

Mandated Volunteering: An Experimental Approach

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Abstract

This study employs a novel experimental paradigm to examine crowdout effects in volunteering. Using a framework modeled upon money donation experiments, we examine the impact of “forced” volunteering on the amount of time volunteered. We find that subjects exposed to forced volunteering on the mean voluntarily donate less time than subjects in the control condition. Among religious subjects, the crowdout is 52.8 percent, suggesting warm-glow giving. Among non-religious subjects, the crowdout is 138 percent, implying altruistic giving. Thus, policies mandating volunteer activity may be associated with sizeable crowdout effects, and might have heterogeneous effects across subpopulations. (JEL C91, D64, H41)

1 Introduction

Volunteering – “any activity in which time is given freely to benefit another person, group, or organization” (Wilson, 2000) – is an important component of the U.S. economy. The U.S. Bureau of Labor Statistics (BLS) estimates that 26.3 percent of individuals age 15 and older volunteer a median of 52 hours per year (BLS, 2011). The value of volunteer activity in the US economy has been estimated to range from \$203 billion to \$317 billion (Brown, 1999).

Many institutions require a minimum level of volunteering. Religious groups frequently encourage or require service. Schools across the country require not only students, but also parents, to volunteer. Multiple school districts – including the entire state of Maryland –

require students to engage in service activities as a high school graduation requirement. It is commonly recognized that adolescents who volunteer tend to continue to volunteer as adults. Advocates justify volunteering mandates on the assumption that volunteering early in life – whether mandated or not – establishes habits that increase volunteering levels for an extended period of time (Planty and Regnier, 2003).

Yet, evidence of beneficial effects of mandates is scarce. The belief that mandated volunteering causes an increase in subsequent volunteer activity might be based on confusion between correlation and causation. Moreover, field studies have been inconclusive. Helms (n.d.) found that mandated service increased volunteer activity in Maryland high school students at the time when the mandates were enforced, but likely decreased the level of volunteering afterwards.

Given the importance of volunteering in the economy, and given that field studies have remained inconclusive, an experimental study of the factors influencing an individual's decision to volunteer is highly motivated. We are not aware of any previous experimental work attempting to study crowdout effects in volunteering. While there are several studies that consider competing motivations for volunteer behavior, they do not specifically address the issue of crowdout in time donation (Bénabou and Tirole, 2006; Cappellari and Turati, 2004; Ellingsen and Johannesson, 2008; Frey and Meier, 2004; Mellström and Johannesson, 2008; Seabright, 2009). Monetary charitable donations, by contrast, have been fruitfully explored in a laboratory experimental setting (Vesterlund, 2006). Andreoni (1993) used a public goods game and Bolton and Katok (1998) used dictator games in settings where the recipients of donations were other participants rather than real charities. Eckel et al. (2006) extended this paradigm by inviting participants to transfer money to actual charities. They divided subjects into four groups, determined by two initial allocations and two frames. In the tax frame, individuals were informed that their initial allocation of \$20 had been taxed (by either \$2 or \$5) and the tax amount transferred to the subject's chosen charity. In this frame, Eckel et al. "observe nearly 100% crowding out" (2006, p. 1543).

Our goal was two-fold: (1) to develop an experimental paradigm that permits empirical economists to study volunteering in the lab, and (2) to employ the paradigm to examine the impact of mandates on volunteering behavior. Because volunteering is naturally viewed as a donation of one's time, there is an analogy between volunteering (the donation of time) and charitable giving (the donation of money). Our study was designed to be perfectly

analogous to that of Eckel et al. (2006), the critical difference being that we aimed to study the donation of time whereas they studied the donation of money.

Subjects in our study were given the opportunity to donate their time for the benefit of a charity of their choice. For each minute the subject performed a trivial task – pressing a button on a computer screen – \$0.20 was transferred to the charity. In the control condition, subjects were free to contribute anything from zero to 100 minutes of their time. In the treatment condition, subjects were told that they had to contribute at least 25 minutes, but that they were free to contribute up to 100 minutes total. We predicted that subjects exposed to forced volunteering would, on the mean, voluntarily donate less time than subjects in the control condition.

We find evidence of sizeable crowding out of voluntary contributions with forced (or mandated) volunteering. Subjects exposed to forced volunteering on the mean voluntarily contribute less time to the activity than subjects in the control condition: the degree of crowdout is 71.7 percent. While we can reject the hypothesis that the degree of crowdout is zero, we cannot reject the hypothesis that it is 100 percent. Even more striking, interacting the mandate with the religiosity of subjects exposed sharp differences. Among religious subjects, the crowdout is 52.8 percent; among non-religious subjects, the crowdout is 138 percent, that is, non-religious subjects' total contribution (and not just their voluntary donation) was *lower* in the presence of mandates.

The results indicate that policies mandating volunteer activity may be misguided because they are associated with economically important crowdout effects. Indeed, our finding of crowdout effects in excess of 100 percent in one subsample raises the possibility that mandates might have the perverse effect of reducing the total amount of time contributed. Moreover, our results suggest that mandates might have heterogeneous effects across subpopulations. Further experimental and field research examining people's motives for volunteering and response to mandates would be highly worthwhile.

2 Study Design

2.1 Theoretical Model

Much experimental work on charitable giving is based on the seminal model presented by Andreoni (1989, 1990). We rely on an adaptation of his model. Consider an economy

with only two goods: one private and one public. The public good is produced from the private good by means of a simple linear technology. The n individuals are endowed with private wealth w_i that they allocate between private consumption x_i , a private (or voluntary) donation toward the public good g_i , and a lump-sum tax payment t_i . It is assumed that all taxes are allocated to the public good. Hence, t_i can also be thought of as an individual's involuntary contribution to the public good. Let $y_i = g_i + t_i$ denote the individual's total (voluntary plus involuntary) contribution to the public good. From here on, we will use (*total*) *contribution* to refer to y_i and (*voluntary*) *donation* to refer to g_i .

Let $G = \sum_{i=1}^n g_i$ be the total private donation to the public good. Let $T = \sum_{i=1}^n t_i$ be the total lump-sum tax payment. Therefore, the total supply of the public good is $Y = G + T$. Let $G_{-i} = \sum_{j \neq i} g_j$ be the aggregate voluntary donation toward the public good by all but individual i , so that $Y_{-i} = Y - y_i$.

The utility function of individual i is assumed to be a function of private consumption x_i , the total amount of the public good Y , and the private donation toward the public good g_i . Hence:

$$U_i = U_i(x_i, Y, g_i) \tag{1}$$

U_i is assumed to be strictly quasi-concave and increasing in all of its arguments. The utility function reflects two different motives for contributing to the public good: the individual may derive utility from the public good itself, or from the act of giving. A person who contributes for the first reason is said to engage in "altruistic" giving; a person who contributes for the second, to engage in "warm-glow" giving. Hence, altruistic donors give for the sake of the size of the public good; warm-glow donors give for the sake of giving itself. We note that, though the term "warm-glow" giving suggests that these donors give in order to experience a warm, fuzzy feeling inside, the formalism is consistent with them acting out of a sense of duty.

On the assumption that G_{-i} and t_i can be treated as exogenous, the maximization problem to be solved by individual i is:

$$\max_{x_i, Y, g_i} U_i(x_i, Y, g_i), \text{ subject to } \begin{cases} x_i + g_i = w_i - t_i \\ Y = G_{-i} + g_i + T \end{cases} \tag{2}$$

Given that $y_i = g_i + t_i = Y - Y_{-i}$, the budget constraint implies that $x_i = w_i + Y_{-i} - Y$ and that $g_i = Y - Y_{-i} - t_i$. Substituting this into the maximization problem (2), we get:

$$\max_Y U_i(w_i + Y_{-i} - Y, Y, Y - Y_{-i} - t_i) \quad (3)$$

A solution to the maximization problem is found by differentiating and setting equal to zero. Assuming an interior solution, meaning that $g_i > 0$, the solution to (3) can be written as a function of the exogenous variables:

$$Y^* = f_i(w_i + Y_{-i}, Y_{-i} + t_i) \quad (4)$$

By subtracting Y_{-i} from both sides, we obtain:

$$y_i^* = f_i(w_i + Y_{-i}, Y_{-i} + t_i) - Y_{-i} \quad (5)$$

Notice that the first argument of $f_i(\cdot)$, $w_i + Y_{-i}$, equals $Y + x_i$, which is the total amount of goods (public and private) that individual i can enjoy. The second argument, $Y_{-i} + t_i$, equals $Y - g_i$, which is that part of the public good Y that individual i can treat as exogenous.

As Andreoni (1989, 1990) points out, the first argument of $f_i(\cdot)$ comes from the altruistic dimension of the utility function, and the second argument from the warm-glow dimension. Consequently, under purely altruistic giving, (5) is a function of its first argument only. Purely altruistic donors treat the contribution by others Y_{-i} as a perfect substitute for private wealth w_i , and they treat the involuntary contribution t_i as a perfect substitute for the voluntary donation g_i . In the absence of pure altruism, others' contribution is no longer a perfect substitute for private wealth, and i 's involuntary contribution is no longer a perfect substitute for voluntary donation. Holding private consumption x_i and the public good Y constant, individual i always prefers the state with the greatest private donation g_i .

Crowdout is defined as the reduction in voluntary donation g_i following a mandate t_i , expressed as a fraction of the mandate. If individual i 's donation in the absence of a mandate would be g_i^C and i 's donation in the presence of a mandate would be g_i^T , then individual i 's degree of crowdout is computed as $(g_i^C - g_i^T) / t_i$.

Purely altruistic donors exhibit complete crowdout: if their involuntary contribution is increased by one unit, their voluntary donation will decrease by one unit. Altruistic giving reflects a concern with total size of the public good rather than with the act of voluntary

giving; hence, it does not matter to the altruistic donor whether donations were forced or voluntary. Under impure altruism, by contrast, other people’s contributions toward the public good are imperfect substitutes for private wealth, and involuntary contributions are imperfect substitutes for voluntary donations. Hence, the impure altruist does not exhibit complete crowdoout: if her involuntary contribution is increased by one unit, her voluntary donation will decrease by less than one unit.

2.2 Participants

One hundred participants were recruited using flyers posted on billboards and distributed in classes taught across several schools at the University of Alabama at Birmingham. The flyers stated that an experiment would be conducted by the authors, that participants would be paid a show-up fee of no less than \$5, and that there might be opportunities to earn more money.¹ The flyer included a phone number and email address instructing participants to contact the administrator to set up an appointment. There was only one participant scheduled for any two-hour block of time. Each participant completed one experiment only. All participation was voluntary and independent of coursework.

2.3 Experimental Design

Once registered, participants arrived at the administrator’s office at the prearranged time. The administrator escorted the participant to a small office that contained a minimal number of distractions. The administrator instructed the participant to read through a folder previously prepared by the experimenters and left in the office for this purpose. The folder contained the informed consent form and \$10 in cash. The office also contained a computer, preloaded with a Microsoft PowerPoint slide show, and a penny. After the participant signed the consent form, the administrator instructed the participant to follow the instructions and to leave the office immediately after completing the experiment. To mitigate social desirability effects, the administrator then shut the door and left the participant in the office alone.

The first PowerPoint slide invited the participant to flip the penny and to press a button marked “heads” if the coin came up heads, and a button marked “tails” if the coin came up

¹Though participants in this study earned a flat \$10 for themselves (the main outcome of interest being how much money they earned for the charity of their choice), the flyers were designed to also recruit subjects for a follow-up experiment, in which participant payoffs depend on their decisions in the experiment.

tails. “Heads” linked to a PowerPoint presentation associated with the control condition, while “tails” linked to a PowerPoint presentation associated with the treatment condition. The two groups had the same instructions, except for one detail (to be discussed below). We include the full set of instructions in Appendix A. Both groups were informed that they were asked to participate in an experiment to study individuals’ decisions to donate their time. Participants were told that they were able to donate time to a charity of their choosing. They were also informed that the \$10 that they received for showing up at the designated time was theirs to keep independently of their decisions during the experiment. Furthermore, they were assured that all information about the experiment and their donations would remain anonymous. The participants were instructed not to talk to anyone or read anything other than what was on their screen during the experiment. This included talking on cell phones, working on homework, or logging onto the internet. The computer used for the experiment was not connected to the internet.

The participant then chose from a list of charities and brief descriptions. We include the list and brief descriptions given to the participant in Appendix B (cf. Table 2). We selected charities to ensure that each participant would be able to find a charity of whose mission he or she approved.

The subsequent slide differed across conditions. Here, we use boldface to emphasize the difference between the two conditions. For the control group, the instructions said:

Next, you will be given the option to donate your time to the charity. You will have to option of spending up to 100 minutes (one hour and 40 minutes) in this room, while performing a very simple task on the screen. For every minute you choose to stay, your charity will receive 20 cents. **You may elect to leave right away**, to stay the full 100 minutes, or to leave any time in between. But the longer you stay, the more money will be given to your charity.

For the treatment group, the instructions said:

Next, you will be given the option to donate your time to the charity. You will have to option of spending up to 100 minutes (one hour and 40 minutes) in this room, while performing a very simple task on the screen. For every minute you choose to stay, your charity will receive 20 cents. **However, the experiment requires you to donate at least 25 minutes. For this 25 minutes your**

charity will receive \$5.00. You may elect to leave at the conclusion of the 25 minutes, to stay the full 100 minutes, or to leave any time in between.

But the longer you stay, the more money will be given to your charity.

For the obvious reason, the administrator had no way to enforce the requirement that subjects in the treatment condition stay in the experiment for the first 25 minutes.

After viewing all instructions and choosing a charity, participants began the time donation portion of the experiment.² The contribution took the form of pressing a button labeled “I Want To Donate Another Minute” once per minute (see Appendix C for screen shots). For the remainder of the minute, the participant was not permitted to do anything but wait for the button to refresh, at which point she chose whether to contribute another minute of their time or not.

Each time the participant pressed the button, US \$0.20 were contributed to the chosen charity. The maximum contribution over the course of 100 60-second time periods was US \$20.00. The participant was told that she would not be given any money apart from the \$10 show up fee. The participant did not have the option to donate any additional money (say, from the show-up payment). She was also informed that it would be possible (at a later date) to verify that money was transferred to charities by viewing cancelled checks. When the participant decided she did not want to contribute additional time, she pressed the button labeled “I’m Ready To Leave.”

At this point, two final screens requested information about race/ethnicity, gender, religiosity, and employment status. For analysis, we classified participants as religious if they reported attending religious services at least monthly. We coded participants as employed if they gave an affirmative answer to the question: “Do you currently have one or more paid jobs?” The four variables were chosen to reflect key predictors of volunteerism as used in prior literature (BLS, 2011; Keeter et al., 2002; Metz and Youniss, 2003; Nolin et al., 1997; Planty and Regnier, 2003).

After completing the survey, participants were free to leave. To preserve anonymity, participants were not instructed to make contact with the administrator after completing the experiment. When all 100 subjects were processed, cancelled checks made out to the charities were posted outside the second author’s office.

²The experiment was programmed and conducted with the software z-Tree (Fischbacher, 2007). The code is available upon request.

2.4 Statistical Methods

In terms of the language of the model presented above, the wealth w_i is the amount of time that the participant has allocated for her participation in the study. The individual is allocated 100 minutes, which she can allocate between private consumption x_i , a voluntary donation g_i to the charity of her choice, and the mandate t_i . In our study, t_i is equal to 0 in the control condition and 25 in the treatment condition; hence the voluntary donation g_i can range from 0 to 100 in the control condition and 0 to 75 in the treatment condition. The total contribution y_i ranges from 0 to 100 in both conditions. Let \bar{g}^C denote the mean voluntary donation in the control condition and \bar{g}^T denote the mean voluntary donation in the treatment condition. Given that $t_i = 25$ for all i in the treatment condition, the degree of crowdout for the sample as a whole is computed as $(\bar{g}^C - \bar{g}^T) / 25$.

We used bootstrapping techniques to estimate 95-percent bias-corrected and accelerated confidence intervals around our crowdout rates. Bootstrapping techniques are useful when analyzing strongly non-normal distributions like ours.

We used survival analysis – specifically, Cox regression – to control for gender, race/ethnicity, religiosity, and employment status. Survival analysis is commonly used when analyzing the time to the occurrence of some event, which is called “failure.” In epidemiological applications “failure” frequently means death; economists have adopted the technique to study unemployment spells and other time-related outcomes. Here, failure represents the moment when a participant hits the button marked “I’m Ready to Leave.” Cases in which we did not observe failure (that is, when the total contribution equaled 100 minutes) were entered as 100 but censored for purposes of regression analysis. We used Schoenfeld residuals to test for violations of the proportional hazards assumption on which Cox regression depends.

3 Analysis

3.1 Descriptive Analysis

We recruited and processed participants until we achieved the target number of 100. A total of 55 participants ended up in the control condition and 45 in the treatment condition, which is not significantly different from what one would expect under random assignment.

Eight subjects in the treatment condition failed to comply with the mandate to contribute

at least 25 minutes; their contributions ranged from 1-24 minutes. These subjects were coded as having a total contribution of 25 (which equals a voluntary donation of 0) on the basis that 25 is what their total contribution would have been had the mandate been enforceable. (Payouts to charities, by contrast, were computed based on actual minutes contributed.)

We report descriptive statistics for the sample as a whole and split by treatment condition in Table 1. Of the 47 participants in the “non-white” category, 24 were African-American, nine Asian, two Hispanic, one American Indian or Pacific Islander, and eleven “Other.” Chi-square statistics indicate that race, gender, and employment status are not significantly correlated with treatment condition, while religiosity is ($p = 0.03$).

For each of the twelve charities, Table 2 reports the number of participants who chose to contribute to that charity as well as the mean voluntary donation (in minutes) to the charity.

3.2 Bootstrap Analysis

For the sample as a whole, the mean voluntary donation is 35.5 minutes. In the control condition, the mean voluntary donation is 43.6 minutes. In the treatment condition, the mean voluntary donation is 25.6 minutes. Hence, the degree of crowdout is 71.7 percent. The bootstrapped 95-percent confidence interval is 27.4 percent to 117 percent. On the basis of these results, we can reject the hypothesis that the degree of crowdout for the full sample is zero. We cannot reject the hypothesis that the degree of crowdout is 100 percent.

3.3 Survival Analysis

Figure 1 shows Kaplan–Meier survival curves, which trace the fraction of the sample that remains in the experiment as a function of time. The graph contains two curves, one for each treatment condition.

The results of survival analyses are displayed in Table 3. Each column represents a separate Cox regression model. Column A displays the result of Cox regression with treatment condition as sole independent variable. The hazard ratio of 1.54 means that participants exposed to the treatment have a 54 percent higher hazard rate than participants not exposed to the treatment; the fact that 1 is not included in the 95-percent confidence interval surrounding the hazard ratio means that the difference is significant at the 0.05 level. Columns B through E display the results of Cox regressions with two independent variables and their

interaction term; column F displays the result of Cox regressions with all five independent variables and the interaction term that is significant in bivariate analysis.

While the hazard ratio associated with treatment condition is not significant in column B, it is significant at the 0.10 level in column D, and significant at the 0.05 level or better in columns A, C, E and F. In the final model (column F), religiosity is not significant, but the interaction between treatment condition and religiosity is.

3.4 Secondary Analyses

Given the interaction between treatment condition and religiosity, we performed secondary analyses with the sample split on the basis of religiosity (Table 4). For the religious sample, the crowdout rate is 52.8 percent, with a bootstrapped 95-percent confidence interval of -6.91 to 107 percent; thus, we cannot reject either the hypothesis of zero or 100 percent crowdout. For the non-religious sample, the crowdout rate is 138 percent, with a bootstrapped 95-percent confidence interval of 82.3 to 196 percent; thus, we can reject the hypothesis of zero but not of 100 percent crowdout.

The imposition of the mandate on the religious subsample lowers the mean voluntary donation (from 44.6 to 31.4 minutes). Because the reduction is less than the 25-minute mandate, however, the imposition of the mandate in the religious subsample still raises mean total contribution (from 44.6 to 55.3 minutes). The imposition of the mandate on the non-religious subsample also lowers the mean voluntary donation (from 42.3 to 7.82 minutes). Because the reduction is greater than the 25-minute mandate, the imposition of the mandate in the non-religious subsample reduces the mean total contribution (from 42.3 to 28.7 minutes).

4 Discussion

Our goal in this paper was two-fold: (1) to develop an experimental paradigm that permits empirical economists to study volunteering in the lab, and (2) to employ the paradigm to examine the impact of mandates on volunteering behavior. We realized these goals by developing the paradigm described in section 2, which was then used to establish the significant crowdout effects described in section 3. Our study augments the understanding of an important kind of charitable behavior – volunteering – understudied using the experimental

framework.

Our primary hypothesis was that mandated volunteering would be associated with crowdoout effects on the time voluntarily donated. Indeed, we find sizeable crowdoout effects, in that forced volunteers voluntarily donate considerably less time than participants in the control condition. Using Andreoni's terms (section 2.1), the fact that we can reject the hypothesis of zero crowdoout means that we can reject the hypothesis of pure warm-glow giving. The fact that we cannot reject the hypothesis of 100 percent crowdoout means that we cannot reject the hypothesis of pure altruistic giving. These results are consistent with substantial altruistic giving.

Andreoni's account is not the only one that can accommodate our results. By the very fact that the treatment group is presented with the figure 25 minutes, we could inadvertently be inducing a norm suggesting that a 25-minute total contribution is socially appropriate, which would (it can be argued) have the effect of reducing voluntary donations. Reactance theory, entails that individuals might rebel against a perceived loss in freedom in a manner consistent with a reduction in voluntary donations (Brehm, 1966). The literature on extrinsic and intrinsic motivation suggests that the former can crowd out the latter (Vansteenkiste et al., 2008), which could generate behavior of the form we explored. Our study was not designed to eliminate all alternative hypotheses, so we do not purport to determine which is correct.

Secondary analyses reveal a sharp difference between religious and non-religious participants. Although the religiosity variable is not significant in the final survival model, the interaction between treatment condition and religiosity points to another difference between the two groups. Whereas the behavior of religious subjects is consistent with warm-glow giving, that of non-religious subjects clearly is not. This suggests that religious and non-religious subjects might be differentially motivated with respect to giving. Such a difference would have important consequences for public policy on charitable giving since nearly one-third of all giving in the United States is religious in nature (CPIU, 2010).

Other explanations are consistent with these results. One might contend that for religious individuals, donations of time are motivated by a moral code that encourages generosity, and so even when faced with a mandate, they will choose to keep the level of voluntary donation at the same level. It could be that religious individuals are used to being told to do altruistic activity, and so do not respond negatively to such mandates. Again, our study

was not designed to eliminate all alternative hypotheses.

As with all empirical and experimental research, we acknowledge there are limitations in our study. Because we chose not to monitor our subjects during the experiment (in order to mitigate concerns about social desirability), we could not confirm that subjects were doing nothing but the mindless task. Yet, on the assumption that the distribution of honest and dishonest participants was equal across conditions, this should not invalidate our results.

As with any experimental study, we must exercise caution in generalizing the result found in this project to society universally. Admittedly, our task was repetitive and uninteresting. It was our intent to remove all possible benefits from the activity (inherent enjoyment, for example), in order to isolate the effects of the mandate on the decision to give time – and thus, money – to a charity. Outside the laboratory setting, tasks associated with volunteering usually have positive aspects – the human interaction and the direct contact with the object of the volunteering. We consider our results to be the extreme case, that of volunteering with little consumption value apart from the altruistic component. While this may not be the final word, an experimental study provides an additional perspective on the impact of mandates on volunteer behavior. Future studies can further map the response of individuals to varying incentives (both positive and negative) for donating time to charities.

5 Conclusion

This study employed an experimental framework modeled upon money donation experiments in order to examine the impact of “forced” volunteering on the amount of time volunteered. We found that subjects exposed to “forced volunteering” on the mean voluntarily contribute less time to the activity than subjects in the control condition: the degree of crowdout is 71.7 percent, indicating altruistic giving. Interacting the mandate with the religiosity of subjects exposed sharp differences. Among religious subjects, the crowdout is 52.8 percent, suggesting warm-glow giving. Among non-religious subjects, the crowdout is 138 percent, implying altruistic giving. While we are not in a position to eliminate all alternative hypotheses, the size of the effect suggests that the effect is economically relevant independently of its explanation. Either way, these results indicate that policies mandating volunteer activity may be associated with significant crowdout effects, that mandates might have different effects in different subpopulations, and that blindly applying volunteering mandates will not

necessarily have the anticipated effect of increasing the amount of volunteer activity.

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Table 1: Participant Characteristics ($n = 100$)

Characteristic	Count		p-value
	All Participants $n = 100$	Treatment Condition $n = 45$	
Race/Ethnicity			
White	53	23	0.73
Not White	47	22	
Gender			
Female	48	24	0.81
Male	52	21	
Employment Status			
Employed	69	32	0.68
Not Employed	31	13	
Religiosity			
Religious	64	34	0.03**
Not Religious	36	11	

** significant at the 0.05 level

Table 2: Voluntary Donations (in Minutes) by Charity ($n = 100$)

Charity	n	Mean (SD)
AIDS Alabama	7	30.9 (30.1)
AL Coalition Against Domestic Violence	3	35.0 (38.4)
American Cancer Society	20	33.7 (30.3)
American Red Cross	9	22.2 (31.7)
Amnesty International	5	35.6 (21.9)
Big Brothers Big Sisters	12	37.7 (34.6)
Big River Sierra Club	2	54.5 (29.0)
Doctors Without Borders	13	29.7 (29.4)
Feed the Children	20	42.8 (32.6)
Oxfam America	2	38.5 (20.5)
S.G. Komen Breast Cancer Foundation	5	33.4 (25.3)
YMCA	1	100 (0.00)
Unspecified	1	30.0 (0.00)
<i>Totals</i>	100	46.8 (29.3)

Table 3: Survival Analysis Results ($n = 100$)

	Model A	Model B	Model C	Model D	Model E	Model F
	Haz. Ratio (95% C.I.)	Haz. Ratio (95% C.I.)	Haz. Ratio (95% C.I.)	Haz. Ratio (95% C.I.)	Haz. Ratio (95% C.I.)	Haz. Ratio (95% C.I.)
Forced	1.54** (1.00-2.38)	1.38 (0.74-2.57)	1.93** (1.05-3.54)	2.17* (0.99-4.82)	4.94*** (2.29-10.64)	5.06*** (2.31-11.05)
White		0.95 (0.54-1.66)				0.99 (0.64-1.55)
White \times Forced		1.24 (0.53-2.91)				
Female			1.24 (0.70-2.20)			1.18 (0.75-1.85)
Female \times Forced			0.64 (0.27-1.51)			
Employed				1.48 (0.80-2.74)		1.21 (0.75-1.95)
Employed \times Forced				0.60 (0.24-1.53)		
Religious					0.91 (0.52-1.60)	0.88 (0.50-1.56)
Religious \times Forced					0.26*** (0.10-0.65)	0.25*** (0.10-0.64)

* significant at the 0.10 level

** significant at the 0.05 level

*** significant at the 0.01 level

Table 4: Voluntary Donations, Crowdout, and Total Contributions by Religiosity ($n = 100$). Donations and contributions in minutes

Sample	Mean voluntary donation (SD)		Crowdout (95% C.I.)	Mean total contribution (SD)	
	Control Condition	Forced Condition		Control Condition	Forced Condition
Full	43.6 (31.0)	25.6 (26.9)	71.7% (27.4%–117%)	43.6 (31.0)	48.8 (29.2)
Religious	44.6 (30.8)	31.4 (27.9)	52.8% (–6.91%–107%)	44.6 (30.8)	55.3 (29.4)
Non-religious	42.3 (31.7)	7.82 (12.5)	138% (82.3%–196%)	42.3 (31.7)	28.7 (17.1)

Figure 1: Kaplan–Meier Survival Curves by Condition ($n = 100$). Time to failure equals time voluntarily donated.

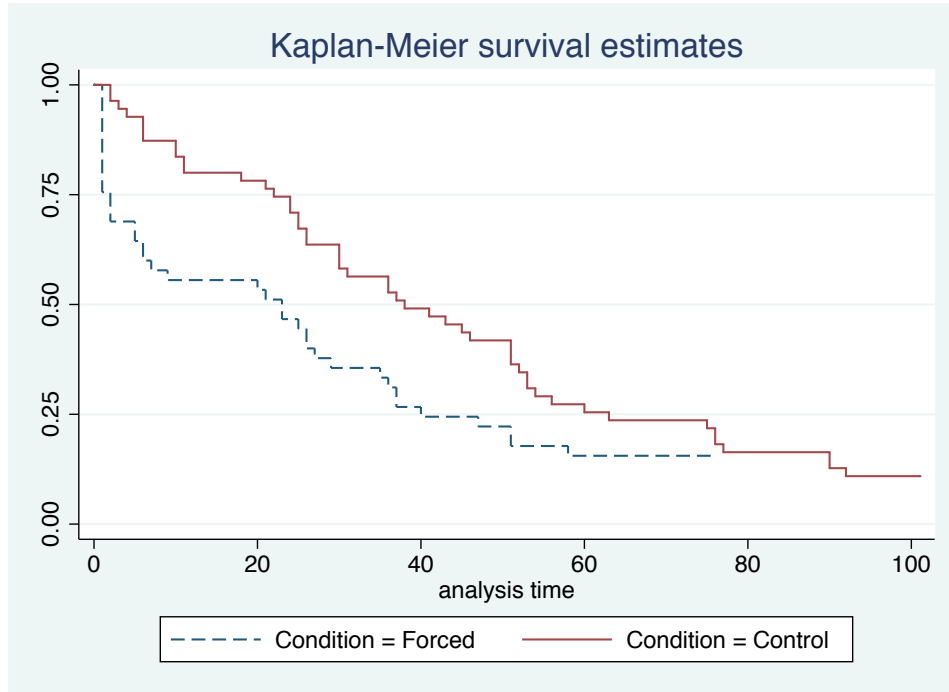
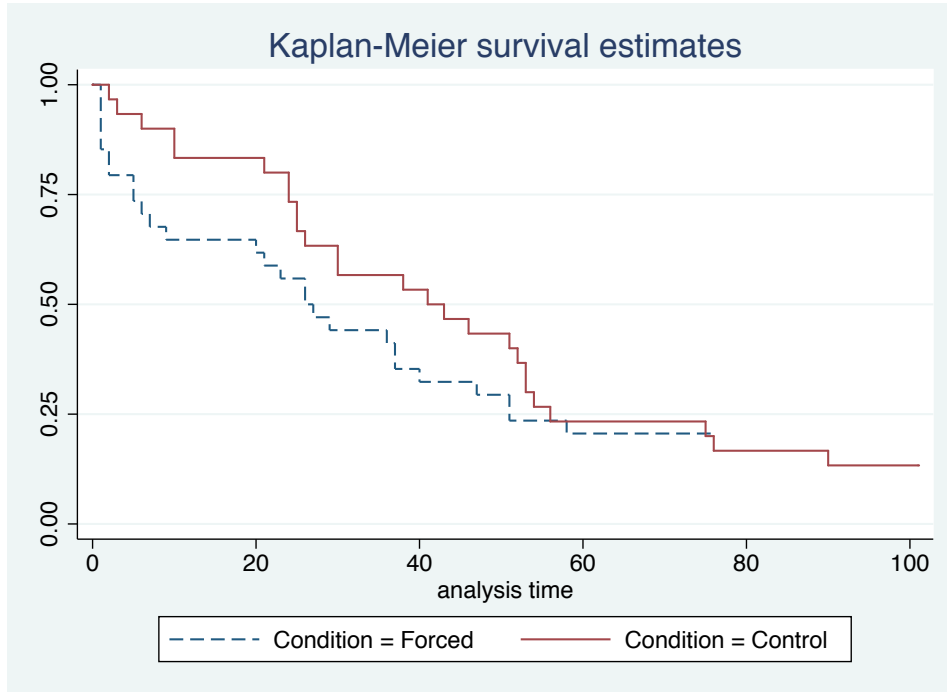
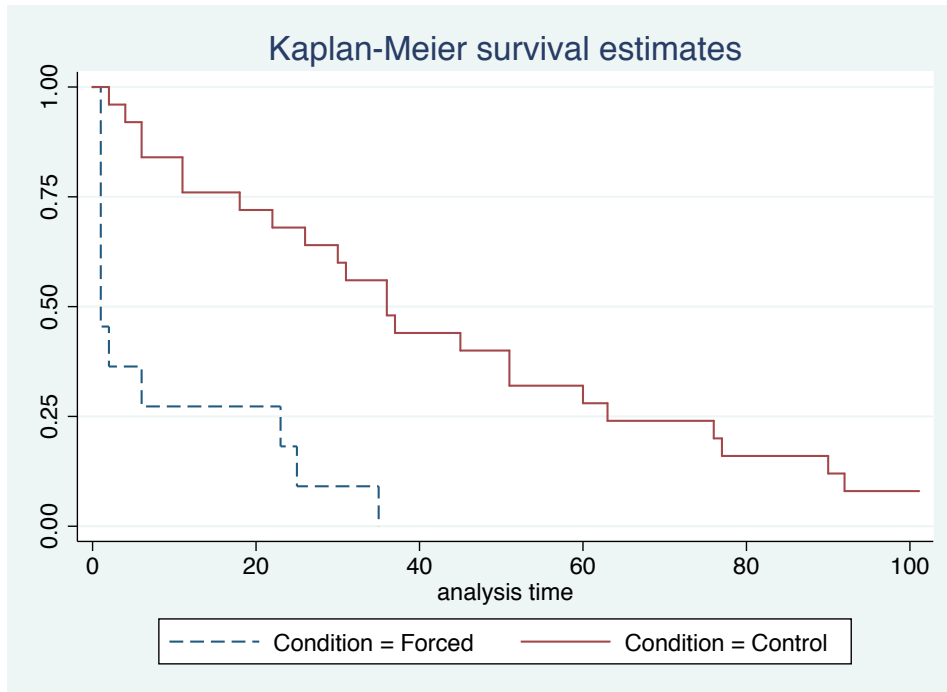


Figure 2: Kaplan–Meier Survival Curves by Condition, over Religiosity. Time to failure equals time voluntarily donated.

(a) Religious participants only ($n = 64$)



(b) Non-religious participants only ($n = 36$)



A For Online Publication: Experiment Instructions

You have been asked to participate in an economics experiment.
The purpose is to study people's decisions to donate their time.
In the course of this experiment, you may donate your time to a charity of your own choosing.
Please press Enter or click anywhere on the screen

[New screen]

You have already been given 10 dollars.
Those are yours to keep no matter what you choose to do during the experiment.
Please note that no one else, including the experimenter or conductor of the experiment,
will know the personal decisions of people participating in the study.

[New screen]

From now until the end of the experiment, you are not allowed to talk to anyone or read
anything other than what is on your screen.
Please make sure cell phones, pagers, etc., are turned off, and that all your belongings are
on the floor.

[New screen]

The experiment is conducted as follows:
First, you'll choose a charity from a list of 10 charities.
You'll indicate your charity of choice by clicking the link associated with the charity on the
relevant screen.

[New screen: Control group only]

Next, you will be given the option to donate your time to the charity.
You will have to option of spending up to 100 minutes (one hour and 40 minutes) in this
room, while performing a very simple task on the screen.
For every minute you choose to stay, your charity will receive 20 cents.
You may elect to leave right away, to stay the full 100 minutes, or to leave any time in
between. But the longer you stay, the more money will be given to your charity.

[New screen: Treatment group only]

Next, you will be given the option to donate your time to the charity.

You will have to option of spending up to 100 minutes (one hour and 40 minutes) in this room, while performing a very simple task on the screen.

For every minute you choose to stay, your charity will receive 20 cents. However, the experiment requires you to donate at least 25 minutes. For this 25 minutes your charity will receive \$5.00.

You may elect to leave at the conclusion of the 25 minutes, to stay the full 100 minutes, or to leave any time in between. But the longer you stay, the more money will be given to your charity.

[New screen]

After the beginning of the experiment, you will see a screen with two buttons.

One button will say “I Want To Donate Another Minute” and the other will say “I’m Ready To Leave”.

In the upper right corner you will see how much of the minute is left.

[New screen]

So long as you want to donate another minute, you have 60 seconds to press the “I Want To Donate Another Minute” button.

This will add 20 cents to the donation to the charity you chose earlier.

After you have pressed the “I Want To Donate Another Minute” button, the screen will go blank for the remainder of the 60 seconds.

After 60 seconds have passed, the screen will refresh, and you will have another opportunity to donate another 60 seconds.

[New screen]

If you do not press the button, but wish to continue, the screen will continue to refresh every 60 seconds, and you will have the opportunity to donate more time.

However, you must press the “I Want To Donate Another Minute” to make the donation.

[New screen]

After the end of the experiment, the experimenters will calculate the total donations to each charity.

The experimenter will make out checks for these amounts, and mail to the charity.

At the end of the study you are encouraged to contact the study administrator to verify donations have been made.

[New screen]

Continue to the next two screens for a listing of the charities you can donate to.

After the listings you will make your donation decision.

[New screen]

See Appendix B for a list of charities.

[New screen]

Press Below To Start The Experiment

PRESS HERE

B For Online Publication: List of Charities

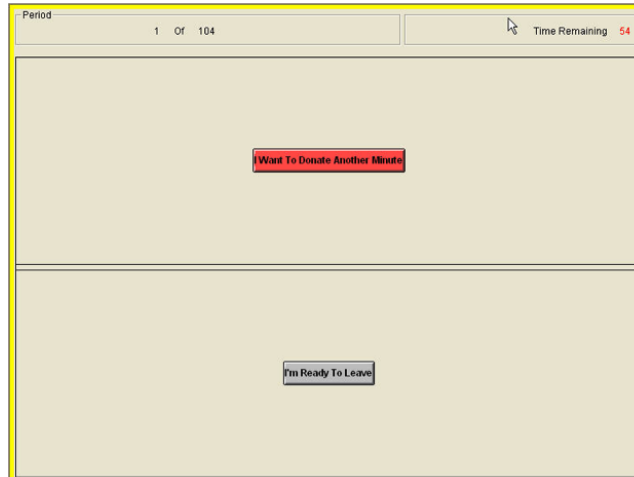
Charity	Description
AIDS Alabama	Devotes its energy and resources statewide to helping people with HIV & AIDS live healthy, independent lives, and works to prevent the spread of HIV.
Alabama Coalition Against Domestic Violence	Seeks to end domestic violence, and provide resources to battered women, including education, support and outreach.
American Cancer Society	Provides many services to cancer patients and their families such as information, medical equipment, transportation to treatment locations, and a support system.
American Red Cross	Offers blood donation information and services, disaster relief, many helpful educational classes, as well as HIV/AIDS support groups.
Amnesty International	Campaigns worldwide for human rights, mobilizes activists to pressure governments and non-governmental groups involved in human rights violations to cease abuse. Activities include demonstrations and letter writing, education, and fundraising.
Big Brothers Big Sisters	Provides one-to-one mentoring for youth and children residing in a one-parent family for the purpose of creating caring, confident and competent young adults.

Charity	Description
Big River Sierra Club	Protects and preserves environmentally sensitive areas.
Doctors Without Borders	Doctors and nurses volunteer to provide urgent medical care in some 70 countries to civilian victims of war and disaster regardless of race, religion or politics.
Feed The Children	One of America's most effective charities providing food, clothing, medical care, education and emergency relief to children in the United States and overseas since 1979.
Oxfam America	Invests privately-raised funds and technical expertise in local organizations around the world that hold promise in their efforts to help poor move out of poverty; committed to long-term relationships in search of lasting solutions to hunger, poverty and social inequities.
S.G. Komen Breast Cancer Foundation	Works to eliminate breast cancer through research, education, screening and treatment.
YMCA	Provides parent visitation monitoring services and physical fitness services.

C For Online Publication: Screen Shots

Note: there were a maximum of 104 periods altogether: up to 100 periods of donation as well as 3 un-timed periods of questions and one final period.

Screen Shot A: Deciding Phase



Screen Shot B: Waiting Phase

