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"Many a slip between the cup and the lip": The effect of default-based nudges on prosocial behavior and attitudes

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**“MANY A SLIP BETWEEN THE CUP AND
THE LIP”:
THE EFFECT OF DEFAULT-BASED
NUDGES ON PROSOCIAL BEHAVIOR
AND ATTITUDES**

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“Many a slip between the cup and the lip”:

The effect of default-based nudges on prosocial behavior and attitudes

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Abstract

Recent evidence suggests that default based nudges i.e. alterations in the decisional context, can have large effects on decision making and can be used as policy interventions to improve individual and public welfare. This paper presents the results of a controlled experiment (N = 988), designed to evaluate not only the effectiveness of a default manipulation on decision making, but also to explore how yielding or opposing a nudge intervention later affects attitudes (towards the nudge and the nudger) and behavior in a charity giving context. The results show that while the default nudge was effective at the time of application, it was not enough to change attitudes towards the nudged behavior as would be needed for long-term success. Indeed, we rather find that those who adopted an action that went *against* the nudge were more motivated to follow on through with this action later on than those who went with the nudge. We furthermore show that giving people more leeway in how to respond to a nudge improves acceptance of the nudge. We finally discuss the practical implications of our findings in terms of the applicability of default-based nudges as a tool for policy interventions.

Keywords: Nudging, defaults, decision making, prosocial behavior, charity giving, behavioral economics

JEL: C9, D04, D12, D64, H41

Most people value the environment, their health, and pro-social behavior, but they often persist behaving in ways that undermine long term individual and public welfare. New types of policy interventions target the automated component of human decision making by shaping the context in which decisions are made without restricting the range of choices available to the individual. This kind of decisional enhancement was labeled “*nudging*” by Thaler and Sunstein (2008) and generates great interest amongst policymakers worldwide. To date however, the ability of such interventions to change behavior in the general population in the long-term has seldom been evaluated (Marteau, et. al., 2011).

The most popular nudges manipulate defaults (Willis, 2013). Defaults are the option an individual obtains when not actively stating otherwise. Making an option a default increases the likelihood it is chosen (e.g. organ donation: Johnson & Goldstein, 2004). Defaults may appear to be normative statements, or recommended actions, and opposing them may involve some effort and come with a cognitive and emotional cost. This makes it likely that people will stick to them (McKenzie, Liersch, & Finkelstein, 2006). We consider in this paper the extent to which people who are gently pushed towards some specific behavior are then committed to it afterwards. Our worry is that people who resist the nudge and opt out of a default may develop worse negative attitudes towards the default behavior and the nudging institution so as to reinforce the merits of their decision.

We present in this paper an experiment that deals with the effect of default-based nudges on charity giving. While nudges generally represent short-term interventions that affect behavior directly, we explore not only whether nudged behavior persists after a certain period of time in the absence of a nudge, but also whether this longer-term effect affects those who comply with and those who resist a nudge in different ways.

The influence of nudges in the longer term, rather than simply on the immediate behavior of nudged individuals, is behind some recent published research. Some research shows that nudges can have persistent effects: Allcott & Rogers (2014) show that the effect of

providing comparisons of energy consumption with neighbors decays at about 10 to 20% per year after an initial phase of two years of nudging. Altmann & Traxler (2014) who study nudges to get dental check-ups find that later reminders do not either increase or decrease the effect. Other research shows that nudges can have adverse effects in the longer term. de Haan & Linde (2016) show that providing a good quality default option in an initial phase of choices makes people too likely to choose the default in a later phase where the default may also be a bad option. Adena & Huck (2016) find that encouraging donations when buying opera tickets does increase donations in a first phase, but leads to decreases in ticket sales afterwards, as patrons seek to avoid being asked for donations. Finkelstein et al. (2016) find that cash incentives to increase physical activity are effective as long as incentives are in place, but that once incentives are discontinued, those exposed to such incentives then exercise less than those not exposed. Extrinsic motivations thus appear to replace and lower intrinsic motivations.

Our present work seeks to further explore the longer-term effect of nudges. A first original contribution of our experiment is to not only track behavior after a nudge has been applied, when the nudge is not applied anymore, but also subsequent preferences and attitudes to the nudger and to the nudged behavior. A second original contribution is to explore ways to alleviate the potentially negative effects of nudges on preferences and attitudes by giving more choices for participants in how to respond to the nudge. This manipulation is relevant in many domains; for example, nudges for healthy eating may work better if the choice of healthy alternatives is broader. A third contribution is to assess the level of motivation of participants when they follow or reject the nudge (in our case, choosing the default option or not). We measure motivation by separating the act of *pledging* a donation online after a survey (easy) and the act of actually going through with the *donation* (less easy, as we require both pledgers and non-pledgers to physically collect the money from us, after which donators can put the money in a piggybank corresponding to their charity).

Hypotheses

In line with previous literature (for several examples, see Thaler & Sunstein, 2008), we check that the default option (pledge or not pledge money to a charity) is more likely to be chosen at the time of application. This is our Hypothesis 1 (“H1”), which is simply a manipulation check. We then hypothesize that, in order to avoid cognitive dissonance, people may adapt their attitudes to align their choices with their chosen option (Cooper & Fazio, 1984). Subsequent behavior and attitude towards or against the charity and the nudging institution may therefore be shaped by resisting or yielding to a nudge, which will affect pledges in the second phase. This implies that participants who were nudged to pledge in the first phase and did pledge are also likely to pledge in phase 2 in the absence of a nudge, while those who were nudged not to pledge (default is not to pledge) are also more likely not to pledge in phase 2. This is our Hypothesis 2 (“H2”).

Up to this point, our study does not differ from the studies we cited on the persistence of the effect of nudges. However, unlike other experiments, we further explore the level of commitment to the nudge-induced behavior. Because the default may be chosen due to inertia rather than real preference for the default, we hypothesize that participants who were nudged towards charity-giving and did pledge will on average be less committed to actually donate than people who were nudged not to pledge but decided to do so anyway. The converse statement also holds: those who were nudged to pledge but decide not to do so will be more motivated to collect the money for themselves than those who were nudged not to pledge and did indeed not pledge. This is our Hypothesis 3 (“H3”).

We propose an intervention that might alleviate resistance to the nudge. We give participants a choice of three charities to pledge to if they choose to pledge and compare their decisions in this case vs. the case where they are offered only one charity to pledge to. We

believe this will increase yielding and promote the persistence of the nudged pledge. This is our hypothesis 4 (“H4”). Indeed, if participants are working hard to identify the best possible choice among charities, then they are less likely to focus on the choice whether to pledge or not to pledge, and thus less likely to notice or resent the default that is presented to them. By enlarging the offered set of charities, we thus also enlarge the “market share” of the option to pledge (Tversky & Simonson, 1993). Furthermore, giving participants an active choice may make them feel less manipulated and more engaged with their decision (Martin, 2014).

Finally, because people are more satisfied with choices they deliberately made (Morewedge, Gray, & Wegner, 2010), we believe that a bigger choice set will increase deliberate engagement with their choice (due to the need for a conscious ranking of choices), which will translate in increased post-decision satisfaction when the default comes with a choice. This is our hypothesis 5 (“H5”).

Method

The study was approved by the institutional review board of the Max Planck Institute of Economics. In accordance with the Declaration of Helsinki all participants were requested to read an online consent form and agree with its terms (by clicking) before completing the online experiment.

Procedure and Materials

The experiment consisted of two successive phases. In each phase participants were invited to fill out an online survey. They were sent a link to the survey via e-mail. The survey was hosted by the Max Planck Institute and administered using the LimeSurvey Open Source survey tool (Schmitz, 2015). Participants were told they would be granted 2€ for each phase and that they would obtain the total amount of 4€ only in case they would complete both

phases. Furthermore they were informed beforehand about the location and the dates for the money collection.

Online survey. The online survey was only used as cover story for our real aim, which was to observe how participants responded to the way they were asked to pledge their remuneration to a charity. The survey consisted of various demographic questions, psychological questionnaires, and filler tasks (see appendix B).

Phase 1. After completing the online survey subjects were asked to decide whether they wanted to pledge their remuneration for participation (2€) to a charity, or to keep it for themselves. Three charities among the best known in Germany were chosen to cover different areas of need (World Wildlife Fund, German Red Cross, Amnesty International).

Nudge. The way that subjects were asked to pledge their earned money varied along two dimensions: 1) The *default option*, which was either to pledge the money to a charity, or to keep it, and 2) the *choice set*, where subjects were given either one charity, or a choice between three charities to pledge to. The subjects had to exert some effort to avoid the default option. Specifically, they were asked to type a sentence expressing their wish (either to get the money themselves or to pledge it to a charity) in case the wish contradicted the default. Participants' reaction to our manipulation (decision to pledge) constitute Dependent Variable ("DV") 1 "*pledges phase 1*".

Phase 2. The second phase followed the first after an interval of two weeks. The same participants were invited to fill another survey for 2€ and were asked to actively decide (without default) how to proceed with the earned money (keep vs. pledge to charity). Choosing one option or the other required the same effort: checking a box. Subjects who had a choice of charities in the first phase still had the same choice in the second phase, while subjects with only one option in the first phase had the same option in the second phase. Participants' reaction to our request (decision to pledge) constitutes DV2 "*pledges phase 2*".

Attitudes to charities. After the pledging decision in each phase (1 and 2) subjects were asked to fill out a questionnaire measuring their attitude to the charities. To measure participants' attitude towards each charity a 10 item questionnaire was created (α ranging from .86-.92 depending on the charity). Participants attitude in each of the questionnaires (see appendix A.1) was measured on a 7 point Likert-type scale (1= strongly disagree; 7= strongly agree). The attitude to charities constitutes DV3 "*Attitude to charity*" with higher values indicating a more positive attitude.

Satisfaction with the drive for money donations. The attitude towards the drive for money donations was calculated as a sum of 5 questions (see appendix A.2). This is a modestly reliable measure, with $\alpha=0.66$. The satisfaction with the drive constitutes DV4 "*Satisfaction*" with higher values indicating higher satisfaction.

Donation. Participants were given two weeks to collect the money and were instructed to give out what they had previously pledged in one of three piggybanks, each labeled with the name of a different charity. Collecting the money from the university involved some effort and therefore allowed us to assess the level of commitment to one's own pledge. Whether the subject donated (allocated money in piggybank) or not occurred out of sight of the experimenter, therefore DV5 "Donation" is based only on the pledges that those people who came to collect the money had made, and not on actual donations.

Control treatment. The procedure was supplemented with a control treatment where subjects only took part in the first phase of the experiment and were asked to fill out the survey and to state their attitudes towards the three charities, without being asked for donation. This treatment was introduced to compare how a drive for money (with or without nudge) affects attitudes towards the charity and the nudger as compared to a baseline without this request.

Control questions. To measure participants' involvement with the study the same questions (demographic questions in online survey) were asked in the first and the second

phase of the experiment. Inconsistent subjects (inconsistency of more than 10% between phase 1 and 2) would be eliminated from the analysis. A control questions was included in phase 2 to test whether people remember their decision they took in phase 1: “*Do you remember what you pledged in the first phase of the experiment?.*”

	3 days	2 weeks	3 days	2 weeks
Randomized E-Mails to N=3762 subjects (Max Planck Orsee database)	A. Questionnaires and Filler Tasks		A. Questionnaires and Filler Tasks	Collection of money and contribution to charity (n=460)
	B. Manipulation		B. Manipulation	
	Nudge to keep, one charity (n=210)		Active choice, no choice: one charity. (1&2, n=346)	
	Nudge to pledge, one charity (n=190)		Active choice, choice: three charities (3&4; n=330)	
	Nudge to keep, three charities (n=191)			
	Nudge to pledge, three charities (n=195)			
	Control: no possibility to pledge (n=202)			
	C. Questionnaire about attitude to charity, the nudger (Max Planck Institute) and the nudge.		C. Questionnaire about attitude to charity, the nudger (Max Planck Institute) and the nudge.	

Figure 1. Chronology of the experiment

Participants

3762 subjects from the ORSEE participant database of the Max Planck Institute of Economics in Jena were invited via e-mail to take part in the experiment. Termination of data collection was decided in advance, based on a fixed amount of days (3 days). Our goal was to obtain 150-200 participants per treatment in order to have a probability higher than 80% of observing a significant difference between pledges when the nudge is to keep and pledges when the nudge is to pledge. Simulations were run assuming the nudge increased pledges by

10 to 15% from a level of 20 to 30%, and we required a 5% significance level with a Welch t-test with unequal variances.

988 participants ($M_{age} = 24$; 65% female, 95% Germans; 56% high school degree) completed the first phase (26% response rate). 88% of those who finished the first phase started the second phase, and 53% of those who finished the second phase came to collect the money (46% for participants in the control treatment). None of the participants was excluded from the analysis. Figure 1 represents the chronology of the experiment with the exact numbers of participants in each phase.

Design

Participants were randomly assigned to a 2 (default: pledge vs. keep) x 2 (choice set: one vs. three) between subjects design. Dependent measures were 1) pledges in the first phase, 2) pledges in the second phase, 3) donations, 4) attitudes and 5) satisfaction. The results are presented following the chronology of the experiment and the order of hypotheses.

Results

Throughout the present paper, significance tests were conducted with $\alpha \leq .05$. Figure 2 shows pledges in the first phase for each treatment (with participants numbers normalized to 200), pledges in the second phase as a function of pledges in the first phase, and finally pledges of those participants who came to collect the money at the end of the experiment.

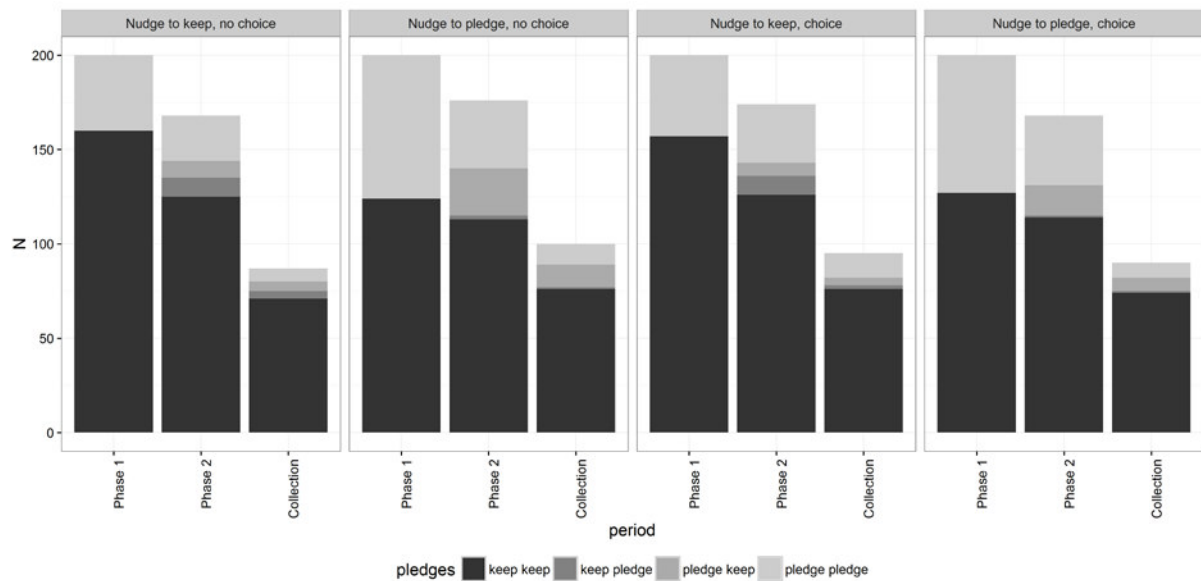


Figure 2. Participation and pledges over phases by treatments. In phase 1, participants are divided into those who pledge and those who keep. In phase 2 and at collection, participants are divided into four categories, depending on pledge in first phase and pledge in second phase. For example, “keep pledge” is a participant who kept in the first phase and pledged in the second.

Effect of the nudge in the first phase

37.1% of participants who were nudged to pledge made a pledge in the first phase, compared with 20.7% if they had been nudged to keep (difference, $z = 5.09$, $p < .01$). 28.4% of participants with no choice of charity pledged, compared with 29.1% if they had a choice of charity (difference, $z = 0.23$, $p = .81$). There was no significant difference in the effect of nudges between treatments with choice and no choice.

Result 1: As hypothesized (H1), setting the default to pledge was effective in increasing the level of pledges to charities. Nudged participants were almost twice more likely to pledge donations to charities in the first phase of the experiment.

Persistence of the nudged behavior

22.1% of participants who were nudged to pledge in the first phase pledged in the second phase, compared with 21.8% if they had been nudged to keep ($z = 0.07, p = .95$). 20.8% of participants with no choice of charity pledged in the second phase, compared with 23.1% if they had a choice of charity ($z = 0.73, p = .47$). There was no significant difference in the effect of nudges between treatments with choice and no choice.

***Result 2:** Participants who were nudged to pledge in the first phase were neither more nor less likely to pledge in the second phase and giving a choice of charities did not make pledging more likely to be sustained. Hypothesis 2 is not supported.*

We can develop on this result by considering whether nudging subjects to pledge, and thus leading them to disproportionately pledge (Result 1) also changed their attitudes to charities (DV 3). We find that those who pledged had better attitudes to charities ($M = 37.74$; $SD = 8.75$; $N = 227$) than those who did not ($M = 27.91$; $SD = 9.25$; $N = 559$, difference: $t = 13.71, p < .01$). Because more people pledged in the nudge to pledge treatments, this ought to mean that average attitude to charities in treatments with a nudge to pledge ($M=31.22$, $SD=10.08$, $N=385$) would be significantly better than in the treatments with a nudge to keep ($M=30.29$, $SD=10.17$, $N=401$). However, that is not the case (difference: $t=1.29, p=.20$). This is because of the combination of less motivated pledgers in the nudge to pledge treatment and less motivated non-pledgers in the nudge to keep treatment: those who did not pledge in the nudge to pledge treatment had worse attitudes to charities ($M = 27.65$; $SD = 9.12$; $N = 242$) than those who did not pledge in the nudge to keep treatment ($M = 28.11$; $SD = 9.35$; $N = 317$, difference: $t = 0.58, p = .56$) and those who pledged in the nudge to keep treatments had better attitudes ($M = 38.55$; $SD = 8.85$; $N = 84$) than those who pledged in the nudge to pledge treatments ($M = 37.27$; $SD = 8.68$; $N = 143$, difference: $t = 1.07, p = .29$).

Differences in persistence of pledging and non-pledging behavior is also consistent with subjects being less motivated to pledge in the nudge to pledge treatments and less

motivated not to pledge in the nudge to keep treatments. Indeed, we find that persistence in not pledging increased from 92% in the nudge to keep treatments – meaning that 92% of those who did not pledge in the first phase did not pledge in the second phase – to 99% in the nudge to pledge treatments ($z = 3.23$; $p < .001$). Conversely, persistence in pledging decreased from 76.4% if the default was to keep to 63.6% if the default was to pledge ($z = 1.81$; $p = .07$).

Overall, a comparison of statistics in the first phase with the second phase is consistent with the view that nudges did not change attitudes to charities but rather acted only as a momentary obstacle to following one's inclination.¹

Commitment towards pledged behavior

We further measure the level of commitment of our participants to their pledges by requiring all of them to personally come collect their remuneration for taking part in our two waves of surveys, whether they stated that they intended to donate the money to a charity or not.

We first check in our survey that participants had a good recall of what they pledged to do, and we also checked, in the aggregate, if donations corresponded to the pledges made by those participants who did come to collect their remuneration. We find that there was a good correspondence between pledges and recall of pledges, and between pledges and actual

¹ We also find that attitudes to charities were more positive in our control treatment, where we did not ask for any pledges ($M = 32.07$; $SD = 8.69$, $N = 202$) than average attitude to charities in the treatments where subjects were given the possibility to pledge to a charity ($M = 30.75$; $SD = 10.13$; $N = 786$, difference: $t = 1.70$, $p = .09$). We can relate this later result to the “ask-avoidance” evidenced in Adena & Huck (2016).

donations. Only 10 subjects did not remember their pledge of the first phase when completing the survey of the second phase. 97.6% of those who said they did not pledge had indeed not pledged, and 100% of those who said they had pledged had indeed done so. We also find that 77% of the amount of money pledged by those participants who came to collect the money was indeed donated (Table 1). Participants had a good recall of their pledges, and they did go through in their large majority with their pledges. We show in Table 1, by treatment and levels of euros pledged, how many participants came to collect the money (in %).

Table 1 *Percentage and number of participants in the second phase who came to collect money, by treatment and amounts pledged.*

Treatments	Pledges			Total
	4€	2€	0€	
Nudge to keep, One charity	28.0% (N=25)	42.9% (N= 21)	56.4% (N= 133)	50.8% (N= 179)
Nudge to pledge, One charity	29.4% (N= 34)	46.2% (N=26)	67.3% (N= 107)	56.3% (N= 167)
Nudge to keep, Choice of charities	43.3% (N= 30)	35.3% (N=17)	60.7% (N=122)	55.0% (N= 169)
Nudge to pledge, Choice of charities	22.2% (N= 36)	47.1% (N=17)	64.9% (N=111)	53.7% (N=164)
Total	30.4% (N=125)	43.2% (N=81)	61.9% (N=473)	53.9% (N=679)

Having shown that participants remembered their pledges and generally went through with them, we can now examine the level of motivation of our participants depending on their pledges and the direction of the nudge. We find that subjects who pledged in the “nudge to pledge” treatments were not consistently less likely to come collect the money than those who pledged in the “nudge to keep” treatments. Those who pledged 2€ were also more likely to come collect the money if they had been nudged to pledge than if not (with no choice: 46.2%

vs. 42.9%; with choice: 47.1% vs. 35.3%). Those who pledged 4€ were more likely to come collect the money if they had been nudged to pledge in the “no choice” treatment (29.4% vs. 28.0%). However, the difference is in the opposite direction for the “choice” treatment (22.2% vs. 43.3%). The effect of nudges to pledge on the motivation of pledgers is therefore not consistent and the overall effect is not significant.

However, we find that the overall percentage of participants who did not pledge anything and came to collect the money was 66.1% in the treatments with a nudge to pledge (no choice: 67.3%; choice: 64.9%) vs. 58.4% in the treatments with a nudge to keep (no choice: 56.4%; choice: 60.7%). This difference is significant ($z = 1.70$, $p < .05$) and is especially large in the treatments without a choice of charity (67.3% vs. 56.4%). We can therefore express the following result:

Result 3: *Nudging participants to pledge to a charity did not make those who pledged less likely to come and collect the money at the end of the experiment. However, nudging participants to pledge did make non-pledging participants more likely to come and collect the money. Hypothesis 3 is thus partly supported.*

Because participants who kept the money were disproportionately more likely to come collect the money in the nudge to pledge treatments, we find that while the percentage of money that was pledged by collecting participants in the “nudge to pledge” treatment without choice was higher than in the equivalent “nudge to keep” treatment (17% vs. 13%), the relationship was inverted in the equivalent treatments with choice (14% vs. 17%) (Table 2). In the aggregate, there was therefore no effect of nudges on the amount pledged by those participants who went on to collect their remuneration. (112€ pledged out of 732€ distributed in treatment with a nudge to pledge, 110€ pledged out of 736€ distributed in treatment with a nudge to keep, two-sample test of proportion: $z = 0.19$, $p = .95$)

This result must be interpreted carefully in terms of its consequences on actual donations. Indeed, our design does not allow us to determine who donated what in our

experiment (we guaranteed anonymity). However, a combination of good recollection by participants of their pledges, lower likelihood to collect the money by those who had pledged, and good overall fit between pledges by collecting participants and actual donations, makes us think that money collected from participants in the “nudge to pledge” treatments was neither higher or lower than in the “nudge to keep” treatments. Nudges were therefore ineffective in terms of increasing money pledged among those who came to collect the money.

Table 2 *Euros pledged and donated per treatment and charity.*

Treatments	Charities			Total
	Amnesty International	Deutsche Rote Kreuz (German Red Cross)	World Wildlife Fund	
Nudge to keep, one charity	18€	10€	18€	46€
Nudge to pledge, one charity	16€	34€	14€	64€
Nudge to keep, Choice of charities	24€	22€	18€	64€
Nudge to pledge, Choice of charities	6€	26€	16€	48€
Total pledged	64€	92€	66€	222€
Total donated	54€	72€	44€	170€

Effect of giving alternatives when yielding to a nudge on the consistency of donations in the second phase vs. the first phase.

We found that giving a bigger choice set resulted in pledging subjects having a better attitude to the charity they pledged to (three charities: $M = 40.73$; $SD = 8.24$; $N = 113$, one charity: $M = 34.78$; $SD = 8.24$; $N = 114$, difference: $t = 5.43$, $p < .01$). This is not surprising

since subjects will generally pledge to the charities they have the best opinion of, so that the first statistic is the average of the best of three alternatives while the second statistic is simply the average attitude to a given charity. However, this better attitude to the charity donated to should translate into better acceptance of the nudge and thus potentially to a higher likelihood for the elicited behavior to survive. This is why we now consider if giving a choice of charities made sticking with pledges more likely in the second phase, whether pledges were nudged for or not. Furthermore, we determine if giving a choice also made not pledging less likely to stick in the second phase. We find that persistence in pledging was higher in the choice treatments (no choice: 63.4% of those who pledged in the first phase pledged in the second phase vs. choice: 74.2% , $z = 1.56$, $p = .12$), but giving a choice did not significantly reduce the drop in the proportion of participants pledging from the first to the second phase (from 26.9% to 20.8% if no choice, from 26.7% to 23.1% if choice, for people who participated in the second phase). We can therefore state that:

***Result 4:** Giving a choice in how to respond to a nudge to pledge did not make participants more likely to stick with pledging behavior from the first to the second phase. Hypothesis 4 is not supported.*

Effect of giving alternatives when yielding to the nudge

We find that if there was no choice of charities, then nudging to pledge led to a decrease in satisfaction with the drive for money donations (DV4) from 7.3 to 6.3 (difference: $t = 1.73$; $p = .08$), while if there was a choice of charities, then nudging to pledge did not significantly decrease satisfaction (7.8 to 7.6, difference: $t = 0.23$; $p = .82$). Doing simultaneous estimation of the impact of nudges and choice on answers to individual questions, we find that nudging without choice made people significantly more likely to feel pressured to pledge (Question 3 of DV4) and to dislike the campaign for donations (Question

5 of DV4). None of those effects appear in the treatments with choices of charities. We can therefore state that:

***Result 5:** Giving a choice in how to respond to a nudge to pledge helped to maintain satisfaction of participants, presumably by alleviating the feeling of being pressured into pledging. This supports hypothesis 5.*

Discussion

The findings reported here offer new and potentially important insight into the way people react to nudges. Our data shows a strong impact of default nudges on individual pledging behavior, but neither do higher pledges in the short-term predict long-term commitment, nor do they translate into noticeably higher actual giving. Why so?

In our study participants who were nudged to pledge money to a charity were almost twice more likely to do so than participants nudged to keep it. This finding supports earlier experiments showing the impact of defaults on decision making (e.g. Johnson et al., 1993; Pichert & Katsikopoulos, 2008). However, yielding to a nudge did not lead to improvements in attitudes to charity. A comforting finding for policy makers is that neither did not yielding lead to a hardening in the attitudes of participants. Participants who resisted the nudge to donate did not express more negative perceptions of the charities than participants who deliberately chose to abstain from donation. We believe this is because the nudged behavior did not generate significant cognitive dissonance to be compensated for by changes in attitudes, as nudges are most likely to have influenced only the behavior of those participants who were close to indifference between pledging or not (as evidenced by our attitude measures).

Since nudges work only at the margin, on people close to indifference, it is not surprising that we were unable to find a long-lasting effect of the nudge. When asking participants for an active decision concerning donation after a two-week period, pledges by subjects who were previously nudged to donate were not more frequent than pledges by those

previously nudged to keep. Because attitudes are rather enduring (Greenwald,1968), any influence a simple nudge had on behavior was therefore likely to be transitory. Nudges seem to have merely lowered the threshold over which a certain behavior (pledging) was displayed, and only when original inclinations against the nudged behavior were not strong.

The question that has to be asked at this point is whether increases in pledging brought about by the nudge resulted in increased donations. We find that those people who actually came to collect the money behaved largely in accordance with their pledged behavior. However, total donations from the sample of subjects who were nudged to pledge were no higher than from the sample who were not. This is because participants who opted not to pledge after being nudged to pledge were particularly likely to come collect the money. Nudges thus motivated those who resisted them more than they motivated those who did not. This shows that even though the expressed attitudes of those who did not donate were not impacted by nudges, nudges did have an impact on the behavior of subjects in our experiment. This behavior may reveal impacts of nudges on attitudes better than answers to surveys. We find that rather than pledging defaults leading to more commitment to pledge among pledging participants, they led to more commitment not to pledge among non-pledging participants.

Contrary to our belief, giving people a bigger set of options to choose from did not result in a higher likelihood to pledge. A reason for this might be that participants did not have clear preferences between charities (as evidenced by our attitude measures), but rather preferences between donating and not donating. We found however that giving people a choice of charities did increase satisfaction with decisions made and improved the perception of the nudge. Therefore, we believe that promoting deliberate engagement with nudged behavior after yielding to a nudge can improve perceptions by consciously engaging people into ranking different options to choose the most adequate one.

Given these considerations, we can suggest to policy makers that altering the decision context can guide decisions towards a preferred outcome, but only in the subset of the

population that does not hold strong preferences against it. People who yield to a nudge towards a certain behavior do not seem to be less committed to perform it than people who deliberately chose to do so, but those who resist a nudge appear to become more committed to that resistance. Nudges are better accepted if there is some leeway in how to respond to the nudge. Nudges do not seem to alter attitudes towards the nudged behavior however, which goes against guaranteeing their persistence over time. Future research should extend our results by formally characterizing ways to transform a one-time action into permanent behavior. Our goal should be to find ways to bridge the gap between the unconsciously guided (nudged) action and a conscious change in value. This could be done by highlighting the benefits the nudged behavior brought to those who yielded to it. Overall, our results support the notion that default nudges are effective for specific and limited alterations of behavior, but are not enough for transformational changes in values and attitudes needed for long-term success. Only a more detailed understanding of the nature of the relationship between nudges, attitudes and actual behavior might provide the kind of insight necessary to enrich the array of effective policy interventions.

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Appendix A

1. Attitude to charities

1. I would like to know more about the charity (+)
2. I think the work of the charity is important (+)
3. I am interested in the work of the charity (+)
4. I am indifferent about the work of the charity (-)
5. I think the work of the charity has got meaning (+)
6. There should be more charities like . . . (+)
7. The charity makes good use of its money (+)
8. The charity wastes its money (-)
9. My opinion of the charity is positive (+)
10. The charity makes an important contribution (+)

2. Attitude to the drive for donations

1. I would like to have the opportunity to contribute in future experiments (+)
2. I would contribute money to charities in future experiments (+)
3. I felt forced to contribute (-)
4. I am happy with my decision (+)
5. I do not like this campaign for donations (-)

Appendix B

1. Questionnaire for phase 1:

You are taking part in an experiment that is financed by the MPI for Economics. As stated in your invitation mail, this experiment consists of two phases. The first phase is starting now. We will contact you in two weeks for the second phase. Click on “continue” to start phase 1.

Q1. Are you ready to take part in the second part of the experiment in two weeks? (only if you click on “Yes” will you be allowed to go on with the experiment)

Section A: Personal information

Phase 1 starts with a questionnaire. Please answer the following questions truthfully. Click on “continue” to go on to the next question. Please remember that your answers will be anonymized for the purpose of our analysis of the data and that your answers can therefore not be linked back to you.

A1. What is your gender? (Male, Female)

A2. How old are you?

A3. What is your nationality?

A4. What is your highest qualification? (Abitur (High School), two-years University degree, Bachelor, Master, Diplom (=Master), PhD, Other)

A5. Did your parents complete their secondary education? (1. None of my parents completed secondary education; 2. Only one of my parents completed secondary education; 3. Both parents completed secondary education)

A6. Please tell us your current status (Student (Full or part-time), Worker (Full or part-time), Unemployed, Retired)

A7. In case you are studying, what are you studying? (Humanities, Social sciences, Natural sciences, Formal sciences, other applied sciences, I am not studying)

A8. Where did you live most of your life? (Big city with more than 1 million people/ Big city with more than 100.000 people/ City with more than 10.000 people/ A village/ Countryside).

A9. What are the main sources of your income? (work (full time), work (part time), parents, scholarship, loan, other)

A10. How much money do you spend in total over a month? (including food, clothing, rent, heating, water, education, entertainment, etc...) (1. less than 500€ 2. 501€ - 800€ 3. 801€ - 1200€ 4. 1201€ - 2000€ 5. More than 2000€)

Section B: Self-assessment

In the next few questions, we are asking you to assess yourself and your behavior. Please note that there are neither right nor wrong answers. Take your time and think about each statement carefully.

B1. How risk-taking are you in general? (Please give a number between 0 and 10. Zero for avoiding as much risk as possible and 10 for being very risk-loving).

B2. Do you believe that two-people with the same qualifications should be paid equally, even when one person is more productive than the other? (Yes/ No/ Not Sure).

B3. What do you think of the following statement? (4-point scale from “totally agree” to “do not agree at all”).

... In general, people can be trusted.

... Nowadays, we cannot trust on people so easily.

... When you are dealing with stranger, it is better to be careful before you put your trust into that person.

B4. Do you believe that most people...

...would take advantage of you when possible?

...would try to be fair to you?

B5. Would you say that people most of the time...

...strive to be helpful to others?

...strive only to fulfill their own interest?

Section C: Subjective experience

C1. How well do the following statements describe your personality? On a scale from 1 to 5, 1 means that you disagree strongly and 5 means that you agree strongly.

1. I see myself as someone who is reserved
2. I see myself as someone who is generally trusting
3. I see myself as someone who tends to be lazy
4. I see myself as someone who is relaxed, handles stress well
5. I see myself as someone who has few artistic interests
6. I see myself as someone who is outgoing, sociable
7. I see myself as someone who tends to find fault with others
8. I see myself as someone who does a thorough job
9. I see myself as someone who gets nervous easily
10. I see myself as someone who has an active imagination

Section D: Cognitive Reflection Test and other questions

Many thanks for answering our questionnaire. We would like you now to think about a few problems.

D1. A bat and a ball cost \$1.10 in total. The bat costs \$1.00 more than the ball. How much does the ball cost?

D2. If it takes 5 machines 5 minutes to make 5 widgets, how long would it take 100 machines to make 100 widgets?

D3. In a lake, there is a patch of lily pads. Every day, the patch doubles in size. If it takes 48 days for the patch to cover the entire lake, how long would it take for the patch to cover half of the lake?

D4. You have the choice between three products, A, B and C. You know that A is better than B but not how C compares with A or B. Which of A, B or C do you choose?

D5. One week ago, a colleague asked you for one more week to finish a project with you. He now tells you he will need yet another week to finish, so the project will not be delivered in time. What do you do?

- a) I wait one more week for my colleague to finish.
- b) I finish the project on my own so as to be in time.

2. Questionnaire for Phase 2

You are taking part in an experiment that is financed by the MPI for Economics. As stated in your invitation email, this experiment consists of two phases. The second phase is starting now. Click on “continue” to start phase 2.

Section A: Personal information

Questions A1 to A10 as in the first phase

Section B: Self-assessment

- B1. I am ... (rather impatient --- rather patient)
- B2. I tend to ... (to be directing others --- to be directed by others)
- B3. I'm ... thinking about my inner problems. (seldom --- especially often)
- B4. Others are ... with my work performance in general. (very satisfied --- somewhat dissatisfied)
- B5. I trust others (A great deal --- very little)
- B6. I show ... of my needs for love. (A great deal of --- very little)
- B7. I ... tight connections to other human beings. (avoid --- seek)
- B8. I can deal ... with money compared to other people. (rather well --- rather poorly)
- B9. I am ... depressed. (rarely --- often)

- B10. I have ... self-confidence. (a lot of --- very little)
- B11. I find it ... to be popular with others. (difficult --- easy)
- B12. I ... have disputes with other people. (often --- very rarely)
- B13. I feel ... to other people ... (disconnected --- close)
- B14. I give ... importance to my appearance. (little --- a lot of)
- B15. It is ... for me to work closely with others. (difficult -- rather easy)
- B16. I am ... critical of myself. (rarely -- always)
- B17. I am ... compared to other (especially docile --- particularly stubborn)
- B18. I am ... in defending my interests (rather poor --- rather good)
- B19. People generally think of me as (a strong person --- a weak person)
- B20. I find it ... to be attractive to others. (very difficult --- very easy)
- B21. I find it ... to stick with what I am doing. (rather easy --- rather difficult)

Section C: Subjective experiences

Same as section C of Phase 1

Section D: Cognitive reflection tests and other questions

Many thanks for answering our questionnaire. We would like you now to think about a few problems.

D1. If it takes 20 minutes to cook a goose's egg, then how many minutes does it take to cook three geese's eggs?

D2. Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations. Which is more probable?

- 1) Linda is a bank teller.

2) Linda is a bank teller and is active in the feminist movement.

D3. You have to choose between two applicants for a job at your company. That person will be working with you for one year on a project. Person A is a 26 year old male with a Master while Person B is a 22 year old woman with a Bachelor. Both are fully qualified for the job. Which person do you choose to hire?

D4. There are 9 black balls and one red ball in box A. A machine can draw balls from box A one after the other at random and put them in box B. You will receive 1 euro for every ball in box B unless one of those balls is red, in which case you get nothing. You must choose how many balls the machine should take from box A and put in box B. How many balls would you ask the machine to take from box A and put in box B?