foreign aid context?

By analysing the collected experimental data, I did not find a statistically significant effect of a national security framing of anthropogenic climate change on the participants' willingness to support costly climate policies in the domestic context. Conversely, I detected a statistically significant effect of a national security framing of anthropogenic climate change on the participants' willingness to support costly climate policies in the foreign aid context.

Notably, this research also found that participants showed a statistically significantly higher willingness to support costly climate policies in the domestic context than in the foreign aid context.

7.2. Answering the First Sub-Question

A first sub-question accompanied this study's main research question:

To what extent does a national security frame in media information on anthropogenic climate change influence the willingness of citizens with diverging attitudes on anthropogenic climate change to support costly climate policies in the domestic and foreign aid context?

7.2.1. Support for Costly Climate Policies in the Domestic Context amongst Citizens with Diverging Attitudes on Anthropogenic Climate Change

In this study's analysis, I found a generally higher willingness to support costly climate policies in the domestic context amongst citizens who have confirming beliefs about anthropogenic climate change and are personally engaged with the issue of climate change.

However, a national security framing of anthropogenic climate change led to a statistically significant increase in the willingness to support costly climate policies in the domestic context amongst participants who hold rather doubtful beliefs about anthropogenic climate change. Thus, I found a statistically significantly higher effect of a national security framing of anthropogenic climate change on the willingness to support costly climate policies in the domestic context amongst participants who hold rather doubtful beliefs about anthropogenic climate change.

However, according to this study's data analysis, the national security framing of anthropogenic did not lead to a statistically significant increase in the willingness to support costly climate policies in the domestic context amongst participants who indicated a low personal engagement with climate change. Furthermore, I did not detect a statistically significantly different effect of a national security framing of anthropogenic climate change on the willingness to support costly climate policies in the domestic context amongst participants who indicated a low personal engagement with the issue of climate change.

7.2.2. Support for Costly Climate Policies in the Foreign Aid Context amongst Citizens with Diverging Attitudes on Anthropogenic Climate Change

In the realm of this study, I found a generally higher willingness to support costly climate policies in the foreign aid context amongst citizens who have confirming beliefs about anthropogenic climate change and are personally engaged with the issue of climate change.

Furthermore, I found a statistically significant increase in the willingness to support costly climate policies in the foreign aid context amongst citizens who have rather doubtful beliefs about anthropogenic climate change. However, a national security framing of anthropogenic climate change did not lead to a statistically significantly different effect on the willingness to support costly climate policies in the foreign aid context amongst citizens who have confirming or rather doubtful beliefs about anthropogenic climate change.

Furthermore, in this study, a national security framing of anthropogenic led to a decrease (statistically insignificant) in the willingness to support costly climate policies in the foreign aid context amongst participants who indicated a low personal engagement with climate change.
However, I did not find a statistically significantly different effect of a national security framing of anthropogenic climate change on the willingness to support costly climate policies in the foreign aid context amongst participants who indicated a high and low personal engagement with the issue of climate change.

7.3. Answering the Second Sub-Question

A second sub-question accompanied this study's main research question:
To what extent does a national security frame in media information on anthropogenic climate change influence the willingness of citizens with diverging attitudes on migration to support costly climate policies in the foreign aid context?
In this study, I found a generally higher willingness to support costly climate policies in the foreign aid context amongst participants who are open about migration than amongst participants who are sceptical of migration.
Furthermore, in this analysis, a national security framing of anthropogenic climate change only led to a statistically insignificant increase in the willingness to support costly climate policies in the foreign aid context amongst participants who are sceptical of migration. Moreover, I did not find a statistically significantly different effect of a national security framing of anthropogenic climate change on the willingness to support costly climate policies in the foreign aid context amongst participants who are open to or sceptical of migration.

7.4. Assessment of the Results & Suggestions for Future Research

The results of this study were obtained by analysing experimental data, which allows isolating the effect of a national security framing of anthropogenic climate change on the participants' willingness to support costly climate policies. Hence, this study could contribute to research on the framing of anthropogenic climate change by showing a causal effect of a national security framing of anthropogenic climate change on this study's participants' willingness to support costly climate policies (Creswell, 2018, pp. 57, 138). Such results equally have societal importance, as the implementation of costly climate policies, which are needed to mitigate and adapt to the

ongoing anthropogenic climate change, depends on the public's support (Burstein, 2003, pp. 29-30, 36; Dubois et al., 2019, p. 148; Gugler et al., 2021, pp. 1, 18; Timperley, 2021).

However, as this study's sample was not representative of the German population, the outlined results result cannot be generalised to the general German public. Nevertheless, this study's results point to the potential of the national security framing of anthropogenic climate change to increase the public's support for costly climate policies, especially in the foreign aid context. Regarding the support for climate policies in the domestic context, this study indicates that a national security framing of anthropogenic climate change has the potential to increase the support for costly climate policies amongst citizens who hold rather doubtful beliefs about anthropogenic climate change. Hence, this study's results suggest the utility of framing media information on anthropogenic climate change as a threat to national security.

In this regard, future research could repeat this study with a more representative sample of the German population to derive more telling conclusions about the German public. Furthermore, a future study's larger sample size would enable a more reliable testing of interaction effects and the detection of even small effects of a national security framing of anthropogenic climate change on the public's support for costly climate policies.

Furthermore, future research could investigate how the national security frame of anthropogenic climate change could be modified to further increase the support for costly climate policies amongst citizens who hold rather doubtful beliefs about anthropogenic climate change. Here, some further specifications of the national security frame which was used in this study could be considered (e.g., focussing entirely on conflict and migration or stressing the impacts of anthropogenic climate change on more local settings). Equally, future research should investigate what frames of anthropogenic climate change can increase the support for costly climate policies amongst citizens who are rather careless of anthropogenic climate change.

Moreover, future research could investigate other citizen characteristics', which could moderate the effect of a national security farming of anthropogenic climate change on the public's willingness to support costly climate policies (e.g., income, political orientation, rural and urban residence). Lastly, the results of this study could incentivise repeating this study in a different context, e.g., in other European countries.

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Appendix

Appendix 1: Survey Flow

Link to the distributed survey: https://leidenuniv.eu.qualtrics.com/jfe/form/SV_e4X3oUyDB9nW1N4

Survey Flow – German (distributed)	**Survey Flow – English**
Willkommen! Bitte lesen Sie die folgenden Informationen, um Ihrer Teilnahme an dieser Studie zuzustimmen. Dieses Umfrage-Experiment ist Teil einer Masterarbeit von Paula Schmidt-Kittler. Ich bin derzeit Studentin an der Universität Leiden (Niederlande). Es gibt keine absehbaren Risiken durch eine Teilnahme an dieser Studie. Falls Sie Fragen oder Bedenken bezüglich Ihrer Teilnahme an dieser Studie haben, wenden Sie sich bitte an p.b.schmidt-kittler@umail.leidenuniv.nl.	**Welcome!** Please read the following information to agree to your participation in this study. This survey experiment is part of a master thesis by Paula Schmidt-Kittler. I am currently a student at Leiden University (The Netherlands). There are no foreseeable risks from participating in this study. If you have any questions or concerns about your participation in this study, please contact p.b.schmidt-kittler@umail.leidenuniv.nl.
Freiwillige Teilnahme	**Voluntary Participation**

Die Teilnahme an dieser Studie ist freiwillig. Sie können die Studie jederzeit und ohne Angabe von Gründen abbrechen, indem Sie Ihr Browserfenster schließen.	**Participation in this study is voluntary. You** may decide to withdraw from the study at any time and for any reason by closing your browser window.
Ziel dieser Studie Ziel dieser Studie ist es, mehr über die Auswirkungen von Framing des Klimawandels sowie Ihre Unterstützung für klimapolitische Maßnahmen auf nationaler und internationaler Ebene zu erfahren.	**Purpose of this study** The aim of this study is to learn more about the effects of climate change framing and your support for climate change policies domestically and abroad.
Wie lange dauert die Teilnahme an dieser Studie? Ihre Teilnahme wird etwa 4 Minuten in Anspruch nehmen.	**How long will it take to participate in this study?** Your participation will take around 4 minutes.
Was ist von einer Teilnahme an dieser Studie zu erwarten? Im Rahmen dieser Umfrage werden Sie gebeten, kurze Texte zu lesen und Fragen zu beantworten, indem Sie eine der vorgegebenen Antwortmöglichkeiten auswählen.	**What can be expected of a participation in this study?** In this survey, you will be asked to read short texts and answer questions by selecting one of the predefined answer options.
Wie wird die Privatsphäre im Rahmen dieser Studie geschützt? Was geschieht mit den gesammelten Daten? Ich werde die erhobenen Daten vertraulich behandeln. Da erhobene Daten anonymisiert werden, wird Ihr Name nicht mit Ihren Antworten in dieser Umfrage in Verbindung gebracht. Diese Studie ist ein studentisches Projekt. Die Ergebnisse der Studie können jedoch in Fachzeitschriften oder Büchern veröffentlicht und auf Fachkonferenzen vorgestellt werden.	**How does this study protect privacy? What happens to the collected data?** I will keep the collected data confidential. As collected data will be anonymised, your name will not be associated with your answers in this survey. This study presents a student project. However, the study's results may be reported in professional journals or books and may be presented at professional conferences.
	By choosing "yes" below, you indicate that you have read and, understood preceding information and consent to your participation in the above-presented study: a) Yes b) No

Indem Sie unten "Ja" auswählen, bestätigen Sie, dass Sie die vorangegangenen Informationen gelesen und verstanden haben sowie Ihrer Teilnahme an der oben beschriebenen Studie zustimmen: a) Ja b) Nein	
1. Geben Sie hier bitte Ihre Prolific ID ein: *Textfeld zur Eingabe des Codes*	1. Please enter your Prolific ID here: *Text box for entering the code*
2. Was ist Ihr Geschlecht? a) Männlich b) Weiblich c) Nicht-binär / drittes Geschlecht	2. What is your gender? a) Male b) Female c) Non-binary / third gender
3. Wie alt sind Sie? a) 18-29 Jahre b) 30-39 Jahre c) 40-49 Jahre d) 50-65+ Jahre	3. What is your age? a) 18-29 years b) 30-39 years c) 40-49 years d) 50-65+ years
4. Was ist der höchste Abschluss, den Sie erworben haben? a) Keine Bildung b) Schulabschluss c) Berufsausbildung d) Handwerksmeister e) Bachelor-Abschluss	4. What is the highest degree you have obtained? a) No education b) High School Degree c) Apprenticeship d) Master Craftsman e) Bachelor’s Degree

f) Master-Abschluss g) Doktortitel	f) Master's Degree g) PhD
5. Inwieweit glauben Sie, dass der Klimawandel durch natürliche Prozesse oder durch menschliche Aktivitäten verursacht wird? Von „vollständig durch natürliche Prozesse" bis „vollständig durch menschliche Aktivitäten" *(1-7 Likert-Skala)*	5. To what extent do you think that climate change is caused by natural processes, or human activity? From "entirely by natural processes" to "entirely by human activity" (*1-7 Likert Scale)*
6. Wie viel haben Sie vor dem heutigen Tag über den Klimawandel nachgedacht? Von „gar nicht" bis „sehr viel" *(1-7 Likert-Skala)*	6. How much have you thought about climate change before today? From "not at all" to "a great deal" (*1-7 Likert Scale)*
7. In welchem Ausmaß sollte es Deutschland Ihrer Meinung nach Menschen aus ärmeren Ländern ermöglichen, nach Deutschland zu kommen und hier zu leben? Von „keinem ermöglichen, nach Deutschland zu kommen und hier zu leben" bis „vielen ermöglichen, nach Deutschland zu kommen und hier zu leben" *(1-7 Likert-Skala)*	7. To what extent do you think Germany should allow people from poorer countries to come to live in Germany? From "allow none to come to live in Germany" to "allow many to come to live in Germany" (*1-7 Likert Scale)*
8. Bitte lesen Sie den folgenden Text sorgfältig durch	8. Please read the following text carefully

Treatment	*ODER*	*Control*	*Treatment*	*OR*	*Control*
Klimawandel bedroht die nationale Sicherheit Der menschengemachte Klimawandel führt zu einer globalen Temperaturerhöhung. Daher wird in Deutschland die Zahl der Extremwetterereignisse in Zukunft stark zunehmen. In Deutschland wird es vermehrt zu Hitzewellen, aber auch zu mehr Starkregen kommen. Die vermehrten Extremwetterereignisse gefährden die nationale Sicherheit, heute und in Zukunft. Des Weiteren wird der menschengemachte Klimawandel die Existenzgrundlagen vieler Menschen, vor allem in Entwicklungsregionen gefährden. Der Klimawandel wird bestehende Umweltkrisen wie Dürren, Wasserknappheit und Wüstenbildung verschärfen. Dadurch können gesellschaftliche Destabilisierung sowie gewalttätige Konflikte begünstigt oder verschärft werden. In Folge wird es zu gewaltigen umweltbedingten Migrationsbewegungen kommen. (*94 words)*		**Auswirkungen des Klimawandels** Der Mensch ist Hauptursache für den Klimawandel, da Industrie, Verkehr, Landwirtschaft und Haushalte große Mengen Treibhausgase freisetzen. Diese Treibhausgase verändern den Wärmehaushalt der Erdatmosphäre - sie heizt sich in einem beispiellosen Tempo auf. Die Erderwärmung führt zu Gletscherschmelze und einem erheblichen Anstieg des Meeresspiegels. Des Weiteren ist damit zu rechnen, dass der Klimawandel Wälder, Korallenriffe und tief liegende Feuchtgebiete beschädigt. Sollte sich die Welt auch nur zeitweise über die Marke von 1,5 Grad Celsius erwärmen, kann es zu irreversiblen Auswirkungen auf bestimmte Ökosysteme - etwa in den Polar-, Berg- und Küstenregionen kommen. *(95 words)*	**Climate change threatens national security** Human-induced climate change is leading to a global increase in temperature. Therefore, the number of extreme weather events in Germany will increase strongly in the future. Germany will experience more heat waves, but also more heavy rainfall. The increasing number of extreme weather events endangers national security, now and in the future. Furthermore, human-induced climate change will threaten the livelihoods of many people, especially in developing regions. Climate change will exacerbate existing environmental crises such as droughts, water scarcity and desertification. This can foster or exacerbate social destabilisation as well as violent conflicts. As a result, there will be immense environmentally induced migratory movements.		**The impacts of climate change** Humans are the main cause of climate change, as industry, transport, agriculture, and households emit large amounts of greenhouse gases. These greenhouse gases are changing the heat balance of the Earth's atmosphere - it is heating up at an unprecedented rate. Global warming is causing glaciers to melt and sea levels to rise significantly. Climate change is also expected to damage forests, coral reefs, and low-lying wetlands. If the world warms even temporarily above the 1.5-degree Celsius mark, there may be irreversible effects on certain ecosystems - for instance in the polar, mountain and coastal regions.

9. Nachdem Sie diesen Text gelesen haben, möchte ich Sie bitten, die folgenden klimapolitischen Maßnahmen zu bewerten, die darauf abzielen, die Auswirkungen des Klimawandels zu verringern.	9. After reading this text, I would like to ask you to assess the following climate policies, which aim to reduce the effects of climate change.
10. Eine CO2-Steuer ermöglicht es den staatlichen Behörden, jede Tonne Treibhausgasemissionen zu bepreisen. Eine CO2-Steuer erhöht die Nachfrage nach kosteneffizienten, umweltfreundlichen Produkten und Aktivitäten. Die Einnahmen aus einer CO2-Besteuerung können wiederum dazu verwendet werden, andere	10. A carbon tax allows governing authorities to price each tonne of GHG emissions. A carbon tax increases the demand for cost-effective, environmentally friendly products and activities. In turn, the revenues of such a carbon tax can be used to lower other tax burdens. Currently, Germany does not have a carbon tax.

Steuerbelastungen zu senken. Derzeit gibt es in Deutschland keine CO2-Steuer. Würden Sie die Einführung einer CO2-Steuer in Deutschland befürworten? Von „keine Befürwortung“ bis „volle Befürwortung“ *(1-7 Likert-Skala)*	Would you support the introduction of a carbon tax in Germany? From “no support” to “full support” *(1-7 Likert scale)*
11. Entwicklungsländer sind am stärksten von den Auswirkungen des Klimawandels betroffen, verfügen aber nicht über ausreichend finanzielle Mittel, um eine wirksame Klimapolitik umzusetzen. Daher sind Entwicklungsländer auf Entwicklungshilfe angewiesen. Die Vereinten Nationen haben den "Green Climate Fund" (GCF) gegründet, der Entwicklungsländer bei der Finanzierung einer effizienten Klimapolitik unterstützen soll. Die Staaten entscheiden freiwillig über ihren Beitrag zu diesem Fonds. Deutschland hat 1,5 Milliarden Euro für den Zeitraum 2020 bis 2023 zugesagt. Allerdings reichen die Mittel des Fonds derzeit noch nicht aus, um den Bedarf der Entwicklungsländer zu decken. Würden Sie einen höheren Beitrag Deutschlands zu diesem Fonds befürworten? Von „keine Befürwortung“ bis „volle Befürwortung“ *(1-7 Likert-Skala)*	11. Developing countries are most affected by the impacts of climate change but do not have sufficient financial resources to implement effective climate policies. Hence, developing countries need foreign aid. The United Nations founded the “Green Climate Fund” (GCF), which should help developing countries to finance efficient climate policies. States voluntarily decide upon their contribution to this fund. Germany committed 1.5 billion euros for the period 2020 to 2023. However, at the moment, the fund’s resources are still insufficient to meet the developing countries ’needs. Would you support a higher German contribution to this fund? From “no support” to “full support” to *(1-7 Likert scale)*
12. Ich danke Ihnen für Ihre Teilnahme an dieser Studie. Ihre Antwort wurde gespeichert.	12. I thank you for participating in this study. Your response has been recorded.

Ziel dieser Studie ist es, mehr über die Auswirkungen von Framing des Klimawandels sowie Ihre Unterstützung für klimapolitische Maßnahmen auf nationaler und internationaler Ebene zu erfahren. Falls Sie weitere Fragen zu dieser Studie haben, wenden Sie sich bitte an p.b.schmidt-kittler@umail.leidenuniv.nl .	The aim of this study is to learn more about the effects of climate change framing and your support for climate change policies domestically and abroad. If you have further questions about the study, please contact p.b.schmidt-kittler@umail.leidenuniv.nl .

- Any information in italics should enhance clarity but was not included in the survey on Qualtrics.

- The treatment and control vignettes are edited extracts form the following German newspaper articles:

1. National Security Frame – Treatment:

Hochstätter, M. (2021, 15. July). Katastrophen-Sommer 2021; Rekord-Regen, Milliardenschäden, Todesopfer: Ist das jetzt der Klimawandel? *Focus Online*. https://www.focus.de/perspektiven/extrem-ist-das-neue-normal-wie-wir-uns-vor-klimawandel-und-wetter-katastrophen-schuetzen-koennen_id_13499519.html

Kiel, V. (2021, 24. September). Die kommenden Katastrophen. *Der Spiegel*. https://www.spiegel.de/wissenschaft/natur/extremwetter-wie-sich-deutschland-auf-zukuenftige-naturkatastrophen-vorbereiten-sollte-a-fcf8ac1a-8265-4bcf-b040-c4154d13d386

Wenkel, R. (2009, 15. Mai). Experten: Klimawandel bedroht die Sicherheit. *Deutsche Welle*. https://www.dw.com/de/experten-klimawandel-bedroht-die-sicherheit/a-4255051

2. Control Scenario:

Fischer, L., Erdmann, E., & Endres, A. (2022, 28 Februar). IPCC-Bericht; Der Menschheit läuft die Zeit davon. *ZEIT online*. https://www.zeit.de/wissen/umwelt/2022-02/ipcc-bericht-weltklimarat-klimawandel-krieg-krisen

Schrader, C. (2007, 28 April). Der Klimawandel. *Süddeutsche Zeitung*.

Von Brackel, B. (2021, 20. Oktober). Ohne Zweifel. *Süddeutsche Zeitung*. https://www.sueddeutsche.de/wissen/klimaforschung-klimawandel-mensch-ist-ursache-studie-1.5443664

Concept	Variable(s)	Measurement	Scale
Framing anthropogenic climate change as a national security threat	Allocation to the treatment or the control group	Random allocation of participants to either: 1. The treatment group (these participants got to read a short media-like text which framed anthropogenic climate change as a national security threat (treatment)) Or 2. The control group (these participants got to read a short media-like text which highlights technical, scientific facts on anthropogenic climate change (control scenario))	Binary: Participants in either: 1.The treatment group 2.The control group
Public willingness to support costly climate policies in the domestic context	Willingness to support the introduction of a carbon tax	Would you support the introduction of a carbon tax in Germany?	1-7 Likert-scale (from “no support” to “full support”)
Public willingness to support costly climate policies in the foreign aid context	Willingness to support higher contributions to the GCF	Would you support a higher German contribution to this fund?	1-7 Likert-scale (from “no support” to “full support”)
Attitudes on anthropogenic climate change			
	Beliefs about anthropogenic climate change	To what extent do you think that climate change is caused by natural processes, or human activity?	1-7 Likert-scale (from “entirely by natural processes” to “entirely by human activity”)
	Personal engagement with climate change	How much have you thought about climate change before today?	1-7 Likert-scale (from "not at all" to "a great deal")
Attitudes on migration			
	willingness to welcome migrants	To what extent do you think Germany should allow people from poorer countries to come to live in Germany?	From “allow none to come to live in Germany” to “allow many to come to live in Germany”

Appendix 2: Operationalisation Table

	N	Mean Treatment Group	Mean Control Group	t	p
Gender (V1)	199	1.491	1.525	0.491	0.624
Age (V2)	200	1.469	1.512	0.442	0.661
Highest degree obtained (V3)	200	1.467	1.536	0.978	0.329
Beliefs about anthropogenic climate change (Z1)	200	1.484	1.578	1.109	0.271
Personal engagement with climate change (Z2)	200	1.514	1.482	-0.835	0.691
Willingness to welcome migrants (Z3)	200	1.528	1.468	-0.189	0.405
				Note:	*p<0.1; **p<0.05; ***p<0.01

Appendix 3: Balance Checks: Independent two-sample t-tests

Term	Willingness to support the introduction of a carbon tax	Willingness to support higher contributions to the GCF (GCF)	Beliefs about anthropogenic climate change	Willingness to welcome migrants	Personal engagement with climate change	Gender	Allocation to the treatment or the control group	Highest degree obtained	Age
Willingness to support the introduction of a carbon tax									
Willingness to support higher contributions to the GCF (GCF)	0.510								
Beliefs about anthropogenic climate change	0.407	0.258							
Willingness to welcome migrants	0.323	0.437	0.187						
Personal engagement with climate change	0.209	0.276	0.169	0.214					
Gender	0.076	0.040	-0.020	0.102	0.192				
Allocation to the treatment or the control group	0.028	0.122	-0.076	0.064	0.032	-0.035			
Highest degree obtained	-0.060	0.011	0.051	0.051	-0.044	0.044	-0.064		
Age	-0.009	-0.005	-0.090	-0.017	-0.030	-0.021	-0.034	0.019	

Appendix 4: Correlations

Variable	W	p
Willingness to support the introduction of a carbon tax	0.866	0.000000000002878
Willingness to support higher contributions to the GCF (GCF)	0.888	0.00000000004756

Appendix 5: Shapiro-Wilk Normality Test