UNIVERSITY OF BERGEN

DELAYING THE ACTION: CLIMATE CHANGE AS A DISTANT THREAT?

EVA KYSELÁ
ENDRE TVINNEREIM
ELISABETH IVARSFLATEN

WORKING PAPER SERIES 2018:1

DIGSSCORE DIGITAL SOCIAL SCIENCE CORE FACILITY
UNIVERSITY OF BERGEN
BOX 7802, 5020 BERGEN
JUNE 2018
ISSN 2535-3233

Digital Social Science
Core Facility

Delaying the action: climate change as a distant threat?

Eva Kyselá

Department of Sociology, Faculty of Arts, Charles University, Czech Republic

Endre Tvinnereim

Uni Research Rokkan Centre, Bergen, Norway

Elisabeth Ivarsflaten

Department of Comparative Politics, University of Bergen, Norway

Abstract

Climate change is often perceived as a distant threat affecting people in distant places or distant future. Such perceptions could negatively affect implementation of necessary mitigation measures. Using experimental data from the Norwegian Citizen Panel 2014 (N=1714), we explore how different time and spatial context of risk reduction affects attitudes towards funding for climate and air pollution policies and how these characteristics interact with each other and with political orientation of citizens. The results of regression analyses indicate different rationale for both climate change and air pollution policies. Attitudes towards funding reduction of climate change risks are fairly consistent between different scenarios, whereas for air pollution a preference for homeland and delayed action is present. These results support the relevance of framing climate change as global. Moreover, we show that different segments of population based on their political orientation evaluate the funding aims diversely and assign different weights to the geographical attribute of the policies. We argue that better than framing climate change either locally, or globally, we should try to develop narratives bridging the division of global and local and making climate change a relevant issue rather than just a threatening and proximate one.

Keywords: climate change, air pollution, policy, spending, policy responses, public perception

Introduction

Although environmental problems and climate change are generally perceived important by the public in western countries (Capstick, Whitmarsh, Poortinga, Pidgeon, & Upham, 2015), citizens sometimes assign them only low policy priority compared to other issues (Leiserowitz, 2006). Leiserowitz explains this discrepancy by issue proximity – only 13% of Americans were most concerned about the impacts of climate change on themselves and their neighbourhood. Climate change is indeed often perceived as a threat, but a distant one, affecting people in distant places or distant future (Liu, Xie, & She, 2014; Lorenzoni & Pidgeon, 2006; Lujala, Lein, & Rød, 2015 for Norway; Scannell & Gifford, 2013). As Vlek (2000) argues, people are biased towards the "us here and now" and can better assess short-term costs and benefits. Moreover, with higher levels on the spatial scale, the complexity of the issues rises and poses greater challenges for the lay comprehensibility (*ibid.*). Environmental problems are also a good example of social dilemma - the short term benefits of environmental exploitation tend to be perceived as more valuable at the moment than the long-term benefits which will affect future generations (Harring & Jagers, 2013). It follows that individuals would not want to pay the costs which would be imposed by actions taken immediately and would prefer to delay the payment and in effect, the action itself. All the more if the benefits are perceived to be long-term and affecting future generations rather than people living at present. All in all, the sense of far-distant risks and dangers of climate change, as well as far-distant benefits of mitigating it, to all appearance contributes to the propensity to delay costs and hence the action.

Representative data from the Norwegian Citizen Panel are examined in this study in order to fill gaps in understanding of policy attitudes formation regarding climate change and air pollution and to supplement existing research on preference for delayed action and psychological distance by experimental survey results. Attitudes of Norwegian citizens about funding policies to reduce environmental risks depending on targeted issue, timing and spatial scale of proposed policy are explored. We argue that these policy characteristics are important not only in general, but particularly in their interactions with each other. While the experimental results in general confirm the preference for delayed action, the added value of this study lies particularly in the comparison of two related environmental issues – climate change and air pollution. By their comparison, we learn something new about the roles spatial and temporal distances play in agreement with policy intentions.

Climate change as a distant threat

Some authors (e.g. Lorenzoni, Nicholson-Cole, and Whitmarsh, 2007) argue that we need to frame climate change in local terms in order to elicit behavioural response in mitigation (or adaptation) and that climate change is often perceived as a distant threat, not affecting the individual in question. Devine-Wright and colleagues (2015; some comments also in Devine-Wright, 2013) challenge this claim by pointing out the relevance of global, not only local, place attachment in climate change perceptions. According to their results, global place attachment is prevalent in Australian adult population. Moreover, people with stronger global attachment are more likely to perceive benefits of responding to climate change, to attribute the causes of the change to humans, and to oppose the arguments preventing action.

In fact, the role of psychological distance in climate change perception is far from thoroughly explored and understood (McDonald, Chai, & Newell, 2015). Climate change may indeed be perceived as distant on multiple levels – spatially, temporally, socially, and as hypothetical or abstract (more on the concept of psychological distance e.g. Newell, McDonald, Brewer, & Hayes, 2014; Pahl, Sheppard, Boomsma, & Groves, 2014; Scannell & Gifford, 2013; Spence, Poortinga, & Pidgeon, 2012), but that does not necessarily mean it elicits a weaker emotional or behavioural response. It may actually be quite the opposite – people are generally more optimistic regarding the risks climate change may pose to them personally (Pahl et al., 2014) but tend to perceive the global or temporally more distant threats as more serious (Spence & Pidgeon, 2010). Consequently, some studies suggest that willingness to act on climate change is higher if the impacts are perceived as severe and distant (see McDonald et al., 2015 for review). Yeager and colleagues (2011), for example, compare answers of American public on diversely phrased 'most important problem' questions. In the classic version of this questionnaire item, respondents are asked to select the most important or serious problem facing the country today. Only a negligible minority of respondents chose climate change or environmental problems. If the question is, however, asked in terms of future and if nothing is done to stop the problem, climate change and the environment was the most frequently mentioned. The authors argue that in light of this citizens are highly supportive of governmental spending on climate change mitigation.

Research in this area has been further informed by insights from the Construal Level Theory (Trope & Liberman, 2010). The theory aims to provide a unifying framework in the research of psychological distance and postulates that more abstract mental construals are instrumental for different cognitive functions than more concrete construals. The theory suggests that if distant, people tend to focus on global context of issue at hand, while if taking a proximal perspective, global priorities are set aside or even reversed (*ibid.*). Brügger et al. (2016) conclude from their experiment on British students, that attitudes toward some policies are better predicted by fear in a proximal mind-set and by more abstract beliefs related to scepticism in a distant mind-set. Thus, psychological distance does not universally translate into either increase or decrease in engagement with climate issues or into more approving attitudes toward climate policies.

On the other hand, there is evidence that people in general tend to place less value on outcomes that are temporally and spatially distant, uncertain or occurring to others (see Gattig & Hendrickx, 2007 for overview). Gattig and Hendrickx (2007), however, point out that the discount rates vary across different problems and, more importantly, the temporal discounting is less pronounced for environmental issues specifically. The evidence on the issue is somewhat mixed and attention should be paid to the roles of different and perceptions of climate change on different spatial and temporal levels. In this regard, we take upon a question posed by Devine-Wright and colleagues (2015), whether public engagement with climate change could "arise from global as well as local concerns" (p. 68) and we try to answer it in relation to public attitudes toward climate policies.

Although we are not experimentally manipulating all possible distancing principles in this study, we compare two related environmental issues, which can be construed differently – climate change and local air pollution. This allows us to explore how temporal and spatial distance affect policy attitudes for these issues and whether climate change is somehow specific in this regard. Air pollution is, by the nature of both problems, closely interlinked with climate change. Among other things, NO_x, SO_2 and other pollutants often co-occur with CO_2 emissions and mitigation of climate change through emission reductions would have positive effects on air pollution as an ancillary benefit. The perception of both issues by public is related as well, since people often perceive air pollution as the cause of climate change or global warming (Whitmarsh, 2009). Whitmarsh even suggests using the link to air pollution to gain more public interest and increase motivation to act. In respect of psychological distance of climate change, Bickerstaff (2004) notes that personal action in case of climate change mitigation becomes considered as more futile if the risks fade away from everyday life. Nonetheless, similar perception of futility has been reported in studies on urban air pollution as well (*ibid.*). Some citizens, however, may have higher concern or negative experience with air pollution rather than global warming (Dutt & Gonzalez, 2012 argue that experience plays a role in risk perception and in consequence with policy support; similarly Lujala et al., 2015). Moreover, citizens may also associate certain level of policy making as appropriate for certain problems. Air pollution could be seen as best solved on local level, while climate change, as a global process, would be seen as best tackled on global policy level. Consequently, one may expect that public spending on air pollution will gain affirmative attitudes more often but still be subjected to similar distancing effects as climate change.

Attitudes toward climate policies

The importance of attitudes toward climate policies has been gradually recognized by scientists and policy makers and a growing body of research has already examined influence of a broad variety of factors, including the socio-economic, demographic, and also social-psychological characteristics of individuals, their environmental, social and political context, and the characteristics of policies, measures and goals to be reached (see Drews & van den Bergh, 2015; Zvěřinová, Ščasný, & Kyselá, 2014 for review; Alló & Loureiro, 2014 for meta-analysis).

In general, people tend to base their overall evaluations of policies and instruments heavily on their perceptions of effectiveness and fairness of proposed instruments, but also their labels and framing (Zvěřinová et al., 2014). Perceived policy effectiveness is furthermore influenced by problem awareness (Kim, Schmöcker, Fujii, & Noland, 2013; Schmöcker, Pettersson, & Fujii, 2012). Very close (sometimes even interchangeable) concepts of environmental concern, risk perception, and awareness of negative consequences of climate change all play a significant role in formation of attitudes toward environmental and climate policies and measures (e.g. Bord, O'Connor, & Fisher, 2000; Bostrom et al., 2012; Cools et al., 2011; Dietz, Dan, & Shwom, 2007; McCright, 2008; Poortinga, Spence, Demski, & Pidgeon, 2012; Zahran, Brody, Grover, & Vedlitz, 2006).

On the other hand, there is not much evidence about effects of timing of policy implementation and preference for wait-and-see scenarios. Moreover, results of existing studies are quite heterogeneous depending on their measurement and definition of timing. Layton and Brown (2000) did not find any evidence that willingness to pay for mitigation policy depends on the time horizon in which impacts of climate change on forests would occur. The two horizons used, 60 or 150 years, are nonetheless both rather far in the future and respondents may not discriminate between two such distant dates. Carson, Louviere, and Wei (2010) found a preference for earlier start of proposed policy once higher costs were associated with delayed implementation. The proposed delay was not large, however, and the costs associated with the delay were made explicit (e.g. 20% increase compared to 16% in electricity prices), whilst visibility of costs is a significant and important predictor of policy acceptability (Rhodes & Jaccard, 2013). The preference for earlier start is likely to drop or even disappear with the exact costs associated with the delay of action not known and merely stated as "higher".

Interestingly, some studies indicate that different social groups, based on their socio-economic and demographic characteristics, may differ in their assessment of different measures (e.g. financial incentives, information strategies, regulation etc.) and policy preferences. These differences have been identified for gender (McCright, 2008), education (Hammar & Jagers, 2006), and income (Coad, de Haan, & Woersdorfer, 2009). Konisky, Milyo, and Richardson (2008) have found analogous differences between Democrats and Republicans for different environmental issues, particularly with the change from local to global pollution. Devine-Wright, Price, and Leviston (2015) also found that right-wing orientation mediated the effect of place attachment on climate change scepticism. Hart and Nisbet (2012) review several studies exploring the effect of party identification on climate change perception and examining the occurring political polarization of climate change and environmental issues in US population. According to their own study, political party identification affects the influence of identification with potential socially close or distant victims of climate change on mitigation policy support. However, not many studies have yet explored the interactions of policy attributes and individual characteristics, although there are some exceptions among studies utilising some form of stated preference questions or experiments (e.g. Carlsson et al., 2013; Poortinga, Steg, Vlek, & Wiersma, 2003– they report group differences according to policy attributes, however do not provide any further results). Similarly, there are not many studies exploring the relationship of political orientation and policy acceptability in the European context, whereas the situation in the US is further polarizing (Dunlap & McCright, 2008; Hart & Nisbet, 2012).

In this study, we examine the effect of shifting time horizon for risk reduction from present day to 50 years in future and we expect more agreement with such a delay for two reasons. We ask respondents whether they would agree with funding policy reducing risks immediately or in 50 years – while the time horizon was meant to be related to risk reduction (not paying for it), respondents could interpret it both ways. Therefore their agreement with more distant temporal scenario can be driven by intention to delay the payment or, in line with findings of Yeager and colleagues (2011), on respondents' opinion that climate change will become a more important issue in future than it is today. We also hypothesise that people will agree more with reductions of homeland risks, which is in line with the results of Konisky, Milyo and Richardson (2008). Further, we analyse the difference between evaluations of funding for measures to decrease the risks of climate change and air pollution. We examine interactions of the three factors and attitudes for their combinations. The combinations of factors varied in the small scenarios we offer to the respondents are expected to yield different imaginaries and construals of problems at hand and hence different evaluations of policy options (Leviston, Price, & Bishop, 2014). We expect more frequent affirmative attitudes in case of air pollution, especially in the national context, since the issue may be perceived as closer in time and space and public spending on national level may seem as more appropriate than in case of climate change. Furthermore, interactions with left-right political orientation are examined to inspect possible differences in evaluations between citizens with different political views.

Methods

Data

Data from the second wave of the Norwegian Citizen Panel survey (2014) are analysed in this study. The panellists were recruited prior to the first wave of the panel via random selection from the national population registry. The total of 4,905 respondents answered the first wave and 3,372 answered the second.[1] The respondents were randomly assigned to two groups and

[1] To balance the selection and drop-out bias, the analysed data were weighted to match national demographic characteristics and in regard to attained level of education. The weighting however confounded the randomization for experimental treatments (see below), hence the analysis was done with both the weighted and unweighted data to ensure robustness of the results. The results were essentially uniform, therefore only results for unweighted data are reported here.

answered different questions (see Supplementary Materials for the codebook, design and question wordings).

The survey was administered by web and panellists were mailed a postal notice about their selection into the panel together with instructions to fill out the questionnaire. Panellists who have registered in the first wave were invited and eventually reminded to participate in the second by several e-mail reminders (see Høgestøl & Skjervheim, 2014 for details). No financial reward was offered to the participants except the possibility to win a travel gift card (25 000 NOK). For representativity statistics and sample description see Ivarsflaten et al. (2014).

Experimental design

To answer the hypotheses on influence of timing, issue and spatial scale, an experimental design was included in the questionnaire. A random subsample of respondents (n=1,714) was further randomized into 8 subgroups. Each of these subgroups has received a single question on degree of agreement with the use of public funds to finance environmental policy measures. These measures were specified in three key attributes – spatial scale, timing and targeted risks (issue). There were two distinct levels in each attribute, thus constituting a 2x2x2 factorial design. The measures aimed at reducing risks of either climate change or local air pollution (issue attribute), and either in Norway or in the world (spatial scale). They would also be implemented either immediately, or in 50 years (timing). All possible combinations of these attributes (8 in total) were worded identically (e.g. *To which extent do you agree or disagree with the following statement: Norwegian public funds should be spent on measures that reduce the risk of climate change in Norway immediately*). The responses were indicated on 7-point Likert-type scale. Each respondent was presented with only one combination. With the exception of a negligible proportion of item non-response, no missing values were present in the dependent variable. The distribution of the dependent variable for the specific combinations of attributes is presented in

Figure 1. A binary variable was constructed by dividing the dependent variable in two categories – *agrees* (three categories) and *does not agree* (4 categories including the mid-point *neither agree nor disagree*). As can be seen in Figure 1, the distribution supports this division since only a minority of respondents have chosen the mid-point category.

The effect of the experimental treatments and their interactions was assessed by regression models. For the dependent variable is ordinal in its nature, both ordinal regression (proportional odds) with the original variable and binary logistic regression with the dichotomized version were calculated. Because the results of both models are essentially uniform (with one exception commented on below), we present coefficients for the binary logistic model for the sake of simplicity of the interpretation.

The basic model included only dummy variables representing the policy attributes and their levels. Full model included dummy variables and their interactions. Inclusion of the interaction terms has yielded higher values of variance inflation factor (VIF) and lower values of tolerance, posing some possible multicollinearity issues if stricter criteria were applied. For this reason, we omit full-factorial model from interpretation.

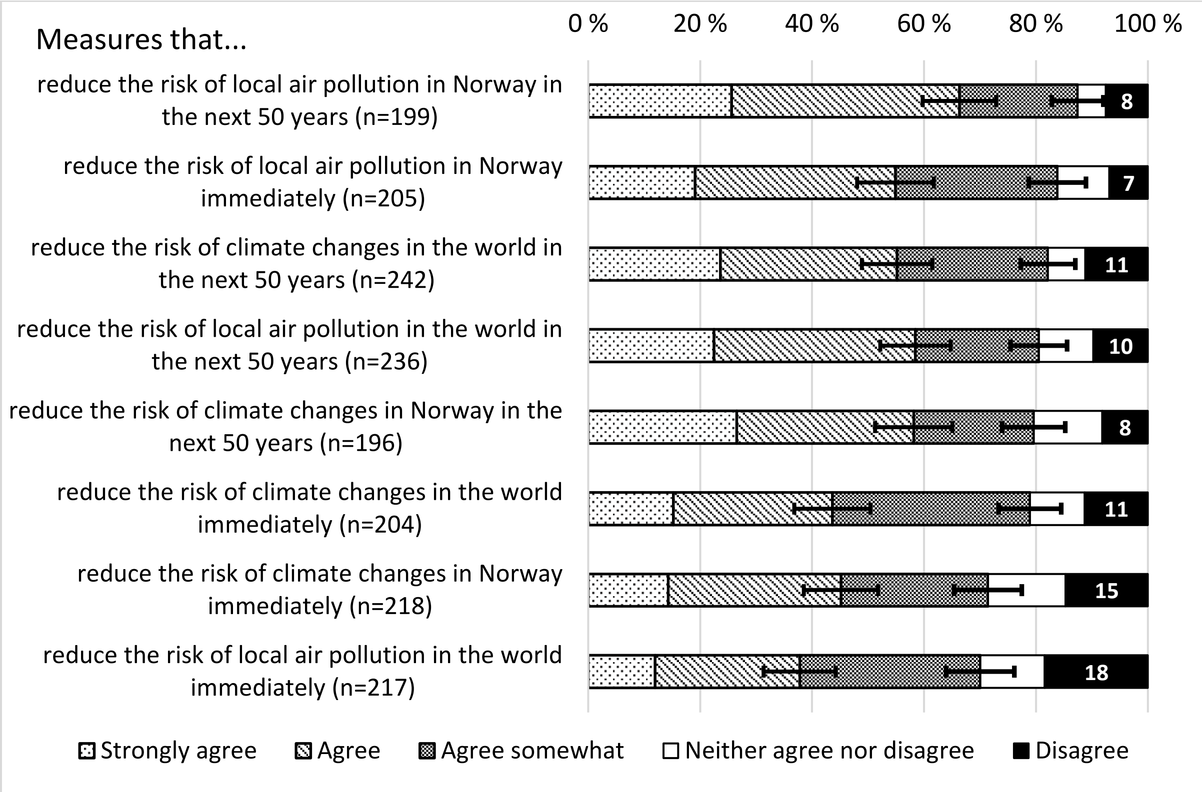
Results

In general, a majority of Norwegians is willing to spend public funds on reducing risks from either climate change or air pollution (between 70% and 87%, see

Figure 1). Only a minority of respondents in all experimental groups expressed downright disagreement. Contrary to our expectations, the differences in attitudes between most of the scenarios were not statistically significant (see Figure 1 for confidential intervals). The shares of respondents choosing one of the three categories of agreement are fairly consistent between most of the scenarios, with three clear exceptions. The respondents presented with the scenario of spending on reducing long-term air pollution in Norway agreed with it most often, whereas respondents presented with reducing air pollution in the world immediately agreed least often. Similarly smaller shares of agreeing respondents are present in the condition of immediately reducing risks of climate change in Norway.

There are no statistically significant differences between shares of respondents agreeing with funding in the four scenarios included in the temporally distant time experimental condition. With the sole exception of reducing risks of local air pollution in Norway immediately, all scenarios in this time related experimental condition (i.e. *immediately*) yielded lower levels of agreement, with respondents tending to choose more cautious or hesitant categories. In case of risks related to climate change, the differences in the shares of agreeing respondents are not significant, while for air pollution risks, funding for immediate risk reduction on global scale received significantly less agreeing answers than the two other homeland air pollution scenarios.

Figure 1: Distribution of agreement with statements about spending on environmental measures (%)



Note: 95% confidence intervals for proportions of those who agreed or agreed strongly (2 aggregated categories) and those who agreed, agreed somewhat, and strongly (3 aggregated categories);

"Disagree" represents 3 aggregated categories from disagree somewhat to disagree strongly.

The absence of obvious stark differences between answers in different experimental conditions would suggest that the underlying attitudes are strong and not very susceptible to change of framing or context. Yet, we can further explore how exactly different contexts influence respondents' answers. Interactions of experimental conditions can very well lead to similar distributions of answers. Out of the three experimental treatments, only effect of change in timing is statistically significant in the basic logistic regression model without interactions (

Table 1). The odds that one would agree rather than not are lower by 33% (sig. on 0.05 level) if the scenario is to reduce risks immediately. These results suggest a universal preference for delaying and/or that both air pollution and climate change are perceived as distant in time rather than urgent.

The coefficients for treatments of spatial level and issue are not statistically significant in this model. However, in the ordinal regression model, the coefficient for change in the spatial level comes as statistically significant (Exp(B)=0,780***). This discrepancy is caused by difference in distributions of answers under these two conditions – whereas for global reduction more people have chosen the mid-point category, for reduction in Norway more people decided for slight disagreement[2], while both of these categories are merged in the binary model. These differences were inspected by a series of binary logistic regressions with the dependent variable dichotomized at various cutpoints. Overall, there is a tendency for preferring local reductions, but this result is not robust. By this first look then, we could assume that people generally prefer policies tackling environmental problems in the distant future with insignificant preferences for air pollution over climate change and for mitigating in Norway over the world at large.

Table 1: Logistic regression model of experimental treatments (no interactions; n=1714)

	scenario (reference categories)	**Exp(B)**	**Confidence Interval (95%)**		**B**	**SE**
Constant		5.475			1.700	0.129
Spatial level	*(globally = 1)*	0.849	0.671	1.075	-0.163	0.120
Time horizon	*(now = 1)*	0.669***	0.529	0.847	-0.401	0.120
Issue	*(climate change = 1)*	0.874	0.691	1.104	-0.135	0.120
Nagelkerke R^2	**0.013**					

* statistically significant at p-value 0.1, ** at 0.05 *** at 0.01

Once interaction terms are introduced in the regression model (Table 2), the interpretation of the main effects changes. These coefficients now measure an effect of change in the given attribute, i.e. the odds ratio, while both other attributes are zero. If we recalculate the models with all possible codings of the binary independent variables, the intercepts of these recalculated models provide baseline odds, i.e. odds for different scenarios (with no change in the attributes). [3]

[2] Although this suggests that the assumption of proportional odds does not hold, the test of parallel lines did not reject the null hypothesis for either of the two models.

[3] The interpretation of the exponentiated coefficients Exp(B) is not straightforward in logistic regression models with interactions. While the exponentiated constants represent the baseline odds for the different scenarios indicated in the table, the Exp(B) of the main effects denote odds ratios for the change of a single attribute in the baseline scenario – the arrow signifies this change from the reference category (0). For example, odds ratio for the change in spatial scale from local to global in case of reducing risks of air pollution in 50 years from now is 0.508. This means that the odds of agreement with funding a global policy are lower by approximately 41% than the odds of agreement with funding a local one. Note that by subtracting the value of the constant for air pollution in Norway in 50 years from the constant for air pollution in the world in 50 years, we get the main effect of change in spatial scale in this scenario (not exponentiated; 1.362 - 2.04 = -0.678). Reversely, the change from global to local would have the value of 0.678 (Exp(B)=1.97).
Last, the exponentiated interaction terms represent the ratios by which the odds ratios change. This can be illustrated by computing the coefficients. Adding the main effect coefficient of change in spatial scale in air pollution in 50 years (not exponentiated) to the interaction term of spatial scale and issue

Table 2: Logistic regression model of experimental treatments with interactions (n=1714)

interaction terms:	**scenario (reference categories)**			**Exp(B)**	**Confidence Interval (95%)**		**B**	**SE**
spatial / time				1.003	0.620	1.624	0.003	0.246
spatial / issue				2.637***	1.631	4.264	0.970	0.245
time / issue				1.148	0.710	1.854	0.138	0.245
constants:								
(baselines) g	Norway	in 50 y.	air pollution	7.692***			2.040	0.198
d	world	in 50 y.	climate change	4.893***			1.588	0.161
e	Norway	now	air pollution	4.811***			1.571	0.172
h	world	in 50 y.	air pollution	3.906***			1.362	0.153
c	Norway	in 50 y.	climate change	3.655***			1.296	0.159
b	world	now	climate change	3.523***			1.259	0.159
a	Norway	now	climate change	2.623***			0.964	0.144
f	world	now	air pollution	2.450***			0.896	0.143
main effects:								
→ world		in 50 y.	air pollution	0,508***	0,325	0,794	-0,678	0,228
→ world		in 50 y.	climate change	1,339	0,883	2,030	0,292	0,212
→ world		now	air pollution	0,509***	0,338	0,767	-0,675	0,209
→ world		now	climate change	1,343	0,905	1,993	0,295	0,202
→ now	Norway		air pollution	0,625***	0,395	0,990	-0,469	0,234
→ now	Norway		climate change	0,718*	0,481	1,071	-0,332	0,204
→ now	world		air pollution	0,627***	0,426	0,923	-0,466	0,197
→ now	world		climate change	0,720	0,477	1,087	-0,329	0,210
→ climate change	Norway	in 50 y.		0,475***	0,302	0,748	-0,744	0,231
→ climate change	Norway	now		0,545***	0,362	0,822	-0,607	0,210
→ climate change	world	in 50 y.		1,253	0,835	1,880	0,225	0,207
→ climate change	world	now		1,438*	0,970	2,130	0,363	0,201
Nagelkerke R^2	**0.042**							

* statistically significant at p-value 0.1, ** at 0.05 *** at 0.01

Although the baseline odds are all greater than 1 (given the overall high support of the measures among Norwegians), they differ for different scenarios. The values generally correspond with evaluations of the scenarios as seen in

(not exponentiated) results to the value of the main effect of change in spatial scale for climate change in 50 years: -0.678 + 0.970 = 0.292. This way, all the main effects can be easily computed.

Figure 1. The scenario of reducing risks of air pollution in 50 years in Norway was most often positively evaluated and respondents receiving this combination of attribute levels have also almost eight times higher odds of agreeing with funding such a policy than not agreeing. Reducing risks of air pollution immediately on global level, on the other hand, was least positively evaluated scenario and has odds of 2.5.

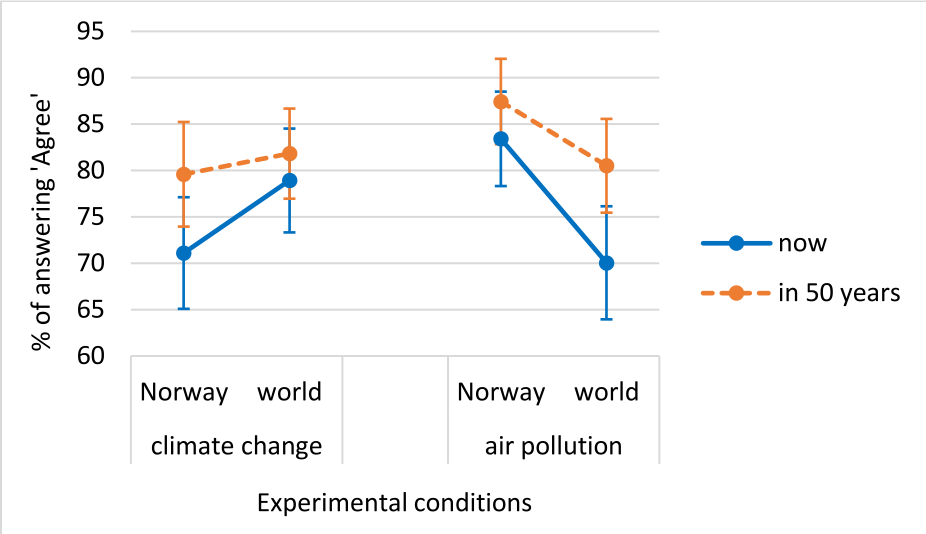
The coefficients for main effects indicate greater effect of temporal and spatial policy attributes for air pollution, while main effects for climate change as a reference category are not statistically significant for the most part. Dealing with air pollution is more often approved if done on local level and further in future. Moreover, preference for delayed action seems to be universal in this setting for both issues. First, the odds for the second most positively evaluated policy, i.e. reducing risks of air pollution in Norway immediately (in comparison with in 50 years from now), is 38% lower. Similarly, if the time horizon changes from 50 years to now in the case of reducing risks of local air pollution globally, the odds of agreeing is 37% lower. The effects in climate change scenarios are not statistically significant at the 0.05 level in the binary logistic model, they are, however, statistically significant at that level in ordinal regression model (see Appendix) and generally confirm the overall effect of changing time horizon. While variation in geographical scale and issue interact, the effect of change in the time horizon is stable (see Figure 2). None of the two possible interactions of this factor have a statistically significant effect.

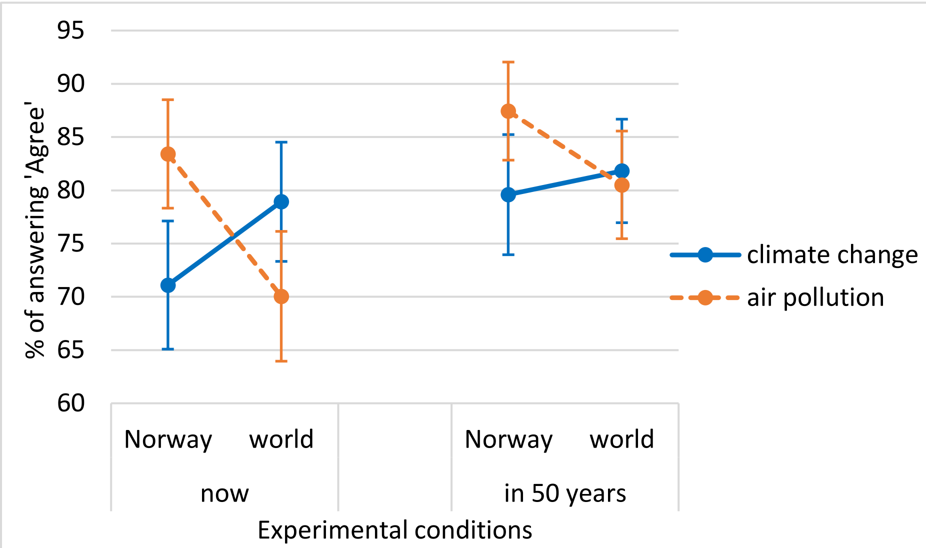
Second, policies for reducing risks of local air pollution in either 50 years or immediately are less acceptable if the risks are to be reduced in the world rather than Norway alone. Both odds of agreement with funding of these two global policies are 49% lower than for national. In the case of climate change, however, there is only a hint of an opposite effect of the change in spatial scale and both coefficients are not statistically significant. Similarly, for reducing risks in Norway, air pollution yields higher shares of agreement than climate change. If the issue at hand changes from air pollution to climate change in the national context, the odds are lower by 45% and 52% for acting now and in 50 years respectively. Agreement with funding for local air pollution risk reduction is much stronger when confined to Norway. Since air pollution was formulated as "local", respondents were not very keen to fund its reduction throughout the world. On the other hand, there are no strong statistically significant effects for issue change on global level, although the odds are higher by 44% (sig. at 10% level) if the issue changes to climate change. According to the distancing principle and climate change construals, climate change should be associated with global, rather than national level. Yet the results of this experiment do not provide robust support for such conclusion.

The two effects present in air pollution conditions, i.e. increase in approval following delayed and local action, reinforce each other. This reinforcement results in the largest difference present in the variable (air pollution in Norway in 50 years as the most often approved scenario and air pollution in the world immediately as the least approved one), while it also leads to no obvious difference in the scenarios combining delay with global action and immediate action on local level.

The two issues are evaluated differently, although they have many commonalities and are connected. Agreement with spending on reducing risks of climate change appears to be more consistent between the experimental conditions, although the idea of reducing these risks in Norway immediately generates lower shares of agreeing answers. Again, this is presumably a result of reinforcement between the two tendencies to delay action and attribute global level to climate change, but the effects are too small to arrive to a safe and robust conclusion. Reducing risks of air pollution in the same conditions, on the other hand is the single most agreeable proposition of those in the immediate experimental condition. Air pollution is clearly locally bounded and there is a drop in agreement with spending on it if transposed to global context.

Figure 2: Interaction plots for experimental conditions





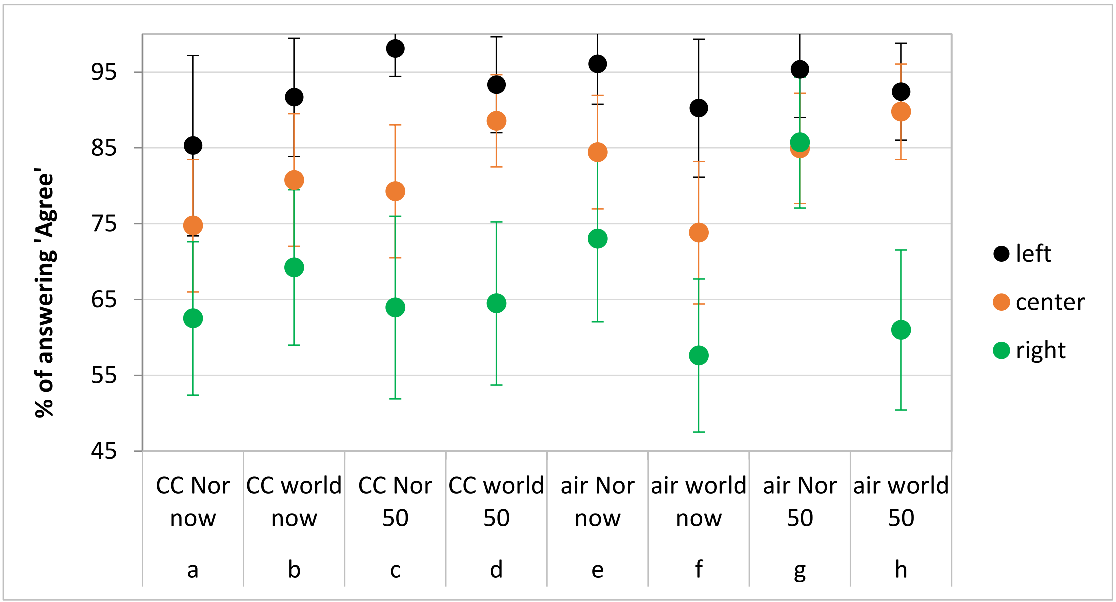
Political orientation

Our results in general support the expected relationship of political orientation and policy attitudes. Financing almost all presented policies is less acceptable for those who claim to be oriented to the right[4] compared to those who inclined to the left (see Figure 3) with the exception of the proposition to reduce risks of air pollution in Norway in 50 years to which around 90% of the respondents from all three groups provided affirmative responses. Centre oriented respondents usually do not statistically significantly differ from both left or right oriented ones and their shares answering positively are in the mid-range between the other two groups. Again,

[4] Political orientation was measured by single item: *In politics one often speaks of the "left wing" and "right wing". Below is a scale where 0 represents those who are at the far left politically, while 10 represents those who are at the far right. Where would you place yourself on such a scale?* The responses were recoded to three groups (0 to 3 as left, 4 to 6 as centre, 7 to 10 as right).

there are three statistically significant differences. One, in the combination of reducing risks globally in distant future, the shares of left oriented and centre oriented respondents agreeing with public funding are the same, regardless the issue at hand. On the other hand, left oriented respondents are keener to agree with spending on reducing risks of climate change in Norway in 50 years than the two other categories. Similarly to the overall structure of answers presented in Figure 1, there are no apparent differences in shares of agreeing responses within the three categories based on political orientation.

Figure 3: Percentage of respondents choosing one of three categories of agreement grouped by political orientation (and 95% confidence intervals)



The regression results reveal some interesting differences in how different segments evaluate proposed policy scenarios (see Table 3 in Appendix). Apparently, different groups of respondents based on their political orientation seem to assign different weights to the geographical scale attribute presented in the question. Interestingly, both those on the right and on the left have lower odds of agreement if the air pollution scenario changes from national to global level (by 58% and 60% respectively for right and left orientation in the delayed action scenario, and by 57% and 60% respectively in the acting now scenario; all significant on 5% level). Changing the geographical scale from national to global level does not affect the attitudes in the climate change scenarios with the exception of centre oriented respondents. In both delayed action and acting now, the odds increase by 85% and 86% respectively. Thus, if the problem is said to be dealt with globally, support for climate change scenarios is higher in the segment of population politically oriented to the centre, while for those on the left and right, this attribute does not make a difference. For those in the centre, however, this leads to a positive change. In line with the results of the model without political orientation, changing the issue from air pollution to climate change does no good for the agreement with public spending if the policy is said to be local. In all analysed population segments, this change leads to odds lower at most by 56% (left; in 50 years) and at least by 40% (centre; acting now). Nonetheless, the same issue change in global policy schemes has no statistically significant effect.

Interestingly, there is a universal preference for delayed action among the respondents oriented to the left. All coefficients for change from acting in 50 years to acting now are negative in this segment of population, i.e. the odds are lower for all acting now scenarios (by 38% to 50%). There is no such universal preference in the other two population segments. The change in time scale has some effect for air pollution policies among centre oriented respondents (odds lower by 45% in both scenarios).

Discussion

For air pollution, delayed action and local focus increase agreement with public spending, while agreement with climate change scenarios is more consistent between scenarios. Although air pollution and climate change are issues related through CO_2 and other GHG emissions, people perceive these issues differently in relation to the spatial scale of their risk reductions - positive evaluations of funding measures reducing risks of climate change are higher in the global context compared to air pollution scenarios, setting aside the overall preference for homeland risk reduction. The more prevalent positive attitudes toward homeland air pollution risk reduction are logical if we consider the public funds used to finance risk reducing measures are national. Moreover, using them to reduce global risks implies a burden-sharing rule based on wealth and prospect, rather than one based on polluter-pays principle. There is some evidence that people tend to be prone to self-serving bias and prefer international distribution of costs that implies lower costs to their own country (Carlsson et al., 2013). It could also be that the climate change proposals trigger more resistance among groups who would be negatively affected by mitigation measures (e.g., respondents working in the oil and gas or transportation sectors; Tvinnereim and Austgulen, 2014), whereas measures to mitigate elsewhere or in the future, or cut air pollution, appear more nebulous and less threatening to these groups. Furthermore, national policy may be seen as more appropriate to tackle local air pollution rather than such a complex and global problem like climate change, were global solutions are needed.

The overall pervasive willingness to use public funds to reduce risks of air pollution and climate change in all scenarios and climate change risks in the world specifically allow for some positive expectations. The results further support the previous conclusions on relevance of global climate change framing despite the assumption that people see it as a distant threat that does not affect them (e.g. Gattig & Hendrickx, 2007; Spence & Pidgeon, 2010, Spence et al., 2012). The distant impacts are relevant and can increase positive attitudes toward climate spending. Spence and Pidgeon (2010) summarize evidence suggesting that distant impacts of climate change are viewed as more serious than local impacts. Haden and colleagues (2012) found that while adaptation is driven mostly by psychologically proximate climate change concerns, mitigation is motivated by those psychologically distant. Although a lack of locally and personally relevant information can be a barrier to behavioural change or action (Lorenzoni, Nicholson-Cole, & Whitmarsh, 2007), it does not mean that the global framing and information on global impacts are irrelevant and not helpful. The information should above all pay attention to existing values people hold, their beliefs about their own responsibility to act or to contribute (Krosnick, Holbrook, Lowe, & Visser, 2006) and their mental representations of climate change (Bostrom et al., 2012). These representations could be framed both locally and globally. In fact, the two levels are very likely to interact, especially in regard of sense of belonging and attachment and it could be misleading to explore them as discrete (Devine-Wright et al., 2015). Spence and Pidgeon (2010) even suggest that framing information locally could focus respondents on aspects of climate change that they actually perceive as less important, and Brügger and colleagues (2015) on top of that point to possible adverse effects of proximising climate change, namely negative emotional reaction leading to detachment or denial. Not only can people see distant consequences as more serious (Spence and Pidgeon 2010), but are also more likely to act upon relevant pro-environmental attitudes if primed by distant-future time perspective (see also Brügger et al., 2016). These results, as well as ours presented in this study, generally support the notion that climate change can be framed both globally and locally with success and without large losses of positive policy attitudes, especially in populations who are inclined to agree with public spending in the domain in general.

The high share of respondents agreeing with public spending in our experiment probably reduced the variance of responses in different experimental conditions. The skewed distributions are presumably a product of generality of policy proposal which did not included any information on the amount of public spending or on individual costs to the respondents.

These are important predictors of acceptability (Bord et al., 2000) and would probably decrease the agreement with policy funding. While there obviously are prevalent positive attitudes toward climate and air pollution action in general in which a specific context attribution to increase support is not needed, for specific measures with obvious consequences for the citizens, the relevance of spatial, temporal, and issue contexts may increase.

Conclusions

The inclusion of air pollution as a related issue in the experiment has taught us something new about both of these issues. First, the experiment confirmed that these issues are perceived distinctively and are possibly construed as such, although they are closely related. Second, both issues are probably construed on different spatial levels and although agreement with funding reduction of climate change risks appears to be less susceptible to change in geographical level, one way to bring it closer and reduce its psychological distance could be to connect it with the issue of air pollution (see also Whitmarsh, 2009), which raises higher levels of agreement particularly in homeland context. Furthermore, our results are in line with existing research in the USA, indicating that climate change perceptions and policy attitudes are connected to political orientation. People holding certain political views are attributing different weights and perhaps meanings to different policy characteristics. Achieving public-wide support would mean making trade-offs between different values held by different groups (Shwom, Bidwell, Dan, & Dietz, 2010). There already is a major prevalence of positive and affirmative attitudes toward action and public spending in general in Norway and this should be built upon in future.

Our results have also shown that broad and general attitudes toward climate and air pollution policies are quite stable, although some important effects are present. The consistency also implies that the global narrative of climate change is indeed viable in Norway and can be used to raise support or acceptance for immediate action on global level. Moreover, air pollution can be used as a ‘doorway’ issue to decrease eventual psychological distance of climate change, since agreement with funding air pollution risks reduction is higher in overall and specifically in the national context. On the other hand, framing air pollution globally decreases agreement; hence there are some risks of binding these two issues in a joint narrative. Rather than framing climate change either locally, or globally, we should try to develop narratives bridging the division of global and local, focused on citizens' context and place attachment, consequently making climate change not only an imminent and proximate issue, but above all a relevant one.

Appendix

Table 3: Logistic regression model with interactios, incl. political orientation (center orientation as reference category)

interaction terms:	**scenario (reference categories)**			**Exp(B)**	**Confidence Interval (95%)**		**B**	**SE**
geographical / time				1,007	0,610	1,662	0,007	0,256
geographical / issue				2,541***	1,541	4,190	0,932	0,255
time / issue				1,234	0,750	2,028	0,210	0,254
geographical / left				0,546	0,220	1,356	-0,606	0,464
time / left				0,916	0,846	2,412	-0,088	0,452
issue / left				0,909	0,548	1,567	-0,096	0,455
geographical / right				0,580*	0,343	0,981	-0,545	0,268
time / right				1,429	0,846	2,412	0,357	0,267
issue / right				0,926	0,548	1,567	-0,076	0,268
constants:								
(baselines for	Norway	in 50 y.	air pollution	8,147***			2,098	0,255
***center**)*	Norway	in 50 y.	climate change	2,677***			0,985	0,197
	Norway	now	air pollution	4,464***			1,496	0,223
	Norway	now	climate change	2,677***			0,985	0,197
	world	in 50 y.	air pollution	5,931***			1,78	0,237
	world	in 50 y.	climate change	7,328***			1,992	0,240
	world	now	air pollution	3,272***			1,185	0,215
	world	now	climate change	4,986***			1,607	0,238
***main effects** (for **males**):*								
→ world		in 50 y.	air pollution	0,728	0,420	1,263	-0,317	0,281
→ world		in 50 y.	climate change	1,850*	1,082	3,162	0,615	0,273
→ world		now	air pollution	0,733	0,437	1,228	-0,311	0,263
→ world		now	climate change	1,862*	1,114	3,112	0,622	0,262
→ now	Norway		air pollution	0,548*	0,318	0,945	-0,602	0,278
→ now	Norway		climate change	0,676	0,410	1,113	-0,392	0,254
→ now	world		air pollution	0,552*	0,327	0,93	-0,595	0,267
→ now	world		climate change	0,680	0,395	1,172	-0,385	0,277
→ climate change	Norway	in 50 y.		0,486**	0,283	0,837	-0,721	0,277
→ climate change	Norway	now		0,600*	0,363	,990	-0,511	0,256
→ climate change	world	in 50 y.		1,235	0,718	2,126	0,211	0,277
→ climate change	world	now		1,524	0,902	2,575	0,421	0,268
→ left	Norway	in 50 y.	air pollution	4,468**	1,590	12,558	1,497	0,527
→ left	Norway	in 50 y.	climate change	4,061**	1,624	10,154	1,401	0,468
→ left	Norway	now	air pollution	4,093**	1,591	10,529	1,409	0,482
→ left	Norway	now	climate change	3,720**	1,553	8,91	1,314	0,446
→ left	world	in 50 y.	air pollution	2,438*	1,028	5,784	0,891	0,441
→ left	world	in 50 y.	climate change	2,216	0,931	5,278	0,796	0,443
→ left	world	now	air pollution	2,234	0,999	4,994	0,804	0,410
→ left	world	now	climate change	2,030	0,853	4,833	0,708	0,443
→ right	Norway	in 50 y.	air pollution	0,498*	0,279	0,889	-0,698	0,296
→ right	Norway	in 50 y.	climate change	0,461**	0,273	0,777	-0,775	0,267
→ right	Norway	now	air pollution	0,711	0,417	1,212	-0,341	0,272
→ right	Norway	now	climate change	0,658	0,406	1,068	-0,418	0,247
→ right	world	in 50 y.	air pollution	0,288***	0,171	0,485	-1,243	0,265
→ right	world	in 50 y.	climate change	0,267***	0,156	0,457	-1,320	0,273
→ right	world	now	air pollution	0,412***	0,251	0,676	-0,887	0,253
→ right	world	now	climate change	0,382***	0,226	0,645	-0,963	0,267
Nagelkerke R^2	**0.141**							

* statistically significant at p-value 0.1, ** 0.05 *** 0.01

Table 4: Results for ordinal (proportional odds) model of experimenta treatments

	scenario (reference categories)	**Exp(B)**	**B**	**SE**
threshold (=1)			-4.296***	0.187
threshold (=2)			-3.328***	0.136
threshold (=3)			-2.559***	0.114
threshold (=4)			-1.806***	0.102
threshold (=5)			-0.544***	0.092
threshold (=6)			0.980***	0.096
Spatial level	*(globally = 1)*	0.780***	-0.248***	0.087
Time horizon	*(now = 1)*	0.584***	-0.538***	0.087
Issue	*(climate change = 1)*	0.909	-0.095	0.087
Nagelkerke R^2	**0.027**			

Table 5: Results for ordinal (proportional odds) model of experimental treatments with interactions

interaction terms:	**scenario (reference categories)**			**Exp(B)**	**B**	**SE**
spatial / time				0.912	-0.092	0.174
spatial / issue				1.629***	0.488	0.174
time / issue				1.076	0.073	0.173
constants:						
threshold (=1)	Norway	in 50 y.	air pollution		-4.424***	0.204
threshold (=2)	world	in 50 y.	climate change		-3.455***	0.158
threshold (=3)	Norway	now	air pollution		-2.685***	0.140
threshold (=4)	world	in 50 y.	air pollution		-1.929***	0.130
threshold (=5)	Norway	in 50 y.	climate change		-0.661***	0.122
threshold (=6)	world	now	climate change		0.867***	0.124
main effects:						
→ world		in 50 y.	air pollution	0.642***	-0.443	0.151
→ world		in 50 y.	climate change	1.046***	0.045	0.150
→ world		now	air pollution	0.581***	-0.543	0.151
→ world		now	climate change	0.954	-0.047	0.151
→ now	Norway		air pollution	0.593***	-0.523	0.154
→ now	Norway		climate change	0.638***	-0.450	0.152
→ now	world		air pollution	0.541***	-0.615	0.148
→ now	world		climate change	0.582***	-0.542	0.149
→ climate change	Norway	in 50 y.		0.678***	-0.388	0.155
→ climate change	Norway	now		0.730***	-0.315	0.151
→ climate change	world	in 50 y.		1.104	0.099	0.145
→ climate change	world	now		1.188	0.172	0.151
Nagelkerke R^2	**0.032**					

References

Alló, M., & Loureiro, M. L. (2014). The role of social norms on preferences towards climate change policies: A meta-analysis. *Energy Policy*, *73*, 563–574. https://doi.org/10.1016/j.enpol.2014.04.042

Bickerstaff, K. (2004). Risk perception research: socio-cultural perspectives on the public experience of air pollution. *Environment International*, *30*(6), 827–840. https://doi.org/10.1016/j.envint.2003.12.001

Bord, R. J., O'Connor, R. E., & Fisher, A. (2000). In what sense does the public need to understand global climate change? *Public Understanding of Science*, *3*(9), 205–218.

Bostrom, A., O'Connor, R. E., Böhm, G., Hanss, D., Bodi, O., Ekström, F., … Sælensminde, I. (2012). Causal thinking and support for climate change policies: International survey findings. *Global Environmental Change*, *22*(1), 210–222. https://doi.org/10.1016/j.gloenvcha.2011.09.012

Brügger, A., Dessai, S., Devine-Wright, P., Morton, T. A., & Pidgeon, N. F. (2015). Psychological responses to the proximity of climate change. *Nature Climate Change*. Získáno z http://www.nature.com/nclimate/journal/vaop/ncurrent/full/nclimate2760.html

Brügger, A., Morton, T. A., & Dessai, S. (2016). "Proximising" climate change reconsidered: A construal level theory perspective. *Journal of Environmental Psychology*, (46), 125–142. https://doi.org/10.1016/j.jenvp.2016.04.004

Capstick, S., Whitmarsh, L., Poortinga, W., Pidgeon, N., & Upham, P. (2015). International trends in public perceptions of climate change over the past quarter century. *Wiley Interdisciplinary Reviews: Climate Change*, *6*(1), 35–61. https://doi.org/10.1002/wcc.321

Carlsson, F., Kataria, M., Krupnick, A., Lampi, E., Löfgren, Å., Qin, P., & Sterner, T. (2013). A fair share: Burden-sharing preferences in the United States and China. *Resource and Energy Economics*, *35*(1), 1–17. https://doi.org/10.1016/j.reseneeco.2012.11.001

Carson, R. T., Louviere, J. J., & Wei, E. (2010). Alternative Australian climate change plans: The public's views. *Energy Policy*, *38*(2), 902–911. https://doi.org/10.1016/j.enpol.2009.10.041

Cools, M., Brijs, K., Tormans, H., Moons, E., Janssens, D., & Wets, G. (2011). The socio-cognitive links between road pricing acceptability and changes in travel-behavior. *Transportation Research Part A: Policy and Practice*, *45*(8), 779–788. https://doi.org/10.1016/j.tra.2011.06.006

Devine-Wright, P. (2013). Think global, act local? The relevance of place attachments and place identities in a climate changed world. *Global Environmental Change*, *23*(1), 61–69. https://doi.org/10.1016/j.gloenvcha.2012.08.003

Devine-Wright, P., Price, J., & Leviston, Z. (2015). My country or my planet? Exploring the influence of multiple place attachments and ideological beliefs upon climate change attitudes and opinions. *Global Environmental Change*, *30*, 68–79. https://doi.org/10.1016/j.gloenvcha.2014.10.012

Dietz, T., Dan, A., & Shwom, R. (2007). Support for Climate Change Policy: Social Psychological and Social Structural Influences. *Rural Sociology*, *72*(2), 185–214. https://doi.org/10.1526/003601107781170026

Drews, S., & van den Bergh, J. C. J. M. (2015). What explains public support for climate policies? A review of empirical and experimental studies. *Climate Policy*, 1–22. https://doi.org/10.1080/14693062.2015.1058240

Dutt, V., & Gonzalez, C. (2012). Why Do We Want to Delay Actions on Climate Change? Effects of Probability and Timing of Climate Consequences. *Journal of Behavioral Decision Making*, *25*(2), 154–164. https://doi.org/10.1002/bdm.721

Gattig, A., & Hendrickx, L. (2007). Judgmental Discounting and Environmental Risk Perception: Dimensional Similarities, Domain Differences, and Implications for Sustainability. *Journal of Social Issues*, *63*(1), 21–39. https://doi.org/10.1111/j.1540-4560.2007.00494.x

Haden, V. R., Niles, M. T., Lubell, M., Perlman, J., & Jackson, L. E. (2012). Global and Local Concerns: What Attitudes and Beliefs Motivate Farmers to Mitigate and Adapt to Climate Change? *PLoS ONE*, *7*(12), e52882. https://doi.org/10.1371/journal.pone.0052882

Harring, N., & Jagers, S. (2013). Should We Trust in Values? Explaining Public Support for Pro-Environmental Taxes. *Sustainability*, *5*(1), 210–227. https://doi.org/10.3390/su5010210

Høgestøl, A., & Skjervheim, Ø. (2014). *Norwegian Citizen Panel 2014, second wave* (Methodology Report). Bergen: University in Bergen. Získáno z http://tjinfo.uib.no/Vedlegg?id=a375b38f8e1fec2d9e7181d4f680dbb0

Kim, J., Schmöcker, J.-D., Fujii, S., & Noland, R. B. (2013). Attitudes towards road pricing and environmental taxation among US and UK students. *Transportation Research Part A: Policy and Practice*, *48*, 50–62. https://doi.org/10.1016/j.tra.2012.10.005

Konisky, D. M., Milyo, J., & Richardson, L. E. (2008). Environmental Policy Attitudes: Issues, Geographical Scale, and Political Trust. *Social Science Quarterly*, *89*(5), 1066–1085. https://doi.org/10.1111/j.1540-6237.2008.00574.x

Krosnick, J. A., Holbrook, A. L., Lowe, L., & Visser, P. S. (2006). The Origins and Consequences of democratic citizens' Policy Agendas: A Study of Popular Concern about Global Warming. *Climatic Change*, *77*(1–2), 7–43. https://doi.org/10.1007/s10584-006-9068-8

Layton, D. F., & Brown, G. (2000). Heterogeneous Preferences Regarding Global Climate Change. *Review of Economics and Statistics*, *82*(4), 616–624. https://doi.org/10.1162/003465300559091

Leiserowitz, A. (2006). Climate Change Risk Perception and Policy Preferences: The Role of Affect, Imagery, and Values. *Climatic Change*, *77*(1–2), 45–72. https://doi.org/10.1007/s10584-006-9059-9

Leviston, Z., Price, J., & Bishop, B. (2014). Imagining climate change: The role of implicit associations and affective psychological distancing in climate change responses: Implicit associations with climate change. *European Journal of Social Psychology*, *44*(5), 441–454. https://doi.org/10.1002/ejsp.2050

Liu, Y., Xie, C., & She, S. (2014). Perception of delayed environmental risks: beyond time discounting. *Disaster Prevention and Management*, *23*(2), 112–122. http://dx.doi.org/10.1108/DPM-06-2013-0099

Lorenzoni, I., Nicholson-Cole, S., & Whitmarsh, L. (2007). Barriers perceived to engaging with climate change among the UK public and their policy implications. *Global Environmental Change*, *17*(3–4), 445–459. https://doi.org/10.1016/j.gloenvcha.2007.01.004

Lorenzoni, I., & Pidgeon, N. F. (2006). Public Views on Climate Change: European and USA Perspectives. *Climatic Change*, *77*(1–2), 73–95. https://doi.org/10.1007/s10584-006-9072-z

Lujala, P., Lein, H., & Rød, J. K. (2015). Climate change, natural hazards, and risk perception: the role of proximity and personal experience. *Local Environment*, *20*(4), 489–509. https://doi.org/10.1080/13549839.2014.887666

McCright, A. M. (2008). Social Bases of Climate Change Knowledge, Concern, and Policy Support in the U.S. General Public, The. *Hofstra Law Review*, *37*, 1017.

McDonald, R. I., Chai, H. Y., & Newell, B. R. (2015). Personal experience and the 'psychological distance' of climate change: An integrative review. *Journal of Environmental Psychology*, *44*, 109–118. https://doi.org/10.1016/j.jenvp.2015.10.003

Newell, B. R., McDonald, R. I., Brewer, M., & Hayes, B. K. (2014). The Psychology of Environmental Decisions. *Annual Review of Environment and Resources*, *39*(1), 443–467. https://doi.org/10.1146/annurev-environ-010713-094623

Pahl, S., Sheppard, S., Boomsma, C., & Groves, C. (2014). Perceptions of time in relation to climate change: Perceptions of time in relation to climate change. *Wiley Interdisciplinary Reviews: Climate Change*, *5*(3), 375–388. https://doi.org/10.1002/wcc.272

Poortinga, W., Spence, A., Demski, C., & Pidgeon, N. F. (2012). Individual-motivational factors in the acceptability of demand-side and supply-side measures to reduce carbon emissions. *Energy Policy*, *48*, 812–819. https://doi.org/10.1016/j.enpol.2012.06.029

Rhodes, E., & Jaccard, M. (2013). A Tale of Two Climate Policies: Political Economy of British Columbia's Carbon Tax and Clean Electricity Standard. *Canadian Public Policy*, *39*(2), 37–51. https://doi.org/10.3138/CPP.39.Supplement2.S37

Scannell, L., & Gifford, R. (2013). Personally relevant climate change the role of place attachment and local versus global message framing in engagement. *Environment and Behavior*, *45*(1), 60–85.

Schmöcker, J.-D., Pettersson, P., & Fujii, S. (2012). Comparative Analysis of Proximal and Distal Determinants for the Acceptance of Coercive Charging Policies in the UK and Japan. *International Journal of Sustainable Transportation*, *6*(3), 156–173. https://doi.org/10.1080/15568318.2011.570856

Spence, A., & Pidgeon, N. (2010). Framing and communicating climate change: The effects of distance and outcome frame manipulations. *Global Environmental Change*, *20*(4), 656–667. https://doi.org/10.1016/j.gloenvcha.2010.07.002

Spence, A., Poortinga, W., & Pidgeon, N. F. (2012). The Psychological Distance of Climate Change: Psychological Distance of Climate Change. *Risk Analysis*, *32*(6), 957–972. https://doi.org/10.1111/j.1539-6924.2011.01695.x

Trope, Y., & Liberman, N. (2010). Construal-level theory of psychological distance. *Psychological Review*, *117*(2), 440–463. https://doi.org/10.1037/a0018963

Vlek, C. (2000). Essential Psychology for Environmental Policy Making. *International Journal of Psychology*, *35*(2), 153–167. https://doi.org/10.1080/002075900399457

Whitmarsh, L. (2009). What's in a name? Commonalities and differences in public understanding of "climate change" and "global warming". *Public Understanding of Science*, *18*(4), 401–420. https://doi.org/10.1177/0963662506073088

Yeager, D. S., Larson, S. B., Krosnick, J. A., & Tompson, T. (2011). Measuring Americans' Issue Priorities A New Version of the Most Important Problem Question Reveals More Concern About Global Warming and the Environment. *Public Opinion Quarterly*, *75*(1), 125–138. https://doi.org/10.1093/poq/nfq075

Zahran, S., Brody, S. D., Grover, H., & Vedlitz, A. (2006). Climate Change Vulnerability and Policy Support. *Society & Natural Resources*, *19*(9), 771–789. https://doi.org/10.1080/08941920600835528

Zvěřinová, I., Ščasný, M., & Kyselá, E. (2014). *What Influences Public Acceptance of the Current Policies to Reduce GHG Emissions?* (WP2 Deliverable 2.5.). Prague: Charles University Environment Center. Získáno z http://cecilia2050.eu/publications/239