

# Future lock-in: Future implementation increases selection of ‘should’ choices <sup>☆</sup>

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## Abstract

People often experience tension over certain choices (e.g., they *should* reduce their gas consumption or increase their savings, but they do not *want* to). Some posit that this tension arises from the competing interests of a deliberative “should” self and an affective “want” self. We show that people are more likely to select choices that serve the should self (should-choices) when the choices will be implemented in the distant rather than the near future. This “future lock-in” is demonstrated in four experiments for should-choices involving donation, public policy, and self-improvement. Additionally, we show that future lock-in can arise without changing the structure of a should-choice, but by just changing people’s temporal focus. Finally, we provide evidence that the should self operates at a higher construal level (abstract, superordinate) than the want self, and that this difference in construal partly underlies future lock-in.

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## Introduction

When we make decisions, we often know that we *should* do one thing, but do not *want* to make that choice. We should help those in need by making mone-

tary donations, we should conserve energy by reducing our own fossil-fuel consumption, and we should increase our retirement savings. Knowing this, the best intentioned among us confidently expect that we will do what we should do in the future more often than reality demonstrates (Epley & Dunning, 2000; Sherman, 1980). The problem, however, is that when the moment of decision arrives, it is hard for us to actually do what we know we should do. This is because in the moment of decision we often experience intra-subjective conflict between what we should do, and what we want to do.

The tension that underlies these inconsistencies between expected preferences and actual behaviors has been metaphorically called the “multiple selves” phenomenon (see Schelling, 1984). Specifically, Bazerman, Tenbrunsel, and Wade-Benzoni (1998) describe the two selves as the “want” self and the “should” self. The former refers to what people affectively feel that they want

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to do in the moment. The should self refers to what people more deliberately think they should do. The want-should tension often, though not always, overlaps with a tension between an individual's short-term interests and long-term interests. Many researchers and theorists have developed models that resemble this distinction in form (Schelling, 1984; Thaler, 1980) and in function (Ainslie, 2001; Elster, 1979; Loewenstein, 1996).

The present research contributes to our understanding of how people negotiate the interests of their want and should selves in three ways. First, we show that when faced with a binding choice people are more likely to choose according to the interests of the should self (i.e., act in a manner consistent with how they believe they should act) when choosing in the present for the distant future, than when choosing in the present for the near future. We call this the “future lock-in” effect.

Future lock-in is suggested by several lines of research, but has not been cleanly isolated in this form. In fact, this research was partly inspired by a recent savings plan intervention by Thaler and Benartzi (2004) that has been shown to profoundly increase participation in 401(k) plans. Their “Save More Tomorrow” plan offers employees the opportunity to devote half of their future pay raises to the customized savings plan. Thaler and Benartzi suggest that among the four psychological propensities on which their plan capitalizes, one resembles what we are calling future lock-in: Save More Tomorrow asks prospective participants to commit now to saving a part of their future raises. With regards to the mechanisms that might account for the effectiveness of their plan, the researchers explain that the plan was designed to be optimally effective. They write “the...plan has many features that were included with the intention of making it attractive to employees who want to save. [However] it is not possible to say on theoretical grounds which features are most important” (p. S171). In the present research we will build off of the insight and success of Save More Tomorrow by isolating the plan's time to implementation component. In addition to developing a useful tool for helping people address important behavioral challenges, this research offers deeper understanding of the interplay and functions of the multiple selves.

The second contribution of the present research is that we demonstrate that future lock-in can occur even under minimal conditions. We show that simply changing the temporal emphasis of a choice that will be implemented in the future (i.e., emphasizing “you choose now” versus emphasizing “the choice will be implemented later”) without changing its underlying structure can induce future lock-in. By demonstrating this, we show that the dominance of the should self over the want self, and vice versa, can be affected by changing the decision-maker's temporal focus, as well as by changing the actual time to implementation.

Finally, the third contribution of the present research is that we provide evidence linking the want and should selves to low and high levels of construal. A growing body of research supports the finding that temporal distance changes the way people think about objects, actions, and events. Phenomena in the distant future are viewed in more abstract and superordinate terms (i.e., “a tax on gas will reduce fuel consumption and pollution”), while the same effects in the near future are viewed in more concrete and detailed terms (i.e., “a tax on gas will cost me more money when I fill up my gas tank”) (Trope & Liberman, 2003). Having established that the interests of the should self loom larger in present choices that will be implemented in the distant future than in present choices that will be implemented in the near future, we provide partial evidence that these preference changes are mediated by the construal level of the choice.

Before presenting four experiments exploring future lock-in, we will first review past research on the multiple selves conflict. We will then review relevant work on Construal Level Theory (Trope & Liberman, 2003), and will develop how construal levels link to multiple selves.

#### *Intrapersonal conflict in decision-making*

Everyday life is filled with examples of the most virtuous intentions gone awry. People report intending to save money, but do not; people spend millions of dollars trying to quit smoking and drinking, but do not; people spend countless hours thinking about reducing their overeating, but they do not (for review see Ainslie, 2001). Sometimes people's reports of their intended future behaviors reflect the aspirational possible selves they hope to become (Markus & Nurius, 1986); or their ‘ideal’ selves (Rogers, 1951). Other times, though, these reports reflect honest expectations of future behavior. These inaccurate honest expectations result from a failure to account for the internal tensions between what could be called ‘multiple selves’ (see Schelling, 1984). As discussed above, one way of thinking about this is as a conflict between a want self and a should self (Bazerman et al., 1998).

Not all models that examine the discrepancy between preferences and behavior posit the existence of multiple selves. Questioning the use of the multiple-selves metaphor, Loewenstein (1996) instead argues that there is only one self, and that the intrapersonal conflicts that give rise to inconsistent preferences and behaviors result from changes in the internal conditions during which decisions are made. He argues that visceral factors, such as emotions and physiological cravings like hunger and sex drive, overwhelm decision-makers in the moment of decision. The subjective experience within a person changes as proximity to a tempting option changes

(Hoch & Loewenstein, 1991). In the process, these visceral factors undermine the interests and intentions of the otherwise forward-looking, deliberative, singular self. Though Loewenstein might object to the literal argument that a person has two selves, the multiple selves metaphor leads to similar predictions and accounts for similar real-world observations as his visceral factors explanation.

One widely observed behavior that illustrates the intrapersonal struggle to follow through on should-choices is the widespread use of commitment devices that constrain people from renegeing on their commitments to a should-choice (Schelling, 1984). The classic example of such a device is Odysseus tying himself to the mast of his ship as it sailed past the tempting island of the Sirens, beguiling creatures who lured sailors to their death. In advance of the temptation, Odysseus precluded the possibility of succumbing to it. Unlike future lock-in, commitment devices do not create a commitment to a should-choice, but rather constrain a person from submitting to the temptations of the future want self (Prelec, 1989; Strotz, 1956; Trope & Fishbach, 2000; Thaler & Shefrin, 1981). Although incurring costs in order to reduce one's own choices is inconsistent with standard economic models, research has demonstrated a variety of such commitment devices that are preferred by participants over more 'rational' choices. A few examples include saving money through the use of non-interest bearing lock-boxes that prevent a person from consuming her 'saved' money (Ashraf, Karlan, & Yin, 2006), scheduling deadlines for required papers so that they are evenly spaced throughout a semester rather than all due at the end of the semester (Ariely & Wertenbroch, 2002), and regularly buying indulgent foods in small portions rather than buying the more cost-effective larger portions and consuming them over several servings (Wertenbroch, 1998).

Although future lock-in resembles a commitment device in that it facilitates binding people to should choices, the two are different. People choose to install commitment devices on themselves (i.e., Odysseus chose to be bound to the mast of his ship to protect him from the cravings of his want self) when the option not to install such a device is also available (i.e., Odysseus could have chosen to retain the freedom to submit to his want self as he passed the Sirens). On the other hand, future lock-in does not require people to have that same self-awareness and foresight with regard to the cravings of their want selves. Future lock-in structures a choice so that it is binding in the future, like a commitment device. But unlike a commitment device, a person does not have to be aware of the need for this self-restraint.

Several researchers have examined factors that influence people's preferences for should choices, independent of commitment devices. First, Khan and Dhar (2006a) have shown that people are less likely to select

a should-choice if they know they will have future opportunities to make the same choice. Second, when given the opportunity to make two choices, one for the near future and one for the more distant future, people are more likely to choose options that serve the interests of the want self for the near future, and are more likely to choose options that serve the interests of the should self for the distant future (Read, Loewenstein, & Kalyanaraman, 1999). A third line of recent empirical work demonstrates how situational factors affect want-should decision-making (Shiv & Fedorikhin, 1999). This research shows that reducing a participant's cognitive resources decreases her likelihood of selecting a should-choice. A fourth line of recent research shows that patrons of an online grocer are more likely to purchase should-choices (healthier foods and generally useful items) when they are ordering for delivery farther into the future than when they are ordering for delivery sooner (Rogers, Milkman, & Bazerman, 2007). Finally, Monin and Miller (2001) and Khan and Dhar (2006b) have shown that after freely selecting a should-choice, people can, in some situations, act as if they are then 'licensed' to not select a should-choice in a subsequent decision.

Although the above factors lend themselves to prescriptions for increasing should-choices—which we take to be a worthwhile aim for research—they each call for changing the context in which these decisions are made. For example, Khan and Dhar's work (2006a) might suggest that encouraging a decision-maker to think of a series of should-choices as distinct and separate, rather than related and consecutive, might increase should-choices. The future lock-in effect takes a different route: rather than changing the contexts in which decisions are made, the future lock-in effect addresses the structure of the decision itself. For example, if our aim were to encourage donating money to United Way, Khan and Dhar's work might suggest that we encourage the prospective donor to focus on the present donation opportunity, and to avoid thinking about future opportunities. The future lock-in effect, on the other hand, suggests changing the structure of the donation such that the prospective donor can commit now to donate in the future (see Study 1). By changing the temporal distance between when a decision is made and when its consequences are felt, the future lock-in effect capitalizes on the ways that perceptions of the distant future are different than those of the near future. To formally state our hypothesis regarding future lock-in:

- H1. People will be more likely to select, and will more strongly support, binding choices that they see as should-choices when these choices are to be implemented in the distant future rather than in the near future.

### *Construal Level Theory, intertemporal choice, and multiple selves*

Events that occur in the distant future are thought about differently than those that occur in the near future. The near future is more immediate, concrete, and has more of the contextual richness that comes with direct experience. The distant future, on the other hand, is less differentiated, more abstract, and perceptually poor. Construal Level Theory (CLT) formulates predictions about these qualitative differences in the ways people think about the near and distant future (Trope & Liberman, 2003). CLT argues that the same entity (a person, an action, an event, etc.) can be construed at different levels of abstraction and that these different levels can have implications for actions and preferences (Trope & Liberman, 2003). High-level construal is associated with schematic, abstract, and purpose-focused qualities, whereas low-level construal is associated with detailed, concrete, and specific qualities. For example, a donation to United Way could be construed in terms of how it would support United Way as it serves those who need the most help (high-level construal), or it could be construed in terms of its consequences for your wallet and what the loss of that money would mean for how expensive a dinner you could eat tonight (low-level construal).

One way these different construal levels are activated is by varying the temporal distance from an event. Phenomena in the distant future are likely to be construed at a high level, while phenomena in the near future are likely to be construed at a low level (Liberman, Sagristano, & Trope, 2002; Liberman & Trope, 1998; Trope & Liberman, 2000, 2003; Vallacher & Wegner, 1987). A simple application of CLT would suggest that should-choices and their consequences are construed at a higher level when they are to occur in the distant future than in the near future.

- H2. When considering a should-choice that is to be implemented in the distant future (as opposed to the near future), people will be more likely to report consequences of the choice that are abstract, purpose-focused, and superordinate, (as opposed to concrete, detail-focused, and related to the details of implementation).

These temporal distance-induced changes in construal have also been shown to impact preferences (Liberman et al., 2002; Sagristano, Trope, & Liberman, 2002; Trope & Liberman, 2000). An excellent illustration of how temporal distance-induced changes in construal level can affect preferences is presented by Trope and Liberman (2000, see Study 4 and Study 5). They show that preferences for events that occur in the distant future more heavily weight high construal level attributes than when the same events occur in the near

future. The experiments they report involved participants selecting a study session in which they were to participate. The session was to occur either in the near future or in the distant future. The session varied according to the concrete tasks the person would engage in (low-level construal) as well as the purpose of the study (high-level construal). They found that sessions involving positive concrete tasks (pleasant) were relatively preferred when the sessions were to occur in the near future rather than in the distant future. They found the opposite pattern for sessions involving a positive purpose for the study (interesting, important): these sessions were relatively preferred in the distant future rather than the near future. In the final analysis, Trope and Liberman show that construal changes can lead to preference changes. This research suggests that choices can be structured so as to induce selections that favor the high- (or low-) level construal option.

CLT makes the prediction that, like all things, options that serve the should self (i.e., should-choices) will be construed at a higher level when they occur in the distant future rather than in the near future. We further predict that should-choices will be more attractive when they are construed at a higher level relative to when they are construed at a lower level. This is because should-choices are, in their essence, goal- and purpose-directed, which, by definition, is the focus of high-level construal. Consistent with this characterization of should-choices, Trope and Liberman wrote in their 2000 paper, “at a more general level, one may speculate that people’s ideologies, moral principles, and self-identities are more likely to be expressed in distant future choices than in near future choices” (Trope & Liberman, 2000, p. 888).

The present research connects the want-should, multiple selves framework with CLT. We suggest that since the should self is purpose- and goal-focused it construes the world at a higher level than the want self. Thus, we predict that the selection of an option that serves the interests of the should self (i.e., should-choices) will be more likely when a person is led to construe the option at a level in alignment with the essential construal level of the should self (i.e., a high construal level). This change in construal level will be introduced by increasing the temporal distance between when the option is decided upon and when it is implemented.

Our argument that the future lock-in effect suggests that the should self construes the world at a relatively high construal level is consistent with recent work by Fujita, Trope, Liberman, and Levin-Sagi (2006). They demonstrate that one’s capacity to resist temptation and make more far-sighted choices (i.e., self-control capacity) is affected by one’s construal of the choices one faces. They show that high-level construal of situations that require self-control results in increased self-control relative to low-level construal of the situations. Looking at self-control through the lens of multiple

selves might suggest that self-control is the extent to which the should self dominates the want self when faced with a should-choice. Altogether, this CLT research supports our argument that the should self construes choices from a relatively high level (i.e., abstract, superordinate), and that the interests of the should self will be best served when a should-choice is decided upon from a temporal distance.

If this relationship between the should self and construal level is correct then the increase in weighting of the interests of the should self brought about by future lock-in should occur by way of changing people's construal of should-choices. Study 3 and Study 4 will test the following prediction.

H3. People's increased support for a should-choice brought about by increasing the time to its implementation will be mediated by their increased likelihood of reporting consequences of the choice that are abstract, purpose-focused, and superordinate, as opposed to concrete, detail-focused, and related to the details of implementation.

Related research conducted by Kivetz and Tyler (2007) supports our predictions regarding the multiple-selves and CLT. Kivetz and Tyler's model of multiple selves involves an idealistic self and a pragmatic self. Their idealistic self is concerned with principles and values rather than practical considerations and is conceptually similar to what we are calling the should self. Their pragmatic self is concerned with practical matters and is related to what we are calling the want self. Kivetz and Tyler find that priming temporal perspective (i.e., distant future or near future) affects how closely people identify with the attributes associated with their idealistic selves (e.g., values-focused, principled) and their pragmatic selves (e.g., action oriented, practical). When the distant future is primed, people report seeing themselves as more strongly possessing the attributes associated with their idealistic selves; when the near future is primed people report seeing themselves as more strongly possessing the attributes of their pragmatic selves. This research shows that temporal distance affects the extent to which people identify with what we call their should versus their want selves. The CLT research described above shows that temporal distance affects the relative importance of high versus low construal levels of a choice. We will be taking these lines of research further by showing that temporal distance affects preferences for choices that serve the interests of the should versus want selves, and that these preference changes are the result of construal changes.

Before concluding our discussion of how CLT relates to future lock-in and the should self, we would like to add one additional comment. Although changing the objective time to implementation of an option has been

shown to change people's construal level of it, other methods have been shown to change construal level also. For example, Fujita et al. (2006) manipulated construal level in one study by describing events either in general, abstract terms (e.g., meeting a friend for tea at her apartment) or in concrete, specific terms (e.g., walking up the stairs, knocking on the door, and waiting in the doorway for your friend to open it). In Study 4 we will show that emphasizing a temporal perspective (near future decision or distant future implementation) when considering a future implemented should-choice can change support for the should-choice by changing construal level of the should-choice. This will strengthen our inference that the future lock-in effect occurs, at least in part, by increasing the construal level of choices that serve the interests of the should self.

H4. When deciding about a should-choice that will be decided upon in the near future and implemented in the distant future, people will be more likely to select and support it when the distant future implementation, rather than the near future moment of decision, is emphasized.

In the following four studies we show the future lock-in effect for six different should-choices: donating to charity (Study 1), engaging in physical exercise (Study 2), saving money (Study 2), supporting an increase in the price of fish by imposing a cap on the harvesting of the ocean's fisheries (Study 2), supporting an increase in the price of fossil fuel to reduce consumption (Study 2, Study 3, and Study 4), and opposing a decrease in the price of fossil fuel to increase consumption (Study 3). We show that simply emphasizing the distant future implementation (as opposed to the near future decision) of a future implemented should-choice can capture future lock-in (Study 4). We also provide evidence that the should self construes choices from a high level by showing that the increase in support brought about by delayed implementation is mediated by the level of construal of the choice (Study 3 and Study 4).

## Study 1

In this study, we aimed to confirm H1 by examining participants' intention to donate money to United Way. We hypothesized that participants would require that a donation be of higher monetary value in order to forego \$5 cash on the day of the experiment than they would require to forego \$5 cash 1 week later.

### Participants

Eighty-six participants (45 male, 41 female), primarily college students from the Boston area, were recruited

to complete a large survey packet. For completing the entire survey packet, of which Study 1 was only one page, participants were compensated \$20. The data from one additional participant was excluded due to a coding error, and two other participants were excluded from analyses due to logically inconsistent preferences. Because gender did not vary significantly between conditions, it was not included in subsequent analyses.

### Methods

In this two-condition survey experiment, we attempted to discover how much money participants would hypothetically require be donated to United Way in order for them to be willing to forego \$5 in cash. The *near future cash* condition elicited the amount of money that participants would require be donated that day in order to forego \$5 cash that day, while the *distant future cash* condition elicited how much cash participants would require be donated 1 week later in order to forego \$5 cash that they would receive in the mail 1 week later.

On the first page of the survey packet participants were told that they would be faced with a series of choice pairs. They were asked to choose the option that they would most prefer from each pair. They were told that the choices were hypothetical, but they were encouraged to choose as if the stakes were real.

On the second page, participants were asked to respond to a 20-question survey modeled after the method used by Becker et al. (1964; see also Kahneman, Knetsch, and Thaler, 1991). This survey offered 20 choices between pairs in which the donation ranged in \$0.25 increments from “\$5 for you vs. \$4 donated to United Way” to “\$5 for you vs. \$8.75 donated to the United Way.” For participants who chose to retain the \$5 cash for every choice pair, a final open-ended question asked, “What amount of money for [United Way] would be necessary for you to forego the \$5 cash?”

### Results and discussion

Consistent with H1, significantly more *near future cash* participants chose to retain the \$5 cash for all 20 choice pairs (42%) than did *distant future cash* participants (17%),  $X^2(1, N = 86) = 6.43, p = .01$ . This means that *near future cash* participants were more likely to require more than \$8.75 be donated to United Way for them to accept foregoing \$5 cash than were *distant future cash* participants.

Because many participants preferred to retain the \$5 cash in all choice pairs, there were several approaches to analyzing the minimum acceptable donation value. An obvious initial approach was to compare the means of the two conditions, including the open-ended responses for those who required more be donated than the scale

permitted. Since the distribution of these values was highly skewed, ranging from \$4 to \$1,000, we log-transformed the data to conduct a *t*-test. This analysis showed the same pattern: *near future cash* participants required a much higher minimum donation value (mean before log transformation = \$88.73) than did *distant future cash* participants (mean before log transformation = \$10.99),  $t(84) = 2.32, p = .02$ . A more conservative approach to analyzing these data was to impute the next donation increment after \$8.75 for all participants who found even \$8.75 to be insufficiently high to forego the \$5 cash. This analysis, imputing \$9.00 as the acceptable donation value, also showed that *near future cash* participants required a significantly higher minimum donation value ( $M = \$6.98$ ) than did *distant future cash* participants ( $M = \$6.07$ ),  $t(84) = 2.26, p = .027$ .

Other approaches that involve imputing a participant's open-ended value up to a certain amount (e.g., \$10, \$15, and \$20) show the same significant pattern: *near future cash* participants were more protective of their \$5, and therefore required a greater donation value to forego it, than did *distant future cash* participants.

To confirm that donating money to United Way was perceived as a should-choice we recruited 40 volunteer participants online and described to them the want self and should self distinction. We then asked them if they thought donating to United Way was more in the interests of the should or the want self. Consistent with our intuition, the vast majority of participants believed donating to United Way was more in the interests of the should self (78%) than the want self,  $X^2(N = 40) = 12.10, p = .001$ .

Study 1 asks participants to articulate a hypothetical preference for retaining cash or donating it to United Way. This study conceptually resembles recent work by Breman (2006) in which monthly donors to a non-profit in Denmark were asked to increase their monthly giving beginning in either the current month, or in 2 months. Breman found that the mean increase in donation was 32% greater in the future-donation condition than in the present-donation condition. Breman found no significant difference between conditions in the fraction of current donors who were willing to increase their donation. However, she did find that those in the future-donation condition who agreed to increase their donation increased it by 19% more than those who agreed to increase their donation in the present-donation condition. This means that her effect was driven by larger donation increases in the future-donation condition relative to the present-donation condition, but not by an increase in the fraction of current donors who agreed to increase their donation. The Breman study provides behavioral evidence that is entirely consistent with the hypothetical retain-or-donate-money scenario in Study 1. In fact, her finding that future

implementation resulted in greater donation value per donor, but not an increase in the number of donors willing to change their on-going donation value is also consistent with the findings of Study 1.

The remaining studies will examine other domains for which there are should-choices. While exploring several aspects of the future lock-in effect, these studies will allow us to examine if future lock-in can increase the proportion of people who support a should-choice, in addition to increasing the strength of support of those who would have supported the policy regardless of the should-choice's time to implementation.

## Study 2

In Study 1 we examined the future lock-in effect in the context of participants' willingness to donate money to a charitable organization. Now, in Study 2 we examine the future lock-in effect in the context of a variety of should-choice programs, including public policies (protecting ocean fisheries and increasing taxes on gas) and personal plans (increasing exercise and saving money). For these programs we have two predictions. First, we predict that each of these policies will be seen as serving the interests of the should self. Second, we predict that the policies that are seen as serving the interests of the should self will show the future lock-in effect (H1), and that policies that participants do not see as serving in the interests of the should self will not show the future lock-in effect.

### Participants

Ninety-four participants were approached while waiting at a train terminal in a northeastern U.S. city. They were offered candy in exchange for completing the 10-page survey. Participants were told that if they had to leave before completing the survey that they should feel free to stop and leave the survey on the table.

### Methods

Participants were randomly assigned to complete surveys from one of two conditions. Those in the *near future implementation* condition responded to programs that were structured to go into effect as soon as possible, while those in the *distant future implementation* condition responded to programs that would take effect at some specified future time that varied from 6 months to 4 years in the future, depending on the program. The survey contained two-page sets of questions about five different programs, totaling 10 pages. The five programs involved reducing over-harvesting of ocean fisheries, increasing the price of gas to reduce gas consumption, hiring more public school teachers by

increasing tax revenue, enrolling in a savings plan that automatically places two percent of one's paycheck in a savings account, and enrolling in a popular exercise plan to get into better shape.

The structure and order of each two-page set of questions was identical for all of the five programs (see [Appendix](#) for details on all five programs). Here, we offer an example of the structure by walking through the questions asked regarding the first program in the survey (reducing over-harvesting of ocean fisheries) for participants in the future-implementation condition:

Imagine that a policy to limit the amount of fish that can be caught by the fishing industry will be voted on next month. It would go into effect in 4 years. When implemented, it would have the following consequences:

[NEGATIVE] it would increase the price of fish for all consumers, and it would severely reduce the number of jobs in the fishing industry

[POSITIVE] in the long-term it would protect the fish stocks in the oceans, and it would extend and sustain the survival of the fishing industry.

Participants next were asked a series of questions about the program and its consequences. These questions had two aims: (1) to force participants to think about the program's pros and cons, and (2) to check that they actually perceived the program as a should-choice. Specifically, participants were told that people sometimes make a distinction between what they want to do and what they think they should do. Participants were then asked to evaluate how much they thought they *should* support the program and how much they *wanted* to support the program. The scale for these questions ranged from "Not at all" (0) to "Absolutely" (8).

After answering these questions about the program and its consequences, participants answered the question that was our main dependent measure: "How strongly would you oppose or support this policy, which would be implemented [in 4 years/as soon as possible after passing]?" The scale ranged, with no zero point, from "Strongly oppose" (-4) to "Strongly support" (+4).

### Results

#### Should-choice check

As noted above, we checked that participants perceived the programs as should-choices. We asked participants to evaluate the extent to which they thought they "should" support the program and the extent to which they "wanted" to support the program. We then subtracted the "want" score from the "should" score and predicted that this should-want index would be positive (as opposed to zero or negative) for the majority of participants for each program.

This check showed that four of the five programs were viewed as should-choices. Sixty-three percent of participants evaluated the first program (over-harvesting) as more of a “should” policy than a “want” policy, significantly more than 50%,  $X^2(1, N = 93) = 6.13$ ,  $p = .01$ . Ninety-six percent of participants rated the second program (gas tax) as more of a “should” program than a “want” program, a figure greatly higher than 50%,  $X^2(1, N = 93) = 78.7$ ,  $p < .001$ . Seventy-nine percent of participants rated the fourth program (savings plan) as more of a “should” program than a “want” program, which is also more than 50%,  $X^2(1, N = 93) = 31.0$ ,  $p < .001$ . Sixty-four percent of participants rated the fifth program (exercise plan) as more of a “should” program than a “want” program, which is also more than 50%,  $X^2(1, N = 93) = 7.2$ ,  $p = .007$ .

The third program (school funding) was the only one not rated as more of a “should” program than a “want” program, as only 54% of participants rated it this way, a proportion that is not significantly higher than 50%,  $X^2(1, N = 93) = 0.68$ ,  $p = .41$ . The fact that the third program was not perceived as a “should” program suggests that the hypothesized future lock-in effect is not likely to emerge in this case. This is because the future lock-in effect is contingent on the choice arousing a want/should conflict in participants. We will revisit this point later in this analysis.

#### Future lock-in

The primary hypothesis for Study 2 was that participants would be more willing to commit in the present to the should-choice programs that were to occur in the distant future than they would be to commit in the present to the same programs if they were to occur in the near future. This hypothesis was supported for the four programs that were validated as being perceived by participants as should-choices, as described above. This means that, for these choices, support was greater for participants in the *distant future implementation* condition than for participants

in the *near future implementation* condition. Fig. 1 displays these results graphically. Table 1 summarizes these results as well as the results of the other studies presented in this paper.

The one program that did not show the predicted effect was the third program (i.e., school funding). For this program, support did not differ depending on whether it was to be implemented in the present or the future,  $t(93) = .35$ ,  $p = .73$ . Given that this policy was not seen as a should-choice, our prediction was that this policy would fail to show the future lock-in effect. This was the case. Our hypothesis was specifically that should-choices will be more attractive in the distant future than in the near future. We also predicted that a choice not seen as a should-choice would not show the effect. In fact, the lack of detecting the future lock-in effect for this program (which was not viewed as a should-choice) when we did find it for the other four programs (which were viewed as should-choices) could be interpreted as initial divergent validity of the future lock-in effect. This lack of a finding shows that not all choices are more attractive when implemented in the future: only should-choices are.

A final method one could use to analyze the present study would be to conduct a MANOVA on participants’ evaluations of all five programs or of only the four programs that participants perceived as should-choices. Conducting such MANOVAs yields results that strongly support the future lock-in effect hypothesis, Wilks  $\Lambda = .71$ ,  $F(5, 87) = 7.11$ ,  $p < .001$  and Wilks  $\Lambda = .71$ ,  $F(4, 87) = 9.00$ ,  $p < .001$ , respectively.

By comparing the proportion of participants in each condition who supported each policy we can test if the future lock-in effect can change the proportion of people who support a policy, in addition to increasing the strength of one’s support for a policy. Of the four programs that participants perceived as should-choices, the fisheries policy was almost universally supported (all but two out of 94 participants in both conditions supported the policy), so it is not a good test of whether future lock-in can increase support for a program. Of the remaining three should-choices, support increased significantly in two of them, the policy that would increase the price of gas (80% approval to 98% approval,  $X^2(1, N = 93) = 8.3$ ,  $p = .005$ ), and the savings plan (30% enrollment to 77% enrollment,  $X^2(1, N = 93) = 20.56$ ,  $p < .001$ ). The third should-choice, enrolling in an exercise plan, showed the same directional effect, though not significantly (78% enrollment to 89% enrollment,  $X^2(1, N = 93) = 2.11$ ,  $p = .122$ ). Looking at all three of these should-choices in a MANOVA yields results that strongly support the hypothesis that the future lock-in effect can increase the proportion of people who support a program, Wilks  $\Lambda = .76$ ,  $F(3, 87) = 9.57$ ,  $p < .001$ .

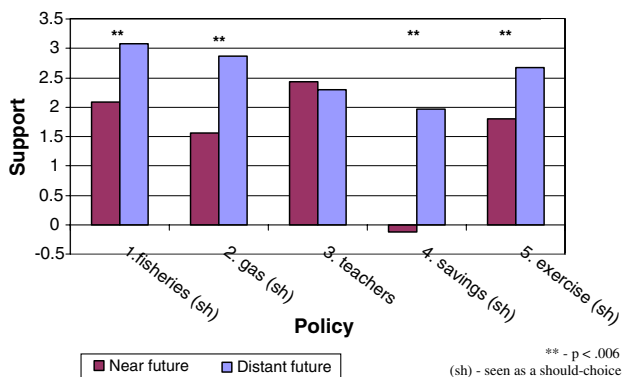


Fig. 1. Future lock-in occurs, only for “should-choices”.



Table 1  
Future lock-in across four experiments, six should-choices

Study	Should-choice	Near future implementation mean (SE)	Distant future implementation mean (SE)	N	t-value
Study 1	Donate to United Way	.01 <sup>a</sup> (.10)	.09 <sup>a</sup> (.05)	86	2.3*
Study 2	Reduce fisheries over-harvesting	2.1 (.17)	3.1 (.16)	94	4.1**
	Increase price of gas	1.6 (.25)	2.9 (.14)	93	4.9**
	Enroll in exercise plan	-.13 (.30)	2.0 (.24)	93	5.5**
	Enroll in savings plan	1.8 (.25)	2.7 (.19)	93	2.9**
	Increase price of gas	-1.63 (.27)	-.83 (.30)	161	2.0*
Study 3	Decrease price of gas <sup>b</sup>	.28 (.28)	-.75 (.30)	151	2.5*
	Increase price of gas in future (change temporal focus)	1.87 (.11)	2.28 (.14)	405	2.3*

<sup>a</sup> Value represents 1 divided by the amount of cash required to be donated to United Way in order for participants to forego \$5 cash for themselves. For present implementation the average donation value required to forego \$5 cash now for the self was \$88.73, in future implementation the average future donation value required to forego \$5 cash for the self in the future was \$10.99. All other statistics for this should-choice are for the log transformation of the raw values participants reported.

<sup>b</sup> Should-choice was to reject this policy, therefore future lock-in results in greater opposition in distant future relative to near future.

\*  $p \leq .05$ .

\*\*  $p < .01$ .

## Discussion

Study 2 is consistent with H1, replicating the future lock-in effect shown in Study 1. This study extends Study 1 in several ways. First, it shows the future lock-in effect in four new domains: support for public policies geared toward reducing over-harvesting of ocean fisheries and reducing carbon pollution through gas taxes, as well as affecting willingness to enroll in a personal savings plan and an exercise plan. At the same time, Study 2 shows that in addition to increasing the strength of a person's support for a should-choice policy (e.g., the ocean fisheries policy), future lock-in can also increase the proportion of people who support a should-choice policy (e.g., gas policy, exercise plan, and savings plan).

Study 2 also shows that not all policies have the quality of being more attractive when implemented in the distant future. By finding that future lock-in did not occur for the single program that participants did not perceive as a should-choice (e.g., school funding), Study 2 offers divergent validity that not all policies are more attractive when implemented in the distant future—specifically, should-choice policies are.

## Study 3

In Study 3 we modified the gas policy used in Study 2 to develop two mirror policies that were plausible, but opposites. In addition to replicating the future lock-in effect we aimed to show that not all policies are more attractive when implemented in the future. Participants were presented with one of two policies that were either to be implemented as soon as possible, or in 4 years. The first policy, the *increase-price* policy, involved increasing the price of gas by 20 cents per gallon in order to reduce

overall gas consumption. At the time of Study 3 the average cost of a gallon of regular gas was \$2.14 (Energy Information Administration, 2006). Consistent with H1, we predicted that this policy would be more strongly supported when implemented in the distant future than when implemented in the near future.

The second policy was the opposite of the *increase-price* policy. The *decrease-price* policy would reduce the price of gas by 20 cents per gallon and would thereby increase the amount of gas consumed. Although the interests of the should self are not served by supporting this *decrease-price* policy, participants likely experienced the option as a should-choice: the should-choice is to oppose the policy.<sup>1</sup> Given this, H1 predicts that the *decrease-price* policy would be less attractive in the distant future implementation condition than in the near future implementation condition.

In this study we also sought to show that future lock-in arises by changing the construal level of a should-choice. As described previously in the introduction, H2 predicts that the time to implementation would affect the construal of the policy in line with predictions of CLT (Trope & Liberman, 2003), and H3 predicts that this change in construal level would mediate the future lock-in effect. CLT argues that when something is to occur in the distant future, it will be construed in terms of its abstract, superordinate purpose, whereas when it is to occur in the near future, it will be construed in terms of its concrete, specific consequences. Since we are arguing that future lock-in captures the interests of the should self relative to the want self, a finding that construal level mediates the effect of future implementation on preferences for should-choices has implications for our understanding of how the should self operates.

<sup>1</sup> We thank an anonymous reviewer for suggestions on interpreting the results for the *decrease-price* policy.

Specifically, this would provide initial support for our argument that the should self construes the world at a higher level than the want self.

Finally, in this study we do not ask respondents to rate the extent to which the policies are should-choices before they evaluate them. This allows us to confirm that the effects in Study 2 are not the result of priming want-should conflict before participants consider the policies.

### Participants

Three-hundred-nine participants were recruited for an online survey. The survey included many studies, but questions related to this study were presented first. Participants were compensated \$5 for completing the entire survey collection. Seventy-two percent of participants were women. Because this ratio did not vary by condition it was not examined again.

### Methods

This study was a two (policy type: increase price, decrease price) by two (time to implementation: as soon as possible after passing, in 4 years) between-subject factorial design. After being randomly assigned to one of the four conditions, participants were asked a series of questions designed to (1) facilitate thoughtful engagement with the policy, and (2) provide insight into how participants construed the future lock-in effect.

The first construal question asked participants to list several consequences of the presented policy. Below this question, participants had four open-ended lines on which to write their responses. The second construal question asked participants to choose a point on a single line that best represented the effect of the policy. The line had a midpoint; one pole described the effect of the policy on the price of gas (“Make gas [more/less] expensive”), and the other pole described the effect of the policy on pollution and the environment (“[Reduce/Increase] pollution and climate change”). The third construal question asked participants to choose one of two responses to complete the sentence “This policy would...” The two responses were “...make gas [more/less] expensive” and “...[reduce/increase] pollution and climate change.” This question was modeled after [Vallacher and Wegner’s work on action identification \(1987, 1989\)](#).

After these construal questions, participants were asked how strongly they would oppose or support the policy on a scale with no zero point that ranged from “Strongly oppose” (−4) to “Strongly support” (+4).

### Manipulation check

In Study 2 we verified that the *price-increase* policy was perceived as a should-choice. However, we have

not yet verified that the *price-decrease* policy was perceived as a should-choice. To do this we recruited 41 volunteer participants online. We described the want self and should self distinction, and then described the *price-decrease* policy used in this study. We then asked participants two questions. First, would supporting the policy be in the interests of the should or the want self? And second, would opposing the policy be in the interests of the should or the want self? Nearly all participants believed that supporting the *decrease-price* policy served the interests of the want self (90%), and that opposing the *decrease-price* policy served the interests of the should self (85%). Both evaluations were significantly greater than 50%,  $X^2 (N = 41) = 26.56, p < .001$ , and  $X^2 (N = 41) = 20.51, p < .001$ , respectively. This strongly confirms the intuition that the should-choice with regards to the *decrease-price* policy was to oppose the policy.

### Results

#### Construal

To analyze the degree to which time to implementation affected construal of the policies, we merged each participant’s responses to construal-related questions into one index score. To do this, we had two judges who were blind to the condition of each respondent code the open-ended responses to the first construal question. The responses were coded as either referring to low-level, concrete consequences (specifically: 1. a change in dollars at the pump or in one’s wallet, or 2. a change in immediate driving behavior), or as referring to high-level, abstract consequences (specifically: 1. impact on environment/pollution, or 2. impact on dependence on Mideast oil or alternative energy investment), or as not able to be coded into those two categories. If a coder thought a response could be coded under two of the three categories (high-level, low-level, neither) she noted her first choice coding, and then her second choice coding. This double coding occurred just twice out of 1128 responses. When the two coders agreed on a coding for a response it was accepted. If the coders disagreed on their first coding of a response, but there was agreement when including a coder’s second choice coding, the shared coding was accepted. Using this method coders agreed on 83.3% of their codings (940 of 1128 responses). Only codings for which there was coder agreement were used in subsequent analyses.

For each valid participant we subtracted the number of references that were coded as high-level from the number of references coded as low-level to develop an index for the open-ended question; next, we *z*-scored this index. We then *z*-scored responses to the next construal question, which asked participants to choose the point on a line that best represented the effect of the policy. Our next step was to *z*-score the responses to the final

sentence-completion construal question. Once participants' responses to the three construal questions were on the same scale, we developed a construal index score by averaging participants'  $z$ -scores for the three questions. When coders could not agree on a coding for a participant's open-ended responses, or when a respondent did not enter any meaningful responses, their index score is the average of their  $z$ -scores for the remaining two questions ( $N = 8$ ). Participants' responses to the three questions in the index were highly inter-correlated, with a Cronbach's  $\alpha$  of .733.

To test if time to implementation affected construal level for the *increase-price* and *decrease-price* policies we analyzed one policy at a time. Consistent with H2, participants in the *increase-price* policy condition construed the policy at a relatively lower level ( $M = -.47$ ,  $SE = .08$ ) when it was to be implemented in the near future and at a relatively higher level when it was to be implemented in the distant future ( $M = -.17$ ,  $SE = .08$ ),  $t(159) = -2.36$ ,  $p = .012$ . The *decrease-price* policy did not show the same effect, as participants did not appear to construe the near future implementation ( $M = .31$ ,  $SE = .09$ ) or distant future implementation ( $M = .33$ ,  $SE = .08$ ) differently,  $t(150) = -.170$ ,  $p = .865$ . This lack of a construal effect for the *decrease-price* policy was not what we expected. Since we varied time to implementation of this policy, we expected it to also show construal differences. We will address this again below.

#### *Future lock-in*

To test if time to implementation affected support for the different should-choice policies (H1), we again analyzed one policy at a time. The future lock-in effect was replicated in this study for both should-choice policies. Distant future implementation significantly increased the proportion of participants who supported the *increase-price* policy in the future (41% of participants) relative to the near future implementation (26% of participants),  $X^2(1, N = 162) = 4.01$ , Fisher's Exact test, one-sided,  $p = .03$ . Participants in the *increase-price* condition were also significantly more supportive of the policy when it was to be implemented in the distant future ( $M = -.83$ ,  $SE = .30$ ), than when it was to be implemented in the near future ( $M = -1.63$ ,  $SE = .27$ ),  $t(160) = -1.97$ ,  $p = .05$ . The opposite effect was found for those who reviewed the *decrease-price* policy. Significantly fewer participants supported the *decrease-price* policy in the distant future (40% of participants) relative to the near future implementation (57% of participants),  $X^2(1, N = 152) = 4.51$ , Fisher's Exact test, one-sided,  $p = .025$ . These participants were also less supportive when the policy was to be implemented in the distant future ( $M = -.75$ ,  $SE = .30$ ), than when it was to be implemented in the near future ( $M = .28$ ,  $SE = .28$ ),  $t(150) = 2.52$ ,  $p = .013$ .

Though the strength of support for these two policies was differently affected by a delay in their implementation, they both showed that participants were significantly more likely to choose the should-choice (support for the *increase-price* policy, and opposition to the *decrease-price* policy) when the policies were to be implemented in the distant future. This is consistent with the predictions of future lock-in.

#### *Construal and future lock-in*

To examine our construal mediation hypothesis (H3) we again split the data according to the two different policies. To test whether construal of the *increase-price* policy mediated the relationship between the time to implementation and support for it, we used the mediation method described by Baron and Kenny (1986). The first step in testing this mediation effect was to establish the relationship between time to implementation and support for the policy. As analyzed above using a  $t$ -test, this relationship was significant,  $B = .798$ ,  $SE = .404$ ,  $p = .05$ .

The second step was to establish the relationship between time to implementation and level of construal. This was established above, showing that when the policy was to be implemented in the near future, it was construed more concretely than when it was to be implemented in the distant future,  $B = .293$ ,  $SE = .116$ ,  $p = .012$ .

The next step was to show that the proposed mediating variable, level of construal, was significantly related to support for the gas policy when the variable was entered into the regression equation with time to implementation. Level of construal was shown to have a strong effect on support for the policy,  $B = 2.104$ ,  $SE = .223$ ,  $p < .001$ .

The final step was to establish that entering level of construal into the regression equation with time to implementation significantly reduces the strength of the relationship between time to implementation and support for the policy. This was established by conducting a Sobel's test, which showed that the level of construal significantly mediated the relationship between time to implementation and support for the policy, Sobel's test = 2.44,  $p = .015$ .

This mediation relationship could not be shown for the *decrease-price* policy. This policy failed to pass the second step in Baron and Kenny's mediational test: the proposed mediator (e.g., construal) was not significantly affected by the independent variable (e.g., time to implementation).

#### *Discussion*

Study 3 replicated the future lock-in findings of the previous studies, showing that people are more likely to make policy decisions that favor the interests of the

should self when the decisions will be implemented in the distant future than when the decisions will be implemented in the near future. Like the education funding policy in Study 2, this study also showed that not all policies are more attractive in the distant future. In fact, Study 3 showed that when the interests of the should self are to oppose a prospective policy, as was the case for the *decrease-price* policy, distant future implementation decreases support for it. In showing this, Study 3 demonstrates that the future lock-in effect increases people's likelihood of doing what they should do, regardless of whether the should-choice is to support or to oppose a prospective policy.

The present study also suggests a pathway through which the future lock-in effect occurs: by changing the level of construal of the policy. For one of the two should-choices evaluated in Study 3 (e.g., *increase-price* policy), participants were more likely to choose what they should in the distant future as opposed to the near future, to the extent that they construed the policy in terms of its high-level, abstract, superordinate qualities (e.g., reducing pollution) as opposed to its low-level, concrete, specific qualities (e.g., increasing price). This mediation effect provides initial evidence that the should self construes the world at a higher level than the want self.

The level of construal of the *decrease-price* policy was not affected by time to implementation. This is not what we predicted. The fact that the future lock-in effect did arise for this policy, though, suggests that there is more underlying future lock-in than our measure of construal. One explanation could be that our measure of construal level is not valid. This seems implausible given that we found a significant change, in a direction consistent with our *ex ante* hypotheses, in the level of construal of the *price-increase* policy when using the identical construal level index. Another explanation could be that our construal level index was not sensitive enough to detect the small changes in construal level of this policy brought about by changing the time to implementation. This is plausible given our confidence in our CLT-based prediction that construal level will change with time to implementation, and the relatively modest alpha of our construal level index ( $\alpha = .73$ ). The relatively modest  $\alpha$  suggests that our three measures of construal level are meaningfully overlapping, but that there is substantial unaccounted for variation between measures.

This lack of resolution has several implications for our understanding of future lock-in. First, it suggests the possibility that there might be other mechanisms that underlie the effect. The fact that future lock-in arose for the *price-decrease* policy but construal level did not co-vary with support suggests that construal level may not be the sole mechanism behind the effect. Second, the lack of consistency between the *price-increase* and *price-decrease* policies suggests that there may be some-

thing fundamentally different between the policies. We are left to speculate as to which differences between the policies might have resulted in construal level changes for one of them (e.g., *price-increase*), but not for the other (e.g., *price-decrease*). One important difference could be that the interest of the should self is to reject the *price-decrease* policy, whereas the interest of the should self is to select the *price-increase* policy. This may relate to research on reason-based choice which shows that the psychological process of rejecting an option is different than the process of selecting an option (Shafir, Simonson, & Tversky, 1993). When one rejects a policy one searches for reasons that justify rejecting it, whereas when one selects a policy one searches for (a different set of) reasons to justify selecting it. Why construal level would be affected by this is unclear to us, but nonetheless this could be an important way in which the two policies differ. Another aspect of the should-choice being to reject rather than to select the *price-decrease* policy is that rejection favors the status quo and is an act of omission, whereas selection changes the status quo and is an act of commission. Research shows that, in general, people are more comfortable with the consequences of omission than they are with equivalent consequences of commission (Baron & Ritov, 1994; Ritov & Baron, 1995). Again, we do not know why this would affect a policy's susceptibility to construal level changes based on changes in time to implementation, but this difference may be a promising avenue for further study.

Future research should explore which of the many differences between these two policies account for the inconsistent construal level and mediation findings in this study. Although this policy raises new questions, it also supports two of our central arguments. First, that structuring should-choices such that they are to be implemented in the distant future (as opposed to the near future) increases the likelihood that the interests of the should self will prevail (i.e., the future lock-in effect). And second, that the should self construes the world at a higher level. This second argument is partially supported by the findings of Study 3, and will be addressed again in the next study.

#### Study 4

Study 4 extends the previous studies in several ways. First, as opposed to all of the previous studies, in Study 4 we hold both the content and structure of the policy constant (it is to be implemented in the distant future), and we vary what is emphasized in the policy description. All participants read descriptions of a policy like the gas policy in Study 2 and Study 3. The description notes that the policy will be voted on as soon as possible and that it would be implemented in 2 years. Half of participants read a description that emphasizes how

soon the policy will be voted on, and the other half of participants read a description that emphasizes how far into the future the policy would be implemented. The aim of this variation in temporal emphasis is to allow us to ask if future lock-in arises from the structure of a should-choice (i.e., when it is to be implemented), or simply from the way a should-choice is thought about (H4). Future lock-in could be of much broader applicability if the latter is the case. This would mean that future lock-in could be harnessed in the communications of future implemented should-choices, even without changing their structure. A second aim of this study was to replicate the Study 3 finding for the *price-increase* policy that future lock-in is mediated by construal level of the should-choice policy (H2, H3). Finally, this study asks a nationally representative sample to evaluate the should-choice policy. Given that the should-choice policy we examine in this study is of national relevance, studying a diverse national sample increases the practical meaning of our findings.

### Participants

In this study we added a set of questions to a representative national survey using the online market research firm, Zoomerang. We had a total of 414 participants. In the survey we included a test question in which we asked participants to leave the question blank if they were reading it. Seven participants failed this test question and so were excluded from analyses. The average price of a gallon of regular gasoline in the United States at the time of this study was \$2.26 (Energy Information Administration, 2007).

### Methods

All participants were told that Congress could consider many new policies in the upcoming session. They read a description of the future implemented gas policy that would be voted on as soon as possible, but go into effect in 2 years. Participants were assigned to either the *distant future emphasis* condition or to the *near future emphasis* condition based on whether their birthdate is an odd or even number. The description of the policy was the same across conditions, but the conditions differed in what time period was emphasized. The *distant future emphasis* condition emphasized that the policy would go into effect in 2 years, while the *near future emphasis* condition emphasized that the policy would be voted on as soon as possible. These differences in emphasis occurred in three places. First, the top of the screen that described the policy read either “*Schedule: implemented 2 years in future*” or “*Schedule: voted on by Congress as soon as possible*”. Second, the policy description began with either “*This policy would go into effect 2 years in the future*” or “*This policy would be voted*

*on by Congress as soon as possible*”. Finally, the question asking participants the strength of their support emphasized either when the policy would be implemented or when it would be voted on. The description of the policy is written below:

*If passed, this policy would reduce gas consumption by increasing the price of a gallon of gas by 53 cents. In doing this, the policy would reduce US contribution of carbon emissions into the atmosphere, which is one of the leading causes of global climate change. This policy would also reduce US dependence on oil from foreign countries, especially the Middle East. This 53 cent price increase in a gallon of gas would also make gas more expensive for Americans, and increase the costs of all forms of travel, especially driving. It would also probably cost jobs in the short-term as the gas price increase would slow economic growth. This policy would be voted on early in 2007 and go into effect in 2009.*

After reading this policy participants were asked “How strongly [they] would oppose or support this policy, which would [go into effect 2 years in the future/be voted on by Congress as soon as possible]?” The seven-point scale for this question was “–3” for strongly oppose to “+3” for strongly support. After reading this first question about support for the policy, participants answered three additional questions. First, they were asked “In the order that they come to mind, please list some of the consequences of this policy (which would [be implemented in 2 years in future/be voted on by Congress as soon as possible])”. Then participants were asked “Which one of the following statements best completes this sentence: This policy would. . .” with the following two options: “. . .make gas more expensive, cost US jobs” or “. . .reduce pollution and climate change, reduce dependence on foreign oil”. Finally, participants read a description of the want/should distinction and were then asked to whether they would call the policy a want or a should policy.

### Results and discussion

#### Should-choice check

Participants saw this policy as a should-choice, as seventy-five percent of participants ( $N = 302$ ) called it a should-policy,  $\chi^2 (N = 406) = 106.6, p < .001$ . This did not vary by condition,  $(1, N = 406) = .128, p = .73$ .

#### Construal

To analyze the degree to which temporal emphasis affected construal of the policy we used the exact same method described in Study 3 to code the open-ended responses. Using this method two coders who were blind to condition and given the exact same

instructions as those used in Study 3 agreed on 76.4% of their codings (1265 of 1656 responses). Only codings for which there was coder agreement were used in subsequent analyses. In this study we only asked participants a single closed-ended question, whereas in Study 3 we asked participants two of these closed-ended questions. We *z*-scored participants' coded open-ended scores and their closed-ended responses. We then averaged participants' two *z*-scores and used this average as the measure of their construal level. When coders could not agree on a coding for a participant's open-ended responses, or when a respondent did not enter any meaningful responses, their index score reflects their *z*-score for the remaining open-ended question ( $N = 6$ ). The two measures were weakly, but significantly, correlated with each other ( $\alpha = .381$ ,  $r = .23$ ,  $p < .001$ ), which suggests that the two measures are tapping slightly different constructs. However, both measures conceptually relate to our operationalization of construal level, and the exact same measures were much more closely related in Study 3. It is worth noting that all subsequent mediation analyses of these data remain significant using just the forced-choice construal question (Sobel's test = 1.89,  $p = .06$ ), while the open-ended codings are directionally consistent also, though not statistically significantly.

Consistent with H3 we found that a change in temporal focus affected the level of construal: participants in the *distant future emphasis* ( $M = .077$ ,  $SE = .06$ ) condition viewed the policy at a significantly higher construal level than participants in the *near future emphasis* ( $M = -.084$ ,  $SE = .05$ ) condition,  $t(404) = 2.06$ ,  $p = .040$ .

#### *Future lock-in*

Consistent with H1, a significantly greater proportion of respondents supported the gas tax policy in the *distant future emphasis* condition (16% of respondents) than in the *near future emphasis* condition (9% of participants),  $\chi^2(1, N = 406) = 4.44$ , Fisher's Exact test, one-sided,  $p = .025$ . Also consistent with H1, participants in the *distant future emphasis* condition ( $M = 2.28$ ,  $SE = .14$ ) supported the policy more strongly than those in the *near future emphasis* condition ( $M = 1.87$ ,  $SE = .11$ ),  $t(404) = 2.33$ ,  $p = .020$ .

#### *Construal and future lock-in*

The first step in testing for mediation according to Baron and Kenny (1986) is to establish the relationship between temporal emphasis and support for the policy. As analyzed above with a *t*-test, this was the case, *Unstandardized B* =  $-.404$ ,  $SE = .173$ ,  $p = .020$ .

The second step is to establish the relationship between temporal emphasis and level of construal. This was established above with a *t*-test, showing that when it was emphasized that the policy would be implemented

in the distant future (i.e., in 2 years) it was construed more abstractly than when the temporal emphasis was that the policy would be voted on in the near future (i.e., as soon as possible), *Unstandardized B* =  $-.161$ ,  $SE = .078$ ,  $p = .040$ .

The next step is to show that the proposed mediating variable, level of construal, was significantly related to support for the gas policy when the variable was entered into the regression equation with temporal emphasis. Level of construal was shown to have a strong effect on support for the policy, *Unstandardized B* = 1.26,  $SE = .091$ ,  $p < .001$ .

The final step is to establish that entering level of construal into the regression equation with temporal emphasis significantly reduces the strength of the relationship between temporal emphasis and support for the policy. This was established by conducting a Sobel's test, which showed that level of construal significantly mediated the relationship between temporal emphasis and support for the policy, Sobel's test = 2.04,  $p = .041$ .

#### *Discussion*

Study 4 showed that future lock-in can arise for a should-choice policy that is structured to be implemented in the distant future by simply changing people's temporal focus (H4). This change in temporal focus changed participants' construal level of the policy (H3), and thereby changed their support for it (H4). This finding reinforces Study 3's finding that future lock-in increases support by changing construal level, which is consistent with our argument that the should self construes the world at a higher level than the want self. The results of the first four studies demonstrate the future lock-in effect for should-choices that are committed to in the present, but implemented either in the near future or in the distant future. Study 4 shows that the future lock-in effect can arise by changing the temporal emphasis as well.

It is worth noting that Study 4 was the only policy presented in this paper that added any temporal emphasis to the description of the should-choice. Because of this, we are not able to determine whether emphasizing the distant future implementation of a future implemented policy increases support for it, or if emphasizing near future decision making about a future implemented policy decreases support for it. Future studies should address this open question.

#### **General discussion**

We presented four experiments demonstrating the future lock-in effect, which describes a person's increased willingness to choose, and support, a should-choice when it is to be implemented in the distant future

rather than in the near future (H1). This effect was demonstrated across a variety of domains (see Table 1 for summary). Study 1 found that people are more generous in terms of donation when donating future money versus present money. Study 2 showed that the future lock-in effect can occur for important policy options and personal plans that people view as should-choices, but not for options that are not seen as should-choices. Study 3 showed that the future lock-in effect increases support for should-choices to be implemented in the distant future only when the should-choice is to support them. When the should-choice is to oppose a policy, however, the policy is more strongly opposed (less strongly supported) in the distant future than in the near future. In this study, we showed for one of the two policies that the future lock-in effect is mediated by the level at which a person construes the should-choice (H3). In other words, time to implementation of a should-choice increases one's support for that choice to the extent that one construes the should-choice in more abstract terms. This finding is consistent with Construal Level Theory (Trope & Liberman, 2003), and suggests that the should self construes the world from a higher level than the want self does. Finally, Study 4 showed that the future lock-in effect can be induced under the minimal conditions of emphasizing the distant future implementation (as opposed to the near future decision) of a distant future implemented should-choice policy (H4). This study replicated the mediation finding from Study 3 (H3), strengthening the hypothesis that one of the differences between the should self and the want self is the level at which they construe the world.

In addition to aiming to establish the robustness and power of the future lock-in effect, we aimed to show that it occurs by way of heightening the level at which a should-choice is construed. This was partially supported through our mediation findings in Study 3 and Study 4. These findings support our proposition that the should self construes the world at a higher level than the want self. As described in the literature review above, this proposition is further supported by recent research on construal level and self-control (Fujita et al., 2006), and research on construal level and identification with one's idealistic as opposed to one's pragmatic self (Kivetz & Tyler, 2007). This prompts the question: are should-choices necessarily more attractive when viewed at a higher construal level? Or, put differently, are some should-choices more attractive when viewed at a lower construal level?

Should-choices are defined as choices that serve the interests of the should self relative to the interests of the want self. With that definition, the primary purpose, or superordinate goal, of should-choices is the interest of the should self. Given that CLT defines an object's high construal level as its primary purpose, or superordinate goal, we believe that when should-choices are construed

at a high level they are necessarily more attractive than when they are construed at a low level.

Trope and Liberman (2000, see Study 4, pp. 884–886) reported one study that is particularly germane to this topic. Their aim was to show that when people face the tradeoff between a film that is informative and a film that is funny, people will not always prefer the more informative film in the distant future, and the funny film in the near future. In the language of should-choices, when choosing between these two types of films, with no other factors, the informative film would likely be interpreted as more of a should-choice than the funny film, and so would likely benefit from future lock-in. In fact, a study by Read et al. (1999), using a similar design, found exactly this.

However, Trope and Liberman added another variable to their study. They varied the purpose of watching the film. They told some participants that the purpose of watching the film was to later discuss the “principles of comic films”, whereas they told other participants that the purpose was to “induce a good mood” before a social interaction. By manipulating participants' perceptions of the purpose of watching the film the researchers aimed to change the high-level construal of the film viewing, and thus change which film would be relatively more preferred for the distant future relative to the near future. They found partial support for their hypothesis that the informative movie (what would normally be the should-choice) is not always more attractive in the distant future relative to the near future. When the purpose of watching the film was reported to be to discuss “principles of comic films” participants preferred the informative film in the distant future relative to the near future. When the purpose was to “induce a good mood” most of their analyses showed that participants preferred the funny film in the distant future relative to the near future.

In this study, Trope and Liberman changed what constituted the high-level construal of watching the film by explicitly changing the purpose of the activity. In so doing, they likely also changed the interests of the should self. When the purpose of the film viewing was to “induce a good mood”, then watching the informative film—which under normal circumstances might have been the relative should-choice—became less of a should-choice, and the funny film—which under normal circumstances might not have been the relative should-choice—became more of a should-choice. By changing which film was the should-choice they changed which film would benefit from distant future implementation relative to near future implementation. We interpret this study as entirely consistent with our argument that the should self construes the world at a higher level than the want self does, and so temporal distance increases support for should-choices. This study managed to change which film the should self preferred.

An additional mechanism that might contribute to the future lock-in effect could be the extent to which a person actually experiences intra-subjective conflict between what she wants to do and what she should do. O'Connor et al. (2002) showed exactly this, finding that people report being more drawn toward actions they want to do but know that they should not do when they imagine being in the immediate moment of a decision, as opposed to imagining being in a moment after or before a decision was to be made. In Study 2 we found results consistent with this mechanism. Specifically, in Study 2 we found that participants' ratings of how strongly participants felt that they "wanted" to support the should-programs choices were when the programs were to be implemented in the future (Wilks  $A = .84$ ,  $F(4, 89) = 4.22$ ,  $p = .004$ ), whereas how strongly they felt they "should" support the should-choices did not vary with time to implementation (Wilks  $A = .94$ ,  $F(4, 89) = 1.36$ ,  $p = .26$ ). These results suggest that one of the underlying mechanisms behind the future lock-in effect—in addition to the CLT mediation effect shown in Study 3 and Study 4—might be the effect of time to implementation on a person's "wanting" of a should-choice, as opposed to her evaluation of the option as being something that she should choose.

A different perspective on the present data is one suggested through hyperbolic, or quasi-hyperbolic, discounting of future utility (Ainslie, 2001; Frederick, Loewenstein, & O'Donoghue, 2002; Laibson, 1997; for a review see Soman et al., 2005). These models show that individuals value utility in the present moment dramatically more than all future moments. In the language of the present studies, the "near future" is much closer to the present moment than the "distant future" is. In the present four studies we examined six different should-choices that demonstrated the future lock-in effect. All but the donation opportunity in Study 1 offered the tradeoff between short-term benefits for not selecting the should-choice, and long-term benefits for selecting it. Seen through a discounting lens, these should-choices offered participants in the near future conditions should-choices with near future costs and distant future benefits. Participants in the distant future conditions faced should-choices that offered distant future costs and distant future benefits. This meant that the two conditions differed most meaningfully in when the costs were to be incurred, and thus in how expensive participants would perceive the should-choice to be. Specifically, participants in the near future conditions faced steeply discounted benefits (i.e., occurring in distant future), and full expense costs (i.e., occurring in the near future), whereas participants in the distant future conditions faced steeply discounted benefits (i.e., occurring in distant future), as well as steeply discounted costs (i.e., occurring in distant future). Given that models of hyperbolic discounting report relatively

little discounting between some moment in the future (e.g., 1 month from now) and some more distant moment in the future (e.g., 1 month and 1 day from now), the primary difference between the should-choices in the near future and distant future conditions was in the subjective expensiveness of the should-choices. Since the discounting models suggest that the costs of should-choices will be perceived as substantially less expensive when implemented in the distant future, it stands to reason that these options would be relatively preferred in the distant future.<sup>2</sup>

Although a discounting model nicely describes those five should-choices, it does not explain why distant future costs are so steeply discounted relative to near future costs. There are many "levels" at which one could proffer an explanation of this phenomenon. For example, at the level of neural functioning evidence has accumulated suggesting that different regions of the brain dominate for near future- versus distant future-oriented decision making (McClure, Laibson, Loewenstein, & Cohen, 2004). At a more macro level, the level of cognition, CLT proposes that the construal of concrete costs (Trope & Liberman, 2000, 2003) varies with choices that are to occur in the near future versus the distant future. As discussed previously, the data from Study 3 and Study 4 are consistent with this cognitive-level explanation of the future lock-in effect. At the same time, the data are also consistent with a descriptive model in which costs and benefits experience steep discounts as they move away from the present moment of decision.

An important application of the future lock-in effect is in the domain of public policy. Often citizens are asked to consider policies that trade short-term interests for long-term ones. The failure of many of these policies to gain public support is typically blamed on electoral myopia (Aidt & Dutta, 2007). An example of a contemporary issue that could benefit from future lock-in is the question of how to reduce domestic consumption of fossil fuels and other materials that contribute to global climate change. Despite the vast majority of citizens agreeing that the U.S. needs to reduce its contribution to this global problem (see Gallup Polls on [pollingreport.com/enviro.htm](http://pollingreport.com/enviro.htm)) most substantial initiatives face stiff opposition. By advocating for reforms that would go into effect in the distant future, policy-makers could

<sup>2</sup> The donation opportunity in Study 1 is an interesting case. In the near future, donating money offers present costs and primarily present benefits. In the distant future, however, the option offers future costs but still primarily present benefits, as one experiences the self-satisfaction of having chosen to donate. This suggests that distant future implementation of a donation choice would be more attractive than near future implementation because the costs of donating will be discounted more than the benefits. Though the discounting dynamics are slightly different, a hyperbolic discounting approach models the same preference changes for donation as it would for the other should-choices studied in this paper.



leverage the benefits of the future lock-in effect to increase support for these should-choice policies.

Entirely independent of the systematic construal changes that future lock-in would bring about, one additional benefit of implementing a should-choice policy in the distant future, rather than in the near future, is that distant future implementation allows agents to economically prepare for the policy's arrival. For example, passing stricter automobile fuel-efficiency laws that would take effect in 10 years would have two economic benefits. First, a current vehicle owner could enjoy up to 10 more years of value out of the vehicle she owns now, while replacing it with a more efficient vehicle when an appropriate time to buy a new one arrives. Second, distant future implementation of fuel-efficiency laws would allow producers to gradually increase their capacity to manufacture the more efficient cars. Though distant future implementation may also allow for this reduction in the costs of certain policies, this cannot account for all of the benefits of the future lock-in effect. Study 3 and Study 4 show that distant future implementation can change preferences by changing the way people subjectively think about what should-choices mean.

One danger in using future lock-in to increase support for should-choice policies is that future policy-makers could overturn the policy when what was once the distant future becomes the present. This danger is not as damning as one might first suppose, however, because initially passing a policy cognitively differs from overturning an existing one. Once a policy has been chosen for the future, people anticipate its instatement, and the policy gradually comes to be viewed as the default or status quo (e.g., "The fuel efficiency bill has been in the works for years; I don't want us to go backwards by overturning it"). Much research has demonstrated the power of defaults (Choi, Laibson, Madrian, & Metrick, 2003; Johnson & Goldstein, 2003) and the common aversion to changing what is perceived to be the status quo (Kahneman, Knetsch, & Thaler, 1991; Samuelson & Zeckhauser, 1988). Though a policy could certainly be overturned, overall, future lock-in could be an effective political strategy for increasing support for policy options that are perceived as should-choices but cannot gain enough support to be implemented in the near future.

An interesting aspect of applying future lock-in to public policy is that for many policies it would be practically costless. This is true because many laws are already designed to go into effect well into the future, yet are communicated in language that evokes immediate, self-interested, and concrete construal. Study 4 shows that adding a preface emphasizing the distant future implementation of a should-choice policy that is already designed to go into effect in the distant future encourages citizens to weight the policies' high-level, abstract goals and purposes more heavily relative to emphasizing the near future decision about whether or not to support the policy.

A final note about the aim of this research. One could object that the future lock-in effect is paternalistic and "manipulates" people in the direction of choosing options that some third party thinks they "should" choose, even if that choice is not in their best interests. The very nature of the future lock-in effect precludes the possibility of this. The effect can only emerge for choices about which people feel, intra-subjectively, that there is an option they "should" choose. Remember that the policy in Study 2 that was explicitly not a should-choice policy (e.g., the education-funding policy) did not show the effect. Additionally, as Sunstein and Thaler (2003) have recently written, many choices regarding the design of policies have behavioral consequences, whether a policy designer is attentive to them or not. Some of these consequences can be welfare-promoting, while others might not be. "Libertarian paternalism", they write, is the intentional designing of policies so that these choices are welfare-promoting, while at the same time not eliminating a person's freedom of choice. An example of libertarian paternalism would be a corporate management team deciding to use the Save More Tomorrow plan to increase their employees' savings rates. The future lock-in effect is another class of policy design decision that can have systematic behavioral consequences that are welfare-promoting.

We hope that this paper provides some insight into the psychology of how the want self and the should self construe the world, and when the should self dominates the want self in decision-making. In addition, we have attempted to offer practical insights into how wise policy changes might be implemented in society. Obviously, much more work is needed on both fronts. Thaler and Benartzi (2004) used psychological insight to show dramatic improvement in rates of savings. We would like to see related psychological insights offer much more help across a range of wise decisions and behaviors.

## Appendix A. Five policies used in Study 3

### *Policy 1*

Imagine that a policy to limit the amount of fish that can be caught by the fishing industry will be voted on next month. It would go into effect [*in 4 years/ as soon as possible upon passing*]. When implemented, it would have the following consequences:

- [NEGATIVE] it would increase the price of fish for all consumers, and it would severely reduce the number of jobs in the fishing industry
- [POSITIVE] in the long-term it would protect the fish stocks in the oceans, and it would extend and sustain the survival of the fishing industry.





- Sherman, S. J. (1980). On the self-erasing nature of errors of prediction. *Journal of Personality and Social Psychology*, 39, 211–221.
- Shiv, B., & Fedorikhin, A. (1999). Heart and mind in conflict: The interplay of affect and cognition in consumer decision making. *Journal of Consumer Research*, 26(3), 278–292.
- Soman, D., Ainslie, G., Frederick, S., Li, X., Lynch, J., Moreau, P., et al. (2005). The psychology of intertemporal discounting: Why are distant events valued differently from proximal ones? *Marketing Letters*, 16, 347–360.
- Strotz, R. H. (1956). Myopia and inconsistency in dynamic utility maximization. *Review of Economic Studies*, 23, 165–180.
- Sunstein, C. R., & Thaler, R. H. (2003). Libertarian paternalism is not an oxymoron. *University of Chicago Law Review*, 70(Fall), 1159–1199.
- Thaler, R. H. (1980). Toward a positive theory of consumer choice. *Journal of Economic Behavior and Organization*, 1, 39–80.
- Thaler, R. H., & Benartzi, S. (2004). Save More Tomorrow: Using behavioral economics to increase employee saving. *Journal of Political Economy*, 112, S164–S187.
- Thaler, R. H., & Shefrin, H. (1981). An economic theory of self control. *Journal of Political Economy*, 89, 392–406.
- Trope, Y., & Fishbach, A. (2000). Compensatory self-control processes in overcoming temptations. *Journal of Personality and Social Psychology*, 79, 493–506.
- Trope, Y., & Liberman, N. (2000). Temporal construal and time-dependent changes in preference. *Journal of Personality and Social Psychology*, 79, 876–889.
- Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review*, 110, 403–421.
- Vallacher, R. R., & Wegner, D. M. (1987). What do people think they're doing? Action identification and human behavior. *Psychological Review*, 94, 3–15.
- Vallacher, R. R., & Wegner, D. M. (1989). Levels of personal agency: Individual variation in action identification. *Journal of Personality and Social Psychology*, 57, 660–671.
- Wertenbroch, K. (1998). Consumption self-control by rationing purchase quantities of virtue and vice. *Marketing Science*, 17(4), 317–337.