

Life-cycle effects on social pressure to vote



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ABSTRACT

Recent scholarship reveals social pressure can compel citizens to conform to social norms like voting in elections. In this study, we investigate heterogeneity in the impact of social pressure to vote. We find that age, a key demographic characteristic, moderates the impact of social pressure. Using evidence from a large-scale randomized field experiment conducted in August 2006, we show that older voters are significantly more responsive to social pressure compared to younger voters. Given the emerging consensus that social pressure can be marshaled effectively to stimulate voting in elections, such investigations yield critical insights of both practical and theoretical significance.

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Individuals participate in elections for a variety of reasons. The seminal work on this subject, the theory of the calculus of voting developed by Riker and Ordeshook (1968), stresses the importance of the notion of civic duty in explaining the reward or utility that one receives from the act of voting. Given the non-negligible costs associated with voting and the fact that there is only an infinitesimally small probability that one's vote will be decisive, participation in elections can only be reconciled by taking the so-called "D" term into account. The D term can be defined in numerous ways, including the satisfaction one receives from complying with social voting norms or feeling politically efficacious or affirming allegiance to the political system or to a partisan preference (Riker and Ordeshook, 1968: 28). No matter how civic duty and social norms are defined, it is hard to deny the important role they play in explaining the rewards citizens receive by voting.

Subsequent research by Brown (2009) has demonstrated that civic duty considerations function as a

motivating force in individuals' decisions to vote during the 2004 presidential elections. And instead of being just a short-term phenomenon, civic duty can have long-term psychological effects on voting behavior. Moreover, Kam's (2007) experimental study revealed that subjects who were subtly reminded about their civic duty to vote during a campaign were generally more engaged than subjects who received no such cues. In particular, subjects exposed to a citizen duty treatment were more likely to learn the candidates' issue positions, to think more about the candidates, and to search for information in an objective manner.

The recent spate of research documenting the effectiveness of social pressure messages in stimulating turnout highlights just how influential social norms can be on individual behavior (Schram and van Winden, 1991; Knack and Kropf, 1998; Kam, 2007; Gerber et al., 2008, 2010; Panagopoulos, 2010, 2013; Panagopoulos et al., 2013; Davenport et al., 2010). Most of these studies focus on the compliance aspect of voting that Riker and Ordeshook (1968) describe. The landmark field experimental study conducted by Gerber et al. (2008) revealed just how powerful social pressure messages can be in boosting levels of political participation.

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Extensions of this line of inquiry have shown, however, that individuals may not respond equally to social pressure messages. In a field experiment targeting Latino voters in February 2009, for example, [Abrajano and Panagopoulos \(2011\)](#) demonstrated that high voting-propensity Latino voters were more responsive to social pressures messages compared to low voting-propensity Latino voters; the language in which the social pressure message was communicated also produced differential effects. Moreover, [Bolsen et al. \(2012\)](#) find that frequent voters were more responsive to a randomized policy intervention using prosocial appeals to promote public goods contributions compared to non-voters. These findings suggest the intriguing possibility that there is heterogeneity in individuals' receptivity to social pressure to conform to social norms like voting in elections. Citizens' attributes, including their demographic characteristics, may determine whether, and to what extent, social pressure can impel them to conform to social voting norms. Such potential heterogeneity remains underexplored in the extant research, a void the current study seeks to address.

In this study, we examine the role that life-cycle attributes may play in moderating the effects of social pressure to vote. The arguments we develop below lead us to expect older individuals will be more responsive to social pressure messages, relative to their younger counterparts. We investigate this question empirically using evidence from a recent, large-scale field experiment conducted during the Michigan primary election in August 2006.

The manuscript is organized as follows. The next section discusses the existing research on the relationship between age, political participation and social norms. Our review allows us to formulate hypotheses about the likely effects of age. In the next section, we discuss the experimental evidence we marshal to test our hypotheses and present the main findings. We discuss the implications of the results in the conclusion.

1. Life-cycle effects and social voting norms

The literature on political participation has consistently demonstrated that older individuals vote and register at higher rates than younger individuals ([Campbell et al., 1960](#); [Verba and Nie, 1972](#); [Wolfinger, 1980](#); [Rosenstone and Hanson, 1993](#); [Verba et al., 1995](#); [Strate et al., 1989](#); [Keeter et al., 2002](#)). Those furthest along in the life cycle also demonstrate higher levels of political interest when compared to those at an earlier stage of the life cycle ([Campbell et al., 1960](#); [Glenn and Grimes, 1968](#)). This tendency has been attributed to several factors. One explanation pertains to resources: older individuals may have the time, money and education to invest in voting while younger individuals typically may not ([Rosenstone and Hanson, 1993](#); [Leighley, 2001](#)). Another possibility is that older voters are mobilized more frequently or effectively by political parties and campaigns ([Panagopoulos and Weilhauer, 2008](#)). Extant research conducted outside of the context of U.S. elections reveals similar patterns. [Goerres \(2007\)](#) examines the voting patterns of individuals in Europe and finds higher rates of participation amongst older people. The author attributes this behavior to the possibility that older individuals

become habitual about voting; evidence that voting may be habit-forming has been established in other studies as well ([Gerber et al., 2003](#)). But [Goerres \(2007\)](#) also contends older citizens are more likely to comply with the norm of voting relative to younger individuals.

The latter argument implies the positive correlation between age and higher rates of participation may arise because older voters are more committed to conforming to civic voting norms. A *norm* can be understood as the rules of behavior for a given society. Norms exist primarily as a way to regulate and manage society ([Biel and Thøgersen, 2007](#); [Thøgersen, 2008](#)). The norm of regularly participating in the democratic process via the voting both may be more deeply engrained in individuals who have participated in the act more frequently and regularly when compared to infrequent and irregular voters (who also happen to be younger).

Those further along in the life cycle may also feel more accountable for their actions. Accountability has been defined as an implicit or explicit expectation that one may be called upon to justify one's feelings or actions to others ([Lerner and Tetlock, 1999](#); [Scott and Lyman, 1968](#); [Semin and Manstead, 1983](#); [Tetlock, 1992](#)). However, accountability is not uniform across society; it can vary based on the presence of a surveillance mechanism ([Guerin, 1993](#)), whether or not the participant's behavior will be personally attributed to them ([Price, 1987](#)) and whether their performance will be evaluated based on some normative expectations ([Guerin, 1989](#)). Accordingly, social pressure to conform to voting norms may exert stronger effects as voters advance through the life cycle due to heightened feelings of accountability.

Evidence from a recent public opinion survey conducted by the Pew Research Center in April 2009 supports the claim that older Americans believe voting is an important civic duty compared to younger citizens. Respondents were asked whether they felt, "it is their duty as citizen to always vote." There were four response categories: completely agree, mostly agree, mostly disagree or completely disagree. For simplicity, we combined the first two and the last two categories to obtain a dichotomous measure of agreement with the statement. Overall, we find that respondents overwhelmingly agreed with the statement; 94 percent of respondents, on average, agreed, while only six percent did not. Despite the considerably high level of overall agreement on average, however, we still find strong evidence that older respondents were more likely to agree with the statement compared to younger respondents. [Fig. 1](#) presents the bivariate relationship between age and agreement that it is a civic duty to always vote; the relationship is highly monotonic; that is, as one's age increases, so does the likelihood of believing that it is one's duty as a citizen to always vote. This relationship is confirmed statistically using probit regression in [Table 1](#) (column 1) and it persists even when additional demographic (race, gender, educational attainment) and attitudinal (partisan identification) variables are taken into account. This observational evidence indicates that attitudes towards social norms vary by age.

Given this evidence, we expect older voters will be more responsive to social pressure appeals to vote compared to younger voters. We reason this may also be due partly to generational differences about perceptions of voting as a

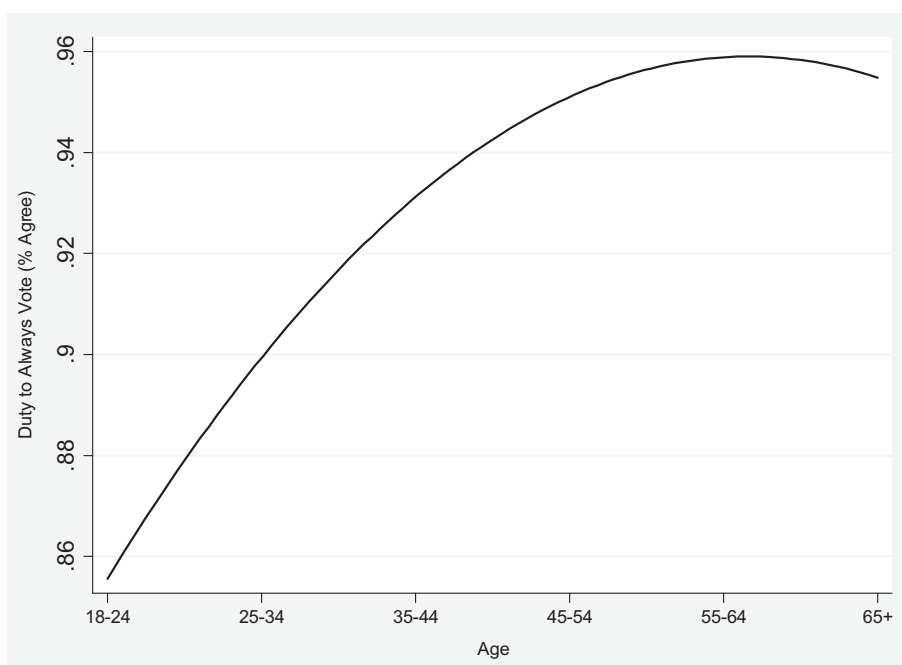


Fig. 1. Duty to always vote, as a function of age.

social norm and a civic duty, but disentangling life-cycle from generational cohort effects is an empirically intractable problem in social science given the fundamental collinearity between age and cohort status. Thus, we posit generational cohort effects may be an alternative causal mechanism that drives differential rates of responsiveness to social pressure to comply with social voting norms, but we are not equipped to test this proposition definitively.²

² In a recent examination of political generations, Keeter et al. (2002) identify four generations in the American public – Matures, Baby boomers, Generation X and Dotnets. Matures represent the oldest cohort and are made-up of individuals born prior to 1946. This cohort is defined by their indirect experiences of the Great Depression via their parents and their direct experiences with World War II. Given the nature of these events, it is generally believed this cohort is, “driven by duty and sculpted by sacrifice” (Keeter et al., 2002: 6). Baby boomers, currently the largest of the four cohorts, are individuals born between 1946 and 1964. Experiences unique to this cohort include Vietnam, Watergate, and the Civil Rights Movement. In contrast to the earlier generation, baby boomers were not shaped by sacrifice and have therefore been characterized as the cohort with a sense of entitlement to their “world view.” The Generation X (or Xers) cohort encompasses individuals born between 1964 and 1976. Unlike the two earlier generations, there are no major political events that shaped their formative years. Instead, this generation experienced financial uncertainty via a series of recessions as well as a rise in the number of divorces in the U.S. Finally, the dotnets are the youngest generation, comprised of individuals born after 1976. While there is some debate about claiming this cohort as a distinct generation, Keeter et al. (2002) contend their defining characteristic is their coming of age in the Internet era. In light of the unique defining characteristics of the matures, we expect, if anything, that this generational cohort will be the one most likely to respond to social pressure messages relative to the other (younger) generational cohorts. Their sense of duty is precisely what social pressure messages attempt to tap into; therefore, we would expect this cohort to be most responsive to the social pressure treatments we describe below.

With respect to our key hypothesis about age effects, we reason that social investment increases in age as individuals gain resources and a stake in society. It is also plausible that older voters wish to act as role models for younger voters to emulate. Psychologists have advanced theories of “role” or “role model” effects, and these theories suggest that people aspire to behave in ways that conform to their ideals and, potentially, to serve as role models for others. A 2002 Pew survey found that older individuals who believe citizenship carries responsibilities are more likely to vote frequently than younger individuals who believe that being a good person fulfills the obligations of citizenship (Keeter et al., 2002). The fact that these values and their effects on voting are more evident in the attitudes of older individuals, as opposed to younger ones, implies

Table 1
Explaining civic duty to vote.

	Model specifications	
	(1)	(2)
Age	.012*** (.003)	.014*** (.003)
Male		-.052 (.128)
White		-.331** (.164)
Education		.189*** (.037)
Democrat		.417*** (.155)
Republican		.586*** (.176)
N	1497	1492
Log-likelihood	-1259.575	-1075.954
R-squared	.02	.10

Notes: Probit regression (weighted) Dependent variable is coded 1 if respondent indicated they “completely” or “mostly” agree it is “my duty as a citizen to always vote,” 0 otherwise. *** represents statistical significance at the $p < .01$ level, ** at the $p < .05$ level, two-tailed tests; standard errors in parentheses. Source: 2009 Pew Data.

values can change over time. Moreover, the values of youth tend to be more individualistic than their older counterparts (Bengston, 1975). This sense of individualism suggests younger citizens may have little desire to serve as role models for others. In contrast, the elderly are characterized as being more collectivistic (e.g. group-oriented) in nature, which may motivate them to behave in such a way that would be beneficial to society. Several scholars have attributed these value differences as indicative of the maturation process that takes place over time (Schaie, 1967; Riley et al., 1972). Thus, we argue that older citizens may aspire to behave as role models for younger voters, thus compelling them to comply with social voting norms.

Along this line of thinking, individuals further along in the life cycle are motivated to “teach” skills that reduce the costs of political participation (Kinder, 2006). One way to impart these skills is to lead by example. Older citizens may believe that, if they are seen at the voting booths on Election Day, it may induce younger individuals to turnout and vote. We expect this behavior to be especially pronounced when social pressure appeals to perform civic duties like voting are accompanied by elements of public surveillance or when citizens are aware their behavior will be monitored.

Taken together, the arguments we summarize above imply age should moderate the effectiveness of social pressure appeals to vote. Although data limitations preclude us from adjudicating definitively between the competing causal mechanisms that potentially give rise to such effects, we expect, all else equal, older voters should be systematically more responsive to such appeals compared to younger voters. Next we describe our experimental test of this hypothesis.

2. Data and methodology

To test the hypotheses that life-cycle (age) attributes will condition responsiveness to social pressure appeals to vote, we rely on the field experimental data collected by Gerber, Green and Larimer in their pioneering (2008) study. Prior to the August 2006 primary election in Michigan, Gerber et al. (2008) conducted a randomized field experiment in which households were assigned to a control group or to one of 4 treatment groups (of about 20,000 households each) assigned to receive postcard mailings that varied the level of social pressure to vote in the primary election.³ Priming citizens’ civic duty to vote was common to all of the treatments. The first message served primarily as a baseline for comparison to other treatments and simply emphasized civic duty and reminded citizens to vote. The second treatment added a mild form of social pressure by informing recipients they were being observed and that their voting behavior would be monitored by means of official public records (termed the “Hawthorne” treatment by the authors). A third treatment was designed to ratchet up social pressure by adding a listing of the recent voting record of each registered member in the household (“Self” treatment) and pledging to mail an updated chart following

the August 2006 primary. The fourth treatment amplified social pressure even further by listing not only the household members’ recent voting history but also the voting records of subjects’ neighbors and indicated, as with the “self” treatment, that a follow-up mailing with updated voting history would be sent (Gerber et al., 2008).

The authors found that the basic appeal to civic duty raised turnout by 1.8 percentage points on average, and the Hawthorne treatment by an average of 2.5 percentage points, relative to the control group. Turnout rates climbed dramatically, however, with the introduction of more intense social pressure. Showing households their own voting records revealed a 4.8 percentage-point gain in turnout on average, while adding neighbors’ voting records boosted the turnout rate 8.1 percentage points on average over the control group (Gerber et al., 2008).

The average treatment effects the authors report suggest strongly that turnout rises as social pressure is applied. The hypotheses we develop above, however, suggests we should observe heterogeneity in the estimated treatment effects. Specifically, age should moderate the impact of social pressure on turnout. To consider this possibility, we investigate whether subjects’ age in this experiment affected their responsiveness to the treatments. As we argue above, we expect older citizens will be most responsive to social pressure.

3. Results

Age for the sample of subjects included in the Gerber et al. (2008) field experiment ranged from 20 to 106 years of age. Overall, the mean age was 50 years old (standard deviation = 14). We confirm that the original randomization yielded balanced experimental groups that did not differ significantly with respect to age ($p = .22$). Below we incorporate age into the analysis of the experimental results to investigate whether this demographic characteristic conditions the impact of the treatments. The results of the main analyses are presented in Table 2. In Column 1, we replicate the original analysis to confirm the results are consistent with the estimates reported in Gerber et al. (2008; Table 3, column c). We follow the estimation procedures advanced by the authors, using linear regression to regress individual turnout on a series of dummy variables marking each of the four treatments as well as prior voting covariates⁴; the models also include fixed effects for the geographic clusters (blocks) within which randomization occurred. Robust clustered standard errors account for the clustering of individuals within households, which was the unit of randomization.⁵

The estimates presented in Column 2 embellish the model to incorporate age (years) and interaction terms for the experimental treatments and age. To consider the possibility that the impact of age is non-linear, we also include a squared age term, along with the corresponding

³ See Gerber et al. (2008) for additional details about the experimental protocols.

⁴ For simplicity, estimates for all models reported in Table 2 include covariates as indicated. The exclusion of covariates alters estimates only trivially, but details are available upon request.

⁵ See Gerber et al. (2008) for details about the estimation procedures.

Table 2

OLS regression estimates of social pressure treatment effects on voter turnout (With and without age and generation interactions).

	Model specifications		
	(1)	(2)	(3)
Civic duty treatment	.018*** (.002)	.009 (.020)	.031*** (.007)
Hawthorne treatment	.025*** (.002)	-.046** (.021)	.030*** (.007)
Self treatment	.048*** (.002)	-.025 (.021)	.065*** (.007)
Neighbors treatment	.081*** (.002)	-.056*** (.021)	.093*** (.007)
Age		.005*** (.0004)	
Civic Duty*Age		.0001 (.001)	
Hawthorne*Age		.003*** (.001)	
Self*Age		.002*** (.001)	
Neighbors*Age		.005*** (.001)	
Age (squared)		-.00003*** (.000004)	
Civic Duty*Age (squared)		.000001 (.00001)	
Hawthorne*Age (squared)		-.00002** (.00001)	
Self*Age (squared)		-.00001* (.00001)	
Neighbors*Age (squared)		-.00004*** (.00001)	
Baby boomers			-.060*** (.003)
Gen X			-.083*** (.004)
Dotnet			-.114*** (.004)
Civic duty*Baby boomers			-.016** (.008)
Civic duty*Gen X			-.010 (.010)
Civic duty*Dotnet			-.022*** (.009)
Hawthorne*Baby boomers			.001 (.008)
Hawthorne*Gen X			-.016** (.009)
Hawthorne*Dotnet			-.026*** (.009)
Self*Baby boomers			-.017** (.008)
Self*Gen X			-.016** (.010)
Self*Dotnet			-.047*** (.010)
Neighbors*Baby boomers			-.009 (.008)
Neighbors*Gen X			-.006 (.010)
Neighbors*Dotnet			-.060*** (.010)
RMSE	.429	.428	.428

Notes: OLS regression. Dependent variable coded 1 if subject voted in the August 2006 primary election, 0 otherwise. Robust cluster standard errors in parentheses. Blocks refer to clusters of neighboring voters within which random assignment occurred. Robust cluster standard errors account for the clustering of individuals within household, which was the unit of random assignment. *** represents statistical significance at the $p < .01$ level, ** at the $p < .05$ level, and * at the $p < .10$ level, using one-tailed tests. All models include the following covariates (dummy variables for voting in general elections in November 2002 and 2000, primary elections in August 2004, 2002, and 2000) and block-level fixed effects. $N = 344,084$ for all models.

treatment interactions. The results suggest life-cycle effects condition subjects' responsiveness to the treatments. We find the interactions for three of the four treatments to be statistically significant at conventional levels and to imply that older subjects were, as we proposed, more responsive to social pressure appeals to vote compared to younger subjects in the experiment. We do not find evidence that age conditions responsiveness to the civic duty appeal that was essentially devoid of any social pressure elements. The results also demonstrate that age effects are likely non-linear, suggesting that responsiveness declines

as subjects age beyond a certain point. We interpret this to be plausible given the constraints of older age; it is also consistent with the survey evidence we discuss above.

These general patterns can also be detected visually. Fig. 2 depicts smoothed versions of the estimated treatment effects by age for each of the experimental treatments. We display both lowess and local polynomial smooth plots (with corresponding 95% confidence intervals) of the average difference in voting rates between each of the four treatments and the control condition by subjects' age (years). Visual inspection of the patterns displayed in Fig. 2 confirms the curvilinear relationship described above and suggests the treatments effects generally grow, on average, with age until about 75 or 80 years old,⁶ when effects begin to diminish. As suggested by the findings reported in Table 2, the age effects are most pronounced for the two treatments with the heaviest doses of social pressure (the self and neighbors treatments) and the neighbors treatment in particular.⁷

The evidence reported above suggests life-cycle (age) effects condition responsiveness to social pressure messages to vote. A lingering question, however, is whether these effects are truly attributable to subjects' age *per se* or simply to generational differences.⁸ We recognize this possibility but concede it is empirically impracticable to disentangle age from generational effects (Keeter et al., 2012); by way of speculation, however, we conduct an exploratory analysis (Table 2, Column 3) that substitutes age, age squared and corresponding interactions with generational cohort dummies and their respective interactions. We acknowledge that identification and causal inference are challenged in this approach by the fact that the precise functional form for cohort effects is largely unknown; it may not be the case that dummy indicators accurately represent the functional form for cohort effects, but we view this analysis mainly as a robustness check. Consistent with Keeter et al. (2002), we divide our experimental subjects into four generational cohorts (matures, baby boomers, Gen X, and Dotnet) using the categorization scheme described above.⁹ The cohort distributions do not vary significantly across experimental conditions ($p = .47$), implying balance with respect to generational belonging. The baseline category in our analysis is the matures cohort.

We observe that the coefficients on the generation dummies suggest each of the three generational cohorts voted at baseline rates that were significantly lower than

⁶ One conceivable explanation for this finding is that young people's social networks are simply less likely to contain neighbors *per se*, and more likely to be comprised of alternatives like social media network connections (e.g., Facebook friends) that are not necessarily geographically oriented.

⁷ Restricting the sample to subjects below 85 years of age (the number of subjects aged 85 or above grows increasingly sparse) makes these patterns even easier to detect; see corresponding figure in Appendix 1. We also scale the implied year-by-year effects in terms of differences in log-odds (logit) and present a parallel, smoothed plot (lowess) in Appendix 2.

⁸ We are grateful to an anonymous reviewer for encouraging us to explore generational as well as life-cycle effects in this study.

⁹ We note that alternative classifications of generational cohorts do not alter our substantive conclusions. Available upon request.

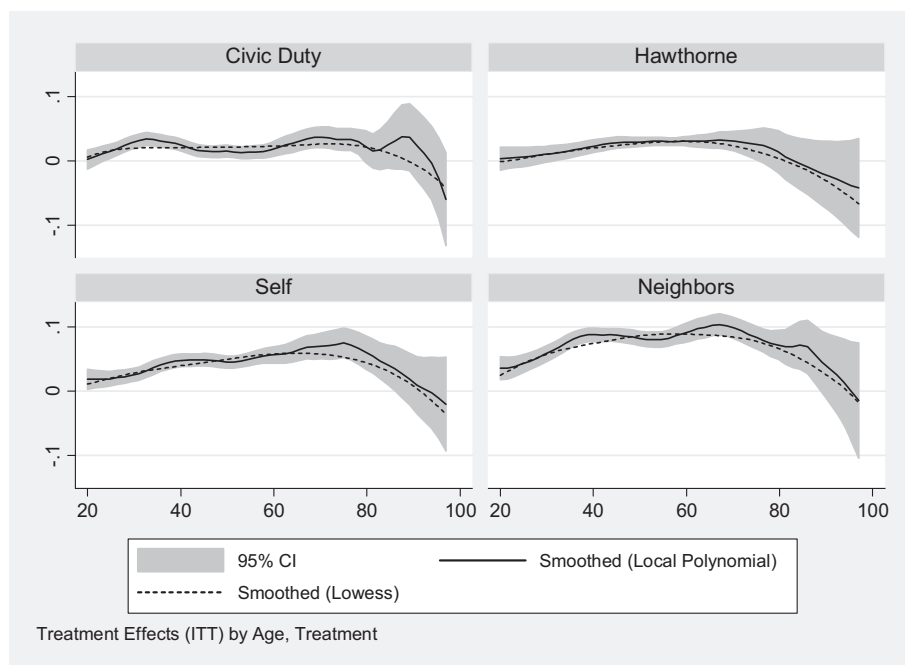


Fig. 2. Treatment effects (ITT) by age, treatment.

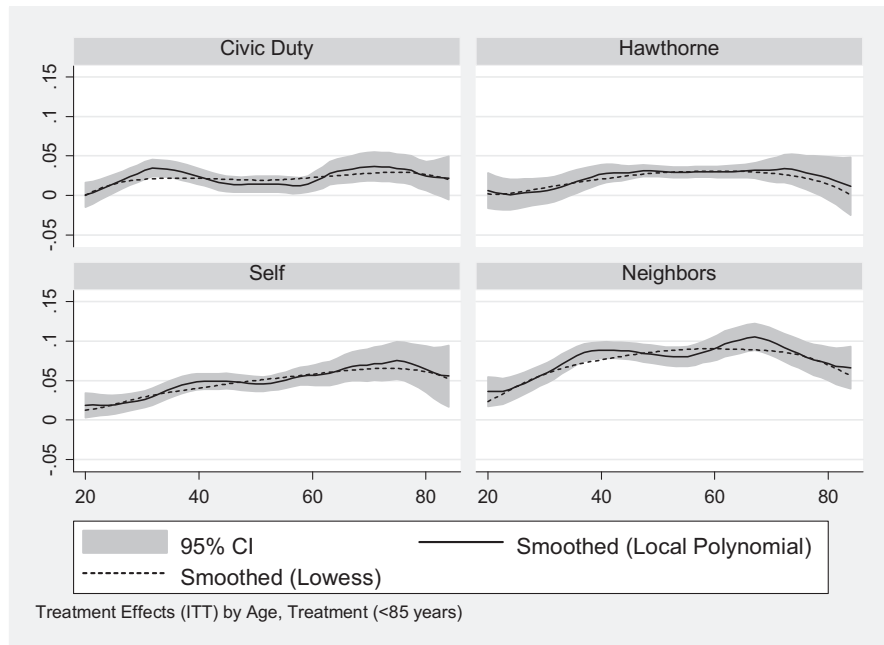
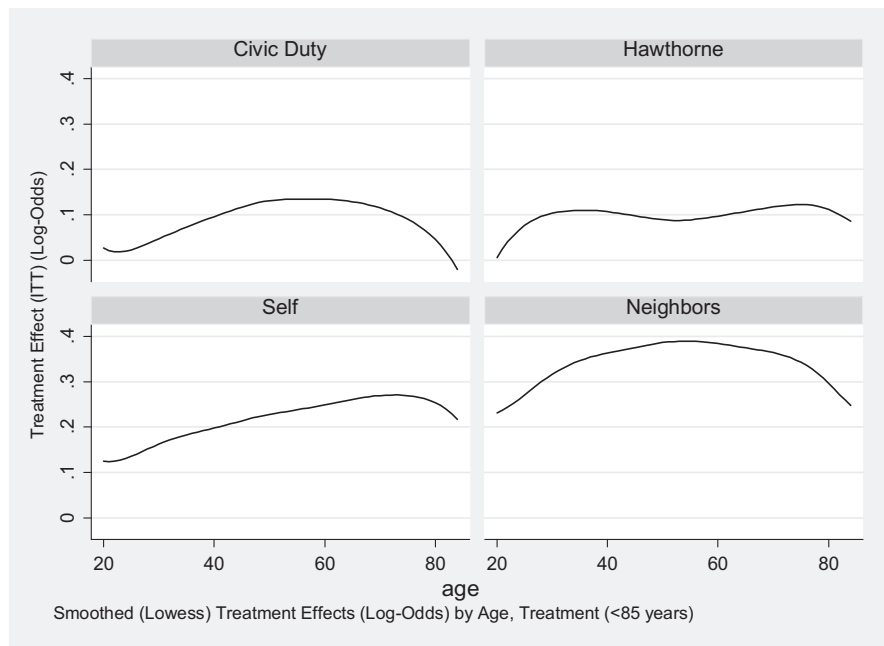
the matures cohort that served as the baseline category. In fact, relative rates of voting increased with older generations. Our main interest in the current study, however, is in whether generational cohorts responded differently to the treatments. On this score, the results (Table 2, Column 3) suggest generational cohorts may moderate citizens' responsiveness to social pressure messages. We find at least some evidence of differential responsiveness across cohorts for all four treatments. Taken together, a joint F -test of the interactions indicates they are statistically significant ($F = 6.79$, $p = .00$). This initial evidence implies heterogeneity in the impact of social pressure to vote rooted in citizens' belonging to generational cohorts, but we view this result as speculative. Given the close correspondence between age and generational cohorts, and agnosticism about the proper functional form for cohort effects, disentangling life-cycle from generational effects is virtually impossible. While we cannot disentangle these effects convincingly, we concede the analyses reported above suggest cohort effects, rather than age, may be driving the heterogeneity we observe. Additional research is necessary to adjudicate these possibilities definitively.

4. Discussion and conclusion

The experimental evidence we provide in this study reveals that age, and possibly generational cohorts, interact with social pressure to compel citizens to vote. Having said that, we acknowledge that more research is necessary to trace the precise causal mechanisms or pathways that give rise to these effects. Above we

speculate about a number of possibilities, but the limitations of the current study do not permit us to adjudicate definitively between competing explanations. More generally, however, the results we report imply there is likely considerable heterogeneity with regard to how social pressure can be deployed to motivate citizens to vote. The current study explores but one dimension, mainly age, but it is conceivable that the impact of social pressure will depend on other demographic, structural, political, attitudinal and contextual factors.¹⁰ Studies that investigate hypotheses about how these factors condition responsiveness to appeals to conform to social norms are essential to provide a more nuanced view about the conditions under which we should expect social pressure to exert strong effects on behavior. With respect to other conditions or characteristics, social pressure may operate more homogeneously on citizens. For example, Panagopoulos (2011) has shown that social pressure to vote does not vary by community size. Similarly, the effects of positive social pressure appear to be similar for both men and women and across racial subgroups (Panagopoulos, 2013). Given the emerging consensus that social pressure can be marshaled effectively to stimulate voting in elections, such investigations would yield critical insights of both practical and theoretical significance.

¹⁰ In their original study, Gerber et al. (2008) report the effects of their interventions did not vary by baseline propensity to vote in elections. We could not explore the possibility that other characteristics moderate the impact of social pressure in the current study because access to additional covariates for the original experimental sample was unavailable to us.

Appendix 1. Treatment effects (ITT) by age, treatment for subjects below 85 years old.**Appendix 2: Treatment Effects (ITT) by Age, Treatment for Subjects Below 85 years old (Log-Odds).**

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