

# **Working Paper**

Increasing public support for climate policy: Research needs, questions, and challenges around politically influenceable acceptability factors

Oeko-Institut Working Paper 2/2022

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Working Paper 2/2022 Öko-Institut e.V. / Oeko-Institut e.V.

December 2022

Download: www.oeko.de/fileadmin/oekodoc/WP-Public-support-for-climate-policy.pdf



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### Abstract

Ambitious climate policy needs a mix of instruments, from relatively soft and supportive pull measures to more intervening and demanding push measures. Given that the latter often receive relatively low public support, especially when targeting consumers' everyday life, we need to know more about how to increase their acceptability. We argue that existing research has focused on factors that explain relatively stable differences in climate policy support between countries and groups of people, which does not help much in improving the acceptability of specific policy instruments in a given country and society. There has been less research, and then often single-case or single-factor studies, on acceptability factors that policymakers can directly influence. This working paper aims to inspire much more research on such factors by critically reflecting on the status quo of existing research and knowledge and by formulating research needs, questions, and methodological approaches with regard to four clusters of policies (timing, sequencing, trial runs), participation and coalition building, as well as information and framing.

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### **1** Introduction

The high risk of devastating climate change and the so far limited success of climate policy call for more ambitious and stringent policy mixes (IPCC 2022). Such policy mixes need to address both production and consumption, different sectors and target groups, and foster innovation in sustainable technologies as well as the phase-out of unsustainable technologies, by smartly combining different types of policy instruments (Heyen et al. 2017; David 2017; van den Bergh et al. 2021; Akenji et al. 2021; Braathen and Serret 2007; Kern et al. 2019; Rogge et al. 2017; Pacheco-Vega 2020).

Measures in such policy mixes range from relatively soft and supportive ones to more demanding and disruptive interventions. In the following, for the sake of simplicity, we speak of "push measures" when talking about regulatory measures (standards, limits, bans) and pricing instruments; and of "pull measures" for subsidies, information-based and procedural instruments. Put simply, push policies aim to detract from undesirable behaviour. Pull measures aim to facilitate or reward sustainable behaviour (cf. Ejelöv et al. (2022) for an intensive discussion of how different types of policy measures have been categorised in literature and are perceived by the public).

Research has shown that push measures in climate policy often receive relatively low public support compared to pull measures, especially when they target consumers rather than producers (e.g. Groot and Schuitema 2012; Kantenbacher et al. 2018; Wicki et al. 2019). However, if one accepts that we need more push measures in policy mixes, we also need to know more about how to increase their public acceptability. We define acceptability as an affirmative attitude toward a policy proposal which may, but does not necessarily, lead to active support (Schuitema et al. 2010).

Existing research on the acceptability of climate and environmental policy has focused on factors that explain relatively stable differences in support between countries and groups of people. There has been less research on politically influenceable factors like concrete policy design or strategic government action, and such research primarily consists of single-case or single-factor studies. This imbalance and related shortcomings in existing research, which are further elaborated in the next section, are deplorable from a scientific knowledge perspective and even more so regarding the political action necessary to address climate change. Thus, this working paper aims to stimulate more research on politically influenceable factors for climate policy acceptability by critically reflecting on the status quo of existing research and knowledge and by formulating research needs, questions and methodological approaches with regard to four clusters of politically influenceable acceptability factors: policy design and packaging, different temporal aspects of policies (timing, sequencing, trial runs), participation and coalition building, as well as information and framing.

The working paper is mainly based on a focused review of academic literature, focusing on politically influenceable acceptability factors. Moreover, we conducted a short online survey in November 2022 among academic experts in the research field, seeking to obtain feedback on our main assumptions regarding the relevance of and research gaps on the above-mentioned acceptability factors. The survey invitation was sent to 33 experts (all from OECD countries) who had conducted studies on climate policy acceptability over the last years. Eleven of them completed the entire survey, and three more participants partially answered the questionnaire. We report the results below in percentages without suggesting that they are in any way representative.

The remainder of this paper is structured as follows: Section 2 reflects the current state and focus of the research strand and its resulting shortcomings. Section 3 discusses a set of politically influenceable acceptability factors on which some research has been carried out, finding specific evidence for their relevance but which require further investigation. We formulate concrete research questions and discuss methodological approaches. The paper concludes with reflections on cross-cutting needs and promises as well as challenges and limits of such research (Section 4).

## 2 The focus of policy-acceptability research so far: not much to learn for ambitious climate policy

A considerable amount of research has been carried out on general public support for climate policy and different policy instruments. Many studies show that, on average, pull measures receive higher public acceptability than push measures when consumers are addressed (e.g. Groot and Schuitema 2012; Kantenbacher et al. 2018; Wicki et al. 2019). Respondents usually justify this with the different levels of intervention and restriction of personal freedom or choice (Attari et al. 2009; Cherry et al. 2012). Push measures that require efforts or behaviour changes in consumers' everyday life are particularly unpopular compared to technological requirements in consumption choices (Groot and Schuitema 2012; Bothner et al. 2019). In contrast, push measures addressing producers, including product standards, in most cases enjoy wider support among the general public (e.g. Kantenbacher et al. 2018; Lachapelle et al. 2012; Larsson et al. 2020). However, strong price increases of consumer goods again reduce public support (e.g. Fesenfeld et al. 2022).

While detailed knowledge about the acceptability of different instrument types, ambition- or intervention levels, and target groups is certainly interesting, it does not help much when we acknowledge that policy mixes containing stringent push measures (including those that address and affect consumers) are necessary for climate policy, as argued at the beginning.

Furthermore, many researchers investigated the influencing factors that explain (or, at least, are interrelated with) different support levels for climate policy (instruments) encountered among various countries or various sections of the population within one country. Among the personal factors that matter according to many (even though not all) studies are socio-demographic characteristics; awareness, knowledge and beliefs about climate change; attribution of responsibility for the problem and the solution; trust in science and government; personal values and norms; political views and party affiliation; as well as the personal perception of a policy instrument, i.e. of its individual and societal impacts, its performance and fairness (see in particular the literature reviews by Drews and van den Bergh 2016, and by Ejelöv and Nilsson 2020, as well as the multi-factor and large-N studies by Bergquist et al. 2022, Dechezleprêtre et al. 2022, and Levi 2021). Relevant country-level factors are the political culture and degree of polarisation between key political parties; the level of corruption; the economic status (e.g. GDP per capita) and economic dependencies (e.g. on fossil energy), and the country's vulnerability to climate change impacts (Levi 2021; Linde 2018; Harring et al. 2019; Harring 2014).

Again, such information about personal and country-level factors are interesting and noteworthy, although some findings (e.g., that people with altruistic values and green party affiliation are more likely to support climate policy measures) seem quite obvious. However, knowledge about these relatively stable factors is not very helpful to policymakers when it comes to enhancing the acceptability of specific policy instruments in a given country and society. Even findings about people's perceptions of (or beliefs on) instrument effectiveness and fairness are often of limited value because it frequently remains unclear what determines these beliefs (Ejelöv & Nilsson 2020). Cursory questioning and pretended strategic responses that hide underlying self-interests (Montada 1998; Bolderdijk et al. 2017) do not allow to deduct scientifically sound conclusions on how to design effective and acceptable policies.

Compared to the (often psychological) studies on personal acceptability factors in climate policy, politically influenceable acceptability factors have received considerably less research attention in the past. While we have not conducted a systematic literature review with a quantitative assessment for the paper at hand, we have experienced this imbalance during literature screenings conducted in our previous research (Heyen et al. 2021; Heyen 2022a; Fesenfeld et al. 2021a; Fesenfeld et al. 2021b). This imbalance is also reflected in existing literature reviews and meta-studies in the

research field: While the literature review by Drews and van den Bergh (2015) aims for an encompassing scope, they mostly found and refer to studies on the mentioned personal factors, complemented by contextual factors. Regarding politically influenceable factors, only the issue of push vs pull measures, the use of revenues from climate and environmental taxes, and the timing and framing of climate policy are discussed. The literature review by Ejelöv and Nilsson (2020) and the meta-study by Bergquist et al. (2022) right from the outset are limited to social-psychological factors, people's perceptions of climate change and their beliefs on policy effects. Moreover, nearly 80% of our survey's participants strongly agreed or somewhat agreed that "politically influenceable acceptability factors of climate policy are generally under-researched".

Among the studies on politically influenceable acceptability factors, research focused chiefly on single-case studies, limiting the generalization of such results. Specifically, the examination of policy instruments is typically highly dependent on a specific case. Survey-embedded experiments conducted at one point in time and in one particular country are particularly problematic since, in practice, it depends on the temporal and local context (e.g. the presence of focal events) how political issues are framed and perceived. In a single survey experiment, presenting people with a straightforward provision of information content bears the risk of placing them in fake environments with low external validity. The specific treatment and context specifications in different papers focusing only on one or a few cases could thus potentially also lead to some limitations regarding the identification of what specifically drives the observed attitudes.

Moreover, research on the causal relation between different politically influenceable (and other) acceptability factors, their interlinkages as well as their relative importance is rare. Analyses usually focus on one particular acceptability factor and its manifestations, for example different instrument characteristics or framings. Only few studies combine at best two or three factors (e.g. Fesenfeld et al. 2022, combining policy design, framing, and feedback mechanisms).

These research gaps and shortcomings result in the unfortunate situation that researchers can hardly give valid recommendations to policymakers on how to design meaningful climate policy (push) measures in such a way that they receive greater public support.

### 3 In need of further research: politically influenceable factors

In this section, we discuss a set of politically influenceable acceptability factors which can be found in the literature review of Drews and van den Bergh (2015) or which we came across in our own literature screenings. We grouped these factors into four thematic clusters around 1) the policy instrument, 2) time aspects, 3) actor involvement, and 4) communication. In our expert survey, a clear majority of respondents deemed each of the factor clusters relevant for climate policy acceptability and most of the factor clusters to be under-studied. In the following, a sub-section is dedicated to each cluster, where we present existing evidence, but also the respective limitations and gaps, and discuss corresponding research needs, questions and methodological approaches.

### 3.1 Policy instrument: design and packaging

While many studies have shown that push measures receive less support than pull measures, relatively few studies have investigated why some push measures are more acceptable than others (apart from the dichotomy of production-related versus consumption-related measures, cf. Section 2), and whether the concrete instrument design or the deliberate combination of several measures (policy packaging) makes a difference.

In our expert survey, 90% of respondents agreed (70% even strongly agreed) that policy design and packaging are relevant acceptability factors, and 70% agreed (strongly or somewhat) that these are under-studied. The fact that some respondents disagreed with the latter might be explained by the issue of carbon pricing, for which the acceptability of different price levels and forms of revenue use has been relatively well investigated (e.g. Dechezleprêtre et al. 2022; Maestre-Andrés et al. 2019). There is also evidence that the source of financing green subsidies and investments matters for obtaining public support (Dechezleprêtre et al. 2022). However, concerning the design of other instruments, particularly regulatory measures, very little research literature is available on the acceptability effect of, for example, flexibility granted in implementation (e.g. through different technological options or substitute measures, cf. Heyen et al. 2021) or of exemption clauses (ibid.; Bernauer et al. 2020).

There is also some but still limited research on the acceptability effects of policy packages that include several primary policy instruments or ancillary measures accompanying such a primary instrument. These studies indicate that push measures receive wider support if they are combined with supportive measures like information and free advisory services, subsidies for green technologies, or a better provision of alternatives like public transport (Heyen et al. 2021; Fesenfeld 2020, 2022; Wicki et al. 2019; Wicki et al. 2020; Thaller et al. 2021). Stricter requirements for production processes and products as part of policy packages can also enhance the acceptability of consumption-related measures, probably because consumers feel that they do not bear the sole burden (Fesenfeld 2020b). Foreseeing independent monitoring can improve a measure's acceptability as well (Wicki et al. 2020; Fesenfeld et al. 2022). Similarly, an evaluation of an existing measure can strengthen public support for its continuation or tightening (Heyen et al. 2021).

Policy design and packaging issues also pose questions on fairness. However, while studies found a key role of fairness perceptions for policy acceptability (e.g. Bergquist et al. 2022), it remains largely unclear how instrument design alters perceptions and what the underlying justice principles (cf. Heyen 2022b) are – apart from the fact that (perceived) regressive effects (i.e. disproportionally burdening low-income households) tend to decrease public support (e.g. Dechezleprêtre et al. 2022).

Resulting research questions are thus:

• How do different features in instrument design affect the acceptability of push measures?

- How do policy packaging and complexity affect the acceptability compared to single measures? Does it affect acceptability if different issues, target groups, or policy domains (like energy, mobility, food) are addressed within one policy package?
- What is the mechanism of ancillary measures in ensuring a greater degree of acceptability of single push measures as well as policy packages?
- What instrument design (or package) is considered to be fair by people, and what are the underlying justice principles and considerations behind the judgments?
- Does policy learning and diffusion affect acceptability (e.g. does information on the implementation from one specific context affect acceptability in another context)?

To better understand how different instrument designs and packages affect acceptability, a variety of methods are necessary, aiming at deepening our understanding of the specific mechanisms which contribute to the formation of public opinion. First, survey experiments that test different instrument designs and policy packages by systematically varying instrument characteristics and package combinations allow us to disentangle the specific causal mechanisms leading towards accepted policy packages. Second, comparative research approaches and a collection of extensive case-specific expert knowledge is needed to better understand the contextual boundaries and potentials of instrument design and policy packages – across time and different governmental entities and levels. Third, more basic research is needed on why people consider certain policy features (un)fair. This could be investigated in a mixed-method approach via exploratory focus groups and surveys asking respondents to evaluate different distribution principles (cf. Heyen 2022b).

### 3.2 Time: timing, sequencing, and trial runs

Concerning the issue of time, we see three relevant sub-issues for research: timing (temporal context of introducing a policy proposal), sequencing (increasing the stringency of a policy over time), and "trials runs" (policy experiments for a limited time). In our expert survey, around 73% of respondents agreed (strongly or somewhat) that these temporal issues are relevant acceptability factors, and nearly 55% agreed (strongly or somewhat) that these are under-studied. (Another 18% neither agreed nor disagreed with each proposition.)

While the role of time and timing for the feasibility of policies is an established issue in political sciences, e.g. through the multiple-streams concept (Kingdon 1995), there has been less empirical investigation on their significance for public acceptability. Some studies have shown that public support for climate policy can change over time, depending on the issue salience of climate change which might be influenced, for example, by an economic downturn (Stoutenborough et al. 2014), the occurrence of extreme weather events (Alló and Loureiro 2014; Owen et al. 2012), key publications such as Al Gore's "An Inconvenient Truth" and the Stern Review (Löfgren and Nordblom 2010), or the Fridays-for-Future demonstrations (Heyen et al. 2021) and related media coverage. However, apparently, there has not been much research that either continuously analysed the support for specific policy instruments together with influencing factors over time or that analysed the introduction of the same policy instruments in different (but similar) jurisdictions (e.g. cities within the same country) at different points in time. Methodologically, this calls for more longitudinal (and experimental) panel surveys as well as multi-case studies and their systematic analysis regarding the following research questions:

- Does it matter for acceptability at what time (in what temporal context) a policy proposal is introduced? (Thus, is it worthwhile for governments to wait for favourable windows of opportunity?)
- Which temporal context factors matter, which not?

As regards the issue of policy sequencing, such an introduction of policy instruments with an increasing "stringency over time" (Pahle et al. 2018) occurs regularly in practice, especially in the case of push measures: from CO2 taxes and emissions trading, starting with low tax rates or many emissions certificates, to regulatory measures such as the stepwise phase-out of light bulbs through EU efficiency requirements. This is probably done (inter alia) for acceptability reasons, but the real acceptability effect has not been empirically investigated to the best of our knowledge. Thus, research is needed on the following questions:

- Does policy sequencing affect acceptability (especially of push measures) in the short- and/or long-term?
- Does it make a difference whether policy sequencing is decided upon and communicated from the beginning or only step by step?

These questions could be investigated by classical and experimental surveys or focus groups. The long-term acceptability effects of policy sequencing could particularly be investigated through panel surveys on real-world policy instruments that are implemented in a sequencing way.

On the issue of temporally limited trial runs, a positive acceptability effect is often assumed in studies on policy experiments (e.g. Bauknecht et al. 2021). However, the research evidence on their acceptability effects is again very limited. The exceptionally well-researched case of a congestion charge in Stockholm shows what can be achieved by a trial run in terms of acceptability. Public support in polls increased by 18% during the trial, and, in the subsequent referendum, rather surprisingly, a majority was found in favour of the measure (Schuitema et al. 2010). Moreover, the results of a survey on transport measures in Switzerland carried out by Wicki et al. (2020) show that even the mere announcement of a trial run (with evaluation) increases the ex-ante acceptability of policy packages. However, we know of some trial runs in German cities aimed at reducing car traffic were highly controversial and partially cancelled before the scheduled end date. Thus, more surveys, focus groups, and empirical case studies should further investigate the following research question:

• Under what conditions and how do the announcement and/or the execution of trial runs (policy experiments) affect a measure's acceptability?

### 3.3 Actor involvement: participation and coalition building

Political decision-making includes different forms of public participation with varying intensity (cf. Arnstein 1969; Lauria and Slotterback 2021). Given the paper's focus on politically influenceable factors, we limit the discussion on participation to so-called invited, state-established top-down spaces, in contrast to popular, informally initiated bottom-up spaces (Cornwall 2004). While a huge body of literature exists regarding citizen participation and the related acceptability effects in the context of planning procedures for (mostly local) infrastructure, industry, and urban development projects, far less research has been undertaken on the acceptability effects of participation in developing policy instruments. The few existing studies on that issue find at least slightly positive effects in the context of citizen participation in local environmental policymaking (Newig et al. 2012; Ross et al. 2014) and in the context of focus groups, deliberation groups, and citizen assemblies on climate policy issues (Lo et al. 2013; Stoll-Kleemann et al. 2001; Kuntze and Fesenfeld 2021). A study on citizen assemblies reports that people's level of support depends on how representative the assembly is, how resilient it is to lobby influence, and to what degree the assembly's proposals are implemented by elected policymakers (Kuntze and Fesenfeld 2021).

We have found even less empirical research on the acceptability effects of the participation of experts, stakeholders, and opposition parties. Concerning expert involvement, Kuntze and Fesenfeld (2021) find a positive acceptability effect for policy proposals made by expert panels. Regarding the

involvement of stakeholders, it was just mentioned that lobby influence was a negative factor in the support of citizen assemblies. Meanwhile, according to Bernauer and Gampfer (2013), people favour the presence of civil society actors in international climate negotiations and integrating them in national delegations may increase public support. Moreover, empirical ex-post analyses of Swiss referendums on environmental policy proposals show that their success depended on the extent to which political parties and associations expressed their support (Pleger 2019; Stadelmann-Steffen 2011). Similarly, the attitude of advising craftspeople and chimney sweeps towards regulations in Baden-Wuerttemberg with regard to the use of renewable energy sources for heating applications greatly influenced the measure's acceptance by the citizens concerned (Heyen et al. 2021). Psychological research shows that, particularly concerning contentious issues, people often base their opinions on the positions of (organised) actors whom they trust and with whom they share a common worldview (DeCaro et al. 2017; Glynn et al. 2018). However, research on acceptability effects of intentional coalition-building with stakeholders is largely missing.

In our expert survey, 80% of respondents agreed (strongly or somewhat) (and the rest neither agreed nor disagreed) that actor involvement is an under-studied acceptability factor – although all respondents (100%) strongly or somewhat agreed that it is a relevant factor.

Thus, as research questions remain:

- How and under what conditions does the participation of citizens in political decision-making affect the acceptability of policy instruments (and goals) among the general public?
- How and under what conditions does active participation affect instrument acceptability among participating citizens?
- How and under what conditions does the inclusion of experts, stakeholders (professional and grass-root) or opposition parties in policy formulation affect an instrument's public acceptability?
- How and under what conditions does building an advocacy (discourse) coalition in favour of a policy instrument affect its acceptability among the general public?

Studying the effect of participation on acceptability is particularly challenging and might be twofold. First, a factorial survey experiment could determine which design elements of a participatory process and involvement of which actor groups (general public, experts, stakeholders) influence people's support for a specific policy proposal. Still, such a procedure only allows us to understand how the public feels about various state-sponsored participation methods. Second, more qualitative research inviting people into the dialogue and asking them about their preferences on participation is needed. Such an approach allows us to learn more about how to create venues for involvement that are inviting and more meaningful from the point of view of the participants.

To study the effect of coalition building on policy acceptability, methods should be based on a twodimensional approach including (1) the actors within the coalition(s) and (2) to what degree they agree or disagree on the policy issue. A survey experiment including randomly assigned actors within one or more advocacy coalitions with varying degrees of agreement could be presented to respondents to assess how these different compositions and their interaction affect acceptability.

### 3.4 Communication: information and framing

Many studies show a higher support for climate policy measures among people with greater awareness of and increased knowledge about climate change (Drews and van den Bergh 2016; Bergquist et al. 2022; Levi 2021). However, research results are ambiguous as to whether the provision of additional information on climate change or on specific mitigation measures affects policy support: Some studies found that information campaigns and free advisory services as part of

a policy package have a positive acceptability effect (cf. Section 3.1), that measures are more likely to be supported if the respondents feel well informed (Maestre-Andrés et al. 2019; Stadelmann-Steffen 2011), and that the provision of additional information on a climate policy instrument in the context of a survey increases its support, especially of otherwise rather unpopular measures (Dechezleprêtre et al. 2022). However, some studies on mobility measures showed that although more information on a policy measure can lead to higher effectiveness ratings, this did not have any noticeable effect on their acceptability (Bolderdijk et al. 2017; Rhodes et al. 2014) or even has been counterproductive (Steg and Vlek 1997). The explanation for this seem to be more pessimistic costbenefit assessments by respondents. Other studies found that giving information on climate change (impacts) or highlighting its urgency alone, without providing additional information on the policy measures, does not significantly enhance support of such measures (Dechezleprêtre et al. 2022).

Furthermore, quite a number of studies have investigated the acceptability effect of (re-)framing climate policy measures. However, the evidence is ambiguous. Several studies found positive acceptability effects of positive framing (Dasandi et al. 2022), emphasising the co-benefits of climate policy such as economic opportunities, financial savings, or health (Lockwood 2011; Bain et al. 2012; Petrovic et al. 2014; Dasandi et al. 2022), or emphasising (inter)national norms in the case of food waste reduction policy (Fesenfeld et al. 2022). Some studies suggested an adverse effect of the tax label on policy support (Brannlund and Persson 2012; Kallbekken et al. 2011). In contrast, other studies found no significant acceptability effect on the basis of different arguments put forward in favour of climate policy measures (Fesenfeld 2020; Bernauer and McGrath 2016). Moreover, Fesenfeld (2020) criticises many studies that find positive acceptability effects by framing on methodological grounds.

Thus, the role of communication is not so much an under-studied issue per se but nevertheless needs further research to clarify the highly ambiguous research results. It is therefore not surprising that the responses to the proposition in our expert survey, that communication is an under-studied issue, varied strongly between agreement and disagreement, and 36% neither agreed nor disagreed. However, nearly 82% of respondents agreed (strongly or somewhat) that communication is a relevant acceptability factor.

Given the ambiguous research results, further research on the following questions is needed:

- (Under what conditions) does additional information on a policy problem and/or policy measure and its effects influence the measure's public support?
- (Under what conditions) do different frames of a policy instrument lead to different levels of public support? Are particular frames more effective than others?

To ascertain the degree to which information and framing alters acceptability for policy measures, field experiments may be a superior method compared to online survey trials, since arguments may vary considerably in reality compared to an experimental survey setting. Specifically, political entrepreneurs in real-world politics mix a variety of cognitive and emotional clues to influence citizens' opinions and behaviour by using speech, images, and written material. Additionally, counter-framing and argumentative competition occur in real life, but only infrequently in trials with integrated surveys. If arguments for and against climate change mitigation cancel each other out, effects are expected to be far smaller in reality than in survey experiments. Thus, more research is needed on how competing arguments are conceived and processed within realistic debates around policy issues in order to better understand the complexity of individual opinion formation. However, these raise ethical issues such as deception that must be considered. For instance, the withholding of certain information regarding the true goal of the study, which may be required to mimic real-world decision-making, is an example of incomplete disclosure which is misleading.

### 4 Concluding remarks

In this working paper, we have called for much more research on politically influenceable acceptability factors of climate policy instruments. The limited research that exists so far suggests that even push measures, which are often rather unpopular, can be made more acceptable by addressing issues of policy design and packaging, temporal aspects (timing, sequencing, trial runs), participation and coalition building, as well as information and framing. Such research results are of direct relevance for future policymaking.

However, as this paper has shown, we need a more robust evidence base on both empirical and methodological grounds. First, while some of the acceptability factors discussed have been examined more than others, we generally need more comparative studies in different spatial, sectoral, and temporal contexts to establish a comparative scope on the unique mechanisms underlying the outcomes related to public acceptability. Second, we need to know more about the relative importance of different kinds of acceptability factors (Drews and van den Bergh 2016; Ejelöv and Nilsson 2020). In view of many studies that focus on different manifestations of a single type of acceptability factor, we need more research about the causal relation between different factors, their interlinkages as well as their relative importance when put together. This applies to different politically influence-able factors but also to the interrelation between them and the quite stable personal factors (values, political attitudes, or affectedness by a measure).

Third and finally, more mixed-method approaches rather than the often sole reliance on surveys are deemed necessary to address the shortcomings of particular methods. For example, survey experiments may overestimate the importance of specific acceptability factors in a real-world setting with counter-framing and argumentative competition, and may underestimate the influence of the spatial and temporal context. This also calls for transdisciplinary approaches, where researchers, policy makers, and other important players in the policy-making process work together to study and, ultimately, design effective and acceptable policy instruments (packages).

Even where some acceptability-increasing effect can be achieved due to changing instrument design or actor involvement, push measures are always likely to provoke criticism and resistance – from some population groups, associations and/or political actors. Moreover, while public support is an important factor in political decision-making, it is not the only one: other factors include interests, resources, paradigms, and strategic behaviour of political actors, as well as legal framework conditions. However, in light of serious climate change threats, we should take advantage of any legitimate possibility to enhance public support and hence improve the political feasibility of reasonable mitigation measures.

### **List of References**

- Akenji, L. et al. 2021. 1.5-Degree Lifestyles: Towards A Fair Consumption Space for All, Berlin.
- Alló, M., M. L. Loureiro. 2014. The role of social norms on preferences towards climate change policies: A meta-analysis. *Energy Policy* 73: 563–574.
- Arnstein, S. R. 1969. A Ladder of Citizen Participation. *Journal of the American Institute of Planners* 35/4: 216–224.
- Attari, S. Z. et al. 2009. Preferences for change: Do individuals prefer voluntary actions, soft regulations, or hard regulations to decrease fossil fuel consumption? *Ecological Economics* 68/6: 1701–1710.
- Bain, P. G., M. J. Hornsey, R. Bongiorno, C. Jeffries. 2012. Promoting pro-environmental action in climate change deniers. *Nature Climate Change* 2/8: 600–603.
- Bauknecht, D. et al. 2021. *How to design an evaluate a Regulatory Experiment: A Guide for Public Administrations*.
- Bergquist, M., A. Nilsson, N. Harring, S. C. Jagers. 2022. Meta-analyses of fifteen determinants of public opinion about climate change taxes and laws. *Nature Climate Change* 12/3: 235–240.
- Bernauer, T., R. Gampfer. 2013. Effects of civil society involvement on popular legitimacy of global environmental governance. *Global Environmental Change* 23/2: 439–449.
- Bernauer, T., L. F. McGrath. 2016. Simple reframing unlikely to boost public support for climate policy. *Nature Climate Change* 6/7: 680–683.
- Bernauer, T., A. Prakash, L. F. Beiser-McGrath. 2020. Do exemptions undermine environmental policy support? An experimental stress test on the odd-even road space rationing policy in India. *Regulation & Governance* 14/3: 481–500.
- Bolderdijk, J. W., L. Steg, E. Woerdman, R. Frieswijk, J. I. de Groot. 2017. Understanding Effectiveness Skepticism. *Journal of Public Policy & Marketing* 36/2: 348–361.
- Bothner, F., F. Dorner, A. Herrmann, H. Fischer, R. Sauerborn. 2019. Explaining climate policies' popularity: An empirical study in four European countries. *Environmental Science & Policy* 92: 34–45.
- Braathen, N. A., Y. Serret. 2007. Instrument mixes for environmental policy. Paris: OECD.
- Brannlund, R., L. Persson. 2012. To tax, or not to tax: preferences for climate policy attributes. *Climate Policy* 12/6: 704–721.
- Cherry, T. L., S. Kallbekken, S. Kroll. 2012. The acceptability of efficiency-enhancing environmental taxes, subsidies and regulation: An experimental investigation. *Environmental Science & Policy* 16: 90–96.

- Cornwall, A. 2004. Introduction: New Democratic Spaces? The Politics and Dynamics of Institutionalised Participation. *IDS Bulletin* 35/2: 1–10.
- Dasandi, N., H. Graham, D. Hudson, S. Jankin, J. vanHeerde-Hudson, N. Watts. 2022. Positive, global, and health or environment framing bolsters public support for climate policies. *Communications Earth & Environment* 3/1: 1–9.
- David, M. 2017. Moving beyond the heuristic of creative destruction: Targeting exnovation with policy mixes for energy transitions. *Energy Research & Social Science* 33: 138–146.
- DeCaro, D. A., C. A. T. Arnol, E. F. Boama, A. S. Garmestani. 2017. Understanding and applying principles of social cognition and decision making in adaptive environmental governance. *Ecology and Society* 22/1: 1–33.
- Dechezleprêtre, A., A. Fabre, T. Kruse, B. Planterose, A. Sanchez Chico, S. Stantcheva. 2022. *Fighting climate change: International attitudes toward climate policies.*
- Drews, S., J. C. van den Bergh. 2016. What explains public support for climate policies?: A review of empirical and experimental studies. *Climate Policy* 16/7: 855–876.
- Ejelöv, E., N. Harring, A. Hansla, S. Jagers, A. Nilsson. 2022. Push, Pull, or Inform an Empirical Taxonomy of Environmental Policy Support in Sweden. *Journal of Public Policy*: 1–24.
- Ejelöv, E., A. Nilsson. 2020. Individual Factors Influencing Acceptability for Environmental Policies: A Review and Research Agenda. *Sustainability* 12/6: 2404.
- Fesenfeld, L., L. Rudolph, T. Bernauer. 2022. Policy framing, design and feedback can increase public support for costly food waste regulation. *Nature Food*.
- Fesenfeld, L. P. 2020. *The Political Feasibility of Transformative Climate Policy: Public Opinion about Transforming Food and Transport Systems*. Dissertation, ETH Zürich.
- Fesenfeld, L. P. 2022. The effects of policy design complexity on public support for climate policy. *Behavioural Public Policy*: 1–26.
- Fesenfeld, L. P., A. Rinscheid. 2021. Emphasizing urgency of climate change is insufficient to increase policy support. *One Earth* 4/3: 411–424.
- Glynn, C. J., S. Herbst, M. Lindeman, G. J. O'Keefe, R. Y. Shapiro. 2018. *Public Opinion.* Third edition. London: Taylor and Francis.
- Groot, J. I. de, G. Schuitema. 2012. How to make the unpopular popular?: Policy characteristics, social norms and the acceptability of environmental policies. *Environmental Science & Policy* 19-20: 100–107.
- Harring, N. 2014. Corruption, inequalities and the perceived effectiveness of economic proenvironmental policy instruments: A European cross-national study. *Environmental Science & Policy* 39: 119–128.

- Harring, N., S. C. Jagers, S. Matti. 2019. The significance of political culture, economic context and instrument type for climate policy support: a cross-national study. *Climate Policy* 19/5: 636– 650.
- Heyen, D. A. 2022a. Ordnungsrechtliche Maßnahmen für nachhaltigen Konsum: Möglichkeiten zur Akzeptanzsteigerung. GAIA 31/1: 24–28.
- Heyen, D. A. 2022b. Social justice in the context of climate policy: Systematizing the variety of inequality dimensions, social impacts, and justice principles. *Climate Policy*.
- Heyen, D. A., S. Degen, S. Braungardt, R. Blanck, M. Jakob, S. Pfeiffer. 2021. *Konsumbezogenes Ordnungsrecht in der Umwelt- und Klimapolitik: Gesellschaftliche Akzeptanz und ihre Einflussfaktoren.*
- Heyen, D. A., L. Hermwille, T. Wehnert. 2017. Out of the comfort zone! Governing the Exnovation of Unsustainable Technologies and Practices. *GAIA*/4: 326–331.
- IPCC (Ed.). 2022. Climate Change 2022: Mitigation of Climate Change.
- Kallbekken, S., S. Kroll, T. L. Cherry. 2011. Do you not like Pigou, or do you not understand him? Tax aversion and revenue recycling in the lab. *Journal of Environmental Economics and Management* 62/1: 53–64.
- Kantenbacher, J., P. Hanna, S. Cohen, G. Miller, C. Scarles. 2018. Public attitudes about climate policy options for aviation. *Environmental Science & Policy* 81: 46–53.
- Kern, F., K. S. Rogge, M. Howlett. 2019. Policy mixes for sustainability transitions: New approaches and insights through bridging innovation and policy studies. *Research Policy* 48/10: 103832.
- Kingdon, J. W. 1995. Agendas, Alternatives, and Public Policies. New Haven & London: Longman.
- Kuntze, L., L. P. Fesenfeld. 2021. Citizen assemblies can enhance political feasibility of ambitious climate policies. *SSRN Electronic Journal*.
- Lauria, M., C. S. Slotterback (Ed.). 2021. *Learning from Arnstein's ladder: From citizen participation to public engagement.* New York, NY, London: Routledge Taylor & Francis Group.
- Levi, S. 2021. Why hate carbon taxes? Machine learning evidence on the roles of personal responsibility, trust, revenue recycling, and other factors across 23 European countries. *Energy Research & Social Science* 73: 101883.
- Linde, S. 2018. Political communication and public support for climate mitigation policies: a country-comparative perspective. *Climate Policy* 18/5: 543–555.
- Lo, A. Y., K. S. Alexander, W. Proctor, A. Ryan. 2013. Reciprocity as Deliberative Capacity: Lessons from a Citizen's Deliberation on Carbon Pricing Mechanisms in Australia. *Environment and Planning C: Government and Policy* 31/3: 444–459.
- Lockwood, M. 2011. Does the framing of climate policies make a difference to public support? Evidence from UK marginal constituencies. *Climate Policy* 11/4: 1097–1112.

- Löfgren, Å., K. Nordblom. 2010. Attitudes towards CO2taxation is there an Al Gore effect? *Applied Economics Letters* 17/9: 845–848.
- Maestre-Andrés, S., S. Drews, J. van den Bergh. 2019. Perceived fairness and public acceptability of carbon pricing: a review of the literature. *Climate Policy* 19/9: 1186–1204.
- Montada, L. 1998. Justice: Just a rational choice? Social Justice Research 11/2: 81–101.
- Owen, A. L., E. Conover, J. Videras, S. Wu. 2012. Heat Waves, Droughts, and Preferences for Environmental Policy. *Journal of Policy Analysis and Management* 31/3: 556–577.
- Pacheco-Vega, R. 2020. Environmental regulation, governance, and policy instruments, 20 years after the stick, carrot, and sermon typology. *Journal of Environmental Policy & Planning* 22/5: 620–635.
- Pahle, M. et al. 2018. Sequencing to ratchet up climate policy stringency. *Nature Climate Change* 8/10: 861–867.
- Petrovic, N., J. Madrigano, L. Zaval. 2014. Motivating mitigation: when health matters more than climate change. *Climatic Change* 126/1-2: 245–254.
- Pleger, L. E. 2019. Democratic Acceptance of Spatial Planning Policy Measures. Springer.
- Rhodes, E., J. Axsen, M. Jaccard. 2014. Does effective climate policy require well-informed citizen support? *Global Environmental Change* 29: 92–104.
- Rogge, K. S., F. Kern, M. Howlett. 2017. Conceptual and empirical advances in analysing policy mixes for energy transitions. *Energy Research & Social Science* 33: 1–10.
- Schuitema, G., L. Steg, S. Forward. 2010. Explaining differences in acceptability before and acceptance after the implementation of a congestion charge in Stockholm. *Transportation Research Part A: Policy and Practice* 44/2: 99–109.
- Stadelmann-Steffen, I. 2011. Citizens as veto players: climate change policy and the constraints of direct democracy. *Environmental Politics* 20/4: 485–507.
- Steg, L., C. Vlek. 1997. The role of problem awareness in willingness-to-change car use and in evaluating relevant policy measures. In: *Traffic and transport psychology: Theory and application*. Edited by T. Rothengatter, E. Carbonell Vaya. Amsterdam: Pergamon. 465–475.
- Stoll-Kleemann, S., T. O'Riordan, C. C. Jaeger. 2001. The psychology of denial concerning climate mitigation measures: evidence from Swiss focus groups. *Global Environmental Change* 11/2: 107–117.
- Stoutenborough, J. W., X. Liu, A. Vedlitz. 2014. Trends in Public Attitudes Toward Climate Change: The Influence of the Economy and Climategate on Risk, Information, and Public Policy. *Risk, Hazards & Crisis in Public Policy* 5/1: 22–37.
- Thaller, A., A. Posch, A. Dugan, K. Steininger. 2021. How to design policy packages for sustainable transport: Balancing disruptiveness and implementability. *Transportation Research Part D: Transport and Environment* 91: 102714.

- van den Bergh, J. et al. 2021. Designing an effective climate-policy mix: accounting for instrument synergy. *Climate Policy* 21/6: 745–764.
- Wicki, M., L. Fesenfeld, T. Bernauer. 2019. In search of politically feasible policy-packages for sustainable passenger transport: Insights from choice experiments in China, Germany, and the USA. *Environmental Research Letters* 14/8: 84048.
- Wicki, M., R. A. Huber, T. Bernauer. 2020. Can policy-packaging increase public support for costly policies?: Insights from a choice experiment on policies against vehicle emissions. *Journal of Public Policy* 40/4: 599–625.