Response to editor and reviewers - Attitudes over CT & CP

September 16, 2019

Pour la resoumission, il faudra séparer ce document en cover letter (à l'éditeur) et lettres à chaque relecteur. On rassemble tout ici pour pouvoir l'écrire collaborativement entre temps.

1 Cover letter

Dear Editors,

We would like to thank you for giving us the opportunity to revise our paper. Your comments have stimulated us in implementing changes to the paper that we hope you will consider as significant improvements. Below we respond to each of your comments and to each of the reviewers' comments in detail. We replicate them (in italic) and add our reply item by item. We hope you will find our answers clear and satisfactory.

Kind regards,

Thomas Douenne & Adrien Fabre

I have received feedback from two reviewers, please see their comments below. The editors strongly support their arguments, including the lack of focus raised by Reviewer 1 and the call for a better review of the existing literature raised by Reviewer 2. In addressing their comments, I would kindly ask you to focus and not increase the length of the manuscript, as it already is a rather long – if not too long – manuscript including text, figures, tables and references.

In rewriting our manuscript, we ensured not to increase its length. The text now includes 7916 words against 7927 in the initial version. Following the suggestion of the second reviewer, we added two paragraphs to review the literature in introduction. However, we have greatly shortened section 3 (on attitudes over CC) as suggested by the first reviewer, which significantly decreased the manuscript size. The trimming of section 3 allowed to improve the focus of the paper on climate policies, even more so that we adopted a new narrative and

now explain that section 3 is here to help understanding people's root motivations for accepting or rejecting climate policies. To further shorten our text, we also decided to remove section 5.2.4 on shale gas, as we think little new insights could be derived from it.

From an editorial perspective I would further like to add the following points: 1. Please carefully check your highlights. They include typos, grammar mistakes and are not expressed in good English language.

We are thankful for pointing out these grammar and spelling mistakes. We corrected the grammar mistake in the second highlight (it is now *They prefer ... to* instead of *... than*); and improved the formulation of the fourth one (*Improving knowledge is predicted to increase concern and attitudes on climate change.* instead of *... concern and ecological attitudes*). We also noticed that the fifth highlight could appear ambiguous: *Political leaning does not interact with knowledge to shape perceptions as in the US.* should read *Unlike in the US, political leaning does not interact with knowledge to shape perceptions.* However, we have to keep the first formulation due to length limitation. We had the highlights double-checked by a native English speaker, but if some mistakes remain, we would be pleased to correct them.

2. Please thoroughly check the whole manuscript regarding English language and precision of terms. For example, the last sentence of the abstract does not really make sense in relation to the topic of your paper: what do you mean by: "... could foster support for ecology."? Wrong translation? Your focus is climate policies, not ecology.

We had the whole manuscript double-checked by a native English speaker. However, some typos remained (e.g. *does not reflects* instead of *does not reflect*) and the terms chosen were sometimes imprecise (an academic kind of mistake that our native speaker could hardly notice). Thanks to your observations as well as those of the reviewers, we were able to correct typos and correct the terminology (see the responses to reviewers). For example, we replaced *foster support for ecology* by *foster support for climate policies.* After a thorough proof-reading of the last manuscript, we also spotted other English mistakes (e.g. a missing plural, "its" instead of "their", etc.). We now hope that there is no remaining mistake nor imprecision.

3. Your references section needs careful checking. Many references are incomplete, e.g., volumes and page numbers missing for journal papers.

We initially used a bibtex bibliographic style which does not display some required fields, like volumes and page numbers. We replaced it by a standard bibliographic style and all the references seem now complete.

4. Footnote 5 is strangely separated in two parts.

This unfortunate layout is now avoided.

5. Please carefully follow the journal's guidelines for the resubmission of revised manuscripts, available online as part of the Guide for Authors.

We thank you for this reminder. With this revised form of the manuscript, please be reassured that we checked every item of the guide for author and that we now comply with all of them.

2 Reviewer 1

Summary
This paper examines perceptions and attitudes related to climate change and climate policy in France. It draws on a large representative survey and analyzes a wide range of survey questions.

General comments
This is (probably) the first academic opinion paper investigating French attitudes to climate policy after the Yellow Vest protests. Thus, it is a timely contribution and I believe it will be of interest to many readers. The survey sample is large, which gives confidence that sampling error is minimal. I also assume here that the statistical analysis is well conducted (except for one issue, see below). The insights, in particular regarding the dimensions of climate policy, are a useful contribution to the literature. In my view, the major shortcoming of the paper is that it lacks focus. 24 figures and 12 tables (counting also the Appendix) is a lot to digest for the reader in a single paper. As follows, I will give some suggestions to achieve more focus, as well as comment on some other issues.

My main suggestion is to shorten section 3 about climate change attitudes. Here you present many results about various perceptions and attitudes, without motivating why you do so. For example, in Figure 6 you present results regarding "Perceived date of birth of first generation severely affected by CC". Although you mention the result also in one line in the text, you do not further discuss it or use it in the subsequent analysis, e.g. as a predictor of climate policy attitudes. Nor did you provide a (theoretical or other) motivation why we should care about this construct. I could mention other examples here.

More generally, I believe that climate change perceptions have been analyzed much more than perceptions and attitudes related to climate policy. I believe your main novelty lies in the analysis of attitudes to carbon taxes and other climate policies. By shortening (or even deleting) section 3, you could devote more attention to the discussion of the results related to climate policy. Now you do this rather briefly in section 4-6.

We are grateful that you point out this lack of focus. In order to focus on the main contributions of the paper, we followed your first advice and shortened section 3. We removed three figures (including the one you mentioned), some paraphrasing as well as few references to the literature. We shifted part of this material to our online Appendix, as we think it could potentially be useful for some readers. Most importantly, we reworked the narrative of the paper so as to highlight the causal order of the presentation, and to emphasize that our goal is to present attitudes on climate policies (see for example the introduction to section 3). This way, section 3 now appears as an introductory section that explains the root motivations of French people.

We hesitated to remove section 3 altogether from the main text, and to put it to an online Appendix. Finally, we decided not to do so, for three reasons: 1. we think that our figures are significant contributions of the paper, and that many readers would not find them and hence could not re-use them if we put them in an online Appendix; 2. our paper is constructed in a causal order where presenting attitudes over CC seems necessary to understand the motivations for accepting or rejecting climate policies; 3. we use some questions presented in section 3 in section 6. That being said, we are still open to relegate section 3 to an online Appendix and put the parts of section 3 necessary to section 6 at the beginning of the latter.

Moreover, with so many results, I would also expect a conclusion section that summarizes a bit more and answers the "So what does it all mean" question. A last comment about the conclusion is that I found it a bit odd to finish the paper with a "takeway" from the carbon tax in Sweden, after you dedicated the entire paper to the French case. I'm not recommending against drawing comparisons, but perhaps not in the final sentence.

You are right to point out that our conclusion stated too briefly the paper's findings. We now provide a more developed summary of the main results. We also link these results to the paradox we started with in introduction, and show how they enable to understand both the opposition towards the carbon tax, and people's willingness to tackle climate change. Doing so, the paper explicitly answers the question it initially asks.

Furthermore, it was indeed unfortunate that our last sentence was about Sweden. We followed your advice, and now we conclude with a specific analysis of the French context, including some thoughts from economic analysis.

Apart from focus, I have one methodological concern with respect to the construction of the knowledge score in section 6.1. I believe it is common to test the reliability of such indexes / scores, for example by estimating the Cronbach alpha of the included items. I would recommend to consult a recent paper by Hoppe et al. (2018) which discusses different ways of measuring people's knowledge about climate change. Perhaps there are alternative ways of constructing this index, which may influence your subsequent regression results.

Moreover, I have some doubts about some items used for the knowledge score. Can we really count the view of India being more affected by climate change than the EU as "knowledge" but not as "perception"? Does it not depend on what one thinks of as "impacts"? Are responses to such a question not driven rather by what some researchers call "psychological distance" of climate change?

Admittedly, the construction of our knowledge index was not properly justified, and we are glad that you point out this issue as it allows us to improve the rigor and quality of our work. To define our index on a sound basis, we conducted an exploratory factor analysis (with one factor), and used the factor loadings to define the relative weights of the components of our index. As it turns out, the *region most affected* does not enter the factor that explains the higher share of common variance, consistently with your intuition. Furthermore, the weights appear very close to those of our previous index, as the correlation between the old and the new index is 0.98. You can now find more details on our methodology in section 4 of our online Appendix.

On another note, we are grateful that you gave us the reference of Hoppe et al. (2018) because this paper provides an excellent overview of the issues around indexes of knowledge about CC. Notably, they explain that knowledge about CC is multidimensional, and refer to Kiel & Rost (2002) to detail the different aspects of knowledge about CC. As we now explain at the beginning of section 6.1, the different questions we aggregate reflect the different types of knowledge of CC they identify. While the Cronbach's α would be meaningful to assess the reliability of an index measuring each of these dimensions individually, this statistic is not meant to assess an index multidimensional by nature. Thus, Tobler, Visschers & Siegrist (JEP, 2012) reach high reliability for their scales that measure each dimension of perceptions of CC individually, but they do not measure the Cronbach's α of their aggregation. Indeed, when we do so, we find a Cronbach's α as low as 0.25, precisely because we capture different aspects of knowledge in our index. This confirms that knowledge of CC is multidimensional.

Instead of aggregating the different dimensions of knowledge, one could include the different components of our index in the regressions. Yet, the robustness check we added in online Appendix (section 4) indicates that replacing our index by any of its component has virtually no effect on the other determinants of the support for climate policies. We therefore think it is better to keep the more synthetic index in the main text. Meanwhile, this analysis taught us that the driver of the knowledge as a determinant is the question on the existence and anthropogenic nature of CC.

Minor comments

Before explaining in details how we took into accounts these "minor comments", we would like to thank you for the time you took to point them out.

· *Style: better avoid "to do so" 2x in one paragraph of the introduction*

We replaced the two occurrences, as none was necessary. More precisely, we replaced *To do so, we conducted a new survey on a sample of 3,002 respondents representative of the French population* by *It builds on a new survey conducted on a sample of 3,002 respondents representative of the French population*, and we simplified *To do so, we propose* in *We propose.*

· *Line 56: You write that France "recently experienced a carbon tax increase", although before you said it was planned but canceled. Is this contradictory?*

You are right to remark that our treatment of the history of the carbon tax was insufficient to grasp the French political situation. In the very first paragraph (second sentence), we thus added the precision that the tax had an increasing trajectory *that started at 7€/tCO_2 in 2014.* We hope this short mention will suffice to understand why, at the end of the introduction, we say that France "recently experienced a carbon tax increase" (it grew from 30.5 to 44.6€/tCO_2 on 2018, January 1st. for example). However, if the text remains unclear despite our addition, we are ready to replace *recently experienced a carbon tax increase and a large debate ensuing.* by *recently experienced a large debate on carbon taxation.*

· *The term "primings" in Figure 1 is unclear.*

It is true that we sometimes employed lingo that many readers would not know. Herewith "priming", which designates a particular information that is randomly displayed to the respondents to induce them to answer in a certain way, and hence measure their reaction to this information or use it for causal inference. We removed this term from Figure 1. Indeed, doing otherwise would presumably require to detail what the primings were, and what effects we found, an analysis that we conduct in our companion paper ("Disentangling Beliefs from Preferences over the French Carbon Tax"). As the primings had negligible effects on all the attitudes dealt with in the present paper, it would presumably be an unnecessary complication to introduce them to the reader.

· *In Figure 3 and in the text you use the term "anthropic". I would say the term "anthropogenic" is more common.*

Indeed. We corrected this Gallicism accordingly.

· *Figure 8: "perceived responsible" sounds a bit odd. Perhaps better "responsibility".*

Indeed. We replaced the legend by *Entities perceived responsible* rather than using *responsible* as a substantive. We would be please to modify again the formulation if it is not idiomatic yet.

· *Figure 19: did nobody reply "insufficient"? Because I see no red bar.*

We thank you for notifying this issue: the color of the legend did not match the color of the Figure. This is now corrected.

· *Figure 24: What does "number of policies" mean here?*

Truly, this label could not be understood without the main text. In order to make our Figure self-contained, we replaced *Number of policies* by *# of policies supported*, hoping that the notation "#" is common enough that the reader will understand it without further explanation.

· *Table 2: I kind of expected that you would also examine the determinants of the approval of carbon taxes with different revenue uses, probably in a separate table. But perhaps you have a reason why you did not do this.*

As it would take significant space (typically a one page table), we originally decided to present these results in a synthetic way with our dependent variable "earmarking vs transfer". However, we understand that some readers are interested in these results, and we now provide them in the online Appendix (section 3).

· *Final suggestion: Perhaps mention "carbon tax" somehow in the title.*

We followed your suggestion and have changed the title to *French Attitudes Over Climate Change, Carbon Tax and Other Climate Policies*. We agree that this should better signal the contribution of the paper. If you find this new title too long we could go back to the previous one. Indeed, we would like to keep *climate change* in the title as this is one of the contributions of the paper. In particular, we believe that the simultaneous analysis of attitudes towards climate change and climate policies matters, and can be of interest for the readers of this journal.

Literature Hoppe, I., Taddicken, M., & Reif, A. (2018). What do people know about climate change — and how confident are they? On measurements and analyses of science related knowledge. Journal of Science Communication (Jcom), 17(3): A01, pp. 1-26. doi:10.22323/2.17030201.

Again, we thank you for this reference that we added to bring support to the construction of our "knowledge of CC" index.

3 Reviewer 2

The article describes the attitude towards different climate change policies in France in relation to a large set of socio-economic variables and other household

characteristics based on survey data. It analyzes which socio-economic indicators are correlated with different attitudes and, based on this, gives recommendations on how to further advance climate change policies in France. The authors pay particular attention to the Yellow Vest movement. The survey consists of answers from 3002 respondents and seems to represent the French population well.

This article treats a highly policy relevant and up-to-date topic in a systematic and accessible fashion. It sheds light on the underexplored topic of which climate policy designs are acceptable to the general public and comes to new policy recommendations for the French case. I would recommend the publication of this article, after the points mentioned below are addressed accordingly.

** Introduction (p.2. from line 44): Here I would strongly suggest a literature review that is a bit more extensive. Maybe two or three additional paragraphs that summarize the main results found by other studies. Most of the relevant studies are already cited in later sections, but in a rather dispersed way that does not give much of an overview. Additional relevant literature is reviewed for example in: https://www.tandfonline.com/doi/full/10.1080/14693062.2019.1639490*

We thank you for this suggestion and for sharing the reference to the very recent Maestre-Andrés et al (2019). We initially thought reviewing the literature in introduction would be redundant given that we cite these papers in the text. Still, it is true that gathering the main references at the beginning is useful for the readers as it gives a stand point from which the paper's contributions are better highlighted.

We included your excellent suggestion in the literature review of literature reviews that we already had. Then, we added two paragraphs (contained more than twenty references): one reviews the literature on attitudes over carbon taxation, and the other over climate policies in general.

** line 151 and also in the rest of the document. I would strongly suggest to use the word anthropogenic instead of anthropic. See also: https://wikidiff.com/*

Thank you for this correction. We corrected this Gallicism accordingly.

** line 249: please define the concept of "warm glow" in this context*

Following a suggestion of the other reviewer, we shortened section 3 and thus removed the sentence in question. However, there is another occurrence of "warm glow" later in the text (in section 6.2). Thus, we defined the expression in the following footnote: *Here, "warm glow" refers to one's unintentional strategy to overestimate their virtue in order to derive satisfaction.*

** line 570: "...are usually less cost effective than Pigouvian taxation". There are situations in which this is not necessarily the case. See for example: Goul-*

der, Hafstead, Williams 2016 General Equilibrium Impacts of a Federal Clean Energy Standard. If there are additional distributional constraints, other climate change policies might be also more efficient (Stiglitz, 2019, EER, already cited in your manuscript).

We are grateful that you give us this reference. This result is very interesting, and we were not aware of it. We rephrased the sentence accordingly: it is now *Under a binding acceptability constraint, alternative instruments become relevant, even if Pigouvian taxes may be more cost-effective (e.g. Goulder & Parry; 2008)* (instead of *Although economists have shown that alternative instruments are usually less cost-effective than Pigouvian taxes (e.g. Goulder & Parry; 2008), they may become relevant in a context where there is a binding acceptability constraint.*). We are ready to cite the enlightening reference you provided, but it does not appear necessary given the reformulation we propose.

** page 11 Table I: - Why is "extreme left" not included in column (3) and (6)? - Please include Yellow Vests: opposed. This is quite an interesting variable and you also explicitly refer to it on page 12 in line 724.*

We thank you for pointing out an unfortunate specification in the regressions (3) and (6) of Table I. The reason why "Extreme-left" did not appear there is that *Left-right* is in numeric type (in $[-2; +2]$) in its interaction with *Diploma*, which led to the exclusion of "Left-right: Indeterminate" from the analysis, so "Extreme-left" took its role of omitted modality. We modified the definition of (the numerical) *Left-right* to assign the mean value of 0.15 to those who are *Indeterminate*. We also included another interaction, between *Diploma* and *Indeterminate*, to make sure that the coefficient of the interaction of interest (*Left-right* $\times$ *Diploma*) remains unchanged. Now, the number of observations is 3,002 in columns (3) and (6) (instead of 1,813), and "Indeterminate" has replaced "extreme-left" as the omitted modality.

Concerning your second comment, we prefer to take "Yellow Vests: opposes" as the omitted modality (rather than, say, "PNR"), because it is a modality at one extreme of the attitudes, and it allows to compare the other modalities with respect to this extreme case. For example, this choice allows one to read directly from Table I the relative effect of being part of the movement relative to opposing it, as shown in (what was) line 724.

Besides, reworking on this Table made us notice a mistake: *Knowledge* had not been normalized in regression (4), contrarily to what was written in the text. Fortunately, this mistake did not affect the statistical significance of the coefficients nor their relative magnitudes. Even the absolute value of the coefficients reported in the text were correct (but inconsistent with the Table). The Table has now been corrected, and we apologize for this mistake.

** line 869: There is more recent literature on trust and climate policy support. see for example Rafaty, R. (2018). Perceptions of Corruption, Political Distrust, and the Weakening of Climate Policy. Global Environmental Politics,*

18(3), pp. 106-129.

We thank you again for this reference that we missed, although it seems the most up-to-date paper on the topic. As we already cite extensively Drews & van der Bergh (2016) in the paper, we replaced this occurrence of that reference by the one you suggest. The sentence becomes *This interpretation echoes the recent findings of Rafaty (2018), who shows that perceptions of corruption and political distrust negatively affect the stringency of climate policies.* (instead of *This interpretation echoes a large literature on the importance of trust for climate policies' support, as reviewed in Drews & van der Bergh (2016).*).

** line 883: please cite additional literature here. For example Ziegler, A. (2017) Political orientation, environmental values, and climate change beliefs and attitudes: An empirical cross country analysis. Energy Econ. 63, 144–153. Cherry, T. L., Kallbekken, S. & Kroll, S. (2017). Accepting market failure: Cultural worldviews and the opposition to corrective environmental policies. J. Environ. Econ. Manage. 85, 193–204.*

First, we want to disclose a serious mistake of ours regarding these lines (about the correlation between political leaning and support for climate policies). Due to a typo in the code ("Left" was the omitted modality instead of "Indeterminate"), our Table II and corresponding analysis were flawed in the original manuscript (this did not affect other coefficients than political leaning nor other Tables). Consistently with the literature, we now *do* find that people from the left have higher support for climate policies.

We adopt your suggestion and cite two supplementary papers to substantiate this finding: Bornstein & Lanz (2007) for Switzerland and Mc Cright et al. (2013) for the U.S. We have the impression that the references you suggest are slightly less connected to this issue, as they concern respectively climate change rather than climate policies, and worldviews rather than political leaning.

That being said, we found both of these papers highly interesting. We realized that Ziegler (2017) was of particular relevance for our paragraph on the importance of the political polarization in climate attitudes, in France relative to the U.S. Thus, we now refer to Ziegler (2017) in footnote 10. With respect to Cherry et al (2017), the paper does not explore the left/right cleavage but its results on worldviews and the comparison between preferences for different instruments are interesting, so we cite it in our introductory literature review.

** line 886-890: please refer to Table 2.3.*

We modified the sentence accordingly: *Without controlling for other variables, we find that people that are most likely to accept the Tax & Dividend in France are the ones affiliated with the center (+9 p.p. relative to "Indeterminate"), and the least likely are those on the extreme-right (-15 p.p., see online Appendix, Table 3.4), which may be driven by their respective support or rejection of the current government who tried to increase the carbon tax.*

** line 946: What does "this policy" refer to - dividends or kerosene taxation or the combination?*

Admittedly, our sentence was ambiguous. We removed the ambiguity by rephrasing it *Third, a tax and dividend restricted to kerosene could serve as a learning example as kerosene taxation is popular.* (instead of *... as this policy is popular.*).

Typos:

We would like to thank you for your effort at pointing out our (too many) typos. We corrected all of them.

** abstract: "studies in details" should be "studies in detail"*

** page 3 line 133: "it will severely effect" should be "affect"*

** line 329: "thought is was desirable" should be "it"*

** line 852: "consistently" should be consistent*

** line 861: "does not simply reflects from lower..." should this be "does not simply reflect lower" ?*

** line 885: "that people most likely" should be "that people that are most likely"?*

** line 957-962: There is something wrong with this sentence and it also is too long.*

We acknowledge that the end of the conclusion was poorly redacted, and that it was unfortunate that the last sentence was about Sweden (as pointed out by the other reviewer). Thus, we rewrote the conclusion entirely, and we split the sentence in question. It is now *As such, it is no surprise if political trust is among the highest in the first country to introduce a carbon tax, Sweden (Klenert et al., 2018). It is no coincidence either if the 1991 Swedish tax was part of a comprehensive re-structuring of the tax system, the popular "reform of the century", resulting from a dialogue with all stakeholders (Sterner, 2014).* instead of *Sweden was the first country to introduce a carbon tax, and it is no coincidence if political trust is among the highest (Klenert et al., 2018) and if the 1991 Swedish tax was part of a comprehensive restructuring of the tax system, the popular "reform of the century" (Sterner, 2014). A last takeaway of the Swedish example is that a dialogue with all stakeholders can help building a consensus and finding fair solutions, and may be key to decarbonization.*