

Don't Tell Me What I Don't Want to Hear! Politicization and Ideological Conflict Explain Why Citizens Have Lower Trust in Climate Scientists and Economists Than in Other Natural Scientists

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Studies suggest that citizens have higher trust in some groups of scientists than in others. However, we still know little about the causes of these trust gaps. The current study fills this knowledge gap by examining Norwegian citizens' trust in climate scientists, economists, and so-called "less politicized natural scientists." I argue that trust in climate scientists and economists is lower than trust in less politicized natural scientists because the former fields are politicized, while the latter are not. Politicization strengthens ideological conflicts between citizens' ideology and research produced by climate scientists and economists, which leads to lower trust in these groups of scientists. I test this argument by running regression analyses on data from a representative survey of the Norwegian population. The results support the argument: Citizens have significantly higher trust in less politicized natural scientists than in both climate scientists and economists, and these differences can be explained by ideological biases in trust. Citizens with a proeconomic growth ideology have significantly lower trust in climate scientists than in less politicized natural scientists, and citizens with a left-wing economic ideology have significantly lower trust in economists than in less politicized natural scientists.

KEY WORDS: trust in scientists, ideology, motivated reasoning, ideological biases, economists, climate scientists

Scientists never produce research in a vacuum. Science, especially social science, affects politics, and scientists are gaining an increasing role in politics (Christensen, 2017; Christensen & Holst, 2017). However, political relevance is not always an advantage for gaining public approval of one's research. A growing literature investigates citizens' trust in different groups of scientists and sciences (Brewer & Ley, 2013; Critchley, 2008; Gauchat & Andrews, 2018; Nisbet et al., 2015) and finds that citizens hold some groups of scientists at significantly higher esteem than others, and that ideological conflict plays an important role in creating this hierarchy. Nisbet et al. (2015) investigate American citizens' trust in different areas of the natural sciences. They find that trust in scientific areas that conflict with either a conservative or liberal ideology (e.g., climate science or nuclear power research) is lower than trust in scientific areas that do

not conflict with any political ideologies (e.g., astronomy). Political relevance is thus a potential problem for public trust in scientists because ideological conflict between scientific knowledge and citizens' ideologies can lead to distrust (Nisbet et al., 2015). However, we still know little about citizens' trust in different groups of scientists beyond the natural sciences and beyond the American context in which science is highly politicized (Blank & Shaw, 2015; Gauchat, 2012). This study begins to fill this knowledge gap by investigating Norwegian citizens' trust in different groups of scientists in the natural and social sciences. It focuses on trust in two highly politicized groups of scientists—climate scientists and economists—and compares trust in these groups with trust in less politicized natural scientists (biologists, health scientists, mathematicians, and astronomers). It first investigates differences in citizens' average trust in the different groups of scientists and then investigates to what extent politicization and ideological conflict explain why citizens express higher trust in some groups of scientists than in others.

Specifically, the study answers the following research questions:

What is the gap between citizens' trust in less politicized natural scientists and their trust in climate scientists and economists (politicized scientific fields)?

How does political conflict and political ideology affect these trust gaps?

I find that citizens express significantly lower trust in economists and climate scientists than in other (less politicized) natural scientists. Further, the trust gaps between economists and climate scientists respectively and less politicized natural scientists are largely explained by ideological biases in trust in economists and climate scientists among specific parts of the population, and ideological biases towards these two groups of scientists are structured around different ideological dimensions. This shows that politicization and ideological conflict can undermine trust in scientists who research politically relevant issues, and that these politicization effects can affect both scientists in the natural and social sciences.

The study also adds to the literature on ideological and partisan biases in trust (Anderson et al., 2005; Curini et al., 2012; Lelkes, 2016). This literature shows that partisan biases lead to winner-loser trust gaps in voters' political trust, where partisans of the winning political parties in elections have higher political trust than partisans of the losing parties (Anderson et al., 2005; Curini et al., 2012; Lelkes, 2016). Further, winner-loser gaps in political trust and satisfaction with democracy are stronger among citizens with a more extreme ideologies (Anderson et al., 2005) and citizens who are ideologically closer to the winning party (Curini et al., 2012). Finally, motivated-reasoning processes lead to partisan biases in citizens' evaluation of government performance, and these biased perceptions in turn lead to partisan gaps in political trust (Hetherington & Rudolph, 2018). These studies all speak to the issue of ideological biases in trust, but they primarily focus on biases in political trust. The current study adds to this literature and our understanding of the nature of trust by investigating trust gaps in citizens' trust in a different elite group: scientists. Additionally, the study improves our theoretical understanding of trust gaps between different elites by explaining trust gaps as a function of ideological biases against politicized scientific fields (economics and climate scientists).

The study is structured as follows. First, I present my theoretical argument about politicization, ideological biases, and trust in different groups of scientists. Based on this, I formulate hypotheses on the effect of different political ideologies on the trust gaps between less politicized natural scientists and economists and climate scientists, respectively. Second, I describe my data and operationalizations of the variables used in the study. Third, I present a two-part analysis: descriptive statistics on citizens' trust in different groups of scientists, followed by OLS regression models to explain these differences. Fourth, I discuss the study's limitations. Finally, I sum up my results.

Motivated Reasoning: How Politicization and Ideology Affects Trust in Different Scientific Professions

Scientists who research topics that are politically relevant are at risk of falling victim to politicization. By politicization, I mean, “the act of, transporting an issue ... into the sphere of politics—making previously unpolitical matters political” (Zürn, 2019, p. 977f). When a scientific field is politicized, research conducted in this field become a political issue that is discussed in public debates and by political actors (p. 977f). Political discussions highlight the uncertainties of scientific results (Bolsen & Druckman, 2015), and citizens become more aware of conflicts between their attitudes/ideology and scientific results. These conflicts lead to lower levels of trust due to citizens’ psychological motivation to maintain their existing beliefs (Nisbet et al., 2015; Pechar et al., 2018), which make them reject ideologically dissonant scientific information. Thus, we should expect lower trust in scientists, who research scientific areas that are politicized. Politicization of science can happen in many ways and be caused by different actors (Douglas, 2009; Fowler & Gollust, 2015; Mede & Schäfer, 2020). For example, research has shown that populist politicians (Mede & Schäfer, 2020) and political interest groups (Oreskes & Conway, 2010) often criticize scientists and politicize science. Further, Fowler and Gollust (2015) argue that the media also politicize science by seeking out/covering political actors’ attitudes towards scientific issues, thus creating a political debate on the issue. They show that media politicization surrounding vaccine mandates for HPV-vaccine in the United States led to lower political trust and trust in doctors (Fowler & Gollust, 2015). Finally, Douglas (2009) argues that values are an inherent part of science, and that social, ethical, and cognitive values affects the entire research process. Values can affect the research process both indirectly (by weighting risks and benefits of accepting different theories and hypotheses) and directly (by guiding, e.g., our design choices, the interpretation of results directly), and when the latter happens, scientists themselves politicize their research.

I use motivated-reasoning theory to explain why ideological conflict leads to lower trust in scientists (Kunda, 1990; Taber & Lodge, 2006). Motivated reasoning argues that humans are motivated to confirm their prior/existing political beliefs because changing one’s beliefs is emotionally and cognitively challenging. Therefore, they engage in biased information processing, where they search for information that confirms their prior beliefs while rejecting and counterarguing information that conflicts with these beliefs (Taber & Lodge, 2006). Nisbet et al. (2015) use motivated reasoning to explain differences in citizens’ trust in different scientific fields. They argue that citizens engage in motivated reasoning when they encounter scientific information. If the scientific information aligns with the citizen’s ideology, they accept and express trust in it. Contrary to this, if the scientific information conflicts with the citizen’s ideology, they will reject it because it threatens their worldview. Empirically, the authors show that ideologically dissonant scientific information both elicits negative emotions and increases citizens’ resistance to be persuaded by new information. Both mechanisms lead to lower trust in the scientific field at hand. Further, the authors find that citizens express lower trust in climate science and nuclear power research than in astronomy. They argue that these trust gaps occur because climate science conflicts with a conservative ideology, while nuclear power research conflicts with a liberal ideology, which lead these respective groups to distrust respectively climate science and nuclear power research. Astronomy, however, does not conflict with either ideology and therefore gains the trust of both conservatives and liberals. However, motivated reasoning is not only initiated by citizens themselves but can also be caused by different political actors (Petersen et al., 2013). For example, party cues make citizens engage

in motivated reasoning to find support for the political position of their preferred party (Petersen et al., 2013). Citizens' motivated processing of scientific information thus often stem from politicians' direct attempts to politicize science (Mede & Schäfer, 2020; Oreskes & Conway, 2010).

However, Nisbet et al.'s (2015) study has certain limitations. First, the study only investigates trust in different groups of scientists in the natural sciences, meaning that we do not know whether ideological conflict also leads to lower trust in social scientists. Next, the authors measure ideology as a one-dimensional concept (Liberal to Conservative)—why we do not know if there are ideological biases in trust in scientists across different ideological subdimensions. Pechar et al. (2018) show that general ideology is an inconsistent predictor of trust in specific scientific fields, underlining the need to investigate the effect of ideological subdimensions on trust in different groups of scientists. Finally, Nisbet et al. investigate ideological biases and trust in scientists in the United States, which is an outlier in the Western world with comparatively low levels of public trust (Newton, 2007). Therefore, it is unclear if the findings can be generalized beyond the American society.

To address these shortcomings, I investigate Norwegian citizens' trust in scientists in two strongly politicized scientific fields—climate science and economics—and compare trust in these groups of scientists with citizens' trust in a number of less politicized natural scientists (mathematicians, astronomers, biologists, and health scientists). I focus on these groups of scientists for several reasons. First, taken that Norway is high-trust society (Torcal, 2017) with limited political polarization (Knudsen, 2021), politicization of science is less widespread than in the United States, where both science in general (Gauchat, 2012) and many scientific fields are politicized (Blank & Shaw, 2015). Because of this, some scientific fields are politicized in Norway, and some are not. Clearly defining whether a scientific field is politicized is difficult, but I here try to argue why the four groups of less politicized scientists mentioned above are less politicized in Norway and why climate science and economics are strongly politicized.

Sjøberg and Schreiner (2006) show that Norwegian citizens view both mathematics, medicine, biology, and astronomy to be highly scientific research fields and more scientific than economics. This indicates that Norwegian citizens are more united in their support for these scientific fields than they are for politicized fields like economics. Further, large parts of Norwegian population support biological and space research that is often politicized in other countries (European Union, 2021). In 2021, 91% of Norwegian citizens agreed that nanotechnology will have a positive effect on our way of life in the future, while 82% and 67% thought the same about biotechnology and space exploration (European Union, 2021). Only between 6% and 16% thought that these technologies will have a negative effect on our way of living. Despite health science becoming a salient media issue during the COVID-19 pandemic, and public health scientists taken a big part in the management of the pandemic (Christensen & Læg Reid, 2020a), politicization of health science was very limited in Norway during the pandemic (Forskningsrådet, 2020). In April 2020, 84% of Norwegians expressed quite high or very high trust in scientists' handling of the pandemic, while only 3% had quite low or very low trust (Forskningsrådet, 2020). There were discussions in the media concerning the legitimacy of the COVID-19 restrictions (Christensen & Læg Reid, 2020b). However, these discussions mainly revolved around the question of whether the government had good enough scientific evidence to back the restrictions. As such, the debates challenged the legitimacy of the government, not the health scientists (Christensen & Læg Reid, 2020b).

Unlike the four groups of scientists mentioned above, both climate science and economics have been politicized in Norway in recent years. Climate and environmentalist issues are gained increasing importance in Norwegian politics (Bergh & Karlsen, 2017), and there are considerable disagreements on climate change in the Norwegian population with a significant minority expressing some form of climate skepticism (Austgulen & Stø, 2013). Further, the populist right-wing

Progress Party has historically embraced climate skepticism (Båtstrand, 2014), and climate skepticism is common among its' voters (Austgulen & Stø, 2013). This indicates that climate research is a politicized issue in Norwegian politics (Austgulen & Stø, 2013). Also, Norway is a big oil producer (Båtstrand, 2014) and bases a big part of its' economy on oil production. Therefore, economic growth and jobs are closely connected to oil production in Norway (Austgulen & Stø, 2013), and we should expect it to be likely that climate science is politicized by different economic actors. Turning to economics, much of mainstream economic research and theories rests on assumptions of rationality and self-interestedness (Cowen, 2004), which is also the case for Norwegian economists (Mohn, 2006). Some citizens find these assumptions to be provocative and unrealistic descriptions of human nature (Mohn, 2006), and they have led to criticism of economics as a scientific discipline from both politicians (Christensen, 2006) and other scientists (Tranøy, 2006) in Norway. One example is New Public Management (NPM), a public administration paradigm, which, building on economic theory, tries to streamline the public sector through different management initiatives like performance management (Christensen & Læg Reid, 2011). Norwegian left-wing politicians have strongly criticized the economic logics and assumptions of NPM, which they think are undermining the welfare state (Christensen & Læg Reid, 2009). Another example is the global financial crisis in 2008, which severely undermined the reputation of mainstream economics that has been blamed for causing the crisis (Willett, 2010).

Second, investigating trust in economists and climate scientists provides a strong test of the theoretical argument that politicization and ideological conflict leads to lower trust in scientists because it tests the theory on both a politicized scientific field from the social sciences and one from the natural sciences. Third, studying economists and climate scientists allows us to test the hypothesis that ideological conflict leads to lower trust in scientific professions across different ideological dimensions. As mentioned, Nisbet et al. (2015) find ideological biases in trust in different scientific fields along the classic one-dimensional American ideology scale (Liberal to Conservative). However, European citizens' ideological attitudes are multidimensional rather than unidimensional (Aardal et al., 2019; Laméris et al., 2018). Therefore, I expect ideological conflict between citizens' attitudes and scientific research to be structured across different ideological dimensions depending on the scientific field at hand.

I expect conflicts along two different ideological dimensions to explain why citizens have lower trust in respectively economists and climate scientists than in less politicized natural scientists (biologists, health scientists, etc.). Economic research conflicts with the attitudes of citizens with a left-wing economic ideology (e.g., preferences for welfare and market regulations) because a considerable amount of economic research is based on free market logics and assumptions of rationality and self-interestedness (Cowen, 2004). For example, economic research on the advantages of market deregulation and privatizations conflict with economically left-wing citizens' preferences for market regulations and a large welfare state. Therefore, I expect economically left-wing citizens to be skeptical of economic research and express lower trust in economists. When they encounter economic research, they will counterargue and reject the scientific research because it threatens their ideological worldview. This motivated-reasoning process will lead them to express lower trust in economists. On the contrary, such a process will not happen in relation to the less politicized natural scientists (biologists, health scientists, etc.) because there is no ideological conflict between, for example, biological research and left-wing economic ideology. Neither will there be a (negative) motivated-reasoning reaction to economic research among citizens with a right-wing economic ideology (preferences for market deregulations, etc.) since economic research aligns with these citizens' ideology. Based on this, I expect citizens to generally have higher trust in less politicized natural scientists than they have in economists.

H1a: Citizens have higher trust in less politicized natural scientists than they have in economists.

Further, I expect the trust gap between less politicized natural scientists and economists to be driven by low trust in economists among citizens with a left-wing ideology. They will have a bigger trust gap to the advantage of the less politicized natural scientists:

H1b: Citizens with a left-wing economic ideology have a bigger trust gap between less politicized natural scientists and economists than citizens with a right-wing economic ideology.

For climate scientists, I expect environmentalist ideology to be the central ideological line of conflict. An important dimension of environmentalist ideology is the trade-off between environmental protection and economic growth, an ideological dimension called “Growth-Protection” (or “Vekst-vern” in Norwegian) (Aardal, 1993). Since climate research calls into question the sustainability of the global economic system and calls for fundamental systemic changes, I expect citizens who prioritize economic growth over environmental protection to have lower trust in climate scientists. These citizens view climate science as a threat to their ideological worldview (a belief in the current economic system) because climate research calls for policy initiatives, for example, downscaling of oil production, which could lead to lower economic growth (Nisbet, 2009). Therefore, citizens with a proeconomic growth ideology engage in biased information processing and reject climate research, which leads to lower trust in climate scientists. I do not expect a similar distrust in climate scientists among citizens with a proenvironmental protection ideology, as climate science aligns with these citizens’ ideology. Neither do I expect any ideological conflicts between the less politicized natural sciences and citizens’ environmentalist ideology. Based on this, I expect citizens to have higher trust in less politicized natural scientists than they have in climate scientists:

H2a: Citizens have higher trust in less politicized natural scientists than they have in climate scientists.

Further, I expect this trust gap to be driven by lower trust in climate scientists among citizens with a proeconomic growth ideology. I also expect them to have a bigger trust gap to the advantage of the less politicized natural scientists:

H2b: Citizens with a proeconomic growth ideology have a bigger trust gap between less politicized natural scientists and climate scientists than citizens with a proenvironmental protection ideology.

Data

The data used in the study is a representative survey of Norwegian citizens, which was collected by Kantar in April and May 2020; 1,209 respondents were randomly drawn from Kantar’s Panel and were asked questions on their trust in different groups of scientists and other background and political variables. A methodological weakness of using data from an online panel like Kantar’s is that the samples drawn from these panels often are skewed compared to

the general public (Evans & Mathur, 2018). This is also the case for my sample, which is heavily weighted with older respondents, male respondents, and respondents from Northern and Eastern Norway. To account for this skewness, I weight all models for age, gender, and geography. For more details about the data, see Appendix S1 in the online supporting information. Importantly, the data were collected during the first wave of the COVID-19 pandemic in Norway (Christensen & Læg Reid, 2020a). This is important because the pandemic made health science highly salient, and because several public health scientists played an important role in the management of the pandemic (Christensen & Læg Reid, 2020a). I discuss the implications of these circumstances for the study's results in the discussion.

Operationalizations

Measurement of Dependent Variables

Trust in Less Politicized Natural Scientists, Economists, and Climate Scientists

Because I expect trust in economists and climate scientists to diverge from trust in less politicized natural scientists (Gauchat & Andrews, 2018; Nisbet et al., 2015), I construct a four-item scale for citizens' trust in less politicized natural scientists, which includes items for citizens' trust in four groups of scientists (mathematicians, health scientists, astronomers, and biologists). Trust in less politicized natural scientists is measured with the self-constructed question: "How high or low trust do you have in the following groups of scientists?" Respondents answered on an 11-point scale (0 = *No trust at all* to 10 = *Complete trust*). I ran an Exploratory Factor Analysis (EFA) to assess the relationship between the different trust items. The scree plot (see Appendix S4 in the online supporting information) shows that it is optimal with estimate one factor. The one-factor EFA model (see Appendix S5) shows that all trust items loaded strongly on the first factor (loadings between 0.63 and 0.88). The four trust items were combined into a scale for trust in less politicized natural scientists by taking the average of citizens' scores on the four items. Missing observations are imputed using case mean imputation; see Appendix S3 for information on missing data imputation in the study. Cronbach's alpha analysis shows that the scale is highly reliable ($\alpha = 0.838$).

Trust in economists and trust in climate scientists are measured with one item each, using the same question as used for trust in the less politicized natural scientists but directed at respectively economists and climate scientists.

Trust Gaps

I construct two "trust gap" variables for the differences between citizens' trust in less politicized natural scientists and economists and climate scientists respectively. I investigate trust gaps rather than levels of trust because they allow us to understand why citizens have higher trust in some groups of scientists than in others. Studying variations in levels of trust in specific groups of scientists does not yield any information about citizens relative trust in different groups of scientists, or what role factors like ideology play in making the "trust hierarchy" between different groups of scientists. By constructing and studying variables for trust gaps at the individual level (for each respondent), I can investigate, which citizens are driving the trust gaps.

The trust gap between less politicized natural sciences and economists is calculated by subtracting respondents' level of trust in economists from their level of trust in less politicized natural scientists with the following formula:

$$\text{Trustgap}_{\text{natsci}_{\text{econ}}} = \text{Trust in less politicized natural scientists} - \text{Trust in economists.}$$

I subtract trust in economists from trust in less politicized natural scientists because the existing literature suggests that trust in less politicized natural scientists is likely to be higher than trust in economists (Gauchat & Andrews, 2018). Negative values on the variable signals that the respondent has higher trust in economists than in less politicized natural scientists, while positive values signal that the respondent has higher trust in natural scientists than in economists, and a value of zero signals that they have same level of trust in economists and natural scientists. The values of the variables range from -10 to 10 . Figure 1 show the distribution on the trust-gap variable.

The trust gap between less politicized natural sciences and climate scientists is calculated by subtracting respondents' level of trust in climate scientists from their level of trust in less politicized natural scientists:

$$\text{Trustgap}_{\text{natsci}_{\text{clima}}} = \text{Trust in less politicized natural scientists} - \text{Trust in climate scientists.}$$

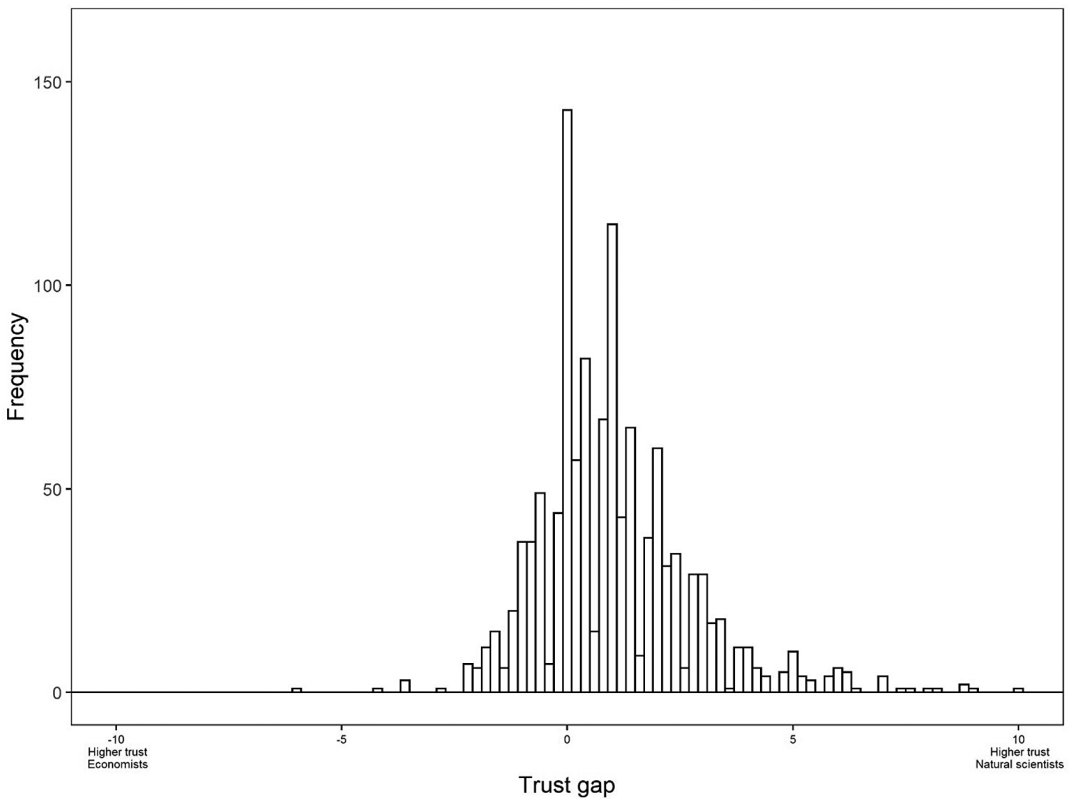


Figure 1. Distribution of citizens' trust gap between less politicized natural scientists and economists. Positive values on the x-axis indicate that the respondent expresses higher trust in less politicized natural scientists than they do in economists. Negative values indicate that the respondent expresses higher trust in economists than in less politicized natural scientists.

The values of the variable ranges from -10 to 10 . The distribution on the variable is shown in [Figure 2](#), and the values should be interpreted in parallel to the trust-gap variable for economists and less politicized natural scientists.

Measurement of Independent Variables

Ideology

I measure economic ideology with a version of the classic left–right scale question designed by Slothuus et al. (2010): “In politics, one often talks about “left” and “right,” where the left-wing advocates for market regulations and a generous welfare state, and the right-wing advocates for freeing the market forces and a giving individual’s bigger responsibility for their own welfare. Where would you place yourself on the left–right-scale?” Respondents answered on an 11-point scale ranging from 0 (*Left*) to 10 (*Right*). I translated the question into Norwegian and adjusted the wording to better fit the political debates in Norway.

I measure environmentalist ideology with the question: “Where would you place yourself on a scale from 0 to 10, where 0 means that environmental protection should not be enforced to such an extent that it affects our standard of living, while 10 means that we

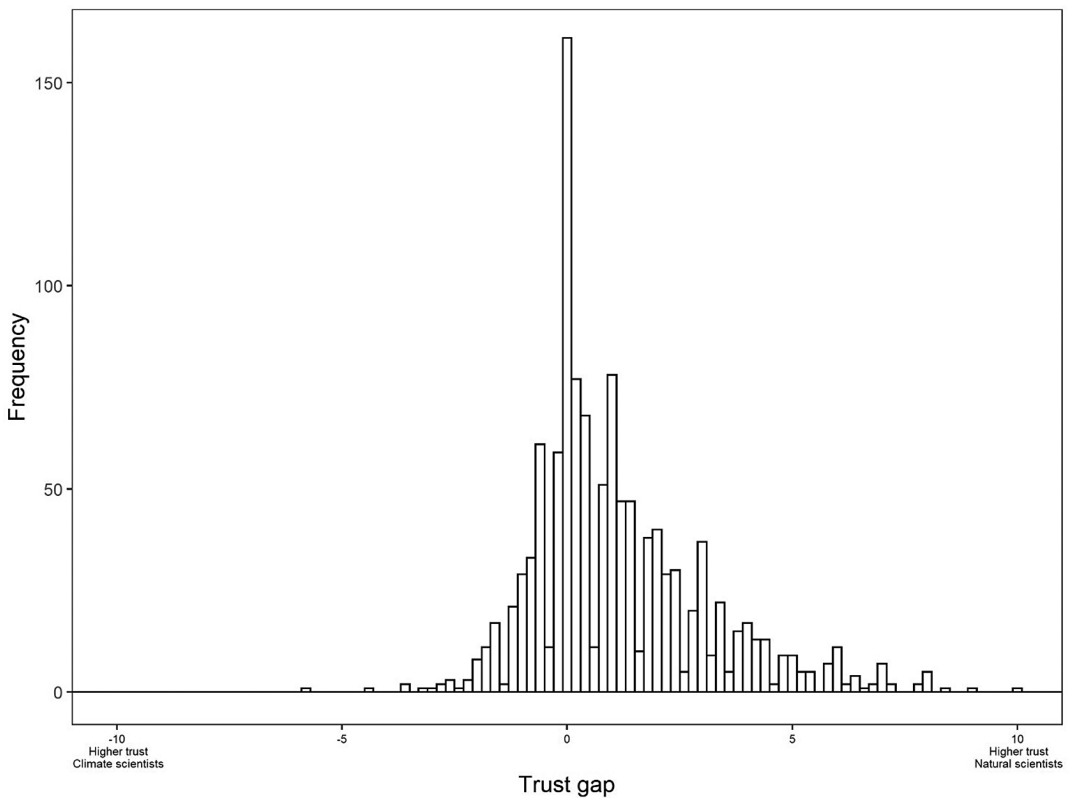


Figure 2. Distribution of citizens’ trust gap between less politicized natural scientists and climate scientists. Positive values on the x -axis indicate that the respondent expresses higher trust in less politicized natural scientists than they do in climate scientists. Negative values indicate that the respondent expresses higher trust in climate scientists than in less politicized natural scientists.

should invest a lot more in environmental protection even if it results in a significantly lower standard of living for all people, including yourself?” Answers were measured on an 11-point scale (0 = “Environmental protection should not be enforced to such an extent that it affects our standard of living” to 10 = “We have to invest a lot more in environmental protection even if it results in a significantly lower standard of living for all people, including yourself”). The question comes from the 2017 Norwegian Parliamentary Election Study (Statistics Norway 2019) and is a very common way of measuring the “Growth-Protection”/“Vekst-Vern” ideology scale. The variable is reversed, so that higher values indicate a stronger “proeconomic growth ideology.”

Partisanship

Partisanship is measured with the question: “What party would you vote for if there was a general election tomorrow?”

Political Trust

Different types of trust are closely associated (Newton & Zmerli, 2011), and concepts like institutional alienation (which includes measures of political trust) predict trust in scientists (Gauchat, 2011). Therefore, I control for political trust, which I measure with a two-item scale with items on respondents’ trust in (1) “The parliament and the government” and (2) “Politicians and political parties” on a 4-point scale (1 = *No trust at all*, 2 = *Not very high trust*, 3 = *Quite high trust*, 4 = *Very high trust*). Both questions are adaptations of classic measures of political trust from the EVS (European Values Study, 2018). An EFA shows that both items load highly (loadings of 0.8) on the first factor (see Appendix S6 in the online supporting information). Cronbach’s alpha shows that the scale is reliable ($\alpha = 0.783$), and the two items are combined into a scale.

Moral Traditionalism

Achterberg et al. (2017) have shown that moral traditionalism has a negative effect on trust in scientists, so I include this variable to control for this effect. Moral traditionalism is measured with three items on citizens’ attitudes towards homosexuality, abortion, and divorce. All items are measured with the same question from the EVS (European Values Study, 2018): “Below, I will present you with some actions. Where would you place your own views on a scale from 0 to 10, where 0 means that the action never can be justified, and where 10 means that the action always can be justified?” (Homosexuality, Abortion, Divorce). Respondents answered on an 11-point scale (0 = *Can never be justified*, 10 = *Can always be justified*). The direction on items was reserved, so higher values reflect stronger moral traditionalism. An EFA shows that all three items have factor loadings above 0.6 (see Appendix S7 in the online supporting information), and the items are combined into a scale. Cronbach’s Alpha shows that the scale is reliable ($\alpha = 0.788$).

Education

The influential, yet criticized, deficit model has connected scientific knowledge stemming from higher levels of education with trust in scientists (Evans & Durant, 1995; Gauchat, 2011) to why it is important to control for education. Education is measured with the Norwegian

Standard Classification of Education (the NUS-standard). The NUS measures education on an 8-point scale ranging from 1 (*No education or preschool education*) to 8 (*Second stage of higher education [postgraduate education]*) (Statistics Norway 2017).

Other Background Variables

Age is measured with a categorical variable with four values: “Under 30”; “30–44”; “45–59”; and “60+.” Gender is measured with a dummy variable for being female (0 = *male*, 1 = *female*). Finally, studies show that religion leads to distrust in scientists due to conflicts between religious and scientific worldviews through motivated-reasoning processes (Cacciatore et al., 2018; Chan, 2018) similar to the ones through which ideology leads to distrust (Nisbet et al., 2015). Religion is measured with the question: “Regardless of whether you belong to a particular religion, how religious would you say you are?” on a scale from 0 (*Not religious at all*) to 10 (*Very religious*). This question comes from the European Social Survey (2018).

Rescaling

Before I estimate the regression models predicting trust gaps, I rescale all independent variables to range from 0 to 1 to make it easier to interpret and compare the regression coefficients.

Investigating the Effect of Political Controversy on Trust in Different Scientific Professions

I begin with some descriptive statistics. Figure 3 and Table 1 shows the average trust in different groups of scientists. While trust in all groups of scientists is moderately high (between 6 and 7.5 on a 0–10 scale), there is a clear “trust hierarchy” with average trust in scientists from classic natural science fields being substantially higher than trust in economists and climate scientists. This suggests that the “prestige hierarchy” between the natural and social sciences, that Gauchat and Andrews (2018) have found in the United States, also translates into a “trust hierarchy” and into a Scandinavian setting. To assess whether the differences in average trust in the different groups of scientists are significant, I calculate several *t*-tests. The *t*-tests show that trust in less politicized natural scientists (measured with the scale described above) is significantly higher than trust in both economists ($t = 21.103$, $p < .001$) and climate scientists ($t = 20.42$, $p < .001$), which support Hypotheses H1a and H2a.

To investigate explanations for the trust gaps, I estimate four OLS linear regression models, which are presented in Table 2: Model 1 and 2 with the trust gap between climate scientists and less politicized natural scientists as the dependent variable and Model 3 and 4 with the trust gap between economists and less politicized natural scientists as the dependent variable. Models 1 and 3 only include economic ideology and environmentalist ideology to assess the effect of the ideological dimensions on the trust gaps. In Model 2 and 4, I test the robustness of these effects by controlling for several background variables (age, gender, education, and religion), political variables (political trust, partisanship) and value variables (moral traditionalism) that have been shown to predict trust in scientists in the existing literature. The full regression models can be found in Appendix S8 in the online supporting information.

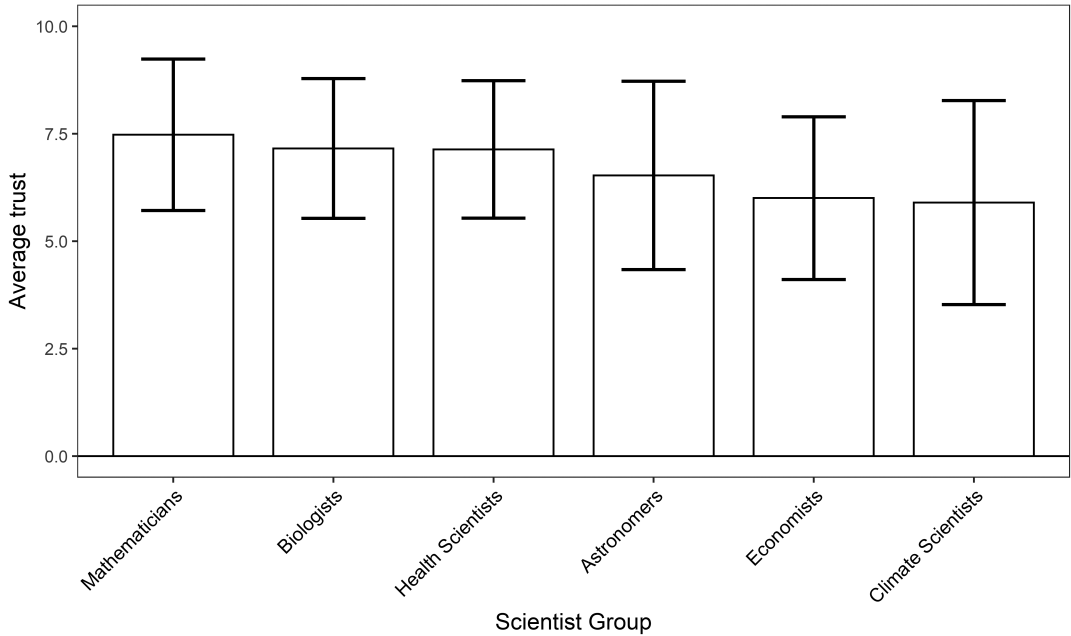


Figure 3. Average trust in different groups of scientists. Error bars show one standard deviation above and below the mean on trust in each group of scientists.

Table 1. Descriptive Statistics—Trust in Different Groups of Scientists

| Statistics | <i>N</i> | Mean | St. Dev. | Min | Max |
|-----------------------------|----------|------|----------|------|-------|
| Trust in Mathematicians | 1107 | 7.48 | 1.76 | 0.00 | 10.00 |
| Trust in Health Scientists | 1169 | 7.14 | 1.60 | 0.00 | 10.00 |
| Trust in Climate Scientists | 1158 | 5.90 | 2.37 | 0.00 | 10.00 |
| Trust in Astronomers | 1028 | 6.53 | 2.19 | 0.00 | 10.00 |
| Trust in Biologists | 1132 | 7.16 | 1.62 | 0.00 | 10.00 |
| Trust in Economists | 1157 | 6.00 | 1.89 | 0.00 | 10.00 |

Model 1 shows that, as expected, environmentalist ideology has a significant effect on the trust gap between climate scientists and less politicized natural scientists. Citizens with a proeconomic growth ideology have a significantly bigger trust gap than citizens with a proenvironmental protection ideology. This means that citizens who value economic growth over protecting the environment generally have a much higher trust in less politicized natural scientists than they have in climate scientists. This is likely due to the ideological conflict between climate science and proeconomic growth ideology (Nisbet et al., 2015). Model 1 also shows that economic ideology has a significant effect on the trust gap between climate scientists and less politicized natural scientists. Citizens with a strong right-wing economic ideology have a bigger trust gap than citizens with a strong left-wing economic ideology. This suggests that citizens with a right-wing economic ideology are more likely to show higher trust in less politicized natural scientists than in climate scientists, which could also explain part of the trust gap. This finding is consistent with prior studies from the United States, which show that American citizens with individualist values have lower trust in climate science (Kahan et al., 2011). The model has a R^2 of 0.352, which shows that the two ideological dimensions explain more than 35% of the variation in the trust gap, a very

Table 2. OLS-Regressions Models Predicting Trust Gap Between Less Politicized Natural Scientists and Climate Scientists and Trust Gap Between Less Politicized Natural Scientists and Economists

| | Dependent Variables: Trust Gap Between Less Politicized Natural Scientists and Climate Scientists and Economists Respectively | | | |
|---------------------------|---|-------------------------|--|-------------------------|
| | Less Politicized Natural Scientists vs. Climate Scientists | | Less Politicized Natural Scientists vs. Economists | |
| | Model 1 (without Controls) | Model 2 (with Controls) | Model 3 (without Controls) | Model 4 (with Controls) |
| Economic ideology | 1.056*** (0.254) | 0.992** (0.334) | -1.625*** (0.266) | -1.117*** (0.330) |
| Environmentalist ideology | 4.430*** (0.286) | 3.832*** (0.313) | 0.128 (0.267) | -0.242 (0.285) |
| Observations | 1186 | 1153 | 1186 | 1153 |
| R^2 | 0.352 | 0.396 | 0.047 | 0.122 |
| Adjusted R^2 | 0.351 | 0.385 | 0.045 | 0.108 |

Note: All models are OLS models and estimated with robust standard errors. Weighted for age, gender, and geography (Norwegian regions). Controls: Education, Age, Gender, Political Trust, Moral Traditionalism, Religion, and Partisanship. ** $p < .01$; *** $p < .001$.

sizeable amount. This suggests that ideological biases play an important role in explaining why citizens generally express lower trust in climate scientists than in other less politicized natural scientists. Adding the control variables in Model 2 only leads to minor changes in the results, and both ideological dimensions still have significant, positive effects on the trust gap, meaning that the results from Model 1 are robust when controlling for important political and background variables. Citizens with a strong proeconomic growth ideology have a bigger trust gap and are thus more likely to express higher trust in less politicized natural scientists than in climate scientists, which confirms Hypothesis H2b. The same is the case for citizens with a right-wing economic ideology. The R^2 of Model 2 is 0.395, meaning that adding the controls variables only leads to about 5% more explained variation compared to Model 1. This further underlines how important ideology is for explaining the trust gap between climate scientists and less politicized natural scientists.

Model 3 shows that, as expected, economic ideology has a significant effect on the size of the trust gap between economists and less politicized natural scientists. The negative effect should be interpreted so that citizens with a right-wing economic ideology have a smaller trust gap between less politicized natural scientists and economists than citizens with a left-wing economic ideology have. This shows that citizens with a left-wing economic ideology are more likely to have lower trust in economists than in less politicized natural scientists than citizens with a right-wing economic ideology are. This suggests that the ideological conflict between economic research and left-wing economic ideology leads certain citizens to express lower trust in economists, which partly explain why trust in natural scientists generally is higher than trust in economists. Environmentalist ideology does not affect the trust gap between less politicized natural scientists and economists. The R^2 of Model 2 is 0.054, and the model thus explains 5.4% of the variation in the trust gap between less politicized natural scientists and economists, which is much lower than the R^2 of Model 1. This suggests that ideology only partly explains why citizens have lower trust in economists than in natural scientists. Other factors like the societal status of the natural sciences and economics (Gauchat & Andrews, 2018) probably also help explain the trust gap. However, it is outside the scope of this study to investigate these mechanisms. The negative effect of economic ideology on the trust gap between economists and less

politicized natural scientists remains significant when the control variables are added in Model 4. Citizens with a left-wing economic ideology have a bigger trust gap between less politicized natural scientists and economists than citizens with a right-wing economic ideology, which confirms Hypothesis 1b.

While the regression models show that the size of citizens' trust gap varies depending on ideology, they do not show the direction of the trust gaps (which of the groups of scientists citizens have the highest trust in). To assess this, I estimate the predicted values for both trust gaps for citizens with different economic and environmentalist ideologies with all other variables held constant, which can be seen in Appendix S9 in the online supporting information. Interestingly, the predicted values for environmentalist ideology show that citizens with a strong proenvironmentalist protection ideology have higher trust in climate scientists than they have in less politicized natural scientists, while the opposite is true for citizens with a strong proeconomic growth ideology. For economic ideology, however, the predicted values show that no matter their economic ideology, all citizens have higher trust in less politicized natural scientists than they have in both economists and climate scientists. However, the trust gap between natural scientists and economists is bigger for citizens with a left-wing economic ideology, while the trust gap between natural scientists and climate scientists is bigger for citizens with a right-wing economic ideology.

Finally, I investigate whether ideological differences in trust gaps are driven by higher trust in the less politicized natural scientists or lower trust in economists and climate scientists (as hypothesized) among respectively citizens with a left-wing economic ideology and a progrowth environmentalist ideology. I make two bar plots comparing average trust in climate scientists and less politicized natural scientists by different environmentalist ideologies (Figure 4) and average trust in economists and less politicized natural scientist by different economic ideologies, respectively (Figure 5). Both figures confirm that the ideological differences in trust gaps are

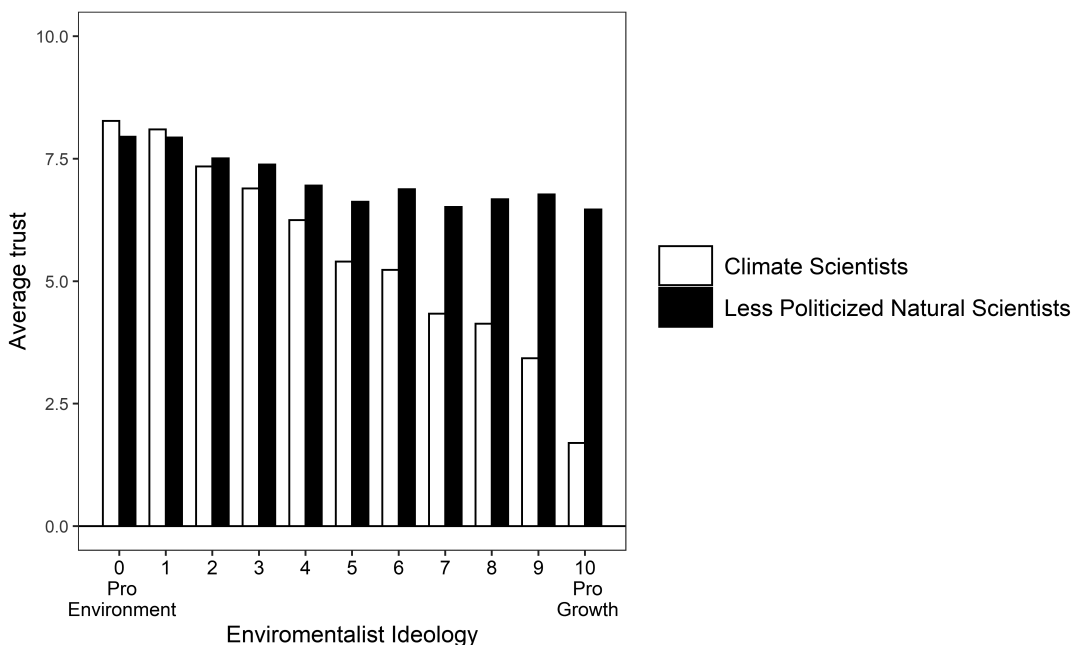


Figure 4. Average trust in climate scientists and less politicized natural scientists by different environmentalist ideologies.

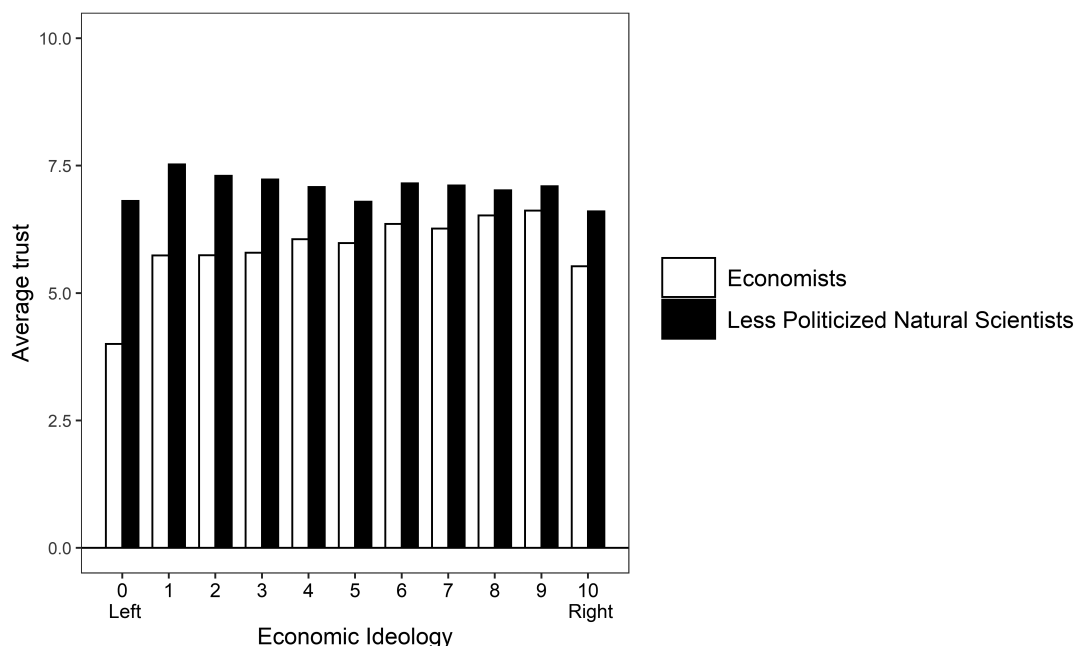


Figure 5. Average trust in economists and less politicized natural scientists by different economic ideologies.

driven by comparatively low trust in politicized groups of scientists. While trust in less politicized natural scientists is stable across both different environmentalist and economic ideologies, trust in climate scientists is lower among citizens with a progrowth environmentalist ideology and trust in economists is lower among citizens with a left-wing economic ideology, although the former effect is much stronger than the latter.

Discussion

The study provides evidence for the argument that citizens express lower trust in scientific areas which are politicized and ideologically dissonant. However, the study also has certain limitations that should be discussed. First, while the study only investigates ideological explanations of trust gaps in one country, Norway has several characteristics that makes it a good empirical case for investigating ideological biases in trust in scientists. Because science is only partly politicized in Norway (some scientific fields are politicized and others are not), the country provides a good case for investigating how politicization affects trust in scientists. By showing that citizens do in fact express higher trust in less politicized scientific fields (mathematics, astronomy etc.) than politicized ones (economics and climate science), and that these trust gaps stem from different ideological biases against the politicized fields, the study provides strong support for the politicization hypothesis. Further, given that we generally observe lower trust in scientists across the board in the United States, where most scientific fields are politicized (Blank & Shaw, 2015), the findings are likely generalizable beyond the Norwegian case. However, future research should test whether these findings can be replicated in other Western countries. The study also underlines the importance of science politicization beyond the Norwegian setting because Norway provides a strong test of the politicization hypothesis due to its' low levels of political polarization (Knudsen, 2021; Lindqvist & Östling, 2010). Citizens with more extreme attitudes are more likely to engage in motivated

reasoning, and motivated reasoning has been shown to increase attitude polarization (Taber & Lodge, 2006). Therefore, we should be less likely to observe ideological biases in trust in scientists in countries with low political polarization, like Norway. Since we still find ideological biases in trust in different scientists in Norway under these conditions, we should also expect to find ideological biases in citizens' trust in scientists in countries with higher political polarization. Second, my measure of environmentalist ideology has some weaknesses because it forces citizens to make a trade-off between environmental protection and economic growth and a high standard of living. However, this trade-off is a theoretical construction that not all citizens necessarily agree with, as many mainstream European parties argue that technology and "green" economic growth is the solution to the climate crisis (Nisbet, 2009). Thus, citizens with a moderate environmentalist ideology might not feel that either ends of the scale accurately reflect their attitudes. This could force them to give an answer that does not accurately reflect their attitudes or to answer "do not know." Third, the environmentalist (growth-protection) and economic ideology dimensions used in the study are conceptually related. Having a right-wing economic ideology (supporting the free market) is associated with prioritizing economic growth with other environmental protection (Crawley, 2021), and this association is theoretically attributed to ideological conflicts between economic growth-oriented right-wing economic ideology and environmentalist policies of market regulation (Crawley, 2021). Therefore, the association between right-wing economic ideology and progrowth environmentalist ideology and trust in climate scientists is likely related to the same mechanism (conflict between climate science and free market/economic growth ideologies). This study cannot directly assess whether this is case, but future research should try to solve this conundrum. Fourth, it might affect the results that the data were collected during the COVID-19 pandemic. Political crises are known to lead to high levels of political and government trust through so-called "rally 'round the flag" effects (Mueller, 1970; Oneal & Bryan, 1995). Citizens feel that the crisis calls for national unity, and therefore they express trust in the government even if they would not do so in a no-crisis situation. Because the COVID-19 pandemic was a global health crisis, where scientists played an important role in the crisis management (Christensen & Lægheid, 2020a), citizens might have reacted with similar rally effects and expressed higher-than-normal levels of trust in scientists out of a sense of public duty. Since public health scientists were the most visible experts in the COVID-19 crisis management in Norway (Christensen & Lægheid, 2020a), they are more likely to have experienced a rally 'round-the-flag trust boost than climate scientists or economists. This could lead to an overestimation of the size of the trust gaps between economists and climate scientists and less politicized natural scientists if citizens expressed abnormally high levels of trust in health scientists but maintained their prepandemic trust in economists and climate scientists. Fifth, because the study relies on cross-sectional survey data, I cannot directly test the motivated-reasoning mechanisms that I argue to be the causal mechanisms through which politicization and ideology leads to trust gaps between more politicized and less politicized groups of scientists. The study can only show that environmentalist and economic ideology statistically explain variations in the trust gaps between less politicized natural science and economists and climate scientists respectively, which still is an important contribution to the literature. Future studies should use experimental methods to better test the argument that trust gaps between different groups of scientists stem from motivated processing of scientific information.

Conclusion

The present study investigated why citizens express higher trust in some groups of scientists than in others. Theoretically, the findings provided support for the motivated-reasoning argument that citizens express lower trust in scientific fields that conflicts with their ideology. Further, the

study showed that ideological biases towards different scientific fields are structured across different ideological dimensions depending on the subject matter of the scientific study at hand. Ideological conflict related to trust in climate science is structured around environmentalist ideology, while ideological conflict related to trust in economists is structured around economic ideology. Norwegian citizens express significantly higher trust in less politicized natural scientists than they do in climate scientists and economists, and these gaps in trust can be attributed to ideological biases in trust. The trust gap between less politicized natural scientists and climate scientists is largely explained by an asymmetrically low trust in climate scientists among citizens with a proeconomic growth environmentalist ideology. In parallel, the trust gap between less politicized natural scientists and economists can partly be explained by low trust in economists among citizens with a left-wing economic ideology. At the broader theoretical level, the study shows that politicization and ideological conflict are potential threats to trust in scientists in both the social and natural sciences.

CONFLICT OF INTEREST

The author declares that he has no conflict of interest.

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Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's web site:

Appendix S1 Data Sample

Table S1.1. Percentages of Individuals in Different Age Groups, with Gender and from Norwegian Region in the Norwegian Population and the Unweighted Sample

Appendix S2. Descriptive Statistics

Table S2.1. Descriptive Statistics

Appendix S3. Imputation of Missing Observations

Appendix S4. Scree Plot—Trust in Less Politicized Natural Scientists

Figure S4.1. Scree plot for scale for trust in less politicized natural scientists.

Appendix S5. Factor Loadings—Exploratory Factor Analysis for Trust in Less Politicized Natural Scientists

Table S5.1. Factor Loadings—EFA for Trust in Less Politicized Natural Scientists

Appendix S6. Factor Loadings—Exploratory Factor Analysis for Political Trust

Table S6.1. Factor Loadings—EFA for Political Trust

Appendix S7. Factor Loadings—Exploratory Factor Analysis for Moral Traditionalism

Table S7.1. Factor Loadings—EFA for Moral Traditionalism

Appendix S8. Full OLS Linear Regression Models Predicting Trust Gaps between Less Politicized Natural Scientists and Climate Scientists and Economists

Table S8.1. OLS Linear Regression Models Predicting Trust Gap between Less Politicized Natural Scientists and Climate Scientists and Trust Gap between Less Politicized Natural Scientists and Economists

Appendix S9. Predicted Size of Trust Gaps by Different Economic and Environmentalist Ideology, While All Other Variables are Held Constant

Figure S9.1. Predicted size of trust gap between less politicized natural scientists and climate scientists by environmentalist ideology.

Figure S9.2. Predicted size of trust gap between less politicized natural scientists and climate scientists by economic ideology.

Figure S9.3. Predicted size of trust gap between less politicized natural scientists and economists by economic ideology.

Appendix S10. Regression Models Predicting Levels of Trust in Six Different Groups of Scientists

Table S10.1. OLS Linear Regression Models Predicting Trust in Different Groups of Scientists

Appendix S11. Regression Models Predicting Trust Gaps between Different Groups of Natural Scientists and Climate Scientists

Table S11.1. OLS Linear Regression Models Predicting Trust Gaps between Different Groups of Natural Scientists and Climate Scientists

Appendix S12. Regression Models Predicting Trust Gaps between Different Groups of Natural Scientists and Economists

Table S12.1. OLS Linear Regression Models Predicting Trust Gaps between Different Groups of Natural Scientists and Economists

Appendix S13. Unweighted Regression Models

Table S13.1. Unweighted OLS-Regressions Models Predicting Trust Gap between Less Politicized Natural Scientists and Climate Scientists and Trust Gap between Less Politicized Natural Scientists and Economists

Appendix S14. Regression Models with Unimputed Data

Table S14.1. OLS-Regressions Models Predicting Trust Gap between Less Politicized Natural Scientists and Climate Scientists and Trust Gap between Less Politicized Natural Scientists and Economists Using An Unimputed Dataset

Appendix S15. Regression Models Predicting Trust Gaps between Less Politicized Natural Scientists and Climate Scientists and Economists, While Controlling for Trust in Astronomers

Table S15.1. OLS Linear Regression Models Predicting Trust Gap between Less Politicized Natural Scientists and Climate Scientists and Trust Gap between Less Politicized Natural Scientists and Economists, While Controlling for Trust in Astronomers