

Table 1 (Lamberton). Framework for analyzing i-frame and s-frame potential

	Locus of behavior's costs/benefits	
	Low externalities: individual	High externalities: communal/societal
Homogeneous perception of desirability	Exercise i-Frame approach: <i>Exercise nudges</i> s-Frame approach: <i>Community bike lanes</i>	Inadequate retirement savings s-Frame approach: <i>Pension reform</i>
Heterogeneous perception of desirability	Snacking i-Frame approach: <i>Nutrition information display</i>	Indoor smoking s-Frame approach: <i>Indoor smoking ban</i>

of US citizens see retirement accounts as desirable, and the costs of retirement-age insolvency to society are clear (Institute of Medicine, 2012). As such, this behavior falls in the upper-right quadrant; s-frame policies will be seen as acceptable and capture broad support. Thus, it is unsurprising that s-frame pension reform has been successful, as described in C&L (target article, sect. 2.2, para. 19).

As a contrasting example, consider snack choices. Rarely do we see personal snack choices as societally relevant – few externalities are salient. Further, the desire to restrain consumption is heterogeneous (Polivy, Herman, & Mills, 2020); not everyone regrets the choice of cake over fruit salad (Vosgerau, Scopelliti, & Huh, 2019). Thus, snacking falls in the lower-left quadrant. In this case, the *mea culpa* regarding i-frame work may be unwarranted. Effects may have been chilled because of the inhospitable system in which i-frame approaches were used, but experimenting with the display of nutritional information (Downs, Loewenstein) on snacks did not likely block a viable path to systemic change.

As a third example, consider exercise. Exercise's desirability has been broadly institutionalized (US Department of Health & Human Services, 2021), and the decision to exercise is driven by individual, not communal, self-determination (Ng et al., 2012). Thus, we may say that exercise falls into the upper-left corner. Here, i-frame interventions should resonate, whereas costly s-frame policies may receive less support. But if people agree that exercise is desirable, there is also hope for a certain type of s-frame policy: Those that can be undertaken without undermining individuals' personal cost–benefit assessment. For example, local governments may create bike lanes through s-frame policies, offering gains in well-being with only very diffuse personal cost. Doing so may, in turn, maximize the effectiveness of i-frame interventions.

Finally, consider indoor smoking bans, an s-frame “success story.” This framework places indoor smoking in the lower-right quadrant. As C&L note, decades of research and government leadership made the undesirability of second-hand smoke obvious and the shared costs of the behavior clear. Thus, support for s-frame changes aggregated sufficiently to counter corporate interests, and the policy-level intervention was supported. Here, i-frame interventions alone would have nibbled around the edges, keeping policymakers and researchers from the focus on the s-frame that this behavior required.

This framework is only offered as a starting point; more questions may exist than answers. Where do behaviors fall? What shapes perceptions of externalities? How should we evaluate s-frame research's effects? In another four decades, we will know enough to decide again that some pendulum should swing differently. In the meantime, though, we have the responsibility – and the hope – to move beyond our entrenched s-frames. If we fail to

do so, we may say more about our beliefs about our work's externalities and desirability than we do about science itself.


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It's always both: Changing individuals requires changing systems and changing systems requires changing individuals

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Abstract

s-Frames and i-frames do not represent two opposed types of intervention. Rather they are interpretive lenses for focusing on specific aspects of interventions, all of which include individual and structural dimensions. There is no sense to be made of prioritizing either system change or individual change, because each requires the other.

We suspect others will stress that what Chater & Loewenstein (C&L) call s- and i-frame interventions are more complementary than they acknowledge. For example, vaccine mandates – a putatively s-frame intervention – may be more effective when combined with i-frame, text-based nudges (Patel et al., 2022). We wholeheartedly support research on complementarity between light-touch nudges and systemic reforms (Brownstein, Kelly, & Madva, 2022; Kelly, Faucher, & Machery, 2010; Madva, Kelly, & Brownstein, 2023; Milkman et al., 2021; Sparkman, Attari, & Weber, 2021). Although C&L gesture toward valuable forms of complementarity (target article, sects. 3.1–3.3), they systematically overlook a theoretically richer and practically more important set of interrelations between individuals and systems.

First, s- and i-frames are literally frames, not two opposed types of intervention. They are interpretive lenses for focusing attention on specific aspects of interventions. C&L treat nudges as paradigmatic i-frame interventions, but they could just as easily see them through the s-frame. Nudges change the structures within which individuals make choices – their choice *architecture* – rather than persuading individuals directly. Conversely, sugar taxes (an ostensible s-frame intervention; target article, Table 1) can be considered through an individualist lens; such taxes “responsibilize” (Shamir, 2008) obesity by shifting the burden of food choice to individuals – usually the most price-sensitive individuals with the fewest affordable, healthy options.

Thus C&L’s taxonomy, despite its intuitive appeal, is ill-conceived. The “i-frame” collapses light-touch interventions like calorie labels with deep and thoroughgoing changes to beliefs, values, and habits. The “s-frame” collapses policy distinctions between carrots, sticks, taxes, bans, subsidies, and handouts – a motley crew that includes plastic-bag bans, health-food subsidies, changes to building codes, and nationwide overhauls to wealth redistribution and universal healthcare. This dichotomy seems gerrymandered to portray i-frame interventions as merely subsidiary, almost ornamental aids to “far more important” system change (target article, sect. 2.3, para. 5). “The *real* problem,” C&L write, “lies not in human fallibility, but in institutions, laws, and regulations that render such fallibility irrelevant” (target article, sect., 3.0, para. 5, emphasis added). Given this, “behavioral scientists should prioritize applying behavioral insights to s-frame reform” (target article, sect. 1.0, para. 28).

Depicting i- and s-frames as opposed interventions leads to two foundational problems. The first is incoherence, as if one frame only regards individual behavior (and not the systems guiding that behavior) whereas the other only regards systems (rather than the individuals guided by those systems). Both taxes and nudges are changes to structures, themselves enacted by

individuals, and designed to change individual behavior. Like all interventions, both involve individual and structural components. Acknowledging this doesn’t forestall comparisons between interventions. It forces more productive comparisons regarding which interventions to compare, and how. One researcher might compare a carbon tax to a renewable-energy subsidy. Another might compare nudges to use less electricity to nudges to join local climate advocacy groups. The first compares two financially impactful policies, the second two nudges. Both comparisons can incorporate i-frame and s-frame questions. An i-frame question: Will individuals understand the tax better than the subsidy? An s-frame question: Which nudge will have stronger system-altering effects? We therefore acknowledge the practical utility of distinguishing individual from structural factors. Both are relevant to assessing interventions. A truly complementary approach will try to determine which bundles of structurally enabled, individually enacted, system-changing, choice-shaping packages are most effective and just, given their aims. It will not, however, contrast carbon taxes – seen purely as a policy change – to nudges discouraging electricity consumption – seen purely as attempts to change individual behavior.

The second foundational problem is that calls to prioritize system change over individual change are self-undermining. C&L nowhere acknowledge that changing laws, institutions, and social systems requires a critical mass of individuals – citizens, activists, politicians – to understand and desire system change. C&L’s oppositional, either/or treatment thus obscures how nudges, education, and persuasion campaigns can be effective tools for boosting citizens’ willingness to become politically active and support structural change. Elsewhere we’ve called for cultivating “structure-facing virtue”: the *individual-level* disposition to know about, care about, and take action to *change systems* (Madva, 2019; Madva et al., 2023).

Consider, by contrast, C&L’s passing shot at growth-mindset research encouraging students to think differently about individual-level traits like intelligence (target article, sect. 2.5, para. 3). C&L neglect to mention that students can adopt growth mindsets toward systems. Encouraging the belief that systems can change motivates individuals to change them (Johnson & Fujita, 2012; Stewart, Latu, Branscombe, & Denney, 2010). In fact, C&L implicitly acknowledge the importance of shaping how individuals think about systems when they recount corporations’ devastating, wide-ranging, decades-long campaigns to *shape public thinking* to maintain the status quo. Corporations have poured staggering resources into coaxing people into embracing ideologies of personal responsibility to keep existing systems in place. Should we let corporations continue to brainwash us unfettered, or should we rigorously explore tactics for individuals to resist these ideologies?

Properly appreciating how s- and i-frames guide attention can facilitate a more comprehensive grasp of the factors contributing to social stability and change. We’re sympathetic to C&L’s speculation that undue academic attention to certain nudges has played some (unquantifiable) role in impeding various policy reforms. Yet C&L ignore a similarly plausible hypothesis running in the opposite causal direction: *Failed* efforts to change systems may drive researchers to explore reforms that can actually be put into and kept in practice. Gun control (target article, sect. 2.5.6) represents an agonizingly obvious example. Overwhelming majorities of Chicago’s citizens and scientists prefer and have repeatedly sought impactful gun regulations. Their efforts have fallen short not because they discount s-frames but because of permissive gun laws in surrounding states, Supreme Court

decisions, and other factors beyond Chicago's control. Facing these obstacles to system change, what would C&L have Chicagoans do? Keep passing new laws for the Supreme Court to overrule? Invade Indiana and seize its guns? All things considered, Chicagoans have powerful enduring reasons to squeeze as much juice out of individual change as they can.

Of course, neither Chicagoans nor anyone else should quit pursuing policy change. Rather, debates about prioritizing changing people or changing policy should give way to investigations of how individuals, who are themselves shaped by social systems, can most effectively work together to understand, attend to, criticize, and change those systems when justice demands it.

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Using effective psychological techniques to subvert a US sociopolitical context

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Abstract

Chater & Loewenstein argue for a shift in focus from individual- to structural-level approaches to societal ills. This is valid and important but overlooks the barriers inherent in the current US partisan context. Psychology can be applied to help people of mixed allyship join together, to effectively and quickly force institutions and corporations to accept structural change.

Chater & Loewenstein argue that the most efficient way to address pernicious problems like climate change is through structural and policy solutions over individual-level behavior change. Institutions and corporations often emphasize the role of the individual to avert responsibility for their externalities and maximize profits. For example, in 1953 beverage manufacturers created the first “greenwashing” campaign, “Keep America Beautiful,” to shift responsibility for litter and pollution from single-use items onto consumers, while opposing legislation aimed at limiting such packaging (Corkery, 2019).

Policies are indeed efficient and effective, particularly when accompanied by mechanisms for compliance. However, top-down solutions are difficult to enact in strongly partisan nations like the United States, where corporations are people – people who can fund elections. For example, corporations donated seven times more to Republican than Democratic candidates in the 10 years following *Citizens United* (\$282 versus \$38 million; Lund & Strine, 2022), often to avoid regulations that protect human and environmental health.

Psychology as a field clearly favors individual-level solutions. There are over 17,000 articles in Google Scholar from the past 20 years that mention increasing individual recycling, many of which point to structural barriers that obscure how people are supposed to recycle (De Young, 1990; Roy, Berry, & Dempster, 2022). We can, however, employ psychology and its individual-level tactics to force institutions and corporations to make hard choices, for good. This is particularly true for corporations that are virtually agnostic as to their products, as long as they are lucrative. When people vote with their wallets, corporations follow. Public outrage, cancel culture, whistleblowing, and consumer trends abound in the United States and exemplify how quickly things can change when people demand it, particularly in a modern, media-rich environment.

Fast and large changes can also be enacted by passionate and informed individuals who come armed with compelling data and suggestions for policy (Amel, Manning, Scott, & Koger, 2017). For example, detailed and scientific descriptions of toxic pollutants in Rachel Carson's *Silent Spring* inspired many in the 1960s to fight for environmental protection; she is credited with the formation of the Environmental Protection Agency (Lewis, 1985). Ralph Nader published *Unsafe at Any Speed* in 1965, which led to congressional hearings, followed by automobile safety laws and the creation of the *National Traffic and Motor Vehicle Safety Act* of 1966 (Quazi, 1998). Such leaders are, in part, effective because of the collective action they inspire in larger grassroots movements (Amel et al., 2017).

Collective action is most effective when it becomes salient to the average person, through widespread media attention about well-known (and left leaning) companies, with accessible forms of participation (Banerjee, 2020; Bartley & Child, 2011; King & Soule, 2007; Leizerov, 2000; McDonnell, King, & Soule, 2015). For example, in 1999 Nike suffered one of the first outcries over sweatshop labor: protests at over 40 universities moved Nike to create a code of conduct for working conditions and audit compliance (McDonnell et al., 2015). Subsequently, a student