other examples might raise questions. For instance, skiing injuries could be reduced by encouraging people to wear helmets (i-intervention) or by requiring ski resorts to make their runs flatter (s-intervention). C&L's arguments suggest that, because the latter would surely be much more effective, we should endorse this s-intervention over the alternative i-intervention. Yet it is not obvious that this really is a preferable approach to the problem.

There are a number of issues at stake here. First, it is not as straightforward as is perhaps implied by C&L to judge what should count as the most "effective" intervention. Public health promoters will presumably judge whatever intervention results in the biggest increases in public health (however they choose to define this) as the most effective. But other groups and individuals might reject this – health is not the only thing that matters. Economists might focus instead on productivity; artists might think that cultural richness is more important. Returning to the ski slope example, if we make the ski slopes flatter, people go slower and get less pleasure. There are also fewer accidents. It is not self-evident whether or not this is a net improvement.

A second issue is who's job it is to shoulder the burden of making changes that will result in the desired improvements, and to what extent coercive force (or more moderate punishments or rewards) may be used in order to ensure adherence. C&L point to the enthusiasm for individual responsibility shown by corporate opponents of s-interventions. Yet freedom and responsibility are not purely the invention of commercial actors seeking to promote their own interests. The authors point to the (sometimes extensive) influence of the social and built environment on people's behaviour. Indeed, this might give us pause when considering the extent to which individuals are responsible for that behaviour. For instance, if the main determinant of whether or not one eats junk food is whether or not there is a fast-food outlet nearby, we might question whether people's dietary behaviour is a result of freely made choices, consistent with responsibility, or is instead "controlled" by the actions of others. But this "pause" is not equivalent to a robust conclusion that freedom and responsibility are absent, or unimportant. It is a far from settled topic within philosophy and interdisciplinary work in ethics (Brown & Savulescu, 2019; Cavallero, 2019; Davies, De Marco, Levy, & Savulescu, forthcoming; Segall, 2009).

The values at stake in the obesity case and other examples provided by C&L are not self-evident. Although it may be reasonable for states to take health as an uncontroversial "good," this does not mean it may be pursued at all costs. The appeal of i-interventions is to avoid making too many controversial value weightings, and instead to facilitate individuals to weigh up their own values and act accordingly. In order to show that i-interventions are no good, it is not enough to simply show that they don't reduce obesity or alcohol consumption to exactly the amount deemed by health promoters, behavioural scientists, or governments to be the "correct" level. It needs to be shown that i-interventions fail to facilitate decision making (or behaviours) by individuals that reflect their values and promote their interests. This might well be the case, particularly when commercial interests are unaligned with individual interests. It is not, however, enough to show that the greater "effectiveness" of s-interventions straightforwardly justifies their use. Nor does the relative enthusiasm of commercial interest groups for i-interventions show that individual choice has a dramatically reduced role to play in behavioural research or public policy.

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Community-engaged research is best positioned to catalyze systemic change

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Abstract

Addressing many social challenges requires both structural and behavioral change. The binary of an i- and s-frame obscures how behavioral science can help foster bottom-up collective action. Adopting a community-frame perspective moves toward a more integrative view of how social change emerges, and how it might be promoted by policymakers and publics in service of addressing challenges like climate change.

Chater & Loewenstein (C&L) provide a compelling case that behavioral science needs to expand beyond individual-focused (i-frame) research if it wishes to engender systemic change. However, we believe their conception of system-focused (s-framed) research is too simplistic. We propose an alternative frame, the community-focused (c-frame), which provides a bridge linking the i- and s-frames, while also highlighting the interdependence between the two. The c-frame foregrounds the role of public and activists in shaping public policy and the role behavioral science can play in studying and fostering systemic change through bottom-up collective action. If behavioral scientists are to contribute to positive social change, and we strongly believe they should (Nyborg et al., 2016), then research that pursues bottom-up solutions and the empowerment of historically marginalized groups is both an effective and desirable path forward.

The i- versus s-frame distinction assumes a limited policy space where policy occurs either at the level of top-down institutions or atomized individuals, yet this conception has two core problems. First, it presumes an ahistorical theory-of-change characterized by paternalism. In their implied (but not stated) theory-of-change, positive social change occurs when elite institutions and actors (including highly educated scientists) take benevolent and coercive action against bad faith private actors who are at their most harmful when unencumbered by (other) elite institutions. Yet many of the solutions presented as "s-frame interventions"' (per Table 1 in the target article) are policies rooted in collective action. Employer-provided pensions are listed, yet largely exist in the United States as a result of decades of labor action (Sass, 1997), long ignored by behavioral scientists (Lott, 2014), during which workers regularly risked death at the hand of their employers and the government (Adamic, 1931/2022). Environmental regulations are also listed as s-frame solutions, yet their history is often one of ardent collective action and meek government response, not benevolent administrators acting against fossil-fuel interests without impetus. From 1970 to 2020, the largest protest in US history was the 1970 Earth Day protest, where 1-in-10 people in the United States participated (Rome, 2013). This is not to suggest that social progress is unaided by government policy, quite the opposite. Rather, C&L point to paternalism as the social process that led to the adoption of these policies, instead of their adoption being a response to demands made of the powerful by the collective.

In many cases, s-frame solutions pursued without considering bottom-up, c-frame approaches will ultimately serve the corporate interests C&L believe the s-frame overcomes. Some i-frame solutions like individual carbon footprint analysis have, in practice, been implemented to deflect attention from systemic policies (Turner, 2014). Corporate interests have also, however, aggressively lobbied governments for "s-frame" policies that support their bottom line and ultimately obstruct aggressive climate action (Brulle, 2018). Focusing exclusively on either of these frames obscures the role that community-engaged behavioral science can play in informing large-scale policy responses. Bottom-up action often presents the greatest threat to corporate environmental degradation, as evidenced by the documented success of social movements, often led by indigenous and historically marginalized groups, in curbing fossil-fuel emissions (Thiri, Villamayor-Tomás, Scheidel, & Demaria, 2022). The Intergovernmental Panel on Climate Change's (IPCC's) most recent AR6 concluded with high confidence that many national-level climate policies that center just transitions were established in response to movement-based collective action (IPCC, 2022).

The behavioral sciences have informed our knowledge of individual and collective action and public buy-in to policy and new technologies, and could be leveraged to build social movements and democratize structural change. For example, social norms promote cooperation in social dilemmas (Ostrom, 2000), facilitate the coordination of large groups of people (Roos, Gelfand, Nau, & Lun, 2015), and mobilize collective action. The tendency of individuals to conform or coordinate with those around them can reinforce existing norms, even harmful ones, but can also trigger rapid social change (see Constantino et al., 2022, for a review). These social dynamics can account for the outsized impacts of policies such as financial subsidies on rooftop solar adoption and cycling infrastructure on biking (Centola, 2021; Kaaronen & Strelkovskii, 2020), and have been proposed as one mechanism for stabilizing the Earth's climate (Otto et al., 2020). Appealing to norms and emotions that motivate individuals to align their actions with peers can transform grassroots efforts into social movements (Aron, 2022), and are also crucial for effective governance of common-pool resources by maintaining cooperation and reciprocity (Ostrom, 2000). Indeed, top-down attempts by external actors to regulate commonly owned resources can erode the social norms that enforced sustainable practices in the first place (Ostrom & Nagendra, 2006). Rather than adopting a coercive perspective on behavior change, c-frame research acknowledges that durable social change can result from collective or coordinated action by groups of individuals.

The c-frame is also ideally suited to understanding and resolving community-level tensions that arise with systemic change and disruption. In August of 2022 the United States passed the Inflation Reduction Act, the largest piece of climate legislation to date, in part because of the efforts of activists. The potential for it to drive an equitable and rapid transition to a net-zero carbon economy depends crucially on demand-side factors. The massive infrastructural and social changes accompanying a rapid energy transition will alter the livelihoods of many communities, opening the possibility of locally concentrated opposition to infrastructures that confer a general public benefit (Stokes, 2016). The challenges inherent in such a transition can drive the formation of unlikely coalitions that come together to support or oppose certain issues (Ciplet, 2022). Studying these dynamics while embracing community-engaged research may help to resolve disagreements and inform the design of policies that are palatable to a broad range of constituents, and contribute to research exploring the transformative role of deliberative democracy to climate action (Dryzek & Niemeyer, 2019; Willis, Curato, & Smith, 2022).

Tackling complex social problems, including climate change, requires a holistic approach that grapples with the relationships between individuals and the systems in which they exist. A c-frame approach will move behavioral science beyond an i- and s-frame dichotomy toward a more nuanced understanding of how individual, social, and structural change happens in practice.

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Use behavioral research to improve the feasibility and effectiveness of system-level policy

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Abstract

Individual-level interventions are inadequate to address complex societal problems. Meaningful solutions require system-level policies that alter the incentives that govern behavior. We argue that individual-level interventions can help improve both the feasibility and effectiveness of system-level interventions, especially when designed as an integrated policy package.

Chater & Loewenstein (C&L) offer a compelling case that scholars in the behavioral sciences need to reflect on the current state of their research and consider how to better contribute to addressing societal challenges. They document the limits of behavioral interventions (i.e., nudges) in solving the most pressing social problems and argue that the focus on individual-level interventions can crowd out more effective system-level policy changes. C&L correctly acknowledge that the two approaches are not mutually exclusive but point out the obvious – that incentives matter, tradeoffs exist, and narratives shape debates. We elaborate on these points by suggesting that, in terms of addressing societal challenges, the most important contribution of behavioral research is not to pursue alternatives to system-level change but rather to find ways to use behavioral insights to advance system-level policies.

Interest in applying behavioral interventions or nudges to address societal problems emerged, in large part, because of the political barriers that obstruct system-level policy change. The appeal of nudges is that they maintain freedom of choice while contributing to solving the problem at hand. But the very thing that makes nudges more politically viable – maintaining personal freedom – also makes them less effective (Hummel & Maedche, 2019). Behavioral interventions can unquestionably be useful in some settings, such as solving coordination problems or helping people with weak or ambiguous preferences find their way with a default or information (Thaler & Sunstein, 2008). However, our most pressing social problems are complex dilemmas, such as climate change or coronavirus disease-2019 (COVID-19) vaccinations, in which there are competing interests or a tension between what is best for individuals and what is best for society. Behavioral interventions are ill-equipped to adequately resolve such conflicts. Meaningful solutions require system-level policies that alter the incentives that govern behavior.

Promising policy options exist for nearly every social problem. It is the inability to implement these system-level policies that prevents progress on a wide range of issues. From controlled experiments, studies show that people often reject policies even when the policy unambiguously improves individual and collective material wellbeing (Cherry, Kallbekken, & Kroll, 2017; Dal Bó, Dal Bó, & Eyster, 2018). Work has begun to identify the behavioral underpinnings of policy resistance, but more can be done to identify ways to make system-level change more likely and more effective.

Carbon taxes offer a prominent example. Despite widespread support among experts, carbon tax proposals are usually met with fierce opposition from the public and vested interests that perceive them as coercive, ineffective, and unfair (Bergquist, Nilsson, Harring, & Jagers, 2022). Behavioral research has explored ways to alter the design of a carbon tax to alleviate the perception of coerciveness, ineffectiveness, and unfairness (e.g., Cherry, Kallbekken, & Kroll, 2012). The perceived coerciveness of a proposed carbon tax can be diminished by including individual-level interventions that invite ways to lessen the burden of the tax – for example, a congestion charge can include nudges to use an expanded and improved public transportation system (Franssens, Botchway, Swart, & Dewitte, 2021). The perceived effectiveness of a carbon tax can be enhanced by earmarking the revenue to related programs that generate an additional stream of benefits – for example, revenues directed to environmental measures (Kotchen, Turk, & Leiserowitz, 2017). And perceived fairness can be addressed by using the tax revenue to offset the harm imposed by the behavior targeted by the tax or the tax itself (Kallbekken, Kroll, & Cherry, 2011).

Also consider the behavioral tendencies, such as status quo bias and affective forecasting, that contribute to people's