

Mandated Volunteering: An Experimental Approach

Sara Helms, Erik Angner,
Brian Scott, and Sarah Culver*

25 November 2009

Abstract

This study employs a novel experimental paradigm to examine crowdout effects in volunteering. Using an experimental framework modeled upon money donation experiments, we examine the impact of “forced” volunteering on the amount of time volunteered. Subjects in our study were given the opportunity to contribute their time for the benefit of a charity of their choice. For each minute the subjects performed a trivial task (pressing a button on a computer screen), \$0.20 was transferred to the charity. In the control condition, subjects could contribute anything from zero to 100 minutes of their time. In the treatment condition, subjects had to contribute at least 25 minutes, but were free to contribute up to 100 minutes total. We find 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 substantial altruistic giving. Interacting the mandate with the religiosity of subjects exposed sharp differences. Among religious subjects, the crowdout is 52.8 percent, suggesting substantial warm-glow giving. Among non-religious subjects, the crowdout is 138 percent, implying substantial altruistic giving. These results indicate that policies mandating volunteer activity may be associated with significant crowdout effects, and that mandates might have different effects in different subpopulations. (JEL C91, D64, H41)

*Helms: Department of Economics, Finance, and Quantitative Analysis. Samford University, 800 Lakeshore Drive, Birmingham, AL 35229 (e-mail: shelms1@samford.edu); Angner: Department of Philosophy and Department of Marketing, Industrial Distribution, and Economics, University of Alabama at Birmingham, 1530 3rd Avenue South, Birmingham, AL 35294 (e-mail: angner@uab.edu); Scott: Department of Economics, Washington College, 300 Washington Avenue, Chestertown, MD 21620 (e-mail: bscott3@washcoll.edu); Culver: Department of Marketing, Industrial Distribution, and Economics, University of Alabama at Birmingham, 1530 3rd Avenue South, Birmingham, AL 35294 (e-mail: sculver@uab.edu). The researchers would like to thank the Center for Ethics and Values in the Sciences, the Center for Economic Education, and the Department of Marketing, Industrial Distribution, Economics at the University of Alabama at Birmingham (UAB). Helms wishes to thank the UAB ADVANCE grant, funded by the National Science Foundation (SBE-0245090).

1 Introduction

Volunteering – “any activity in which time is given freely to benefit another person, group, or organization” [23] – is an important component of the U.S. economy. The Bureau of Labor Statistics (BLS) of the United States estimates that 26.4 percent of individuals age 15 and older volunteer a median of 52 hours per year [8]. The value of volunteer activity in the US economy has been estimated to range from \$203 billion to \$317 billion [7].

Many institutions require a minimum level of volunteering. Religious groups frequently encourage or require service. Schools across the country require not just 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—whether mandated or not—early in life establishes habits that increase volunteering levels for an extended period of time [20].

Yet, evidence of beneficial effects of mandates is scarce. The belief that mandated volunteering causes an increase in subsequent volunteer activity appears to be based on confusion between correlation and causation. Moreover, field studies have been inconclusive. In a recent field study, Helms [15] found a significant increase in volunteer activity at the time when the mandates were enforced, but was unable to establish any significant increase in subsequent volunteering.

Given the importance of volunteering in the economy, and given that field studies have remained inconclusive, an experimental study of the factors influencing individuals’ 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 donations of time [17, 21, 14, 12, 4, 9]. Monetary charitable donations, by contrast, have been fruitfully explored a laboratory experimental setting [22]. For example, Andreoni [3] used a public goods game and Bolton and Katok [5] used dictator games in settings where the recipients of donations were other participants rather than real charities. Eckel et al. [11] 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. [11] “observe nearly 100% crowding out” (p. 1543). Using the language of Andreoni [1, 2], this indicates substantial warm-glow (as opposed to altruistic) giving.

Our goal was to develop an experimental paradigm that permits empirical economists to study volunteering in the lab. 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). We study

crowdout effects in volunteering behavior using an experimental design modeled upon that of Eckel et al. [11].

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 donate anything from zero to 100 minutes of their time. In the treatment condition, subjects were told that they had to donate at least 25 minutes, but that they were free to donate up to 100 minutes total. We predicted that subjects exposed to “forced volunteering” would, on the mean, voluntarily contribute less time than subjects in the control condition.¹

We find evidence of substantial crowding out of voluntary contributions with 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, indicating substantial altruistic giving. 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, suggesting substantial warm-glow giving. Among non-religious subjects, the crowdout is 138 percent—that is, non-religious subjects’ total contribution was lower in the presence of mandates—implying substantial altruistic giving.

The results indicate that policies mandating volunteer activity may be associated with significant crowdout effects. Insofar as mandated volunteering tends to reduce the total amount of time volunteered, these requirements may be either less effective than anticipated or counterproductive. Moreover, our results suggest that mandates might have different effects in different subpopulations. Further experimental and field research examining people’s response to mandates is highly motivated.

2 Study Design

2.1 Theoretical Model

Much experimental work on charitable giving is based on the seminal model presented by Andreoni [1, 2]. 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

¹We are well aware of the oxymoronic nature of the term “forced volunteering,” but it is in common use.

(voluntary plus involuntary) contribution to the public good. From here on, we will use *total contribution* to refer to y_i and *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 payments. 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:

$$U_i = U_i(x_i, Y, g_i), \quad i = 1, \dots, n \quad (1)$$

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 as well.

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

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

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.

As Andreoni [1, 2] 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 .

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 control condition is g_i^C and i 's donation in the treatment condition is 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 donation will decrease by one unit. Altruistic giving reflects a concern with the goal of making sure that the charity has resource rather than with the very act of voluntary giving; hence, it does not matter to the altruistic donor whether donations were forced or voluntary. Under “impure” altruism, by contrast, voluntary donations and involuntary contributions by others are imperfect substitutes for private wealth, and involuntary contributions are imperfect substitutes for voluntary donations. Hence, impure altruists do not exhibit complete crowdout: if their involuntary contribution is increased by one unit, their voluntary donation will decrease by less than one unit.

2.2 Participants

One hundred participants were recruited using flyers that were 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.² 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

²Though 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 student payoffs depend on their decisions in the experiment.

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 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, independent 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. We use boldface to emphasize the difference between the two conditions for publication purposes, though not in the experiment. 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.³ The donation 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 they chose whether to donate another minute of their time or not.

Each time the participant pressed the button, in each of the 100 sixty-second time periods, US \$0.20 was donated to the chosen charity. Therefore, the maximum donation 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 donations were made by viewing cancelled checks. When the participant decided she did not want to donate additional time, she pressed the button labeled “I’m Ready To Leave.”

At this point, two final screens requested demographic and other information. In the survey, we included questions about race/ethnicity, gender, religiosity, and employment status. 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 [8, 16, 18, 19, 20].

After completing the survey, participants were free to leave. To preserve anonymity, participants were able to leave without being observed by the administrator, and they were not asked to seek her out 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.

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 involuntary contribution t_i . In our study, t_i was equal to 0 in the control condition and 25 in the treatment condition; hence the voluntary donation g_i

³The experiment was programmed and conducted with the software z-Tree [13]. The code is available upon request.

could range from 0 to 100 in the control condition and 0 to 75 in the treatment condition. The total contribution y_i ranged 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 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.” In cases when we did not observe failure – that is, when the total contribution equaled 100 minutes – observations were 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 contribution 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 ($p = 0.029$). Table 1 also gives mean (SD) total contributions to the public good for each subpopulation.

For each of the twelve charities, Table 2 reports the number of participants who chose to donate to that charity as well as the mean total contribution in minutes to the charity.

3.2 Bootstrap Analysis

For the sample as a whole, the mean donation (voluntary contribution) was 35.5 minutes. In the control condition, the mean donation was 43.6 minutes. In the treatment condition, the mean donation was 25.6 minutes. Hence, the degree of crowdout was 71.7 percent. The bootstrapped 95 percent confidence interval is 27.4 percent to 116.6 percent.

On the basis of these results, we can reject the hypothesis that the degree of crowdout is 0%, which entails that we can reject the hypothesis of purely altruistic giving. We cannot reject the hypothesis that the degree of crowdout is 100%, which entails that we cannot reject the hypothesis of pure warm-glow giving.

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; there are 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% 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 .05 level. Columns B to E display the result 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 their interaction terms.

While the hazard ratio associated with treatment condition is not significant at the 95-percent level in columns B and D, it is significant in columns D, E and F.

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.

For the religious sample, the crowdout rate was 53 percent, with a bootstrapped 95-percent confidence interval of -6 to 110 percent. For the non-religious sample, the crowdout rate was 138 percent, with a bootstrapped 95-percent confidence interval of 85 to 195 percent.

Although there were no significant differences in average amount of donated time between the religious and non-religious participants in our study, the results do suggest that the reasons for giving differ dramatically: the high crowdout rate among non-religious participants points to substantial altruistic giving, whereas the low crowdout rate among religious participants is consistent with pure warm-glow giving.

4 Discussion

Our study augments the understanding of an important kind of charitable behavior – volunteering—largely unstudied using the experimental framework. An experimental study provides an additional perspective on the impact of mandates on volunteer behavior.

Since we find that ‘forced’ volunteers voluntarily contribute, on average, less time (and consequently money) than the control group, we consider several reasons for the behavioral responses we observe. One possible explanation is that the introduction of an external motivation changes altruistic behavior. A substantial literature exists—both theoretical and empirical—that focuses on altruism, motivation, prosocial behavior, and social preferences and norms. The studies typically find that when external motivations are introduced for altruistic behavior, intrinsic motivations are impacted in a way that leads to an unexpected change in behavior [4, 12, 14, 21, 17, 9].

Our results are consistent with previous findings that when volunteers are compensated for their charitable donations, the resulting change in behavior is opposite what standard economic theory would predict. That is, economists tend to assume that paying someone to do an action she previously did for no monetary or in-kind compensation will likely increase the action, or at the limit will leave it unchanged. Instead, prior studies find lower levels of altruistic behavior when external motivations are introduced. One study on blood donation finds that paying participants actually leads to lower levels of donation among women [17].

The above-mentioned results are consistent with reactance theory, proposed by Brehm [6]. He argues that individual’s, and adolescents in particular, will rebel against a perceived loss in freedom. While they will cooperate with a regulation when it is binding, they will react against the previous loss of freedom by taking the opposite action when given the opportunity to re-assert their independence. In our study, this is consistent with students continuing with the experiment for 25 minutes, and leaving once given the opportunity to do so.

Another possible explanation for our results relies on the differentiation between the public goods and warm glow motivations for giving. Considering our results for religious and nonreligious subjects separately, we observe distinctly different patterns of behavior. Among religious subjects, there appears to be a concern for the size of one’s own voluntary gift, consistent with the warm-glow motivation for giving. Among nonreligious subjects, the crowdoout that we observe is consistent with the subjects having a desired donation level, without regard to the amount “forced” and the amount “voluntary.” It is consistent with our findings to say that religious and nonreligious subjects are differentially motivated with respect to giving. This difference has important consequences for public policy on charitable giving since nearly one-third of all giving in the United States is religious in nature [10].

Our unanticipated result of the differential effects of the mandate on religious and nonreligious subjects is worthy of further exploration. We find that religious individuals do not exhibit the same negative response to the mandate (in terms

of minutes donated) that nonreligious individuals do. There are many possible explanations for this result. 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. We do not purport to know the underlying factors that lead to our result, but given the magnitude of the difference, only contend that it is important.

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. Another concern is that our results could be driven by a framing response. That is, by simply implanting “25 minutes” into the minds of the treatment group, we could be inducing a social norm of 25 minutes. It could be argued that any mandate induces a similar framing effect. If it ultimately results in reduced voluntary action, though, does it matter if it is operating through framing or reactance? We argue that the primary concern is the impact of a mandate on giving, and regardless of reason, we observe statistically and economically significant crowdout among religious participants, but not any other studied attribute of the participants.

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. Future studies can further map the response of individuals to varying incentives (both positive and negative) for donating time to charities. We find that forced volunteering leads individuals to reduce their voluntary contribution. Furthermore, we find that the religiosity of participants mitigates the perverse effect of the mandate. While religious subjects reduced their voluntary contributions in light of the mandate, the reaction of nonreligious subjects was much more severe. In fact, we find that a twenty five minute mandate reduced voluntary minutes by more than twenty minutes for the latter group. Our results provide further evidence that blindly applying volunteering mandates will not necessarily lead to the anticipated results of increased time donation.

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 crowding out is 71.7 percent, indicating substantial altruistic giving. Interacting the mandate with the religiosity of subjects exposed sharp differences. Among religious subjects, the crowding out is 52.8 percent, suggesting substantial warm-glow giving. Among non-religious subjects, the crowding out is 138 percent, implying substantial altruistic giving. These results indicate that policies mandating volunteer activity may be associated with significant crowding out 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.

References

- [1] **Andreoni, James.** 1989. “Giving with Impure Altruism: Applications to Charity and Ricardian Equivalence.” *Journal of Political Economy*, 97(6): 1447-1458.
- [2] **Andreoni, James.** 1990. “Impure Altruism and Donations to Public Goods: A Theory of Warm-Glow Giving.” *Economic Journal*, 100(401): 464-477.
- [3] **Andreoni, James.** 1993. “An Experimental Test of the Public-Goods Crowding-Out Hypothesis.” *American Economic Review*, 83(5): 1317-27.
- [4] **Bénabou, Roland, and Jean Tirole.** 2006. “Incentives and Prosocial Behavior.” *The American Economic Review*, 96(5), 1652-1678.
- [5] **Bolton, Gary E., and Elena Katok.** 1998. “An Experimental Test of the Crowding Out Hypothesis: The Nature of Beneficent Behavior.” *Journal of Economic Behavior and Organization*, 37(3): 315-31.
- [6] **Brehm, Jack W.** 1966. *A Theory of Psychological Reactance*. New York, NY: Academic Press.
- [7] **Brown, Eleanor.** 1999. “Assessing the Value of Volunteer Activity.” *Non-profit and Voluntary Sector Quarterly*, 28(1): 3-17.
- [8] **Bureau of Labor Statistics (BLS).** 2009. *Volunteering in the United States, 2008*. Washington, DC: U.S. Department of Labor. http://www.bls.gov/news.release/archives/volun_01232009.pdf

- [9] **Cappellari, Lorenzo, and Gilberto Turati.** 2004. "Volunteer Labour Supply: The Role of Workers' Motivations." *Annals of Public and Cooperative Economics*, 75(4): 619-643.
- [10] **Center on Philanthropy at Indiana University.** 2010. *Overview of Religious Giving: Based on Data Collected in 2007 about Giving in 2006.* Indianapolis, IN: Indiana University. http://www.philanthropy.iupui.edu/Research/copps/docs/2007COPPS_OverviewofReligiousGiving.pdf
- [11] **Eckel, Catherine C., Philip J. Grossman, and Rachel M. Johnston.** 2006. "An Experimental Test of the Crowding Out Hypothesis." *Journal of Public Economics* 89(8), 1543-1560.
- [12] **Ellingsen, Tore, and Magnus Johannesson.** 2008. "Pride and Prejudice: The Human Side of Incentive Theory." *American Economic Review*, 98(3): 990-1008.
- [13] **Fischbacher, Urs.** 2007. "z-Tree: Toolbox for Readymade Economic Experiments." *Experimental Economics*, 10(2): 171-178.
- [14] **Frey, Bruno S., and Stephan Meier.** 2004. "Pro-Social Behavior in a Natural Setting." *Journal of Economic Behavior and Organization*, 54(1): 65-88.
- [15] **Helms, Sara.** 2009. "Involuntary Volunteering: The Impact of Mandated Service in Public Schools." Birmingham, AL: Samford University Mimeo-graph.
- [16] **Keeter, Scott, Cliff Zukin, Molly Andolina, and Krista Jenkins.** 2002. *The Civic and Political Health of the Nation: A Generational Portrait.* Medford, MA: The Center for Information Research on Civic Learning and Engagement. http://www.civicyouth.org/research/products/Civic_Political_Health.pdf
- [17] **Mellström, Carl, and Magnus Johannesson.** 2008. "Crowding Out in Blood Donation: Was Titmuss Right?" *Journal of the European Economic Association*, 6(4): 845-863.
- [18] **Metz, Edward, and James Youniss.** 2003. "A Demonstration that School-Based Required Service Does Not Deter – but Heightens – Volunteerism." *Political Science and Politics*, 36(2): 281-286.
- [19] **Nolin, Mary Jo, Bradford Chaney, and Chris Chapman.** 1997. *Student Participation in Community Service Activity* (NCES 97-331). Washington, DC: National Center for Education Statistics. <http://nces.ed.gov/pubs97/97331.pdf>

- [20] **Planty, Michael, and Michael Regnier.** 2003. *Statistics in Brief: Volunteer Service by Young People from High School through Early Adulthood* (NCES 2004-365). Washington, DC: National Center for Education Statistics. <http://nces.ed.gov/pubs2004/2004365.pdf>
- [21] **Seabright, Paul B.** 2009. "Continuous Preferences and Discontinuous Choices: How Altruists Respond to Incentives." *The B. E. Journal of Theoretical Economics*, 9(1): Article 14. <http://www.bepress.com/bejte/vol9/iss1/art14>
- [22] **Vesterlund, Lise.** 2006. "Why Do People Give?" In *The Nonprofit Sector: A Research Handbook*, 2nd Edition, eds. Walter W. Powell and Richard Steinberg, 568-587. New Haven, CT: Yale University Press.
- [23] **Wilson, John.** 2000. "Volunteering." *Annual Review of Sociology*, 26(1): 215-240.

Table 1: Voluntary Donations (in Minutes) by Participant Characteristics ($n = 100$)

Characteristic	n		p-value	Mean (SD)
	All Participants $n = 100$	Control Condition $n = 55$		
Race/Ethnicity				
White	53	30	0.73	46.5 (28.6)
Not White	47	25		47.0 (30.4)
Gender				
Female	48	28	0.81	46.6 (27.8)
Male	52	27		46.9 (30.9)
Employment Status				
Employed	69	37	0.68	44.8 (28.7)
Not Employed	31	18		51.2 (30.6)
Religiosity				
Religious	64	30	0.03**	39.4 (27.5)
Not Religious	36	25		50.9 (29.7)
Condition				
Control	55	55		43.6 (31.0)
Treatment	45	0		50.6 (26.9)

** significant at the 95% level

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

Charity	n	Mean (SD)
AIDS Alabama	7	41.6 (30.9)
AL Coalition Against Domestic Violence	3	43.3 (28.4)
American Cancer Society	20	45.0 (31.1)
American Red Cross	9	33.3 (27.9)
Amnesty International	5	40.6 (28.8)
Big Brothers Big Sisters	12	50.2 (32.5)
Big River Sierra Club	2	67.0 (11.3)
Doctors Without Borders	13	43.2 (22.4)
Feed the Children	20	55.3 (33.1)
Oxfam America	2	38.5 (20.5)
S.G. Komen Breast Cancer Foundation	5	48.4 (32.8)
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 90% level

** significant at the 95% level

*** significant at the 99% level

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

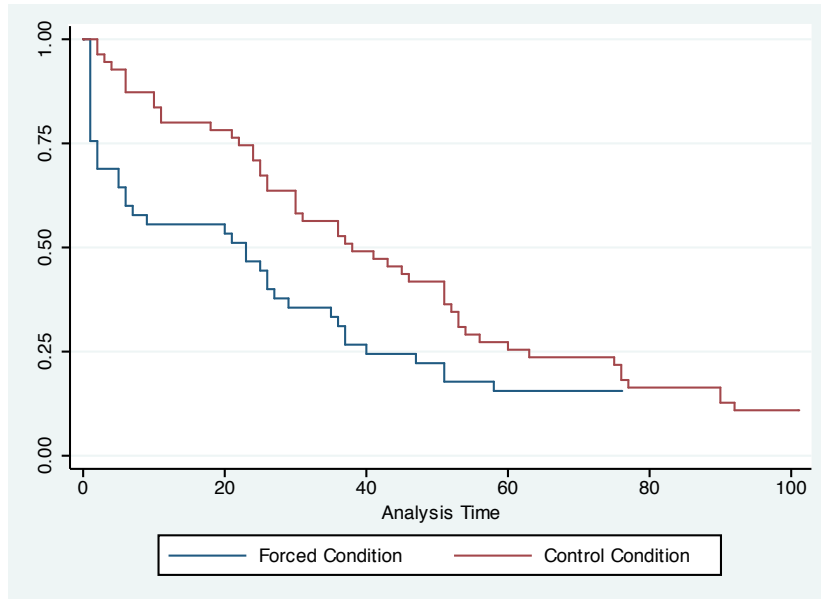
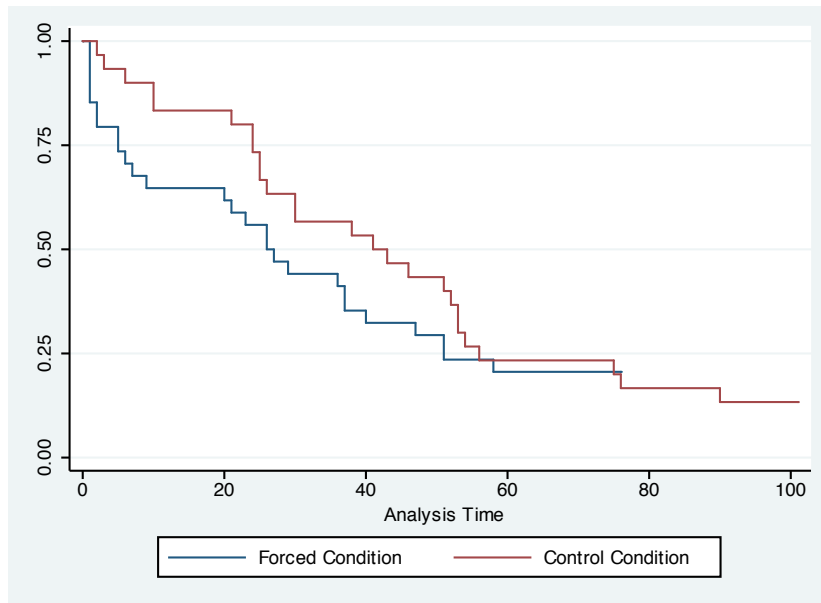
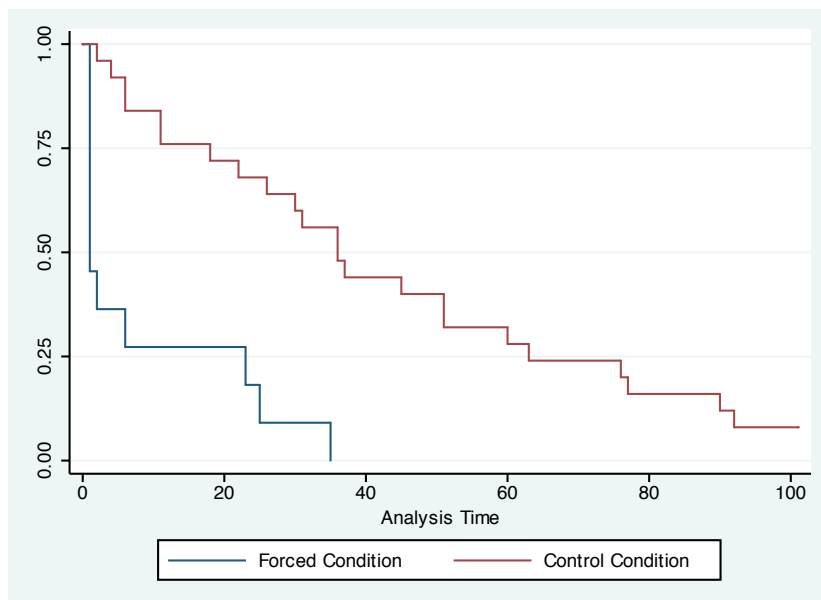


Figure 2: Kaplan-Meier Survival Curves by Condition, over Religiosity. Time to failure equals time voluntarily donated.

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



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



A 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 List of Charities

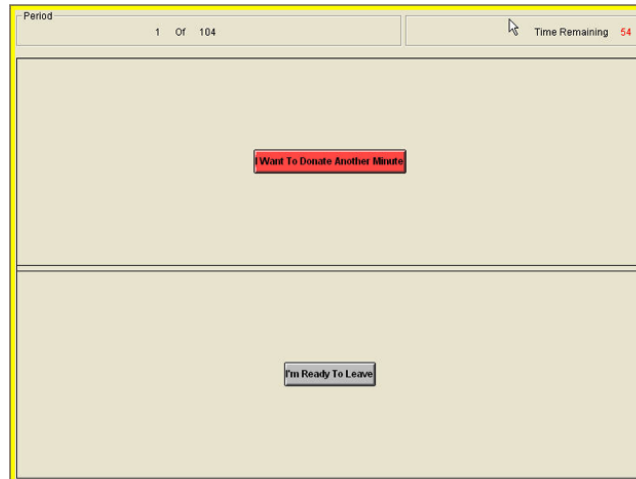
Charity	Description
AIDS Alabama	Devotes its energy and resources statewide to helping people with HIV & AIDS live healthy, independent lives, and works to prevent the spread of HIV.
Alabama Coalition Against Domestic Violence	Seeks to end domestic violence, and provide resources to battered women, including 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 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

