

The Economics of Signing Petitions

Social Pressure versus Social Engagement

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Abstract

Why do people sign petitions? Do they genuinely care about the subject matter, or just feel pressured by the solicitor? I tested this question in a field experiment involving a door-to-door petition drive where the ability of the homeowner to avoid the solicitor was varied. Households in the Flyer treatment group received a flyer on their doorknob announcing that a solicitor would arrive the next day collecting signatures for a Greenpeace petition on global warming. The houses in the Opt-Out treatment group received flyers that were identical except for a “Do Not Disturb” box at the bottom, which allowed homeowners opt out of the drive at no personal cost. The houses in the control group did not receive any notice of the upcoming petition drive. I found that the houses in the treatment groups were 14 and 23.5 percent, respectively, less likely to answer the door than the control group. The flyer treatments did not, however, significantly lower the percentage of people that signed the petition. These results indicate the presence of both social pressure and social engagement as motivating factors in the decision-making process.

I. Introduction

Petitions are requests for change, and are made to government officials and public entities for a wide variety of reasons. The signing of petitions by the public lends weight and legitimacy to the request, and is a fundamental part of our political process. A petition can place the name of a candidate for public office on a ballot, as well as allow proposed initiatives to be put up for a vote. These collections of signatures are tools that show our leaders the direction of popular support, and often signal that it is their duty to take action on behalf of the public's opinion. On college campuses and in residential streets around the country, solicitors take their concerns to the people, asking them to spare a minute of their time in support of their particular cause. The petition is a way for people to take a direct role in the legislative process, as gathering enough signatures on a petition can ultimately help create law.

The logic behind the petition's value, however, relies upon the assumption that the people who sign it do so because they believe in the cause. Depending upon what motivates a person to sign a petition, this logic may be flawed. If a person signs because of social pressure, as opposed to a real conviction in the cause, a completed petition may not reflect the true opinions of the citizenry and therefore is not a good indicator of public opinion. This could have important ramifications in the realm politics and public policy. Why do people sign petitions in the first place? Are they socially engaged or just unable to say no?

The purpose of this research is to shed light on the question of motivation, which is of utmost importance in the field of Economics. More specifically, the question I ask is why people sign petitions when asked to do so. I am interested in whether people sign because they care about the cause, or just because they dislike not signing. I propose a field experiment to help answer these questions. The experiment involves a door-to-door petition drive, where the ability

to seek or avoid the solicitor is varied. Some households will be informed in advance with a flyer on their doorknob indicating the date of solicitation and can thus seek out the petition if signing is welfare-enhancing (the social engagement explanation), or avoid it if signing is welfare-decreasing (the social pressure explanation). There are two types of flyers treatments; one simply announces the impending visit and another that is identical except for the addition of a “Do Not Disturb” box at the bottom. The households which receive flyers are then compared to a control group, where the houses are approached with no previous notification.

In “What Motivates Giving in the Field”, the authors present a model of behavior that allows for both altruism (where giving a donation is motivated by a genuine concern for the cause) and social pressure (where the individual would rather not spend the time, but saying no has a cost).¹ While this model was created to describe behavior related to charitable giving, I believe it is also valid in the context of my experiment with petitions. In their paper, DellaVigna et al. use altruism as a force opposite to social pressure; in my application, I substitute social engagement for altruism. They are very similar concepts, as in both cases the homeowner takes an action because they care about the solicitor’s cause, as opposed to acting due to pressure from solicitor’s presence. The model is summarized below in three propositions.

Proposition 1 demonstrates the impact of social pressure and social engagement on the probability that an individual H will answer the door. Under the social engagement and no social pressure case, the flyer increases the presence at home relative to the control group since the agent seeks opportunities to meet the solicitor. In the social pressure and limited social engagement case, the opposite is true: the flyer lowers the presence at home, as the agent seeks to avoid the signature collector. In this case, the opt-out lowers the presence at home even further, as it makes this avoidance behavior less costly. In the case in which both social pressure

¹ Stefano DellaVigna, John List and Ulrike Malmendier. “What Motivates Giving in the Field”, 2008.

and social engagement are present, the probability of being at home is higher for the flyer group only if on average the people who sign are highly socially engaged. If instead social pressure is the predominant reason to sign, the notice reduces the home presence.²

Proposition 2 reveals the effect of altruism and social pressure on the unconditional probability of signing the petition, $P(S)$. It states that with social engagement and no social pressure, the probability $P(S)$ is weakly higher with the simple and opt-out flyers. In both treatment groups the probability of signing is higher than under the control group, since the agent seeks opportunities to stay at home. The simple and opt-out flyer groups are equivalent, since there is no reason to exercise the opt-out option in the absence of social pressure. With social pressure and limited social engagement, the probability $P(S)$ is weakly lower with advance notice and lowest with the opt-out flyers. Finally, in the presence of both social engagement and social pressure, the comparison between the control and advance notice groups depends on whether signing is more due to real engagement with the issues (which works to increase signing) or to social pressure (which has the opposite effect).³

Finally, Proposition 3 regards the probability of signing the petition conditional on a person opening the door. The probability of signing conditional on being at home $P(S|H)$ satisfies $P(S|H)_{\text{Flyer}} \geq P(S|H)_{\text{No Flyer}}$. Conditional upon reaching an individual at home, signing is higher with advance notification than without. This prediction does not depend on the parameters; social engagement and social pressure both lead to increases in the conditional probability of giving with advance notice. Socially engaged people that are more likely to sign

² Stefano DellaVigna, John List and Ulrike Malmendier. “What Motivates Giving in the Field”, 2008.

³ Ibid.

the petition select into staying at home, and non-signers that suffer a self-control cost of not signing select away from the home.⁴

I estimate the impact of the two flyer treatments on both the share of households that answer the door and the share of households that sign the petition, and then analyze the results based upon the model. If social engagement is the main reason behind the signing of petitions, the warning provided by the flyers should increase both the presence at home and the share of households signing; it is utility-enhancing and thus the households will sort into staying at home. On the other hand, if the main driver of signing petitions is social pressure, the flyer should both lower the presence at home and the share of signers. Under the social pressure model of behavior, being asked to sign is welfare-diminishing for the occupant, and the households sort out of the home to avoid the encounter with the solicitor (or just don't answer the door). Thus, I will test whether the home presence and frequency of signing the petition increase with flyer treatments (as predicted by the social engagement model), or decrease (as predicted under social pressure).

The knowledge to be gained from this research has potential welfare implications for best practices in the door-to-door petitioning sector. If it is found that people sign petitions because they like to sign, and that they reward an advance warning, the practice of notification could spread. If, however, it is found that people sign petitions mostly due to social pressure from a solicitor's appearance at the door, the implication would be that door-to-door solicitation for signatures is suboptimal for signer's welfare. It would also bring into question the validity of completed petitions as useful measurements of public opinion.

⁴ Stefano DellaVigna, John List and Ulrike Malmendier. "What Motivates Giving in the Field", 2008.

II. Literature Review

My research focuses on the motivation behind political activity, in the context of giving time and legitimacy to a cause by signing a petition. I hypothesize that social pressure in the form of a face-to-face interaction with a solicitor will be an important factor in the subjects' decision to sign the petition. It is well documented that social pressure is an important motivating factor in the behavior of individuals. As described below, this has been found to be true in vastly different settings and aspects of life.

A couple of clever studies have identified social pressure in action by examining the decisions of soccer referees. An analysis of the behavior of referees in the Italian soccer league by Vincenzo Scoppa found that the extra injury time added to the end of the game was significantly longer if the home team was losing. In addition, the refereeing bias increased greatly when the crowd was closer to the field. Social pressure caused by the crowd was found to be the main cause of favoritism.⁵ Another study by Per Pettersson Lidbom and Mikael Priks exploited the fact that recent hooligan violence caused the Italian government to force some teams to temporarily play home matches in empty stadiums. The result was that referees punish away players more harshly and home players more lightly if the games are played in front of spectators compared to when they are not. This also indicates that referees exhibit home bias caused by social pressure from the crowd.⁶

In "Theory of Moral Management, Social Pressure and Corporate Social Performance" by David Baron, it was found that social pressure was an important determinate of performance⁷,

⁵ Vincenzo Scoppa, "Are Subjective Evaluations Biased by Social Factors or Connections? An Econometric Analysis of Soccer Referee Decisions". *Empirical-Economics*. August 2008; 35(1): 123-40.

⁶ Per Pettersson Lidbom and Mikael Priks. "Behavior under Social Pressure: Empty Italian Stadiums and Referee Bias". CESifo GmbH, CESifo Working Paper Series: CESifo Working Paper No. 1960, 2007.

⁷ David P Baron. "Theory of Moral Management, Social Pressure, and Corporate Social Performance". Stanford University, Graduate School of Business, Research Papers, 2006.

and explains why worker productivity varies as a function of the productivity of co-workers in a group production process. Individuals are motivated by social pressure, and this can play an important role in inducing effort even when economic incentives are limited.⁸ In a different direction, Anne Case, Anu Garrib and Alicia Menendez's "Paying the Piper: The High Cost of Funerals in South Africa" demonstrates that households in South Africa feel social pressure to bury their dead in a style consistent with the observed social status of the household and the deceased. Households that cannot afford a funeral proportionate to social expectations must borrow money to pay for the funeral.⁹ It is clear that social pressure influences decision-making in many kinds of individuals and situations.

Yet while many studies report that social pressure is a dominating factor in the decision-making process, there other factors such as altruism or the "warm glow" model working in the opposite direction. The literature, however, does not reach a consensus on the relative importance of social pressure versus altruistic explanations. Therefore, this opposing model of behavior must be considered on its own merits. Scholars such as Elias Khalil argue strongly against the usefulness and relevance of the warm glow model:

"Warm glow" is similar to the "good feeling" that spontaneously arises when one resists the temptation of a second serving of dessert [...]. As a by-product, it cannot be a primary motivator. The primary motivator [...] must be the enhancement of welfare. Likewise, the experienced "warm glow" arising from giving to charity cannot be a primary motivator. The primary motivator must be the judgment that the consequent welfare of the recipient justifies the donor's loss. That is, one feels good if one is doing the right thing. It would be stupid [...] to act solely on "warm glow", irrespective of the consequent welfare of the recipient in comparison to the donor's. Put differently, if one insists that "warm glow" is a primary motivator, it means that the agent acts from some inner motives that are oblivious to consequences. Such a view, which Dewey and Bentley

⁸Alexandre Mas and Enrico Moretti. "Peers at Work". C.E.P.R. Discussion Papers, CEPR Discussion Papers: 5870, 2006.

⁹Anne Case, Anu Garrib and Alicia Menendez. "Paying the Piper: The High Cost of Funerals in South Africa". National Bureau of Economic Research, Inc, NBER Working Papers: 14456, 2008.

(1973) called “self-actional,” suffers from all the weaknesses of psychological and cultural theories that ignore how the agent transacts with his environment.¹⁰

Nevertheless, the dominance of altruism or the so called “warm glow” as a motivating factor has been supported in some cases. For example, Roland Menges, Carsten Schroeder and Stefan Traub, found the presence of impure altruism in the willingness-to-donate for electricity generated from renewable resources. Their experiment reported that participants benefited not only from the current level of environmental quality (the public good) but also from the contribution itself (the “warm glow”).¹¹ In “Effects of Norms and Opportunity Cost of Time on Household Recycling”, Bente Halvorsen reported that indicators of warm glow are important factors that increase household recycling efforts.¹²

Despite this controversy, it is clear that social pressure remains an important motivating factor in many cases, an important and particularly relevant one being politics. A pioneering study by Alan Gerber, Donald Green and Christopher Larimer discussed the results of a large-scale field experiment of registered voters. Substantially higher voter turnout was observed among those who received mailings promising to publicize their turnout to their household or neighbors. These findings demonstrate the profound importance of social pressure in the realm of political participation.¹³ Yet there are few other papers or field experiments studying social pressure in the realm of politics or social activism. This study sets a precedent for my own

¹⁰ Elias L. Kahlil. “What is Altruism? A Reply to Critics”. Journal of Economic Psychology. Volume 25, Issue 1, February 2004, Pages 141-143.

¹¹ Roland Menges, Carsten Schroeder and Stefan Traub. “Altruism, Warm Glow and the Willingness-to-Donate for Green Electricity: An Artefactual Field Experiment”. Environmental-and-Resource-Economics, August 2005; 31(4): 431-58.

¹² Bente Halvorsen. “Effects of Norms and Opportunity Cost of Time on Household Recycling”, Land Economics, August 2008; 84(3): 501-16.

¹³ Alan S. Gerber, Donald P. Green and Christopher W. Larimer. “Social Pressure and Voter Turnout: Evidence from a Large-Scale Field Experiment”. American Political Science Review, February 2008; 102(1): 33-48.

research, as well as my hypothesis that social pressure is an important part of the political activity of signing a petition.

The design of my experiment comes from the related field of charitable giving, where social pressure has also been extensively studied as a motivating factor. In a major field experiment by Landry et al., the attractiveness of door-to-door fundraisers strongly affected

giving. John List and David Lucking-Reiley found that increasing publicly announced “seed

money” from 10 to 67 percent of the campaign goal had significant effects on both participation rates and average gift size, producing nearly a six fold increase in contributions. The addition of a refund policy was also found to increase charitable donations by 20 percent.¹⁴ Results such as these cause researchers to question the extent to which altruism (where an individual likes giving to a particular charity) could account for all donations, and point to social pressure as an important factor.

A recent experiment by Stefano DellaVigna, John List and Ulrike Malmendier¹⁵ studied charitable giving from a unique angle by varying social pressure within a given fundraising method. They designed a door-to-door fund-raising drive where the ability to seek or avoid a solicitor was varied. Some households were informed with a flyer on the door about the exact time of solicitation, and could seek the fund-raiser if giving was welfare-enhancing (the altruism

¹⁴ John A. List and David Lucking-Reiley, “The Effects of Seed Money and Refunds on Charitable Giving: Experimental Evidence from a University Capital Campaign.” *Journal of Political Economy*, February 2002, vol. 110, no. 8, pp. 215-233.

¹⁵ Stefano DellaVigna, John List and Ulrike Malmendier. “What Motivates Giving in the Field”, 2008.

explanation), or avoid it if giving was welfare-decreasing (the social pressure explanation). In the end, the notice on the door reduced the share of households at home by 10 to 25 percent, suggesting that households seek to avoid fund-raisers. They found no decrease in giving from providing advance notice of the fund-raising drive, but a 30 percent decrease when the notice provided a less costly way to avoid the fund-raiser (checking a box for ‘Do Not Disturb’). While they found evidence that both altruism and social pressure affect charitable giving, more evidence supported the social pressure explanation.

My project follows in the same vein of experimental design, but investigates the motivations behind signing a petition rather than giving money to charity. The basic research design is simple, and related to the DellaVigna et al. (2008) study.¹⁶ In my experiment, a selection of Berkeley households will be asked to contribute their time (instead of donating money) towards completing a petition. The project thus addresses the need for research about motivation in general, as well as the more specific goal of investigating the true motivation behind the political behavior of signing petitions. I define this debate as social engagement (analogous to the warm glow model where the individual genuinely cares about the cause) versus social pressure, which I will examine by varying social pressure within the given petitioning method of door-to-door solicitation.

III. Methodology

My research design is similar to the experiment by DellaVigna et al. which studied the motivation behind charitable giving. In “What Motivates Giving in the Field”, the subjects are visited by door-to-door solicitors and asked to make a donation to various charities. In my application of their methodology, a random selection of households in Berkeley, California, will

¹⁶ Stefano DellaVigna, John List and Ulrike Malmendier. “What Motivates Giving in the Field”, 2008.

be approached at their home and asked to sign a Greenpeace petition on global warming. The project design was reviewed and approved by the Committee for the Protection of Human Subjects subcommittee.

Location and Population

The experiment took place on four weekends in late March and early April, 2009. By the end of the study, 1544 households were visited by door-to-door petitioners. This number was deemed suitable for a large enough sample size while keeping the experiment manageable to conduct. The subject population consists of the adult residents of Berkeley, California. Only subjects aged 18 and older are included in the study. As a result, I expect the sample to be made up of people over 18 years old, of both genders and a variety of races, ethnicities, and nationalities. Streets were pre-selected to be included in the study, and randomized by treatment group. The streets are all in residential areas in Berkeley, California. Specifically, the houses are in one of two zoning districts: single family residential and limited two family residential. Houses were selected from these areas because they are the two lowest density zoning categories for residential neighborhoods in Berkeley (see Appendix B).

Treatments

There are two treatment groups and one control group in the experiment. Subjects in both of the treatment groups were recruited with door flyers, which were placed on their doorknobs the day before the solicitor's visit. The door flyers warn the subjects about the impending petition drive. Two versions of the flyer were used in the experiment (see Appendix C). For households in treatment group (1), the door flyers inform the subject that solicitors will come to their house the next day and ask them to sign a Greenpeace petition on global warming. For

households in treatment group (2), the door hangers are exactly the same except for an additional box at the bottom which says "Check here if you do not want to be disturbed". Subjects in the control group are not warned in advance with a flyer. They are simply approached at the door and asked to sign the petition, with the solicitor following a procedure identical to that of treatment groups.

Before the experiment took place, I went to each neighborhood and distributed the door flyers to the previously selected and randomized streets. As stated on the flyer, the next day a solicitor approached each house, rang the doorbell, and asked the person who responded to sign the petition. Approximately 50 houses were inaccessible by the solicitor (dog blocking the entrance, locked gates, etc) and were dropped from the study. Once a person answered the door, all subjects (except for minors) were included in the study. The only other (very rare) exception that occurred was in instances where the person opening the door was very frail, and a petitioner judged it unwise to ask them to stand at the door to learn about and sign the petition.

The Solicitors

There were five solicitors in the door-to-door field experiment, including myself. All the solicitors were UC Berkeley undergraduates or very recent graduates, and were recruited by word of mouth and through email advertisements to student list hosts. They were familiar with the topic of global warming, and comfortable answering questions from the subjects. Each day, each solicitor was assigned to visit an average of fifty households in each of the three treatment groups. Completing the assignment took between three and four hours and most solicitors participated over multiple weekends. They were not informed which streets were in the various treatment and control groups. Solicitors kept a log of all the households they approached,

including the address, demographic, weather and time information, as well as whether the person did or did not sign the petition. The importance of recording data immediately upon the conclusion of each household visit was stressed. The solicitors were not paid for the study.

The Petition

The particular petition used in the experiment is from Greenpeace, and urges lawmakers to take action on global warming related legislation (see Appendix A). I picked this petition so that I can apply the results of the experiment to an important contemporary political topic. The general attitude about climate change seems to be that fighting it is high priority, especially in progressive cities such as Berkeley, California. Global warming is always in the news, and is discussed in classes and at coffee shops. At the same time, however, relatively little seems to be getting done to stop it.

Here is a practical application of the question of motivation: do people really care in a proactive way about the global warming cause, or do they just feel social pressure telling them that they should care? The answer to this question has important ramifications for public policy, and will influence the effectiveness of political strategies aimed at promoting climate change mitigation legislation. If people only care about global warming because of social pressure, they will not sufficiently encourage the government to take action, or take action themselves. If this indifference is, in fact, the result of my experiment, it is a problem that will have to be addressed before mitigation measures will be voted into place. On the other hand, if people generally sign the petition because they are socially engaged, we should start to see lawmakers taking action and following public opinion.

IV. Results

By the time the experiment was completed on April 12th, 2009, 1544 houses in Berkeley were visited by solicitors asking them to sign our petition. Approximately a third of the total was in the control group and each of the two treatment groups; 6.6 percent of the 533 people with the “Do Not Disturb” option checked the box. Of the 491 of houses which opened the door, 57 percent signed the petition.

Summary Statistics and Figures:

| Treatment | Frequency | Percent |
|---------------------------|------------------|----------------|
| Control | 482 | 31.22 |
| Flyer | 529 | 34.26 |
| Flyer with Opt-out | 533 | 34.52 |
| Total Houses | 1,544 | 100.00 |

| Houses in Sample | Frequency | Percent |
|--------------------------|------------------|----------------|
| Did Not Answer | 1,053 | 68.20 |
| Answered the Door | 491 | 31.80 |
| Total | 1,544 | 100.00 |

| Answered the Door | Freq. | Percent |
|--------------------------|--------------|----------------|
| Did Not Sign | 209 | 42.57 |
| Signed Petition | 282 | 57.43 |
| Total | 491 | 100.00 |

| Summary of the Opt-out Option (Treatment = Flyer w/ Opt-out) | | | |
|---|------------|----------------|------------------|
| Variable | Obs | Mean | Std. Dev. |
| Do Not Disturb Box Checked | 533 | .065666 | .2479301 |

Figure 1. Frequency of Answering the Door

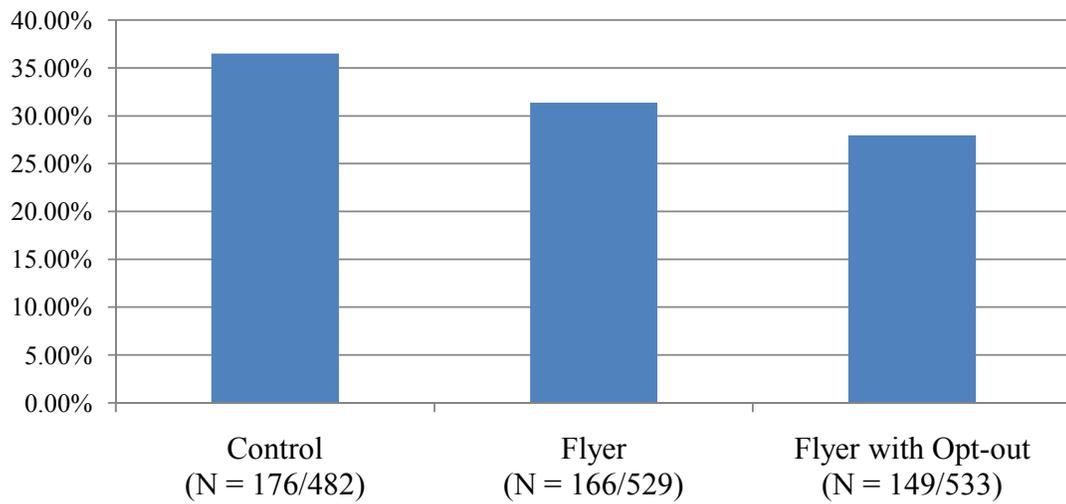
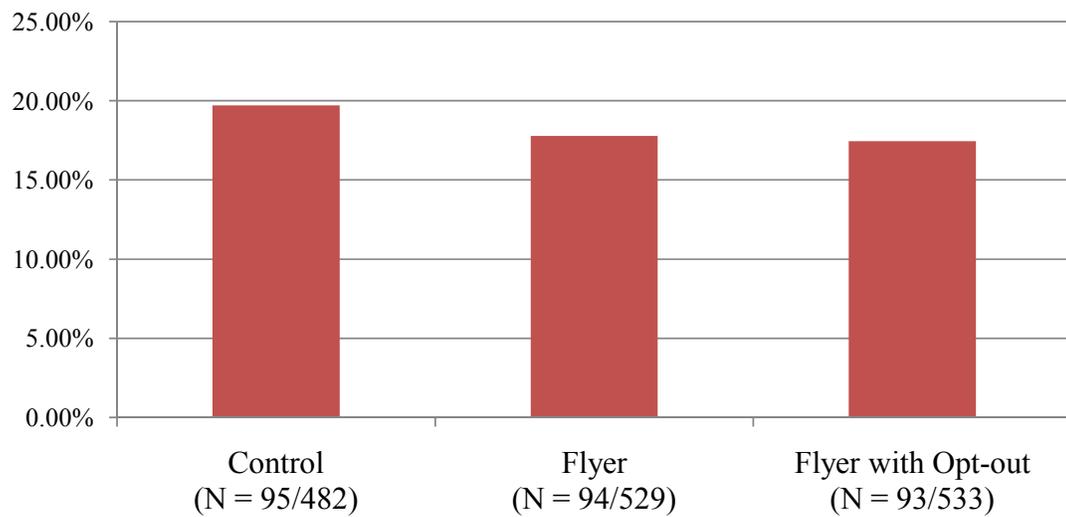
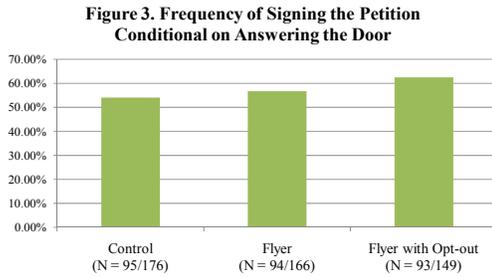


Figure 2. Frequency of Signing Petition





These figures reveal some interesting patterns. First, we see a marked decrease in the frequency of subjects answering the door from the control group to the two treatment groups. Relative to the baseline of 36.5 percent of people answering the door found in the control group, there is a 5.13 percentage point decrease with the introduction of the door flyer, and a drop of 8.56 percentage points when people are given the option to opt-out of the process all together. Thus, the flyer and opt-out conditions lower the probability of opening the door by 14 and 23.5 percent, respectively.

Cross tabulation of Treatment by Dependent Variables:

| Treatment | Answered the Door | | Total |
|-----------------------------|-------------------|--------------|--------------------|
| | 0 | 1 | |
| Control | 306 | 176 | 482 (freq.) |
| | 63.49 | 36.51 | 100.00 (%) |
| Flyer | 363 | 166 | 529 |
| | 68.62 | 31.38 | 100.00 |
| Flyer w/ Opt-out | 384 | 149 | 533 |
| | 72.05 | 27.95 | 100.00 |
| Total | 1,053 | 491 | 1,544 |
| | 68.20 | 31.80 | 100.00 |

| Treatment | Signed the Petition | | Total |
|-----------------------------|----------------------------|--------------|--------------------|
| | 0 | 1 | |
| Control | 387 | 95 | 482 (freq.) |
| | 80.29 | 19.71 | 100.00 (%) |
| Flyer | 435 | 94 | 529 |
| | 82.23 | 17.77 | 100.00 |
| Flyer w/ Opt-out | 440 | 93 | 533 |
| | 82.55 | 17.45 | 100.00 |
| Total | 1,262 | 282 | 1,544 |
| | 81.74 | 18.26 | 100.00 |

These initial results are especially illuminating when compared with the outcome of the DellaVigna, List and Malmendier experiment on social pressure on charitable donations. In “What Motivates Giving in the Field”, they find that a notice on the door reduces the share of households at home by 4 percentage points for the simple flyer and 10 points when the opt-out option was included. This translated to a 10 and 25 percent reduction in the probability of opening the door due to the flyer treatments.¹⁷ These numbers are almost identical to the results I found in my experiment; a simple flyer reduced the share of people who answered the door by 14 percent and adding the “Do Not Disturb” option lowered the probability by an additional 10 percent. This suggests that households do try to avoid solicitors, a result which holds in both the case of charitable giving and signing a petition.

If social pressure was the dominating factor motivating behavior for signing petitions, the flyer treatments should lower both the presence at home and the share of givers. At a first glance

¹⁷ Stefano DellaVigna, John List and Ulrike Malmendier. “What Motivates Giving in the Field”, 2008.

at the data, this appears to have come true. Not only did the flyer reduce the presence at home, but the percentages of people who signed the petition in the treatment groups are slightly smaller (17.4 and 17.7%) than in the baseline (19.7%). According to Proposition 2, this result could be due to a situation with social pressure and limited social engagement, or to the existence of both social pressure and social engagement working against in opposite directions. In the first case, the probability of signing is predicted to be weakly lower with the flyer and lowest with opt-out. If both altruism and social pressure are present, the comparison between the control and flyer groups depend on whether signing is more due to real social engagement (which works to increase signing) or to social pressure (which has the opposite effect).

After conditioning upon those who answered the door, this effect is reversed. Of the people that answered the door, the groups treated with the flyers had a higher signature rates than the control group. This is consistent with Proposition 3; both the social pressure and social engagement models predict signing rates to be higher with the flyers than without. People that are socially engaged and want to sign the petition select into staying at home, and non-signers that experience a cost of not signing select away from the home. It seems that the people who chose not to answer the door because of the flyer were mostly the type of people who would not have signed the petition in any case.

Thus, both social activism and social pressure seem to affect the process of door-to-door petitioning. There are people who do not want to be approached, and when given advance warning of the petition drive they sorted themselves into the group that doesn't answer the door. This suggests that in the control group there are people who may not have wanted to take part in the petition, but still ended up answering the door and possibly signing because they did not

know that the petition drive was happening and refusing to sign had a high cost. Here the social pressure explanation is dominant.

Yet there were also many people who chose to open the door and sign the petition despite the option of easily avoiding the situation. This suggests that social activism and engagement is also present as a driver of behavior. It appears that there is a sizable fraction of people who sign the petition because they really do care about the cause (which in this case is global warming). But just like the social pressure explanation, social engagement can only partially explain the results. If social engagement was the main reason for signing the petition, the warning provided by the flyer should have increased the presence at home, as well as the share of households who signed, which did not happen.

The following tables present the results of two sets of regressions: one with “Answered the Door” and the other with “Signed the Petition” as the dependent variable. The first column in each table is a basic regression which only includes the two treatments (“Flyer” and “Flyer with Opt-Out”). The second regression adds dummy variables for the different weekends, as well as the time of day. The third adds dummy variables for each solicitor, and the fourth includes all of the above, as well as a dummy variable for Saturday and a variable which records the natural log of the property value to control for socio-economic status.¹⁸

¹⁸ The property value estimates were found by entering the address of each house into an online calculator at the real estate website www.zillow.com

| Table I. Dependent Variable: Answered the Door | | | | |
|---|------------|------------|------------|------------|
| | (1) | (2) | (3) | (4) |
| Flyer | -0.0513* | -0.0517* | -0.0667** | -0.0525 |
| | (0.0298) | (0.0306) | (0.0311) | (0.0325) |
| Flyer with Opt-Out | -0.0856*** | -0.0833*** | -0.0740** | -0.0580* |
| | (0.0293) | (0.0302) | (0.0303) | (0.0319) |
| Hour | | 0.00073 | -0.00104 | -0.00371 |
| | | (0.00624) | (0.00725) | (0.00841) |
| Weekend 2 | | 0.0585 | 0.0571 | 0.0201 |
| | | (0.0483) | (0.0484) | (0.0563) |
| Weekend 3 | | -0.0195 | -0.00322 | -0.126* |
| | | (0.044) | (0.0539) | (0.0688) |
| Weekend 4 | | -0.000156 | -0.00653 | -0.137** |
| | | (0.0437) | (0.0451) | (0.0619) |
| Diane | | | -0.166** | -0.0574 |
| | | | (0.083) | (0.0936) |
| Liz | | | -0.389*** | -0.263*** |
| | | | (0.0796) | (0.0941) |
| Justin | | | -0.165** | -0.0893 |
| | | | (0.0816) | (0.0869) |
| Jen | | | -0.138 | -0.0633 |
| | | | (0.0865) | (0.0931) |
| Saturday | | | | -0.0813* |
| | | | | (0.043) |
| In Home Value | | | | -0.157*** |
| | | | | (0.0543) |
| Constant | 0.365*** | 0.350*** | 0.544*** | 2.742*** |
| | (0.022) | (0.107) | (0.149) | (0.77) |
| Observations | 1544 | 1544 | 1544 | 1414 |
| R-squared | 0.006 | 0.009 | 0.026 | 0.029 |

The omitted treatment is the control group; the omitted weekend is Weekend 1; the omitted solicitor is June. Robust standard errors in parentheses.

***--- p<0.01, **--- p<0.05, *--- p<0.1

| Table II. Dependent Variable: Signed the Petition | | | | |
|--|----------------------|-----------------------|-----------------------|----------------------|
| | (1) | (2) | (3) | (4) |
| Flyer | -0.0194 (0.0246) | -0.025 (0.0249) | -0.0393 (0.0249) | -0.0263 (0.0261) |
| Flyer with Opt-Out | -0.0226 (0.0245) | -0.03 (0.0254) | -0.0271 (0.0252) | -0.016 (0.0265) |
| Hour | | -0.00659 (0.00513) | -0.00731 (0.00616) | -0.01 (0.00723) |
| Weekend 2 | | 0.0204 (0.0395) | 0.0198 (0.0396) | 0.00782 (0.0469) |
| Weekend 3 | | 0.00587 (0.0364) | -0.00141 (0.0432) | -0.0257 (0.0554) |
| Weekend 4 | | 0.00853 (0.0359) | 0.00429 (0.0373) | -0.0313 (0.0502) |
| Diane | | | -0.155** (0.074) | -0.0883 (0.0831) |
| Liz | | | -0.266*** (0.0726) | -0.194** (0.0838) |
| Justin | | | -0.134* (0.0749) | -0.0836 (0.0792) |
| Jen | | | -0.135* (0.0779) | -0.0746 (0.0838) |
| Saturday | | | | -0.0364 (0.037) |
| ln Home Value | | | | -0.0344 (0.0439) |
| Constant | 0.197*** (0.0181) | 0.288*** (0.088) | 0.458*** (0.127) | 0.936 (0.629) |
| Observations | 1544 | 1544 | 1544 | 1414 |
| R-squared | 0.001 | 0.002 | 0.012 | 0.011 |

The omitted treatment is the control group.
Omitted Weekend is Weekend 1, Omitted Solicitor is June
Robust standard errors in parentheses.
***--- p<0.01, **--- p<0.05, *--- p<0.1

Table I presents the results from a set of regressions with answering the door as the dependent variable, and several interesting things come to light. First, we see that the previously mentioned reductions in the presence at home due to the flyer treatments are significant. In column (1), the average decrease in answering the door due to the flyer is -0.0513, and is statistically significant at the 10 percent level. For the flyers with the “Do Not Disturb” option, the share of households answering the door is further lowered: the average effect is -0.0856 and is significant at the one percent level. Columns (2), (3) and (4) include various combinations of weather, time, weekend and solicitor dummy variables and home value effects. Across all four regressions, the coefficient for the flyer treatment remains constant between -0.0513 and -0.0667, and is significant in the first three columns. The coefficient for the flyer with the opt-out fluctuates slightly, but remains highly significant and in the range of -0.058 to -0.086.

Many of the covariates included in the first set of regressions were also statistically significant. This includes some of the solicitor and weekend dummies, as well as the Saturday and Home Value variables. On average, a ten percent increase in home value is associated with a three percent decrease in the probability of answering the door. This effect is significant at the one percent level. The day of the week also seems to matter; coefficient for the Saturday dummy is -0.0813 and significant at the ten percent level. But most importantly, the consistency of the treatment coefficients over the four columns implies that the randomization was successful, as after controlling for covariates the estimates for the treatment effects remain basically unchanged. The flyer treatments are associated with a negative impact on home presence, as predicted by the social pressure explanation of behavior. When warned of an impending visit by a solicitor the households attempt to avoid it, and even more so in the opt-out treatment when doing so has little cost.

The second set of regressions was run with the same groups of variables, the only difference being changing the outcome variable from “answered the door” to “signed the petition”. The short regression in column (1) indicates that the effect of the basic flyer treatment on the percentage of people who signed the petition was effectively zero. Throughout the four regressions, this coefficient ranges from -0.0194 to -0.0393 and is not statistically different from zero. The flyer treatment does not appear to have much effect on share of people who sign the petition. The effect of the flyer with the “Do Not Disturb” option on the percentage of people signing the petition was almost identical. Across the four columns, the coefficient on the opt-out treatment ranged from -0.016 to -0.03. As was the result for the simple flyer treatment, none of these coefficients are statistically significant. While the treatment status coefficients were not significant in this set of regressions, they were consistent in magnitude and sign throughout, as well as almost identical between the two treatments. Of the covariates included in Table II, only the coefficients for the solicitor dummy variables were statistically significant.

The results of the regressions run in Table II indicate that if anything, the two flyer treatments slightly reduce the percentage of people that sign the petition. Proposition 2 tells us this could be due to one of two situations. It could be the case that there is social pressure and limited social engagement; this would predict the probability of signing to be weakly lower with advance notice and lowest with opt-out. According to Table II, the probability of signing is slightly lower in the treatment groups, but I do not find it to be lower in the opt-out treatment than the simple flyer. It could also be the case that both social pressure and social engagement are fully present, in which case the comparison between the control and treatment groups depends upon whether signing is more due to social engagement (which increases signing) or to social pressure (which has the opposite effect). If this mixed case describes reality, it seems that

social pressure is very slightly stronger than social engagement. The differences are so small, however that the two forces are basically cancelling out in the data.

At first, it seems that this contradicts the previous findings on home presence. Why would the flyer treatments significantly lower the share of households answering the door, but not the share of households signing the petition? In “What Motivates Giving in the Field”, the researchers are presented with a similar question in their context of charitable giving, and come to a similar conclusion.¹⁹ In addition to affecting the probability of being at home among potential petition signers, the flyer also affects the probability of being at home for non-signers who are very susceptible to social pressure. This last group will seek to avoid being at home to avoid paying the disutility cost of refusing to sign. The second effect will not impact the probability of people signing the petition, but it will lower the probability of home presence.

V. Conclusion

Is signing a petition a welfare-enhancing activity for the person who signs? I attempted to answer this question with data from a field experiment involving a door-to-door petition drive where I varied the extent to which the households were informed of the drive in advance. Thus the households that were warned with a flyer on their doorknob could seek out the solicitor if signing was welfare-enhancing (the social engagement explanation), or avoid it if signing the petition was welfare-decreasing (the social pressure explanation). I find that a notice on the door reduces the probability of people answering the door by 14 to 23.5 percent, depending on how easily they can avoid taking part in drive. This suggests that homeowners actively seek to avoid solicitors. Yet out of the people who did answer the door, I do not find a significant corresponding decrease in the percentage of people who signed the petition in the flyer treatment

¹⁹ Stefano DellaVigna, John List and Ulrike Malmendier. “What Motivates Giving in the Field”, 2008.

groups. These findings suggest that both social engagement and social pressure affect the decision making process when a person is asked to sign a petition.

Door-to-door petition drives are the only form of collecting signatures that I study in this paper, and thus my findings may have limited applicability. I believe, however, that my results are likely to extend to other high-pressure methods of convincing people to sign petitions, especially situations where the solicitor confronts people and asks them to sign face-to-face. The results may not be as applicable to lower pressure petitions such as those on websites or circulated through email. It is encouraging that many of my estimates closely match those found in the DellaVigna et. al. paper, and it appears that social pressure works in similar ways in different situations.

VI. Appendix

Appendix A: The Petition

Dear Representative Barbara Lee,

People across the country are making small changes in their lives and doing their part to stop global warming--changing their light bulbs, driving less, and buying more efficient appliances. City and state governments are taking action, too, by investing in renewable energy and cracking down on the worst polluters. But while we act, Congress is doing next to nothing to solve global warming.

To stop global warming, our nation needs to do what science says is necessary: reduce global warming pollution at least 25% below 1990 levels by 2020; and get on a realistic path to the reductions needed to prevent dangerous climate disruption: at least 80% below 1990 levels by 2050. It's possible if we:

- 1) Use our energy more efficiently.
- 2) Put a limit on how much global warming pollution gets dumped into the atmosphere.
- 3) Stop building dirty, dangerous coal and nuclear plants and invest in clean energy like wind and solar instead.

Global warming is a serious problem, that's why I urge you to be a champion on this issue in Congress.

Please take action today by supporting science-based approaches to global warming. Congress can help stop global warming. I'm doing my part. Now it's time for Congress to do its part.

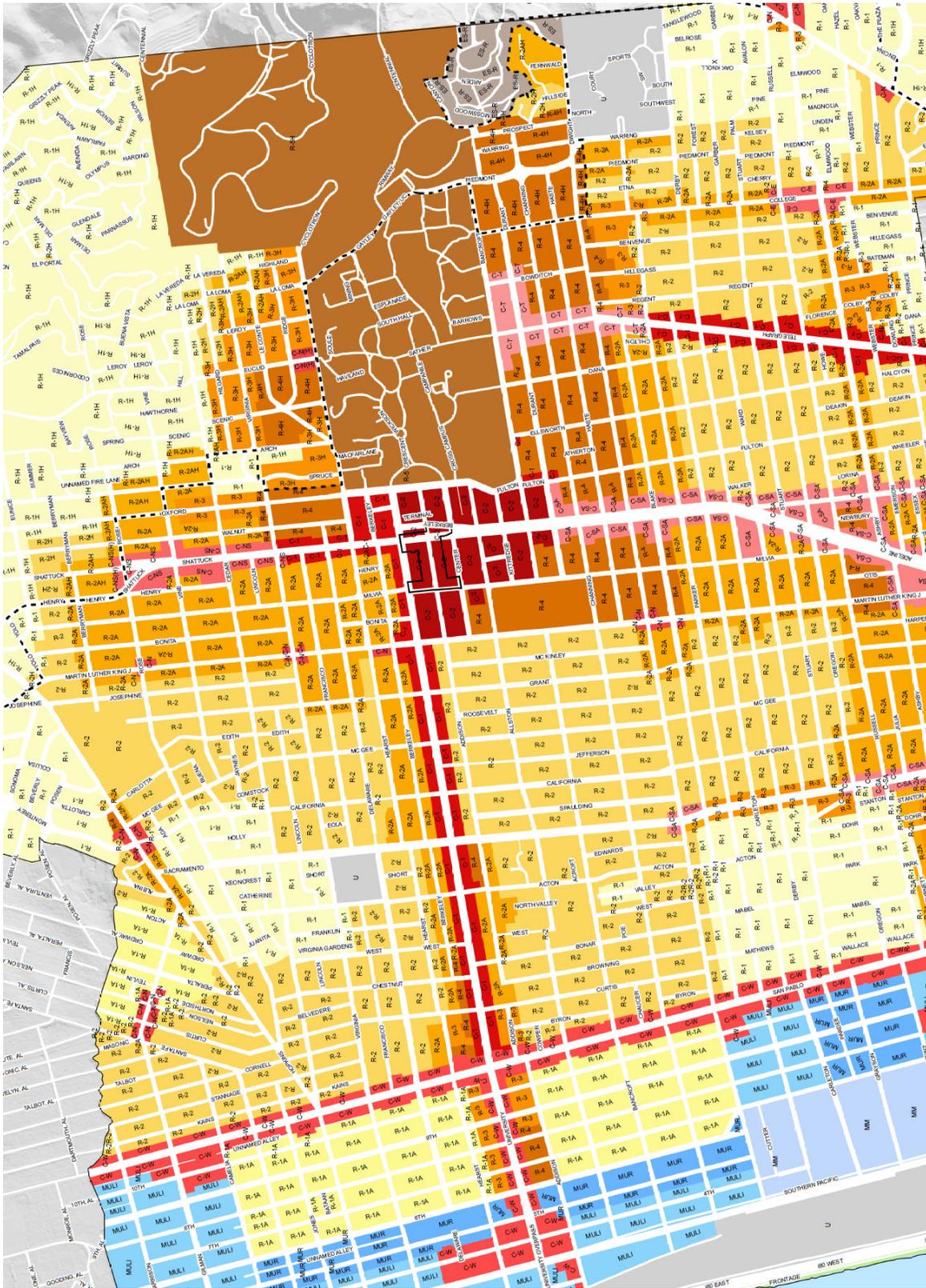
Sincerely,

[Your Name]

[Your Address]

[City, State ZIP]

Appendix B: Berkeley Zoning Map



The highlighted streets were included in the experiment

ZONING DISTRICTS

| | |
|------|--|
| R-1 | Single Family Residential |
| R-1A | Limited Two-family Residential |
| R-2 | Restricted Two-family Residential |
| R-2A | Restricted Multiple-family Residential |
| R-3 | Multiple-family Residential |
| R-4 | Multi-family Residential |
| R-5 | High Density Residential |
| ES-R | Environmental Safety-Residential |

| | |
|------|-----------------------------|
| C-1 | General Commercial |
| C-2 | Central Commercial |
| C-E | Elmwood Commercial |
| C-N | Neighborhood Commercial |
| C-NS | North Shattuck Commercial |
| C-SA | South Area Commercial |
| C-SO | Solano Avenue Commercial |
| C-T | Telegraph Avenue Commercial |
| C-W | West Berkeley Commercial |

| | |
|------|----------------------------|
| M | Manufacturing |
| MM | Mixed Manufacturing |
| MULI | Mixed Use-Light Industrial |
| MUR | Mixed Use-Residential |

| | |
|----|---------------|
| SP | Specific Plan |
| U | Unclassified |

Appendix C: The Flyers

Door Flyer #1 (Treatment 1)



GREENPEACE

**Tell Congress to act
on global warming
now!**

Tomorrow (/09),
a student activist will
visit this address and
ask you to sign a
petition urging congress
to take action against
global warming

Door Hanger #2 (Treatment 2)



GREENPEACE

**Tell Congress to act
on global warming
now!**

Tomorrow (/09), a
student activist will visit
this address and ask you
to sign a petition urging
congress to take action
against global warming

**Check here if you do not
want to be disturbed**

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