

# The Grip of Culture

The social psychology of  
Climate Change Catastrophism

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## Online Appendices

**Other Online files:**

GWPF link for CN-Archive file (PDF): <https://www.thegwpf.org/culture/TGoC-CN-Archive.pdf> .

GWPF link for Excel-Ref file (Microsoft Excel): <https://www.thegwpf.org/culture/TGoC-Excel-Ref.xlsx> .

GWPF link for Excel-Ref1 file (Microsoft Excel): <https://www.thegwpf.org/culture/TGoC-Excel-Ref1.xlsx> .

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## Online Appendix A – Why national religiosity was missed as a predictor – further reasons and detail

While there may be more reasons for this epic miss, those likely having the largest impacts are listed below:

- Systemic consideration by Type.
- Systemic consideration by Strength.
- Information loss via additive scales.
- Appropriate emotive range.
- Appropriate religiosity range.
- Religiosity consideration at National versus Individual level.
- Religiosity Scale issues.
- Mixed-mode and weakly-framed obfuscation.
- Misdirection from ‘Lifted’ Series.
- U.S. (and China) uniqueness.
- Date range for climate-survey data.

In summary, the literature has not been looking for attitudes that are cultural *in their own right*; most of the issues stem from this. For instance, biased survey questions (i.e. those that are more aligned to emotive Catastrophe Narrative and less aligned to the objective position of mainstream science) are often very helpful to cultural measurement. Unless survey participants are exposed to questions that exercise the full emotive width of the Catastrophe Narrative that they have been soaked in for decades, they will respond equivocally, and this can be misinterpreted as ‘nothing to see here’. In fact, publics are jammed full of emotive tension on the topic of climate change, yet this must be suitably evoked in order to see it. Academic studies may steer clear of more emotive questions in the belief that this reduces bias, but for the purpose of interrogating cultural attitudes, this can severely hamper investigation.

### i. Systemic consideration by Type

Cultural responses cover a very wide range of expression that may also be unintuitive, i.e. some responses may appear to be paradoxical, or at least inconsistent. Knowledge-based rational responses (even if these are somewhat influenced by culture), are not typically of this character. So, when testing for whether attitudes are cultural, in order that there is opportunity to see the full potential range of responses, it is paramount to interrogate via different question *types*, and specifically both *reality-constrained* and *unconstrained types*. Cultural responses to each of these types of question will be systemically very different.

However, academic studies on attitudes to climate change tend to focus on a single example attitude, as prompted by a single question which perforce can only be of a single type. Or at least very few attitudes and corresponding questions, which might also be of the same type. In contrast, mainstream pollsters frequently include various emphatic *reality-constrained* and *unconstrained* questions, along with some more equivocal questions plus *mixed-mode* and *weakly-framed* ones. But the primary purpose of such polls isn’t to determine the theory of what governs public responses, and notwithstanding some cross-charting of polled variables, there typically isn’t enough investigative depth to appreciate the systemic difference between responses to *reality-constrained* and *unconstrained types* as can be made visible on a cultural axis.

### ii. Systemic consideration by Strength

It is not only paramount to interrogate public attitudes to climate change via different question types (and specifically both *reality-constrained* and *unconstrained*), but also using a range of *strengths* for each type (as

described in Chapter 8). This interrogation range will enable a systemic map of cultural responses to be revealed. However, academic papers tend not to cover strength ranges, and while mainstream pollsters often do, there isn't enough investigative depth for the systemic differences in responses, as visible on a cultural axis, to be appreciated.

### iii. Information loss via additive scales or combined responses

Various papers in the predictor literature take the approach of converting expressed attitudes to climate change into a Likert scale, then summing the values before further analysis. Individual responses don't seem to be charted separately first, and combining them in this manner may result in significant information loss, possibly in some cases impacting predictor correlation values due to partial signal cancellation. This issue is covered extensively in Section 10.3.3, so I won't repeat the discussion here. Except to say that it does not seem uncommon, I don't know how often this technique is used and I can't quantify the impact, but at best this seems very unhelpful to analysis. And sometimes this kind of combination is produced inadvertently, by simply not realising that a question will have response components that should be investigated separately.

For instance, the rafts of weak predictors featured within Levi (2021)<sup>a</sup> as noted in 10.3.3, appear to miss the main event. The question of whether climate change is human caused will almost certainly evoke major cultural responses that strongly correlate with national religiosity for those who believe this plus believe in the catastrophic, neutral or mildly anti-correlating responses for those who believe this plus that it is 'a problem', and lastly quantitatively less but strongly anti-correlating responses for those who believe this plus that it's *not* really a problem. Unless these separate responses are plotted against some cultural axis, whether religiosity or something else, their polarising nature (due to cultural causation) would not be seen anyhow. The combined response will likely give a poorer overall predictor value.

However, it is also worth noting that even in this case, national religiosity still comes out as a much better predictor of national attitudes to climate change than non-cultural or weakly cultural (e.g. market liberalism) predictors. For a subset of nations in Levi (2021)'s 2016-2019 tranche that are already in my religiosity scale, the single variable of national religiosity predicts belief in a human-causation of climate change with an  $R^2$  of 0.41 (0.55 if one outlier is removed); still a major improvement of predictive power and from a *single* variable. Data / details are in the chart 'Levi 2021 Subset data' at the 'Extra' sheet of the Excel-Ref; it is a 'weakly-aligned and lifted' series.<sup>b</sup>

And if we asked the right questions to see the individual trends beneath, these would tell us what's *really* going on, which the combination of responses obscures. The point being that the real-world phenomena we're ultimately interested in, that we want to predict, such as the expression of climate-activism per nation or the level of climate-policy implementation (see Chapters 12 and 13), are primarily determined by cultural attitudes and *not* by non-cultural factors. While national religiosity is a single predictor at the national level and Levi (2021) covers both national and individual levels, the outstanding performance of this predictor suggests that cultural mechanics are the best place to start for individual prediction too.

### iv. Appropriate emotive range

Unless it is appreciated that attitudes to climate change are largely cultural, which is to say emotive, it may not be realised that *unconstrained* question types need to be sufficiently provocative in order to arouse those attitudes. As Figure 16 in Section 10.3.3 examples (dashed grey line), the response '*very serious*' to the question '*How serious a problem, if at all, do you think climate change is?*' is *neutral* against the cultural axis of national religiosity, i.e. it has no trend with national religiosity. But this does not mean that national publics are culturally (emotively) neutral on the issue of climate change. Indeed, they are full of cultural tension on the issue, which the other responses reveal. The response '*extremely serious*' generates a robust

<sup>a</sup> <https://www.nature.com/articles/s43247-021-00118-6> .

<sup>b</sup> However, This 2016-19 data might be unsafe anyhow; it is a merge of multiple surveys, yet done without the knowledge that subtle differences in wording can make a big difference in emotive responses for each survey.

positive correlation with national religiosity, while all the remaining three response options negatively correlate and grouped together, robustly so (see the black trendlines in Figure 16).

Yet what if no *'extremely serious'* option was offered? Which is the case in some surveys. The option *'very serious'* would likely pick up some trend, but would still look fairly equivocal. To some extent responses will redistribute, yet being emotive in nature means that less emphatic questions will produce less emotive responses, for both support and rejection. It could easily be thought that there was *'nothing to see here'*, especially if the remaining options were not then separately plotted as a double-check, or were combined into a Likert scale or similar with the *'very serious'* response (see subsection iii above). In practice, *'very serious'* simply isn't provocative enough to invoke major cultural responses, despite that such responses when evoked are expressed by *majorities* of most national publics. And we need to see them, as real-world policy and climate-change activism are both determined by cultural attitudes (see Chapters 12 and 13).

In probing for public attitudes to climate change, survey questions really need to span the full width of emotive Catastrophe Narrative that has soaked national publics for decades. This is a cultural narrative that contradicts mainstream (and sceptical) science, but in response to long and intense exposure publics are indeed culturally motivated. In other words, bias in surveys away from science and towards simultaneous certain apocalypse and salvation as propagated by Catastrophe Narrative, is very useful when attempting to gauge public attitudes. The *'extremely serious'* option gets a lot closer to Catastrophe Narrative alignment than *'very serious'*. Questions that are relatively unaligned, will simply miss majority attitudes that are neither knowledge-based or indeed primarily owed to rationality. One can't describe a certain apocalypse as merely *'very serious'*.

### v. Appropriate religiosity range

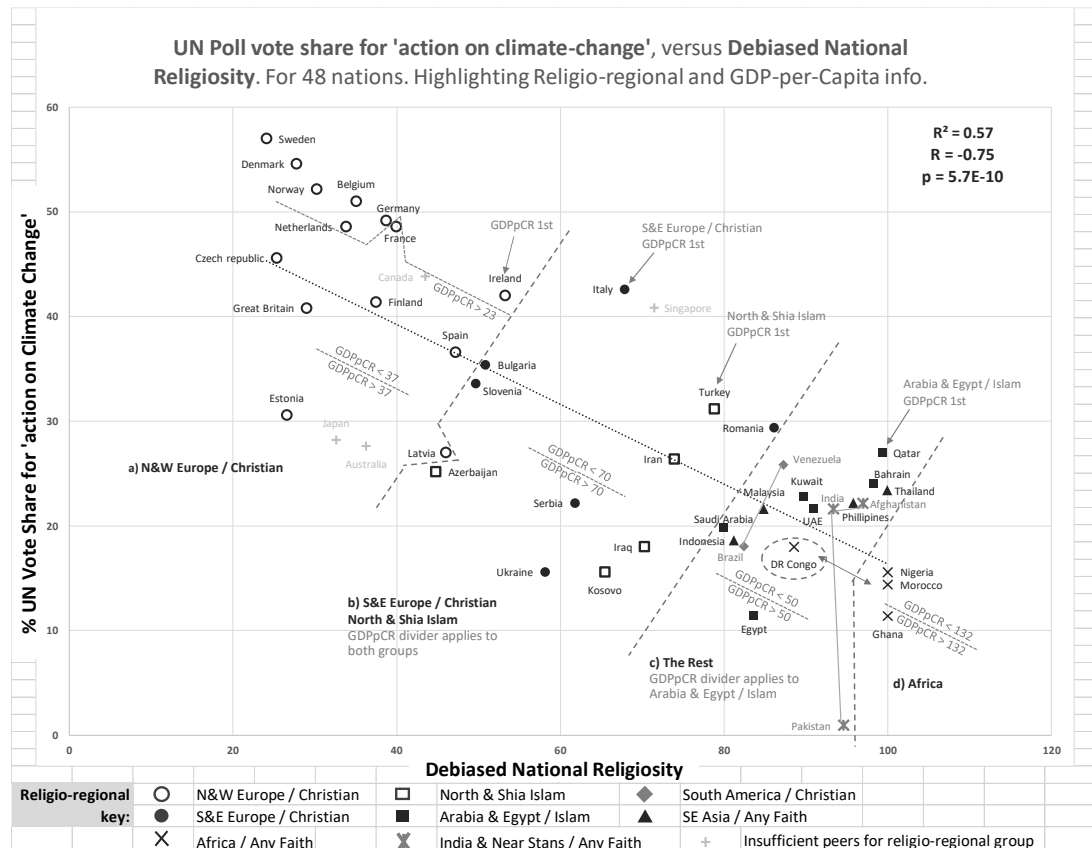


Figure O1 : 48 nation WC series encoded with Religio-regional and GDP-per-Capita Ranking info

Most of the series provided here span a very wide range of the debiased religiosity scale, from Sweden at ~22% up to several nations at 100%. This is essentially because most of the utilised surveys include not only

many nations, but also nations from several distant regions of the globe; despite some exceptions, levels of national religiosity have a pretty strong relationship with geography, which can be seen in Figure O1 above.

It follows that those surveys which are confined to a particular geographical region are likely to under-appreciate or even miss the significance of religiosity as a predictor for national attitudes to climate change. This is particularly the case for the weaker strength attitudes such as exemplified by the series WA1+O2 and WC, which can feature systemic variability about trend as a function of  $R-r-GDPpC$  (which variability for these two series is covered in Section 10.1.5). The latter of these series is what is portrayed in Figure O1, with full data across 48 nations, and religio-regional encoding that makes the issue crystal-clear.

If a survey of attitudes to climate change utilised any series with a similar nature to that in Figure O1, but was only looking at, say, 'South and East Europe' nations, there'd likely be no trend at all with national religiosity [black circles in partition b)]. If looking at only 'Egypt and Arabia' nations [black squares in partition c)], these probably produce a trend with national religiosity that slopes *the opposite way* to the actual depicted trend across all nations. Of course, these example cases have too few nations to deduce a proper trend in isolation anyhow. But even if there were enough surveyed nations from those regions to produce a theoretically valid trend, the true situation is still quite likely to be unclear. The lens of such a survey is trained upon too small a section to perceive the big picture; the selected region only has a narrow range of religiosity.

While a larger grouping such as western European nations, and/or a tighter trend (e.g. 'MWAe + Offset4' at the 'Extra Trends' sheet of the Excel-Ref), may reduce this issue, it remains a potential confounder for any investigations that are limited to a single region. Also, there seems to be an unspoken lean in the literature that different Faiths are likely to have different influences upon attitudes to climate change; coupled with potential religiosity scale issues (see vii below), this may also help bind investigations to particular regions; Catholic and Protestant Christianity are rare in having representation in most regions, albeit thinly in some.

## vi. Religiosity consideration at National versus Individual level

The predictor literature pursues some candidate variables at the national level, and some at the individual level. I don't know the ratio of the two approaches for religiosity as a candidate variable, but treatment at the individual level could lead to more religiosity scale issues (see vii below), and will tend to encourage the use of different measures of religiosity for each study, as this data will be harvested via the same survey as the probed attitudes to climate change.<sup>a</sup> Yet different measures of religiosity means that these studies won't be directly comparable when attempting to determine if there's a common theme in regards to the variability of international climate change attitudes with religiosity. A raft of different scales or proxies for religiosity, might possibly discourage large-scale detailed comparisons in the first place.

As noted in subsections i and ii above, the big picture is immensely helpful in revealing the cultural nature of public attitudes to climate change, and hence the predictive nature of national religiosity. If treated at the national level, an identical (and hopefully very generic) religiosity scale can be applied to any number of international surveys on attitudes to climate change, as indeed is done in this book. And whether or not such surveys are inclusive of their own religiosity related data (the vast majority are not).

The power of national religiosity as a predictor, and the clearly cultural nature of attitudes to climate change that result in this power, strongly suggest that cultural mechanics is the best place to start for predictors at the individual level too. However, an issue with pursuing this course is that, because culture is a group phenomenon, assessing attitudes at the individual level could lose valuable group level (e.g. national level) information, which would partially obscure the power of a cultural predictor. This issue is discussed in the main text of the book, at Section 10.3.3 and endnote 266, so I will not repeat it here. If one is in the luxurious position of having both group and individual level information, it is best to pursue both angles such that they can then be compared, which may be revealing in itself. While individual data, and hence such a comparison, is not available when using the publicly accessible data from mainstream pollsters as I have done, this path

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<sup>a</sup> Except for cases where common data-sources having both religious and climate attitudes happen to be used; this does occur with the World Values Survey data: <https://www.worldvaluessurvey.org/wvs.jsp>.

could be followed by some academic studies, but they mostly seem to assess at the individual level when there is a choice, and as noted above this has downsides when dealing with a group phenomenon.

### vii. Religiosity Scale issues

There are many more sophisticated religiosity scales, indeed the scale employed here is almost as basic as one can get, apart from using only one of the main two sources. Apparently, even back in 2007 at least 177 scales were recognised.<sup>a</sup> Presumably there are rather more now. Yet the more sophisticated these become, the more they appear to be tailored towards particular Faiths or behaviours and / or cultural regions. The approach taken in this book loses all data on theological details of faith or social interactions or behaviours that are considered important or not for the faithful, plus any 'lived experience' detail; we don't actually need these. The consistency of data across all nations / ethnicities / Faiths, is paramount, and simply asking survey participants how important religion is to them, is very generic. Averaging responses from opposite angles (religious / irreligious), helps combat the remaining issue of self-assessment error (see Appendix A).

I suspect but can't demonstrate, that using behaviours such as time devoted to prayer or formal worship attendance or whatever, as a simple proxy or as part of a more sophisticated scale, denudes the applicability to all Faiths, and perhaps even to different expressions of a single Faith in different regions and ethnicities. And especially when treating religiosity as an individual level variable, instead of a national level variable, there's a tendency to focus on social and behavioural factors; what is considered as important within Faith communities for individuals who are perceived as very religious (or not). An approach of using sophisticated and differently tuned scales appropriately for each region and/or Faith, then hits the alternate problem of translating accurately between them. These issues *may* be contributing to a lack of perception regarding the power of national religiosity as a predictor for attitudes to climate change.

### viii. Mixed-mode and extremely weakly-framed obfuscation

As noted in Chapter 10, many climate-survey questions are either mixed-mode or extremely weakly-framed, most of which<sup>b</sup> generate non-linear series against an axis of national religiosity; likewise against any proxy for national religiosity, and probably against any other cultural axis. Without the benefit of theoretical insights about the basic cultural mechanics involved, it seems unlikely that analyses would detect the nature of the envelope boundaries to such non-linear responses (which essentially are formed by linear trends with national religiosity). Hence it would look like the data has no strong relationship with national religiosity, even though this is not the case.

Additionally, non-linear results of this kind might also discourage investigators from pursuing other series that might nevertheless yield more emphatic responses, ones that *do* correlate or anti-correlate robustly with national religiosity. Yet it is the very fact that responses are cultural that defines exactly what is emphatic and what is equivocal, or indeed weakly-framed or mixed-mode. It may even be the case that the latter mode can also occur inadvertently; i.e. an unconstrained question could be asked in tandem with other questions that introduce some 'hangover' reality-constraint in participant's minds. So, answers are not necessarily the same as if the unconstrained question was asked in isolation. All these issues will tend to obfuscate, unless cultural causation was at least considered as a possibility in the first place.

### ix. Misdirection from 'Lifted' Series

Regarding most-endorsing responses (the key measurements we focus on), when manifested as lifted series these are frequently assumed to indicate very high concern about climate change (or high support of related policy) across nations. A cultural gradient may be detected (or at least that support is lower in some nations), yet overall, responses are highish 'everywhere'. However, this does *not* mean high concern or commitment. The component pushing responses up on average, is typically either *neutral* or *modest*, which to say acultural

<sup>a</sup> Cutting and Walsh (2008): <https://journals.sagepub.com/doi/10.1163/157361208X317006> .

<sup>b</sup> Some mixed-mode series are linear, see Section 10.1.4.2.

or mildly cultural, and in the latter case may even be emotively *opposed* to Catastrophe Narrative (hence also to policy perceived to be in its name). As noted in Appendix E, the ‘*very serious*’ response that pushes up the combined ‘*very serious*’ plus ‘*extremely serious*’ answers across nations in Figure 34, does not imply emotive commitment. It actually implies a ‘so so’ attitude that only views climate change as similar to a plethora of other *very serious* issues. However, separate components may not always be evident, and when providing answers that researchers are very keen to see, the true nature of responses is all too easily obscured.

#### x. U.S. and China (and Vietnam) uniqueness

Being two of the largest economies on the planet, and hence important both with respect to emissions and to the attitudes of their publics that may reflect willingness (or otherwise) for emissions control, both China and the US are frequently included in the list of nations for international studies on attitudes to climate change. However, with respect to national religiosities as a predictor of attitudes, or any proxy for religiosity, and possibly any cultural predictor that is relevant for an international context, both of these nations will be *exceptions* to any systemic patterns one might expect to see. As will Vietnam, which is occasionally included too. For the reasons why, see Appendix Aii (regarding China and Vietnam) and Chapter 11 (regarding the US).

However, depending on the mix of nations being studied and the particular questions about climate change that are asked, it may not be the case that China, the US or Vietnam will appear to be *obvious* exceptions. This in turn means that including their data may help to obscure the single and basic cultural framework that is relevant to the vast majority of nations outside of the US, and prevent its discovery.

*Note:* While sourcing data from different regions is good, the cultural mechanisms described in this book may not be sufficiently reflected within those countries where the public level of awareness of climate change is substantially below 100%. In recent years, this appears to apply mainly to various countries in sub-Saharan Africa.<sup>a</sup> However, I do include four countries from this region; as they do not appear to be exceptional, I have not followed up on their awareness levels.

#### xi. Date range for climate-survey data

The main surveys of attitudes to climate change that I use are from 2015 to early 2020. Significantly earlier, say prior to about 2009, before all the main Faith leaderships had fully signed up to and parroted / promoted Catastrophe Narrative (plus some time to take effect), the patterns of all the responses to *unconstrained* survey questions are very different. This is an expectation from the model of cultural causation, as fully explained in Section 9.5. Although I have not followed it up, this is likely true in some fashion for *reality-constrained* questions too (there doesn’t seem to be many surveys that use these questions at early dates).

However, without any conception of the cultural causation model, the stark difference between ‘old’ and ‘new’ measurements, and the lesser differences between ‘new’ data and that from the migration period between 2009 and 2015, would just present as confusing and unexplainable inconsistencies. Yet studies not infrequently include measurements from all these date windows. Or at least they cite proposed explanations from older studies as a base-line from which to advance, typically to more complex theories that attempt to also explain the most recent data at the time of the study. However, apart from a general assumption that more support for climate change will occur as the years pass, these theories don’t tend to assume that there could be essential changes over time in the *nature* of attitudes that publics express. This is in fact the case. As the grip of climate catastrophism has slowly developed and tightened, attitudes that would not previously have been cultural have become so, and although there will indeed be more apparent support for climate change, it is actually support for climate catastrophism, and as cultures are polarising there is simultaneously more resistance too. Any theory assuming an unchanged nature of attitudes over the longer timescale, with only more individuals buying into climate change support via various social paths, will therefore run aground.

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<sup>a</sup> See Levi (2021): <https://www.nature.com/articles/s43247-021-00118-6>.



## Online Appendix B – Further detail on climate-change activist groups

### i. exploration of child religiosity and CSW groups

As noted in Chapter 13, the Children’s Strike Weekly (CSW) Group presence should ideally be measured against an x-axis scale weighted to *child* religiosity, not *adult* religiosity, the current scale being built entirely on adult responses. Weighted by how much? I don’t know, yet 100% child religiosity seems excessive because adults (parents, teachers, grandparents) will for sure influence children’s decisions about whether to strike or not. There seem to be very few surveys on child religiosity, unsurprisingly as child surveys have to be more careful about ethics. However, there are ways to proceed, and the chart below is a replication of Figure 26 but with 5 nations having extra datapoints adjusted for an estimated child religiosity weighting.

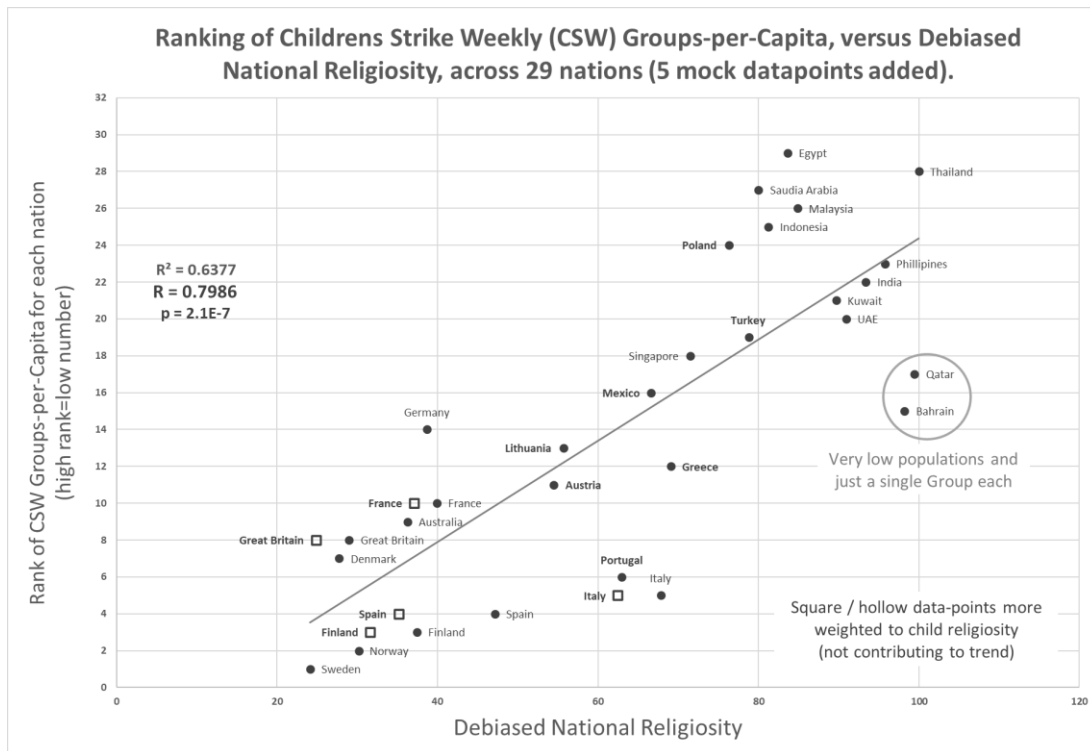


Figure O2 : CSW presence v national religiosities; 5 countries shown with child religiosity weighting

The nations I’m most interested are Italy and Portugal. Does the child-adult ‘religiosity-gap’ explain why these two nations have such a high ranking (low number) for their religiosity positions? And to a lesser extent, does this issue affect Spain too? While finding out child religiosity values is hard, we can estimate these using data on the measured difference in religiosity between older and younger adults. I looked at such for Italy and Spain, using 3 other Western nations for reference (not all countries are available). Table O1 below shows the figures; the ‘religiosity-gap’ is quite different per nation.

So now for some *very* basic suppositions! 1) The difference between younger person (up to 29 years old) religiosity and older person religiosity (rest of population), will be about the same as that between children (<18 years) and the crude average for both of the above adult categories. 2) Child religiosity accounts for half of the motivation for strikes, the rest coming from adult influence.

These suppositions are unlikely to be true, but they may be close enough to give us some feely factor as to how nations will shift on the chart when weighting for child religiosity is taken into account.

According to these suppositions, Spain does indeed have an unusually big ‘religiosity-gap’. But Italy’s is much more modest, as is Finland’s, while the gap for France and the UK is less still. These 5 nations are shown as

square / hollow data-points superimposed upon the previous Figure 26. Spain, Italy and Finland are pulled towards the prior trendline, while France and the UK move away slightly.

In practice, if all datapoints were plotted this way the trend would be in a different place anyhow. But this is still a useful guide to what the overall effects might be. And it appears likely that the trend would tighten, with Spain especially moving into a more typical position. But the operation appears *not* to explain most of Italy’s atypical high rank, unless a larger religiosity-gap had not yet emerged from children into (measurable) younger adults at the date of the survey below. Apart from Spain, the overall effects seem modest, although they would be greater if for instance 100% child religiosity was assumed to be the most relevant scale to use here. Trying out the same operation for Portugal, is a task for the future.

<b>Religiosity drop in younger people (WVS, religion: very + rather important)</b>					
<b>Age</b>	<b>France</b>	<b>Italy</b>	<b>Spain</b>	<b>UK</b>	<b>Finland</b>
up to 29	35.5	66.3	19.9	33.6	35.1
30-49	33.4	73.6	30.6	37	38.6
50 & up	49	80.7	57.3	46.7	55
<b>rest - 29</b>	<b>5.70</b>	<b>10.85</b>	<b>24.05</b>	<b>8.25</b>	<b>11.70</b>

Table O1 : ‘Religiosity-gap’ for young (to 29 years) versus older (the rest) adults, across 5 nations

Source reference: <http://www.worldvaluessurvey.org/WVSONline.jsp> .

Wave 5, 2005 to 2009. Importance in Life: Religion, crossed with Age. Not all countries are available. Unfortunately, later waves do not include the right nations and religiosity is not a part of every data wave.

### ii. Religio-regional secondary variable for activism

As is fully explained in Section 10.1.5, where circumstances are conducive to allowing the effect to show in data, there is a systemic religio-regional GDP-per-capita (R-r-GDPpC) variance about trend for some of the series in Figure 5 (and Figure 8). In fact, seeing this is *not* an expectation for the climate-change activism trends, as depicted in Chapter 13.

As noted at the beginning of this Chapter, both the correlating and anti-correlating (with national religiosities) cultural attitudes will contribute to climate-change activism, and likely the strongest (core and allied) beliefs are dominant in doing so. But the GDP-per-capita variance about trend is in *the opposite direction* for each of these trend types. So, to some extent (depending on symmetry or lack thereof), they should cancel. Given the rough sources of this data, random noise might hide what systemic secondary variance may remain. In the case of Figure 26 there seems indeed to be no such variance, though it’s more ambiguous for at least the LHS of Figure 25, where some slight echo of R-r-GDPpC (of the polarity seen for unconstrained trends) might possibly remain.

## Online Appendix C – Bullet-point summary of measurement insights

Abbreviations: CCCC = Culture of Climate Change Catastrophism, ISk = Innate Scepticism. FF = Fossil Fuel.

Key: I) = Insight, II) = Explanation, III) = Example.

- 1) Culturally supportive correlation with national religiosities:
  - I) Across nations, national attitudes *culturally supportive* of catastrophic climate change, which have been harvested via open-ended or unconstrained climate-survey questions, are *correlated* with national religiosities.
  - II) Because via a (shallow) cultural alliance and in the *absence* of reality-constraints, religious belief disables ISk about the narratives propagated by CCCC. This is ‘allied belief’ in CCCC.
  - III) For example, the Figure 8 trend SA.
- 2) Strengths of culturally supportive correlation:
  - I) Regarding the climate-survey questions in 1), those having a *stronger* existential / emotive / personal angle that is aligned to CCCC narratives, will produce a *steeper* correlation trend of attitudes with national religiosities. (*Note*: although questions invoking catastrophe only, or salvation only, rather than both, will each produce significantly less response).
  - II) Stronger angles of this nature promote (or challenge) participants’ cherished emotive values more, thereby increasing cultural support (and scepticism).
  - III) For example, the Figure 8 trend SA versus the trend WA.
- 3) Culturally supportive anti-correlation with national religiosities:
  - I) Across nations, national attitudes *culturally supportive* of catastrophic climate change, which have been harvested via reality-constrained climate-survey questions, are *anti-correlated* with national religiosities.
  - II) Because the reality-constraint collapses allied belief, i.e. it exposes the deeper cultural loyalty of religious adherents to their Faith. Their ISk about CCCC is ‘re-enabled’, and this comes in big as religious adherents have strong values to protect from this competitive culture.
  - III) For example, the trend SC.
- 4) Strengths of culturally supportive anti-correlation:
  - I) Regarding the climate-survey questions in 3), those having a *stronger* reality-constraint produce a *shallower* anti-correlation trend of concern / support with National religiosities, which is also lower on the (climate concern / priority) *y*-axis.
  - II) As the strength of the reality-constraint increases, there is correspondingly more ISk expressed by both religious and irreligious responders, although in the latter case this is less pronounced, because there are no religious values to be defended, and Pascalian assent may reduce ISk still further (so increasing responses). At the strongest constraint, ISk about CCCC is engaged for everyone except *core believers* in CCCC, see 7).
  - III) For example, the Figure 8 trend SC versus the trend WC.
- 5) Culturally sceptical anti-correlation with National religiosities:
  - I) Across nations, national attitudes *culturally sceptical* of catastrophic climate change, which have been harvested via open-ended or unconstrained climate-survey questions, are *anti-correlated* with National religiosities.
  - II) ISk is effectively ‘anti-belief’, which will trend oppositely to allied belief.
  - III) For example, the grey-diamond series in Figure 32 and Figure 33.
- 6) Culturally neutral responses with National religiosities:
  - I) These responses have no or very modest gradients with National religiosities; they are not, or are barely, correlated or anti-correlated. Depending on available response options, some response of this kind will typically occur even where the questions are not extremely weakly-framed [see 8)].

- II) These responses thread the line within global publics between belief in CCCC, and ISk, as provided by participants who are not emotively committed to either.
  - III) See the series 'O2' in Figure 34.
- 7) Ultimate cultural support; 'core belief':
- I) Across nations, those who are still culturally supportive of catastrophic climate change even above the strongest of reality-constraints, never exceeds 10% of national populations. This ultimate reality-constrained trend, which per c) anti-correlates with religiosity, represents a core belief in CCCC.
  - II) Core cultural belief in certain and imminent global climate change catastrophe (absent drastic FF cuts) is everywhere very minor, and is proportionally less still where religion competes more strongly with CCCC.
  - III) For example, the FC line in Figure 8 (estimated from WC, and measurement constrained, not an actual trendline).
- 8) All of the above is valid for questions that are at least very weakly-framed. Extremely weakly-framed questions invoke 'drift':
- I) The points 1) to 7) concern responses to questions that are at minimum very weakly-framed, and may be anything up to strongly-framed. Regarding responses to extremely weakly-framed questions (i.e. for unconstrained, an extremely weak existential / emotive alignment to CCCC, or for reality-constrained, an extremely weak constraint), these produce responses that occupy a wide envelope, the boundaries of which are nevertheless still determined by the cultural interaction of CCCC and religious faith.
  - II) Because the public are not climate literate, then even in the absence of cultural prompts they are unable to apply objective reason; their responses on a national basis simply 'drift' between the two available cultural modes, ultimately being determined by secondary local factors.
  - III) The grey cones in Figure 8 are the drift zone (and somewhat beyond due to noise).
- 9) Exceptions to 8) regarding extremely weakly-framed questions:
- I) There's some indication that systemic exceptions outside of the envelope cited in 8) for a minority of nations, might be a result of influence from the cultural position of youth who are less socially served / more irreligious / more liberal / more disaffected.
  - II) Requires confirmation; there are other possibilities.
  - III) Examples: Spain and Italy in Figure 36. Exceptions are always in a band well above the grey cones.
- 10) Lifted series; mixed cultural and neutral responses:
- I) Responses to some reality-constrained and unconstrained questions may be 'lifted' on the (climate concern / priority) y-axis.
  - II) This occurs when culturally neutral responses having no (or a modest) gradient w.r.t. the religiosity of nations are mixed in with fully cultural responses. The former impose no or little trend, but supply an average y-axis value which provides the 'lift'. The latter imposes a gradient appropriate to the question type on these Lifted series. The two (or more) components may not always be isolatable.
  - III) For example, both the Figure 8 series WC1+O1 and WA1+O2. See Appendix E for a breakdown of series WA1+O2 into sub-series for exactly the two described components. WC1+O1 can't be broken down.
- 11) Secondary religio-regional GDP-per-Capita variance:
- I) Systemic variability around the main trends (especially observable where alignment to CCCC is weaker, or constraint is weaker), is due to the GDP-per-Capita of nations. But *not* the absolute GDP-per-Capita, instead, for each nation the measure of this metric relative to the average or norm for its religio-regional group. For trends from unconstrained questions *positively correlating* with religiosity, the high ranked R-r-GDPpC nations tend to be *below* or near the trendline, whereas the low ranked R-r-GDPpC nations tend to be *above* or near the trendline. Oppositely, regarding trends from reality-constrained questions *negatively correlating* with religiosity, the high ranked R-r-GDPpC nations tend to be *above* or near the trendline, whereas the low ranked R-r-GDPpC nations tend to be *below* or near the trendline.

- II) Provisionally: *more* national wealth makes for *less* emphasised cultural mechanisms, whether these be actual cultural belief, or ISk rejection. Wealth appears to be buffering the cultural action somewhat, but only relative to the religio-regional peer-group norm. Oppositely, *less* wealth means *more* emphasised cultural mechanisms, again relative to the religio-regional peer-group norm. This effect can be lost if noise is high, or suppressed for very tight trends.
  - III) For variance around a positively correlated trendline (WA1+O2), see Figure 13, and around a negatively correlated trendline (WC), see Figure 14.
- 12) Impact of attitudes on real-world phenomena; climate activism:
- I) Not just attitudes to climate change, but the real-world phenomena they drive, also follow cultural expectations. More climate activism occurs in nations that have lower national religiosity.
  - II) Motivation for climate activism is stronger where allied belief is lower, and core belief is higher (albeit still a small minority). Core believers are defending their culture of apocalypse from a huge national scepticism of said apocalypse, i.e. low allied belief / high ISk (and good defence is attack, cultures are often aggressive). For high religiosity nations, there is far less motivation (because allied belief is so high), and many less core believers from which to sustain activism.
  - III) Both Extinction Rebellion (XR) and Children's Strike Weekly (CSW) group activities are consistent with this expectation. See Chapter 13, Figure 25 for XR presence and Figure 25 for CSW presence.
- 13) Impact of attitudes on real-world phenomena; renewables:
- I) Budgets for deploying renewable energy amount to a reality constraint. Consequently, commitments across nations are highly correlated with a (weak) reality-constrained trend, which like all the trends in Figure 8, is a feature of culture. Hence renewables commitments also anti-correlate with national religiosities.
  - II) If the true costs and downsides of such policies were appreciated by publics, a strong or full reality-constraint would likely apply, severely hobbling policies. However, the public are no more engineering literate than climate science literate, plus elites as a sub-demographic likely foster greater belief in CCCC than their corresponding publics anyhow, overriding a true consideration of net cost / benefit whether fiscal, human, or environmental.
  - III) See Figure 22 (and Figure 23).
- 14) Cultural attitudes dominate responses to *fully ranging* social surveys about climate change:
- I) Across nations, cultural attitudes dominate the responses to climate-surveys that feature a full range of question strengths. Significant cultural gradients are only absent where a question / response option combination hits the balance line between public belief in CCCC, and ISk. Or as per 8) above for extremely weakly-framed questions that evoke only cultural 'drift', or for mixed-mode questions that evoke tension between opposing cultural attitudes, which hence (typically, a minority retain a linear form) also drift between linear envelope boundaries.
  - II) These attitudes are confirmed as cultural via their very strong relationships to religiosity, which is a *purely cultural phenomenon*.
  - III) See Figure 8 and Table 23.
- 15) The scenario in the US is different, but the same cultural rules hold:
- I) While there is variability in all nations, the charted nations statistically follow the 'rules' 1) through 14). However, where the 2-way cultural dance that is behind these rules does not hold, there will be major exceptions.
  - II) In the US, there is a 4-way cultural dance (strong public polarisation towards Rep/Cons and Dem/Libs provides the extra 2 dancers). In Vietnam a 1-party state represses religion, and hence also the 2-way dance. The latter means that countries like China or North Korea would not conform either.
  - III) Vietnam and the US are shown to be exceptions in one of my Climate Etc. posts.<sup>a</sup> See Chapter 11 for a full insight on the unique case of the US, where despite extra complication the exact same cultural principles do appear to apply.

<sup>a</sup> <https://judithcurry.com/2020/04/17/can-religiosity-predict-cultural-climate-beliefs/>.

## Online Appendix D – An appeal to Pascalian assent

The following chart depicts 3 series in which responders appear to affirm the largely anthropogenic nature of climate change. However, while two of these series, OECD4 (see the ‘PostCovid’ page of the Excel-Ref for full data), and Levi 2021 (see the ‘Extra’ page of the Excel-Ref for full data), have very similar trends, these are both very different to the trend for the Yale 2021 (light-grey dashed) series, which slopes in the opposite direction. I believe this contrast is due to the different wording of the relevant survey questions.

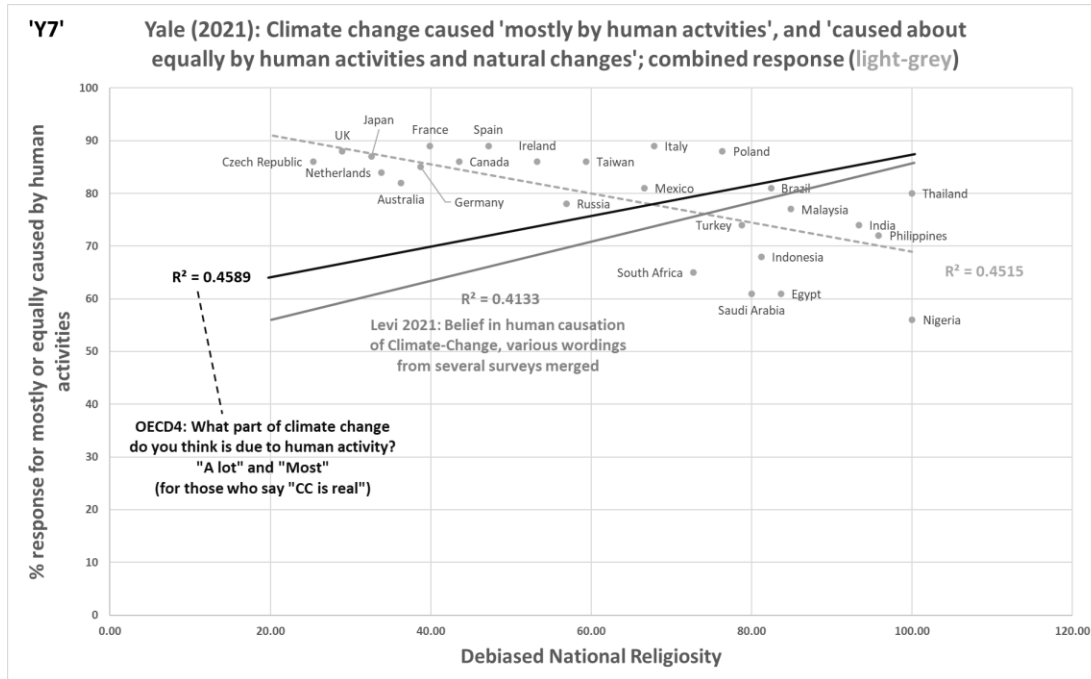


Figure O3 : 3 series affirming the largely anthropogenic nature of climate change

For OECD4, respondents are first qualified as those who think climate change is real, before they are then asked “What part of climate change do you think is due to human activity?” The black series represents the combined responses for “A lot” and “Most”. While catastrophe or damage or harm is nowhere mentioned, this framing is nevertheless consistent with the Catastrophe Narrative, including its certainty among those who are committed to allied belief. So while the series is ‘lifted’, its gradient is also reflective of significantly greater allied belief among the religious. I presume the same is true for the Levi 2021 (dark-grey) series, although this is formed by a merge of different surveys that hence have different wordings (which are not straightforward to discover).

However, the wording for the Yale series is: “Assuming climate change is happening, do you think it is...”. The light-grey dashed series represents the combined responses for “caused mostly by human activities”, and “caused about equally by human activities and natural changes”. I think what is happening here is that the word ‘assuming’ is being emotively interpreted as a conditional, so effectively an ‘if’. This approach therefore encourages many more Pascalian assenters. Their subconscious bet is that *if* climate change is happening, the insurance of supporting it is appropriate, and the default of this syntax is indeed that the ‘if’ condition holds true. (So their support would not be appropriate should the ‘if’ condition turn out be false). In other words, their support is not an unconditional cultural belief, i.e. a certainty that climate change is happening and that it is bad, via either direct belief or allied belief; it is essentially a form of ‘withheld judgement’. At the same time, this question format does not appear to discourage allied belief too much (I think they mostly interpret ‘assuming’ as ‘it is happening’); the shift from the black or dark-grey lines to the dashed light-grey, is much bigger for the irreligious than for the religious.

## Online Appendix E – The cultural pattern of Electric Vehicle commitment

In a similar manner to Figure 23 (in Chapter 12 of the book) for renewable energy installations, the pattern of Electric Vehicle (EV) commitment per nation is plotted against national religiosities in Figure 24 (in the same chapter). The commitment ranking is high rank = high number.

The same cultural pattern as with renewables is confirmed. As wide adoption of EVs poses financial, infrastructure (grid / power) and resource (exotic minerals) challenges, this is likewise a (weakly) constrained scenario, for which we expect an anti-correlation with national religiosities that is similar to the 'WC' series we first saw in Chapter 8. If (or perhaps when) publics became more aware of these immense challenges of moving fully to EVs from internal combustion engine (ICE) vehicles, the strength of the constraint would rise and publics will become much more resistant to adoption.

EV commitment is defined as the total national stock of battery and plug-in-hybrid EVs, normalised with respect to GDP-per-capita. The chart covers 23 nations;  $R^2 = 0.46$ ,  $R = -0.68$ ,  $p = 3.9 \text{ E-}4$ . The GDP-per-Capita (World Bank) and stock figures (International Energy Agency), are both from 2021. Note that although the wealthier countries tend to have a higher rank in Figure 24, this is not due to simple purchasing power, which the above normalisation removes from the equation. It is because, as noted in Section 10.4, national GDP-per-Capita anti-correlates well with national religiosity, albeit with exceptions such as Singapore and the oil-rich Middle Eastern nations.

The outlier of India is excluded from Figure 24; if this is put back into the data,  $R^2$  falls to 0.34, which still just scrapes into my 'robust' category ( $> 0.33$ ). To see the original data (inclusive of India) with source links, go to the 'Post-Covid' page of the Excel-Ref, chart EV1. The IEA EV stock figures also include New Zealand and Iceland, which are not on my religiosity scale, along with China and the USA, which as noted throughout the book we also can't include for different reasons.

## Online Appendix F – UN ‘My World 2015’ compared to UN ‘My World 2030’ (early results)

The WC series first introduced in Section 8.3 of the main text, came from the ‘action on climate change’ responses to the huge UN ‘My World 2015’ survey. The follow-on survey, ‘My World 2030’, has very different questions, and already has sufficient responses in 20 countries (at least 750 votes, most of these countries have many more) to get a good idea of what kind of series results.

‘My World 2030’ has shifted from the generic concerns of its predecessor to a focus on sustainability issues. Consequently crime, honest government, *reliable* energy, better healthcare, and political freedom, are all dropped from the list of priority choices. While *clean* energy, and the priorities of eliminating world poverty and hunger are added back in, meaning sufficient reality remains to still expect a gradient of responses with national religiosity, various other replacements are so vaguely framed that participants probably don’t even know what they really mean, and compared with the previous list neither are the issues at all pressing for individuals or even for the world at large. The choices ‘partnerships for the goals’, ‘sustainable cities & communities’, ‘life on land’, ‘life below water’, are in this category, and others choices are a vague mix of issues such as ‘industry, innovation and infrastructure’.

What happens in practice is that these changes ‘demote’ many issues down below the priority of action on climate change, which notoriously came dead last in the ‘My World 2015’ survey. While this has the effect of pushing many more people to choose action on climate change (which one might suspect was a motive), it is also the case that these ‘extra’ people are not committed to catastrophism via any cultural mechanism, hence they do not appear as a gradient across the x-axis, and the overall response pattern becomes a WC ‘lifted’ series (with a lift of about 16 points on the y-axis). The gradient stays like a WC one, because the vague new choices are nevertheless culturally orientated, so *are* still viewed as competitive by those who are committed to catastrophism.

In other words, all the prior ‘My World 2015’ choices that competed with action on climate change, were pressing enough to soak up all responses except from those people who had at least a weak commitment to climate catastrophism, and this is no longer the case with ‘My World 2030’. The responses as of April 23<sup>rd</sup> 2023, are plotted in Figure O4.  $R^2=0.62$ ,  $R=0.79$ , and  $p=4E-5$ . See the ‘PostCovid’ sheet of the Excel-Ref, chart MW2030, for the data and source link.

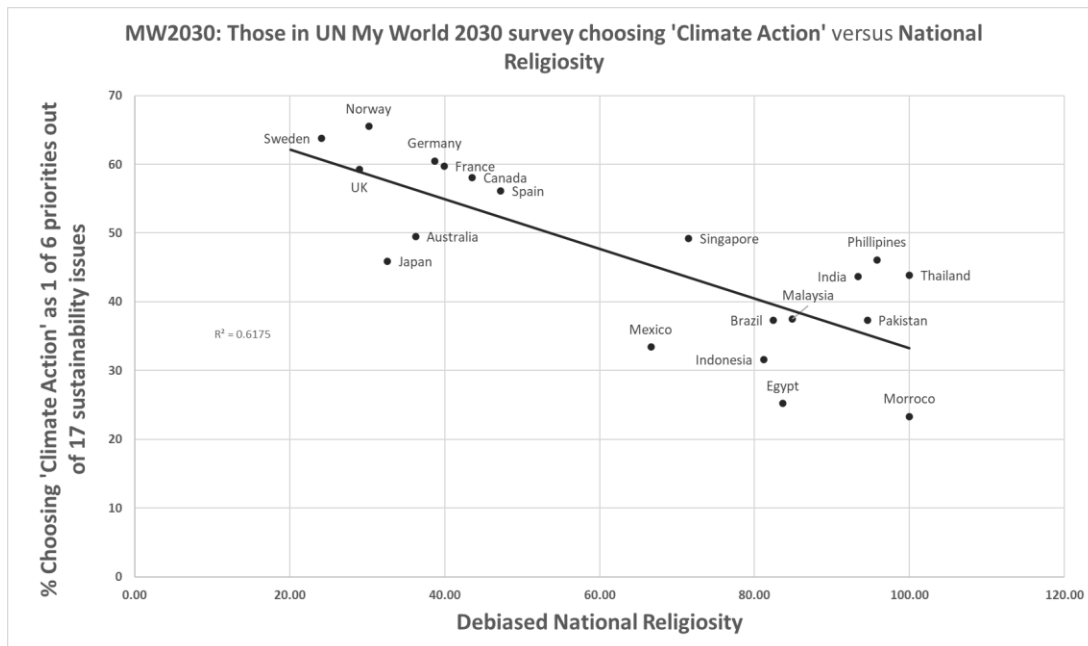


Figure O4 : UN My World 2030 'Climate Action' choices