

*Motivated reasoning among U.S. citizens towards sea-level rise and coastal flooding*

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## Abstract

*Climate change and its consequences, such as sea-level rise (SLR), are controversial topics, and many different and often conflicting information are circulating. The beliefs a person holds can lead them to evaluate information in a biased manner. This effect is called motivated reasoning. This study suggests that beliefs have the power to guide actions such as intentionally withholding information about SLR. A survey experiment was employed to measure U.S. Americans decision to share SLR videos, their corresponding beliefs, and socio-economic characteristics. Respondents decided about disseminating two information videos about sea-level rise. The two videos framed SLR as a life-threatening risk to humanity caused by climate change or SLR as an adaptable problem. Half of the participants received a priming video beforehand to increase their awareness of not sharing fake news. The results indicated that individuals who believe in climate change are in favour of sharing the SLR Risk video. In contrast, accepting that climate change exists did not affect the sharing decision of the SLR Adaptation video. Rising participants awareness of not sharing fake news by a video prime did not influence the decision to disseminate information directly, but there are indications of heterogenous treatment effects.*

Keywords: motivated reasoning, motivated sharing, beliefs, sea-level rise, survey, experiment

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## List of Abbreviations

|                                        |       |
|----------------------------------------|-------|
| control group                          | CG    |
| experimental group                     | EG    |
| global mean sea level                  | GMSL  |
| identification document                | ID    |
| mechanical turk                        | MTurk |
| representative concentration pathway   | RCP   |
| sea-level rise                         | SLR   |
| stable unit treatment value assumption | SUTVA |
| United States of America               | USA   |
| United States                          | U.S.  |

## Investigation of motivated reasoning among U.S. citizens towards sea-level rise

### 1. Introduction

Human activities on planet earth contributed an enormous part to climate change. Global warming has led to a massive shrinking of the cryosphere (Pörtner *et al.*, 2019). The melting ice is feeding the oceans, and temperatures lead to the expansion of the oceans. Both drive the global sea levels upwards (Aerts and Botzen, 2011). The shorelines of states such as Florida, Texas, or Maine erode, and land gets lost to the sea. Water masses threaten New York City, New Orleans and Miami that manifest in flooding, high tides, and storm surges. Millions of coastal residents face an increasing frequency and severeness of coastal flooding due to anthropogenic climate change (Pörtner *et al.*, 2019; Union of Concerned Scientists, 2018). Despite scientific evidence in climate sciences, within the United States (U.S.), a polarized debate is going on whether climate change and its consequences are human-made and if so, humanity can take action against it (Hoffman, 2015, p. 15; Manabe and Wetherald, 1967). Parts of the population still do not accept that climate change is human-made to a large extent (Stoknes and Randers, 2015, p. 11). However, to fight a global crisis like climate change and it relates, everyone must work together. To raise awareness about climate change, the provision of understandable and undistorted information is crucial. However, the complexity of climate change makes it difficult. Different information and opinions meet, and individuals could become confused about which information they should believe. Opinion formation is made more difficult by false or one-sided information on a topic (Stoknes and Randers, 2015, p. xv).

Motivated reasoning offers ways to get to the bottom of why people continue to disseminate scientifically disproved information. Motivated reasoning refers to the tendency of individuals to unconsciously conform assessments of information to some goal or end extrinsic to accuracy. The evaluation of the information is distorted (Kahan, 2013; Kunda, 1990). A growing body of literature has been dealing with how prior beliefs influence the evaluation of evidence and information. Kunda stated that people are more likely to reach an inevitable conclusion if they are convinced to achieve it (Kunda, 1990). Therefore, beliefs have the power to manipulate individual information acquisition and processing (Bénabou and Tirole, 2016). However, if information contradicts individuals' beliefs, they are more likely to deny them (Druckman and McGrath, 2019). Researchers investigated motivated reasoning under several settings. Beliefs such as cultural identity (DiMaggio, 1997; Kahan *et al.*, 2007; Kahan *et al.*, 2008), ideology (Clark and Winegard, 2020; Kahan *et al.*, 2017), or political identification (Kahan, 2015) have the power to affect individuals' information evaluation.

Nevertheless, how people deal with evaluated information is questionable. Thus, are individuals influenced by their prior beliefs when passing on information? Knowing how people disseminate associated information is essential to answer the previous question, especially for polarised topics such as climate change and SLR. If people cling to their prior beliefs and reject challenging information, they may be willing to share just what they believe. Sharing pre-sorted information exposes recipients to biased reporting. Biased information and misinformation can further divide people in deciding how to deal with climate issues in the future.

This work contributes to understanding how beliefs affect the distribution of information by examining the question asked above. An online experiment with U.S. citizens was conducted by using Amazon MTurk. Respondents were asked about their beliefs towards SLR and climate change to examine the effects of prior beliefs on information sharing. For this purpose, two different videos about SLR were presented to the respondents. The SLR videos show conflicting information. In the first video, SLR was presented as a threat to humanity and caused by human activity. The second video depicted the SLR as a solvable problem. Technological innovation and adaptation can help humankind to defend against the rising sea. Subsequently, respondents had to decide which information they wanted to share with other anonymous U.S. Americans. Research data were used to estimate the effect of prior beliefs on motivated sharing, not redistributing all information provided in the task. A share of the respondents received a priming video. In the priming video, celebrities talked about problems associated with fake news spreading. The stimulus or prime aimed to raise respondents' awareness about not to spread fake news.

Results indicated that beliefs affect individuals' information evaluation and the dissemination of the information as well. After receiving two information videos, not believing in climate change drives individuals not to share information about the risk of SLR and have no effect on the sharing decision of information about adaptation option towards SLR. Primed respondents should draw their attention to the need to refrain from spreading fake news. The priming has no effect on participants sharing decision. However, heterogenous treatment effects were found.

The thesis is composed as follows: The first two sections describe the theory of motivated reasoning upon which the derived hypotheses are built. Section three presents the method to gather the research data. The fourth section outlines the study design. The aim of section five is to show which data were collected and how they are measured. In addition, inferential statistics are conducted in this section. The sixth section contains the empirics, including the construction of the statistical model, the main results of the applied probit analysis, additional results, and robustness checks. At the end of the work the results are discussed and concluded.

## 2. Theory and Hypotheses

Information evaluation and decision making have been investigated from various angles. Scholars from economics, psychology and sociology have considered the application of probabilistic updating (Grether, 1980, 1992; Harsanyi, 1977, 1978), the use of heuristics (Kahneman, 2012; Tversky and Kahneman, 1973; Tversky and Kahneman, 1974), and the influence of beliefs and motivations (DiMaggio, 1997; Kahan, 2013, 2015; Kunda, 1990; Lord and Taylor, 2009; Nickerson, 1998).

Bayesian updating assumes that individuals' aim to the truth. Hence, whether information provokes pleasant or unpleasant feelings does not affect their evaluation, but only the trustworthiness. This assumption plays an essential role in economics, as it is the basis of decision and game theory. Bayesian rationality is based on the fact that human behaviour is goal-oriented to a large extent (Harsanyi, 1977, 1978). The goal of the rational agent in decision situations is to make a decision that maximizes its expected utility (von Neumann and Morgenstern, 2007). Applied to probabilistic updating, this induces that the consumption of additional information is always utility increasing for a standard rational economic agent. Regardless of perceiving the messages as pleasant or unpleasant, more information supports more exact predictions and better decision-making (Bénabou and Tirole, 2016; Grether, 1980, 1992).

Behavioural research around Kahneman and Tversky assumes that agents are limited in their cognitive abilities and depend on several cognitive shortcuts, also known as heuristics. Bayes' rule is deemed an inadequate model since individuals tend to misunderstand statistical concepts and sampling variability (Tversky and Kahneman, 1971). Different to rational economic agents, humans ignore prior probabilities of occurrence. Instead, individuals apply rules of thumb or heuristics when making decisions under uncertainty (Tversky and Kahneman, 1973). These include the representativeness heuristic and the availability heuristic. Representativeness is usually employed when individuals are asked to judge the probability that an object or event 'A' belongs to a class or process 'B'. Availability is often employed when individuals are asked to evaluate the frequency of a class or plausibility of a particular event. Such heuristics can be helpful but sometimes lead to systematic errors (Tversky and Kahneman, 1974). To avoid these errors, Kahneman suggests that individuals need to become aware of their cognitive biases. The awareness about the biases can then be incorporated into decision-making processes, leading to nearly rational decisions (Kahneman, 2012, pp. 416–417).

However, both concepts have shortcomings in explaining why echo chambers arise, individuals avoid information, or spread false news. Echo chambers arise when individuals with a strong preference for certainty seek contacts that confirm their views while protecting them from

deviating information (Boutyline and Willer, 2017). Echo chambers are unbalanced pools of information where like-minded people exchange their beliefs and discuss with each other while shielding themselves from other opinions. Those discussions can drift further away from the truth, towards error and falsehood. The force that causes this movement is the limited variance in arguments and social influences within the group in the echo chamber (Sunstein, 2002). Rational Bayesian updater would take in and evaluate all the available information and thus put themselves in an improved position. Information avoidance would thus be irrational. Echo chambers do not seem possible under this assumption. In echo chambers, only information is exchanged that coincides with the beliefs of the participants. In both conditions, utility maximization due to the consumption of additional and new information is not possible. Thus, participants tend to suppress additional information if it is not consistent with their beliefs (Sunstein, 2002). The behavioural concepts of Kahneman and Tversky do not adequately explain the previously mentioned phenomena as well. If individuals were aware of their biases, they should also make almost rational decisions. However, laboratory experiments or field research observations show that individuals use various strategies to actively avoid information and new evidence (Brock and Balloun, 1967; Eil and Rao, 2011; Golman, Hagmann and Loewenstein, 2017).

Motivated reasoning may provide explanations for the shortcomings of the concepts presented. When individuals think in a motivating way, they tend to evaluate new information in a biased manner. Instead of neutrally accepting the information, they compare it with preconceived beliefs or adapt it to particular opinions. An individual's motivations and beliefs influence cognitive processes of reasoning and judgment (Kunda, 1990). They promote motivated thinking, bias the evaluation of evidence, and act as filters. Evidence is evaluated to fit the desired conclusion (Haselton *et al.*, 2009; Haselton, Nettle and Murray, 2015; Kahan, 2013). New information not in line with one's own beliefs is more likely to be perceived as unlikely and rejected (Kunda, 1990). At the same time, existing beliefs receive more weight, and existing belief structures are consolidated (Lord and Taylor, 2009). If they are assigned a high value, resistance to countervailing evidence increases further. New information is rejected, and individuals show non-Bayesian behaviour (Bénabou and Tirole, 2016).

According to the theory of motivated reasoning, beliefs thus influence human actions. Individuals employ beliefs to protect their identity and gain allies and followers (Haselton *et al.*, 2009; Kahan, 2013). In turn, reference groups may shape individual beliefs (Baumeister and Leary, 1995). Beliefs that originate from the in-group are more likely to be adopted. Beliefs from the out-group are more likely to be rejected (Cohen *et al.*, 2007; Kahan *et al.*, 2007). Thus, people are predisposed to evaluate behaviour as socially advantageous when their reference group

considers it desirable and behaviour they evaluate based on socially detrimental (DiMaggio, 1997; Kahan, Jenkins-Smith and Braman, 2011). Scholars assume that such preconceived beliefs have the power to create echo chambers and can explain the spread of fake news. Within echo chambers, the scope of information contained is limited to the group beliefs. The content of the information may not correspond to the truth. Thus, iterative discussion of misinformation and fake news eventually push people to believe in the untrue content and become polarized (Sunstein, 2002). Intentionally spread fake news within those echo chambers will mislead their consumers (Allcott and Gentzkow, 2017).

Beliefs themselves can originate from individual identities, which partially reflect self-perceived membership in and loyalty to affinity groups (DiMaggio, 1997; Kahan, 2013). As has been highlighted, different theories and empirical results exist on how information evaluation works. The abovementioned results are only a fraction of the published work. To this point, far less attention has been devoted to the question of how individuals interact with information evaluated. Motivated reasoning is a promising theory that could compensate for imperfections in other theories. The assumption that predetermined beliefs influence the active dissemination of information can potentially explain more reality-oriented why biased decisions are made despite a thorough evaluation of information.

Individuals may disseminate information in a motivated manner. The information that is not in line with prior beliefs is more likely not to be disseminated but withheld. The conviction that a piece of information is evaluated as truthful emerges from its consistency with the individual's beliefs. No trust is placed in the information that calls beliefs into question (Allcott and Gentzkow, 2017). In other words, individuals' beliefs likely affect whether specific information will be deliberately withheld.

The research of this master's thesis embeds in the context of climate change induced SLR. According to Kahan, the seriousness of the threat posed by climate change is viewed very differently by individuals with distinct cultural values (Kahan, 2012). In such a polarizing topic, motivated information sharing could likely occur. The gathered knowledge leads to the hypothesis that individuals are less likely to share information about SLR if they do not believe in climate change.

*H1: The probability to share the video highlighting the threats of SLR to coastal areas in the U.S. is lower for respondents who do not believe in climate change.*

Preconceived beliefs have the power to explain the spread of fake news. Individuals who believe in the truth of fake news hold inaccurate beliefs and become skeptical of legitimate news. Their

ability to distinguish true from untrue information deteriorates (Allcott and Gentzkow, 2017; Bursztyn *et al.*, 2020). Appeals not to disseminate fake news and misinformation may even reinforce the effect of motivated sharing. Before using information, individuals check its truthfulness and compare it with their ideologies and beliefs (Lord and Lepper, 1999). Information consistent with prior beliefs is likely to be more persuasive and perceived as accurate than a belief challenging information. Such information is more likely to be withheld and not to be disseminated. Consequently, the decision to disseminate information will probably be independent of its truth.

*H2: Respondents are more likely to share only information corresponding to their prior beliefs if they are reminded not to share false information.*

The hypotheses are tested by using experimental data. Data collection is conducted by the application of an online survey experiment. Participants receive treatment to raise awareness concerning fake news and that they should not share such information. Afterwards, the participants watch two, one or no information videos on the topic of SLR, depending on the assignment. Afterwards, they have the opportunity to share it with other anonymous people.

### 3. Methodology

The methodological approach applied in this thesis is an experimental survey approach. Following Smith (1994) experiments are applied to 1. test a theory; 2. explore the causes of a theory's failure; 3. establish empirical regularities as a basis for a new theory; 4. compare environments by using the same institution permits; 5. compare institutions by using identical environments but varying the set of rules; 6. evaluate policy proposals; 7. test new institutional designs (Smith, 1994). This study focuses on statements one, two, three, and five.

Experimental researchers can randomly assign respondents to at least two experimental conditions and treat them differently. Using randomization, scientists can assume that the only difference between conditions is the difference in treatment. In a survey experiment, the randomization and treatment occur within a survey questionnaire. It is easy to implement and avoids many problems associated with cross-sectional and panel data. Cause and effect can be distinguished (Gaines, Kuklinski and Quirk, 2007). Survey experiments seek to establish causal relationships that are generalizable. In other words, they try to maximize internal and external validity (Barabas and Jerit, 2010). In this work, a survey experiment which is a particular form of laboratory experiment, is applied. The experiment is conducted within the context of an online survey. Amazon MTurk is used to provide causal inferences and estimates of average treatment effects for randomization (Deaton and Cartwright, 2018).

Internal validity requires that respondents are appropriately assigned to groups, that selective attribution is ruled out, and that subjects cannot interact with or influence one another (Horton, Rand and Zeckhauser, 2011). According to the stable unit treatment value assumption (SUTVA), an respondent's outcome depends only upon their treatment assignment and not upon the treatment assignment or outcome of any other subject (Rubin, 1974). Potential violation of the SUTVA happens if there is inference between units, like subjects can communicate with each other about their treatments, choices, or experiences (Rubin, 1990). Inference between the respondents occurs when participants of experiments meet each other physically, like in laboratory experiments. In online experiments, direct contact with respondents did not happen. However, workers on MTurk can highlight HITs that they have found particularly fascinating or gratifying. Sometimes they discuss the content of the tasks. A researcher should run an experiment as quickly as possible to avoid that respondents meet each other (Horton, Rand and Zeckhauser, 2011). For this reason, both rounds of this study were conducted within one month. Identity ambiguity of experimental subjects is a severe limitation of MTurk's internal validity. Respondents could participate with more than one account or share accounts with other individuals. Therefore, hosts of online labour markets try to avoid multiple account use by combining

financial incentives with terms-of-use agreements and technical approaches. This approach seems to be successful and ensures that the collected observations are unique and independent. Nevertheless, this strategy cannot fully ensure that participants participate more than once or that observations are not independent (Horton, Rand and Zeckhauser, 2011). Another threat of internal validity is uncertainty about the causal effect of a treatment on some outcomes. Subjects must be assigned to EG and CG unrelated to how they will react to a treatment (Cartwright, 2007). Randomization serves to achieve internal validity. However, by chance, even randomization can lead to experimental groups that differ systematically, notably if subjects differ on characteristics correlated with the outcome (Horton, Rand and Zeckhauser, 2011). Online laboratories like MTurk can address this problem giving experimenters complete control over the assignment to the EG and CG. With a blocking design, experimenters can pre-emptively avoid the pre-treatment difference problem. The blocking design stratifies factors that strongly correlate with outcomes and reduce the variance of the estimated treatment effect (Duflo, Glennerster and Kremer, 2008). Sometimes participants may move off during the study. Attrition bias occurs when participants leave the study and respondents characteristics are systematically related to the study outcome. Selective attrition leads to selection bias and creates biased and inconsistent estimates of the experimental effect. That poses a threat to valid inference (Hausman and Wise, 1979). The problem is especially acute online. Subjects can potentially inspect a treatment before deciding whether to participate or not. Horton et al. suggest preventing attrition by giving subjects strong incentives to continue participating in the online experiment after receiving the treatment. Such “hooks” help to ensure that only minimal attrition occurs. In this study, rewards are only transferred to the “workers” if they completed the whole experiment. A crucial requirement to use “hooks” ethically is to inform subjects beforehand about the reward and compensation details of the experiment (Horton, Rand and Zeckhauser, 2011). Being aware of participating in a controlled study can alter respondents’ behaviour in an experiment. This phenomenon is also known as the Hawthorne effect (Adair, 1984). When subjects are aware they participate in an experiment, they might try to learn about the conditions of experimental groups. Furthermore, this creates an artificial situation that is not directly comparable with reality. Advantageously, subjects recruited from online labour markets are already making consequential economic decisions, and they are likely to view any task or game using an economic frame of mind (Horton, Rand and Zeckhauser, 2011). Although one does not know whether one is in an experiment, the participants on MTurk collect experience, which can be disadvantageous for internal validity.

External validity focuses on extending findings to different people, environments, and choices (Snowberg and Yariv, 2018). Divergences within the implementation of the trial, the selection

process of participants, and the characteristics of randomised participants limit external validity. Particularly highly selective trial eligibility criteria threaten representativeness (Rothwell, 2006). The sample in this study consists of registered MTurk workers. MTurk workers are younger on average. 70% of them are female, have a lower income, and have smaller families compared to the general U.S. population. The geographical distribution of Turkers and Internet users is similar. The race composition of Turkers and Internet users is similar as well (Ipeirotis, 2010). Despite the difference with the general U.S. population, the demographic data analysis by Paolacci et al. suggests that MTurk workers are at least as representative of the U.S. population as traditional subject pools, with gender, race, age, and education of internet samples. In general, MTurk samples matching the population more closely compared to undergraduate college samples and the internet. However, the disadvantage of the Amazon subject pool is that Amazon did not replace the participants annually. Unlike at universities, the participants remain for years (Paolacci, Chandler and Ipeirotis, 2010). Nevertheless, even if the population is like the U.S. population, self-selection of participation is unavoidable. As in the laboratory, selection issues exist online as well (Horton, Rand and Zeckhauser, 2011). Measurable differences likely occur between online and physical laboratory experiments (Eckel and Wilson, 2006). Systematic different outcomes across the methods applied can lead to progress. In the sense that online experiments can complement conventional methods (Harrison and List, 2004). Horton, Rand and Zeckhauser (2004) state that subjects on MTurk behave similarly to subjects in physical laboratories. Replications suggest that online experiments can be an appropriate tool for exploring human behaviour (Horton, Rand and Zeckhauser, 2011, p. 406).

To sum up, online labour markets like Amazon MTurk are internal valid and can have external validity (Horton, Rand and Zeckhauser, 2011). The decision to use MTurk during this experiment depends as well on practical advantages. MTurk is a quick and cheap tool to receive insights into human behaviour using traditional laboratory-style and field experiments. The potential for non-response error in online research is strongly diminished (Mason and Suri, 2012). The usage of Amazon MTurk is quite comfortable because researchers can conduct online experiments with little assistance from others. Identifiability with the worker's ID allows continuing collecting data from the same group of users over time. A researcher can explicitly recontacted former participants and invite them for follow-up surveys or restrict their possibilities to apply for new experiments.

## 4. Study Design

The survey experiment aimed to assess the factors that push people to engage in motivated sharing of information about SLR. The respondents received a priming video that should emphasize the problems associated with sharing fake news. The focus lies on how beliefs affect the sharing decision of a particular video. How is this decision altered after decision-makers are made aware of the problems with spreading fake news and reminded not to share fake news? The data were collected within two periods, from 22.06.2021 to 13.07.2021 and from 13.07.2021 to 20.07.2021. The sample consists out of  $n = 734$  adult individuals who have seen both of the two different videos provided.

### 4.1. Survey Goals

The survey was designed to collect data on the key dependent variable, providing treatment, and querying for control variables. The key dependent variable assessed was motivated sharing (*msi*). The dummy variable became '1' when people shared less than the information provided. The information provided was two videos about SLR. The first video dealt with SLR risk to the U.S., while the second outlined how humanity adapted against SLR. The following references are made to the "SLR risk" video and the "SLR adaptation" video, respectively. Before the participants watched the videos, half of the sample watched a priming video. Two additional dependent variables examined motivated sharing decisions in more detail. These are intended to represent motivated sharing from the SLR risk (*ms\_risk<sub>i</sub>*) and the SLR adaptation video (*ms\_adaptation<sub>i</sub>*). In the questionnaire, batteries of different survey items determined the respondents' beliefs and recorded socio-demographic factors.

### 4.2. Study Area

The study area comprises all 50 states in the United States. The District of Columbia is assigned to the State of Virginia. There are no respondents included from U.S. territories such as Puerto Rico and the Virgin Islands within the survey sample. The threat of sea-level rise to the United States varies within national boundaries. Thirteen thousand miles of shoreline stretch along the Pacific, Atlantic, and the Gulf of Mexico. The coastal regions of the United States are predominantly under the threat of SLR. Estimations stated that 311,000 homes in the United States could be at risk of regular flooding by 2045. By the end of this century, this number would rise to 2.4 million flooded homes, representing a total value of one trillion dollars. (Union of Concerned Scientists, 2018) Different scenarios estimated the amount of the American population at risk of SLR by 2100. Based on current population numbers, it is considered that with an increase of the sea-level by 0.9 m, 2,229,898 people could be at risk by 2100. In a 1.8 m SLR scenario, this estimation increases up to 6,596,356 (Hauer, Evans and Mishra, 2016). The interpretation of the

numbers of the SLR scenarios from Hauer, Evans and Mishra should happen with caution due to uncertainties of forecasts. SLR hazards are highly variable across time and space. Towards the end of this century, SLR magnitude will primarily be driven by greenhouse gas emissions (Hauer *et al.*, 2020).

### **4.3. Sampling**

The online survey was conducted using the SoSci survey platform and was posted online on Amazon MTurk. MTurk is an online laboratory provider. It serves as an online labour market. Employees (called workers) are recruited by employers for the execution of tasks. MTurk allows facilitating low-cost experiments due to its ease of use and diverse pool of subjects. MTurk collects the sample and randomizes it while the workers remain anonymous. With the help of an identification document (ID), each answer given can be assigned to a worker. This mechanism ensures that every time a new worker completes the study. At the same time, with the help of an ID, each answer can be assigned to a worker (Berinsky, Huber and Lenz, 2012; Mason and Suri, 2012; Paolacci, Chandler and Ipeirotis, 2010).

All respondents were registered workers at Amazon MTurk. Just respondents above the age of 18 who indicated their consent to participate and passed a simple test of attention were allowed to proceed. All adult U.S. citizens residing in one of the 50 states were eligible to participate. An urn randomized 734 respondents into an experimental group (EG) and a control group (CG). The survey was self-administered by the respondents. All respondents watched both videos. The assignment by the urn was random. Participants were assigned to the prime by a chance of 50%.

### **4.4. Materials**

In the survey, videos were used to perform the information-sharing task and the fake news priming. To execute the "Information Sharing Task", two videos were edited together from different news sources. The content of the SLR Risk video is framed in a way to tell the respondents that the SLR is a considerable risk to the U.S.. The SLR Adaptation video conveys the message that the rise of the sea level is not a particular risk. Humankind can adapt to this problem. The videos do not violate the principle of no deception (Friedman and Sunder, 1994, p. 17). All the content provided to the participants is accurate. The SLR Risk video (<https://vimeo.com/538590583>) and the SLR Adaptation video (<https://vimeo.com/547482968>) can be viewed on Vimeo.com. Participants assigned to the priming condition picked one out of five different videos: "Conspiracy Theories: John Cena", "Conspiracy Theories: Paul Rudd", "Conspiracy Theories: Alex Trebek", "Conspiracy Theories: Billy Porter", "Conspiracy Theories: Catherine O'Hara". The producer is the "Last Week Tonight Show" uploaded the videos. Each video deals with fake news and points out that internet sources do not have to be accurate and trustworthy. The celebrities in the

videos recommend comparing the information with other reliable news sources and critically questioning them. The core message is that respondents should check information found on the internet for its truthfulness.

#### **4.5. Design**

At the beginning of the survey, an introductory text informed the respondents about the possible payouts. For completing the survey, each respondent received a payout of \$0.10. In addition, they had the opportunity to receive an extra \$50 payout. This additional payout was randomly awarded to a participant in the survey wave. By completing the survey, they received a token that enabled them to participate in the lottery. After the participants had received all vital information about the survey and confirmed their participation, they received access to the questionnaire.

Figure 1 outlines the structure of the experiment. One-half of the respondents received the fake news prime. Afterwards, all respondents had to watch the two information videos about SLR. Respondents had to answer control questions after the fake news videos and the two videos about SLR. The control questions asked about the content of the previously watched videos. Correct answers ensured that respondents attentively watched the videos and understood the content. If respondents answered the control questions incorrectly once, they got the opportunity to watch the respective video again. Afterwards, answering the control questions must be repeated. If the respondents answered the control questions a second time incorrectly, SoSci excluded them from the survey. In this case, respondents received no compensation payments and forfeited their opportunity to participate in the lottery.

Respondents got informed that in a different MTurk HIT, random MTurk workers will watch videos. The sharing decision of the current participant affects what they will see in the next round. After watching both videos, the respondent received the following sharing options:

1. "SLR is a major threat video (1 min.) & SLR is not a major threat video (1 min)".
2. "SLR is a major threat video (1 min.) & blank screen (1 min)".
3. "Blank screen (1 min) & SLR is not a major threat video (1 min)".
4. "Blank screen (1 min) & blank screen (1 min)".

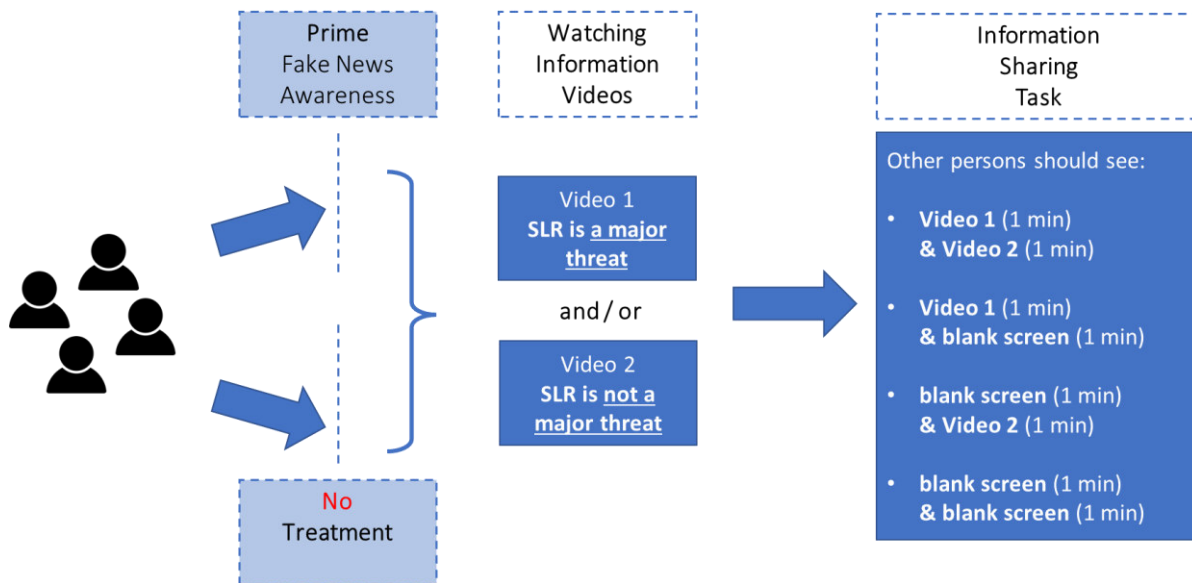


Figure 1: Experimental Design of the Information Sharing Task (own figure)

**Note:** An urn assigned the respondents of the survey to the EG or the CG. Respondents in the EG received a priming video that aimed to increase respondents' awareness about not sharing fake news. In the next step, all respondents watch two information videos about SLR Risk and SLR Adaptation. Participants decide whether to disseminate the videos they have seen with anonymous, randomly selected U.S. Americans in the subsequent information sharing task.

Respondents were cross randomized into one of two experimental conditions: CG and EG. Those assigned in the EG received the fake news prime. They decided between five different videos. In the videos, various celebrities make critical remarks about spreading misinformation. The sharing decision was incentivized. Respondent's decision to share more information enhanced their probability to win the lottery announced at the beginning of the survey. One lottery token corresponded to one winning ticket. Those who shared both videos received two additional tokens from participating in a lottery. Sharing one video generated one extra token, and sharing no video had no effect on the chance to win the lottery. A respondent who finished the survey could have a minimum of one token and a maximum of three tokens in the lottery (compare Figure 2).

Incentivizing to share all available information should ensure that participants had no rational reason to share less than the two videos provided. Not sharing the video decreases the probability to win the lottery. The decision to share a video was utterly anonymous. Altruism was ruled out, as future participants always need the same amount of time to watch the videos no matter what previous respondents decided. No respondent had the opportunity to shorten the interview duration for a subsequent participant by their decision. Postulating that the decision-maker is rational, they would take a purely result-oriented attitude toward lotteries (Harsanyi, 1978).

Therefore, it would be rational to share all videos provided. If respondents shared less than the provided videos, it could be expected that the decision not to share a video was based on participants' beliefs.

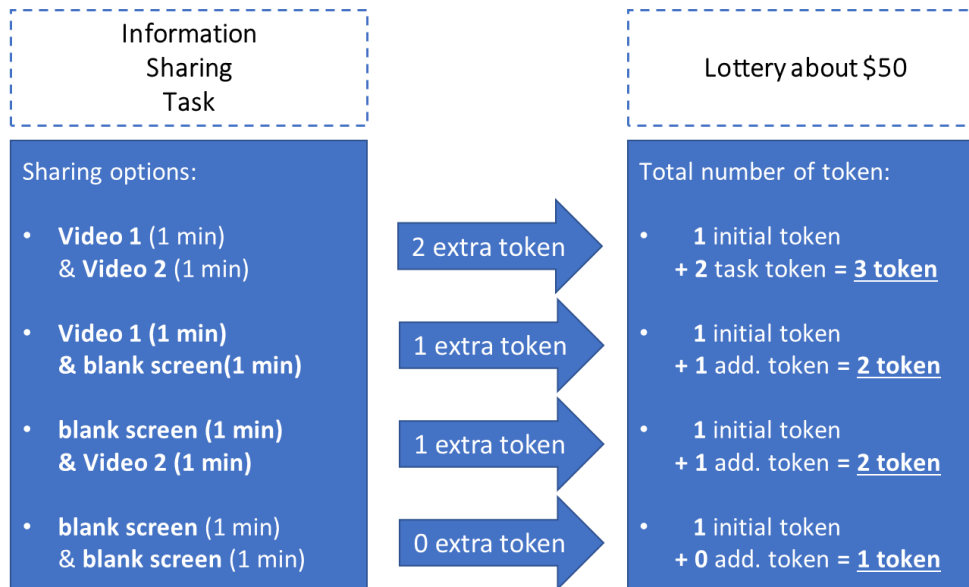


Figure 2: Incentivization structure of sharing information videos (own figure)

**Note:** Respondents who completed the survey received a token. This token allowed respondents to enter a \$50 prize draw. A token equals a lottery ticket. Sharing as much information as possible could maximize the chance of winning the \$50 prize. For each video shared, respondents received an additional token.

#### 4.6. Sample Consistency

The sample includes 734 respondents who have seen the SLR Risk and the SLR Adaptation video (see Table 1). The average age in the sample is 36.97 years, ranging from 18 up to 76 years. 55% of the sample are female. 47% of the participants are married. Respondents spent on average 14.86 years for education and have been educated for a median of 16 years. The average weighted household income per person is \$37,099.95, while the median household income per person is only \$29,761.67. Incomes range from \$2,083.33 to \$162,499.50. Participants living within a 10-mile radius (about 16 kilometres) of the nearest seashore account for 26% of all participants. The participants could state their ethnicity. 11% describe themselves as Asian, 14% as black or people of colour, 8% as Hispanic, 1% as people with origins from the Middle East or northern Africa, 2% as Native Americans, less than 1% as Hawaiians or other Pacific Islanders, 71% as white, and less than 1% describe themselves to another ethnicity. The total sum of the percentages exceeds 100% since one person could indicate several ethnicities in the questionnaire.

Table 1: Summary Statistics of the socioeconomics of the sample

|                                | N   | Mean     | Median   | min     | max      | Std. Dev. |
|--------------------------------|-----|----------|----------|---------|----------|-----------|
| Motivated Sharing              | 734 | .18      | 0        | 0       | 1        | .39       |
| Characteristics                |     |          |          |         |          |           |
| Age                            | 734 | 36.97    | 34       | 18      | 76       | 12.63     |
| Gender                         | 734 | .55      | 1        | 0       | 1        | .5        |
| Marital status                 | 734 | .47      | 0        | 0       | 1        | .5        |
| Education                      | 734 | 14.86    | 16       | 12      | 20       | 2.19      |
| HH income p. p.                | 718 | 37099.95 | 29761.67 | 2083.33 | 162499.5 | 27718.8   |
| Coastal Resident               | 734 | .26      | 0        | 0       | 1        | .44       |
| Ethnicity                      |     |          |          |         |          |           |
| Asian                          | 734 | .11      | 0        | 0       | 1        | .32       |
| Black or people of color       | 734 | .14      | 0        | 0       | 1        | .34       |
| Hispanics                      | 734 | .08      | 0        | 0       | 1        | .27       |
| Middle East or North Africa    | 734 | .01      | 0        | 0       | 1        | .12       |
| Native Americans               | 734 | .02      | 0        | 0       | 1        | .14       |
| Hawaiians or Pacific Islanders | 734 | 0        | 0        | 0       | 1        | .05       |
| White                          | 734 | .71      | 1        | 0       | 1        | .45       |
| Other ethnicities              | 734 | .01      | 0        | 0       | 1        | .1        |

**Note:** Education is measured in years. Education categories are 12 (High school graduate, Nursery, or preschool through grade 12), 16 (Bachelor's degree), 17 (Master's degree), and 20 (Doctorate degree).

#### 4.7. Quality Management

An attention check and control questions should ensure high-quality data collection. The attention check was incorporated at the beginning of the survey. The displayed question stated: *“The color test is simple. When asked for your favorite color, please write the word “building” in the text box below.”* Respondents who did not write “building” into the text box did not pass the attention check. They received a message advising them to read the question carefully in the further process of the survey.

After watching the priming video and information videos, participants had to answer control questions about the content. Individuals who responded with the wrong answer were informed that respondents would be excluded from the survey and would not receive compensation if they answered incorrectly again. With the second incorrect answer, the survey program excluded the respondent. The wrong answer forfeited the opportunity to participate in the lottery.

## 5. Measurement, Statistical Inference and Data Description

Data analysis is conducted by using Stata 16. In the beginning, the collected data are analyzed using descriptive statistical methods. Descriptive statistics include a description of the spread of the shared information and the analysis of characteristics of the study respondents. A probit regression estimates the likelihood of whether each of the two videos is not shared and whether prior beliefs drive the decision to transmit information motivated. Predictor variables will include climate change belief, political ideology, dogmatism, the treatment condition, and a set of control variables. The data analysis focuses on the first video condition where respondents have watched both videos ( $N = 734$ ). The robustness check is carried out with additional data in which the participants are in slightly different experimental situations. Within the second video condition ( $N = 295$ ), respondents just have seen the SLR Risk video, whereas, in the third video condition, respondents just have seen the SLR Adaptation video ( $N = 293$ ).

### 5.1. Measurement of dependent, independent, and control variables

Participants replied to questions about socio-demographics and individual's beliefs. The measures of individual beliefs as items of climate change perception, items of trust in media sources and items of dogmatism correlated highly within their groups. A principal component analysis builds a one-dimensional index that captures variation in the variables for each of the mentioned groups (Jolliffe and Cadima, 2016). The results were used to construct new estimators.

#### Dependent Variables

**Motivated Sharing:** Three dependent variables ( $ms_i$ ,  $ms\_risk_i$ ,  $ms\_adaptation_i$ ) measured respondents' deviation from predicted rationality. The variables are binary and based on the outcome of the information-sharing task. The variable  $ms_i$  turned from 0 to 1 if respondents shared fewer videos than provided in general. The variable  $ms\_risk_i$  turned from 0 to 1 if a respondent has not shared the SLR Risk video, and  $ms\_adaptation_i$  changes into one if the SLR Adaptation video was not shared.

1. *Motivated Sharing*  $= \begin{cases} 0, \text{all information shared} \\ 1, \text{less information shared} \end{cases}$
2. *Motivated Sharing Risk*  $= \begin{cases} 0, \text{SLR Risk video shared} \\ 1, \text{SLR Risk video not shared} \end{cases}$
3. *Motivated Sharing Adaptation*  $= \begin{cases} 0, \text{SLR Adaptation video shared} \\ 1, \text{SLR Adaptation video not shared} \end{cases}$

Not sharing all information provided is declared as motivated sharing because of the experimental design. Due to the monetary incentives provided to the respondents, it can be concluded

that individuals who do not share all the given information behave irrationally, contrary to theoretical predictions.

### Independent Variables

**Climate Change Beliefs:** Four variables measured the climate change beliefs. Whether people believe in the existence of climate change (*cc\_exist*) was a simple “yes” or “no” question. Respondents who answered that they believe in climate change received the value one. If not, they got the value zero. It is assumed that people who are not convinced about climate change are less willing to share all the information provided in the experiment. At least one provided information video will challenge their prior beliefs (Kunda, 1990). A ten-point Likert item (0 ‘I have no idea what climate change is’ to 10 ‘I know exactly what climate change is and how it affects me’) captured the self-perceived knowledge about climate change (*cc\_knowledge*). Scholars assume that higher levels of knowledge strengthen critical engagement with a subject. However, there is growing evidence that this assumption is incorrect. Studies have shown that science literacy, numeracy and education are associated with more, rather than less, motivated reasoning. (Hamilton, 2011; Kahan *et al.*, 2017)

Scholars have outlined that the degree to which climate change beliefs are held influences people's actions. Whether individuals adopt environmentally friendly behaviour or change their behaviour is contingent on their state of awareness and concern about climate change (Semenza *et al.*, 2008; Stern, 2000). Six items evaluate respondents climate change future perception. Respondents must evaluate statements. Evaluation is conducted using a five-point Likert item (1 ‘definitely will not’ to 5 ‘definitely will’). The statements express that in the future, 1) more droughts will occur, 2) more storms will occur, 3) more heavy rain will occur, 4) saltwater will come from further inland, 5) sea levels will be higher, and 6) more coastal land will be lost to the sea. The values of Cronbach's alpha statistics, a measurement of interitem covariance, indicate strong internal consistency of the scale. (Cronbach's  $\alpha = 0.89$ ). Thus, the items seem to have relatively strong construct validity indicating that they are associated with the underlying concepts of climate change future perception. Two variables were estimated, which are based on a principal component analysis (PCA). The predicted variable *cc\_fp* consists of the first component of the PCA, representing the climate change future perception in general. In the second component, the eigenvectors of the fourth, fifth, and sixth climate change future perception statements were contrary to the first three statements. The three statements had a maritime context. In this basis, a second variable was estimated related to the future of climate change regarding sea level rise (*cc\_fp\_slr*).

Descriptive statistics show that 95% of the respondents who have watched both videos believe that climate change exists. On average, they indicated an average level of climate change knowledge of 0.76 (*Median* = 0.8). 0.76 corresponds to a relatively high value. High values for climate change future perception denote respondents assess it as very likely that weather extremes and other climate-related consequences will occur more frequently. Values range between - 7.24 and 2.79. The average value is 0.29 (*Median* = 0.28). High values for climate change future perception for SLR denote respondents assess it as very likely that maritime hazards will happen due to climate change. This includes saltwater intrusion, the rise of the sea levels and land loss to the sea. Values of *cc\_fp\_slr* range between -3.758 up to 4.976. The average value is -0.002 (*Median* = 0.098). Respondents express on average relative values on climate change future perception around zero. The specific climate change future perception towards SLR among the respondents is even lower than the general climate change future perception. Climate change impacts are thus expected, but not as particularly drastic and strong.

**Media Trust:** Gallup polls in 2016 revealed a decline in trust and confidence in the mass media among U.S. Americans. Participants were concerned about whether mass media report the news fully, accurately, and fair (Swift, 2016). Other polls stated that Americans generally suspect inaccuracies in media reporting and have concerns about biased news media (Gallup, Inc. and Knight Foundation, 2020). Nevertheless, previous research stated that if media consumers have high trust in media outlets, it is likely to produce attitude changes even if the presented information are attitude challenging (Baum and Groeling, 2009; Prior, 2013).

The SLR videos between the respondents had to decide not to share them are compilations of different U.S. news sources. The trust in the media's reporting on climate change should help to explain differences in motivated sharing between the groups. A principal component analysis estimated the general belief in the media about climate change reporting (*trust\_media*). Simultaneously, the variable which measures the explicit trust in climate change reporting of FOX News was predicted additionally (*trust\_foxnews\_only*). The used items trusted in local TV and radio station (*trust\_local*), trust in CNN and BBC News (*trust\_CNNBBC*), trust in Fox News (*trust\_FOX*), and trust in MSNBC (*trust\_MSNBC*). Each item asked how much the respondents trust in a particular media source to provide trustful information about climate change. The single items used a five-point Likert item (1 'strongly distrust' to 5 'strongly trust'). The interitem covariance measure (*Cronbach's  $\alpha$*  = 0.79) indicates a strong internal consistency, leading to relatively strong construct validity.

Increasing values of the estimated variable *trust\_media* indicate higher trust in general climate change reporting. The values given within the first video condition ranged from -3.66, a

relatively low value, to + 2.78, a quite high value. On average, respondents indicated a value of -0.60 (*Median* = -0.43). The participants, therefore, tended not to trust the information about climate change that they received from the media. *Trust\_foxnews\_only* examines specifically respondents trust in climate change reporting of Fox News. The values ranged from -2.17 to +2.73. On average, the trust with -0.25 is slightly higher than the trust in the general media (*Median* = -0.065).

**Political Beliefs:** Based on previous research, political beliefs should explain the motivated sharing decision. Research indicates that people with different values can disagree sharply about how serious the threat of climate change is (Kahan, 2012). For this purpose, two new constructed dummies represent the political fringes. Both were built from party identification and political orientation variables, as there are strong correlations between party identification and liberal-conservative ideology (Jost, 2017). Polarization exists among liberal and conservative activists closely aligned with the Democratic and Republican Parties (McCright and Dunlap, 2011b). Political party identification (*political\_party*) was measured by participants selecting the party to which they felt most attached ('Republican'; 'Democrat'; 'Independent [no political party]'; 'other political party'). Political orientation (*political\_orientation*) was based on a seven-point Likert item ('strongly liberal'; 'moderately liberal'; 'slightly liberal'; 'neutral [moderate]'; 'slightly conservative'; 'moderately conservative'; 'strongly conservative'). If respondents selected either "Republican" in combination with "strongly conservative" or "Democrat" in combination with "strongly liberal" they were either designated to the "liberal Democrat" dummy (*lib\_dem* = 1) or the "conservative Republican" (*con\_rep* = 1) dummy.

By examining just respondents who have seen both videos, it can be observed that 22.48% of the respondents identify themselves as Republican, whereas 46.73% label themselves as Democrat. Independents and other parties account for 29.97% and 0.82%, respectively. Politically, the respondents orient themselves as follows. 14.74% of respondents describe themselves as strongly liberal, 19.89% as moderately liberal, 12.66 % as slightly liberal, 21.14% as neutral or moderate, 10.99% as slightly conservative, 11.82% as moderately conservative and 8.76% as strongly conservative. A total of approximately 17.70% of the respondents can be separated into extreme political camps. Of these, 5.99% are strongly conservative Republicans (*con\_rep*), and 11.71% are strongly liberal Democrats (*lib\_dem*).

**Dogmatism:** The definition of *dogmatism* is a relatively unchangeable, unjustified certainty. However, some dogmatism seems to exist among the advocates of any cause. Nevertheless, Altemeyer stated that it is more common to be a right-wing than a left-wing mind-lock. (Altemeyer, 2002) According to Schulz et al., Individuals on both the far left and far right of the

political spectrum show enhanced dogmatism (Schulz *et al.*, 2020). A battery of statements suitable for this purpose assessed the level of respondent's dogmatism. The battery consisted out of nine questions from the DOG scale (Altemeyer, 2002). Respondents must evaluate the statements on a seven-point Likert item (1 'strongly disagree' to 7 'strongly agree'). A principal component analysis estimated the dogmatism measure (*dogmatism*) based on the DOG scale items (Cronbach's  $\alpha = 0.85$ ).

Higher values indicate a firmer dogmatic belief. Values range from the smallest value -4.73, very undogmatic, up to 4.83, very dogmatic. In the first video condition, the average respondent indicated a dogmatism value of -0.42, which is close to 0 (*Median* = -0.01). Participants who score high on dogmatism are more likely to engage in motivated information sharing due to their unwillingness to deviate from their own opinion.

**Control variables:** The model includes several control measurements. Dummy variables were created for ethnicity (1 = *eth\_white*) and gender (1 = *female*). Past research has shown relationships between being ethnicity and gender to climate change beliefs. McCright and Dunlap found that white males are more likely than other adults to reject the scientific consensus on climate change. In comparison, women express more concern about climate change than men (McCright, 2010; McCright and Dunlap, 2011a, 2011b, 2013). The ethnicity dummy is coded for white ethnicity as it takes up the largest proportion of the sample among the ethnic groups. The dummy female indicates that an individual is female by gender. Additional control variables are socio-demographics as education (*edu*), weighted household income (*income\_hh\_pp*), marital status (*married*), age (*age*) and coastal residency (*coastal\_res*). The variable education describes the amount of education in years. Respondents who stated that they graduated nursery school, high school, or preschool through grade 12 completed 12 years of education. Respondents with a bachelor's degree completed 16 years of education. 17 years of education is equivalent to a master's degree, and 20 years of education is equivalent to a Doctorate degree. Coastal residency identifies whether a participant is a coastal dweller. Studies have shown that coastal dwellers anticipate the impact of climate change, especially sea-level rise and that this plays a role in decision-making (Henry *et al.*, 2017).

Moreover, coastal dwellers have different perceptions about the impacts of climate change than non-coastal dwellers. Reasons for this could be the confrontation of coastal communities with storm surges, coastal flooding and erosion (Cutler *et al.*, 2020). A dummy indicating that the respondent is a coastal dweller was created (*coastal\_res* = 1). It would turn into one if respondents stated that they live in a state with a shoreline (*shoreline* = 1) and live within a maximum radius of 10 miles of the nearest coast (*coast\_distance* <= 4).

## 5.2. Statistical Inference

Investigating the treatment effect on motivated sharing is crucial to examine the second hypothesis, “*Respondents are more likely to share only information corresponding to their prior beliefs if they are reminded not to share false information.*”. The aim is to establish a causal effect between motivated sharing and awareness of not sharing fake news induced by the video treatment. Assumptions that have to be fulfilled to compare the averages in both groups are a balanced sample, experimental and control group independence, and no interference (Gerber and Green, 2012, pp. 23–44). The assumptions of independence and no interference are fulfilled. All respondents were randomly assigned to a treatment status with equal probability by an urn. Furthermore, t-tests tested the differences between EG and CG.

### 5.2.1. Balance test between experimental and control group

Balance tests are applied to ascertain whether participants are similar across groups regarding aspects and not by treatment. Each individual within the survey was queried once. It follows that the sample is independent. The balance test is conducted between the EG and CG. For this purpose, a two-sample t-test was used. All variables that were asked in the questionnaire before the respondents were shown the priming was tested. The difference-in-means test table indicates (see Appendix Table 6) that the treatment and control group differ significantly just in terms of being a strongly liberal democrat (*lib\_dem*,  $p=0.02$ ).

The remaining variables tested show no differences between the subsamples. The distribution of the variables is nearly equal across groups. The variable *lib\_dem* shows significant differences between the experimental and control groups. Therefore, this variable is integrated into the multivariate analysis to control for it in the regression.

### 5.2.2. Testing differences across treatment and control group

Statistical tests examined the variables queried after the video treatment for differences between the CG and EG. An urn divided all 734 respondents who have seen both videos into EG and CG employing an urn. As depicted in Figure 3, 386 respondents (52.59%) were assigned to the CG. They received no priming video. 348 respondents (47.41%) in the EG watched the priming video about fake news. The sample is still independent, and the experimental and control group will be compared. Thus, a two-sample t-test with equal variances tested for differences between CG and EG. To determine whether the priming worked in general. Respondents were asked whether they think that their behaviour and choices impact reducing or spreading fake news. Respondents answered this question on a seven-point Likert-item (0 ‘no impact at all’ to 7 ‘high impact’). The priming check showed evidence that the answers differ between the experimental and control groups (*two-sample t-test*  $n = 734$ , *diff. (no prime – prime) = - 0.72*;  $p=0.00$ ). Respondents who

watched the fake news treatment stated on average a value of 5.55 (*Median* = 6). Those who have not seen any video stated a mean value of 4.83 (*Median* = 5). It follows that the priming video affects respondents answer on the priming check.

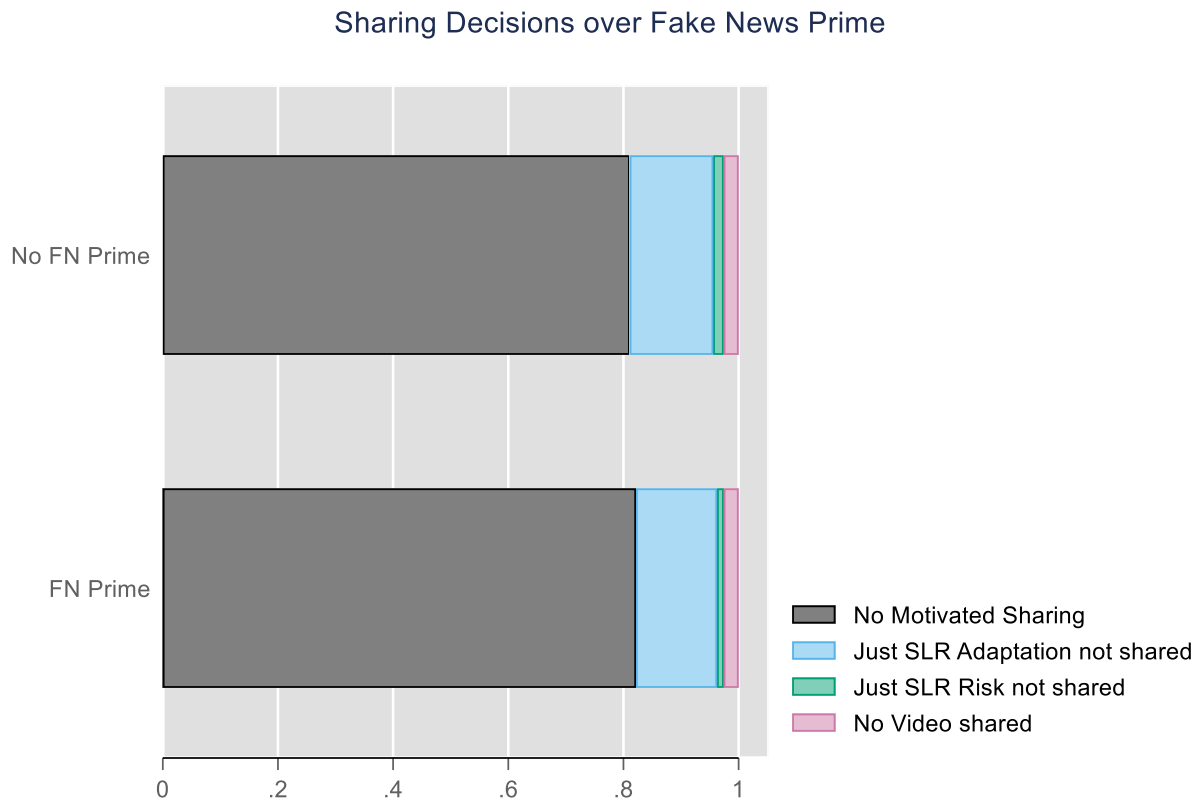


Figure 3: Sharing Decision over “Fake News” Prime (own figure)

**Note:** Of the sample ( $N = 734$ ), 348 (47.41%) respondents received the Fake news Prime, and 386 (52.59%) did not. Of the respondents who did not receive a prime, 81.09% shared both videos, 14.51% shared the SLR Risk video, 1.81% shared the SLR Adaptation video, and 2.59% shared neither video. Of the respondents assigned to Fake news priming, 82.18% shared both videos, 14.08% shared the SLR Risk video, 1.15% shared the SLR Adaptation video, and 2.59% shared neither video. A two-sample t-test revealed no significant differences between the EC and the CG in the decision to share the SLR Risk video and the SLR Adaptation video.

Figure 3 depicts the sharing decision over fake news prime. The graphic indicates that there are no big differences between the EG and CG. In the CG, 63 respondents (16.32%) engaged in motivated sharing. In other words, they did not share at least one of the two available information videos. Within the EG, 53 respondents (15.23%) shared less information than provided. A t-test should verify the impression of no significant differences in motivated sharing between the EG and the CG. The t-test (see Table 2) indicated no statistical significant differences for motivated sharing in general of those who watched both videos (*ms1: two-sample t-test*  $n = 734$ , *diff. (no prime – prime)* = 0.01;  $p = 0.70$ ), no statistical significant differences for those who decided just not to share the SLR Risk video (*ms\_ risk1: two-sample t-test*  $n = 734$ , *diff. (no prime – prime)* =

0.006;  $p = 0.46$ ), and no statistical significant differences for those who decided just not to share the SLR adaptation video (*ms\_adaptation1: two-sample t-test*  $n = 734$ , *diff. (no prime - prime) = 0.004;  $p = 0.87$* ).

Awareness of not sharing fake news induced by the video treatment seems not to affect motivated sharing. It follows that the null hypothesis, that “Respondents are less or equally likely to share only information corresponding to their prior beliefs if they are reminded not to share false information”, cannot be rejected in any condition. The other variable queried after the video treatment was dogmatism. A two-sample t-test with equal variances is applied to test for differences. Results indicate statistical differences in dogmatism between the groups (*two-sample t-test*  $n = 734$ , *diff. (no prime - prime) = - 0.42;  $p = 0.03$* ). Respondents show lower levels of dogmatism after watching the video about fake news compared to respondents who did not watch the video. This result is statistically significant on a 5% significance level.

Table 2: Difference test by priming after watching both videos

|                                     | obs1 | obs2 | Mean1 | Mean2 | diff. | p value |
|-------------------------------------|------|------|-------|-------|-------|---------|
| MS by prime                         | 386  | 348  | .19   | .18   | .01   | .70     |
| Not sharing SLR Risk by prime       | 386  | 348  | .02   | .01   | .01   | .46     |
| Not sharing SLR Adaptation by prime | 386  | 348  | .14   | .14   | 0     | .87     |
| Dogmatism by prime                  | 386  | 348  | .11   | -.21  | .33   | .03     |

**Note:** two-sample t test with equal variances; The two-sample t-test tests for differences between motivated sharing in general, not sharing the SLR Risk video, not sharing the SLR Adaptation video, and dogmatism between the control group (received no “Fake news” prime) and the experimental group (received the “Fake news” prime). Variables motivated sharing, not sharing the SLR Risk video, and not sharing the SLR Adaptation video show no statistically significant difference between CG and EG. There is evidence that respondents differ in dogmatism.

The treatment has no significant influence on the decision to share information motivated. If only the shares are considered, even more participants in the EG do not engage in motivated sharing. In the EG, 82.18% shared all information, and in the CG, 81.09% shared all information. Nevertheless, these results are not significant and have no explanatory power. Additionally, there is a significant difference in participants' level of dogmatism between EG and CG. There are likely additional heterogeneous treatment effects between being affected by the fake news prime and other dependent variables.

### 5.3. Descriptive Analysis

599 respondents (81.61%) decided to share both videos after seeing the SLR Risk and the SLR Adaptation video. Just the SLR Risk video was shared by 105 respondents (14.31%). 11 respondents (1.50%) disseminated just the SLR Adaptation video. 19 respondents (2.59%) shared neither one nor the other of the videos. Independently of priming, it is apparent that the SLR Adaptation video was shared less frequently than the SLR Risk video. It is striking that the SLR Adaptation

video was shared less often than the SLR Risk video. It can be assumed that different variables have different effects on the videos.

Table 11 summarizes the respondent data obtained by the survey answers. The observations are divided into their sharing decisions. The table starts with participants who generally shared motivated information, followed by those who did not share the SLR Risk video ( $N = 11$ ) and those who did not share the SLR Adaptation video ( $N = 105$ ). Those who chose not to share only the SLR adaptation video are a large part of the population who shared in a generally motivated way. Therefore, the average values in all characteristics differ particularly strongly between the first and third group views.

Respondents who decided not to share the SLR Adaptation video indicate, on average, a great climate change knowledge (.8), show great concerns about the future of climate change in general (.64) and low concerns about the threat of sea-level rise (-.15). 14% of them are strongly liberal democrats, and 2% are strongly conservative republicans. These respondents express low trust in the media (-.12) and a shallow trust in Fox News (-.51). Looking at the socio-economic characteristics, it becomes visible that 55% of them are female and are, on average, 38 years old. On average, they enjoyed 15.3 years of education. 63% are white, and 23% are coastal residents. The average log income per person of the participants and its standard deviation are very similar across the groups. The respondents who did not share the SLR Risk video is a minor fraction ( $N = 11$ ) of all motivated sharers. They are different from those who have held back the SLR Adaptation video. Observing climate change beliefs shows that they state a similar self-perceived knowledge of climate change (.75), but the climate change future perception is much lower (-1.12). Surprisingly, the perception of the future concerning sea level rise is higher among participants who did not share the SLR Risk video (.02) than among those who did not share the SLR Adaptation video. The political extremes are equally represented within this group (lib\_dem = .27; con\_rep = .27). The trust in the media in climate change reporting is shallow (-1.16). However, respondents who did not share the SLR Risk video report a much stronger trust in Fox News climate reporting (.21) than all other respondents who shared information motivated. Only 36% of this group are female. Respondents who did not share the SLR Risk video are older (45.82 years), more likely to be white (82%) and received on average one year less education (14.27 years).

Concerning the first hypothesis, that *“the probability to share the video highlighting the threats of SLR (SLR Risk) to coastal areas in the U.S. is lower for respondents who do not believe in climate change”*, the focus lies on the impact of the variable cc\_exist on respondents sharing decision.

In total, only 4.63% or 34 out of 734 respondents stated that they do not believe in climate change. 700 participants (95.37%) indicated that they believe that climate change exists.

Figure 4 depicts how many respondents decided to engage in motivated sharing across the different expressions of *cc\_exist*. The respondents on the left stated that they do not believe in climate change, the respondents on the right of figure 4 believe in the existence of climate change. 70.59% of those who did not believe in climate change were not engaged in motivated sharing, and 29.41% engaged in motivated sharing. On the contrary, 82.14% of those who believe that climate change exists did not engage in motivated sharing in general, and 17.86% of them shared information motivated.

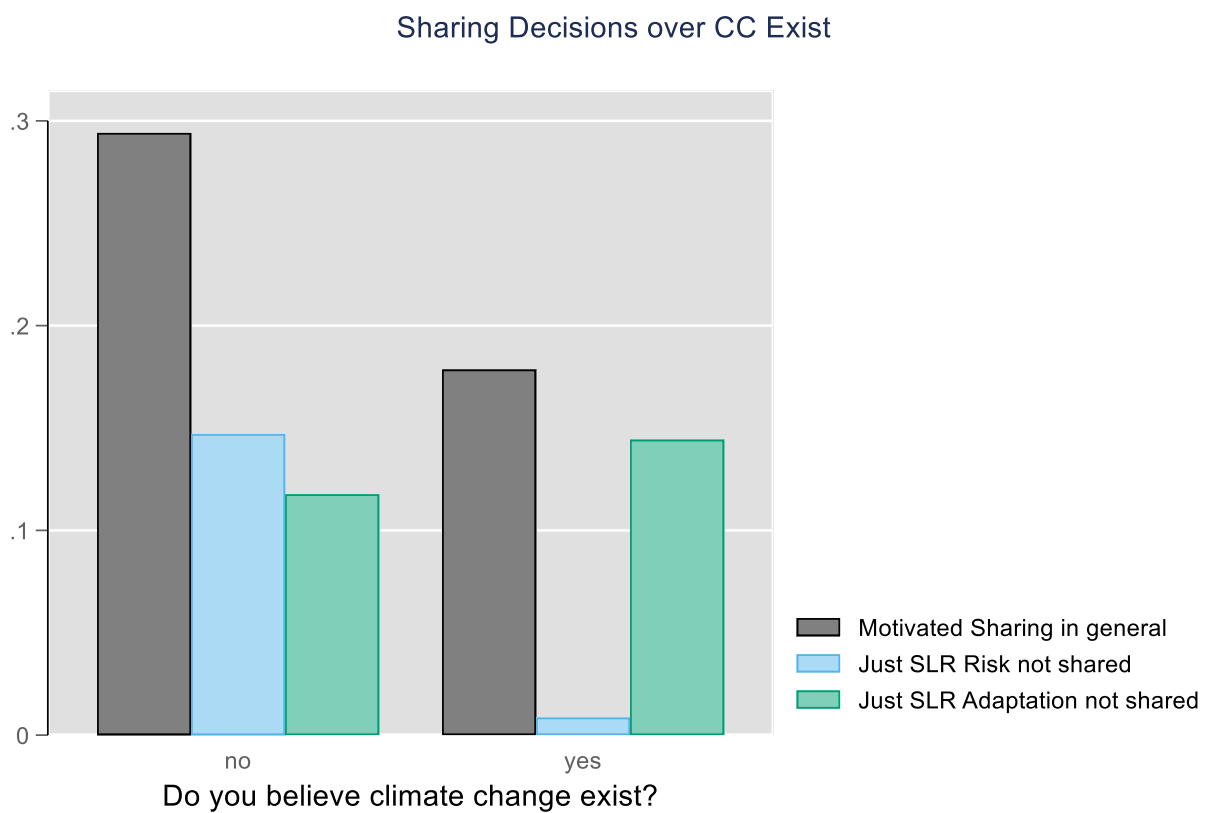


Figure 4: Motivated Sharing Decisions over Climate Change Belief (own figure)

**Note:** According to a two-sample t-test, there is no significant difference in motivated sharing after seeing both SLR videos between respondents who believe in climate change and respondents who did not. A two-sample t-test indicated a significant difference in not sharing the SLR Risk video and no significant difference in not sharing the SLR Adaptation video between climate change believers and non-believers.

A t-test tests for differences in general Motivated Sharing between people who do not believe in climate change and those who do. The result shows that there are no significant differences at a 5% significance level (*msl*: two-sample t-test  $n = 734$ , *diff.* (*no belief* – *belief*) = 0.12;  $p = 0.09$ ). Nevertheless, the decisions not to share either the SLR Risk or the SLR Adaptation video can be

analyzed. Figure 4 presents a big visible difference between not believing and believing in climate change existence for the decision not to share the SLR Risk video and a less big difference for not sharing the SLR Adaptation video. Among those who do not believe in climate change, 85.29% of the respondents shared the SLR Risk video, and 14.71% decided against sharing. In contrast, 99.14% of participants who believed in the existence of climate change chose to share the SLR Risk video, and only 0.86% chose not to. The application of a t-test shows that non-believer and believers of climate change significantly differ in their decision not to share the SLR Risk video (*ms\_risk1: two-sample t-test*  $n = 734$ , *diff. (no belief – belief) = 0.13;  $p = 0.00$* ). Participants who do not believe in climate change share 88.24% of the SLR Adaptation video, and 11.76% do not share it. Those convinced of its existence showed similar behaviour. Of them, 85.57% shared the SLR Adaptation Video, and 14.43% did not. The applied t-test confirms that the differences are not significant (*ms\_adaptation1: two-sample t-test*  $n = 734$ , *diff. (no belief – belief) = -.02;  $p = 0.67$* ).

The wrapped-up results state that respondents who do not believe in climate change share the SLR Risk video significantly less often. Conversely, participants who do not believe in climate change are less likely to share the SLR Risk video. The null hypothesis that the probability of sharing the video highlighting the treats of SLR to coastal areas in the U.S., i.e., the SLR Risk videos, is equal between respondents who do and do not believe in climate change can therefore be rejected under all conditions. These results did not hold concerning the SLR Adaptation video alone. In this case, significant differences between respondents who believe and respondents who do not believe in the existence of climate change cannot be established.

## 6. Empirical Results

The two hypotheses can be partially evaluated based on previous statistical tests in the causal inference and descriptive part. Probit regression models with three different outcome variables were applied to perform more accurate testing of the hypotheses.

### 6.1. Model Construction

In each model, a probit regression predicts the likelihood of respondents engaging in motivated sharing or not. Probit regression models are appropriate if the probability of a binary outcome is assessed (Noree, 1988, 120). Previous descriptive analysis suggested differences between the decisions not to share either the SLR Risk or the SLR Adaptation video. The three models regressed included belief predictors, a treatment dummy, interaction terms, and control variables. Huber-White's robust standard errors account for heteroskedasticity. Robust standard errors avoid that the variance of the error term depends on the value of the independent variable (Huber, 1967; White, 1980).

The independent variables are inserted into the model in stages. One by one, the probit model estimates the respective dependent variable. Within the first stage, a *Climate Beliefs* vector was added, including "CC Exist", "CC Knowledge", "CC Knowledge squared", "CC future perception", "CC future perception SLR", and the interactions with the fake news priming. The second stage included the *Political Beliefs* variables "liberal Democrat", "conservative Republican", and interactions with the priming. During the third stage, the variables "Trust in media" and "Trust in Fox News", plus its interactions with the priming, were added to the model. At the fourth stage, just socio-economic variables, including priming interactions. *Dogmatism* and related priming interactions were regressed at the fifth stage. In the last step, the variables that had already separately estimated the dependent variable are all incorporated into the probit regression at once. In total, for each of the dependent variables, six different models were estimated.

The output of the probit regression is transformed into margins. Interaction terms within the models used do not have any marginal effects. Stata is only able to provide the marginal effects of the component terms. The value of the interaction term cannot change independently of the values of the component terms. Thus, a separate effect for the interaction cannot be estimated (Williams, 2012, p. 329).

## 6.2. Main Results

### (i) General motivated sharing

The model below tries to explain how individual beliefs can explain motivated sharing in general. In this experimental setting, respondents have seen the SLR Risk and the SLR Adaptation video. Table 3 outlines the results of the probit regression.

#### 4. *Motivated Sharing*

$$\begin{aligned} = & \alpha + \beta_1(\text{Treatment}) + \beta_2(\text{Climate Beliefs}_i) + \beta_3(\text{Political Beliefs}_i) + \beta_4(\text{Media Trust}_i) \\ & + \beta_5(\text{Dogmatism}_i) + \beta_6(\text{Interactions}_i) + \beta_7(\text{Controls}_i) + \varepsilon \end{aligned}$$

McFadden's pseudo-R-squared statistic estimates the goodness-of-fit of the probit model. The coefficient calculates the explained variance of the forecasted values for the latent dependent variable (Hagle and Mitchell II, 1992; Veall and Zimmermann, 1994). The pseudo-R-squared estimated across the six different models is low. Even after regressing the entire model, it can only explain 8% of the variance. In the full model, only the joint LR-Test for the group of climate change belief variables is significant on a 5%-significance level. Thus, at least one of the coefficients in the climate change belief group in the model is not equal to zero.

The sixth model has the highest explanatory power compared to the previously estimated models. The p-values of the variables *CC\_Exist* ( $p < .05$ ; *coef.* -.20), *Trust in Fox News* ( $p < .05$ ; *coef.* -.04), and *Dogmatism* ( $p < .05$ ; *coef.* .02) indicate that on a 5%-alpha level these parameters are statistically different from zero. The expected difference in probability that a respondent will be engaged in motivated sharing in general ( $ms_1 = 1$ ) associated with believing in the existence of climate change ( $CC\_exist = 1$ ) is a 20 percentage points decrease. In other words, a respondent who believe in the existence of climate change is less likely to engage in motivated sharing. The average marginal effect on the probability of being engaged in motivated sharing associated with a one-unit difference in the trust into climate change reporting of Fox News is a 4 percentage points decrease. Thus, respondents with higher trust in Fox News climate change reporting are more likely to engage in motivated sharing. The average marginal effect on the probability of being engaged in motivated sharing associated with a one-unit difference in dogmatism is a 2 percentage points increase, i.e., the respondent with a higher level of dogmatism is more likely to engage in motivated sharing. The *age* variable lost its significant effect after adding more persuasion variables and socio-economic variables to the model.

The regression stated that the effect of believing in the existence of climate change is significantly different from zero. Instead, respondents are less likely to engage in motivated sharing, i.e., respondents who believe in climate change are more likely to share all available information.

Concerning the fake news priming, the results show that the effect of the variable *Prime\_FN* on the decision to withheld information is not different from zero. The Null, displaying that the fake news prime has an effect not different from zero on the decision to engage in motivated sharing, cannot be rejected. The LR tests of the variable groups containing the interactions with the variable *prime\_FN* are also insignificant at a 5% significance level. Thus, there are no heterogeneous treatment effects between the priming and other variables in this model.

Table 3: Probit regression of motivated sharing after seeing both SLR videos

| Motivated Sharing after seeing both information videos |                               |                               |                               |                               |                               |                               |
|--------------------------------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| VARIABLES                                              | (1)<br>Motivated Shar-<br>ing | (2)<br>Motivated Shar-<br>ing | (3)<br>Motivated Shar-<br>ing | (4)<br>Motivated Shar-<br>ing | (5)<br>Motivated Shar-<br>ing | (6)<br>Motivated Shar-<br>ing |
| Fake News Prime                                        | -0.01<br>(0.03)               | -0.01<br>(0.03)               | -0.01<br>(0.03)               | -0.01<br>(0.03)               | -0.00<br>(0.03)               | -0.00<br>(0.03)               |
| <i>Climate Change Be-<br/>liefs</i>                    |                               |                               |                               |                               |                               |                               |
| CC Exist                                               | <b>-0.18*</b><br>(0.09)       |                               |                               |                               |                               | <b>-0.20**</b><br>(0.09)      |
| CC Knowledge                                           | 0.03<br>(0.09)                |                               |                               |                               |                               | -0.01<br>(0.09)               |
| CC FP                                                  | 0.01<br>(0.01)                |                               |                               |                               |                               | 0.01<br>(0.01)                |
| CC FP SLR                                              | -0.01<br>(0.02)               |                               |                               |                               |                               | -0.02<br>(0.02)               |
| <i>Political Beliefs</i>                               |                               |                               |                               |                               |                               |                               |
| Liberal Democrat                                       |                               | 0.07<br>(0.05)                |                               |                               |                               | 0.03<br>(0.05)                |
| Conserv. Republican                                    |                               | 0.00<br>(0.06)                |                               |                               |                               | 0.02<br>(0.07)                |
| <i>Media Trust</i>                                     |                               |                               |                               |                               |                               |                               |
| Trust in Media                                         |                               |                               | 0.02<br>(0.01)                |                               |                               | 0.01<br>(0.01)                |
| Trust in Fox News                                      |                               |                               | -0.02<br>(0.02)               |                               |                               | <b>-0.04**</b><br>(0.02)      |
| <i>Socioeconomics</i>                                  |                               |                               |                               |                               |                               |                               |
| Female                                                 |                               |                               |                               | -0.02<br>(0.03)               |                               | -0.02<br>(0.03)               |
| Age                                                    |                               |                               |                               | <b>0.00**</b><br>(0.00)       |                               | <b>0.00*</b><br>(0.00)        |
| In Household Income                                    |                               |                               |                               | -0.02<br>(0.02)               |                               | -0.02<br>(0.02)               |
| Education                                              |                               |                               |                               | 0.01<br>(0.01)                |                               | 0.00<br>(0.01)                |
| White                                                  |                               |                               |                               | -0.06*<br>(0.03)              |                               | <b>-0.06*</b><br>(0.03)       |
| Coastal Resident                                       |                               |                               |                               | -0.03<br>(0.03)               |                               | -0.04<br>(0.03)               |
| Dogmatism                                              |                               |                               |                               |                               | <b>0.02***</b><br>(0.01)      | <b>0.02**</b><br>(0.01)       |
| Observations                                           | 734                           | 734                           | 734                           | 718                           | 734                           | 718                           |
| Pseudo R-squared                                       | 0.02                          | 0.00                          | 0.02                          | 0.03                          | 0.02                          | 0.08                          |
| <i>LR-Test:</i>                                        |                               |                               |                               |                               |                               |                               |
| Priming                                                | 0.86                          | 0.53                          | 0.17                          | 0.67                          | 0.96                          | 0.52                          |
| CC_Beliefs                                             | 0.15                          |                               |                               |                               |                               | 0.03                          |
| CC_Beliefs Int.                                        | 0.71                          |                               |                               |                               |                               | 0.46                          |
| Pol_Beliefs                                            |                               | 0.97                          |                               |                               |                               | 0.78                          |
| Pol_Beliefs Int.                                       |                               | 0.53                          |                               |                               |                               | 0.36                          |
| Dogmatism                                              |                               |                               |                               |                               | 0.00                          | 0.06                          |
| Dogmatism Int.                                         |                               |                               |                               |                               | 0.12                          | 0.63                          |
| Socioeconomics                                         |                               |                               |                               | 0.01                          |                               | 0.12                          |
| Socioeconomics Int.                                    |                               |                               |                               | 0.14                          |                               | 0.24                          |
| Media Trust                                            |                               |                               | 0.04                          |                               |                               | 0.09                          |
| Media Trust Int.                                       |                               |                               | 0.06                          |                               |                               | 0.27                          |

**Note:** Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; Dependent variable in each column is motivated sharing in general after seeing both information videos (ms1). The dummy variable is taking values from 0 to 1 if the respondents shared less than the provided videos. In column 1 climate change beliefs are added into the model, column 2 includes political beliefs, column 3 includes media trust, column 4 socio-economic beliefs, column 5 includes dogmatism. In column 6 the full model is estimated.

## (ii) Retaining the SLR Risk Video

In this model, the probability not to share the SLR Risk video is estimated after respondents have seen both videos about SLR. The independent variables remain the same. Table 4 depicts the statistical results of the probit regression model.

### 5. *MotivatedSharing*<sub>Risk</sub>

$$= \alpha + \beta_1(\text{Treatment}) + \beta_2(\text{Climate Beliefs}_i) + \beta_3(\text{Political Beliefs}_i) + \beta_4(\text{Media Trust}_i) \\ + \beta_5(\text{Dogmatism}_i) + \beta_6(\text{Interactions}_i) + \beta_7(\text{Controls}_i) + \varepsilon$$

Stata could not perform the first calculation of the probit regression adequately. In the model with all variables, the interaction term between fake news prime and ethnicity white did not reach convergence. To calculate the model, the interaction between *eth\_white* and *prime\_FN* had to be removed. After including all remaining explanatory variables in the model, the regression was calculated again. In the model, the pseudo-R-squared increases to 0.38. The model explains the variance of the decision not to share the SLR Risk video better than the decision to engage in motivated sharing in general. Adding all explanatory variables into the regression, the p-values of the joint LR-Tests decline rapidly. The p-values of the variables in the groups of *climate change beliefs*, *climate change belief interactions*, *political beliefs interactions*, *dogmatism interactions*, *socioeconomics*, *socio-economics interactions*, and *media trust interactions* are significant on a 5%-significance level. At least one of the regression coefficients in these groups is not equal to zero.

The p-values of the marginal effects of *cc\_exist* ( $p < .01$ ; *coef.* -.13), *Liberal Democrat* ( $p < .05$ ; *coef.* .10), *female* ( $p < .01$ ; *coef.* -.03) and *Education* ( $p < .05$ ; *coef.* -.01) are statistically significant on a 5%-significance level. Based on this, it can be concluded that the expected difference in probability that a respondent will not share the SLR Risk video (*ms\_risk1* = 1) associated with believing in the existence of climate change (*cc\_exist* = 1) is a 13 percentage point decrease. Those who believe in the existence of climate change are less likely to withhold the SLR Risk video. The effect of *cc\_exist* has the same direction as during the estimation of motivated sharing in general. The expected difference in probability that a respondent will not share the SLR Risk video associated with being a strongly liberal democrat (*lib\_dem* = 1) is a 10 percentage points increase. In other words, respondents who identify themselves as strongly liberal democrats are more likely to withhold the SLR Risk video. Besides individuals' beliefs, socioeconomics affects the decision not to share the SLR Risk video as well. The expected difference in probability that a respondent will not share the SLR Risk video associated with being female (*female* = 1) is a 3 percentage points decrease. In other words, female respondents are less likely to withhold the SLR Risk video. Observing education shows that the average marginal effect on the probability of the

dependent variable associated with a one-year increase in education is a 1 percentage point decrease. Better educated respondents are slightly less likely to withhold the SLR Risk video. The *age* variable lost its significant effect after adding more persuasion variables and socio-economic variables to the model.

As in the analysis of generally motivated sharing described above, priming also has no significant effect on the decision whether to share the SLR Risk video or not. The LR tests of the variable groups *Climate Change Belief Interactions*, *Political Beliefs Interaction*, *Dogmatism Interactions*, *Socio-Economics Interactions*, and *Media Trust Interactions* are significant at a 5% significance level. The listed variable groups contain interaction terms with the variable *prime\_FN*. Thus, regression coefficients included are statistically different from zero. Consequently, heterogeneous treatment effects exist between the variables and fake news priming. The direction, as well as the strength of the effects, cannot be determined. This circumstance originates from the fact that the value of the interaction term cannot change independently of the values of the component terms. A separate effect for the interaction cannot be estimated (Williams, 2012). Thus, the interaction effects between the variables and the priming are already integrated in the marginal effects.

Table 4: Probit regression of not sharing the SLR Risk video; both SLR videos

| Not sharing SLR Risk video after seeing both information videos |                          |                         |                         |                         |                         |                           |
|-----------------------------------------------------------------|--------------------------|-------------------------|-------------------------|-------------------------|-------------------------|---------------------------|
| VARIABLES                                                       | (1)<br>MS Risk<br>Video  | (2)<br>MS Risk<br>Video | (3)<br>MS Risk<br>Video | (4)<br>MS Risk<br>Video | (5)<br>MS Risk<br>Video | (6)<br>MS Risk<br>Video   |
| Fake News Prime                                                 | -0.01<br>(0.01)          | -0.00<br>(0.01)         | -0.01<br>(0.01)         |                         | -0.01<br>(0.01)         | -0.00<br>(0.01)           |
| <i>Climate Change Beliefs</i>                                   |                          |                         |                         |                         |                         |                           |
| CC Exist                                                        | <b>-0.14**</b><br>(0.08) |                         |                         |                         |                         | <b>-0.13***</b><br>(0.06) |
| CC Knowledge                                                    | -0.01<br>(0.02)          |                         |                         |                         |                         | -0.02<br>(0.03)           |
| CC FP                                                           | 0.00<br>(0.00)           |                         |                         |                         |                         | -0.00<br>(0.00)           |
| CC FP SLR                                                       | -0.00<br>(0.00)          |                         |                         |                         |                         | -0.01*<br>(0.00)          |
| <i>Political Beliefs</i>                                        |                          |                         |                         |                         |                         |                           |
| Liberal Democrat                                                |                          | 0.03<br>(0.02)          |                         |                         |                         | <b>0.10***</b><br>(0.03)  |
| Conserv. Republican                                             |                          | 0.07<br>(0.04)          |                         |                         |                         | 0.04*<br>(0.04)           |
| <i>Media Trust</i>                                              |                          |                         |                         |                         |                         |                           |
| Trust in Media                                                  |                          |                         | -0.00<br>(0.00)         |                         |                         | -0.00<br>(0.00)           |
| Trust in Fox News                                               |                          |                         | 0.01<br>(0.01)          |                         |                         | -0.00<br>(0.01)           |
| <i>Socioeconomics</i>                                           |                          |                         |                         |                         |                         |                           |
| Female                                                          |                          |                         |                         | -0.01<br>(0.01)         |                         | <b>-0.03***</b><br>(0.01) |
| Age                                                             |                          |                         |                         | <b>0.00**</b><br>(0.00) |                         | 0.00*<br>(0.00)           |
| ln Household Income                                             |                          |                         |                         | -0.01<br>(0.01)         |                         | -0.01<br>(0.01)           |
| Education                                                       |                          |                         |                         | -0.00<br>(0.00)         |                         | <b>-0.01**</b><br>(0.00)  |
| White                                                           |                          |                         |                         | -                       |                         | -0.00<br>(0.01)           |
| Coastal Resident                                                |                          |                         |                         | -0.00<br>(0.01)         |                         | 0.01<br>(0.01)            |
| Dogmatism                                                       |                          |                         |                         |                         | 0.00<br>(0.00)          | 0.00<br>(0.00)            |
| Observations                                                    | 734                      | 734                     | 734                     | 612                     | 734                     | 718                       |
| Pseudo R-squared                                                | 0.16                     | 0.08                    | 0.05                    | 0.14                    | 0.05                    | 0.32                      |
| <i>LR-Test:</i>                                                 |                          |                         |                         |                         |                         |                           |
| Priming                                                         | 0.57                     | 0.67                    | 0.26                    | 0.63                    | 0.73                    | 0.51                      |
| CC_Beliefs                                                      | 0.00                     |                         |                         |                         |                         | 0.04                      |
| CC_Beliefs Int.                                                 | 0.81                     |                         |                         |                         |                         | 0.02                      |
| Pol_Beliefs                                                     |                          | 0.07                    |                         |                         |                         | 0.22                      |
| Pol_Beliefs Int.                                                |                          | 0.99                    |                         |                         |                         | 0.00                      |
| Dogmatism                                                       |                          |                         |                         |                         | 0.05                    | 0.03                      |
| Dogmatism Int.                                                  |                          |                         |                         |                         | 0.02                    | 0.00                      |
| Socioeconomics                                                  |                          |                         |                         | 0.01                    |                         | 0.00                      |
| Socioeconomics Int.                                             |                          |                         |                         | 0.00                    |                         | 0.00                      |
| Media Trust                                                     |                          |                         | 0.81                    |                         |                         | 0.07                      |
| Media Trust Int.                                                |                          |                         | 0.50                    |                         |                         | 0.00                      |

**Note:** Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; Dependent variable in each column is not sharing the SLR Risk video after seeing both information videos (ms\_risk1). The dummy variable is taking values from 0 to 1. In column 1 climate change beliefs are added into the model, column 2 includes political beliefs, column 3 includes media trust, column 4 socio-economic beliefs, column 5 includes dogmatism. In column 6 the full model is estimated. The interaction between eth\_white and the fake news prime are omitted in the model.

### (iii) Retaining only the SLR Adaptation Video

The third model estimated the probability not to share the SLR Adaptation video. In this case, the participants have seen both videos and decide whether to distribute the two videos. The model remains the same again. The statistical results are outlined in table 5.

#### 6. *MotivatedSharing<sub>Adaptation</sub>*

$$\begin{aligned} = & \alpha + \beta_1(Treatment) + \beta_2(Climate\ Beliefs_i) + \beta_3(Political\ Beliefs_i) + \beta_4(Media\ Trust_i) \\ & + \beta_5(Dogmatism_i) + \beta_6(Interactions_i) + \beta_7(Controls_i) + \varepsilon \end{aligned}$$

Stata could not perform the first calculation of the probit regression. The reason for this was the output of the regression. The regression output showed that Stata could not estimate the interaction between *con\_rep* and the fake news prime *prime\_FN*. To calculate the model adequately and to predict the effect of the priming, the interaction between *prime\_FN* and *con\_rep* was omitted. After all variables are inserted into the model, the model obtains a pseudo-R-squared of 0.12. The LR-test of the variable group of climate change beliefs achieves a significant p-value on a 5% significance level. This evaluation concluded that at least one of the included regression coefficients in the group is not equal to zero.

The p-values of the marginal effects of *cc\_fp\_slr* ( $p < .05$ ; *coef.*  $-.03$ ), *con\_rep* ( $p < .01$ ; *coef.*  $-.10$ ), *trust in Fox News* ( $p < .05$ ; *coef.*  $-.04$ ) and *dogmatism* ( $p < .01$ ; *coef.*  $.02$ ) are significant on a 5%-significance level. The average marginal effect on the probability of not sharing the SLR Adaptation video associated with a one unit increase in *cc\_fp\_slr* is a 3 percentage points decrease. Respondents who evaluate that climate change makes consequences like SLR and loss of coastal land more likely are less likely not to withhold the SLR Adaptation video. The expected difference in probability that a respondent will not share the SLR Adaptation video associated with being a strongly conservative republican (*con\_rep* = 1) is 10 percentage points decrease. Respondents who identify themselves as strongly conservative Republicans are less likely to withhold the SLR Adaptation video. The average marginal effect on the probability of not sharing the SLR Adaptation video (*ms\_adaptation1* = 1) associated with a one-unit difference in *trust in Fox News* is a 4 percentage points decrease. Thus, respondents with higher trust in the climate change reporting of Fox News are less likely not to withhold the SLR Adaptation video. The average marginal effect on the probability of not sharing the SLR Adaptation video (*ms\_adaptation1* = 1) associated with a one-unit difference in *dogmatism* is a 2 percentage points increase. It follows that those respondents who score higher values on the dogmatism scale are more likely to withhold the SLR Adaptation video. The variable *trust in media* lost its significant effect after adding more belief variables and socio-economic variables to the model.

Neither the fake news prime nor the individual belief in the existence of climate change has any influence. Both effects are not significantly different from zero. Since no LR -tests of the variable groups with the interactions are significant at a 5% significance level, there are no heterogeneous treatment effects.

Table 5: Probit regression of not sharing the SLR Adaptation video; both SLR videos

| Not sharing SLR Adaptation video after seeing both information videos |                             |                             |                             |                             |                             |                             |
|-----------------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| VARIABLES                                                             | (1)<br>Adapt. not<br>shared | (2)<br>Adapt. not<br>shared | (3)<br>Adapt. not<br>shared | (4)<br>Adapt. not<br>shared | (5)<br>Adapt. not<br>shared | (6)<br>Adapt. not<br>shared |
| Fake News Prime                                                       | -0.01<br>(0.03)             |                             | -0.00<br>(0.03)             | -0.00<br>(0.03)             | 0.00<br>(0.03)              | 0.00<br>(0.03)              |
| <i>Climate Change Beliefs</i>                                         |                             |                             |                             |                             |                             |                             |
| CC Exist                                                              | -0.05<br>(0.08)             |                             |                             |                             |                             | -0.11<br>(0.09)             |
| CC Knowledge                                                          | -0.01<br>(0.07)             |                             |                             |                             |                             | 0.06<br>(0.07)              |
| CC FP                                                                 | 0.01<br>(0.01)              |                             |                             |                             |                             | 0.01<br>(0.01)              |
| CC FP SLR                                                             | -0.02<br>(0.01)             |                             |                             |                             |                             | <b>-0.03**</b><br>(0.01)    |
| <i>Political Beliefs</i>                                              |                             |                             |                             |                             |                             |                             |
| Liberal Democrat                                                      |                             | 0.04<br>(0.05)              |                             |                             |                             | -0.02<br>(0.04)             |
| Conserv. Republican                                                   |                             | -                           |                             |                             |                             | <b>-0.10***</b><br>(0.04)   |
| <i>Media Trust</i>                                                    |                             |                             |                             |                             |                             |                             |
| Trust in Media                                                        |                             |                             | <b>0.02***</b><br>(0.01)    |                             |                             | 0.01<br>(0.01)              |
| Trust in Fox News                                                     |                             |                             | <b>-0.04**</b><br>(0.02)    |                             |                             | <b>-0.04**</b><br>(0.02)    |
| <i>Socioeconomics</i>                                                 |                             |                             |                             |                             |                             |                             |
| Female                                                                |                             |                             |                             | 0.00<br>(0.03)              |                             | 0.01<br>(0.03)              |
| Age                                                                   |                             |                             |                             | 0.00<br>(0.00)              |                             | 0.00<br>(0.00)              |
| In Household Income                                                   |                             |                             |                             | -0.00<br>(0.02)             |                             | -0.00<br>(0.02)             |
| Education                                                             |                             |                             |                             | 0.01**<br>(0.01)            |                             | 0.01<br>(0.01)              |
| White                                                                 |                             |                             |                             | -0.06*<br>(0.03)            |                             | -0.05<br>(0.03)             |
| Coastal Resident                                                      |                             |                             |                             | -0.02<br>(0.03)             |                             | -0.04<br>(0.03)             |
| Dogmatism                                                             |                             |                             |                             |                             | <b>0.02***</b><br>(0.01)    | <b>0.02***</b><br>(0.01)    |
| Observations                                                          | 734                         | 716                         | 734                         | 718                         | 734                         | 718                         |
| Pseudo R-squared                                                      | 0.04                        | 0.01                        | 0.04                        | 0.04                        | 0.02                        | 0.11                        |
| <i>LR-Test:</i>                                                       |                             |                             |                             |                             |                             |                             |
| Priming                                                               | 0.94                        | 0.55                        | 0.25                        | 0.36                        | 0.75                        | 0.54                        |
| CC_Beliefs                                                            | 0.13                        |                             |                             |                             |                             | 0.43                        |
| CC_Beliefs Int.                                                       | 0.45                        |                             |                             |                             |                             | 0.76                        |
| Pol_Beliefs                                                           |                             | 0.50                        |                             |                             |                             | 0.05                        |
| Pol_Beliefs Int.                                                      |                             | 0.11                        |                             |                             |                             | 0.09                        |
| Dogmatism                                                             |                             |                             |                             |                             | 0.00                        | 0.01                        |
| Dogmatism Int.                                                        |                             |                             |                             |                             | 0.26                        | 0.66                        |
| Socioeconomics                                                        |                             |                             |                             | 0.05                        |                             | 0.33                        |
| Socioeconomics Int.                                                   |                             |                             |                             | 0.10                        |                             | 0.11                        |
| Media Trust                                                           |                             |                             | 0.01                        |                             |                             | 0.06                        |
| Media Trust Int.                                                      |                             |                             | 0.08                        |                             |                             | 0.33                        |

**Note:** Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; Dependent variable in each column is not sharing the SLR Adaptation video (ms\_adaptation1) after seeing both information videos (ms\_adaptation1). The dummy variable is taking values from 0 to 1. In column 1 climate change beliefs are added into the model, column 2 includes political beliefs, column 3 includes media trust, column 4 socio-economic beliefs, column 5 includes dogmatism. In column 6 the full model is estimated.

The regression results are used to examine the hypotheses. The first hypothesis assumed that the probability of sharing the SLR Risk video is lower for respondents who do not believe in climate change. It can be stated that whether a person believes in climate change has different effects between the two videos. In general, people who are convinced of climate change are less motivated to share all available information. It is more likely that not all information are shared because the effect is composed of the decisions to share the SLR Risk video and the SLR Adaptation video. The regression shows that respondents are significantly less likely not to share the SLR Risk video if they believe in climate change. In contrast, there is no significant effect from believing in climate change towards not sharing the SLR Adaptation video. The null hypothesis that the probability of sharing the SLR Risk video is equal to zero for respondents who do not believe in climate change can be rejected. It holds that a non-believer in climate change has a significantly lower probability of disseminating the SLR Risk video and vice versa.

The second hypothesis assumed that respondents are more likely to share only information corresponding to their prior beliefs if they are reminded not to share false information. Based on the hypothesis, the fake news prime should reinforce motivated sharing. Contrary to the expectations, the statistical results revealed that the treatment directly influenced respondents sharing decisions in no one of the different conditions. However, the probit model to estimate whether the SLR Risk video is not shared (see Table 5) showed significant p-values of the LR-tests for the grouped variables *Political Beliefs Interactions*, *Socio-economics Interactions*, and *Media Trust Interactions*. All variables in the groups are interactions with the priming variable. The coefficients are not equal to zero and thus have a significant effect on the dependent variable. The direction of the interaction effects cannot be determined with marginal effects, as explained before.

### 6.3. Additional Results

Descriptive analysis of the data has already established differences in the frequency of not sharing the SLR Risk and the SLR Adaptation video. The decision not to share the SLR Risk video was significantly affected by the variables *cc\_exist*, *cc\_knowledge*, *lib\_dem*, *female*, *education*, and *dogmatism*. In contrast, the variables *trust in Fox News* and *dogmatism* significantly influenced not to share the SLR Adaptation video. Dogmatism was significant in all three models. When dogmatism scores were higher, participants were, on average, more likely to choose to withhold information. Although dogmatism had significant effects in both probit regressions, the decision not to share either the SLR Risk video or the SLR Adaptation video is shown to depend on different beliefs.

#### 6.4. Robustness Check

In real life, individuals cannot choose between two pieces of information all the time. The robustness check aims to determine whether the analysis results in the preliminary phase also apply in a changed initial situation. The information-sharing task was carried out in two other situations to create a more realistic setting. Some respondents received just the SLR Risk ( $n = 159$ ) or only the SLR Adaptation Video ( $n = 172$ ). As in the situation of seeing two videos, respondents could either share or withhold the information. The duration of the task stayed the same. Instead of the second video, participants also saw a placeholder with a 60-second countdown.

The results of the data analysis after the participants watched two videos should also apply to the participants who saw only one of the two videos. First, the fake news priming should not influence the decision to share the information after watching only one of the two videos. Secondly, the belief in the existence of climate change should solely affect the decision to share the SLR Risk video, but not the SLR Adaptation video. Third, the beliefs that influence the decision to share the SLR risk video should be different compared to the beliefs which affect the decision to share the SLR adaptation video.

#### Causal Inference

Statistical inference is retested for the sample that has seen just the SLR Risk and just the SLR Adaptation video. Two-sample t-tests calculated the balance of the sample and searched for differences between EG and CG. The difference-in-means test table for video condition was just the SLR Risk video was shown, indicates (see Appendix Table 7) that the treatment and control group differ significantly in terms of education (*edu*,  $p=0.00$ ), trust in media (*media\_trust*,  $p=0.00$ ), and CC knowledge (*cc\_knowledge*,  $p=0.03$ ). Table 8 depicts the difference-in-means test table (see Appendix). The treatment and control groups differ significantly in political party identification (*political\_party*,  $p=0.04$ ). It follows that the sample of people who watched only the SLR risk video is unbalanced in more variables than the sample of participants who watched only the SLR adaptation video and those who watched both SLR videos.

A t-test tested the differences between variables, which were queried after the priming. The t-test test for across treatment and control groups (see Appendix Table 9 and 10). As in the situation where the participants watched two information videos, there are no significant differences in the sharing behaviour between EG and CG in the two settings where the participants watched only one video. Once again, after watching the priming video, significant differences appear in the participants' level of dogmatism (*Video Condition 2: two-sample t-test  $n = 295$ , diff. (no prime*

– prime) = - 0.74;  $p = 0.002$ ; Video Condition 3: two-sample  $t$ -test  $n = 293$ , diff. (no prime – prime) = 0.83;  $p = 0.0006$ ).

## Regression Results

The independent variables in the probit regression for the robustness check remained unchanged as in the regression to calculate the probability to engage in motivated sharing after seeing both SLR videos. After seeing just, the SLR Risk or the SLR Adaptation video, the dependent variables changed. Dependent dummy variables are *Motivated Sharing of the SLR Risk video* ( $ms\_risk2$ ) and *Motivated Sharing of the SLR Adaptation video* ( $ms\_adaptation3$ ). Both variables change from 0 to 1 if the respective video is not shared, i.e., the respondent engaged in motivated sharing.

### (i) Motivated sharing after seeing just the SLR Risk Video

The first robustness check model estimated the probability of not sharing the SLR Risk video after a respondent watched only this video. Table 11 outlines the regression results (see Appendix).

#### 7. *MotivatedSharing<sub>just Risk</sub>*

$$= \alpha + \beta_1(Treatment) + \beta_2(Climate\ Beliefs_i) + \beta_3(Political\ Beliefs_i) + \beta_4(Media\ Trust_i) + \beta_5(Dogmatism_i) + \beta_6(Interactions_i) + \beta_7(Controls_i) + \varepsilon$$

By adding all independent variables step by step, the pseudo-R-square yields a maximum explanatory power of 0.32. The grouped variables *climate change beliefs*, *climate change beliefs interactions*, *dogmatism interactions*, *socioeconomics*, and *socio-economics interactions* show significant  $p$ -values on a 5%-significance level after applying LR-tests. It can be concluded that in these variable groups, at least one of the included regression coefficients is not equal to zero. Thus, heterogeneous treatment effects are also likely to be significant.

The marginal effects of *CC Future Perception* ( $p < .05$ ; coef. -.01), *CC Future Perception SLR* ( $p < .05$ ; coef. .03), and *Dogmatism* ( $p < .01$ ; coef. -.02) achieve  $p$ -values which are significant on a 5%-significance level. The average marginal effect on the probability of not sharing the SLR Risk video ( $ms\_risk2 = 1$ ) after seeing just the SLR Risk video associated with a one-unit difference in climate change future perception is a 1 percentage point decrease. In other words, respondents with higher levels of climate change future perception are less likely to withhold the SLR Risk video. The average marginal effect on the probability of not sharing the SLR Risk video ( $ms\_risk2 = 1$ ) after seeing just the SLR Risk video associated with a one-unit difference in climate change future perception towards SLR is a 3 percentage points increase. Rephrasing, respondents with higher levels of climate change future perception SLR are more likely to withhold the SLR Risk

video. The average marginal effect on the probability of not sharing the SLR Risk video ( $ms\_risk2 = 1$ ) after seeing just the SLR Risk video associated with a one-unit difference in dogmatism is a 2 percentage points decrease. Put differently, respondents with higher levels of dogmatism are less likely to withhold the SLR Adaptation video.

## (ii) Motivated sharing after seeing just the SLR Adaptation Video

The second model used in the robustness check estimates the probability not to share the SLR Adaptation video after a respondent watched only this video. Table 12 outlines the regression results (see Appendix).

### 8. *Motivated Sharing<sub>just Adaptation</sub>*

$$= \alpha + \beta_1(Treatment) + \beta_2(Climate\ Beliefs_i) + \beta_3(Political\ Beliefs_i) + \beta_4(Media\ Trust_i) \\ + \beta_5(Dogmatism_i) + \beta_6(Interactions_i) + \beta_7(Controls_i) + \varepsilon$$

The first calculation of the regression shows that Stata couldn't calculate the marginal effect of priming. This is because the coefficient of the interaction between conservative Republicans (*con\_rep*) and fake news priming is empty. Before repeating the estimation of the dependent variable, the interaction between conservative Republicans and the fake news Prime was omitted. By adding all remaining independent variables step by step, the pseudo-R-square yields a maximum explanatory power of 0.15. In the full model, no joint LR-test for the variables is significant on a 5%-significance level. Thus, there is no evidence that there are heterogeneous treatment effects.

The marginal effects of the variables *CC Exist* ( $p < .05$ ; *coef.* -.43), *Trust in Fox News* ( $p < .01$ ; *coef.* -.0.10), *In Household Income* ( $p < .01$ ; *coef.* .07) and *White* ( $p < .05$ ; *coef.* 0.11) indicate significant p-values on a 5%-significance level. By observing the belief variables, it becomes visible that the expected difference in probability of not sharing the SLR Adaptation video after seeing just the video itself ( $ms\_adaptation3 = 1$ ) associated with believing in the existence of climate change is a 43 percentage points decrease. Respondents who believe in the existence of climate change are a lot less likely to withhold the SLR Adaptation video. The average marginal effect on the probability of not sharing the SLR Adaptation video associated with a one-unit difference in trust in Fox News is a 10 percentage points decrease. In other words, respondents with higher trust in climate change reporting of Fox News are less likely not withheld the SLR Adaptation video. Changes in the socio-economic variables of household income and being white indicate increasing likelihood to withhold the SLR Adaptation video. The average marginal probability of not sharing the SLR Adaptation video associated with a one-unit difference in *In household income* is a 7 percentage points increase, i.e., respondents with higher household income are more likely

not to share the SLR Adaptation video. The expected difference in probability of not sharing the SLR Adaptation video associated with being female is a 11 percentage points increase, making females more likely to withhold the SLR Adaptation video.

The results that the fake news prime has no direct influence on the individual's sharing decision seem robust. Estimating whether the SLR Risk video was not shared with the fake news prime was not significant, neither in the single belief models nor the complete model. Similarly, however, heterogeneous treatment effects can be found here and after both videos have been seen. However, after watching only the SLR Risk video, the heterogeneous treatment effects of the interactions of dogmatism and the socio-economic variables with priming are significant at a 5% level. In comparison, after watching both information videos, the interaction effects of political beliefs, socio-economic variables, and dogmatism were significant when deciding not to share the SLR Risk video. Estimating whether the SLR Adaptation video was not shared, neither in the single belief model nor the entire model was the fake news prime variable significant. Furthermore, no significant heterogeneous treatment effects were found. These results are consistent with those from the estimation of the decision not to share the SLR Adaptation video after participants had watched both videos in advance.

A closer look at respondents' belief in climate change existence reveals surprising results. The effect of *cc\_exist* on the decision not to share the SLR Risk video is not significant anymore. The decision not to share the SLR Adaptation video is significantly affected by respondents' belief in the existence of climate change. Respondents who believe in climate change are significantly more likely not to withhold the video when watching only the SLR Adaptation video. While the *cc\_exist* variable had no significant effect on the decision not to share the SLR Adaptation video after watching both SLR videos, climate change believers are 43 percentage points less likely not to share the SLR Risk video.

After the respondents had watched both videos, the probit regression results pointed out that different factors influenced the decision whether to share the SLR Risk or the SLR Adaptation video. Dogmatism was the only significant variable affecting the dissemination decision for both. Differences also exist in the situation where the respondents watched only one video. Thus, the decision not to share the SLR Risk video was significantly influenced by *cc\_fp*, *cc\_fp\_slr* and *dogmatism*. The variables *cc\_exist*, *trust in Fox News*, *ln\_HH\_income*, and *white* significantly affected the decision not to share the SLR adaptation video. Between the situations of watching only one video or both videos, different variables had effects on the respondents' evaluation of information and the decision to share them. Different variables significantly affected the dissemination decisions, if the SLR Risk video decision is compared between watching only the SLR

Risk video and watching both videos about SLR. A similar pattern is observable in the results of the model concerning the SLR Adaptation video. Both situations have only the significant variable *Trust in Fox News* in common. If respondents watched both videos, the decision to share the SLR Adaptation video was additionally affected by *cc\_fp\_slr* and *dogmatism*. Respondents' decision after watching just the SLR Adaptation video was additionally influenced by *cc\_exist*, *ln\_HH\_income*, and *white*.

The robustness check showed that the treatment to increase attention to fake news was insignificant for any video in any experimental situation. This result thus appears to be robust. Astonishingly, however, when participants saw only a single video, their belief in climate change had a different impact on their dissemination decision than when they saw two videos and could compare them in advance. Overall, the individual decision to distribute a video seems to depend on the experimental circumstances.

## 7. Discussion

The experiment in this thesis should answer whether prior beliefs affect individuals' decision not to disseminate information to random and anonymous persons. Two hypotheses were tested. The first – the probability of sharing the video highlighting the threats of SLR to coastal areas in the U.S. is lower for respondents who do not believe in climate change. The second – respondents are more likely to share information in line with their prior beliefs if they are reminded not to disseminate false information by a fake news prime. Study subjects were assigned to three different experimental settings. Respondents watched either both videos, the Video about SLR Risk and SLR Adaptation, or only one of each for robustness checking. The results express that no single factor pushes respondents to engage in motivated sharing in general. Instead, different beliefs in different experimental settings affect the sharing decisions of the respondents.

After seeing both videos, certain beliefs influenced respondents' decisions not to share the SLR Risk video. These beliefs are whether respondents think that climate change exists and identify themselves as strongly liberal democrats. Whereas believing in climate change made them less likely not to share the SLR Risk video, being a democrat made the respondents more likely not to share the SLR Risk video. Deciding about not sharing the SLR Adaptation video in this setting was influenced by climate change future perception towards SLR, being a conservative republican, the trust in climate change reporting of Fox News and, again, respondents' level of dogmatism. High levels of climate change future perception towards SLR, being a conservative republican, and high levels of trust in Fox News decreased the likelihood of not sharing the SLR Adaptation video. Highly dogmatic individuals were less likely not to share the SLR Adaptation video.

To test the robustness of the results, respondents watched either only the SLR Risk or SLR Adaptation video and decided to share or withhold the information video they had seen. Changing the decision-making situation reveal that some beliefs are affecting the sharing decision change. Not sharing the SLR Risk video is now affected by individuals' climate change future perception and their future perception of SLR. The belief in the existence of climate change and the level of dogmatism still affects the sharing decision. A high level of climate change future perception towards SLR made the respondents more likely not to share the SLR Risk video. High levels of climate change future perception and dogmatism decreased the likelihood not to share the SLR Risk video. Deciding not to share the SLR Adaptation video was significantly affected by the belief in the existence of climate change and trust in climate change reporting of Fox News. Climate change believers were less likely not to share the SLR Adaptation video. Those who

trusted Fox News reporting about climate change were more likely not to share the SLR Adaptation video.

Beliefs do not solely drive the sharing decision. Socio-economic factors affect video dissemination as well. If respondents are female or have higher levels of education, the likelihood not to share the SLR Risk video reduces after the respondents have seen both videos. Respondents who have seen just the SLR Adaptation video were more likely not to share the video if their ethnicity is white and when they earn higher incomes.

The first hypothesis predicted that the sharing probability of the video highlighting the threats of SLR to coastal areas in the U.S. is lower for respondents who do not believe in climate change. Respondents got an incentive to share all information through the lottery. They were more likely to withhold the SLR Risk video after watching both videos if they did not believe in climate change. Believing in the existence of climate change had no significant effect on the decision to share the SLR Adaptation video. The result of this scientific work supports previous research about motivated reasoning. Individuals with different beliefs draw different inferences from the same evidence (Kahan, 2012; Kahan, Jenkins-Smith and Braman, 2011). Distributing a video that blames climate change for sea-level rise challenges one's beliefs. Because of this reason, respondents may choose not to share the SLR Risk video, as such action was threatening their identity (Kahan *et al.*, 2007). However, the robustness check revealed unanticipated effects of the *cc\_exist* variable. The variable *cc\_exist* had no significant impact on the distribution decision of the SLR Risk video. In comparison, after seeing the SLR Adaptation video-solely, respondents who believe in climate change are significantly more likely to share the SLR Adaptation video. These ambiguous results call the validity of the hypothesis into question. The apparent difference between the first setting and the second and third setting is that respondents watched two instead of just one video. The lack of possibility to juxtapose the two videos may made respondents less able to compare the videos with their beliefs. When respondents saw both videos, they could compare and decide which video better matched their beliefs. If there is only one video, the respondent can only compare this video with her own beliefs.

The pseudo-R-square is relatively small in all models. Thus, the models do not predict much of the variability of the dependent variable. This may explain why the relationship between sharing the SLR Risk video after seeing just one video and *cc\_believe* was contrary to the assumption. The questionnaire may not ask essential convictions to estimate the probability of not sharing a video. This is known as omitted variable bias. Omitted variable bias is the omission of a set of variables from a regression that would help to estimate the dependent variable. Hence it is impossible to include all possibly relevant variables in a regression, omitted variable bias is

therefore unavoidable (Clarke, 2005). In a possible replication of the study, it is recommended to query a broader range of beliefs.

Not met was the assumption based on the hypothesis that respondents are more likely to share only information corresponding to their prior beliefs if they were reminded not to share fake news. There was no direct statistically significant effect from the fake news prime to respondents sharing decisions. No effect occurred neither in the experimental setting where respondents have seen both nor where they have solely watched the SLR Risk and SLR Adaptation videos. Thus, the impact of priming was indistinguishable from zero. The priming check itself was significant. It is unlikely that the priming video did not affect the participants at all. However, priming has no significant effect on the dissemination decision. It is not unexpected that the fake news treatment had no significant direct influence on the sharing decision of the respondents. For such information treatments to have a decisive impact on the behaviour of its consumers, they must be very convincing (Allcott and Gentzkow, 2017). The question arises whether short videos about fake news are powerful enough to change individual behaviour significantly. Previous research suggests that it might be insufficient to convince individuals in private to prevent the dissemination of given information (Bursztyn et al., 2020).

Instead, the probit regression estimated heterogeneous treatment effects between priming and individual variables in the different models. After participants watched both videos, the fake news prime interacted with different variables in the model that estimated whether the SLR Risk video would not be shared and whether the SLR Adaptation video would not be shared. The effect size and direction of the interactions could not be determined since estimating separate marginal effects for the interaction is not possible (Williams, 2012). The heterogeneous effects listed are integrated into the marginal effects of the independent variables. After watching both videos, the fake news prime interacted with the beliefs in the model, aiming to estimate the probability not to share the SLR Risk video. There are significant heterogeneous treatment effects between the prime and *political beliefs*, *socioeconomics*, and *media trust*. No interactions existed in the model to estimate the probability not to share the SLR Adaptation video. The robustness test stated that there are heterogeneous treatment effects in the estimation of whether the SLR Risk video was shared after seeing just this video. Significant effects occur between the interaction of the prime and *dogmatism*. No interactions effect happens in the estimation of not sharing the SLR Adaptation video after seeing just the SLR Adaptation video.

Although, on average, the effect of fake news prime on the decision not to share a video was not significant, the inclusion of the interaction terms in the model was beneficial. Integrating the interaction terms into the multivariate models helped to estimate the sharing probability of the

SLR Risk video. The heterogeneous treatment effects indicate that the treatment probably did not have the same effect on everyone. Thus, people with different characteristics were influenced differently by fake news priming.

Recent research has repeatedly demonstrated the role of beliefs during the evaluation of information and information evaluation in the specific context of climate change. Respondents interacted most of the time only with the researchers. They received text statements to evaluate (Kahan *et al.*, 2010; Kahan, Jenkins-Smith and Braman, 2011; Lewandowsky, Oberauer and Gignac, 2013; McCright and Dunlap, 2011a), judged expert opinions or arguments (Kahan *et al.*, 2008; Kahan, Jenkins-Smith and Braman, 2011), evaluated numeric study results (Kahan *et al.*, 2017), and participated in surveys (McCright and Dunlap, 2011b). This study differs from the research mentioned above. The respondents in this study interacted indirectly with other respondents, rather than only with those conducting the survey. Respondents' actions went beyond evaluating the information. They could actively decide about other people's opportunity to receive information about SLR. Results show that motivated sharing of information can occur in an experimental setting. Beliefs can have an impact not only during the evaluation of information, but also on their active dissemination. This study supports previous research on the topic of motivated reasoning. The influence of prior beliefs on evaluation holds and might go further. Beliefs seem to affect the actions of individuals. In this case, they motivate individual sharing decisions when individuals receive polarizing videos about SLR in an experimental setting.

### **Limitations and Future Research**

Nonetheless, the reader must interpret the results with caution. Several limitations should be born in mind. There are general limitations, concerning the sample and the method. The primary limitation to the generalization of the result is that the experiment was framed towards a climate change induced SLR. The reader should not draw direct conclusions from the results about how people evaluate and disseminate information on other polarizing issues such as abortion (Kahan *et al.*, 2007), genetically modified organisms (Kahan, 2008), gun laws (Kahan and Braman, 2003) or other polarizing issues. The polarizing issues are very different from each other. Already the different videos on SLR appealed to diverse beliefs among the respondents. The secondary limitation concerns the research sample. The sample consisted out of U.S. American Amazon MTurk workers. Despite the benefits of Amazon MTurk, the sample of the experiment is neither representative of the U.S. nor the U.S. online population (Mason and Suri, 2012). It should be avoided to draw general conclusions about the U.S. population or populations of other countries based on the sample. The sample is not perfectly balanced in any of the three video conditions. Under these conditions, the reader has to consider that the sampling error has

not been minimized (Friedman and Sunder, 1994, p. 96). Finally, the third limitation refers to the method used in the survey experiment. The information-sharing task was conducted in an experimental setting. Respondents stayed completely anonymous, briefly presented with video information, and shared information with random strangers. The experimental environment differs strongly from reality. In daily life, no one stays totally anonymous, even on the internet. Individuals leave traces on the internet with which one could conclude their identity (Christopherson, 2007). If individuals consume information, these can exist in various file formats. Whether a piece of information is presented in text form, video, picture, or audio file, the exposition possibly leads to different reactions. The fact that respondents received both or only one of the videos in the experiment led to different beliefs being addressed.

Regarding the generalizability of the results, the author strongly suggests that further research investigate the influence of prior beliefs on disseminating information on other polarizing issues. Moreover, it is questionable whether the dissemination of the SLR Risk video and the SLR Adaptation video in other countries also depends on the same beliefs among the USA respondents. Presumably, hidden beliefs exist, which could shed more light on why the respondents withhold one or both of the SLR videos. Since beliefs about peoples' reality go beyond the evaluation of individuals and extend to the assessment of empirical reality, it is possible that in different contexts, beliefs have a different impact on the assessment and dissemination of information (Clark and Winegard, 2020). Hence, the author recommends follow-up research to include different samples that represent other parts of the population and the application complementary experimental designs.

## 8. Conclusion

Motivated reasoning refers to the tendency to evaluate new information in a biased manner. Individuals no longer evaluate information neutrally but compare the content with preconceived beliefs and their own opinions. This tendency has been examined in many academic works, both theoretical and empirical.

This analysis showed the effects of prior beliefs on information evaluation among U.S. Americans. Furthermore, the data analysis indicated influences from respondent beliefs on sharing or restraining information. The results from the experimental survey suggest that beliefs also guide individuals in their decisions to disseminate information. The conviction that motivates individuals not to share information varies from person to person. The results showed that believing in the existence of climate change meant that the SLR Risk video was more likely to be shared when participants watched a video about how to adapt to SLR. If the content or the number of videos watched changed, the strength or direction of the effect also changed. The content and whether further information on a topic have been provided may also decide whether information may be disseminated or withheld. Beyond detecting an effect from a belief on motivated sharing of information, held beliefs cannot simply be manipulated by external facts in the form of a priming video. The Fake News Priming had no effect on the sharing decision of the respondents.

The results suggest that participants partly disseminate information when these are in line with their prior beliefs. However, socio-economic factors and situational circumstances also play a role. This work can contribute to the existing literature by showing that prior beliefs influence information evaluation and dissemination of information. Thus, people's prior beliefs have the power to ensure that information about SLR are disseminated.

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## Appendix

### Tables

Table 6: Difference-in-means Test; two SLR videos

|                                | obs1 | obs2 | Mean1    | Mean2    | dif      | p value |
|--------------------------------|------|------|----------|----------|----------|---------|
| <b>Socioeconomics</b>          |      |      |          |          |          |         |
| state by prime                 | 386  | 348  | 23.97    | 22.62    | 1.35     | .22     |
| age by prime                   | 386  | 348  | 36.91    | 37.03    | -.12     | .90     |
| female by prime                | 386  | 348  | .55      | .56      | -.01     | .88     |
| married by prime               | 386  | 348  | .48      | .45      | .03      | .36     |
| edu by prime                   | 386  | 348  | 14.91    | 14.81    | .1       | .53     |
| income hh pp by prime          | 378  | 340  | 35889.55 | 38445.62 | -2556.07 | .22     |
| coastal res by prime           | 386  | 348  | .24      | .28      | -.03     | .32     |
| eth asian by prime             | 386  | 348  | .12      | .11      | .01      | .75     |
| eth bpoc by prime              | 386  | 348  | .12      | .15      | -.03     | .27     |
| eth hispanic by prime          | 386  | 348  | .07      | .09      | -.01     | .49     |
| eth mena by prime              | 386  | 348  | .02      | .01      | 0        | .64     |
| eth native by prime            | 386  | 348  | .02      | .02      | 0        | .84     |
| eth pacific by prime           | 386  | 348  | .01      | 0        | .01      | .18     |
| eth white by prime             | 386  | 348  | .73      | .68      | .05      | .17     |
| eth other by prime             | 386  | 348  | .01      | .01      | 0        | .88     |
| <b>Media Trust</b>             |      |      |          |          |          |         |
| trust media by prime           | 386  | 348  | -.56     | -.66     | .1       | .37     |
| trust foxnews only by prime    | 386  | 348  | -.26     | -.25     | -.01     | .84     |
| <b>Climate Change Beliefs</b>  |      |      |          |          |          |         |
| cc exist by prime              | 386  | 348  | .95      | .96      | -.01     | .69     |
| cc knowledge by prime          | 386  | 348  | .77      | .76      | 0        | .85     |
| cc expectation1 by prime       | 386  | 348  | 3.99     | 4        | -.01     | .89     |
| cc expectation3 by prime       | 386  | 348  | 4.02     | 3.98     | .04      | .53     |
| cc expectation4 by prime       | 386  | 348  | 3.89     | 3.9      | -.02     | .83     |
| cc expectation6 by prime       | 386  | 348  | 3.91     | 3.91     | 0        | .99     |
| cc expectation7 by prime       | 386  | 348  | 4.09     | 4.09     | 0        | .96     |
| cc expectation8 by prime       | 386  | 348  | 4.1      | 4.11     | -.01     | .88     |
| cc fp by prime                 | 386  | 348  | .29      | .29      | 0        | .99     |
| cc fp slr by prime             | 386  | 348  | -.01     | -.02     | .01      | .88     |
| <b>Political Beliefs</b>       |      |      |          |          |          |         |
| political party by prime       | 386  | 348  | 2.11     | 2.07     | .05      | .38     |
| political orientation by prime | 377  | 342  | 3.62     | 3.66     | -.04     | .77     |
| con rep by prime               | 386  | 348  | .07      | .05      | .02      | .37     |
| lib dem by prime               | 386  | 348  | .14      | .09      | .05      | .02     |

**Note:** Two-sample t-test with equal variances for respondents who have seen the SLR Risk video and the SLR Adaptation video between respondents who have received the fake news prime and respondents who did not.

Table 7: Difference-in-means Test; only SLR Risk video

|                                | obs1 | obs2 | Mean1    | Mean2   | dif     | p value |
|--------------------------------|------|------|----------|---------|---------|---------|
| <b>Socioeconomics</b>          |      |      |          |         |         |         |
| state by prime                 | 159  | 136  | 23.06    | 24.7    | -1.64   | .35     |
| age by prime                   | 159  | 136  | 36.24    | 35.38   | .86     | .55     |
| female by prime                | 159  | 136  | .52      | .57     | -.05    | .39     |
| married by prime               | 159  | 136  | .48      | .4      | .08     | .17     |
| edu by prime                   | 159  | 136  | 15.18    | 14.4    | .77     | .00     |
| income hh pp by prime          | 154  | 134  | 38319.06 | 32503.2 | 5815.86 | .07     |
| coastal res by prime           | 159  | 136  | .29      | .31     | -.02    | .72     |
| eth asian by prime             | 159  | 136  | .08      | .1      | -.02    | .53     |
| eth bpoc by prime              | 159  | 136  | .1       | .1      | .01     | .89     |
| eth hispanic by prime          | 159  | 136  | .06      | .1      | -.04    | .21     |
| eth mena by prime              | 159  | 136  | .01      | .01     | 0       | .91     |
| eth native by prime            | 159  | 136  | .01      | 0       | .01     | .36     |
| eth pacific by prime           | 159  | 136  | 0        | 0       | 0       | .00     |
| eth white by prime             | 159  | 136  | .8       | .73     | .07     | .15     |
| eth other by prime             | 159  | 136  | .01      | 0       | .01     | .36     |
| <b>Media Trust</b>             |      |      |          |         |         |         |
| trust media by prime           | 159  | 136  | -.2      | -.81    | .61     | .00     |
| trust foxnews only by prime    | 159  | 136  | -.26     | -.18    | -.08    | .43     |
| <b>Climate Change Beliefs</b>  |      |      |          |         |         |         |
| cc exist by prime              | 159  | 136  | .96      | .94     | .02     | .40     |
| cc knowledge by prime          | 159  | 136  | .79      | .74     | .05     | .03     |
| cc expectation1 by prime       | 159  | 136  | 3.92     | 3.88    | .04     | .70     |
| cc expectation3 by prime       | 159  | 136  | 4.06     | 3.99    | .06     | .53     |
| cc expectation4 by prime       | 159  | 136  | 4.02     | 3.94    | .08     | .47     |
| cc expectation6 by prime       | 159  | 136  | 3.96     | 3.9     | .06     | .62     |
| cc expectation7 by prime       | 159  | 136  | 4.18     | 4.07    | .11     | .33     |
| cc expectation8 by prime       | 159  | 136  | 4.06     | 4.08    | -.02    | .88     |
| cc fp by prime                 | 159  | 136  | .37      | .23     | .14     | .54     |
| cc fp slr by prime             | 159  | 136  | .02      | 0       | .02     | .84     |
| <b>Political Beliefs</b>       |      |      |          |         |         |         |
| political party by prime       | 159  | 136  | 2.01     | 2.1     | -.09    | .31     |
| political orientation by prime | 154  | 135  | 3.72     | 3.56    | .16     | .48     |
| con rep by prime               | 159  | 136  | .07      | .05     | .02     | .53     |
| lib dem by prime               | 159  | 136  | .13      | .11     | .02     | .68     |

**Note:** Two-sample t-test with equal variances for respondents who have seen just the SLR Risk video between respondents who have received the fake news prime and respondents who did not.

Table 8: Difference-in-means Test; only SLR Adaptation video

|                                | obs1 | obs2 | Mean1    | Mean2    | dif     | p value |
|--------------------------------|------|------|----------|----------|---------|---------|
| Socioeconomics                 |      |      |          |          |         |         |
| state by prime                 | 172  | 121  | 23.93    | 24.57    | -.64    | .72     |
| age by prime                   | 172  | 121  | 36.22    | 34.82    | 1.4     | .29     |
| female by prime                | 172  | 121  | .61      | .55      | .07     | .27     |
| married by prime               | 172  | 121  | .48      | .48      | 0       | .96     |
| edu by prime                   | 172  | 121  | 14.85    | 14.54    | .31     | .22     |
| income hh pp by prime          | 170  | 115  | 35324.71 | 36937.61 | -1612.9 | .65     |
| coastal res by prime           | 172  | 121  | .31      | .32      | -.01    | .80     |
| eth asian by prime             | 172  | 121  | .11      | .09      | .02     | .59     |
| eth bpoc by prime              | 172  | 121  | .1       | .13      | -.03    | .38     |
| eth hispanic by prime          | 172  | 121  | .09      | .1       | -.01    | .86     |
| eth mena by prime              | 172  | 121  | .01      | 0        | .01     | .40     |
| eth native by prime            | 172  | 121  | .02      | .03      | -.01    | .66     |
| eth pacific by prime           | 172  | 121  | 0        | .01      | -.01    | .23     |
| eth white by prime             | 172  | 121  | .74      | .7       | .04     | .50     |
| eth other by prime             | 172  | 121  | .01      | .02      | -.01    | .72     |
| Media Trust                    |      |      |          |          |         |         |
| trust media by prime           | 172  | 121  | -.55     | -.74     | .19     | .32     |
| trust foxnews only by prime    | 172  | 121  | -.17     | -.2      | .03     | .77     |
| Climate Change Beliefs         |      |      |          |          |         |         |
| cc exist by prime              | 172  | 121  | .98      | .94      | .04     | .06     |
| cc knowledge by prime          | 172  | 121  | .78      | .76      | .01     | .50     |
| cc expectation1 by prime       | 172  | 121  | 4.07     | 3.93     | .14     | .23     |
| cc expectation3 by prime       | 172  | 121  | 4.08     | 3.98     | .1      | .39     |
| cc expectation4 by prime       | 172  | 121  | 4.03     | 3.83     | .2      | .08     |
| cc expectation6 by prime       | 172  | 121  | 3.99     | 3.88     | .12     | .31     |
| cc expectation7 by prime       | 172  | 121  | 4.19     | 4.04     | .14     | .22     |
| cc expectation8 by prime       | 172  | 121  | 4.19     | 4.03     | .16     | .16     |
| cc fp by prime                 | 172  | 121  | .52      | .16      | .36     | .11     |
| cc fp slr by prime             | 172  | 121  | .01      | -.01     | .03     | .81     |
| Political Beliefs              |      |      |          |          |         |         |
| political party by prime       | 172  | 121  | 2.01     | 2.19     | -.18    | .04     |
| political orientation by prime | 169  | 117  | 3.67     | 3.45     | .22     | .34     |
| con rep by prime               | 172  | 121  | .07      | .02      | .05     | .04     |
| lib dem by prime               | 172  | 121  | .13      | .12      | .02     | .65     |

**Note:** Two-sample t-test with equal variances for respondents who have seen just the SLR Adaptation video between respondents who have received the fake news prime and respondents who did not.

Table 9: Difference test; only SLR Risk video

|                               | obs1 | obs2 | Mean1 | Mean2 | dif | p value |
|-------------------------------|------|------|-------|-------|-----|---------|
| Not sharing SLR Risk by prime | 159  | 136  | .04   | .04   | .01 | .75     |
| Dogmatism by prime            | 159  | 136  | .47   | -.27  | .74 | .00     |

**Note:** The two-sample t-test tests for differences between not sharing the SLR Risk video, and dogmatism between the control group (received no fake news prime) and the experimental group (received the fake news prime).

Table 10: Difference test; only SLR Adaptation video

|                                     | obs1 | obs2 | Mean1 | Mean2 | dif  | p value |
|-------------------------------------|------|------|-------|-------|------|---------|
| Not sharing SLR Adaptation by prime | 172  | 121  | .24   | .28   | -.04 | .41     |
| Dogmatism by prime                  | 172  | 121  | .31   | -.51  | .83  | .00     |

**Note:** The two-sample t-test tests for differences between not sharing the SLR Adaptation video, and dogmatism between the control group (received no fake news prime) and the experimental group (received the fake news prime).

Table 11: Respondents Characteristics who shared motivated

|                          | Motivated Sharing<br>(N = 135) |           |       |       | SLR Risk Video<br>not shared<br>(N = 11) |           | SLR Adaptation Video<br>not shared<br>(N = 105) |           |
|--------------------------|--------------------------------|-----------|-------|-------|------------------------------------------|-----------|-------------------------------------------------|-----------|
|                          | Mean                           | Std. Dev. | min   | max   | Mean                                     | Std. Dev. | Mean                                            | Std. Dev. |
| Climate Change Beliefs   |                                |           |       |       |                                          |           |                                                 |           |
| cc exist                 | .93                            | .26       | 0     | 1     | .55                                      | .52       | .96                                             | .19       |
| cc knowledge             | .79                            | .15       | .3    | 1     | .75                                      | .15       | .8                                              | .14       |
| cc fp                    | .47                            | 2.13      | -7.24 | 2.79  | -1.12                                    | 3.44      | .64                                             | 1.93      |
| cc fp slr                | -.08                           | .91       | -3.76 | 3.52  | .02                                      | .27       | -.15                                            | .91       |
| Political Beliefs        |                                |           |       |       |                                          |           |                                                 |           |
| liberal democrats        | .15                            | .36       | 0     | 1     | .27                                      | .47       | .14                                             | .35       |
| conservative republicans | .06                            | .24       | 0     | 1     | .27                                      | .47       | .02                                             | .14       |
| Media Trust              |                                |           |       |       |                                          |           |                                                 |           |
| trust media              | -.33                           | 1.64      | -3.66 | 2.79  | -1.16                                    | 1.63      | -.12                                            | 1.43      |
| trust foxnews only       | -.39                           | .93       | -2.17 | 2.73  | .21                                      | 1.08      | -.51                                            | .9        |
| Socioeconomics           |                                |           |       |       |                                          |           |                                                 |           |
| female                   | .52                            | .5        | 0     | 1     | .36                                      | .5        | .55                                             | .5        |
| age                      | 39.19                          | 12.85     | 18    | 76    | 45.82                                    | 17.71     | 38.59                                           | 12.18     |
| income hh ln             | 10.17                          | .77       | 8.01  | 11.38 | 10.01                                    | .71       | 10.24                                           | .76       |
| edu                      | 15.09                          | 2.17      | 12    | 20    | 14.27                                    | 2.19      | 15.30                                           | 2.09      |
| eth white                | .66                            | .48       | 0     | 1     | .82                                      | .4        | .63                                             | .49       |
| coastal res              | .23                            | .42       | 0     | 1     | .27                                      | .47       | .23                                             | .42       |
| Fake News Prime          |                                |           |       |       |                                          |           |                                                 |           |
| Prime FN                 | .46                            | .50       | 0     | 1     | .36                                      | .50       | .46                                             | .50       |

**Note:** First section sums up respondents who shared motivated in general, including not sharing just one or both of the provided videos. Second section sums up respondents who have not shared the SLR Risk video. Third section sums up respondents who have not shared the SLR Adaptation video.

Table 12: Probit regression of not sharing the SLR Risk video; only SLR Risk video

| SLR Risk not shared after seeing just one video |                               |                               |                               |                               |                               |                               |
|-------------------------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| VARIABLES                                       | (1)<br>SLR Risk not<br>shared | (2)<br>SLR Risk not<br>shared | (3)<br>SLR Risk not<br>shared | (4)<br>SLR Risk not<br>shared | (5)<br>SLR Risk not<br>shared | (6)<br>SLR Risk not<br>shared |
| Fake News Prime                                 | -0.01<br>(0.02)               | -0.01<br>(0.03)               | -0.01<br>(0.02)               | -0.01<br>(0.02)               | -0.01<br>(0.02)               | -0.03<br>(0.02)               |
| <i>Climate Change Beliefs</i>                   |                               |                               |                               |                               |                               |                               |
| CC Exist                                        | -0.00<br>(0.03)               |                               |                               |                               |                               | 0.04<br>(0.02)                |
| CC Knowledge                                    | 0.10<br>(0.08)                |                               |                               |                               |                               | 0.10<br>(0.09)                |
| CC FP                                           | <b>-0.02***</b><br>(0.01)     |                               |                               |                               |                               | <b>-0.01**</b><br>(0.01)      |
| CC FP SLR                                       | 0.01<br>(0.01)                |                               |                               |                               |                               | <b>0.03**</b><br>(0.01)       |
| <i>Political Beliefs</i>                        |                               |                               |                               |                               |                               |                               |
| Liberal Democrat                                |                               | -                             |                               |                               |                               | -                             |
| Conserv. Republican                             |                               | 0.14<br>(0.09)                |                               |                               |                               | 0.06<br>(0.07)                |
| <i>Media Trust</i>                              |                               |                               |                               |                               |                               |                               |
| Trust in Media                                  |                               |                               | 0.00<br>(0.01)                |                               |                               | 0.00<br>(0.01)                |
| Trust in Fox News                               |                               |                               | 0.03*<br>(0.01)               |                               |                               | 0.02<br>(0.02)                |
| <i>Socioeconomics</i>                           |                               |                               |                               |                               |                               |                               |
| Female                                          |                               |                               |                               | -0.02<br>(0.02)               |                               | -0.03<br>(0.02)               |
| Age                                             |                               |                               |                               | 0.00*<br>(0.00)               |                               | 0.00<br>(0.00)                |
| ln Household Income                             |                               |                               |                               | -0.00<br>(0.01)               |                               | -0.01<br>(0.01)               |
| Education                                       |                               |                               |                               | 0.00<br>(0.01)                |                               | 0.01<br>(0.01)                |
| White                                           |                               |                               |                               | -0.04<br>(0.04)               |                               | -0.05<br>(0.03)               |
| Coastal Resident                                |                               |                               |                               | 0.01<br>(0.03)                |                               | 0.03<br>(0.02)                |
| Dogmatism                                       |                               |                               |                               |                               | -0.01<br>(0.01)               | <b>-0.02***</b><br>(0.01)     |
| Observations                                    | 295                           | 260                           | 295                           | 288                           | 295                           | 254                           |
| Pseudo R-squared                                | 0.15                          | 0.06                          | 0.04                          | 0.08                          | 0.04                          | 0.32                          |
| <i>LR-Test:</i>                                 |                               |                               |                               |                               |                               |                               |
| CC_Beliefs                                      | 0.00                          |                               |                               |                               |                               | 0.02                          |
| CC_Beliefs Int.                                 | 0.20                          |                               |                               |                               |                               | 0.05                          |
| Pol_Beliefs                                     |                               | 0.55                          |                               |                               |                               | 0.70                          |
| Pol_Beliefs Int.                                |                               | 0.19                          |                               |                               |                               | 0.14                          |
| Dogmatism                                       |                               |                               |                               |                               | 0.54                          | 0.00                          |
| Dogmatism Int.                                  |                               |                               |                               |                               | 0.31                          | 0.79                          |
| Socioeconomics                                  |                               |                               |                               | 0.01                          |                               | 0.01                          |
| Socioeconomics Int.                             |                               |                               |                               | 0.08                          |                               | 0.04                          |
| Media Trust                                     |                               |                               | 0.42                          |                               |                               | 0.76                          |
| Media Trust Int.                                |                               |                               | 1.00                          |                               |                               | 0.82                          |

**Note:** Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; Dependent variable in each column is not sharing the SLR Risk video after seeing just the SLR Risk video (ms\_risk2). The dummy variable is taking values from 0 to 1. In column 1 climate change beliefs are added into the model, column 2 includes political beliefs, column 3 includes media trust, column 4 socio-economic beliefs, column 5 includes dogmatism. In column 6 the full model is estimated.

Table 13: Probit regression of not sharing the SLR Adaptation video; only SLR Adapt. video

| SLR Adaptation not shared after seeing just one video |                                |                                |                                |                                |                                |                                |
|-------------------------------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|
| VARIABLES                                             | (1)<br>SLR Adapt<br>not shared | (2)<br>SLR Adapt<br>not shared | (3)<br>SLR Adapt<br>not shared | (4)<br>SLR Adapt<br>not shared | (5)<br>SLR Adapt<br>not shared | (6)<br>SLR Adapt not<br>shared |
| Fake News Prime                                       | 0.04<br>(0.05)                 | 0.04<br>(0.05)                 | 0.03<br>(0.05)                 | 0.04<br>(0.05)                 | 0.02<br>(0.05)                 | 0.01<br>(0.05)                 |
| <i>Climate Change Beliefs</i>                         |                                |                                |                                |                                |                                |                                |
| CC Exist                                              | <b>-0.45***</b><br>(0.16)      |                                |                                |                                |                                | <b>-0.43**</b><br>(0.18)       |
| CC Knowledge                                          | -0.12<br>(0.16)                |                                |                                |                                |                                | 0.05<br>(0.19)                 |
| CC FP                                                 | <b>0.04**</b><br>(0.02)        |                                |                                |                                |                                | 0.00<br>(0.02)                 |
| CC FP SLR                                             | 0.00<br>(0.03)                 |                                |                                |                                |                                | -0.00<br>(0.03)                |
| <i>Political Beliefs</i>                              |                                |                                |                                |                                |                                |                                |
| Liberal Democrat                                      |                                | 0.11<br>(0.08)                 |                                |                                |                                | 0.00<br>(0.08)                 |
| Conserv. Republican                                   |                                | -0.02<br>(0.12)                |                                |                                |                                | -0.01<br>(0.15)                |
| <i>Media Trust</i>                                    |                                |                                |                                |                                |                                |                                |
| Trust in Media                                        |                                |                                | <b>-0.04**</b><br>(0.02)       |                                |                                | -0.02<br>(0.02)                |
| Trust in Fox News                                     |                                |                                | <b>-0.11***</b><br>(0.03)      |                                |                                | <b>-0.10***</b><br>(0.04)      |
| <i>Socioeconomics</i>                                 |                                |                                |                                |                                |                                |                                |
| Female                                                |                                |                                |                                | -0.02<br>(0.05)                |                                | -0.02<br>(0.05)                |
| Age                                                   |                                |                                |                                | -0.00<br>(0.00)                |                                | -0.00<br>(0.00)                |
| ln Household Income                                   |                                |                                |                                | <b>0.08***</b><br>(0.03)       |                                | <b>0.07**</b><br>(0.03)        |
| Education                                             |                                |                                |                                | 0.01<br>(0.01)                 |                                | 0.01<br>(0.01)                 |
| White                                                 |                                |                                |                                | 0.10**<br>(0.05)               |                                | <b>0.11**</b><br>(0.05)        |
| Coastal Resident                                      |                                |                                |                                | -0.06<br>(0.05)                |                                | -0.01<br>(0.06)                |
| Dogmatism                                             |                                |                                |                                |                                | <b>-0.02*</b><br>(0.01)        | -0.02<br>(0.01)                |
| Observations                                          | 293                            | 293                            | 293                            | 285                            | 293                            | 285                            |
| Pseudo R-squared                                      | 0.05                           | 0.01                           | 0.05                           | 0.07                           | 0.02                           | 0.15                           |
| <i>LR-Test</i>                                        |                                |                                |                                |                                |                                |                                |
| CC_Beliefs                                            | 0.23                           |                                |                                |                                |                                | 0.34                           |
| CC_Beliefs Int.                                       | 0.55                           |                                |                                |                                |                                | 0.46                           |
| Pol_Beliefs                                           |                                | 0.44                           |                                |                                |                                | 0.93                           |
| Pol_Beliefs Int.                                      |                                | 0.78                           |                                |                                |                                | 0.61                           |
| Dogmatism                                             |                                |                                |                                |                                | 0.66                           | 0.66                           |
| Dogmatism Int.                                        |                                |                                |                                |                                | 0.14                           | 0.24                           |
| Socioeconomics                                        |                                |                                |                                | 0.07                           |                                | 0.13                           |
| Socioeconomics Int.                                   |                                |                                |                                | 0.24                           |                                | 0.52                           |
| Media Trust                                           |                                |                                | 0.17                           |                                |                                | 0.32                           |
| Media Trust Int.                                      |                                |                                | 0.28                           |                                |                                | 0.43                           |

**Note:** Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1; Dependent variable in each column is not sharing the SLR Adaptation video after seeing just the SLR Adaptation video (ms\_adapt3). The dummy variable is taking values from 0 to 1. In column 1 climate change beliefs are added into the model, column 2 includes political beliefs, column 3 includes media trust, column 4 socio-economic beliefs, column 5 includes dogmatism. In column 6 the full model is estimated. The interaction between con\_rep and the fake news prime is omitted in the model.

## Declaration of Authorship

„Ich versichere durch eigenhändige Unterschrift, dass ich die Arbeit selbstständig und ohne Benutzung anderer als der angegebenen Hilfsmittel angefertigt habe. Alle Stellen, die wörtlich oder sinn-gemäß aus Veröffentlichungen (auch aus dem Internet) entnommen sind, habe ich als solche kenntlich gemacht. Ich weiß, dass bei Abgabe einer falschen Versicherung die Arbeit als mit 9 'nicht ausreichend' (1 Bewertungspunkt gemäß § 16 Abs. 2 Allgemeine Bestimmungen, Note 5, ECTS-Grade F) bewertet gilt.“

Marburg, 24.09.2021



Moritz Fritschle