

PILLAR 3

STATE OF THE ART

E4BEL

Equity, Environment, Energy, Economy: An investigation into the equity, efficiency and acceptability of carbon pricing in Belgium

State of the art on the public acceptability of carbon pricing

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[Keywords]

Public acceptability, carbon pricing, climate policy



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[Introduction]

Mitigating climate change requires a rapid reduction of greenhouse gas emissions. Carbon pricing is one of the policy instruments in the government's toolkit to pursue the path to a climate neutral society and is mainly advocated because of its high effectiveness and efficiency (Goulder & Parry, 2008; Baranzini & Carattini, 2017; Stiglitz et al., 2017). Carbon pricing will remain high on the agenda of both policy and public debate given the creation of a new EU emissions trading system (ETS) for buildings, road transport and some other sectors from 2027 onwards. In addition to the EU ETS, countries can develop their own carbon pricing policy, with a higher price level or applied to other sectors. However, in Belgium there is no explicit carbon pricing policy (except the EU ETS), but only an implicit carbon price.¹ Broadly speaking, the E4BEL research project is motivated by this lack of a carbon pricing policy in Belgium.

The current literature points to public resistance as an important factor for the political reluctance to implement more ambitious carbon pricing policies (Caratinni et al., 2018; Klenert et al., 2018; Douenne & Fabre, 2022). For instance, in France the planned increase in the carbon tax was put on hold following the protests of the Yellow Vests in 2018. Understanding the drivers and conditions of public acceptability of carbon pricing is one of the central objectives of this research project. Furthermore, we will identify climate tax shifts that best reconcile the alleged trade-offs between public acceptability, equity, environmental and economic performance. This note focuses on the state of the art on public acceptability of carbon pricing we refer to the complementary state of the art on the economic impacts of carbon pricing.

[State of the art]

Carbon pricing is an effective policy to foster the transition to a low-carbon society and mitigate climate change. However, many countries do not make use of this policy instrument or only at (very) low price levels. In OECD and G20 countries around 60% of the carbon emissions from energy use remain entirely unpriced. Only 19% of the energy related carbon emissions in OECD and G20 countries reach the level of 60 euro per tonne (OECD, 2021). One of the major barriers to implement carbon pricing in practice is the low level of public acceptability (Caratinni et al., 2018; Klenert et al., 2018; Douenne & Fabre, 2022). If carbon pricing has a low level of public acceptability, policy makers will be less likely to implement such a policy. As a corollary, the high theoretical effectiveness of carbon pricing will stay low in reality.

To make carbon pricing work in practice, it is important to have a deep understanding of the drivers of the public acceptability of this policy. The literature identifies three broad types of factors which are related to the actor, the context and the (perceived) policy design. Regarding actor-based factors, most individual attributes have in general no major impact on public acceptability, with the exception of education level which has positive impact (Ejelöv & Nilsson, 2020; Drews, 2021; Bergquist et al., 2022; Dechezleprêtre et al., 2022) while transport-related factors as car ownership (Thalmann, 2004; Hsu et al., 2008; Baranzini & Carattini, 2017; Umit & Schaffer, 2020; Dechezleprêtre et al., 2022; Sommer et al., 2022) and commuting with a car (Schade & Schlag, 2003; Hsu et al., 2008; Rhodes et al., 2017; Kitt et al., 2021) have a negative impact. More important determinants of public support are individual sociopsychological factors such as values, believes and personal norms (Ejelöv & Nilsson, 2020). For instance, environmental concern has a positive relation with public acceptability of carbon pricing (Thalmann, 2004; Kallbekken & Sælen, 2011; Baranzini & Carattini, 2017; Bergquist et al., 2022). Secondly, contextual factors might explain the level of public acceptability of carbon pricing (Drews & van den Bergh, 2016; Rhodes et al., 2017). In addition to the cultural, political, institutional, economic and geographic context, political trust is identified as a key driver in the literature (Kallbekken & Sælen, 2011;

¹ In the road transport sector fuel excise taxes result in a net carbon price of more than 200 euro per tonne CO2e, in contrast to the building sector where the price is less than 6 euro per tonne (OECD, 2022).



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Harring & Jagers, 2013; Baranzini & Carattini, 2017; Rhodes et al., 2017; Klenert et al., 2018; Rafaty, 2018; Fairbrother et al., 2019; Levi, 2021; Kitt et al., 2021; Bergquist et al., 2022; Ewald et al., 2022)

Thirdly, the perceived policy design matters (Maestre-Andrés et al., 2019; Douenne & Fabre, 2022). Besides the actual effects, it is critical to account for perceptions of policy impacts as well. In this respect, it important to consider the cognitive biases that play a role in the public's aversion to carbon pricing. We identified several biases in the literature, including tax aversion (Nordhaus 2007), specific environmental and carbon tax aversion (Baranzini et al., 2014), fiscal illusion (Wagner, 1976), isolation and aggregation bias (McCaffery & Baron, 2003), the role of salience (Chetty et al., 2009) and the campaign effect (Anderson et al., 2019), framing and labelling effects (Tversky & Kahneman, 1981; McCaffery & Baron, 2003; Brannlund & Persson, 2012), the metric effect (McCaffery & Baron, 2003), the endowment effect (Thaler, 1980; Kahneman et al., 1991; Daugbjerg & Svendsen, 2003), wishful thinking and the principle-implementation gap (Krosnick & MacInnis, 2013). These cognitive biases might explain why the perceptions of policies can be sometimes more important than the actual policy impacts.

Regarding the policy design of carbon pricing itself, we principally identified the following key drivers of public acceptability in the literature: perceived environmental effectiveness, personal cost-benefit perception, perceived fairness, and coerciveness and perceived freedom of choice. Perceived environmental effectiveness implies that people who believe that carbon pricing is effective in changing behaviour to reduce carbon emissions will be more in favour of such a policy. However, empirical research shows that many people do not believe in this incentive effect of carbon pricing or at least underestimate it (Thalmann, 2004; Kallbekken & Sælen, 2011; Carattini et al., 2017; Baranzini & Carattini, 2017; Bergquist et al., 2022; Douenne & Fabre, 2022; Ewald et al., 2022). Secondly, the personal outcome expectancy and especially the personal cost-benefit perception matter (Schade & Schlag, 2003; Jagers et al., 2019). People are less likely to be in favour of a policy if the costs are higher than the benefits, or when they perceive this is the case. In the context of carbon pricing, people often overestimate the costs due to salience and risk aversion, while they underestimate the (co-)benefits (Thalmann, 2004; Jagers & Hammar, 2009; Schuitema et al., 2010; Kallbekken et al., 2011; Drews & van den Bergh, 2016; Carattini et al., 2018; Umit & Schaffer, 2020). Next, we identify perceived fairness as an important factor for public acceptability (Maestre-Andrés et al., 2019; Jagers et al., 2019; Maestre-Andrés et al., 2021; Ewald et al., 2022; Bergquist et al., 2022). In general, people prefer carbon pricing policies that are progressive and are perceived to be fair in terms of redistribution. Lastly, the coerciveness of the instrument to reduce carbon emissions and the extent to which the policy design limits the (perceived) freedom of choice affects the level of public acceptability (Cherry et al., 2012; de Groot & Schuitema, 2012; Bachus, 2017, Jagers et al. 2019; Douenne & Fabre, 2020). People generally prefer pull policies (e.g. subsidies, moral suasion) over push policies (e.g. carbon pricing, regulations).

For a more extensive review of the drivers of public acceptability of carbon pricing and potential solutions which might increase the level of public acceptability, we refer to the following working paper²:

Barrez., J. & Bachus, K. (2023). Public Acceptability of Carbon Pricing: A Literature Review. E4BEL Working paper. HIVA-KU Leuven.

[Research objectives]

A first objective of this E4BEL research line is to clarify public acceptability and related concepts such as public acceptance, support and willingness to pay (Kyselá et al., 2019). We will contribute to the literature by <u>constructing</u> <u>different measures of public acceptability</u>. Public acceptability is a more complicated concept than being against or in

² This working paper can be consulted on the following website:

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https://hiva.kuleuven.be/en/research/theme/climateandsd/p/public-acceptability-of-carbon-pricing

favour of a policy. First, the level and degree of public acceptability matters, not only the proportion of people in favour of a policy, but also to what extent. Secondly, we can distinguish between the overall acceptability to the population and specific groups. To this end we will construct different measures of acceptability and we will explore empirically if reluctance to climate policies and especially carbon pricing is concentrated in particular groups.

The second research objective is to <u>identify the drivers and conditions of public acceptability of carbon pricing</u>. Most studies look at a limited set of factors in a particular country and are using different research designs and methods. Further testing and validation of these drivers in other contexts is needed. We will contribute to the literature by investigating general attitudes towards carbon pricing and climate policies and explore the (potential) objections and fears (e.g. a real wage drop, job loss, perceptions related to carbon emission impact, distributional impact) to these policies in Belgium. We will identify and test the drivers of public acceptability which are based on the state of the art, using a general survey and choice experiments. The last method allows to unravel the relative importance that respondents attach to different attributes of several climate tax shift options.

More in particular, we will study the role of political trust and we will explore different cognitive biases identified by behavioural science and economics that may play a role in the public's aversion. For instance, we will investigate for Belgium (carbon) tax aversion, the role of salience of costs and (co-)benefits, the role of framing and labelling, among other things. We will also investigate the role of policy design and how it is perceived in terms of environmental effectiveness, personal cost-benefit, fairness and freedom of choice affects public acceptability.

A third research objective is to <u>update and refine the 'Ladder of Acceptability of Revenue Recycling Options'</u> (LARRO) of Bachus et al. (2019) by testing different revenue recycling options of carbon pricing. More in particular, we will test a set (of combinations) of different revenue recycling options. According to Carattini et al. (2018) "the literature is now sufficiently mature to expect future papers to also tackle more complex policy designs and realistic situations". Drews and van den Bergh (2016) suggest as well that instead of single policies, research needs to focus more on complex policy combinations, for instance shifting taxes from labour to environmental impact. To contribute to this gap in the literature, we will test a mix of different recycling options, more in particular different sets of climate tax shift scenarios for Belgium.

A fourth research objective, which is based on the interplay between the economic models with the sociological surveying, consists of <u>testing whether providing information on the effects of policies might alter acceptability or preferences</u>. For instance, Carattini et al. (2017) showed that providing information about environmental effectiveness of carbon tax designs reduces preferences for earmarking compared to other recycling options, using choice experiments with information on emissions from a CGE model. Along the same lines, we will test the impact of providing different sets of information, such as expected impact on employment, macroeconomic performance, emissions and distributional effects for specific subgroups in the population, using choice experiments. We will do this in a randomized fashion to uncover the impact of information on the preferences of revenue recycling.

The final and overarching research objective of the E4BEL project is to <u>assess the impact of carbon pricing on public</u> <u>acceptability, equity, environmental and economic performance</u>. More specifically, the E4BEL research team will formulate a range of climate tax shift policy packages (including lump-sum transfers, lowering social security contributions and lowering labour income tax) and rank them with indicators measuring public acceptability, equity, environmental and economic performance.



[Research approach]

To gain insight into the public acceptability of carbon pricing in Belgium two surveys among the general population will be conducted. A first survey (S1) will gauge the general public attitudes towards carbon pricing and will explore the potential drivers that affect public acceptability. Based on these results, and in conjunction with the economic modelling team, a set of climate tax shift (CTS) options that can be simulated will be defined. A second survey (S2) will explore the relative importance that respondents attach to different attributes of several climate tax shift options, using choice experiments. We will also test whether providing information on the effects of policies might affect acceptability. This interplay between economic modelling and sociological surveying will result in a range of policy options scored by indicators on environmental and economic performance, equity, and public acceptability.

The distinguishing feature of the E4BEL project is the iterative methodological approach, with an intense, two-step cross-fertilization between the economic impact modelling part (combined CGE-MSM modeling) and sociological survey part on public acceptability. In the figure below the E4BEL research project is summarized and it shows how the interplay between the economic modelling and sociological surveying is designed.



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[Policy recommendations]

The E4BEL research and more in particular the sociological surveying will contribute to a deeper understanding of the public acceptability of carbon pricing in Belgium. This research will allow for policy recommendations on how to increase the level of public acceptability based on the drivers and conditions. The main recommendations will be on how revenue recycling of carbon pricing will help policy makers to implement this policy in Belgium. More in particular several climate tax shift designs will be proposed which will be scored by indicators on public acceptability, equity, and economic and environmental performance. Moreover, recommendations about how to communicate and inform the general public about carbon pricing will be made. More broadly, the E4BEL project will provide policy makers with evidence-based recommendations based on interdisciplinary research which will be helpful in a society where climate and energy issues are likely to dominate the public debate.

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