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THE LIMITS OF DEFAULTS: THE INFLUENCE OF DECISION TIME ON DEFAULT EFFECTS

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The stability of default effects to contextual features is critical to their use in policy. In this paper, decision time was investigated as a contextual factor that may pose limits on the efficacy of defaults. Consistent with the hypothesis that time constraints may increase reliance on contextual cues, four experiments, including a preregistered one of a nationally representative sample, and a meta-analysis that included four additional pilot experiments, indicated that short decision times increased the advantage of action defaults (i.e., the default option automatically endorsed the desired behavior) and that the default advantage was trivial or nonexistent when decision times were longer. These effects replicated for naturalistic as well as externally induced decision times and were present even when participants were unaware that time was limited. This research has critical implications for psychological science and allied disciplines concerned with policy in the domains of public health, finance and economics, marketing, and environmental sciences.

Keywords: default effect, time, decision making, donation, evaluations, action and inaction

If you want people to donate their organs, make donation the default decision when they obtain a driver's license! resonates with psychologists and policy makers alike. The action default (i.e., the default option that automatically endorses the desired behavior) is an easy way to "channel" or "nudge" decision makers (Thaler & Sunstein, 2008), and has been portrayed as guiding behavior in a powerful way (Johnson & Goldstein, 2003; Madrian & Shea, 2001; Thaler et al., 2012). As shown by the quotes below, setting the recommended behavior as the default option has been touted as the answer to increasing support for decisions like organ donation

Supplementary materials can be found online at https://osf.io/b4kyq/?view_only=d9bec36d56a9458abf0b0520bb3d2bfa.

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(Johnson & Goldstein, 2003), pension-plan choices (Madrian & Shea, 2001), car insurance (Johnson et al., 1993), and taxi tips (Haggag & Paci, 2014):

> The United States could save a lot of lives if more people donated their organs. How can donation rates be increased? You will not be stunned to hear that a switch in the default rule would have a major impact. (Thaler & Sunstein, 2009, p. 159)

> Empirically, default effects are both powerful and law-like. (Smith, Goldstein, & Johnson, 2013, p. 160)

> *Defaults and their effects are ubiquitous.* (Johnson & Goldstein, 2012, p. 423)

A recent meta-analysis, however, found substantial heterogeneity in the efficacy of setting an action such as donating as the default (I^2 = 98%), with many studies documenting null or negative action-default effects (Jachimowicz et al., 2019). Even among the majority of studies that did find positive effects, those effects varied in size from small (d = 0.1) to large (d = 0.8), and the inclusion of study characteristics, domain, and theoretical moderators reduced the variance by only 6.7%. What could lead to such high levels of unexplained heterogeneity is thus a critical question, particularly given recent failures of defaults to produce impact in contexts such as vaccination (Reiter et al., 2012), organ donation (Parsons, 2018), and financial decisions (Willis, 2013). One understudied factor that was not considered either in the meta-analysis or the literature at large is time, arguably the elephant in the room of default effects. Considering how often we end up "choosing" the default taxi tip because we run out of time to board a flight, who could doubt that some of the most powerful effects of defaults ought to be due to limited time to opt out of default choices? How could such a consequential factor be considered trivial enough to be have been ignored in the literature? We believe that having an answer to this question is key to policy in the domains of public health, finance and economics, marketing, and environmental sciences.

THE DEFAULT EFFECT AND TIME

Plenty of evidence supports advantages of action defaults when policy makers desire to steer a reluctant audience in the "right direction." For example, participants in an online experiment were asked whether they would be organ donors if they were to move to a new state. They were given (a) the default to donate, (b) the default to not donate, or (c) a neutral format that required active choice (Johnson & Goldstein, 2003). In this study, 82% of participants chose to donate when the default was to donate, and 79% chose to donate with the neutral condition of active choice. However, only 42% chose to donate when the default was to not donate. Similarly, 86% of new employees signed up for a retirement plan when the plan was set as the default, whereas only 50% chose the plan when it was not preselected (Madrian & Shea, 2001). This large difference between action defaults and no-action defaults implies an action-default advantage with potentially major policy implications.

Despite these earlier promising results, recent research has found default effects to be smaller and less consistent across situations. As mentioned before, the meta-analysis by Jachimowicz et al. (2019) yielded an overall positive effect for defaults ($d = 0.68$) but negative, null, and positive effects ranging from −0.5 to 2 across studies and sizeable unexplained heterogeneity (over 90% accounting for all moderators). Furthermore, in recent policy studies, instituting donation defaults did not increase donation (Parsons, 2018), and instituting human papilloma virus (HPV) vaccination defaults had either not significant or opposite effects (Reiter et al., 2012). These inconsistencies are also reflected in a growing interest in why nudges might fail (e.g., Sunstein, 2017) and a need to identify their boundary conditions.

We propose that action defaults are present in contexts that prevent deliberation (for theories about the effects of such contexts, see Kahneman & Egan, 2011; Petty & Cacioppo, 1986), such as when people have limited time to make a decision. Thaler and Sunstein (2003) have recognized that "a change entails time and effort, and many people seem to prefer to avoid both of these" (p. 177). More generally, researchers have emphasized the need to use action defaults while at the same time preventing decision procrastination, often by imposing financial penalties to delays. For example, O'Donoghue and Rabin (1998) wrote that "a person will procrastinate in preparing for retirement unless the cost of a short delay is sufficient to overcome the desire to put in the effort sometime in the future" (p. 26). In agreement with this point, Carrol (2009) stated that defaults may be advantageous because an "active decision mechanism compels agents to struggle with a potentially time-consuming decision—which they may not be qualified to make" (p. 2).

Even though default effects have been predicted to operate in conjunction with mechanisms that accelerate decision making (e.g., ease or effort; Johnson & Goldstein, 2003; Dinner et al., 2011), surprisingly little prior research has properly investigated the effect of decision time. When people encounter a decision, they need time to make it. Hence, we hypothesized that following an action default is one way people use to cope with having limited time to make their decision. The effect of defaults for taxi tips is one scenario—if people want to tip and are in a rush, they should be more likely to donate the default amount to conserve effort while leaving the cab (Haggag & Paci, 2014). In comparison, the effects of defaults in scenarios that typically involve long decision times, like deciding whether to vaccinate a child, sharply contrast with typical findings, as was found when the effect was reversed when implementing defaults to increase the HPV vaccine uptake (75% with a no-action default vs. 52% with an action default; Reiter et al., 2012).

The hypothesis that decision time is important to the decision-making process is common across multiple research areas. For instance, people who encounter decisions with too many options experience decision overload when they have a shorter (vs. longer) time to make a decision (Chernev et al., 2015; Mcshane & Böckenholt, 2017). Similarly, people who have a short time to examine information and make a decision are more likely to use heuristics (Dhar & Nowlis, 1999; Weenig & Maarleveld, 2002; Wright, 1974; for a review, see Ariely & Zakay, 2001). For example, people who lack decision ability frequently rely on such heuristics as using price as indicator of product quality (Suri & Monroe, 2003), or basing a

judgement on the mood they experience for unrelated reasons (Schwarz & Clore, 2004, 1983). Considering these findings, the decision time allowed by the situation should be important for default options as well, particularly because the default provides a decision in the event that people fail to make up their mind.

Indeed, past scholarship on defaults has proposed that decision time is likely to moderate the effect (Johnson & Goldstein, 2003). Yet Jachimowicz et al. (2019) meta-analytically tested if default effects varied by how difficult it was to make a decision and found no effect of ease of decision making ($b = -.05$, $SE = 0.15$, $p = .75$). This finding suggests that difficult contexts such as not having sufficient time might produce similar effects as those without such constraints. However, they defined *ease* as playing a role only when participants selected the "defaulted choice option because it is easier to stay with the pre-selected option than to choose a different option" (p. 172) and could include things outside of having to make a quick decision. Additionally, to the best of our knowledge, the only two studies that directly examined the influence of time on defaults produced null effects. First, in a study examining the use of defaults in the selection of light bulbs, whether participants took a shorter or longer time to make decisions made no difference for the impact of the action default (Experiment 2; Dinner et al., 2011). Second, in a study examining the use of defaults in the selection of hotel amenities, experimentally manipulating suggested decision time had no association with default endorsement (Steffel et al., 2014). Thus, despite other areas finding effects of decision time on decision making, evidence from these studies suggests that time is unrelated to the impact of the action default.

One possible reason why decision time had null effects in Dinner et al.'s (2011) and Steffel et al.'s (2014) experiments is that the times were not properly calibrated to detect effects that may well be present in common decisions. In Dinner et al.'s study, participants' decisions were slow and wide ranging, with quick decision makers taking approximately 20 seconds and slow ones taking approximately one minute. In Steffel et al.'s study, participants were *recommended* to either take at least one minute or were given no such recommendation, but participants in both conditions took close to 5 minutes to make their decision (i.e., 4.5 minutes vs. 5 minutes). Thus, neither study experimentally manipulated actual decision time (for an analysis of problems with naturally occurring decision times, see Krajbich et al., 2015), and neither study had a condition with a sufficiently short decision time to provide a valid test of the effect of decision times.

Even though the two previously mentioned studies that have empirically analyzed decision time did not find effects, it is important to look at descriptions of other default experiments to see if the action-default advantage prevails for quickly made decisions. Even if explicit time constraints are not placed on participants, an experiment's context could still lead participants to make quick decisions. We present examples in Table 1. Field studies with decisions typically requiring little time, such as street petitions and taxi tips (e.g., Haggag & Paci, 2014; Johnson & Goldstein, 2003; Johnson et al., 1993), have tended to show action-default advantages. In contrast, studies with decisions typically requiring more time, such as healthcare and financial decisions (e.g., Brown & Krishna, 2004; Di Guida et al.,

TABLE 1. Summary of Sample Articles by Time on the Default Effect

#	Short reference	Description of participants and decision	Likely decision time	Observed effect
1	Johnson et al. (1993)	Drivers deciding whether or not to acquire the right to sue when purchasing insurance	Short	Default effect
2	Johnson & Goldstein (2003)	Driver license applicants deciding whether or not to become organ donors	Short	Default effect
3	Madrian & Shea (2001)	Employees deciding whether or not to enroll in a retirement plan	Long	Default effect
4	Araña et al. (2013)	Individuals deciding whether or not to pay additional taxes on vacation expenditures to help prevent global warming	Long	Default effect
5	Haggag & Paci (2014)	Taxi passengers deciding whether or not to tip the default percentage on a taxi ride	Short	Default effect
6	Reiter et al. (2012)	Parents deciding whether or not to have their sons receive the vaccine against the human papillomavirus	Long	Reverse effect
7	Di Guida et al. (2012)	Experimental participants deciding whether or not to switch to a new task in the midst of the experimental session	Long	Null effect
8	Keller et al. (2011)	Participants deciding whether or not to receive a reminder to be vaccinated against the flu	Long	Reverse effect
9	Shepherd & O'Carroll (2013)	Participants deciding whether or not to be organ donors	Long	Null effect
10	Brown & Krishna (2004)	Consumers deciding whether or not to accept the default settings for specific products (e.g., keyboards, computers, and vacation packages)	Long	Reverse effect when people were skeptical

Note. Positive effects indicate an action-default advantage, whereas negative effects indicate a no-action-default advantage.

2012; Keller et al., 2011; Shepherd & O'Carroll, 2013), have found null effects or even reversals of the action-default advantage (see Table 1). These data illustrate the possibility that decision time may have an effect based simply on the natural time constraints of the situation. Whether this effect occurs experimentally was directly investigated in the experiments we conducted.

Another important question is whether decision time exerts effects due to reductions in ability. If a shorter decision time simply limits people's ability to make decisions, time limits should increase the action-default advantage because the format channels a particular decision irrespective of whether people perceive time pressure. In this case, people may select the default choice because they cannot consider the alternative or cannot swap their choice within the allotted time. In contrast, people may be aware that their time is limited and still choose the default. In a study manipulating cognitive load, ability to deliberate on decisions did not influence selection of the default option (Van Gestel et al., 2020). Hence, we manipulated actual and perceived time limits in one of our experiments to tease out the impact of actual and perceived time. If perceived time has an impact, then

perceiving a time limit should reduce the action-default advantage. If actual time has an impact, then actual time should reduce the action-default advantage.

THE PRESENT EXPERIMENTS

Research investigating the influence of decision time on the effects of no-action defaults has suffered from the limitation of either not manipulating decision time or doing so in a way that might have obscured effects. The present research was designed to estimate decision time effects both naturalistically (Experiment 1) and experimentally (Experiments 2–4). We hypothesized that donation defaults would have stronger influences when the time to make a decision is short. We measured donation evaluations because defaults bias evaluations in line with the preselected default (Experiment 1; Dinner et al., 2011; for the general notion of biased scanning, see Albarracín & Wyer, 2000). We also measured social norms because defaults can affect perceptions of social norms (Everett et al., 2015; Huh et al., 2014) and because social norms guide behavior when people are under time pressure (Rand et al., 2014).

We conducted four experiments to examine the effects of decision times on donation to a charitable or service organization using an action- or no-action-default format. Experiment 1 used a naturalistic measure of decision time and estimated associations with donation choices for different defaults. Experiments 2, 3, and 4 experimentally manipulated choice time to exclude the possibility of reverse causality and confounds related to naturally varying decision times (e.g., educational level). The manipulations of Experiments 2 and 3 combined actual and perceived time, such that when participants were given only 2 seconds, they knew that they only had 2 seconds. Thus, to clarify whether actual or perceived time matters, Experiment 3 assessed if perceived decision time was responsible for the effect of our earlier time manipulation, and Experiment 4 experimentally separated actual and perceived time. Finally, a meta-analysis synthesized these four experiments along with three additional pilot experiments, for completeness and to reach overarching conclusions. All statistical analyses involved two-sided tests of statistical significance. All data presented can be accessed from the online repository (https://osf.io/b4kyq/?view_only=d9bec36d56a9458abf0b0520bb3d2bfa). The last experiment, which was conducted with a nationally representative sample, was preregistered https://aspredicted.org/k6id6.pdf.

EXPERIMENT 1: MEASURING ASSOCIATIONS WITH NATURALLY OCCURRING DECISION TIMES

We predicted that the action-default format would lead to higher likelihood of donation than the no-action-default format, particularly when participants spend relatively less time making their decision. Therefore, in Experiment 1, we gave participants the option of donating money to a charity. After being awarded extra money for participating in an unrelated prior task (i.e., sorting household goods into self-determined groups), participants were asked if they wanted to donate

these earnings to a charity ($0.10). They learned either that they would donate unless they indicated that they did not want to (action-default condition), or that they would not donate unless they indicated that they did want to (no-action-default condition). We measured the time participants spent making the decision as a critical factor expected to interact with our choice-format manipulation.

METHOD

One hundred and twenty-two participants from the Amazon Mechanical Turk (MTurk) website (53% female, M_{age} = 38.07, SD_{age} = 13.00; age range from 20 to 74; 98% native speakers of English; 80% Caucasian, 7% African American, 5% Hispanic, 5% Asian, 4% other ethnicity) were recruited to participate in this study in exchange for $0.50. Sample sizes of all three experiments were based on past research (e.g., Jachimowicz et al., 2019). We employed a 2-choice format (action default vs. no-action default) × continuous decision time in which choice format was a between-subjects manipulation and time was a subject variable. Using the *pwr* package in R (Champely et al., 2018) and given the meta-analytic estimate of d = 0.68 (Jachimowicz et al., 2019), we expected to detect a main effect of choice format with 95% power. There were 60 subjects in the action-default condition and 62 subjects in the no-action-default condition.

Participants first completed a sorting task and were then told that they would receive an additional $0.10 payment to reward their performance. We chose $0.10 because small donations are becoming increasingly common in everyday life, from round-up donations at checkouts (Hwang et al., 2020) to small donations to crowdsourced projects or political campaigns (Center for Responsive Politics, 2020). Participants were then directed to a second page (denoted page 2), where they read about a donation campaign for a child cancer nonprofit charity and told that the researcher was conducting a fundraiser to generate donations for this charity. Below this description on the same page, participants were then told they would be asked to choose whether or not they wanted to donate their extra earnings to the charity in a future question. Half of the participants were told that they would donate unless they clicked on a mark (a smiley face; see Figure 1 action-default condition). The other half were told that they would not donate unless they clicked on the smiley face on the next page (no-action-default condition).[1] Further below these first two points on this same page, all the participants were asked to write down their understanding of the instructions to ensure successful manipulation of the choice format. Ninety six percent of the participants understood the choice format correctly (indicating both what the decision was and what option would be preselected), suggesting that the manipulation was successful.

After this manipulation check, participants proceeded to the next page where they were presented with a question corresponding to their assigned default regarding if they would donate their additional funds. The time they spent making the choice on this page was recorded in seconds. Then, participants reported

1. We utilized a smiley face to allow for easy processing of the choice format. Later studies established generalizability by using other formats.

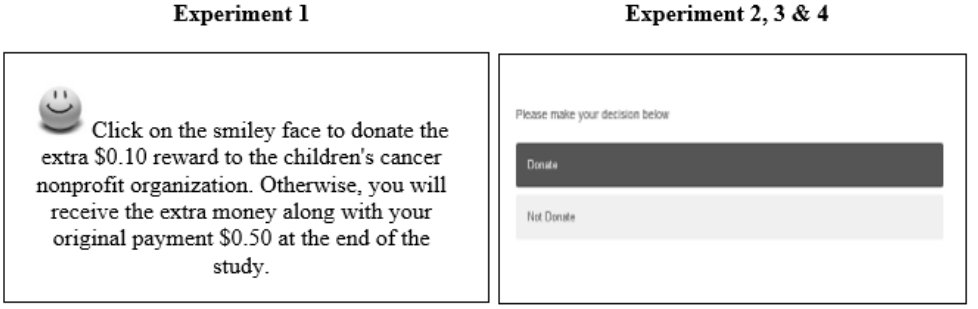


FIGURE 1. Choice format for experiments

demographic information. At the end of the study, participants who chose not to donate received their extra $0.10 in addition to their original payment obtained for their participation in the sorting task. Any amount that was donated by participants was donated to the organization. In addition, we measured evaluations of donation behavior using the following scale (see Supplement for screenshots of participant perspective).

Evaluations. Participants answered four items regarding their donation evaluations. We introduced the items with "Please indicate to what extent you agree with the following statements." The four items used the scale 0 = not at all, 10 = very much, and were: (a) *Donating money is something I dislike*, (b) *When I was considering my decision, I liked the idea of donating money*, (c) *When I was considering my decision, I thought donating money was the right choice*, and (d) *When I was considering my decision, I was not interested in donating money*. The full scale displayed strong internal consistency ($\alpha = .92$). The average of the four items was used as a measure of evaluations.

RESULTS

We predicted that participants who made faster choices would donate more with the action-default format than with the no-action-default format. For analysis, choices were recorded to represent choice to donate (1 = donation, 0 = no donation) regardless of format. As decision time can be heavily skewed, we assessed the normality of the distribution and the impact of outliers. We found the data to be moderately skewed ($M = 3.75$, $SD = 3.90$, $Min = 0.44$, $Max = 30.86$). We checked if the two conditions were different and found moderate, nonsignificant mean differences in decision time between the conditions: Mean of 3.18 seconds and *SD* of 3.89 in the no-action-default condition versus 4.30 seconds and *SD* of 3.86

TABLE 2. Effects on Donations: Experiment 1

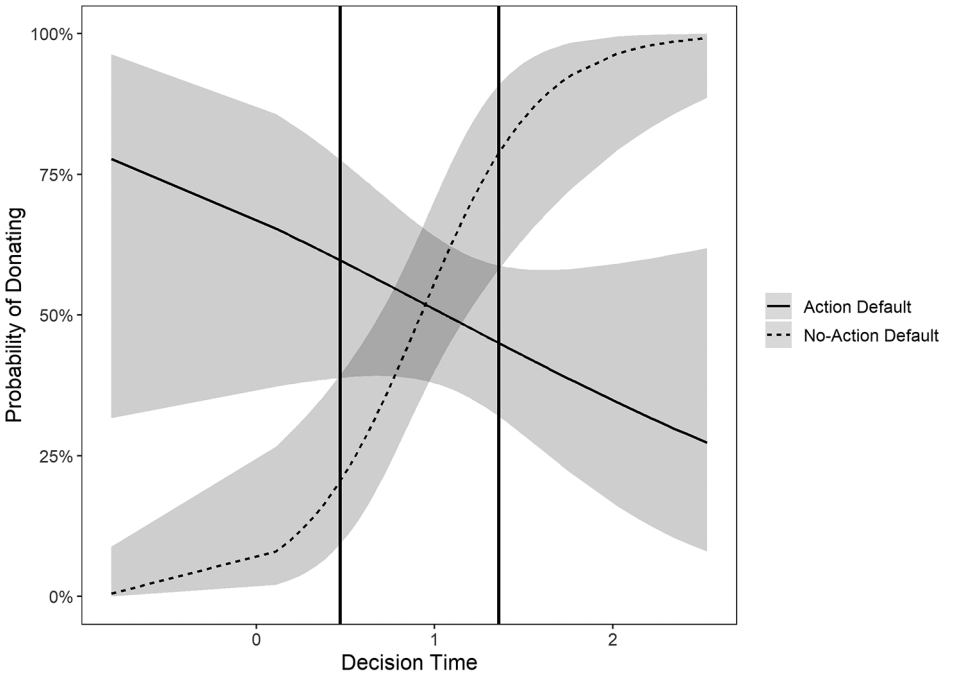
	Donation behavior		
	B	***SE***	***p***
Constant	−2.599	1.584	.101
Choice format	2.979	0.988	<.001
Log decision time	2.997	0.838	<.001
Choice format × Decision time	−3.174	0.935	<.001
Donation evaluations	−0.027	0.224	.904
Null deviance/residual deviance		169.1/147.6	
AIC		157.6	

Note. Logistic regression predicting donation behavior from choice format (action default vs. no-action default), decision time, and their interaction. *B* is the estimated logit coefficient. *SE* is the standard error of the coefficient. *p* is the significance level of the coefficient. Choice format was coded as 0 = no-action default, 1 = action default.

in the action-default condition (t = 1.59, p = .114). However, the distributions were similar in both groups. We assessed methods of normalizing the data using Tukey's ladders of power and found that a log transformation best normalized the data.[2]

We first tested whether there was a main effect of default condition on donation rates. A logistic regression comparing action defaults (50% donation rate) to no-action defaults (48% donation rate) showed no evidence that the default manipulation affected donation rates (B = 0.067, SE = 0.36, p = .85). We then performed a logistic regression with donation choice as the outcome and choice format, log decision time, and their interaction as predictors. Donation evaluations were controlled for in our analyses. As shown in Table 2, the interaction between choice format and decision time was significant, ($d_{\text{interaction}}$ = 0.61, 95% CI [0.25, 0.97]), as were the main effects of choice format and time. To probe the interaction, we used the Johnson-Neyman technique as shown in Figure 2 (i.e., floodlights analysis; Spiller et al., 2013). This analysis revealed that the action default led to more donation when participants spent less than 1.60 seconds making the decision (B_{JN} = 0.999, SE = .510, p = .05), In contrast, when participants spent a longer time making the decision, they actually donated less with the action-default format than with no-action-default format after 3.90 seconds (B_{JN} = −1.119, SE = .571, p = .05).

2. This transformation did not change the findings in a substantive way. We report the untransformed data with analyses in the Supplement. Overall, all coefficients were still significant and had the same direction, but the model displayed better AIC/BIC/ χ^2 compared to the untransformed model.



Note. Figure 2 shows regions of significance for decision time values on donation behavior. Left area is before 1.60 seconds and displays an action-default advantage. Middle area from 1.6 to 3.9 seconds displays no significant difference in effects. Right area from 3.9 seconds onward displays a no-action default advantage.

FIGURE 2. Spotlight analysis of Experiment 1 results

DISCUSSION

Experiment 1 showed that, when participants spent less time making a decision, the action-default format was associated with more donations than the no-action-default format. Although these results were consistent with our predictions, the use of a subject variable to analyze the effect of time introduces interpretational problems because correlation is not causation. There is fundamental difference between people making naturally quick decisions and being constrained to make quick decisions, although we take the results of Experiment 1 as an initial indication of the plausibility of our hypothesis. Therefore, it was desirable to replicate our results within an experiment in which decision time was also experimentally manipulated. In addition, the use of a smiley face is not necessarily conventional for these kinds of decisions, so all further studies involved selecting between two bullet choices of which one was initially selected.

EXPERIMENT 2: MANIPULATING DECISION TIMES

In Experiment 2, we directly manipulated decision time and expected that, when the time to make the presented decision was short, the action-default format

would lead to more donation than the no-action-default format. In contrast, when decision time was longer (i.e., unlimited), we expected that the action-default format would lead to more compliance than (see Experiment 1) or no advantage over the no-action-default format. In addition to measuring decisions, we also measured conation evaluations. Furthermore, as explained presently, the manipulation involved actual differences in time, but participants knew how much time they had. This issue received further attention in the subsequent experiments.

METHOD

One hundred and nineteen participants from the Amazon MTurk website (43% female, M_{age} = 35.01, SD_{age} = 11.85; age 19 to 66; 98% native speakers of English; 73% Caucasian, 11% African American, 7% Hispanic, 7% Asian, 3% other ethnicity) were recruited to participate in this study in exchange for $0.50 payment. We used a 2-choice format (action default vs. no-action default) × 2 decision time (shorter vs. longer) between-subjects design. (We did not test the continuous effects of time in the longer-time group due to the reduced sample size compared to Experiment 1.)

As in Experiment 1, participants were awarded additional $0.10 in earnings for a prior unrelated task. Unlike Experiment 1, which used real donations, participants in Experiment 2 were asked to imagine that they had the opportunity to donate the additional money to the child cancer nonprofit charity presented in Experiment 1. The action-default format was manipulated in the same way as in Experiment 1, and a manipulation check showed that 97% of participants understood the choice format correctly. Furthermore, participants were told that they had either 2 seconds (shorter-time condition) or unlimited time (longer-time condition) to make the decision. We chose 2 seconds to mimic the naturalistic findings from Experiment 1. Unlike in Experiment 1, participants chose between two bullet point options rather than clicking on a smiley face to make their decision. The option order (top vs. bottom choice) was randomized between participants to eliminate order effects. At the end of the study, all the participants received their $0.10 earnings in addition to their original payment. Given our sample size, we calculated that our study had 80% power to find an interaction of size d = 0.74. The distribution across conditions was: 30 in no-action default and longer time; 30 in action default and longer time; 29 in no-action default and shorter time; 30 in action default and shorter time. As in Experiment 1, we used the following donation evaluation scale as a control in our analyses:

Evaluations. Participants answered four items regarding their donation evaluations. We introduced the items with "Please indicate to what extent you agree with the following statements." The four items used the scale 0 = not at all, 10 = very much, and were: (a) *Donating money is something I dislike*, (b) *When I was considering my decision, I liked the idea of donating money*, (c) *When I was considering my decision, I thought donating money was the right choice*, and (d) *When I was considering my decision, I was not interested in donating money*. The full scale displayed strong internal consistency (α = .84). The average of the four items was used as a measure of evaluations.

TABLE 3. Effects on Donations: Experiment 2

	Donation behavior		
	B	***SE***	***p***
Constant	−1.012	1.147	.377
Choice format	−0.315	0.523	.547
Decision time	−1.119	0.550	.042
Choice format × Decision time	2.143	0.784	.006
Donation evaluations	0.214	0.181	.239
Null deviance/residual deviance		164.5/152.9	
AIC		161.9	

Note. Logistic regression predicting donation behavior from choice format (no-action default vs. action default), Decision time condition (longer or 2 seconds), and their interaction. *B* is the estimated logit coefficient. *SE* is the standard error of the coefficient. Choice format was coded as 0 = no-action default, 1 = action default, and decision time was coded as 0 = longer time, 1 = shorter time.

RESULTS

Confirming our manipulation, participants in the shorter-time conditions made a decision more quickly (M = 1.71, SD = 0.46) than those in longer-time conditions (M = 5.74, SD = 4.87; t = 8.77, $p < .001$). We performed a logistic regression with donation behavior as the outcome and choice format, decision time (shorter vs. longer), and their interaction as predictors. As shown in Table 3, the interaction between choice format and decision time was significant. When decision time was only 2 seconds, the action-default format (73%) led to more donations than the no-action-default format (31%; $p < .001$). In contrast, when decision time was longer, the action-default format (50%) had no significant advantage over the no-action-default format (57%, p = .605; see Table 4 and Figure 3; $d_{\text{interaction}}$ = 1.18, 95% CI [0.62, 1.73]).

DISCUSSION

Experiment 2 included a manipulation of decision time, which, like the natural variation in decision times in Experiment 1, produced a larger action-default advantage when decision time was shorter. Experiment 2 was designed to produce a replication of this effect. Furthermore, Experiment 2 tested whether the effect of our omnibus manipulation disappeared after controlling for participants' perceptions that the time was limited. Such evidence would suggest that the effect of our decision time manipulation was due to motivation rather than actual ability to make a decision. In addition, we controlled for social norms and evaluations regarding donation, as defaults can change these perceptions often predict donation.

TABLE 4. Effects on Donations and Potential Mediators: Experiment 3

	Donation behavior		
	B	***SE***	***p***
Constant	−6.834	2.200	.002
Choice format	0.530	0.676	.433
Decision time	−1.555	0.657	.018
Choice format × Decision time	3.467	1.184	.003
Perceived time	−0.120	0.233	.606
Donation evaluations	0.837	0.223	<.001
Donation norms	2.374	0.848	.005
Null deviance/residual deviance		162.6/98.4	
AIC		112.4	

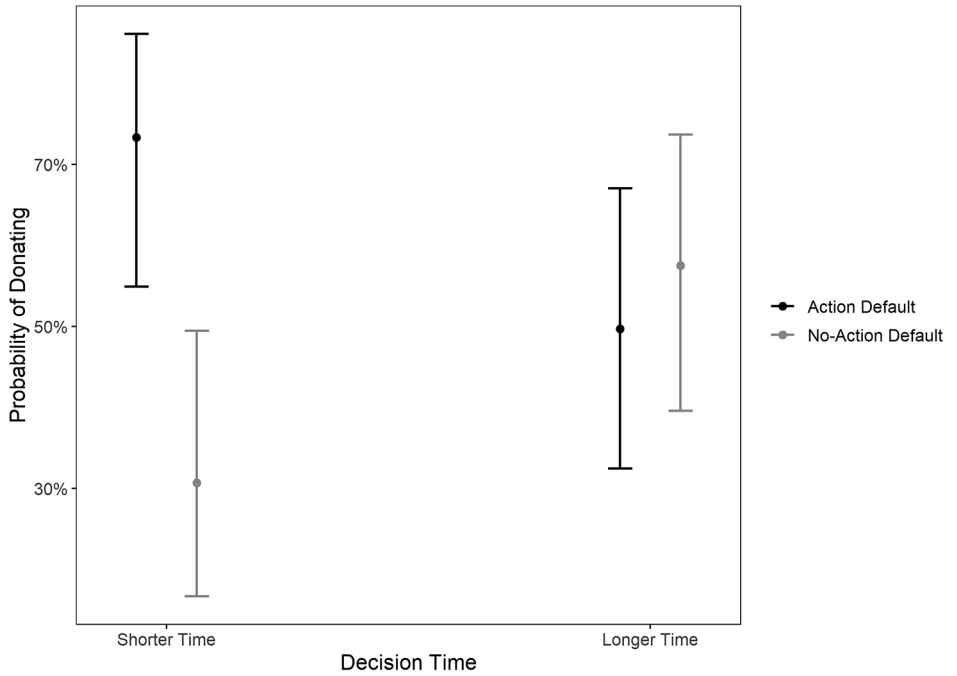
Note. Top panel is a logistic regression predicting donation behavior from choice format (no-action default vs. action default), Decision time condition (longer or 2 seconds), and their interaction. Second and third panel are linear regression predicting specified mediator same model as top panel. *B* is the estimated logit coefficient. *SE* is the standard error of the coefficient. Choice format was coded as 0 = no-action default, 1 = action default, and decision time was coded as 0 = longer time, 1 = shorter time. Donation norm was coded such that low values imply not donating is the norm, whereas high values indicate donating is the norm. Greater evaluation means indicate more favorable evaluations of donation.

EXPERIMENT 3: MANIPULATING DECISION TIME

Two hundred and twenty-two participants from the Amazon MTurk website (43% female, M_{age} = 32.77, SD_{age} = 10.5; age 19 to 76; 98% native speakers of English; 73% Caucasian, 4% African American, 7% Hispanic, 6% Asian, 10% other ethnicity) were recruited to participate in this study in exchange for $0.40 payment. We used the same 2-choice format (action default vs. no-action default) × 2 decision time (shorter vs. longer) between-subjects design as Experiment 3. Finally, participants also answered questions about the perceived time they had to make a decision, social norms regarding the decision, and their donation evaluations immediately after making their decision. Given our sample size, we had 80% power to find an interaction of size d = 0.54. The distribution across conditions was: 56 in no-action default and longer time; 54 in action default and longer time; 56 in no-action default and shorter time; and 56 in action default and shorter time.

METHOD

Experimental procedures were the same as in Experiment 2. For self-reported measures, we used a total of 10 items to measure perceived time, social norms, and evaluations. We assessed measurement validity using both internal consistency (Cronbach's alpha) and confirmatory factor analyses of all items. Factor loadings and model fit were sufficient for the full model (RMSEA = .083, 95% CI [.032, .129],



Note. Y-axis is marginal probability of a participant donating to a nonprofit organization in each condition. Longer time were conditions where participants had no restrictions on their decision time. Shorter time were conditions where participants had 2 seconds to make their decision. Graph presents corrected means and 95% confidence intervals accounting for participant attitudes to donation behavior.

FIGURE 3. Percentage probability of donating by interaction of time and default type: Experiment 2

CFI = .95; see Supplement for full details). Decisions regarding final scale items were made using information from both statistical analyses.

Perceived Time. Participants answered three items regarding the perceived time they had to make a decision. We introduced the items with "Please indicate to what extent you agree with the following statements" and each item used the scale 0 = not at all, 10 = very much. The items were: (1) *I felt prepared to make a decision when I was asked to*, (2) *I was able to make the decision I wanted to when the choice was presented*, and (3) *I did not have enough time to make my decision*. The third item was reverse-scored and the average of the three items was used as an index of perceived time. The scale displayed sufficient internal consistency ($\alpha = .80$).

Social Norms. Participants answered three categorical items regarding perceived social norms. The questions were: (1) *When you made your decision, what did you think the social norm was*, and (2) *When you made your decision, what did you think others might do in this situation*. Each item had three response categories. Each question had three

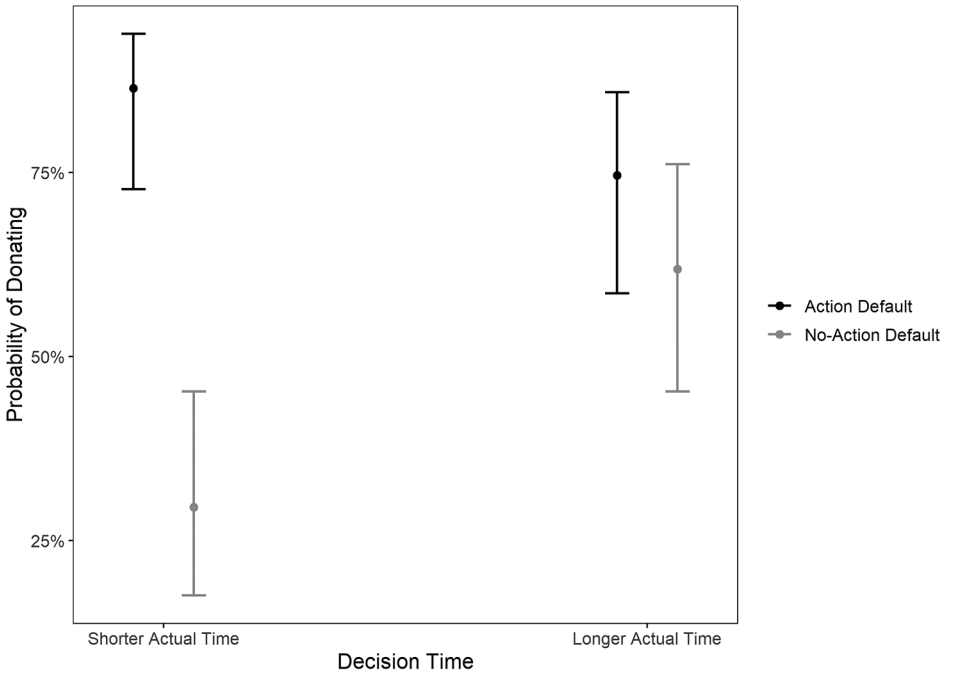
categorical answers: (1) *To donate*, (2) *To not donate*, or (3) *Unsure*. For relevant analyses, we removed these third responses as endorsing these options was uncorrelated between items. The two items displayed moderate internal consistency (α = .69).

Evaluations. Participants answered six items regarding their donation evaluations. We introduced the items with "Please indicate to what extent you agree with the following statements." The first five items used the scale 0 = not at all, 10 = very much, and were: (1) *Donating money is something I value*, (2) *Donating money is something I enjoy*, (3) *When I was considering my decision, I liked the idea of donating money*, (4) *When I was considering my decision, I thought donating money was a good idea*, and (5) *When I was considering my decision, I was not interested in donating money*. We also asked them to complete a bipolar scale item "*Donating money is* [0 = unpleasant, 10 = pleasant]." The full scale displayed moderate internal consistency (α = .67), which increased to α = .86 after removing *When I was considering my decision, I was not interested in donating money*. The average of the remaining five items was used as a measure of evaluations, although results replicated with the full scale.

RESULTS

Once again, participants in the shorter-time conditions decided more quickly (M = 2, SD = 0.2) than those in longer-time conditions (M = 6.1 seconds, SD = 6.7). We first checked for a main default effect. A logistic regression comparing action defaults (80% donation rate) with no-action defaults (45% donation rate) showed no main effect of the default manipulation on donation rates (B = 1.44, SE = 0.35, $p < .001$). We then performed a logistic regression with donation behavior as the outcome and choice format, decision time (shorter vs. longer), and their interaction as predictors. In addition to donation evaluations, we also controlled for donation norms and perceived time to make a decision. As shown in Table 4, the interaction between choice format and decision time was significant, as was the main effect of choice format. When decision time was 2 seconds, the action-default choice format (86%) led to more donations than the no-action-default choice format (32%), p = .001 (see Figure 4). In contrast, when the decision time was longer, the action default choice format (74%) had a marginal advantage over the no-action-default choice format (57%), p = .064 ($d_{\text{interaction}}$ = 1.05, 95% CI [0.652, 1.446]).

Finally, we conducted analyses to determine if the perceived aspects of our manipulation contributed to the effect of the decision time manipulation. We ran a linear regression with self-reported perceived time to respond as the outcome and choice format, decision time (shorter vs. longer), and their interaction as predictors. There was neither a main effect of limited time condition (B = 0.117, SE = 0.294, $p > .05$), nor an interaction effect (B = −0.469, SE = 0.418, $p > .05$). This pattern of results was present when the analyses were repeated with the individual perceived time items instead of the complete measure of perceived time. In conclusion, across decision time conditions, participants did not report large differences in the perceived time to make a decision, suggesting that actual rather than perceived time was likely at play.



Note. Y-axis is marginal probability of a participant donating to a nonprofit organization in each condition. Longer time were conditions where participants had no restrictions on their decision time. Shorter time were conditions where participants had 2 seconds to make their decision. Graph presents corrected means and 95% confidence intervals accounting for participant attitudes to donation behavior.

FIGURE 4. Probability of donating by interaction of time and default type: Experiment 3

DISCUSSION

Experiment 3 had two goals. First, we were interested in replicating our finding that the action-default advantage is more prevalent when people have a short time to make a decision and did in fact replicate this finding. Second, we tested whether the effect of decision time disappeared when controlling for the effects of perceived decision time. The results suggested that our effects were due to actual rather than perceived time even when both were introduced together in our manipulation. However, it was desirable to separate the actual/perceived time manipulations through another study. Therefore, in the following experiment (Experiment 4), we crossed a manipulation of actual time with a manipulation of awareness of time. Both could have independent effects and a factorial design allowed us to examine this possibility.

As discussed previously, participants' perception that they have limited time could alter their decision-making process. Participants may be more motivated to make a decision if they know they need to do so quickly (Amabile et al., 1976). If motivation is the key, and not actual time, then perceived time should be more

important than actual time. An additional possibility is that people may also see the use of a default as a manipulative attempt to favor the default option, thus increasing bias correction (e.g., Wegener & Petty, 1997). In the following experiment, we therefore separated participants having limited time to make a decision from perceiving that there was a time limit. We also preregistered Experiment 4 https://aspredicted.org/k6id6.pdf; for the advantages of preregistration, see van 't Veer & Giner-Sorolla, 2016).

EXPERIMENT 4: PREREGISTERED TEST OF THE IMPACT OF ACTUAL AND PERCEIVED TIME

The primary purpose of this preregistered experiment was to further demonstrate that time limits promote default effects because of the actual time constraints of the situation instead of because of an increase in the motivation to make a decision earlier. Our previous experiments had manipulated actual decision time but, at the same time, participants had been told that they had either 2 seconds (shorter-time condition) or unlimited time (longer-time condition) to make the decision. Hence, in addition to the previous four conditions used in Experiments 2 and 3, we added four additional conditions in which participants were unaware of how long they would have to make their decision. We had three hypotheses: Hypothesis 1: Across the board, participants would be more likely to select the default option, leading to more donations in the action-default condition than the no-action-default condition (main effect of choice format); Hypothesis 2: Participants would be more likely to select the default option in actual shorter-time conditions, producing a greater advantage of the action default in shorter-time situations (i.e., an interaction between default type and actual time condition); and (c) Hypothesis 3: Participants would be more likely to select the default option, producing a larger action-default advantage, when they perceived that time was shorter rather than longer (i.e., an interaction between choice format, actual time, and perceived time).

METHOD

Six hundred and thirty-seven participants were recruited through Dynata, a data platform that provides a representative sample of U.S. respondents (53% female, M_{age} = 45.7, SD_{age} = 16.6; age 18 to 88; 94% native speakers of English; 75% Caucasian, 13% African American, 9% Hispanic, 3% Asian, 0% other ethnicity) for industry-standard payment (see preregistration file for review).[3] We used a 2-choice format (action default vs. no-action default) × 2 actual decision time (shorter vs. longer) × 2 perceived decision time (aware vs. not aware of the available decision time) between-subjects design.

3. Our preregistration stated we would recruit 400 participants. Dynata obtained more participants than planned due to the possibility of incomplete cases and data problems. However, we did not receive the dataset until all responses had been completed, and had no opportunity to check results or stop data collection prior to receiving the data used in these analyses.

As in all previous experiments, participants were awarded additional $0.10 in earnings for a prior unrelated task. The default manipulations were the same as in Experiments 2 and 3. The actual decision time manipulation involved participants being allocated to either having 2 seconds or unlimited time to make their decision. The perceived time limit manipulation involved telling or not telling participants how long they had to make their decision. The conditions with time perception replicated Experiments 2 and 3. The conditions without time perception had the same decision times but our description of the task did not mention how long the participant had to make their decision. That is, participants in the action-default, actual short time, no time perception condition were not told that they had 2 seconds to make their decision. Likewise, participants in the action-default, actual long time, no time perception condition were not told that they had unlimited time to make their decision.

The other procedures were the same as in Experiments 2 and 3. At the end of the study, participants who chose not to donate received their extra $0.10 in addition to their original payment obtained for their participation in the sorting task. Any amount that was donated by participants was donated to the organization. Given our sample size, we calculated that we had 80% power to detect a two-way interaction of size $d = 1.31$. The distribution of participants across conditions was: 77 in no-action default, actual longer time, aware of time; 77 in action default, longer actual time, perception of time; 79 in no-action default, shorter actual time, perception of time; 81 in action default, shorter actual time, perception of time; 82 in no-action default, longer actual time, no perception of time; 80 in action default, longer actual time, no perception of time; 82 in no-action default, shorter actual time, no perception of time; and 79 in action default, longer actual time, no perception of time.

RESULTS

Similar to our previous experiments, we ran a logistic regression predicting the likelihood of donating from all the main effects and interactions involving our three experimental manipulations. As in all previous experiments, participant donation evaluations were included as a control variable. Table 5 presents a progression of models testing our three hypotheses. In line with Hypothesis 1, participants were more likely to select the default option than the alternative option. A logistic regression comparing action defaults (76% donation rate) with no-action defaults (47% donation rate) revealed an overall positive effect of the action default on donation rates ($B = 1.42$, $SE = 0.319$, $p < .001$). In addition, in line with Hypothesis 2, participants were more likely to donate if they were in the action-default condition and had a shorter (vs. longer) actual time to make a decision (86% with shorter time vs. 66% with longer time). When time was longer, there was no significant difference between the action and no-action defaults (66% with action default vs. 64% with no-action default, $p = 0.506$). This pattern was supported by a significant interaction between default condition and actual time $d_{\text{interaction}} = 1.56$, 95% CI [1.33, 1.79].

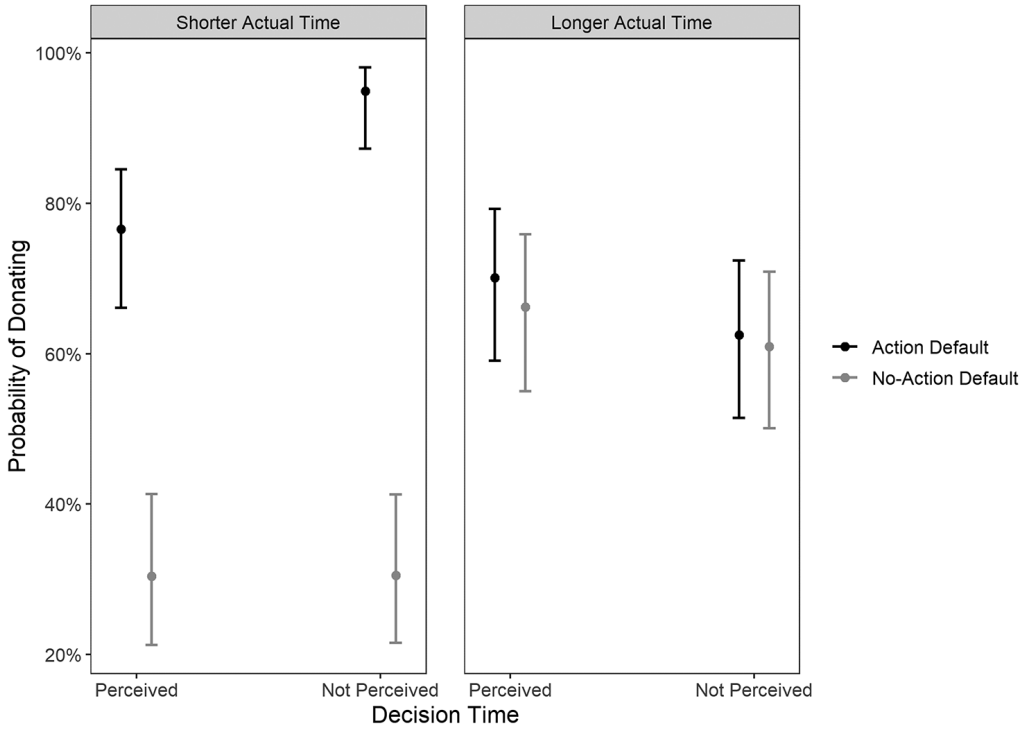
TABLE 5. Effects on Donations: Experiment 4

	Hypothesis 1			Hypothesis 2			Hypothesis 3		
Donation behavior	***B***	***SE***	***p***	***B***	***SE***	***p***	***B***	***SE***	***p***
Constant	−2.049	0.281	<.001	−1.480	0.307	<.001	−1.506	0.345	<.001
Choice format	1.421	0.189	<.001	0.122	0.255	.632	−0.031	0.349	.929
Actual decision time	-	-	-	−1.492	0.259	<.001	−1.521	0.363	<.001
Perceived decision time	-	-	-	-	-	-	0.023	0.359	.950
Choice format × Actual decision time	-	-	-	2.875	0.410	<.001	4.417	0.749	<.001
Choice format × Perceived time limit	-	-	-	-	-	-	0.336	0.514	.514
actual decision time × Perceived decision time	-	-	-	-	-	-	0.053	0.514	.918
Choice format × Actual decision time × Perceived decision time	-	-	-	-	-	-	−2.439	0.921	.008
Donation evaluations	0.264	0.034	<.001	0.287	0.410	<.001	0.289	0.037	<.001
Null deviance/residual deviance	829.6/702.3			829.6/645.4			829.6/632		
AIC	708.31			655.38			650.02		

Note. Logistic regression predicting donation behavior from choice format (no-action default vs. action default), actual decision time condition (unlimited or 2 seconds), perceived time (aware vs. unaware of available time), and all their interaction. *B* is the estimated logit coefficient. *SE* is the standard error of the coefficient. Choice format was coded as 0 = no-action default, 1 = action default; actual decision time was coded as 0 = unlimited, 1 = 2 seconds; and perceived decision time coded as 0 = unaware of allowed decision time, 1 = aware of allowed decision time. Hypothesis 1: Participants will be more likely to select whichever default option they are given. Hypothesis 2: Participants will be more likely to select the default option if they are in situation with limited time. Hypothesis 3: Participants will be more likely to select the default option if they perceive the situation is limited in time.

To test Hypothesis 3, we ran a logistic regression with choice format, actual time, perceived time, and all interactions predicting likelihood of donation. Counter to Hypothesis 3, participants were not more likely to select the default option when they perceived that time was shorter than longer (for actual short time, an action-default advantage of 46% for perceived time vs. an advantage of 65% for not perceived time; Table 5, panel "Hypothesis 3"). As can be seen in the left panel of Figure 5, the action-default advantage was actually greater when participants in the short actual time condition were unaware of how much time they had. This result implies that the time perception did not cause the default advantage, and if anything, it diminished it.

Finally, it is worth noting that perceived ability to respond was controlled for in all analyses and that the effects remained the same despite this statistical control. Furthermore, in a linear regression, we found no effect suggesting that those in the low actual time and no perception of the time they had reported differences in



Note. Y-axis is marginal probability of a participant donating to a nonprofit organization in each condition. Upper labels reference the actual decision time participants had. Bottom X-axis labels indicate if the available time was perceived or not perceived. Graph presents corrected means and 95% confidence intervals accounting for participant attitudes to donation behavior.

FIGURE 5. Marginal means of donation by experimental condition in Experiment 4

their ability to make a response. Therefore, this effect is at least not reportedly due to participants being shocked that the page advanced without them being able to make a decision ($B = 0.166$, $SE = 0.477$, $p = .728$).

DISCUSSION

Experiment 4 examined whether the interaction between default type and decision time was due to the actual time decision makers have or to how much time decision makers perceived they had to make their decision. First, like in the earlier experiments, we found that participants were more likely to donate with an action default than with a no-action default. Second, this difference was large when the actual time to make a decision was shorter and absent when it was longer. Third, counter to our Hypothesis 3, participants were not more likely to select the default option when they perceived that time was shorter. In fact, they donated less compared to their counterparts who were unaware of how long they had to make a decision when decision time was short. This finding suggests that calling attention

to the time limit may motivate participants to correct for the manipulation as a way of avoiding an unwanted influence of the response format (Schwarz & Clore, 1983; Wegener & Petty, 1997). Finally, as expected, we did not see any effect of perceived time on those who had unlimited time to make their decision.

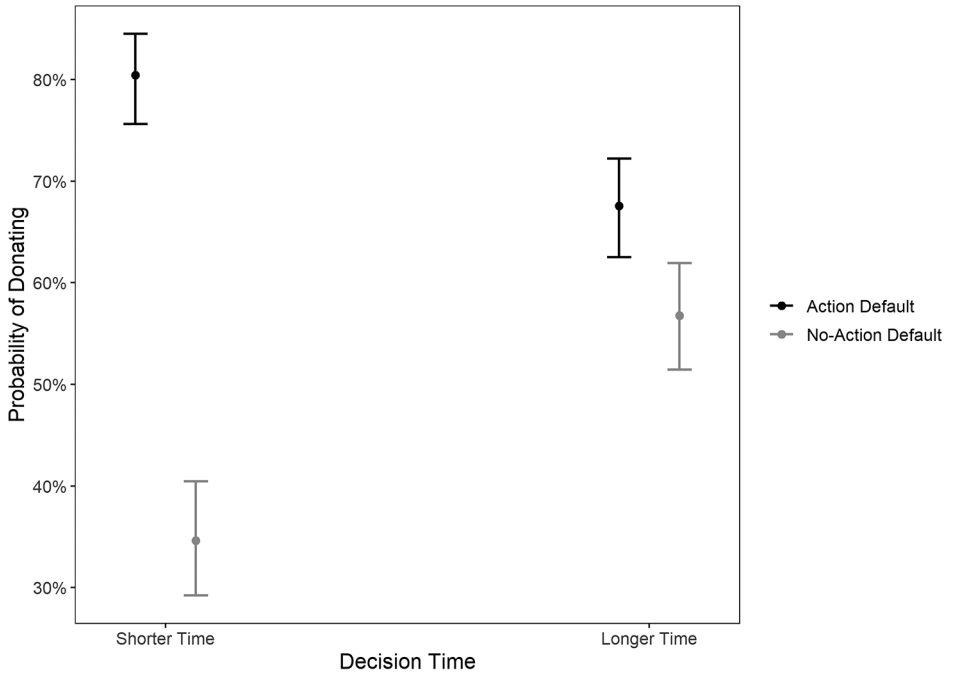
To conclude and to provide the most accurate estimate of the effects of decision times on the action-default advantage, we conducted an individual data meta-analysis using all the experimental data we collected, including several pilots and related experiments, and the previously presented experiment. This meta-analysis was conducted to determine replicability and to estimate an average effect size (Mcshane & Böckenholt, 2017).

META-ANALYTIC SYNTHESIS

In addition to the studies reported in the main text of this article, we ran several additional studies to develop the ideas we presented in this paper. These studies were predominantly pilots that used either modified or different manipulations than reported in the main text. For instance, two studies used a longer decision time (Studies S3 and S4) that produced nonsignificant default effects although the effects were directionally consistent to those reported in Experiments 2–4. We therefore thought it was appropriate to include these as part of the meta-analytic synthesis as they did manipulate both decision time and defaults. This analysis uses data collected from all studies that manipulated default choice. Not all studies manipulated decision time. If a study did not, participants in these conditions were labeled as "longer time" participants as they matched the treatment given to participants in this condition for Experiments 2–4. If a study contained both shorter-time and longer-time decisions (e.g., Experiments 2–4), all information was used and coded according to condition.

METHOD

Our meta-analysis contained data from 14 independent experiment groups containing seven effect sizes for the format and decision time interaction (total N = 2,359; 795 shorter-time decisions, 1,564 longer-time decisions). Choice format was randomized in each study, but studies differed in both choice format and decision time. Therefore, some variability is due to between-study effects. A complete list of details for all studies included in the analysis is available in Table S8, and we report full analyses for the four additional experiments in the supplement. As we had access to all participant data, we utilized an individual data meta-analysis (IDM) to estimate our effects. An easy to interpret method of conducting IDM is to treat the data as a mixed-effect hierarchical model with conditions nested within studies. We included both a random effect for experiment as well as experiment × condition interaction, thus capturing variance between studies while providing an estimate for condition effects (Stewart et al., 2012). We chose not to calculate a measure of heterogeneity (I^2 or Q) due to both of these statistics having undesirable biases when the number of studies in the analysis is small (Hoaglin, 2017). We



Note. Y-axis is marginal probability of a participant donating to a nonprofit organization in each condition across all studies included in the meta-analysis, accounting for random effects. Graph presents corrected means and 95% confidence intervals accounting for participant attitudes to donation behavior. Synthesis includes data from all reported studies in main text and supplement that manipulated both decision time and default format.

FIGURE 6. Meta-analytic estimates of donation as a function of choice format and decision time

also report the standardized mean difference representing the interaction effects along with their confidence intervals in Figure 6.

RESULTS

We first performed a multilevel logistic regression with donation as the outcome measure, a random effect for each study and condition, and fixed effects for choice format. We found greater donation rates in action-default compared to no-action-default conditions (78% vs. 61%, $p < .001$) We then performed a multilevel logistic regression with donation as the outcome measure, a random effect for each study, and fixed effects for choice format, decision time, and their interaction. The results from these analyses appear in Table 6. The interaction effect was significant ($p < 0.001$), with shorter-time conditions having increased acceptance of the default option relative to longer-time conditions (see Figure 6. Overall estimates for the action default were 78% versus 61% for shorter- and longer-time conditions, in contrast to 33% vs. 51% for the no-action-default donations ($d_{\text{interaction}} = 1.19$, 95% CI [1.06, 1.32]).

TABLE 6. Results from Meta-analysis

	Donation behavior		
	B	***SE***	***p***
Experiment (random effect)	0.300	0.545	
Experiment × Condition (random effect)	0.134	0.366	
Constant	−1.058	0.209	.001
Choice format	2.102	0.221	<.001
Decision time	0.951	0.148	<.001
Choice format × Decision time	−1.647	0.212	<.001

Note. Multilevel logistic regression predicting donation from choice format (no-action default vs. action default), decision time condition (longer or 2 seconds), and their interaction. Studies assumed to have random intercepts and fixed slopes given similar samples. *B* is the estimated logit coefficient. *SE* is the standard error of the coefficient. $k = 8$ independent studies. Choice was format coded as 0 = no-action default, 1 = action default, and decision time was coded as 0 = longer time, 1 = shorter time.

GENERAL DISCUSSION

The role of time in producing the action-default advantage has remained understudied even though processing time is a critical factor in the broader judgment and decision-making literature (Ariely & Zakay, 2001). Across four experiments measuring effects on donation, we examined whether an action-default format is more effective when decision time is shorter than longer. In Experiment 1, we found that defaults have strong effects among those that spontaneously make quick decisions. We then manipulated decision time in Experiments 2, 3, and 4 to assess causality and the robustness of this effect. We found that participants who had their decision time constrained to be short were more likely to donate in response to action-default options in Experiments 2–4. The size and significance of the default effect was consistently small when decision time was unconstrained, with a null difference between defaults in all four experiments presented here. A significant effect was only found when pooling participants from all studies in our meta-analysis ($N = 1{,}564$). We then correlationally separated the effects of participant's perceived time to make a decision from their actual time (Experiment 3) and found that actual decision time appeared to be the primary driver of our effect. Finally, we experimentally manipulated perceived decision time (Experiment 4) and confirmed our conclusion from Experiment 3. Our primary effect that quicker decisions creates the action-default advantage replicated in all experiments. Moreover, we found no statistical evidence of a default effect in individual studies when people had as long as they liked to make their decision. Rather, the overall effect of the default was only positive and significant when pooling data across all collected studies.

Several implications are noteworthy. First, situations that constrain how long people have to make a decision will favor the default option. Across all studies,

we found a stable, large difference in donations when people had less time to make their decision. This difference occurred in spite of participants reporting they had time to make a decision (Experiment 3). In comparison, the default advantage was not present when participants had unlimited time to make their decision in individual studies. In some cases, we even saw reversals of the effect (e.g., Experiment 2), and the meta-analysis found only a small action-default advantage when pooled across a large number of studies. This finding has been suggested previously in the literature, but only null results had been reported prior to our research. Second, this effect is stronger when people are unaware of how long they have to make their decision (e.g., an unexpected deadline) as shown in Experiment 4. This finding is not surprising but has yet to be documented and is an important reminder for policy makers to consider if the targeted situation has time constraints and if the selected default could produce negative effects in some circumstances. Finally, participants who perceived they were in time-limited conditions appeared to use some form of bias correction (Schwarz & Clore, 2004) that attenuated the default effect. Specific to our experiments, this finding suggests that participants took the decision seriously and exerted some effort even though the money they donated was little. More broadly, this finding also suggests that situations that may make defaults appear manipulative will be less successful in producing sizeable effects.

In the case of donation, individual donors constitute the primary contributors to charitable giving in the United States, contributing about 70% of all U.S. donations, totaling more than $200 billion in recent years (Giving USA, 2015). Given the importance of individual contributions to the public good, how to get people to donate is an important question that interests both fundraisers trying to increase contributions and social scientists trying to understand behavior (Ariely et al., 2009). One line of research claims that the intrinsic motivation of beneficence drives the donation behavior (Meier, 2006). As a result, individual giving may increase in response to communications that highlight the significance of giving. A different line of research, however, suggests that philanthropy often depends on such extrinsic, seemingly inconsequential channeling cues as *thank-you* wristbands and tax breaks (Ariely et al., 2009). This second view contends that minor contextual factors, and thus simple interventions like the defaults and time constraints proposed here, are likely to shape giving behavior.

A final point is that we produced this effect with a small donation amount ($0.10). As previously discussed, this donation amount is within the normal bounds and one that is encountered regularly in everyday life via microdonations (Center for Responsive Politics, 2020). Policy changes around defaults at checkouts may lead to increases in donations in situations that impose naturalistic time constraints and that involve similarly small donation amounts. Furthermore, even though motivation to actively make a decision with such small sums may be questionable, participants clearly showed that they cared about making even these small donations as they engaged in motivated bias correction. We think that larger donation amounts may produce different effects and suggest future replications varying the donation amount.

To summarize, we examined and found that the amount of time to make a decision is a critical factor driving default effects, with reliance on defaults when people need to make decisions quickly. We found evidence for this effect across four experiments in which participants relied on default choices more when decision time was short (vs. long). Our finding dovetails well with prior work suggesting that certain contexts can enhance or undermine defaults (Ariely et al., 2009; Jachimowicz et al., 2019). In this light, defaults are not universally or consistently effective, but rather are successful in specific scenarios (e.g., perhaps taxi tips and emergency room protocols) that should be carefully identified when considering implementation.

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