Political Trust and Climate Policy Choice: Evidence from a Conjoint Experiment

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Abstract

Why do citizens support or reject climate change mitigation policies? This is not an easy choice: citizens need to support government in making these decisions, accept potentially radical behaviour change, and have altruism across borders and for future generations. A substantial literature argues that political trust facilitates citizen support for these complex policy decisions by mitigating the cost and uncertainty that policies impose on individuals and buttressing support for government intervention. We test whether this is the case with a pre-registered conjoint experiment fielded in Germany in which we vary fundamental aspects of policy design that are related to the cost, uncertainty, and implementation of climate change policies. Contrary to strong theoretical expectations and previous work, we find no difference between those with low and high trust on their support for different policy attributes, assuaging the concern that low and declining trust inhibits climate policy making.

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Why do citizens support or reject climate change mitigation policies? This is fundamentally important: climate change is an urgent, global policy problem in which countries' responses vary enormously. Moreover, it is a difficult problem. Climate change policies which aim to decarbonise the environment require a 'fundamental restructuring of the economy and human behaviour together with [an] altruistic imperative' (Farstad, 2018) and interactions between the public, government and policies at rapid pace (Jordan et al., 2022). The difficulty and existential price of failure means climate change is the 'largest collective action problem the world has ever faced' (McGrath, 2021). The record-breaking temperatures across the world and resultant destruction of natural and human habitats acts as a potent reminder of the urgency of addressing climate change.

Climate policy support poses numerous considerations for the public: at the very least, whether to support government in making these decisions, whether to change their behaviour, and altruism across borders and for future generations. It also poses problems for (democratic) governments who are faced with the challenge of identifying and implementing policy that is both effective at reducing carbon emissions and acceptable to the mass public. Governments may employ both 'push' and 'pull' policy: coercive measures such as taxes, and policies aiming to encourage certain behaviour, such as subsidies, respectively (Drews & van den Bergh, 2016). An alternative but similar characterisation is 'command and control' and 'market-based instruments', with the former referring to mandates or restrictions and the latter referring to direct economic costs, like taxes or permits (Beiser-McGrath et al., 2022). Regardless, most instruments require some sacrifice, whether that is compliance with some restrictions, behaviour change, or direct financial costs; and unsurprisingly, citizens are less supportive of costly policies (Bechtel & Scheve, 2013; Drews & van den Bergh, 2016; Gampfer et al., 2014; McGrath, 2021; Tobler et al., 2012). Moreover, they are asked to support and sacrifice for policies that may not work or, if they do, may not have noticeable returns for decades. An urgent question is therefore what, if anything, moderates citizens' willingness to pay these costs (McGrath, 2021).

A substantial literature argues that trust in politicians and political institutions is fundamental in achieving this objective (for reviews, see Cologna & Siegrist, 2020; Fairbrother, 2017), consistent with a broader argument about the importance of political trust for government action across a swathe of public policy areas (Hetherington, 2005). Yet, this is a serious problem if this is the case: political trust is low across most democratic nations and is unlikely to increase. In the world's most polluting democracy, the United States, political trust is at a historical low, and concern over the environment is fiercely polarised across partisan lines (Guber, 2013; McConnell, 2022). Given this context - which shows little sign of improvement - and the urgency required to decarbonise the environment, it is concerning if trust plays a substantial role in citizens' support for policies aimed to curb climate change.

In this paper, we ask how political trust can moderate support for climate policy. Theoretically, we make a two-fold argument by drawing on the literatures on the relationship between political trust and complex policy problems (e.g Hetherington & Husser, 2012; Hetherington & Rudolph, 2015; Jacobs & Matthews, 2017; Rudolph et al., 2017), and that of climate policy (Drews & van den Bergh, 2016; McGrath, 2021; Tobler et al., 2012). Specifically, we claim that trust (1) mitigates the cost and uncertainty that policies impose on individuals (Jacobs & Matthews, 2017), and (2) facilitates government intervention (Hetherington & Husser, 2012). Consequently, we hypothesise that *citizens with higher levels of trust in their political institutions are relatively more likely to prefer policy instruments which impose costs, are uncertain, and are imposed by the government.* We test these hypotheses with a pre-registered conjoint experiment conducted in Germany, in which we experimentally vary fundamental aspects of policy design that are related to the cost, uncertainty, and implementation of climate change policies.

Overall, our results do not provide evidence that political trust moderates preferences over climate change policy, even in the most likely case where high cost and uncertainty are present. The only evidence of trust acting as a moderator over policy preferences is that high trusters are more supportive of specific policies that require costs - increasing

prices on things that pollute, like plastics, and funding wind and solar farms - and that high trusters are less likely to prefer policies that impose costs on future generations, consistent with existing evidence (Beiser-McGrath et al., 2022; Davidovic & Harring, 2020; Fairbrother et al., 2021). However, in direct contrast to existing observational (Fairbrother, 2016; Konisky et al., 2008; Rompf et al., 2017; Taniguchi & Marshall, 2018) and experimental (Fairbrother, 2019) research on climate and environmental policy, there is little evidence that trust moderates preferences across other attributes relating to cost and uncertainty - such as time horizon, complexity, GDP cost, and levels of public support - and who the policy is proposed by, such as government or 'experts'. As we return to in the conclusion, one possible reason our results differ is that our design provides substantially more information to respondents than single survey questions or vignettes, and this may reduce respondents' reliance on trust as a heuristic to judge policy. This may mean that trust is still important in low information environments when citizens are operating on cues from trusted elites. If this is the case, one implication is that greater information reduces the relevance of trust as a decision-making tool. That said, we also problematise the link between trust and policy preferences. This aside, our results are broadly positive for (climate change) policy making: given the generally low or declining levels of political trust across the leading polluting countries, it is encouraging that political trust is not relevant in explaining differences in policy support.

Empirically, our contribution is to directly address calls for experimental studies 'focusing on what affects people's willingness to pay for the high costs of climate action' (McGrath, 2021). Indeed, in a recent review article, it was highlighted how remarkably few studies seek to understand which aspects of policy increase policy support, compared to those that study climate or environmental attitudes in general (Fairbrother, 2022). A key novelty of our conjoint design in this regard is that we can test how trust moderates support for numerous policy instruments simultaneously, reflecting citizens' multidimensional preferences and the potentially heterogeneous effect of trust. Whilst there are a handful of conjoint experiments on support for climate policy instruments (Bechtel & Scheve, 2013; Beiser-McGrath et al., 2022; Gampfer et al., 2014), this is the first to our

knowledge that tests the role of trust in moderating these preferences. Existing research that addresses trust as driving climate policy preferences is typically from correlational studies focusing on relatively limited dimensions of policies, such as whether respondents would be willing to pay higher taxes to 'protect the environment' (Davidovic & Harring, 2020; Fairbrother, 2016; Konisky et al., 2008; Rompf et al., 2017; Taniguchi & Marshall, 2018). These studies also cannot overcome the potential for endogeneity between trust and climate preferences. Thus, our results contribute to this evidence on trust and support for climate policies, with a new design and a fundamentally different conclusion. Theoretically, we contribute to the broader literatures on political trust and policy design by developing the argument that trust can be a heuristic to overcome collective action problems and extend government activity (Hetherington, 1998; Jacobs & Matthews, 2012, 2017; Rudolph & Popp, 2009), which we do not find evidence of. In summary, our results importantly inform the evidence base on the design of climate policy, what moderates individuals' willingness to pay policy costs, and on the consequences of political trust for policy preferences more broadly.

Theoretical approach

Political trust refers to citizens' feelings about the institutions and actors governing their polity (Citrin & Stoker, 2018), which indicates their 'basic evaluative or affective orientation towards government' (Miller, 1974). Fundamentally, trust is the belief that an actor or institution would attend to one's interests even if left unsupervised (Easton, 1975) and without guarantees (O'Neill, 2002). Our theoretical approach begins with the literature that argues political trust increases willingness to support government action to address complex policy problems. We develop this idea here, beginning with the relevance of costs and uncertainty.

All policies require implementation; there is a widespread acceptance that the process of implementation is not always likely to be smooth (a point established in the long subtitle

to the classic Pressman and Wildavsky (1984) book on that subject). The tools that governments have to convert policy ideas into practice are numerous, but often have only limited capacity. Hood (1986) and Hood (2007) captures the options parsimoniously under the banner of the N.A.T.O model: nodality, authority, treasure and organization. To implement policy effectively, governments can control information flows using their *nodal* position; they have legitimate *authority* to act; through taxes and other mechanisms, they can gain *treasure* (resources); and finally, they have ability to *organise* expertise and institutional resources to take action. Yet each type of tool may be subject to failure. The flow of information may not be controlled, and alternatives views may become more dominant or the original messaging simply being too weak to penetrate. Authority in a democracy is always limited as future governments may change policy direction, or citizens may view government actors as having a weak or lost mandate. There are limits to the amount and acceptance of taxes raised by governments and a widespread understanding among the public that government may not always spend money wisely. Finally through staffing, recruitment or management failings the organizational capacity of government may not be up to the task.

Given recognition in decades of public policy research that governments regularly stumble over implementation, our starting point is that it is not surprising that there is a credibility problem for citizens above and beyond the substantive content of the policies. There is an unknown probability that governments will fail to implement the policy for the reasons just noted, amongst others. Citizens may even feel that governments are attempting to extract money or compliance without any intention of implementing the policy, or with nefarious and secretive intentions. To put it another way, citizens may 'reject costly social investment not because they do not value the goods' but instead 'because they do not trust the governments will ultimately deliver' on the policy (Jacobs & Matthews, 2017)

As citizens are asked to sacrifice greater amounts and the uncertainty over policy success grows, so does the credibility problem. Clearly, both sacrifices and uncertainty vary enormously: policies may cost very little or come with a large tax burden; they may have

a relatively short time horizon or be delivered a long time in the future, even into future generations. Yet, the most important contemporary policy problems - climate change, health and social care, pensions and so on - are precisely problems that come with high costs and uncertainty. As we noted at the outset, climate policy is precisely a policy area that requires some sacrifices for long-term benefits, begging the question of how these costs can be mitigated (McGrath, 2021).

Trust in political actors and institutions may help an individual overcome a policy's cost and uncertainty. As noted, trust is the expectation that one's interests will be attended to if left unsupervised and without guarantees (Easton, 1975; O'Neill, 2002). The primary theory motivating the connection between political trust and policy preferences is the trust-as-heuristic theory (Hetherington, 2005; Rudolph et al., 2017). The theory starts from the basis that understanding politics is hard; understanding the intricacies of policy making is even harder. People will look to simplify a decision-making process, and they use heuristics - informational shortcuts - to do so, and one such heuristic may be political trust. When people are asked to evaluate proposals, they may rely on trust to decide whether to support the policy or not, leading to the basic expectation that the more trusting a person is of government, the more likely they are to support a particular (government) policy proposal (Hetherington, 2005). Yet, this is not only an unconditional relationship. Trust is not necessarily required if there is no risk; if the policy is guaranteed to provide a benefit without any costs or risks, then it is less likely that trust would play a role in policy support. Instead, trust is activated when posed with costs and uncertainty: if there is a danger that the policy would cost a lot or fail. Often, policies are characterised by both of these, for reasons we have outlined. The essential claim of the trust-as-heuristic theory is that if a citizen is trusting of the government (or other implementing actors), they are more likely to believe that governments can deliver the policy objective *in spite of* the cost and uncertainty in the policy; and thus more likely to support it. If an individual is sceptical of government, then they may want it to do less not because they disagree with the policy, but because they believe the policy will fail (Hetherington, 2005; Jacobs & Matthews, 2012, 2017); and thus less likely to

support it. With specific reference to attitudes towards environmental policy, for instance, Fairbrother (2017) argues that attitudes are not just about the environment but also 'about the competence and honesty—the trustworthiness—of the people proposing and implementing them'.

The core claim of this theoretical argument therefore is that a gap in policy support emerges between those who trust and those who do not as the cost and uncertainty of the policy (and thus the credibility problem) increase. The empirical evidence in support of this is strong. Specifically on environmental and climate policy, trust is shown to affect preferences when there is greater uncertainty (Fairbrother, 2019) and the time horizon is longer (Fairbrother et al., 2021). Two relatively recent reviews argued that political trust is important for support for climate policy, particularly in moderating the effect of policy attributes (Drews & van den Bergh, 2016; McGrath, 2021). This is supported in a number of empirical papers (e.g Bechtel & Scheve, 2013; Davidovic & Harring, 2020; Huber et al., 2021; Konisky et al., 2008; Lamb & Minx, 2020; Rompf et al., 2017; Taniguchi & Marshall, 2018). This proposition also has support for other policy areas which require similar costs and with long-term returns, such as redistribution policy (Garritzmann et al., 2023; Hetherington, 2005) or targeted welfare policy (Hetherington & Globetti, 2002) (though see Peyton, 2020). The importance of trust is not limited to policy *features* but also the *implementing actor*. If trust is a heuristic for citizens to decide whether to support government action *in general*, then it is fundamentally important who the primary actor is (Hetherington & Husser, 2012; Rudolph et al., 2017). If a policy is implemented by a (trusted) national health service, citizen support for the policy is less likely to be conditioned by trust in government or other explicitly political institutions. Those without trust in government may be more likely to reject elite policy making and defer to the public, for example, leading to greater support for policy derived from citizens' assemblies (Pilet et al., 2022). If a policy is made by an untrusted government, the trust heuristic would lead people to reject that policy, independent of its other features.

Whilst this theory is relatively established and widely utilised, it is not without critique.

The first is that trust operates differently in different contexts; what it means to 'trust government' (or any other political actor) varies, most obviously between democratic and non-democratic states[1], but it may also vary depending on the role of the state and underlying political cultures. Most of the existing research is from the United States even though the US is *sui generis* amongst industralised democracies in its relationship with government activity. This relates to a second and more general critique. If trust is a heuristic, then there are very many other heuristics available for people to decide on whether to support a policy, not least their other attitudes pertaining to the climate or the environment. These two points are clearly related: the *trust in government* heuristic may be much stronger (or at least more heterogenous) in the case of the US, given that government intervention is a defining feature of political conflict. Finally, it may be that the object of trust matters; as was shown during the COVID pandemic, political trust (that is, towards objects like government and parliament) had a smaller relationship with vaccine uptake than trust in public health authorities (Devine et al., 2023). It may be that the political trust heuristic only exerts an effect on issues that are particularly politicised. Other trust heuristics - such as in scientists or the 'free market' - may operate more strongly.[2]

To summarise, policy instruments aiming to decarbonise the environment may impose costs on individuals in terms of behaviour change, compliance, and indirect or direct financial costs (Beiser-McGrath et al., 2022; Drews & van den Bergh, 2016). The return on these costs is uncertain and long-term, and the potential for failure is unknown. The question is what, if anything, facilitates citizen acceptance of policies in this environment (McGrath, 2021), and more broadly, what policy features boost support for climate protection policy (Fairbrother, 2022). A substantial literature - though one not without critique - suggests that one answer is political trust. However, this argument has, to our knowledge, not been tested experimentally with regard to particular policy instruments, and in the remainder of the paper, we do exactly this.

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[1] We don't develop this point here since our case is a European democracy, but this does impose a scope condition on our results: we cannot generalise to non-democracies.

[2] We test this mechanism in Appendix Figure 7 and address it in the concluding section.

Research design

Our design to test how trust moderates climate policy choice is a pre-registered[3] conjoint experiment fielded in Germany. A conjoint design is particularly useful for our intention as policies vary across many dimensions and require trade-offs; conjoints make this trade-off explicit and provide estimations of the causal effect and preferences for specific attributes averaging over all others in the choice set. Indeed, researchers have highlighted the usefulness of conjoint experiments in identifying the effect of climate policy instruments (e.g Beiser-McGrath et al., 2022; Drews & van den Bergh, 2016; McGrath, 2021). Moreover, by measuring respondent demographics and attitudes before the conjoint, we can test whether preferences and causal effects differ between respondents; in this case, depending on respondents' trust levels.

The experiment was fielded by YouGov to a representative sample (N = 1558) of the German public. Our fieldwork took place in two waves in 2021: from 14th of October to the 20th of October (N = 1024), then 19th of November to 23rd of November (N = 534). Germany is one of the most polluting nations, yet one taking a lead on tackling climate change, and therefore understanding what may moderate support for such policy is important in the context of European efforts to decarbonise. Respondents were required to complete four iterations of the conjoint, meaning the total number of observations is 6232. The attribute and level order was randomised between respondents, but held constant over the tasks; this means that the order stayed the same for each iteration. We did this to reduce respondent effort and avoid satisficing whilst also avoiding order effects.

Our conjoint presentation provided respondents with two side-by-side profiles in a table, headed 'Proposal A' and 'Proposal B'. Before the table, respondents were presented with a preamble asking them to compare government proposals to help 'achieve reductions in greenhouse gas emissions' and informing them they would be asked to make four

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[3]Please see https://osf.io/d5rga/?view_only=dacba08bd451425084facc425f54f1d9 for the anonymous pre-registration document.

comparisons. Following the table, respondents were asked 'Which proposal would you prefer to be implemented?' and could select either Proposal A or Proposal B. There was no Don't Know option or equivalent. Which profile was selected is our outcome variable.[4]

We measure *cost* primarily as material costs through two attributes: the costs (or benefits) in terms of GDP and increases in taxes. We measure *uncertainty* in three ways: the (perceived) complexity of the policy; public support for the policy; and the time horizon of the policy's costs. All of these, we argue, increase the perception that the policy will fail in its stated objectives, therefore increasing uncertainty. For instance, if public support is relatively high, it is less likely that a public coalition would overturn the policy before complete implementation. Similarly, if a policy is simpler to implement, it is less likely to encounter terminal difficulties during the process. To measure the effect of the primary political actor - government, or other actors, like 'experts' or the public - we use one attribute that states who the policy was recommended by. Finally, we also include an attribute that varies actual policies (such as building wind farms); we do this to make the decision less abstract and do not have specific expectations on their effects. Table 1 presents these attributes and levels.

To measure trust, we followed a standard question wording used in the British and American Election Studies: 'How much of the time, if at all, do you think you can trust the government in Berlin to do what is right?' with answers: 'Just about always', 'Most of the time', 'Only some of the time', 'Almost never', and Don't know'. This is our primary pre-registered moderator. We recode this into a binary variable for those who trust 'just about always' and 'most of the time' (1) and those who trust 'only some of the time' and 'almost never' (0). We provide results for the effect of other measures of trust or environmental scepticism and descriptive statistics in the Appendix.

Our results are primarily based on marginal means (MMs). This can be interpreted as underlying preferences for a particular attribute; we present these over average marginal component effect (AMCE). We opt for these firstly as AMCEs require a baseline level,

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[4]Full survey wording and description is in the Appendix.

Attribute	Levels
Policy	Encouraging the adoption of more plant-based diets; Financing the building of wind and solar farms; Helping plant trees in tropical forests; Increasing the price of things that produce carbon to make, like electricity and plastic
Timing of costs	Higher costs in 10 years; Higher costs in 20 years; Higher costs in 30 years
Pricing	Tax for the environment; Tax for the environment, other taxes reduced; Tax on things that pollute, like petrol or electricity
Complexity	Experts agree - fairly complex; Experts agree - not very complex; Experts agree - very complex
GDP	1% of GDP; 1% of GDP, but costs would be higher for future generations; 1% of GDP, but reduce public health costs; 2% of GDP; GDP would increase by 1%
Recommended by	Made by government, backed by opposition; Made by expert panel; Made by government, opposition in parliament; Made by random members of public
Public support	30% for, 70% against; 45% for, 55% against; 60% for, 40% against

Table 1: Attributes and attribute levels

whilst MMs do not, and AMCEs are therefore sensitive to the selection of the baseline; and secondly as our primary interest is in sub-group preferences for which MMs are less error prone (Leeper et al., 2020). Formally, our estimand of interest is the conditional marginal mean, since we separate our results by respondents' level of trust.[5]

Results

To provide baseline preferences over climate policies, we present unmoderated marginal means in Figure 1; these are preferences over climate policy choice amongst the whole sample. As an example, if the MM of an attribute is 0.55 this means that 55% of the proposals with that attribute were chosen, with the interpretation that that attribute increases the probability a proposal being chosen. 0.5 is indicated with a vertical line. In addition to providing us with a baseline result to put the following moderated effects into context, this also tells us which policy attributes would be generally popular when designing climate policy; as Fairbrother (2022) writes, the literature does not typically provide much guidance on how to design policies that increase acceptability, and our intention here is to address that practical gap.

For specific policies, the least popular are, unsurprisingly, those that aim to increase prices on electricity and plastic, with a marginal mean of 0.44; meanwhile, the most popular are financing wind and solar (0.55) and planting trees (0.53); encouraging plant-based diets are also unpopular (0.47). Overall, this suggests indeed that 'push' factors (price increases and behaviour change) are less popular than 'pull' factors (subsidies).[6] Similarly, those policies that are net costs in terms of taxes ('taxes on petrol or electricity' and 'tax for the environment') (0.47) are less popular than a tax which is balanced by reductions in other areas (0.55), an overall difference of eight percentage-points: on the one hand, respondents reject new taxes, but they are overall willing to pay an environmental tax

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[5]In our pre-registration, we specified AMCEs as our primary analysis. We therefore include these in the Appendix. Results are identical.

[6]Of course, planting trees and financing wind and solar also may involve some tax increases or levies. This is, at the very least, a matter of policy framing.

if this is balanced with reductions elsewhere. In terms of the timing of these costs, respondents prefer more immediate costs (0.52) than long-term costs (0.47), but these differences are relatively small.

Respondents also, unsurprisingly, prefer policies that are 'not very complex' (0.52) to those that are 'very complex' (0.48) though, again, these differences are relatively small. Perhaps surprisingly, however, respondents are relatively ambivalent on the costs to GDP. The only attribute level which is significantly different from zero is where the policy costs, but also reduces public health costs (0.52). This may be because respondents have a difficult time interpreting 'GDP' as a cost, but it does also suggest that framing climate policy as a public good that reduces other costs may increase support. The proposing actor also has a small impact on support, with respondents preferring policy made by experts (0.53) compared to those made by randomly chosen members of the public (0.48) and those with opposition in parliament (0.47); this is an interesting finding given the suggestion that citizen assemblies are a way to garner support for climate policy (Jordan et al., 2022). Finally, the results also show the importance of building public support: policies with substantial public opposition have a large negative effect (0.45) relative to those with substantial public support (0.54).

How does trust moderate preferences over policy choice? To answer this question, we present the marginal means of low and high trusters (as described in the previous section) in Figure 2. As in Figure 1, these show the percentage of proposals with that attribute that were selected.

Given that the primary motivation was to understand whether trust could make people more willing to bear costs, we begin with these attributes - the third and fifth panels in Figure 2. Against our quite strong expectations and previous research, the results indicate that there are no significant differences between the preferences of trusters and no trusters with regard to costs. Across all levels, the marginal means for high and low trusters are similar; for instance, there is no obvious pattern on the effect of GDP. Consistent with existing work, however, the results indicate that those with trust are

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Figure 1: Preferences over climate policy choice

significantly less likely to impose costs on future generations, which supports previous evidence (Fairbrother et al., 2021). Importantly, this has a negative effect for high trusters (0.45) but makes no difference to low trusters (0.50). In addition, they are somewhat less likely to prefer when an environment tax is balanced with tax reduction elsewhere, though this is not significant.

What about *uncertainty*, the second, fourth and seventh panels? Again, we find minimal differences across all attributes; those with lower and higher trust are quite united over their preferences regarding complexity, time horizon, and public support. On complexity, differences are precisely zero. If anything, we find that high trusters are more likely to
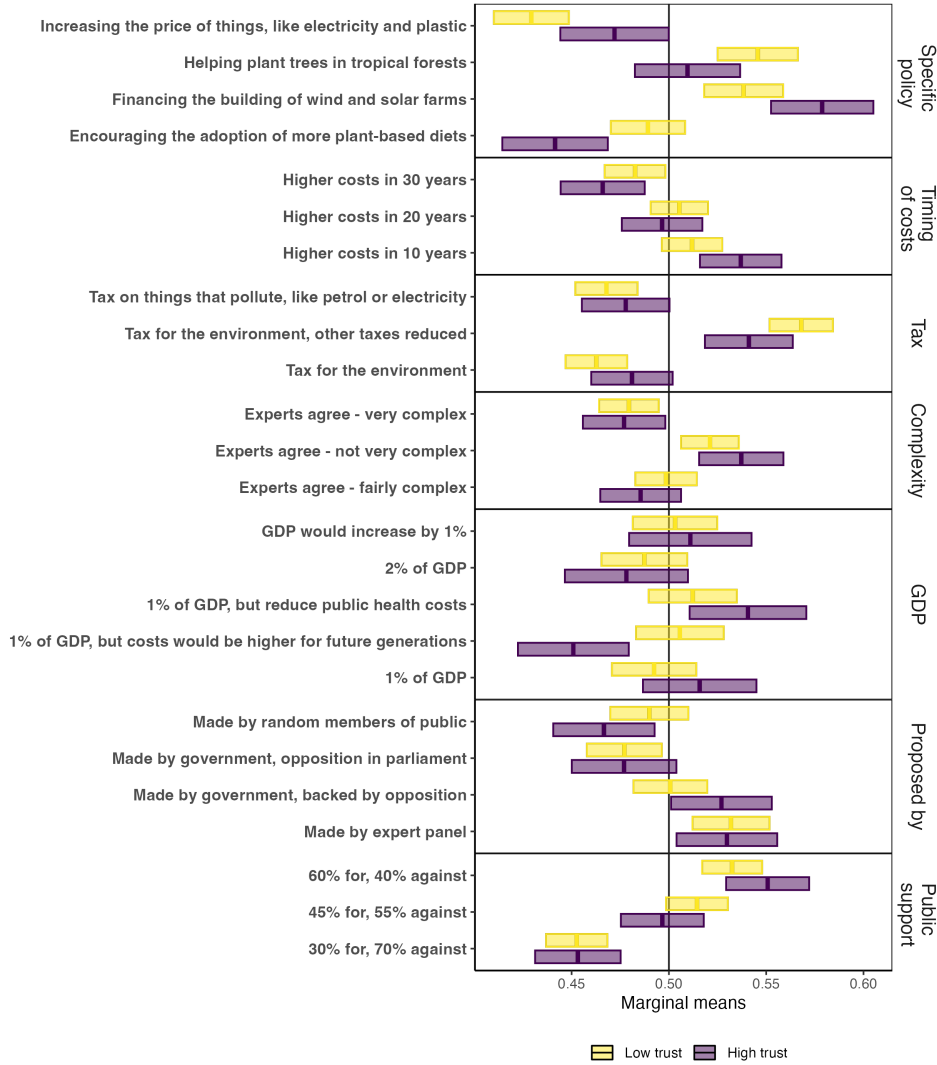
Figure 2: Marginal means for high and low trusters

prefer short-term costs, against expectations. This may be a product of the short-term *costs* rather than *benefits*, where there may be a different in the time horizon of benefits rather than purely costs. Likewise, we find trusters are slightly, non-significantly more likely to prefer policies with higher public support. Finding these minimal differences with regard to policy uncertainty runs against a core expectation in the trust and policy design literature (e.g Hetherington & Husser, 2012; Jacobs & Matthews, 2012, 2017). We may even expect uncertainty to matter more than costs, as it pertains to governments' competence in implementation and benevolence in doing so. In the concluding section we build on the theoretical section to speculate on why our results are not consistent with previous theory and empirical evidence.

We also tested whether the recommending actor mattered in determining policy support, on the basis that trust is a heuristic (Rudolph et al., 2017), where those who trust government are more likely to support policy proposed by government (or, more likely, those who do not trust government are *less* likely to support it). We again find minimal and non-significant differences between those with high and low levels of trust. There is some evidence that those who trust prefer citizens' assemblies less ('made by random members of the public') than those with less trust, but this is not significant. Importantly, there is no difference in preferences when the government is the proposing actor, regardless of whether it is supported by opposition or not. The difference in preferences on whether the policy is made technocratically ('by expert panel') is precisely zero. Practically, this is problematic for the claim that citizens' assemblies and similar innovations are a way of engaging dissatisfied citizens (e.g Pilet et al., 2022).

Finally, for specific policies, we find that individuals with higher trust are relatively more likely to support the increasing of prices and the financing of wind and solar farms; they are less likely to prefer planting trees and encouraging the adoption of plant-based diets. Those with lower trust react more strongly to policy which clearly implies price increases, with a marginal mean of 0.43, compared to those with higher trust, who have a marginal mean of 0.48: whilst neither high or low trusters 'prefer' policy that entails price increases, those with low trust react more strongly to it. What is notable is that this is consistent with previous work which finds trust is important (only) for the imposition of carbon taxes (Hammar & Jagers, 2006; Harring & Jagers, 2013). Whilst our results generally refute the claim that trust mitigates costly or risky policies, it provides some support that direct costs elicit a negative response for low trusters, even though when we link this directly to taxes there is only minimal (and non-significant) differences between those with low and high trust; in Appendix Figure 7, however, we show that these differences emerge with beliefs over whether *scientists* are lying about climate change. This is fairly mixed with regard to previous work on push and pull measures (Drews & van den Bergh, 2016): increasing prices is certainly a push measure, but financing wind and solar is a pull measure, as is planting trees in tropical forests. Yet the latter two have opposite

effects. We are unable to strongly conclude either way.

To ensure our results are not artefacts of various measurement or design choices, we provide a range of additional results in the Appendix. First, we separated the analysis of the marginal mean differences by whether respondents felt climate change was a hoax or not, whether it was important, and by whether respondents trusted the government specifically on dealing with climate change. This essentially means we repeated the above analysis but for two sub-populations; for instance, those who think and do not think climate change is a hoax. It is possible that differences between those with high and low trust may only emerge if there is conflict over climate change in the first place. These results are consistent with those presented so far, with minimal differences, even amongst those who think climate change is a hoax or that it is not important. Our interpretation of these minimal differences is positive: most people have similar preferences on how climate policy should be designed, conditional on there being climate policy. This does not mean, however, that they are united in the belief climate is an important issue to address or whether one *should* address climate change. Put another way, given the existence of climate policy, people want similar things; but they may well disagree over whether there should be policy in the first place. To check for this possibility as best we can in our data, we tabulated responses to whether the respondent was 'worried about the effects of climate change' (from 'very much' (1) to 'not at all' (4)) with the belief that climate change is a myth used to raise taxes (from 'strongly agree' (1) to 'strongly disagree' (5)). The two are strongly negatively correlated at -0.45; just 2% of those who 'strongly disagree' that climate change is a myth are 'not at all worried' about climate change, compared to 45% who 'strongly agree' climate change is a myth. We can see the same pattern if we look at the 'worried about' variable and an indicator for whether the respondent believes climate change is 'important to tackle' (from 'not at all' (0) to 'very' (10)); they are correlated at -0.7, and 83% of those who believe climate change is 'not at all important' to tackle are also 'not at all worried' about it (compared to 1% of those who believe it is very important). Overall, our data shows predictable patterns on climate attitudes such as importance, concern, and conspiracy beliefs.

We also provide standard robustness tests such as whether results differ depending on the profile or task number. We find that levels which are on the right-hand side (i.e. Proposal B compared to Proposal A) are consistently less preferred. However, given that these are consistent effects and all our attributes are equally distributed between left and right columns, we do not believe this impacts our overall conclusion.

Altogether, our results reject key theoretical expectations about the importance of trust for policy preferences: that trusters are more likely to accept costs and uncertainty, and more likely to favour government-led policy making. In doing so, we also help answer a key question about what can facilitate the implementation of costly climate policies. As a recent review notes, there are many studies on climate change beliefs, but far fewer on what drives support for specific solutions (Fairbrother, 2022); this is an important question we have helped answer. Political trust is seen as an important moderator for support of different types of policy solutions but, whilst we point to some potential directions, we do not find overwhelming support for this proposition, though we do replicate expectations in some cases.

Discussion

The need to implement policies aimed at mitigating climate change is urgent, yet poses a significant credibility problem for the mass public. The literatures on social investment policies generally (Jacobs & Matthews, 2017), climate policies specifically (Drews & van den Bergh, 2016; Fairbrother, 2022; McGrath, 2021), and political trust (Hetherington & Husser, 2012), argue that trust in political actors and institutions is fundamental in overcoming this dilemma, and empirical work has indeed found that higher trust is associated with preferences for more action on climate change. In this paper, we have provided results from a novel, pre-registered conjoint experiment eliciting multidimensional policy preferences in Germany to understand how and whether trust may overcome the issues of cost and uncertainty in climate policy making. Contrary to the existing consensus,

we have found that trust plays little role in moderating preferences over climate policy, though we do find support consistent with previous evidence on imposing costs on future generations (Fairbrother et al., 2021) and some differences on specific policies that entail direct costs. Whilst we have directly heeded a call to use conjoint designs to understand how people may bear costly policies (McGrath, 2021) and what drives support for particular policies (Fairbrother, 2022), we unfortunately have been unable, in the most part, to evidence our strong prior expectations.

We have two potential suggestions for why our results may differ. The first is that a conjoint design offers far richer information about a policy's design to respondents. As far as we are aware, this paper is the first to study the importance of trust for climate policy using a conjoint design; previous studies instead use vignette experiments or survey items eliciting views on climate or environmental policy. Vignette experiments, whilst useful, likely prime other unobserved information (Dafoe et al., 2018). It may be a consequence of this design that we find null results. Trust is a heuristic mechanism people use to overcome information deficits (Rudolph et al., 2017). As our design elicits multidimensional preferences, it may be that the additional information for respondents means they are relying less on their underlying trust judgements and more on (objective) information to decide on policy support. It might therefore not be that trust is used to overcome the *credibility problem* that policy support requires, but instead the *informational problem* that political decisions require. Our results are consistent with another conjoint experiment on long-term policy making and trust which provides some support for this proposition (Christensen & Rapeli, 2021).

A second reason may be about what the *trust heuristic* means in different political cultures. In Anglophone countries and most especially in the United States - where most of our research comes from - political identity is an important predictor of climate attitudes, but this is not the case elsewhere (Smith & Mayer, 2019). In addition, government intervention is a more salient feature of US political conflict. In our case, we repeat our analysis but instead of political trust we use a variable that approximates trust in sci-

entists (in Appendix Figure 7).[7] There, the results are more in line with expectations on what type of tax respondents prefer, though not on other features. Whilst this is by no means conclusive, we do suggest that trust more broadly defined may be meaningful still but, outside of some cases, it is *trust in science* rather than trust in government doing the work.

As a final caveat, we do not mean to suggest political trust is irrelevant for climate policy. It may matter in a variety of ways: pre-empting public backlash, governments may refrain from costly policies in the first place; or governments may focus on short-term, low-risk policies for fear of the ballot box; political trust (and correspondingly higher political engagement) may lead to more consensual policy making in the first place. What we are suggesting though is that political trust does not seem to moderate preferences over features of climate policy, at least not in the way theory would predict.

In the context of low or declining trust across most democracies, these results are encouraging in that they suggest low political trust may not inhibit climate policy making. If our proposition is correct that trust is about overcoming the *information* rather than *credibility* problem, trust may still play a role if it is invested in those proposing climate mitigation policies. The question then is about targeted trust *or* increasing the provision and uptake of (unbiased) policy information, not about increasing trust in general. If it is the case that the *trust heuristic* operates differently in different political cultures - and political trust is especially potent in the United States and other Anglophone countries - then this calls for more nuanced work, theoretical and empirical, on the drivers of climate policy choice in a greater diversity of countries.

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[7]The question asks for agreement or disagreement on the statement, 'Scientists are creating panic about climate change because it is in their interests'.

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Appendix

Political Trust and Climate Policy Choice

A Survey questions and descriptive statistics

Table 2 provides question wording and response scales for key variables used in the main analysis (trust) and additional analyses (following three). Table 3 provides descriptive statistics for these variables.

Variable	Question wording	Responses
Trust	How much of the time, if at all, do you think you can trust the government in Berlin to do what is right?	Just about always; most of the time; only some of the time; almost never
Climate hoax	To what extent, if at all, do you agree, or disagree, with the following statements? Climate change is a myth promoted by the government as an excuse to raise taxes	Strongly agree; tend to agree; neither; tend to disagree; strongly disagree
Trust on climate	How much, if at all, do you trust the government to do each of the following? Tackle climate change	0 = Not at all, 10 = completely
Issue importance	How important, if at all, are each of the following issues to you? Tackling climate change	0 = Not at all important, 10 = Very important

Table 2: Question wording and response scales

Table 4 shows that randomisation and post-experimental coding was successful. Exactly 25% of the observations are in each task (iteration); 53% of respondents opted for Government A (47% for B), and there are no errors with presenting two profiles. Similarly, table 5 shows approximately equal randomisation of attribute levels.

	Unique (#)	Missing (%)	Mean	SD	Min	Median	Max
Political trust	5	3	2.8	0.8	1.0	3.0	4.0
Political trust (binary)	2	0	0.3	0.5	0.0	0.0	1.0
Trust on climate change	12	7	6.3	2.8	1.0	6.0	11.0
Impt. to tackle climate change	11	0	8.3	2.9	1.0	9.0	11.0
Climate change is a hoax	6	6	4.0	1.3	1.0	5.0	5.0

Table 3: Descriptive statistics of moderator variables

		N	Percent
Chosen	Govt A	6588	52.86
	Govt B	5876	47.14
Profile	Govt A	6232	50.00
	Govt B	6232	50.00
Task	Task 1	3116	25.00
	Task 2	3116	25.00
	Task 3	3116	25.00
	Task 4	3116	25.00

Table 4: Observations in key design variables

		N	Percent
policy	Encouraging the adoption of more plant-based diets	3185	25.55
	Financing the building of wind and solar farms	3040	24.39
	Helping plant trees in tropical forests	3082	24.73
	Increasing the price of things that produce carbon to make, like electricity and plastic	3157	25.33
timing	Higher costs in 10 years	4188	33.60
	Higher costs in 20 years	4149	33.29
	Higher costs in 30 years	4127	33.11
pricing	Tax for the environment	4142	33.23
	Tax for the environment, other taxes reduced	4193	33.64
	Tax on things that pollute, like petrol or electricity	4129	33.13
complexity	Experts agree - fairly complex	4064	32.61
	Experts agree - not very complex	4250	34.10
	Experts agree - very complex	4150	33.30
costbenefit	1% of GDP	2531	20.31
	1% of GDP, but costs would be higher for future generations	2439	19.57
	1% of GDP, but reduce public health costs	2520	20.22
	2% of GDP	2525	20.26
	GDP would increase by 1%	2449	19.65
recommended	Made by expert panel	3127	25.09
	Made by government, backed by opposition	3143	25.22
	Made by government, opposition in parliament	3115	24.99
	Made by random members of public	3079	24.70
publicsupp	30% for, 70% against	4134	33.17
	45% for, 55% against	4149	33.29
	60% for, 40% against	4181	33.54

Table 5: Randomisation of attribute levels

B Pre-registered hypotheses

We have structured our main text around a set of theoretical propositions rather than specific hypotheses about the attributes. However, in the pre-registered document, we did the latter. To be transparent, we restate the pre-registered hypotheses here and our conclusions on whether we reject them. We emphasise that this makes no difference to our conclusions in the paper, given that the results show no moderation effect of trust.

Hypothesis	Conclusion
As the time horizon for future costs becomes longer, the effect of trust is larger	Rejected
As complexity grows, the effect of trust is larger	Rejected
The less public support there is, the effect of trust is larger	Rejected
The effect of trust is larger when there is opposition in Parliament, compared to when the policy is backed by opposition parties.	Rejected
Compared to those with higher trust, those with low trust are less likely to support technocratic policy making (policy made by an expert advisory panel) but more likely to support policies made by a citizen's assembly ('randomly selected members of the public')	Rejected
The effect of trust is largest for an unconditional tax ('a tax for the environment would be introduced') than the other two levels.	Rejected
The effect of trust is larger for specific increases ('There would be tax increases on things you buy that pollute the environment, like petrol or electricity') than for a balanced tax ('A tax for the environment would be introduced, but other taxes would be reduced')	Rejected
The effect of trust is larger for the 2% increase than the 1% increase	Rejected
The effect of trust is larger for the policies that have future trade-offs than those that have no trade-offs	Not Rejected (but opposite direction)
There is no difference between low and high trusters when the return is positive ('Projections suggest gross domestic product (GDP) would increase by around 1%').	Not rejected

Table 6: Hypothesis summary

In the main text, our conclusions for these hypotheses were based on marginal means. Here, we also report a set of interactions (as we pre-registered) and AMCEs.

Interactions between trust and the timing variable are insignificant at the p=0.05 level (β = -0.036 and -0.04). The interaction between trust and 'higher costs in 30 years' is significant at the 0.1 level and is negatively signed (β = -0.041, p = 0.07). An interaction between the complexity attribute and trust provides a non-significant coefficient at all levels (β = 0.028 and 0.009, p = 0.20 and 0.66). An interaction between trust and the public support attribute has non-significant coefficients (β = -0.02 and 0.018, p = 0.39 and 0.45).

We also changed the base category for our 'recommended' attribute. We interact the 'recommended' attribute with trust when 'made by government, backed by opposition' is set as the baseline. The interaction between trust and 'made by government, opposition in parliament' is not significant and negatively signed (β = -0.027, p = 0.32), indicating that, if anything, trust has a negative effect.

We present these graphically in figure 3.
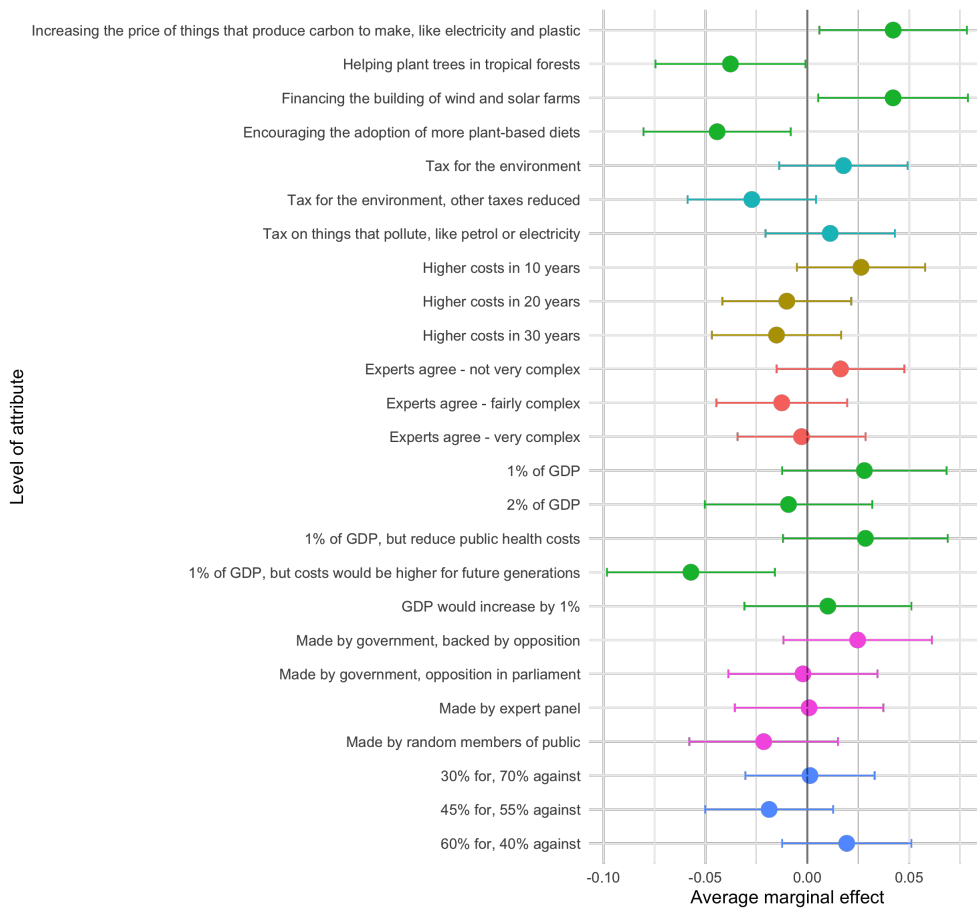
Figure 3: Results from interaction models

C Alternative moderators
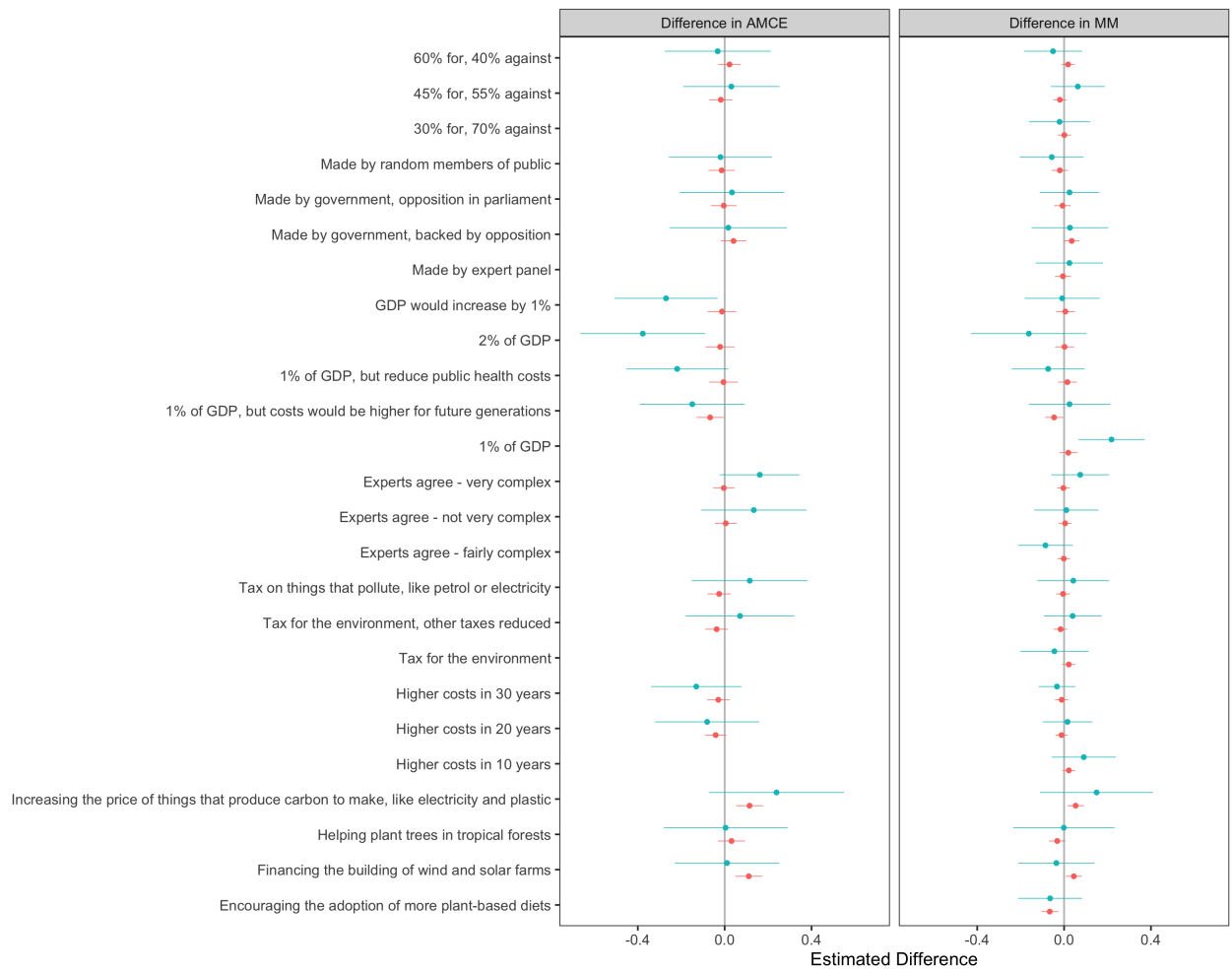
Figure 4: Differences in marginal mean differences and average marginal component effects of attributes on policy choice between those who think dealing with the climate is important and those that do not
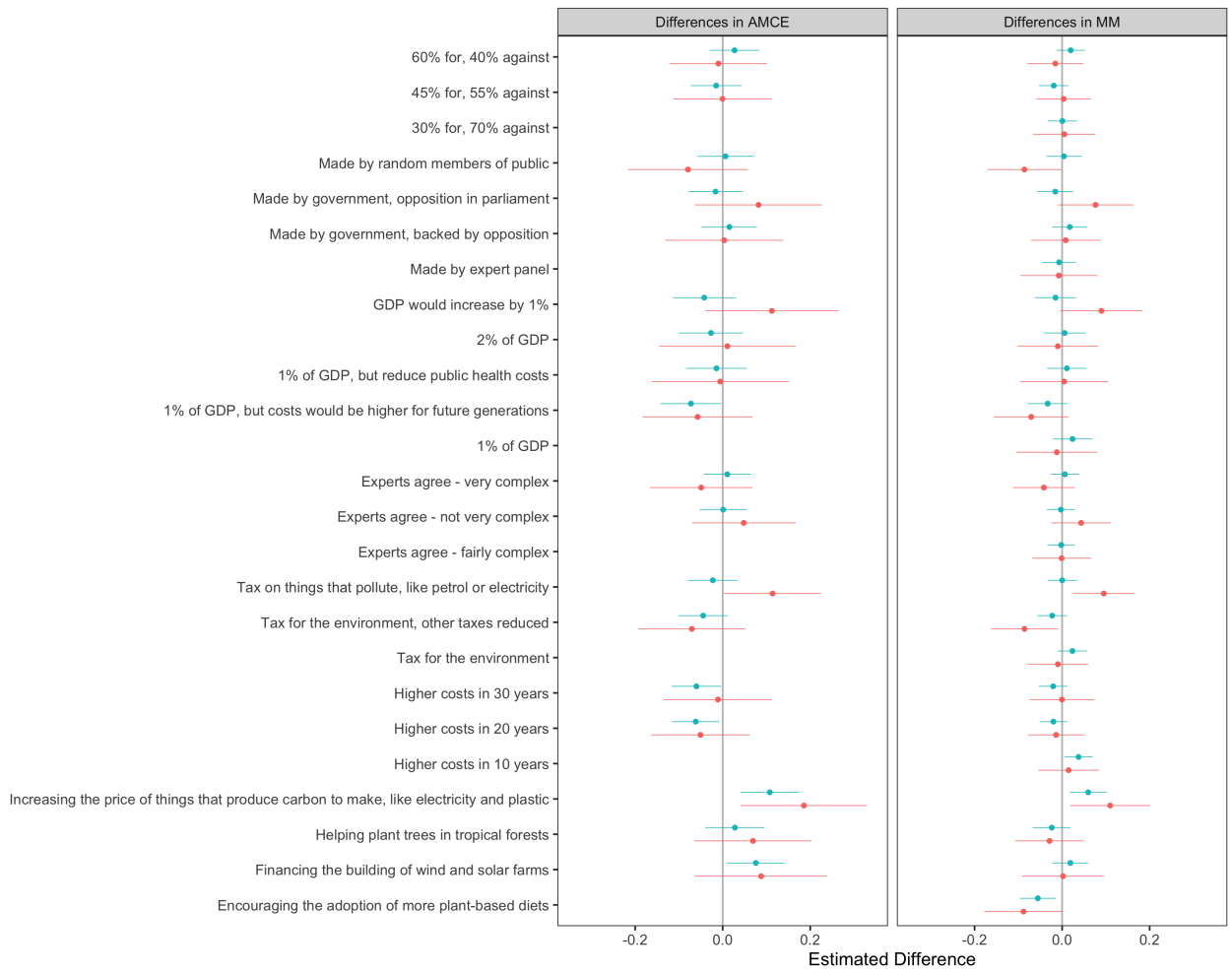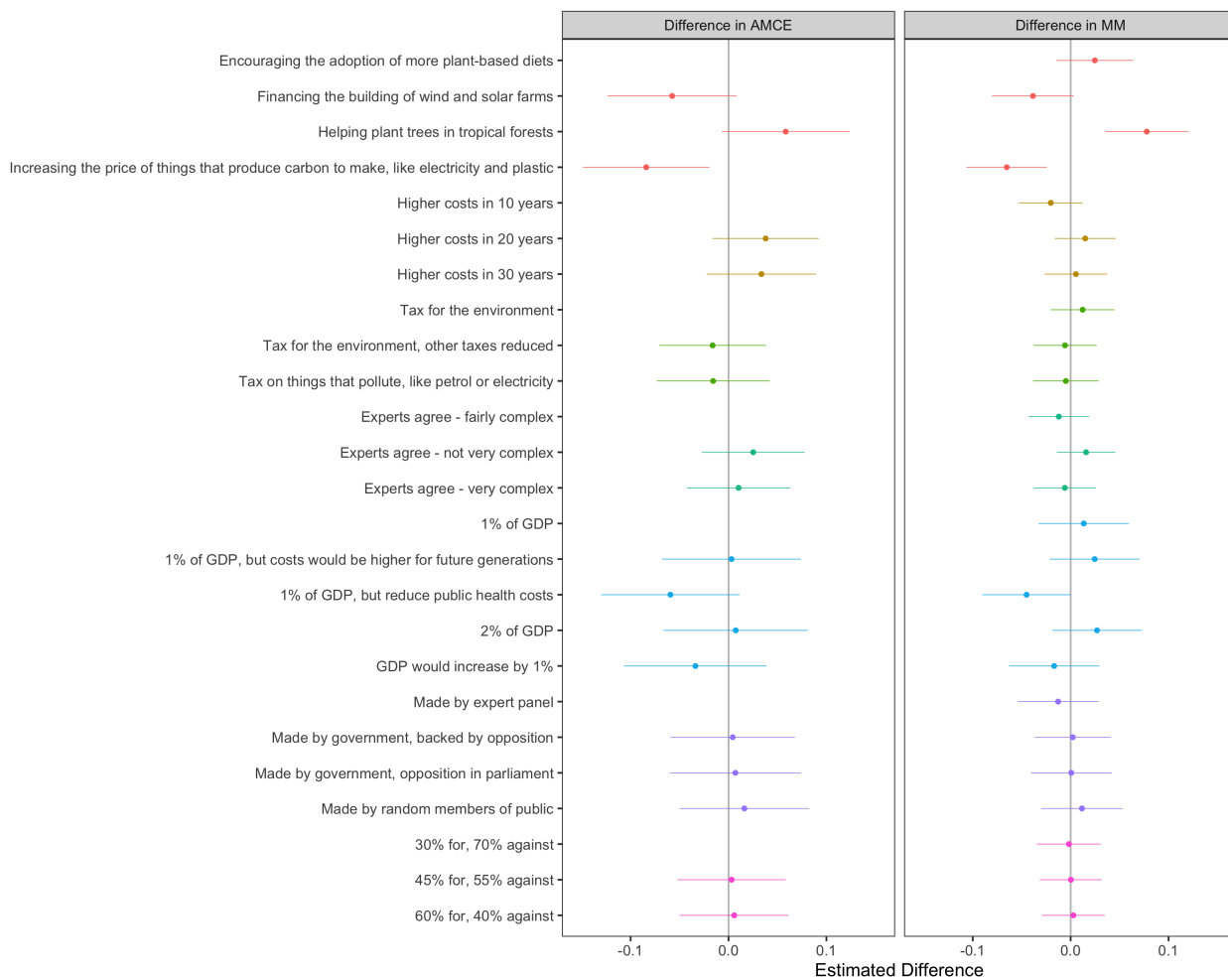
Figure 5: Differences in marginal mean differences and average marginal component effects of attributes on policy choice between those who think dealing with the climate is a hoax and those that do not

Figure 6: Differences in marginal mean differences and average marginal component effects of attributes on policy choice between those who trust government to tackle climate change
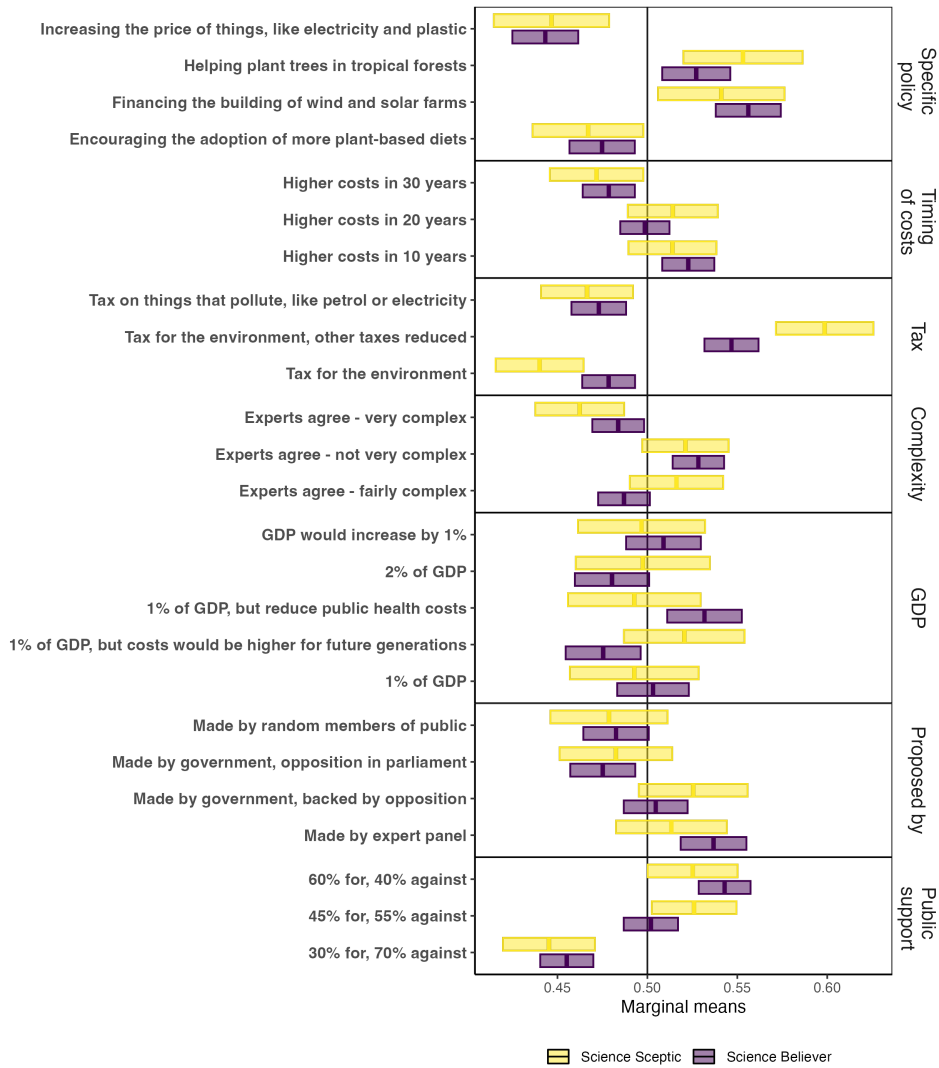
Figure 7: Marginal means for those that believe scientists are making up climate change ('Science Sceptics') and those that do not ('Science Believers')

D Robustness tests

In the following figures we present the profile and task robustness tests. These indicate whether the results differ depending which side the feature was on (i.e., Proposal A or B) and which iteration of the conjoint the decision was made.
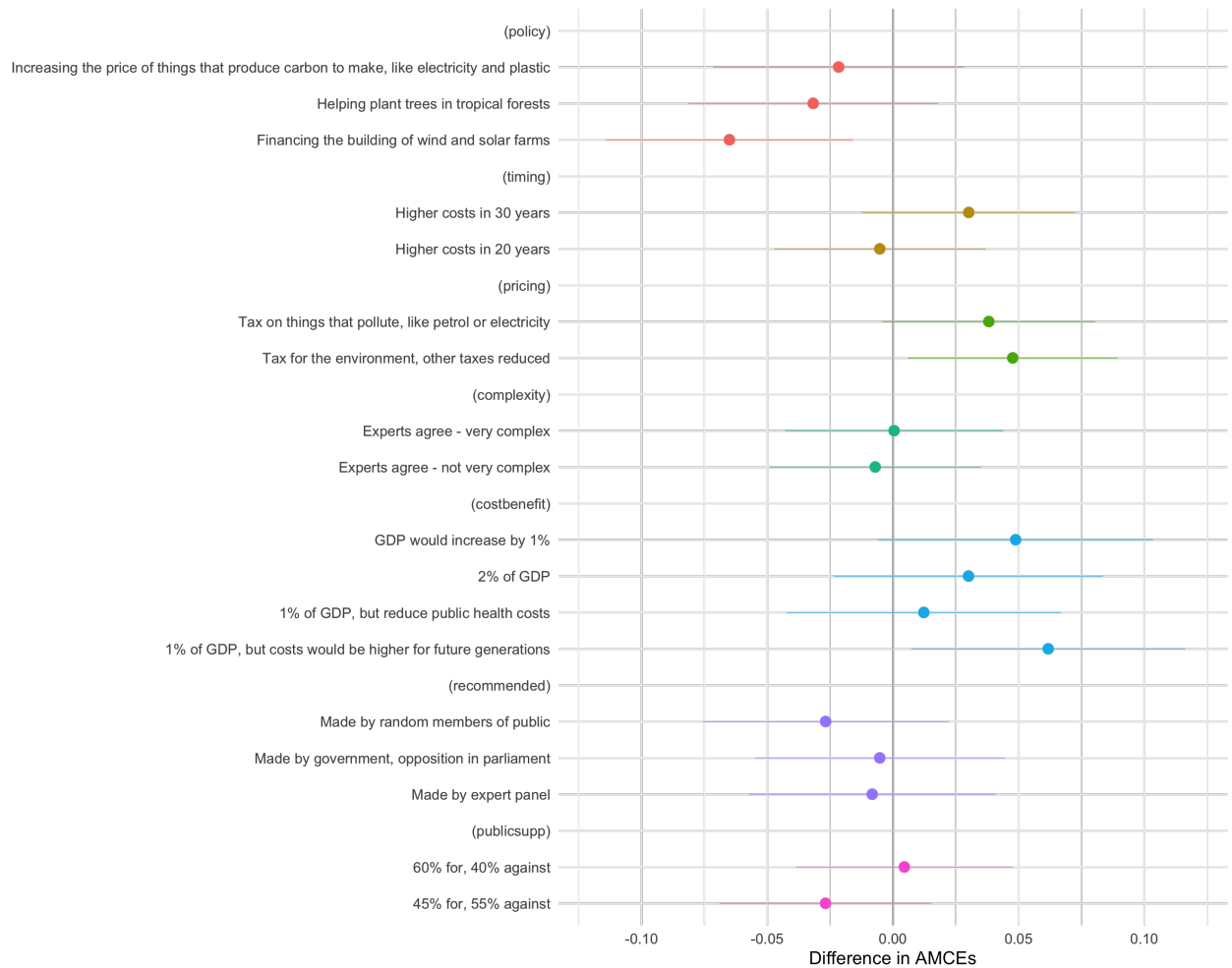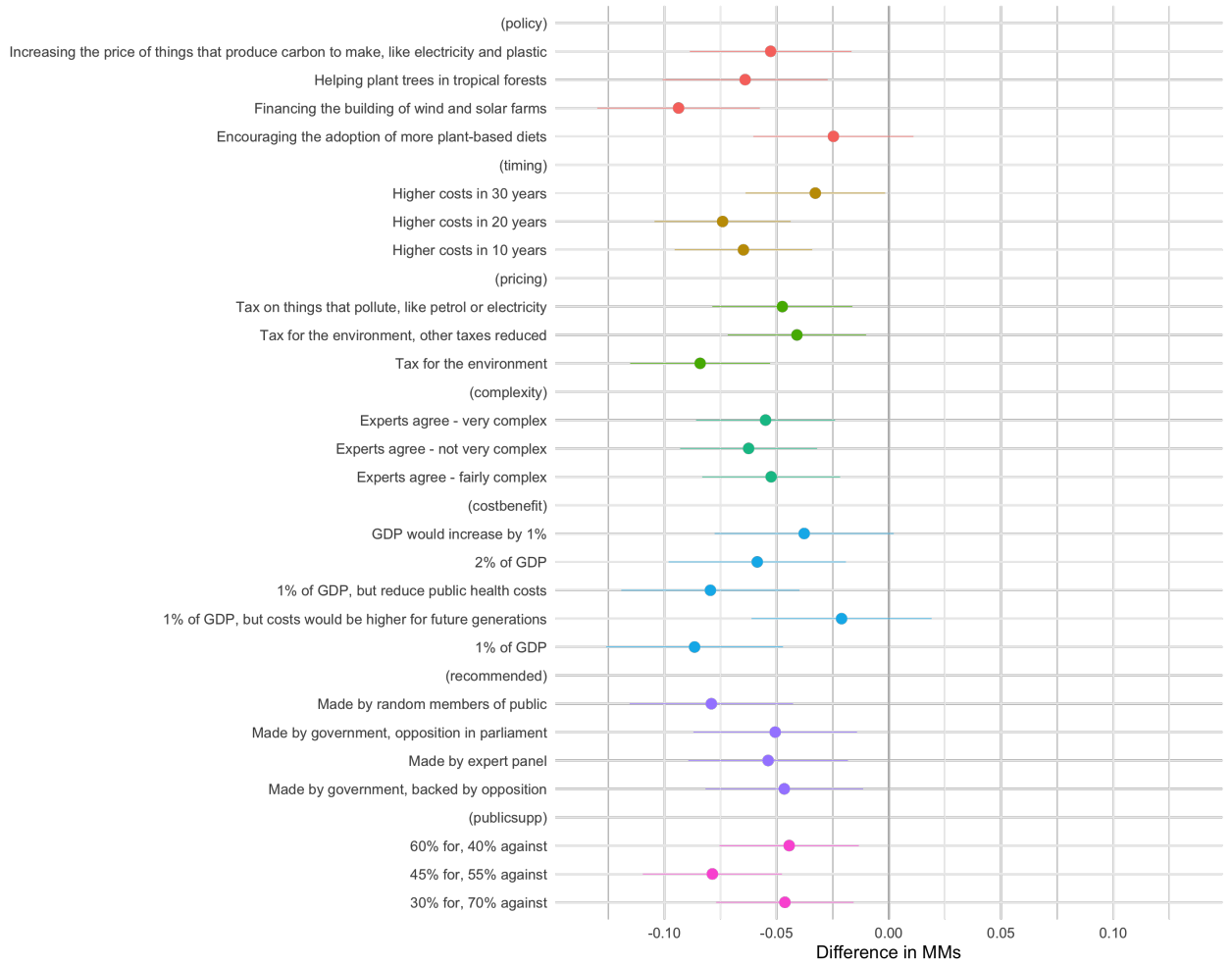

Figure 8: Differences in AMCEs between the two profiles
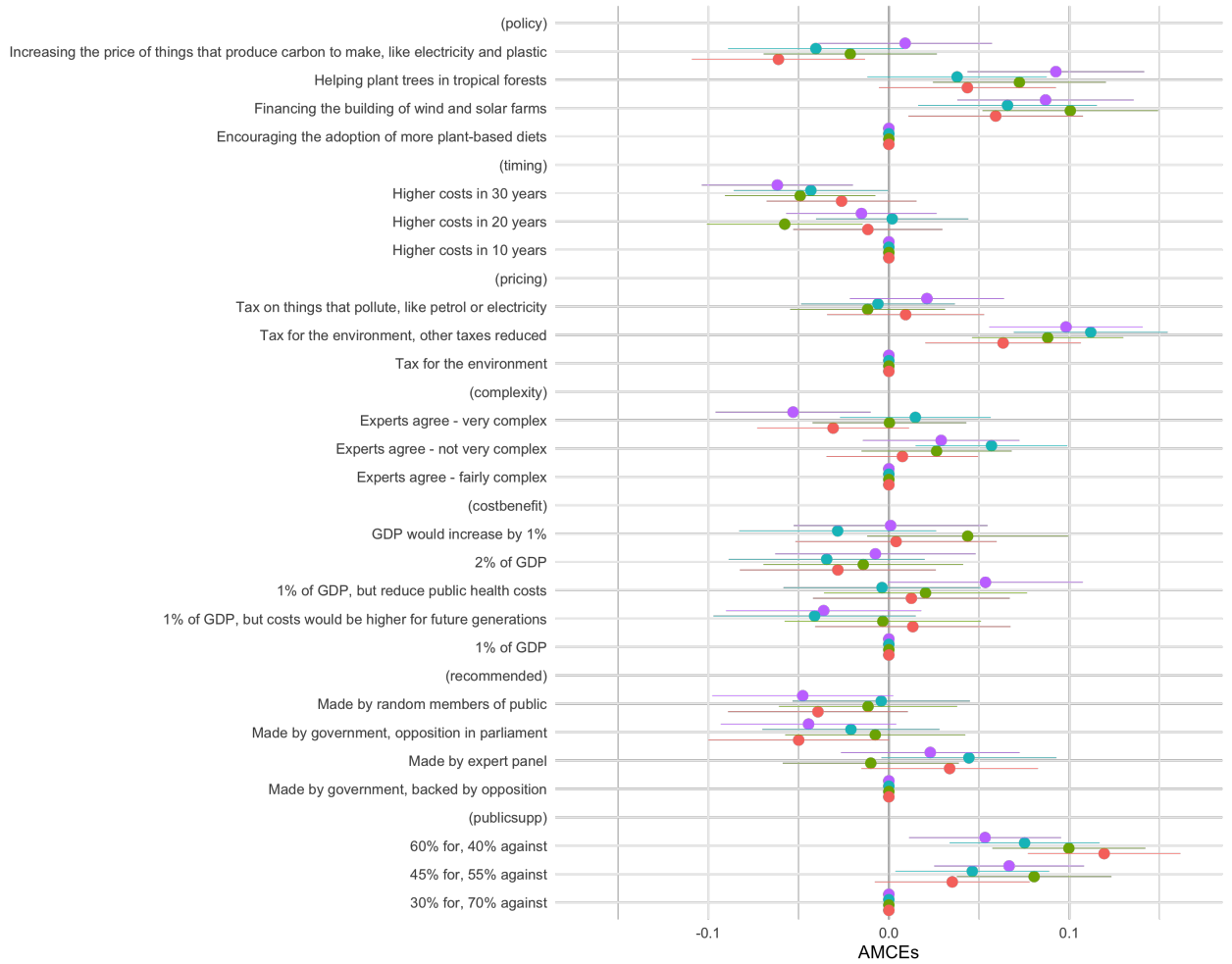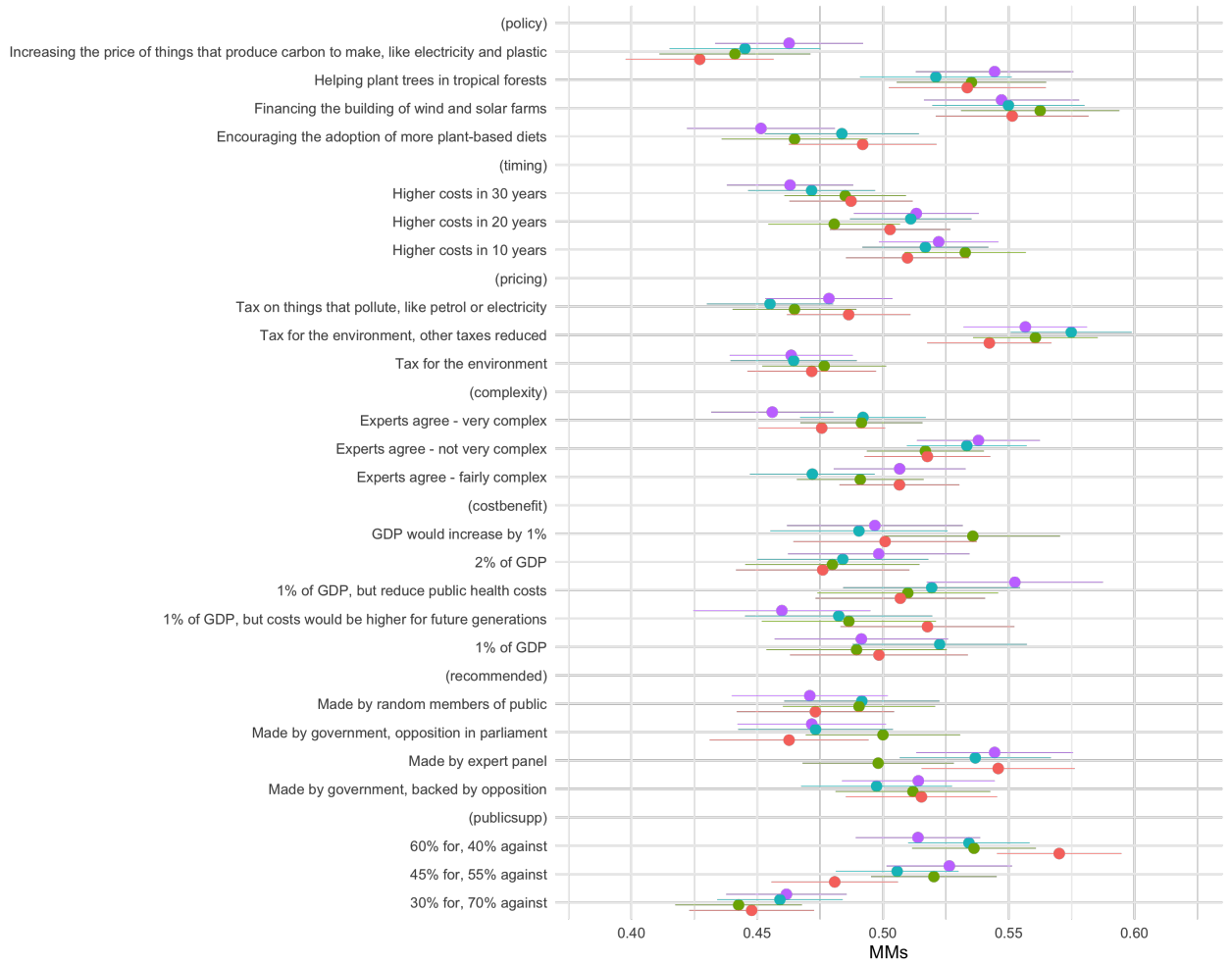
Figure 9: Differences in MMs between the two profiles

Figure 10: AMCEs by tasks 1-5

Figure 11: MMs by tasks 1-5