

# YELLOW VESTS, CARBON TAX AVERSION, AND BIASED BELIEFS

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The French government had initially committed to an ambitious trajectory for the price of carbon.<sup>1</sup> Initiated in 2014 at 7€/tCO<sub>2</sub>, the French carbon tax reached 44.6€/tCO<sub>2</sub> in 2018 and was supposed to continue growing to hit 86.2€/tCO<sub>2</sub> by 2022. Yet, at the end of 2018, the same government that had accelerated the price trajectory decided to abandon it and froze the tax at its current level for an undetermined period. This turnaround in French climate policy is the direct consequence of the popular protest of the “Yellow Vests”, which started against the carbon tax.<sup>2</sup> Among several factors, the negative impact of the tax on households’ purchasing power has certainly been a key driver of public’s discontent. The increasing revenues from the carbon tax were mostly used to fund the budget rather than redistributed to households, raising concerns over the distributive effects of the policy. In order to tackle the negative impact of carbon taxation on households’ purchasing power, economists have proposed a mechanism known as “Tax & Dividend”, i.e. a carbon tax whose revenue is redistributed uniformly to all households. This strategy has recently been supported by 3,354 American economists in *The Wall Street Journal*, “To maximize the fairness and political viability of a rising carbon tax”. Implicitly, it is therefore assumed that with a design that ensures that the properties of the tax are aligned with people’s *preferences* one should be able to generate support for it. But is it really sufficient? In this paper, we argue that to understand the link between the properties of a policy and its support, one has to account for a critical ingredient: *beliefs*.

The objective of this paper is to understand how the interaction between one’s *beliefs* and *preferences* affects one’s attitude towards policies. The recent events undoubtedly make the carbon tax in France an interesting case study. In order to explain French attitudes towards carbon taxation,

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<sup>1</sup>More precisely, the “Contribution Climat-Énergie” is a *sectoral* carbon tax specific to fossil fuels.

<sup>2</sup>Following a massive *petition* against rising gasoline prices in November 2018, hundreds of thousands of people started protesting. They would wear their recognizable fluorescent clothing and gather on roundabouts and tolls every day, and demonstrate in Paris each Saturday. The Yellow Vests express a general concern for their purchasing power as well as discontent for French elites and institutions.

we conducted a survey on a representative sample of 3,002 French households. We focus on a “Tax & Dividend” carbon tax with uniform lump sum compensation, which allows one to specify clearly the distributive effects of the policy, in contrast to the policy abandoned by the government. The reform is approved by only 10% of respondents and disapproved by 70% (the rest do not know or do not want to answer). We analyze the perceptions of three well-known determinants of acceptance of the carbon tax: the impact on one’s purchasing power, the progressivity of the scheme, and its environmental effectiveness. We compare subjective beliefs elicited from our new survey to objective impacts on respondents’ purchasing power computed using National households’ survey data. This comparison shows that people largely overestimate the negative impact of carbon taxation on their purchasing power. Similarly, while the scheme proposed in our survey is progressive, a large majority of individuals perceive it as regressive. In addition, a majority of respondents do not believe that such a policy would reduce pollution and fight climate change. Using information reported over their energy equipment and usage, we are able to compute a respondent-specific estimation of the tax incidence. This estimation enables us to look at the heterogeneity in biases. We find that the people most opposed to the policy, and in particular those supportive of the Yellow Vests, are the most biased, i.e. the most inclined to over-estimate their losses. Thus, one may wonder whether biased beliefs lead to policy rejection or if the causality goes in the other direction.

To disentangle the effect of initial biases on attitudes towards the policy from the reversed effect of attitudes on perceptions, we investigate the effect of providing new information to respondents through a random treatment. Respondents randomly receive (or not) a piece of information about the progressivity and/or about the effectiveness of the policy, as well as the information — derived from our respondent-specific estimation — that their household is expected to win or lose from the policy. We also specify that this latter information is correct in five cases out of six, a probability that we carefully estimated out-of-sample. A first result is that displaying information convinces only a few people. For example, among those advantaged by the reform who wrongly believe they would lose, only 12% are convinced that they would gain when we disclose our estimation to them. Worse, respondents revise their beliefs in a biased way, giving more weight to new information when it shows they would lose from the reform, i.e. when it provides them with arguments against the tax. We also find evidence of motivated reasoning in the formation of beliefs, as those who already approved of the reform are less prone to biases in the revision, while those most opposed to it such as supporters of the Yellow Vests tend to discard new information unless it goes against the tax. Moreover, we find that motivated reasoning is accentuated among highly educated people, suggesting that it stems from

an adaptive advantage rather than a cognitive deficiency.

The information displayed being random — or conditionally random — we can then use it as instruments to measure the causal effect of holding certain beliefs on acceptance. In the case of self-interest (taken as one’s beliefs about winning or losing purchasing power from the policy), we supplement these treatments by testing the approval for a different Tax & Dividend whose compensation is targeted to people with incomes below a threshold that varies between respondents to create exogenous variations in eligibility. The method we use in this case is noteworthy, as it embeds a regression discontinuity design inside an instrumental variables regression in order to estimate the causal effect of eligibility at different levels of income. Overall, we find that beliefs in self-interest, environmental effectiveness, and progressivity all have a large effect on acceptance: about 40 percentage points (p.p.) for the first two and 27 p.p. for the latter, all else equal. These motives also appear more as complements than substitutes: in a hypothetical scenario where all biased beliefs could be corrected, we estimate an approval rate as high as 90%. This result suggests that rejection of carbon taxation does not commonly result from clashing principles, such as a disinterest in climate or a dislike of price instruments, but rather from biased beliefs about the properties of the reform. Since beliefs are formed endogenously in a motivated way, people’s biases gain inertia, so that new information might only push their attitude in one direction.<sup>3</sup>

## References

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<sup>3</sup>The “campaign effect” documented by [Anderson et al. \(2019\)](#) (in the case of referenda in the US state of Washington) is an example of how support for a carbon tax can decrease substantially after it enters the public debate. It may explain why acceptance of an increase in the carbon tax plummeted with the Yellow Vests movement, down from a level of 48% ([ADEME, 2018](#)) in the middle range of other countries’ ([Brechin, 2010](#)). This effect confirms that the French carbon tax may be an insightful case study to understand what could happen in other countries when a controversial policy is publicly debated.