

Causal Inference in Policy Feedback: Two Case Studies in American Politics

Baobao Zhang *

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Abstract

Scholars of politics have long studied policy feedback, or how one's experience with public policy influences one's political attitudes and behavior. Conventional wisdom posits that benefiting from social programs induces voters to mobilize politically to defend these programs. Nevertheless, valid causal inference in the study of policy feedback is difficult because most social program benefits are not randomly assigned. The two case studies in my paper exploit as-if random assignment to program benefits to examine how these programs impact their beneficiaries' roles as voters and citizens. The first study examines the effect of receiving Medicare on seniors' preference towards health policy. The second study identifies the effect of receiving a government fellowship on scientists' political donation and attitudes. These two studies suggest that one's personal experience with these social programs changes one's political attitudes and behavior in a limited way; where policy feedback exists, it most likely reflects one's self-interest. Results from my study have important implications for the design and implementation of durable social policies.

Appendix begins on Page 40.

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1 Introduction: Policy (Sometimes) Makes Mass Politics

At the height of Tea Party protests against the Affordable Care Act (ACA), angry seniors waved signs that read “Hands Off My Medicare!”. On Earth Day 2017, scientists marched against the Trump administration’s attempts to cut science funding and restrict climate science research. While these two groups of protesters voiced different demands, their actions both seem to show that beneficiaries of government programs mobilize to defend those policies ([Pierson, 1995](#)).

American politics researchers have long studied policy feedback, or how personal experience with public policy influences one’s political attitudes and behavior ([Soss, 2002](#); [Campbell, 2003a](#); [Lerman and Weaver, 2014](#); [Mettler, 2005](#); [Mettler and Milstein, 2007](#)). Nevertheless, valid causal inference in the study of policy feedback is difficult because most social programs are not randomly assigned. Typically, those who benefit from a particular policy are unlike those who do not. The two case studies in my paper seek to exploit as-if random variations in assignment to welfare programs to study policy feedback. The motivation to analyze these two case studies is not merely methodological: both studies also speak to important issues in American politics. Since Medicare has become a ubiquitous feature of the American welfare state, many researchers have sought to understand how the program influences senior citizens’ political attitudes. While scientists are not traditionally the subjects of political science research, they have become increasingly important as they oppose anti-science policies and rhetoric. Results from my two studies suggest that one’s personal experience with these social programs changed one’s political attitudes and behavior in minor ways. When attitudes or behavior shifted, beneficiaries became more defensive of the program that has benefited them but not of programs that have helped others.

The first case study examines whether receiving Medicare caused beneficiaries to change their political attitudes in self-interested ways. Using a regression discontinuity design and survey responses from over 20,000 Americans, I show that Medicare recipients only sometimes opposed federal budget cuts that threatened to reduce Medicare benefits. Nevertheless, acquiring Medicare did not affect its beneficiaries’ attitudes towards health policies that mostly benefit other people. Furthermore, results from a panel study demonstrate that there were no changes in preferences

towards all health care policies when a respondent became a Medicare recipient.

My second case study employs a natural experiment to investigate how receiving the National Science Foundation's fellowship for graduate studies affects recipients' political attitudes and behavior. The subjects of my analysis are a special group of applicants: they received either the fellowship or honorable mention in the current year after receiving honorable mention in the previous year. Using campaign contribution records and a survey that I designed and administered, I find that receiving the fellowship increased the recipients' political donations (especially to Democrats) but did not change their attitudes about the government's involvement with science. Results from the survey suggest that policy feedback might be limited in this case because most scientists are already committed Democrats and very politically engaged.

The findings in my paper have important implications for those designing durable social programs that can withstand political opposition. Supporters of a social program should not depend on beneficiaries to automatically mobilize and defend the program. My research and past studies show that policy feedback can be nonexistent or even be demobilizing. Nevertheless, public policies can create constituencies beyond those who directly benefit from those policies. Seniors who anticipated enrolling in Medicare were just as defensive about the program as those who had already enrolled. Likewise, scientists who did not win the NSF Graduate Research Fellowship but anticipate receiving future funding from the government were just as active in the March for Science as those who had received the fellowship. My research suggests that policymakers should design programs that appeal to large swaths of voters who can imagine themselves as potential beneficiaries.

2 Literature Review

2.1 What Drives Policy Feedback?

Political scientists have for decades studied whether and how public policy affects mass politics by shifting public opinion and changing political participation. Pierson's [1993](#) canonical text

on the welfare state suggests that public policy can produce both resource effects (effects from the allocation of resources and creation of incentives) and interpretive effects (effects of learning information and meaning from policy). Since then, researchers have theorized what types of policy characteristics are likely to produce what kinds of policy feedback.

Thus far, empirical studies suggest that universal welfare programs increase recipients' political efficacy while means-tested programs decrease or fail to affect recipients' political efficacy ([Mettler and Stonecash, 2008](#)). For instance, the creation of Social Security increased senior citizens' political participation and led to the creation of lobbies that advocate on retired voters' behalf ([Campbell, 2003a](#)). Furthermore, low-income beneficiaries of Social Security tend to be more mobilized to defend the program than high-income beneficiaries because a larger percentage of the former's income depends on it ([Campbell, 2002](#)). The GI Bill, which helped 7.8 million WWII veterans attend college or vocational training, initially increased political participation and had the strongest lasting effects on those who attained the highest level of education ([Mettler and Welch, 2004](#)). In contrast, there is a negative association between voting in elections and receiving benefits through Aid to Families with Dependent Children ([Soss, 1999](#)). Likewise, there exists a negative correlation between receiving welfare and electoral participation among young adults ([Swartz et al., 2009](#)). Public policy may also fail to move public opinion; for example, welfare reform of the 1990s did not remove Americans' negative view of poor people and welfare programs ([Soss and Schram, 2007](#)). Moving beyond the universal versus mean-tested dichotomy, [Campbell \(2012\)](#) theorizes that programs with large benefits, high visibility and traceability, and responsive administration would produce greater positive policy feedback compared with those that do not have these features.

Much of the research also suggests that policy feedback, where it exists, is mostly driven by self-interest. Since the publication of Kramer's influential [1983](#) article suggesting that economic conditions influence vote choice, researchers have debated whether citizens vote with their pocket-books or for sociotropic reasons, that is to further the public interest as they understand it. While over 500 studies have looked for evidence of retrospective economic voting, the results have not been conclusive due to measurement error ([Healy, Persson, and Snowberg, 2017](#)), publication bias

(Gerber and Malhotra, 2006), or disagreement about the definition of sociotropic voting (Kiewiet and Lewis-Beck, 2011). Research on economic voting has primarily examined vote choice, a somewhat blunt outcome measure; voters may choose a candidate for a variety of reasons. In contrast, scholars of policy feedback tend to measure precise attitudes and behavior; by doing so, they can draw clearer links between benefiting from a program and engaging in self-interested politics. In Campbell's 2002 study of Social Security, those receiving the benefit reported more political engagement specifically to defend the program. Men who were assigned a higher probability of conscription in the Vietnam War draft lottery became more liberal and opposed to the war than those assigned low likelihood of conscription (Erikson and Stoker, 2011). In a school district in North Carolina, white parents of children who lost in a school choice lottery turned out in greater numbers during the next school board election (Hastings et al., 2007). These and other studies suggest that positive policy feedback mostly induce changes in one's politics through self-interest. Nevertheless, it is conceivable that some social programs, such as the GI Bill, can produce interpretative effects that change one's fundamental view of politics.

The existing research and theories described above suggest that Medicare and the NSF Graduate Research Fellowship are likely to produce positive policy feedback. Medicare is a universal program; the NSF fellowship program, in contrast to means-tested programs, award benefits based on one's achievements rather than disadvantages. Both programs provide large benefits to recipients, are highly visible, and are well-administered. Furthermore, the self-interest theory of policy feedback indicates that Medicare recipients would become more defensive of Medicare but not necessarily other health care programs and that NSF fellowship winners would largely mobilize as Democrats to oppose Republican anti-science policies.

2.2 Existing Studies in Causal Identification

Making causal claims about how any particular policy impacts public opinion or political behavior is no easy feat. Because politicians seek approval from their constituents, they often enact policies for strategic reasons (Lee, 2003). As a result, those who benefit from certain policies may differ

politically or socially from those who do not. Traditionally, researchers have used panel studies to track changes in respondents' attitudes and behavior caused by the introduction of some policy ([Morgan and Campbell, 2011](#); [Chen, 2013](#); [Fleming, 2014](#); [Nall, 2015](#)); recent research uses natural experiments and field experiments in which the treatment was randomly or as-if randomly assigned.

In natural experiments, factors beyond the control of the researcher randomly assign the treatment. As previously mentioned, researchers have used lotteries, such as the Vietnam War draft lottery ([Erikson and Stoker, 2011](#); [Davenport, 2015](#)), school choice lotteries ([Hastings et al., 2007](#)), or even monetary lotteries ([Doherty, Gerber, and Green, 2006](#)), to study policy feedback. Another common form of natural experiments is the regression discontinuity design (RDD): researchers analyze the impact of arbitrary cutoffs, such as geographic boundaries or age, that randomly assigns individuals to receive some treatment. Exploiting geographic discontinuities in Medicaid expansion, researchers estimate that Medicaid expansion increased voter turnout ([Clinton and Sances, 2017](#)). A regression discontinuity study using survey data find that 65 and 66-year-olds, who are eligible for Medicare, were significantly more likely to support Medicare and the ACA than 63 and 64-year-olds, who do not qualify for Medicare ([Lerman and McCabe, 2017](#)). The next section of my paper will challenge this finding using an improved research design and additional survey data.

The best way to identify the effects of a social program on mass politics is to measure the downstream consequences of a field experiment in which the researcher (or researchers working with the government) randomize who benefits from the program. Analyzing downstream effects of randomized control trials, scholars of Latin American politics have found that cash transfer programs produced mixed effects on turnout and vote choice ([Zucco, 2013](#); [De La O, 2013, 2015](#); [Imai, King, and Rivera, 2017](#)). The body of work within American politics that use this empirical strategy is relatively small. Gay's [2012](#) study of Moving to Opportunity, a public housing field experiment, find those given housing vouchers to from high-poverty neighborhoods to low-poverty neighborhoods voted at lower rates than those in the control group; however, the results are somewhat tenuous given missing data problems. The researchers behind the Oregon Health Insurance Experiment ([Finkelstein et al., 2012](#); [Baicker et al., 2013](#); [Taubman et al., 2014](#)), a

field experiment that randomly assigned Medicaid to low-income individuals, plan to study how acquiring Medicaid affects voter turnout.¹

Although making valid causal inference in policy feedback is difficult, the works discussed show that scholars have used creative methods to overcome research challenges. Likewise, my two case studies exploit random or quasi-random variations in the allocation of government benefits to determine if policies indeed make mass politics.

3 Hands Off My Medicare?

The conventional media narrative, backed by public opinion data, state that senior citizens, compared with other age groups, are least likely to support the ACA. Kaiser Family Foundation's Health Tracking Poll consistently show that respondents aged 65 and above hold the least favorable view of the ACA compared with other age groups.² The percentage of respondents in the Cooperative Congressional Election Study (CCES) who support the ACA decreases with age, as Figure 1 shows. One hypothesized reason that seniors are reluctant to support the ACA is that they perceive the policy to be a threat to Medicare.

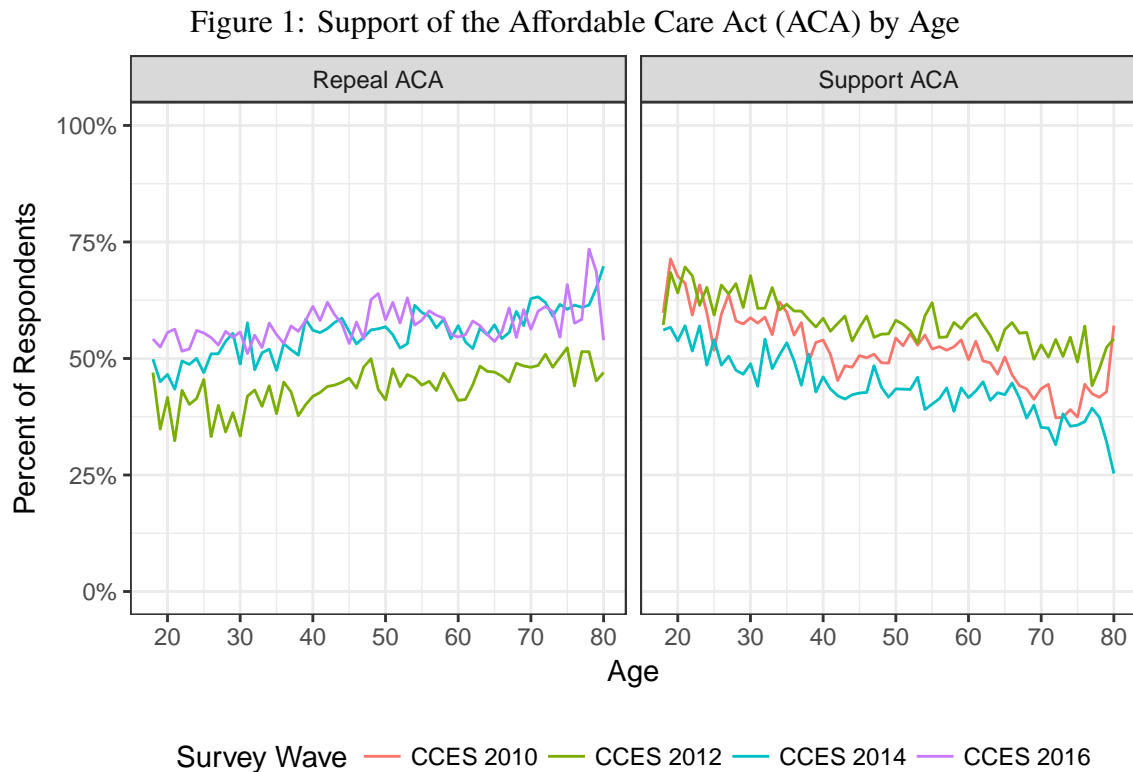
During the debate over the ACA, "keep your government hands off my Medicare" became a rallying cry for seniors who oppose Obamacare. Republicans argued that the policy would cut \$700 billion from Medicare for seniors. In reality, the ACA sought to save \$716 billion in Medicare spending from 2013 to 2022 by bringing down the cost of Medicare through reductions to Medicare Advantage and decrease in hospital costs. In short, the ACA does not cut seniors' benefits and even provides benefits, such as closing the Medicare drug coverage gap.³ Despite the Obama administration's attempts to correct misinformation about the effect of the ACA on

¹"Oregon Health Insurance Experiment Analysis Plan: Evidence from Voting Data," 2015. <http://www.nber.org/oregon/documents/analysis-plan/analysis-plan-voting-2015-09-23.pdf>

²Kaiser Health Tracking Poll: The Public's Views on the ACA. <http://kff.org/interactive/kaiser-health-tracking-poll-the-publics-views-on-the-aca>

³Contorno, Steve and Molly Moorhead, "NRCC says Obamacare cuts money from Medicare and seniors," PoliticalFact.com, February 14, 2014. <http://www.politifact.com/truth-o-meter/statements/2014/feb/14/national-republican-congressional-committee/nrcc-says-obamacare-cuts-money-medicare-and-senior/>

Medicare benefits, some seniors might still perceive that the ACA is detrimental for Medicare.



The percentages are calculated using the survey weights provided by the CCES.

But did Medicare indeed reduce support for the ACA? Lerman and McCabe’s [2017](#) innovative study produces a surprising finding: Medicare recipients exhibit more support for Obamacare than non-Medicare recipients. Also, the researchers found that Medicare recipients are more opposed to domestic spending cuts that target Medicare. Unlike previous observational studies, [Lerman and McCabe \(2017\)](#) use a “fuzzy” regression discontinuity design that compares respondents who are barely above and below age 65, the age at which most Americans are eligible to receive Medicare. The authors claim their research design allow them to identify and estimate the causal effect of receiving Medicare on public opinion.

My expansion of Lerman and McCabe’s [2017](#) study tackles methodological problems of the study in addition to incorporating four new datasets. The results of my study suggest that Medicare recipients did not exhibit greater support for the ACA or other health policies. Furthermore, receiving Medicare did not always make respondents more defensive of the program. As hard

test of attitude change, I use a three-wave panel study to examine respondents' policy preference change over time. My analysis demonstrates that attitudes towards the ACA and Medicare did not change when respondents became Medicare recipients. Overall, my study suggests that benefiting from Medicare failed to move one's attitudes towards other government health care programs and only sometimes made one more defensive of Medicare. Evidence for policy feedback through changes in public opinion is limited, and where it exists, respondents' change in attitudes reflects their self-interest.

3.1 Research Design and Hypotheses

My empirical strategy exploits a regression discontinuity in Medicare age eligibility, which is 65 for most American citizens. I compare the political attitudes of Americans who are near the age cutoff for Medicare. Those to the left of the cutoff are very similar to those right of the cutoff except for one key difference: access to Medicare.

The empirical strategy I adopt has been used by public health and economics researchers to study how Medicare affects medical service use and health outcomes ([Lichtenberg, 2002](#); [Card, Dobkin, and Maestas, 2009](#); [Polsky et al., 2009](#)). These researchers find that Medicare caused one to self-report better health but the program's effects on actual health outcomes are mixed. [Lerman and McCabe \(2017\)](#) employ a similar methodology to study the effect of Medicare on voters' preferences towards Medicare and the ACA. Their "fuzzy" RDD uses the Medicare age cutoff as an instrumental variable for receiving Medicare. Using survey data from the 2012 CCES, the authors focus their analysis on those just above the 65-year-old age cutoff in 2012 (those born in 1946 or 1947) and those just below the cutoff (those born in 1948 or 1949). Lerman and McCabe use the following two-stage least squares (2SLS) regression to analyze their data:

$$\begin{aligned}
\text{First Stage: } E(D_i) &= \alpha + \beta Z_i + \sum_j^J \rho_j X_{i,j}; \\
\text{Second Stage: } E(Y_i) &= \gamma + \tau \widehat{D}_i + \sum_j^J \eta_j X_{i,j},
\end{aligned} \tag{1}$$

where Z_i is an indicator variable for where subject i is 65 or above, D_i is whether she has public health insurance ($D_i = 1$, treated) versus only private insurance ($D_i = 0$, control), $X_{i,j}$ is her value for covariate j in J covariates, and Y_i is her public opinion outcome. The authors interpret their estimate of τ as the late average treatment effect (LATE) of receiving Medicare on respondents' attitudes towards the ACA and Medicare.

Four assumptions must be met for the age 65 cutoff to function as a valid instrument in this “fuzzy” RD design. First, whether one is to the left or right of the age cutoff is as good as randomly assigned. This assumption is likely to be met since one cannot manipulate one's age. Second, for each subject, turning 65 must have at least a zero effect, if not a positive effect, on receiving Medicare. This assumption is also likely to be met since the U.S. government encourages those about to turn 65 to enroll in Medicare and penalize those who join at a later age. Third, the average treatment effect of turning 65 on receiving Medicare must be nonzero; logic and empirical estimates suggest this assumption is met. Fourth, whether one satisfies the age cutoff should only affect one's outcome variables (i.e., political attitudes) through receiving Medicare. This last assumption, commonly called the exclusion restriction assumption, might be violated because those 65 and above receive greater Social Security benefits compared with those who are younger if they choose to retire. As a result, those above the cutoff have greater incentive to retire compared with those below the cutoff; unfortunately, retirement could also induce changes in one's political attitudes and thereby violate the exclusion restriction.

3.1.1 Addressing Flaws in Previous Research

My research design addresses three flaws in Lerman and McCabe's analysis: 1) incorrectly defining the treatment variable, 2) conditioning on possible pre-treatment covariates, and 3) incorrectly addressing the exclusion restriction violation mentioned previously. In their primary analysis, the authors define the treatment as having public health insurance (treated) versus having private health insurance only (control); those who do not have health insurance are excluded from the analysis. As Lerman and McCabe's Appendix B1 shows, the percentage of those without health insurance is 10 points higher among the 1948/1949 group compared with the 1946/1947 group. By eliminating those without health insurance from their primary analysis, the authors drop subjects in a systematic way correlated with the instrumental variable.

Another problem is that the authors condition on possible pre-treatment covariates in their primary analysis. Medicare could affect employment status (and therefore income), as well as political ideology if the policy feedback theory holds.⁴ Finally, Lerman and McCabe address the exclusion restriction violation problem in two inappropriate ways: by conditioning on retirement and by using birth year as an instrument for retirement in a separate "fuzzy" RDD analysis. Since receiving Medicare increases the likelihood that one would retire, conditioning on retirement would introduce reverse causality bias. By using birth year as an instrument for retirement, the authors implicitly admit that birth year could affect the outcome through both Medicare and retirement.

3.1.2 New Research Design and Hypotheses

My research design improves upon that of Lerman and McCabe 2017 by addressing the three problems discussed above. First, I redefine the treatment as having public insurance ($D_i = 1$, treated) versus not having public insurance ($D_i = 0$, control).⁵ By doing so, no subjects are systemically eliminated from my analysis. Second, I do not condition on any potential pre-treatment

⁴Existing literature suggests that Medicare eligibility increases the probability of retirement (Madrian and Beaulieu, 1998).

⁵As a robustness check, Lerman and McCabe also define their treatment variable this way in Appendix C of their paper. This alternative model specification produce similar results to their main model specification results.

covariates in my regressions. See Appendix A.2 for the pre-treatment covariates I use and results of balance tests to check they are not affected by the treatment. Third, to address the potential exclusion restriction violation problem, I perform the following robustness checks. I reanalyze the survey data using a “sharp” RD design by looking at the effect of Medicare eligibility (turning 65) on preferences towards health policies. Also, when data is available, I subset my analysis on subjects who had already stopped working several years before they were surveyed. Since these respondents have already retired, turning 65 would not affect their choice to retire.

In addition, I improve my research design by using more and better data. Instead of using only the 2012 cross-sectional CCES, I also use data from the 2010, 2014, and 2016 cross-sectional CCES.⁶ Furthermore, I employ the 2010/2012/2014 CCES Panel Study. The panel study allows me to measure changes in political attitudes within each subject, further reducing bias. For my analysis, I use the following 2SLS regression:

$$\begin{aligned} \text{First Stage: } E(D_i) &= \alpha + \beta Z_i + \sum_j^J \gamma_j \bar{X}_{i,j} + \sum_j^J \delta_j Z_i \bar{X}_{i,j}; \\ \text{Second Stage: } E(Y_i) &= \zeta + \eta \hat{D}_i + \sum_j^J \kappa_j \bar{X}_{i,j} + \sum_j^J \tau_j \hat{D}_i \bar{X}_{i,j}, \end{aligned} \tag{2}$$

Not that Equation 2 is very similar to Equation 1 except for two minor differences. I standardize the covariates $X_{i,j}$ to have mean 0 and unit variance and interact the treatment variable with the covariates so that $\hat{\zeta}$ would be an estimate of the control group’s outcome. When analyzing cross-sectional surveys, Y_i is defined as the respondent i ’s attitude at the time of the survey; when analyzing the panel study, Y_i is defined as the *change* in respondent i ’s attitude between the current wave and the previous wave. As in the original study, I focus my analysis on respondents within the two-year window above and below the cutoff and do not use survey weights. I mean impute missing data or “don’t know” responses, irrespective of where respondents fall along the age cutoff. In my results

⁶I analyze the survey data from each cross-sectional survey separately because not all the questions appear in each survey and question wording sometimes change between years. See Appendix A.1 for the exact wording of the survey text.

section, I also report the LATE estimated without using any covariates.

The main hypothesis I test is the same as Hypothesis 1 in Lerman and McCabe 2017: “*H1*: Personal experience significantly increases support among beneficiaries of a given policy.”⁷ Also, I test a secondary hypothesis that addresses the self-interest question:

H2: Personal experience with a policy does not change support for similar policies that benefit mostly others.

More specifically, I hypothesize that receiving Medicare does not increase support for other health policies that mainly benefit other people, such as the ACA, Medicaid, and the Children’s Health Insurance Program (CHIP).

3.2 Results

The results of my improved and expanded analysis demonstrate that receiving Medicare has almost no effect on changing respondents’ opinion about non-Medicare related health policies and limited effect in causing them to become more defensive about Medicare. Personal experience with Medicare may not significantly increase support for Medicare, let alone the ACA.

Before diving into the results, note that I replicate the main findings in Lerman and McCabe’s study. The LATE of receiving Medicare on support for the ACA and opposition to domestic spending cuts (which includes cuts to Medicare)⁸, estimated using the 2012 cross-sectional CCES, are significant and similar in magnitude to estimates in the original study (see Figure 2). Nevertheless, this significant result is an outlier when considering the entirety of my findings: most of the LATEs estimated are statistical zeros. Indeed, within the 2012 cross-sectional sample, the LATE of receiving Medicare on opposition to the ACA (“Repeal ACA”) is substantively small (a decrease of 3 percentage points) and not statistically significant.

⁷While the authors also hypothesize that the treatment effect will be greater for low-information voters, Republicans, and those in ill-health, my paper mainly seeks to test Hypothesis 1 – their primary hypothesis.

⁸The outcome “Least Favored: Cut Domestic Spending” in my study is called “Do Not Cut Medicare” in Lerman and McCabe’s study. I change the variable name to more accurately reflect the actual survey text. The survey text asks about whether one favors cutting domestic spending, citing Medicare and Social Security as two domestic spending programs.

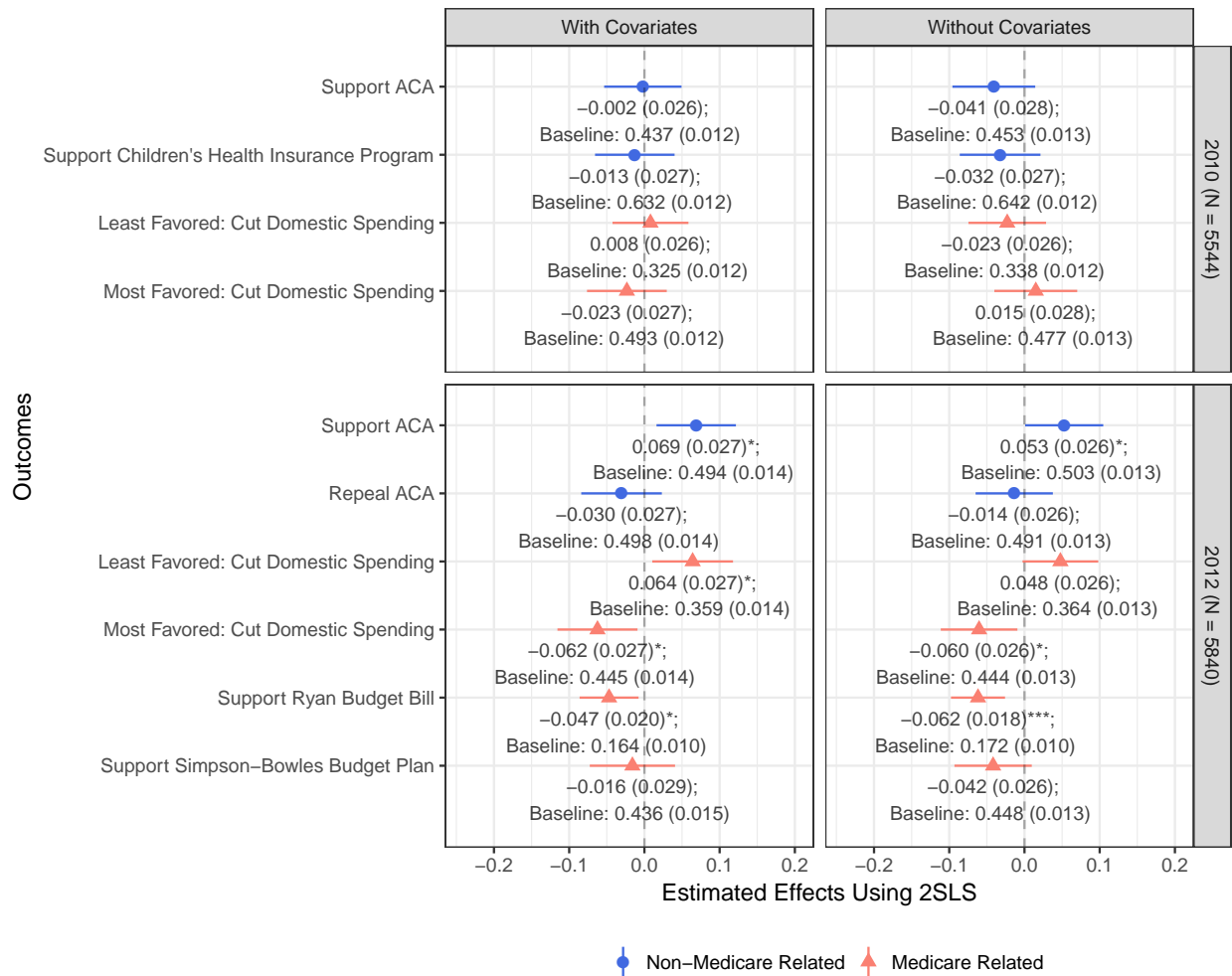
Figures 2 and 3 report the results using the cross-sectional CCES surveys. Apart from the “Support ACA” result in 2012 noted above, acquiring Medicare did not change respondents’ opinion about the ACA, CHIP, or Medicaid. For some years and some outcome measures, acquiring Medicare induced respondents to become more defensive about protecting Medicare funding. In some sample-years, recipients were less willing to cut domestic spending and more reluctant to support the Ryan Budget or the Simpson-Bowles Budget, two budget proposals that would substantially reduce Medicare funding. However, these results do not hold up in all the sample-years. While the previous outcome measures indirectly measure respondents’ preference for Medicare policy, the 2016 CCES asked directly about the Medicare Accountability and Cost Reform Act.⁹ The LATE of receiving Medicare on support for Medicare reform varies by the model specification; the 2SLS estimates including covariates suggest a null effect, but the estimates without covariates suggest a small, significant effect (decrease of 6.3 percentage points). Taken together, the results in Figures 2 and 3 suggest that acquiring Medicare is unlikely to affect beneficiaries’ preferences about health policies that benefit mostly other people and somewhat increases their support for defending Medicare.

While the cross-sectional surveys provide me with a decent estimate of the LATE of acquiring Medicare on respondents’ attitudes towards health policies, the panel study provides even more credible evidence. The panel study allows me to compare the within-subject change in attitudes for those who acquired Medicare between survey waves versus the change in attitudes for those who did not. As Figure 4 shows the percent of respondents who gained government health insurance since the previous wave jumps dramatically at age 65 in the current wave.

Results from the panel study (Figure 5) confirms the evidence from the cross-sectional surveys: acquiring Medicare has little effect on changing respondents’ attitudes towards the ACA and CHIP. The estimated LATEs on support for the ACA and CHIP are small and not statistically significant. The estimated LATEs on changing attitudes about domestic spending cuts are somewhat mixed.

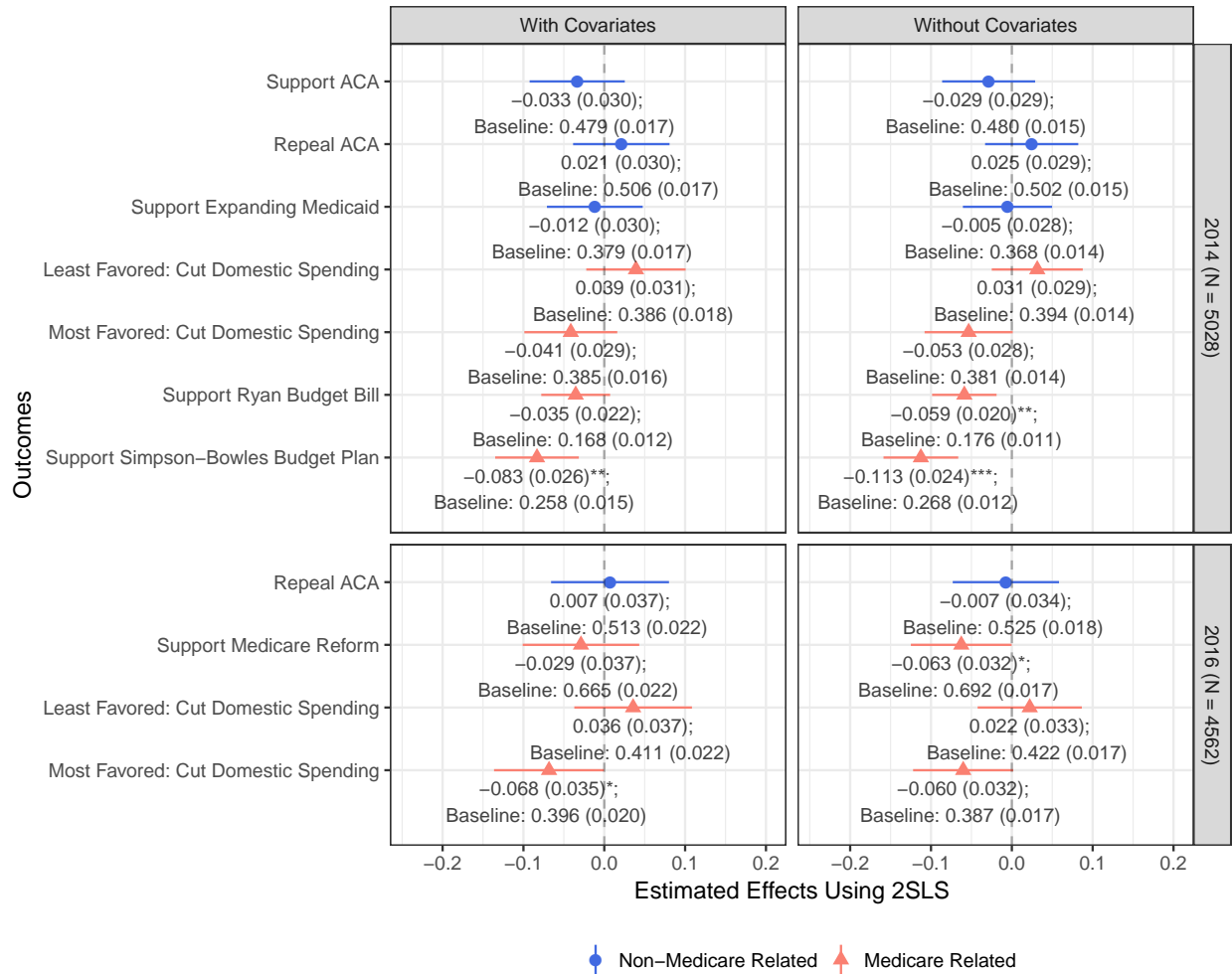
⁹Respondents are told the reform would do the following: “Shifts Medicare from fee-for-service to pay-for-performance. Ties Medicare payments to doctors to quality of care measures. Requires higher premiums for seniors who make more than \$134,000. Renews the Children Health Insurance Program (CHIP).”

Figure 2: Effects of Acquiring Medicare on Respondents' Attitudes: Evidence from the 2010 and 2012 Cross-Sectional CCES Surveys



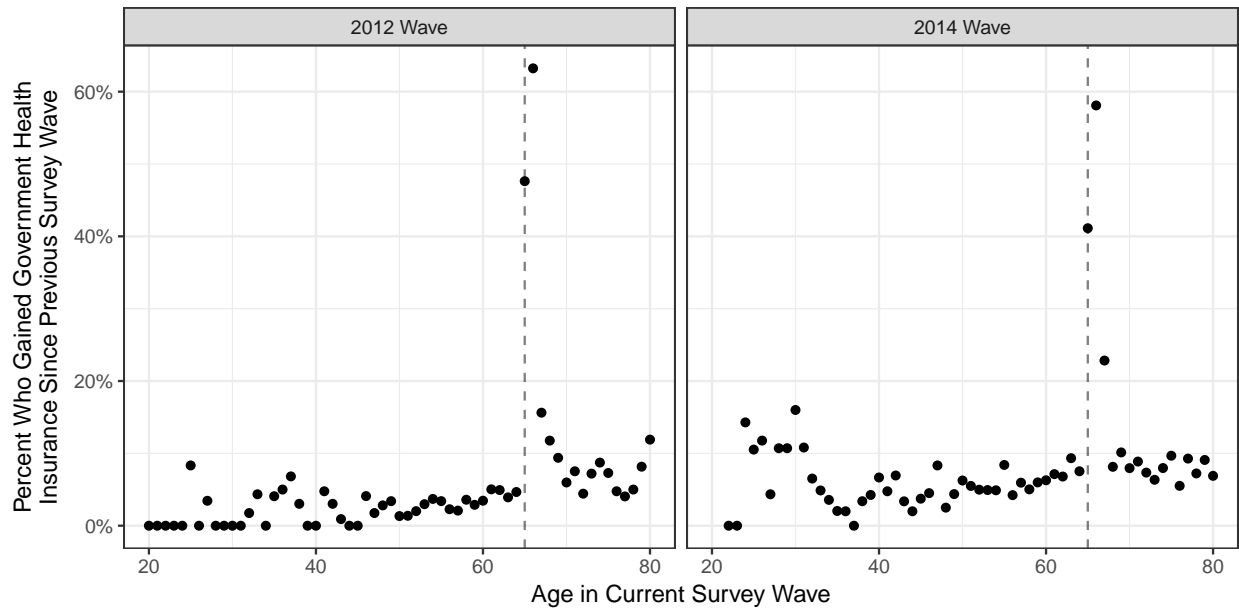
Heteroscedasticity-consistent standard errors are reported between the parentheses next to the effect estimates. The error bars represent 95% confidence intervals calculated from the robust standard errors. p -value stars on the effect estimates follow the convention of * < 0.05, ** < 0.01, *** < 0.001.

Figure 3: Effects of Acquiring Medicare on Respondents' Attitudes: Evidence from the 2014 and 2016 Cross-Sectional CCES Surveys



Heteroscedasticity-consistent standard errors are reported between the parentheses next to the effect estimates. The error bars represent 95% confidence intervals calculated from the robust standard errors. p -value stars on the effect estimates follow the convention of * < 0.05, ** < 0.01, *** < 0.001.

Figure 4: Percent of Respondents Who Gained Government Health Insurance Between Waves of the 2010-2014 CCES Panel Study



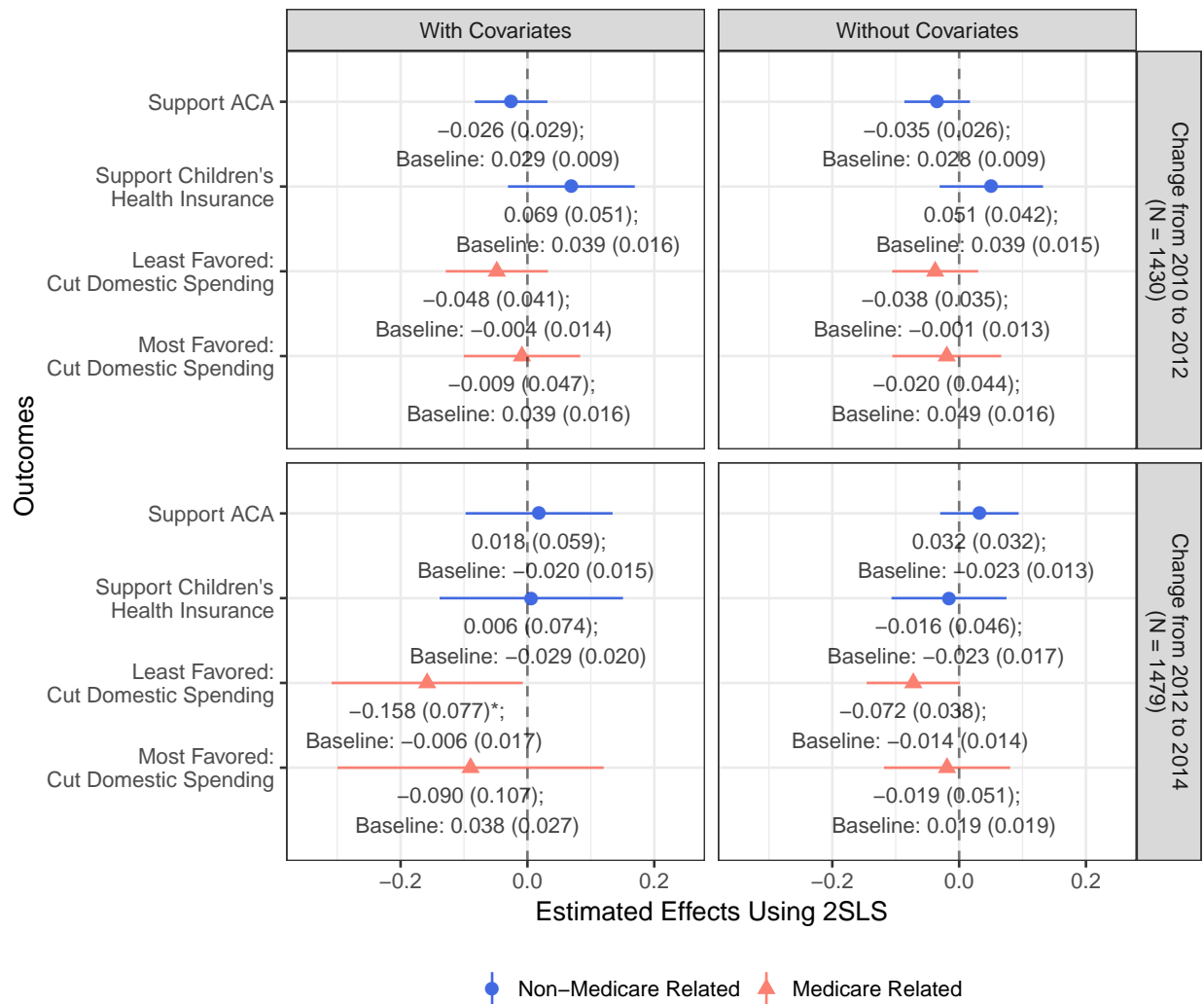
The percentages are calculated using the survey weights provided by the CCES.

Acquiring Medicare have induced little change in opinions between the 2010 and 2012 wave. Between the 2012 and 2014 wave, receiving Medicare caused between a 7.2 to 15.8 point increase (depending on model specification) in the percentage of those who prefer cutting domestic spending the least. Nevertheless, these estimates are somewhat noisy due to the smaller sample size of the panel study.

The robustness checks, reported in Appendix A.3, also suggest the LATE of acquiring Medicare had no impact on respondents' preferences towards the ACA and Medicaid and limited impact on their preference towards Medicare. The OLS models produce results in a similar direction to those in the 2SLS models, albeit with smaller estimated effects. Using the 2012 and 2014 CCES cross-sectional surveys, I perform the “fuzzy” RDD analysis on a subset of respondents who have not worked at all in the past five years to untangle the effect of acquiring Medicare from the effect of retirement.¹⁰ Figures A.9 and A.10 show that acquiring Medicare had no effect on almost all of the outcome measures. In the 2014 sub-sample, receiving Medicare decreased the percentage of

¹⁰Only the 2012 and 2014 CCES cross-sectional surveys asked respondents whether they have worked at all in the past five years.

Figure 5: Effects of Acquiring Medicare on Respondents' Attitudes: Evidence from the CCES Panel Study (2010, 2012, and 2014 Waves)



Heteroscedasticity-consistent standard errors are reported between the parentheses next to the effect estimates. The error bars represent 95% confidence intervals calculated from the robust standard errors. p -value stars on the effect estimates follow the convention of * < 0.05, ** < 0.01, *** < 0.001.

respondents who support expanding Medicaid by 23 points and increased the proportion to least favored cutting domestic spending by 24 points; unfortunately, these effects are noisily estimated since the sizes of these subsamples are not as large as the sample sizes in the main analysis.¹¹

3.3 Discussion

My study paints a nuanced picture of Medicare's effects on seniors' political attitudes. Did acquiring Medicare induce seniors to become more supportive of the ACA, as [Lerman and McCabe \(2017\)](#) suggest? Again, I emphasize my analysis replicates the positive and statistically significant effect they estimate. Nevertheless, this result is an outlier among all the null findings that suggest Medicare has little impact on seniors' preference towards the ACA, Medicaid, and CHIP. One could argue that the politics of the 2012 election campaign might have produced this puzzling effect. Yet, health care policy is less salient of an issue in 2012 than in 2010: 74 percent of American voters indicated that health care is a "very important" issue in 2012, down from 78 percent in 2010, according to Pew Research Center surveys.¹² It may be plausible that the significant finding in the original study arose due to random chance.

While Tea Party seniors viewed health care policy as a zero-sum game, most seniors, when they become Medicare beneficiaries, did lash out against other health care programs. Policy feedback, where it existed, consisted of seniors becoming more defensive about cuts to Medicare. Senior citizens are known to be fierce defenders of social programs that benefit them; in the 1980s, they mobilized against the Medicare Catastrophic Coverage Act by contacting their members of Congress and attending political meetings; their activism eventually led to the repeal of the policy ([Campbell, 2003b](#)). Nevertheless, my analysis does not consistently demonstrate that acquiring Medicare introduce changes in political attitudes. For one, overcoming the stasis in personal politics may be difficult. Sometimes seniors are satisfied with a particular policy change and do not mobilize to

¹¹Nevertheless, thanks to the large sample size of the CCES, even the sizes of these subsamples are large by absolute standards – 1,780 respondents in the 2012 CCES and 1,639 in the 2014 CCES.

¹²Pew Research Center, "With Voters Focused on Economy, Obama Lead Narrows", April 17, 2012. <http://www.people-press.org/2012/04/17/with-voters-focused-on-economy-obama-lead-narrows/>

overturn it, as in the case of Medicare Part D (Morgan and Campbell, 2011). Furthermore, analysis of Medicare's effect on seniors' political participation using a similar RDD methodology suggests that enrolling in Medicare did not make seniors more likely to participate in politics (Mazumder, 2017).

Another reason for the lack of change in political attitudes is that people in their early 60s are not entirely different from those 65 and above. Those entering into their retirement years anticipate becoming Medicare beneficiaries and join the pro-Medicare constituency before they are eligible to enroll in the program.¹³ Therefore, the interpretive effect of Medicare could begin long before the resource effects kick in. Indeed, Lerman and McCabe anticipate this criticism of their RDD identification strategy and argue that any sizable effect they find only speak to the strength of Medicare's impact through personal experience with the program. My analysis suggests the effects of this personal experience are not as powerful as the original authors claim.

4 Scientists Into Citizens?

Scientists have long debated among themselves about their role in politics; some advocate for scientists to be honest brokers of policy alternative (Pielke Jr, 2007) while other argue that scientists should engage actively in the political process (Schneider, 2009). More recently, the Trump administration's threats to cut science funding and restrict climate research has prompted many scientists to increase their political activism.¹⁴ On Earth Day 2017, some 100,000 scientists and their supporters protested in Washington as part of the March for Science; marches in other American cities drew tens of thousands.¹⁵ My second case study explores how scientists engage in politics at a time when the public and politicians' views of science have become increasingly

¹³Those who are 50 and older are eligible to join the American Association of Retired Persons (AARP), the most prominent interest group for seniors in the U.S.

¹⁴Marris, Emma, "Is Donald Trump pushing more scientists towards political activism?", *Nature News*, December 13, 2016. <http://www.nature.com/news/is-donald-trump-pushing-more-scientists-towards-political-activism-1.21130>

¹⁵"The Science Behind the March for Science Crowd Estimates", March for Science Blog, May 15, 2017. <https://www.marchforscience.com/blog/2017/5/10/the-science-behind-the-march-for-science-crowd-estimates>

polarized.

My study employs a possible natural experiment to investigate how the NSF Graduate Research Fellowship Program (NSF GRFP) affects scientists' political attitudes and behavior. The U.S. government award recipients a three-year tuition scholarship for graduate studies in the sciences as well as a living stipend for three years. Does this generous government fellowship transform scientists into citizens who defend government support for the sciences? My study seeks to answer this important question concerning policy feedback using behavioral and survey measurements. Analysis of political campaign records show applicants who received the award give larger political donations, specifically to Democrats. Nevertheless, the result is driven by a couple of very generous donors. Survey responses from the applicants demonstrate that receiving the award did little to shift their political beliefs, particularly their willingness to defend science against government encroachment. One possible reason for the limited policy feedback is that the scientists in my sample already demonstrate high levels of political engagement and thereby creating a ceiling effect.

4.1 Research Design and Hypotheses

My research design exploits a possible natural experiment to study the effect of receiving a government scholarship to attend graduate school on ones' political attitudes and behavior. Social psychologists have used a similar design to determine that winning the fellowship increased one's likelihood of completing graduate school but did not improve one's labor market outcome ([Chapman and McCauley, 1993](#)).

Applying to the NSF GRFP is highly competitive; in recent years, only about one-third of all applicants receive any recognition from the NSF. Fellowship awardees are given substantial tuition scholarships and stipends; honorable mentions are recognized for their achievement but receive no financial benefits. The subjects of my study are a special group of fellowship applicants: they received either the award (treated group) or honorable mention (control group) in the current year after receiving honorable mention in the previous year. For instance, the subjects in the

year 1998 are fellowship awardees and honorable mention recipients who had received honorable mentions in 1997. Conditional on one's performance in the previous year and other pre-treatment covariates (e.g., application year, field of study, undergraduate university, graduate university at time of application, gender, ethnicity, immigration status), whether one is awarded a fellowship or honorable mention in the subsequent year is as-if random, I argue.

A total of 6,428 applicants between 1995 and 2016 are eligible for my study; the applicants and their basic biographical information are publicly available online. Due to resource constraints, I randomly sample 2,210 applicants using stratified sampling; respondents within each year/field-of-study stratum has a 1/3 probability of being sampled. Some strata do not have at least one subject in each condition; I eliminate those strata and is left with 2119 subjects.¹⁶

I perform balance tests to assess whether the award winners are different from the honorable mentions along 5 metrics: 1) undergraduate university is an Ivy League, 2) undergraduate university is an Ivy League Plus (the Ivy League plus MIT, Caltech, Stanford, University of Chicago, Duke, and UC Berkeley), 3) graduate university (at the time of application) is an Ivy League, 4) graduate university (at the time of application) is an Ivy League Plus, and 5) predicted gender of the applicant.¹⁷

For the balance tests, I treat the natural experiment as a block-randomized experiment (assuming complete randomization), where each block is a year/field-of-study. For each background characteristic, I use the following regression analysis to estimate the differences in applicant characteristics between the award winners and non-winners:

$$\mathbb{E}(X_i) = \alpha + \beta A_i + \sum_j^J \gamma_j \bar{B}_{i,j} + \sum_j^J \eta_j A_i \bar{B}_{i,j}, \quad (3)$$

where X_i is the background characteristic of applicant i , A_i is an indicator variable for whether

¹⁶My research assistants and I were able to locate current contact information (e.g., email addresses, mailing address, web form URLs) for most subjects. We could not find any contact information for 27 subjects so I did not contact them for the survey.

¹⁷The gender of the applicant is predicted using first name data from the U.S. Social Security Administration. I performed web searches for those applicants with gender-neutral names or names not within the SSA database to determine their gender.

applicant i 's award status, and $\bar{B}_{i,j}$ is the standardized version of the indicator variable for whether i belongs to block j out of J blocks.¹⁸ $\hat{\beta}$ is the estimate of the difference in the background characteristic between the winners and non-winners.

Award winners and non-winners are not statistically different when it comes to the quality of their undergraduate or graduate institutions, according to Table A.11. Nevertheless, winners are 5.7 percentage points (SE = 1.4) less likely to be male compared with non-winners. This difference is perhaps not surprising because the NSF seeks to increase diversity in STEM education; as a result, application reviewers might favor women and ethnic minorities. To address this imbalance in background covariates, I condition on applicant gender (or ethnicity if the data is available) in subsequent analyses.

Applicants' campaign donation records are compiled using OpenSecrets.org's Donor Lookup tool. I manually match applicants to the campaign donation records via name, city, and employer (if available). See Appendix B.1 for a full description of the matching procedure. Applicants who are not in the campaign donation database are assigned campaign donation of \$0. Campaign donation records are aggregated into these six outcome variables: 1) amount donated (in USD), 2) amount donated to Democrats or Democratic causes, 3) amount donated to Republicans or Republican causes, 4) number of donations, 5) number of donations to Democrats or Democratic causes, and 6) number of donations to Republicans or Republican causes. For each outcome measure, I use the following regression analysis to estimate the effect of winning a fellowship on campaign donations:

$$\mathbb{E}(Y_i) = \alpha + \beta A_i + \sum_j \gamma_j \bar{B}_{i,j} + \sum_j \eta_j A_i \bar{B}_{i,j} + \sum_k \theta_k \bar{X}_i + \sum_k \tau_k A_i \bar{X}_i, \quad (4)$$

where Y_i is the outcome measure for applicant i and all other variables are the same as above.¹⁹ $\hat{\beta}$ is the estimate of the average treatment effect of receiving a fellowship on the outcome.

Apart from analyzing the applicants' political campaign donations, I also measure their political

¹⁸I standardize the block indicator variables to have mean 0 and unit variance so that $\hat{\alpha}$ is the estimate of the average baseline characteristic for the non-winner control group.

¹⁹I standardize the block indicator variables and the background covariates, X_k , so that $\hat{\alpha}$ represents the estimate of the mean baseline characteristic for the non-winner control group.

attitudes and behavior using a survey. The survey asks about the following: 1) applicants' attitudes towards government funding for science, 2) their communication of research findings, 3) their support for the March for Science, 4) their political identity, and 5) their willingness to donate to non-profit organizations through a donation experiment.²⁰ The full set of survey questions are included in the appendix.

On April 26, 2017, I emailed the survey to all the respondents with email addresses and contacted those without email addresses through mail or web forms.²¹ We attempted to locate the correct email addresses for whom the initial email bounced. Furthermore, we recontacted applicants who did not take the survey a week later reminding them to take the survey.

As a result, 499 applicants, or 23 percent of those we contacted, completed the survey. There are no significant differences between respondents and non-respondents' background characteristics besides that respondents are more likely to be male and applied for the fellowship in later years (see Table A.1). For my data analysis, I restrict the survey sample to those whose subject-year block has at least one winner and one non-winner, arriving at a sample of 408 respondents. Table A.3 reports the summary statistics of this survey sample. In this sample, there exist no statistical or substantive difference between the winners and non-winners in background covariates (e.g., quality of education, gender, ethnicity, or U.S. born). Furthermore, these background characteristics do not individually or jointly predict who is a winner (see Table A.4).

To analyze the survey results, I use linear regressions similar to Equation 4. The pre-treatment covariates used include quality of education, gender, ethnicity, and whether the subject is U.S.-born. I mean impute missing data or "don't know" responses, irrespective of fellowship status.

My first hypothesis states the following:

H_1 : NSF fellowship winners are more politically engaged compared with non-winners.

²⁰At the end of the survey, respondents are told that three of them will be randomly chosen to win \$100. They are asked how much they are willing to donate and to indicate which of the following organizations they prefer to donate to: the American Association for the Advancement of Science, the American Cancer Society, the Union of Concerned Scientists, the Red Cross, or the March for Science.

²¹There are no statistical or substantive differences between award winners and non-winners regarding missing email addresses or all contact information, as shown in Figure A.12. Those who were given an award were more likely to have a .edu email address, suggesting that winners are more likely to work in academia. Otherwise, there are no statistical differences between the two groups regarding having other types of email addresses.

I measure political engagement through campaign donations as well as self-reported political behavior, such as participating in the March for Science²², communicating research findings to policymakers and reporters, and identifying with a political party. More specifically, I hypothesize that winning a fellowship would induce one to become politically active in supporting Democratic causes and opposing Republican ones. In recent decades, the Republican Party has become increasingly anti-science, threatening to cut science funding and rejecting evidence-based policies (Mooney, 2006). Therefore, it seems more plausible that political activism by scientists would support the liberal position instead of the conservative one.

I also test the following hypothesis:

H_2 : NSF fellowship winners show greater support for government funding for science compared with non-winners.

The self-interested theory of policy feedback would suggest that beneficiaries of the fellowship would become more supportive of government programs to support scientists. Support for governmental funding for science is measured using survey questions that ask about support for federal funding for scientific research, the NSF, and the NSF GRFP.

4.2 Results

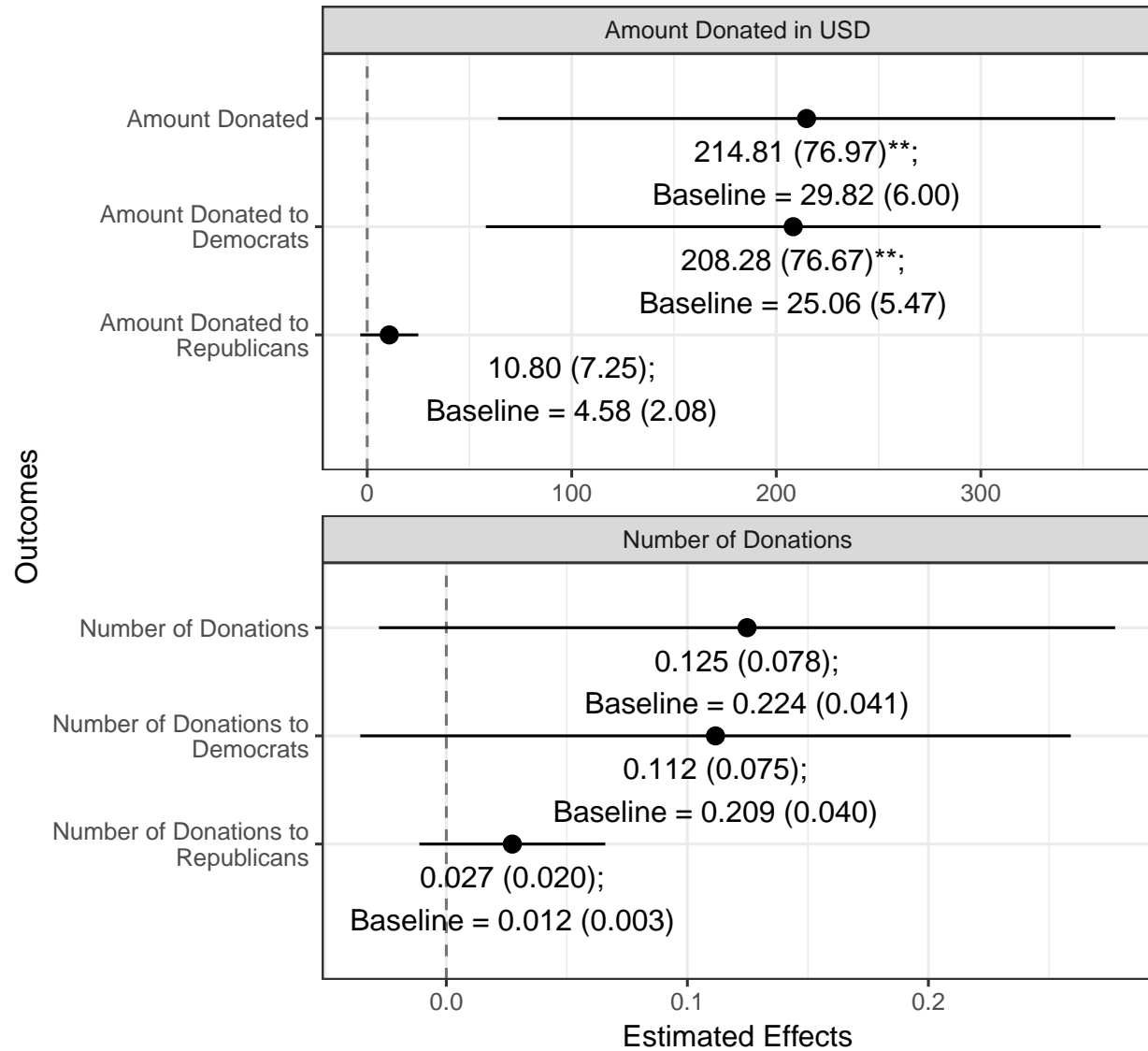
Among the full sample, applicants who were awarded the fellowship gave larger political donations, particularly to Democratic candidates or causes. Nevertheless, this effect is driven by a couple of donors who gave huge donations. On average, winners donated \$214.81 (SE = \$76.97) more than non-winners, as Figure 6 shows. Furthermore, winners donated \$208.28 (SE = \$76.67) more to Democratic candidates or causes compared with non-winners. Between winners and non-winners, there are no significant differences in amount donated to Republicans, the number of donations made, or the number of donations made to either party.

Because the variance in political donations is enormous²³, I perform several robustness checks

²²Participation is defined as attending the March in Washington, D.C. or another city, or donating to the March for Science.

²³Consider that less than 5 percent of applicants made any political donations.

Figure 6: Effect of Being Awarded the NSF Graduate Research Fellowship on Political Donations



$N = 2119$. Heteroscedasticity-consistent standard errors are reported between the parentheses next to the effect estimates. The error bars represent 95% confidence intervals calculated from the robust standard errors. p -value stars on the effect estimates follow the convention of $* < 0.05$, $** < 0.01$, $*** < 0.001$.

to determine whether the previous results hold up. As part of my robustness check, I set the top one to four overall donors, Democratic donors, and Republican donors' donations to \$0 and perform the same regression analysis. As the results in Figure B.3 shows, the significant effects of the award on overall donation amount and Democratic donation amount is driven by the top two donors, who gave \$66,700 and \$35,300, respectively. Setting their donations to \$0 dramatically reduces the differences between winners and non-winners to \$38.71 (SE = \$26.54) for overall donations and \$32.18 (SE = \$25.71) for donations to Democrats.

Among applicants in my survey sample, receiving a fellowship did little to change their political attitudes or self-reported behavior (see Figure 7). First, award winners did not indicate greater support for federal funding for the sciences, for the NSF, or for the NSF GRFP. The estimated effect for the first two outcomes is substantively small. Interestingly, support for NSF GRFP funding is lower among winners than non-winners, but this result is primarily driven by “don’t know” responses. Recall that my analysis procedure call for me to mean impute missing data or “don’t know” responses, irrespective of treatment assignment. Nearly 20 percent of respondents indicated they did not know whether they want to increase or decrease funding for the NSF GRPF. The percentage of award winners who provide a “don’t know” response is 8.90 points lower (SE = 4.40 percentage points; two-sided p -value = 0.042) than the percentage of non-winners who provide such a response, suggesting that non-winners have more ambiguous attitudes towards the program compared with winners.

Winning the fellowship did not induce the subjects to communicate their research findings with policymakers and journalists more frequently. Interestingly, winners' support for the March for Science is 3.5 percent lower than non-winners' support; while the two-sided p -value of this difference approaches borderline significance, the substantive difference is rather small. Furthermore, there are no differences in self-reported participation in the March for Science between the two groups. Likewise, winning the fellowship did little to alter the respondents' political identity, both in terms of party affiliation or political ideology measured along a five-point scale. Finally, in the donation experiment, respondents' willingness to donate, whether in general or to organizations

with a political agenda²⁴, is unaffected by their award status. On average, the amount respondents proposed are small – only \$3.31 overall and \$2.11 for organizations with a political agenda.

4.3 Discussion

The overwhelming majority of null results in my analysis of NSF GRFP applicants' campaign donations and survey responses suggests that receiving the award did little to change their political attitudes or behavior. Although the fellowship transferred substantial wealth from the government to these individuals, the recipients did not become more defensive of public funding for the sciences. Further analysis and existing research suggest that policy feedback is weak in this case because all applicants are already highly politically engaged and believe that the government should actively promote scientific research. As a result, the actual monetary benefit did little to change most recipients' politics.

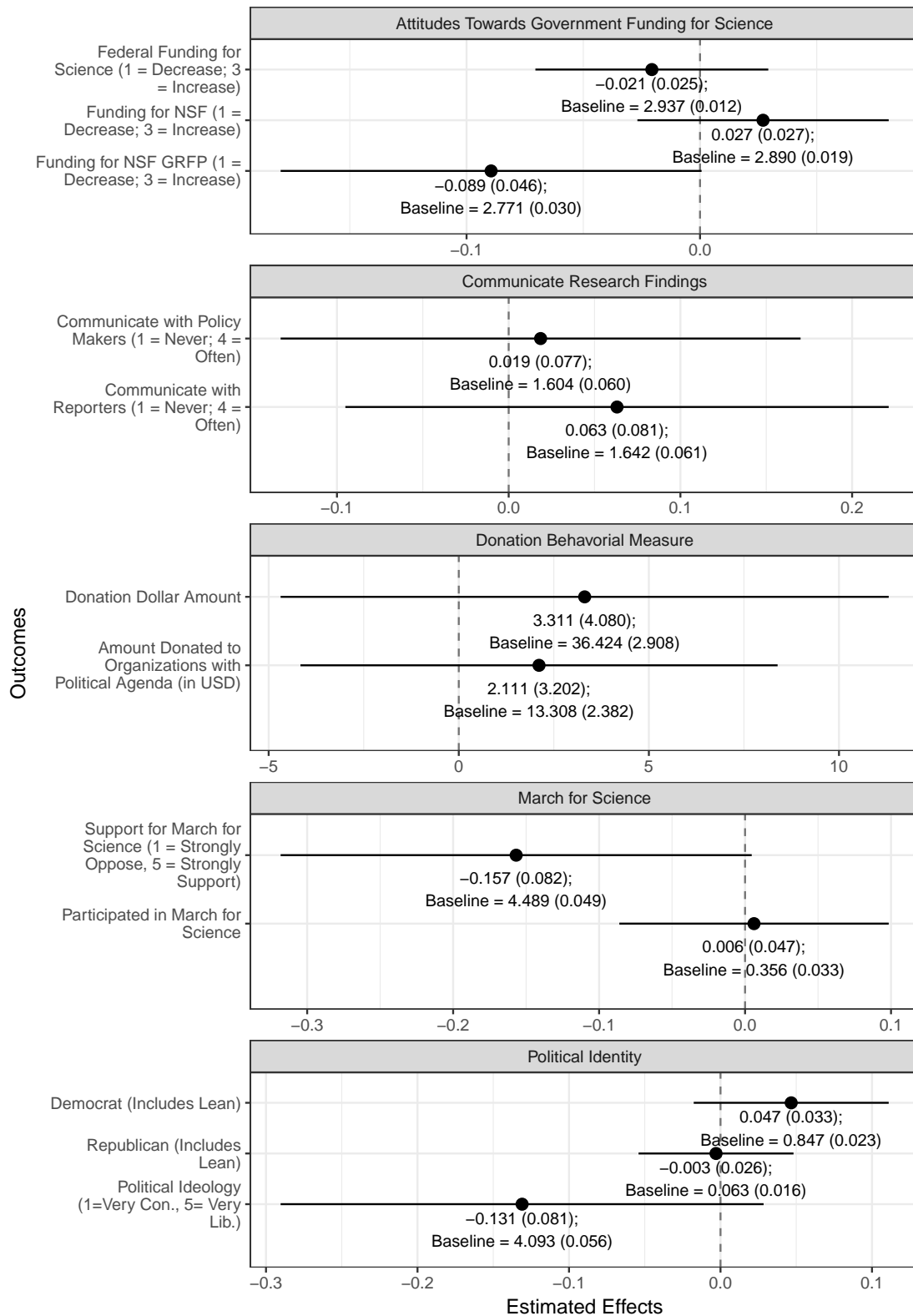
One of the most interesting results from the study is that winners contribute more to political campaigns compared with non-winners. Although this result is mainly driven by some extremely generous donors in the winner group, one should not discount the possibility that the fellowship might have large impacts on politics through the actions of a few individuals. The NSF GRFP prides itself on producing highly successful alumni including 42 Nobel Prize winners, former U.S. Secretary of Energy, Steven Chu, Google founder, Sergey Brin, and *Freakonomics* co-author, Steven Levitt.²⁵ While most award winners have ordinary careers, some may go on to have exceptional careers and contribute to politics significantly as donors, activists, public intellectuals, or politicians.

One could cite several reasons why the NSF fellowship failed to increase recipients' level of political activism to defend science. While the size of the benefit is large (amounting to over \$200,000 in result years) and the program is highly visible (recipients receive regular communication from NSF officials), its duration is only three years. Furthermore, the program's beneficiaries might not

²⁴The Union of Concerned Scientists and the March for Science are classified as organizations with a political agenda.

²⁵https://www.nsfgrfp.org/general_resources/about

Figure 7: Survey Results: Effect of Being Awarded the NSF Graduate Research Fellowship on Political Attitudes and Behavior



$N = 408$. Heteroscedasticity-consistent standard errors are reported between the parentheses next to the effect estimates. The error bars represent 95% confidence intervals calculated from the robust standard errors. p -value stars on the effect estimates follow the convention of $* < 0.05$, $** < 0.01$, $*** < 0.001$.

view the fellowship as a government social program but rather as just reward for their hard work — much like the majority of Americans who failed to recognize that Social Security is a government social program (Mettler, 2011). As a result, the recipients might not have acknowledged the need to engage in politics to defend the program or NSF. Finally, scientists may be afraid to act politically for fear of losing future government funding. The March for Science instructed protesters not to wear attire that would identify their universities, use government-funded websites to advertise the protest, or communicate about the march using their institutional email accounts.²⁶ Because participating in partisan politics could jeopardize their careers, scientists may be reluctant to speak out.

Evidence from my survey and other surveys of scientists suggest quite the opposite: scientists, as a whole, are politically engaged and any intervention to increase their political engagement is likely to hit a ceiling. As the baseline estimates in Figure 7 show, non-winners in my survey sample support increasing government funding for science, endorse the March for Science, and overwhelmingly identify as Democrat. More than one-third of the survey sample participated in the March for Science, a costly form of political participation that could potentially jeopardize their careers. Regarding ordinary forms of participation, over 98 percent of both winners and non-winners in the sample reported that they have registered to vote.

A 2014 Pew Research Center survey of 3,748 American Association for the Advancement of Science members produces results similar to those in my survey.²⁷ Eighty-eight percent of American scientists surveyed said they are registered to vote and 81 percent identified as Democrats. Contrast these statistics with the national average: 70 percent of American adults are registered to vote, and only 48 percent identify as Democrats in 2016.²⁸ The NSF GRFP is no GI Bill, the great social program that enabled millions of Americans who would not have otherwise attended

²⁶“Useful Steps for Marching (And Other Active) Scientists,” March for Science, April 12, 2017. <https://www.marchforscience.com/blog/2017/4/8/y5thy81ecn1fygn15rqlnyydwl41p>

²⁷Cary Funk and Lee Rainie, “Public and Scientists’ Views on Science and Society,” Pew Research Center, January 29, 2015. <http://www.pewinternet.org/2015/01/29/public-and-scientists-views-on-science-and-society/>

²⁸U.S. Census Bureau, Current Population Survey, November 2016 <https://www.census.gov/topics/public-sector/voting.html>; Pew Research Center 2016 Party Identification Detailed Tables <http://www.people-press.org/2016/09/13/2016-party-identification-detailed-tables/>.

college to pursue higher education. While the GI Bill reached wide swatches of America ([Mettler, 2005](#)), NSF fellowship applicants are relatively homogeneous in graduating from top undergraduate science programs, pursuing a career in science, and joining liberal politics.

Results from this case study suggest that government social programs may have limited effect in mobilizing the already mobilized partisan voter. Voters typically begin to identify with a political party early in life, and their partisan identity remains stable over time ([Campbell and Converse, 1960](#); [Green, Palmquist, and Schickler, 2004](#)). Furthermore, voters often evaluate policy and politics through a partisan lens ([Achen and Bartels, 2016](#)). As a result, even policies with massive material consequences may not shift one's political attitudes and behavior. Consider another example of a null effect in policy feedback: Gerber et al.'s [2017](#) finding that incarceration had little or no impact on former prisoner's turnout. The authors note that most first-time inmates had already experienced arrest or other punitive interactions with the state. As a result, incarceration may do little to depress turnout among those who are already demobilized.

5 Conclusion: Two Views of Policy Feedback

The results of my two natural experiments suggest that policy feedback through personal experience with social programs is limited. Where policy feedback exists, it mainly reflects beneficiaries' self-interest. Medicare somewhat increased seniors' support for the program itself but did little to change their attitudes about programs that benefited mostly other people. The NSF Graduate Research Fellowship produced a few incredibly generous Democratic donors but failed to change most applicants' political attitudes and behaviors. In addition to advancing research methodology, my paper presents substantive findings with important implications for the design and implementation of public policy. As policymakers and public administrators know, even seemingly successful policies could be eroded or reversed if these policies fail to build positive feedback and transform political institutions ([Patashnik, 2014](#)).

The pessimistic reading of my research suggests that supporters of a social program cannot rely

upon beneficiaries to defend the program. Means-tested programs for needy individuals seem to produce no effect on political participation at best and dampen civic engagement at worst (Soss, 1999; Gay, 2012; Michener, 2017). It may be understandable that welfare for the poor decreases political efficacy among its recipients. But the NSF Graduate Research Fellowship, an award that no doubt boosts recipients' self-esteem, also produced no positive feedback. Finally, voters might not even be aware that they are reaping benefits from the government if the programs are administered through "submerged" channels such as tax breaks or payments for services to private companies (Mettler, 2011). As Galvin and Thurston (2017) conclude, "the intellectual basis for thinking that policies are good vehicles for building electoral majorities — or good substitutes for the more tedious work of organizational party-building — is quite thin" (334). Citing the ACA's failure to strength the Democrats' numbers in Congress and help elect Hillary Clinton, Galvin and Thurston suggest that the best way to protect policies from reversal or retrenchment is by building party organization. Get out the vote instead of optimizing policy design or implementation, they argue. Public support for a policy matter little if opponents of the policy control the White House and/or Congress.

The optimistic take on my research suggests that the creation of social programs can create meaningful shifts in public opinion through interpretative effects. In most studies of policy feedback, researchers want to identify the impact of the policy on program beneficiaries. For this type of causal inference, researchers engage in a thought experiment involving two counterfactual worlds. The policy exists in both worlds; the two worlds are identical except in one way: all the subjects in one world benefit from the policy while all the subjects in the other world do not. The researchers then attempt to estimate the mean difference in outcome between these two worlds.

But consider another type of causal inference in policy feedback. Imagine a counterfactual world just like ours except neither Medicare nor the NSF exists. Americans would not assume that the government will provide health insurance for them in old age. Students and researchers would not presume the government would fund their education or scientific research. By establishing Medicare and the NSF, the federal government fundamentally changed the expectations of seniors

and would-be seniors, of scientists and would-be scientists. Social programs could impact the politics of actual beneficiaries *and* of potential beneficiaries. Indeed, my survey data show that seniors just below the Medicare age cutoff are defensive about Medicare and scientists who did not win an NSF fellowship are passionate about protecting science from the Trump administration. To ensure that a program endures, policymakers and program administrators should make the program both “visible” and “proximate” so that a greater number of voters can imagine themselves utilizing it (Soss and Schram, 2007).

Despite Galvin and Thurston’s gloomy assessment of the ACA, the policy endured Congressional Republicans’ seven-year attempt to repeal it. Even when Republicans control both the White House and Congress, the ACA survived a dramatic night of voting in July 2017 when Republican John McCain helped defeat a repeal bill in the Senate.²⁹ In the past year, ACA has steadily climbed in popularity, with 52 percent of Americans viewing it favorably versus 39 percent viewing it unfavorably in August 2017.³⁰ The survival of the ACA undoubtedly depends on this broad constituency of voters who say “Hands Off Obamacare!”.

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²⁹Ramzy, Austin, “McCain’s Vote Provides Dramatic Moment in 7-Year Battle Over Obamacare,” July 28, 2017. <https://www.nytimes.com/2017/07/28/us/politics/john-mccain-vote-trump-obamacare.html?mtrref=www.google.com>

³⁰Kirzinger, Ashley, Bianca DiJulio, Bryan Wu, and Mollyann Brodie, “Kaiser Health Tracking Poll – August 2017: The Politics of ACA Repeal and Replace Efforts,” Kaiser Family Foundation, August 11, 2017. <http://www.kff.org/health-reform/poll-finding/kaiser-health-tracking-poll-august-2017-the-politics-of-aca-repeal-and-replace-efforts/>

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A Appendix: Medicare Study

Unless otherwise noted, heteroscedasticity-consistent standard errors are reported between the parentheses next to the effect estimates. The error bars represent 95% confidence intervals calculated from the robust standard errors. p -value stars on the effect estimates follow the convention of * < 0.05, ** < 0.01, *** < 0.001.

A.1 Survey Text

A.1.1 2010 CCES

Support ACA Congress considered many important bills over the past two years. For each of the following tell us whether you support or oppose the legislation in principle.

Requires all Americans to obtain health insurance. Allows people to keep current provider. Sets up health insurance option for those without coverage. Increase taxes on those making more than \$280,000 a year.

- Support (1)
- Oppose (0)

Support Children’s Health Insurance Program Congress considered many important bills over the past two years. For each of the following tell us whether you support or oppose the legislation in principle.

Program insures children in low income households. Act would renew the program through 2014 and include 4 million additional children.

- Support (1)
- Oppose (0)

Least Favored: Cut Domestic Spending The federal budget is approximately \$600 billion this year. If the Congress were to balance the budget it would have to consider cutting defense spending, cutting domestic spending (such as Medicare or Social Security), or raising taxes to cover the deficit. What would you least prefer that Congress do - cut domestic spending, cut defense spending, or raise taxes?

- Cut defense spending (0)
- Cut domestic spending (1)
- Raise Taxes (0)

Most Favored: Cut Domestic Spending The federal budget is approximately \$600 billion this year. If the Congress were to balance the budget it would have to consider cutting defense spending, cutting domestic spending (such as Medicare or Social Security), or raising taxes to cover the deficit. What would you most prefer that Congress do - cut domestic spending, cut defense spending, or raise taxes?

- Cut defense spending (0)
- Cut domestic spending (1)
- Raise Taxes (0)

A.1.2 2012 CCES

Support ACA Congress Considered many important bills over the past two years. For each of the following tell us whether you support or oppose the legislation in principle.

Requires all Americans to obtain health insurance. Allows people to keep current provider. Sets up health insurance option for those without coverage. Increase taxes on those making more than \$280,000 a year.

- Support (1)
- Oppose (0)

Repeal ACA Congress Considered many important bills over the past two years. For each of the following tell us whether you support or oppose the legislation in principle.

Would repeal the Affordable Care Act.

- Support (1)
- Oppose (0)

Least Favored: Cut Domestic Spending The federal budget deficit is approximate \$1 trillion this year. If the Congress were to balance the budget it would have to consider cutting defense spending, cutting domestic spending (such as Medicare and Social Security), or raising taxes to cover the deficit. What you LEAST prefer that Congress do?

- Cut defense spending (0)
- Cut domestic spending (1)
- Raise taxes (0)

Most Favored: Cut Domestic Spending The federal budget deficit is approximate \$1 trillion this year. If the Congress were to balance the budget it would have to consider cutting defense spending, cutting domestic spending (such as Medicare and Social Security), or raising taxes to cover the deficit. What you MOST prefer that Congress do?

- Cut defense spending (0)
- Cut domestic spending (1)
- Raise taxes (0)

Support Ryan Budget Bill Congress considered many important bills over the past two years. For each of the following tell us whether you support or oppose the legislation in principle.

2011 House Budget Plan. The Budget plan would cut Medicare and Medicaid by 42%. Would reduce debt by 16% by 2020.

- Support (1)
- Oppose (0)

Support Simpson-Bowles Budget Plan Congress Considered many important bills over the past two years. For each of the following tell us whether you support or oppose the legislation in principle.

Simpson-Bowles Budget Plan. Plan would make 15% cuts across the board in Social Security, Medicare, Medicaid, and Defense, as well as other programs. Eliminate many tax breaks for corporations. Would reduce debt by 21% by 2020.

- Support (1)
- Oppose (0)

A.1.3 2014 CCES

Support ACA The Affordable Health Care Act was passed into law in 2010. It does the following: Requires Americans to obtain health insurance. Prevents insurance companies from denying coverage for pre-existing conditions. Allows people to keep current health insurance and care provider. Sets up national health insurance option for those without coverage, but allows states the option to implement their own insurance system.

Would you have voted for the Affordable Care Act if you were in Congress in 2010?

- Yes (1)
- No (0)

Repeal ACA Would you vote to repeal the Affordable Care Act if you were in Congress in today?

- Yes (1)
- No (0)

Support Expanding Medicaid Should your state refuse to implement the expansion of health care for poor people, even if it costs the state federal Medicaid funds?

- Yes (1)
- No (0)

Least Favored: Cut Domestic Spending The federal budget deficit is approximately \$500 billion this year. If the Congress were to balance the budget it would have to consider cutting defense spending, cutting domestic spending (such as Medicare and Social Security), or raising taxes to cover the deficit. What would you least prefer that Congress do?

- Cut defense spending (0)
- Cut domestic spending (1)
- Raise taxes (0)

Most Favored: Cut Domestic Spending The federal budget deficit is approximately \$500 billion this year. If the Congress were to balance the budget it would have to consider cutting defense spending, cutting domestic spending (such as Medicare and Social Security), or raising taxes to cover the deficit. What would you most prefer that Congress do?

- Cut defense spending (0)
- Cut domestic spending (1)
- Raise taxes (0)

Support Ryan Budget Bill For each proposal indicate whether you would support it or oppose it. Ryan Budget. Budget would Medicare and Medicaid by 42%. Would reduce debt by 16% by 2020.

- Support (1)
- Oppose (0)

Support Simpson-Bowles Budget Plan Simpson-Bowles Budget Plan. Plan would make 15% cuts across the board in Social Security, Medicare, Medicaid, and Defense, as well as other programs. Eliminate many tax breaks for individuals and corporations. Would reduce debt by 21% by 2020.

- Support (1)
- Oppose (0)

A.1.4 2016 CCES

Repeal ACA Congress considers many issues. If you were in Congress would you vote FOR or AGAINST each of the following?

Repeal Affordable Care Act. Would repeal the Affordable Care Act of 2009 (also known as Obamacare).

- For (1)
- Against (0)

Support Medicare Reform Accountability and Cost Reform Act. Shifts Medicare from fee-for-service to pay-for-performance. Ties Medicare payments to doctors to quality of care measures. Requires higher premiums for seniors who make more than \$134,000. Renews the Children Health Insurance Program (CHIP).

Least Favored: Cut Domestic Spending The federal budget deficit is approximately 1 trillion this year. If the Congress were to balance the budget it would have to consider cutting defense spending, cutting domestic spending (such as Medicare and Social Security), or raising taxes to cover the deficit. Please rank the options below from would least prefer they do.

- Cut defense spending
- Cut domestic spending
- Raise taxes

Variable is coded 1 if the respondent ranks “Cut domestic spending” as the least preferred and 0 otherwise.

Most Favored: Cut Domestic Spending Question format is same as above. Variable is coded 1 if the respondent ranks “Cut domestic spending” as the most preferred and 0 otherwise.

A.1.5 Questions from the 2010/2012/2014 CCES Panel Study

Support ACA For each of the following bills please tell us whether you would vote for (yes) or against (no): Affordable Care Act requires that all Americans have health insurance. Allows people to keep current provider. Sets up health insurance exchange for those without coverage. Increases taxes on investment income for families making more than \$250,000.

- Yes (1)
- No (0)

Support Children's Health Insurance For each of the following bills please tell us whether you would vote for (yes) or against (no): State Children's Health Insurance Program insures children in low income households. Act would renew the program through 2014 and include an additional 4 million children.

- Yes (1)
- No (0)

Least Favored: Cut Domestic Spending The federal budget is approximately 600 billion this year. If the Congress were to balance the budget it would have to consider cutting defense spending, cutting domestic spending (such as Medicare or Social Security), or raising taxes to cover the deficit. What would you most prefer that Congress do - cut domestic spending, cut defense spending, or raise taxes?

- Cut defense spending (0)
- Cut domestic spending (1)
- Raise Taxes (0)

Most Favored: Cut Domestic Spending The federal budget is approximately 600 billion this year. If the Congress were to balance the budget it would have to consider cutting defense spending, cutting domestic spending (such as Medicare or Social Security), or raising taxes to cover the deficit. What would you least want Congress to do?

- Cut defense spending (0)
- Cut domestic spending (1)
- Raise Taxes (0)

A.2 Balance Tests

Figure A.1: Balance Test: IV Estimates 2010
CCES 2010: Balance Test (Bandwidth: 2 Years)

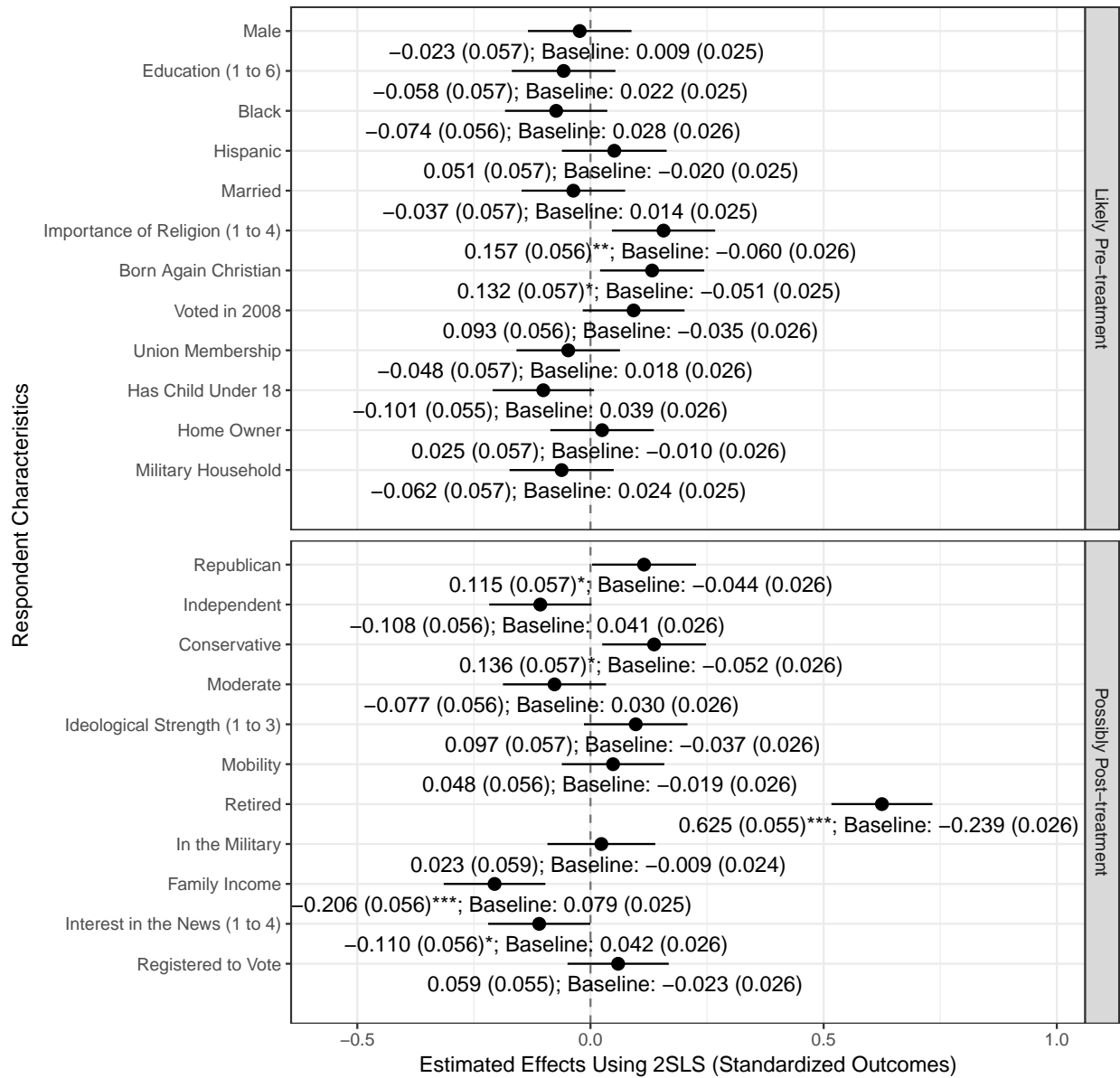


Figure A.2: Balance Test: IV Estimates 2012

CCES 2012: Balance Test (Bandwidth: 2 Years)

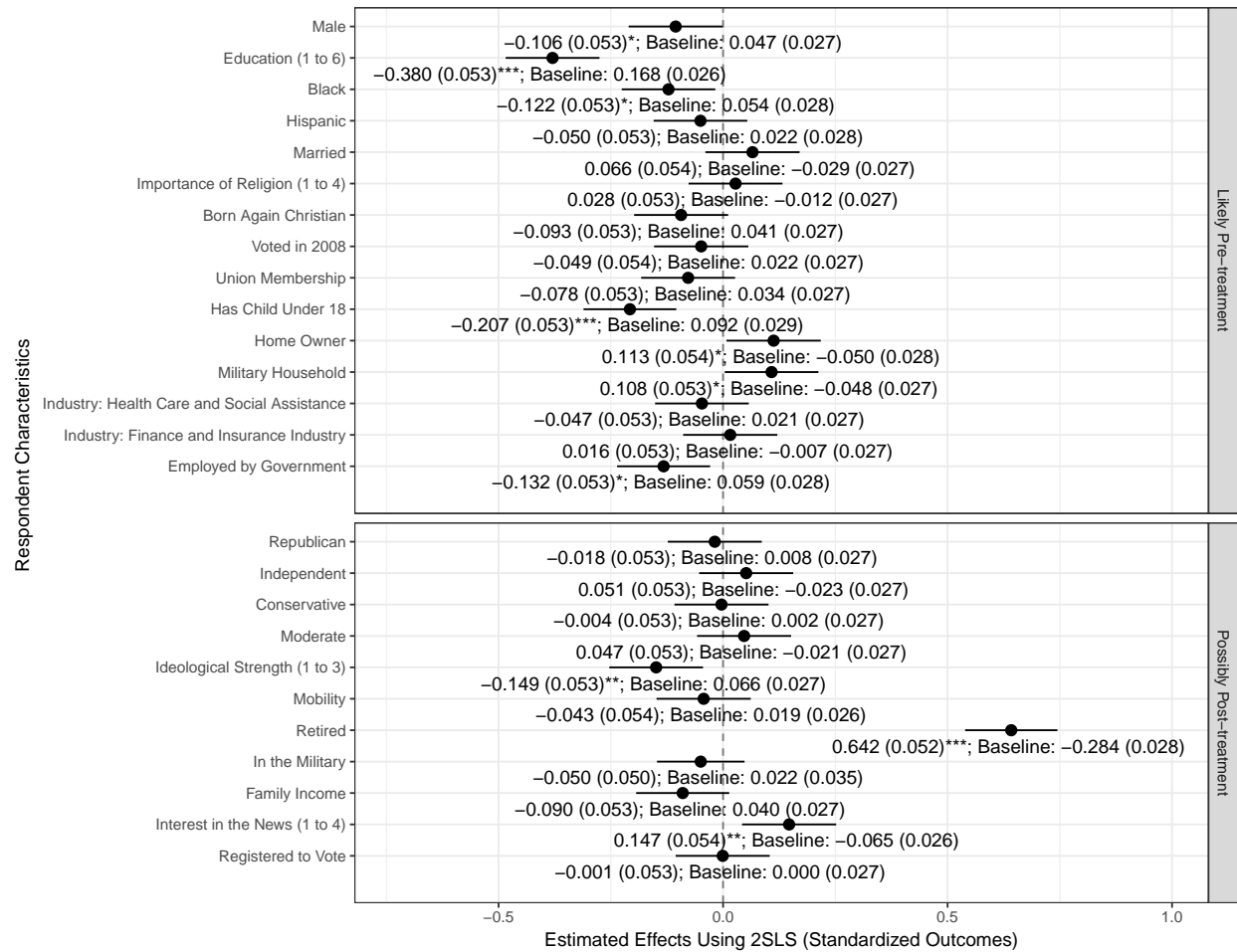


Figure A.3: Balance Test: IV Estimates 2014

CCES 2014: Balance Test (Bandwidth: 2 Years)

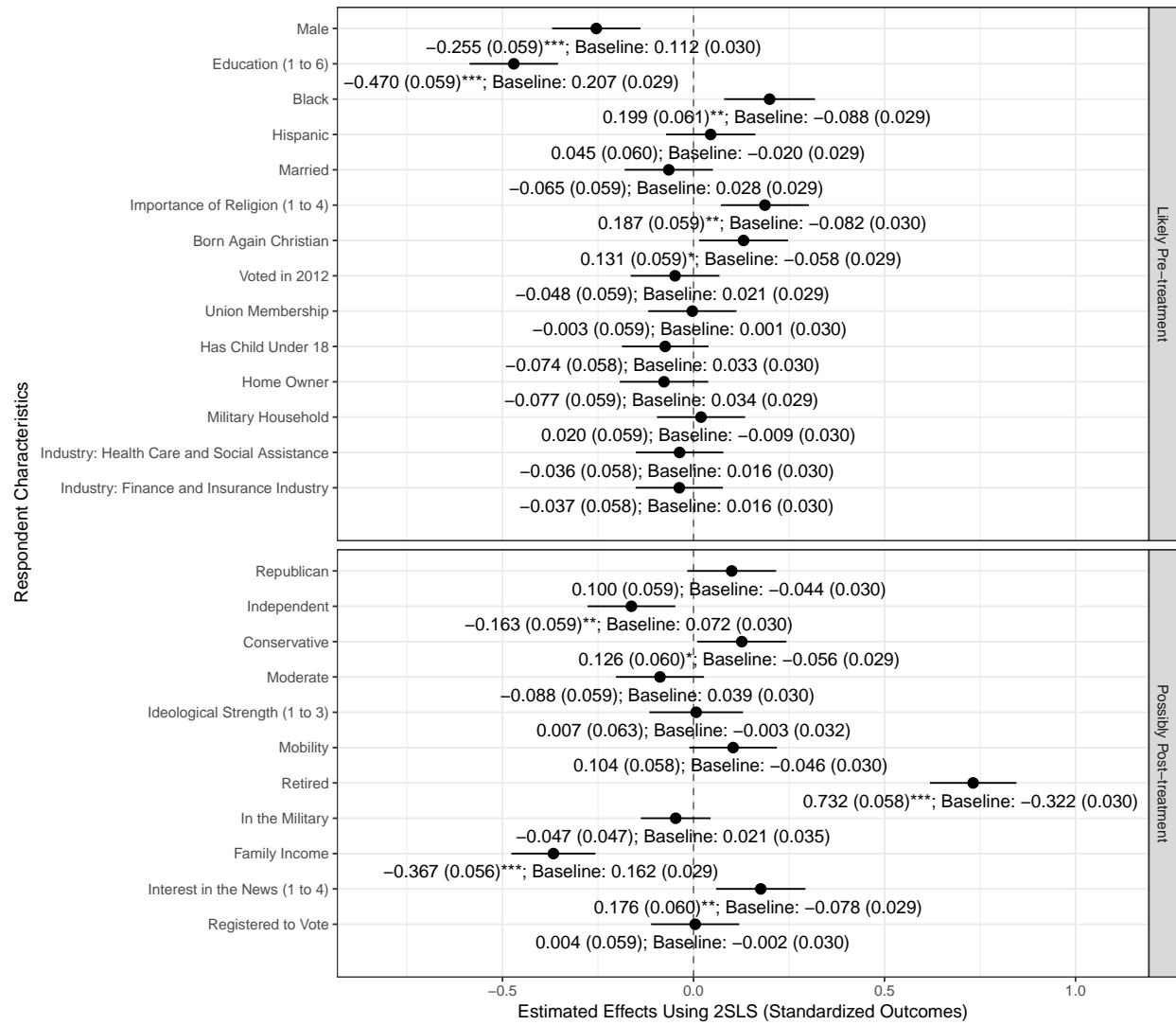


Figure A.4: Balance Test: IV Estimates 2016

CCES 2016: Balance Test (Bandwidth: 2 Years)

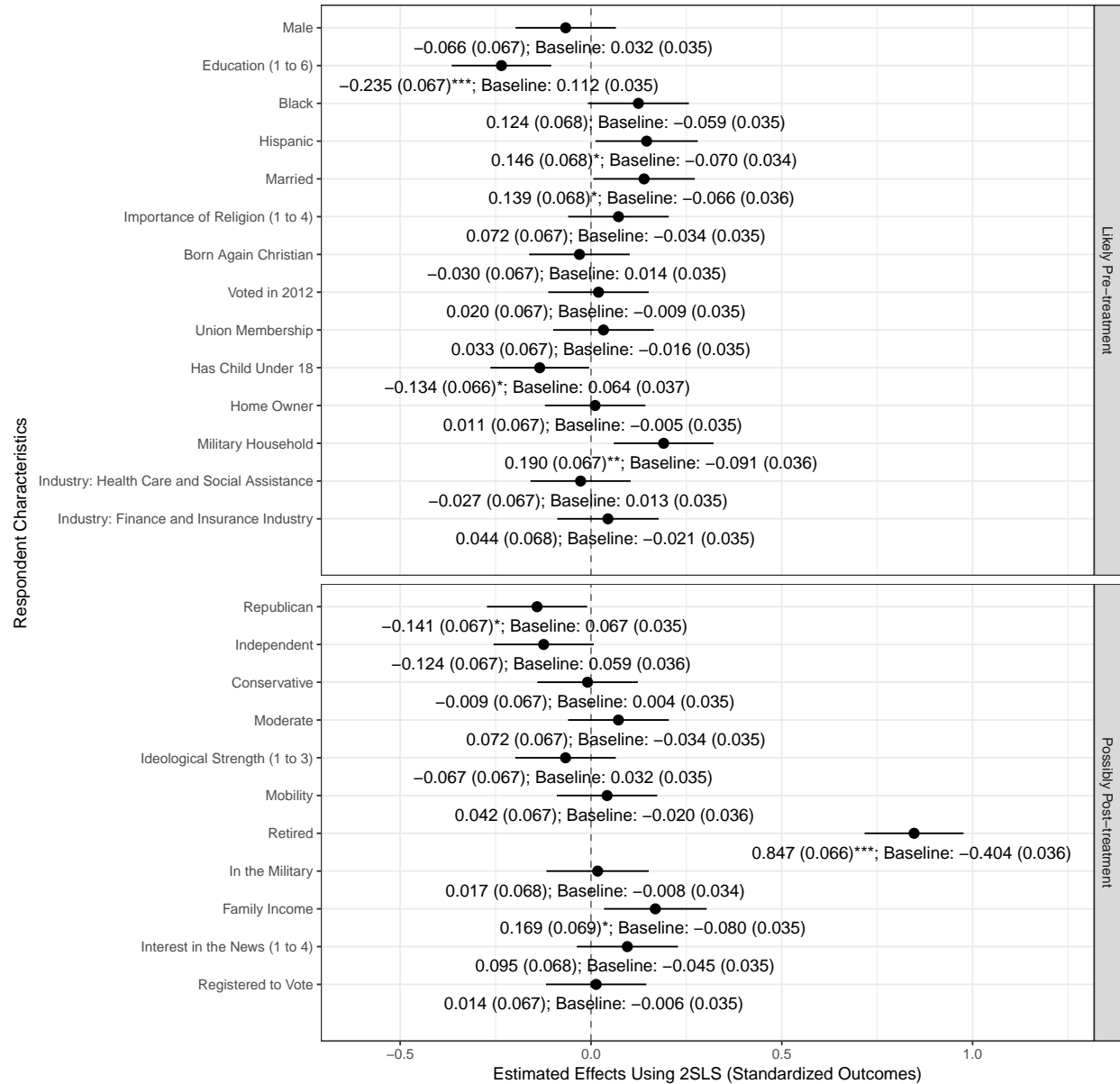
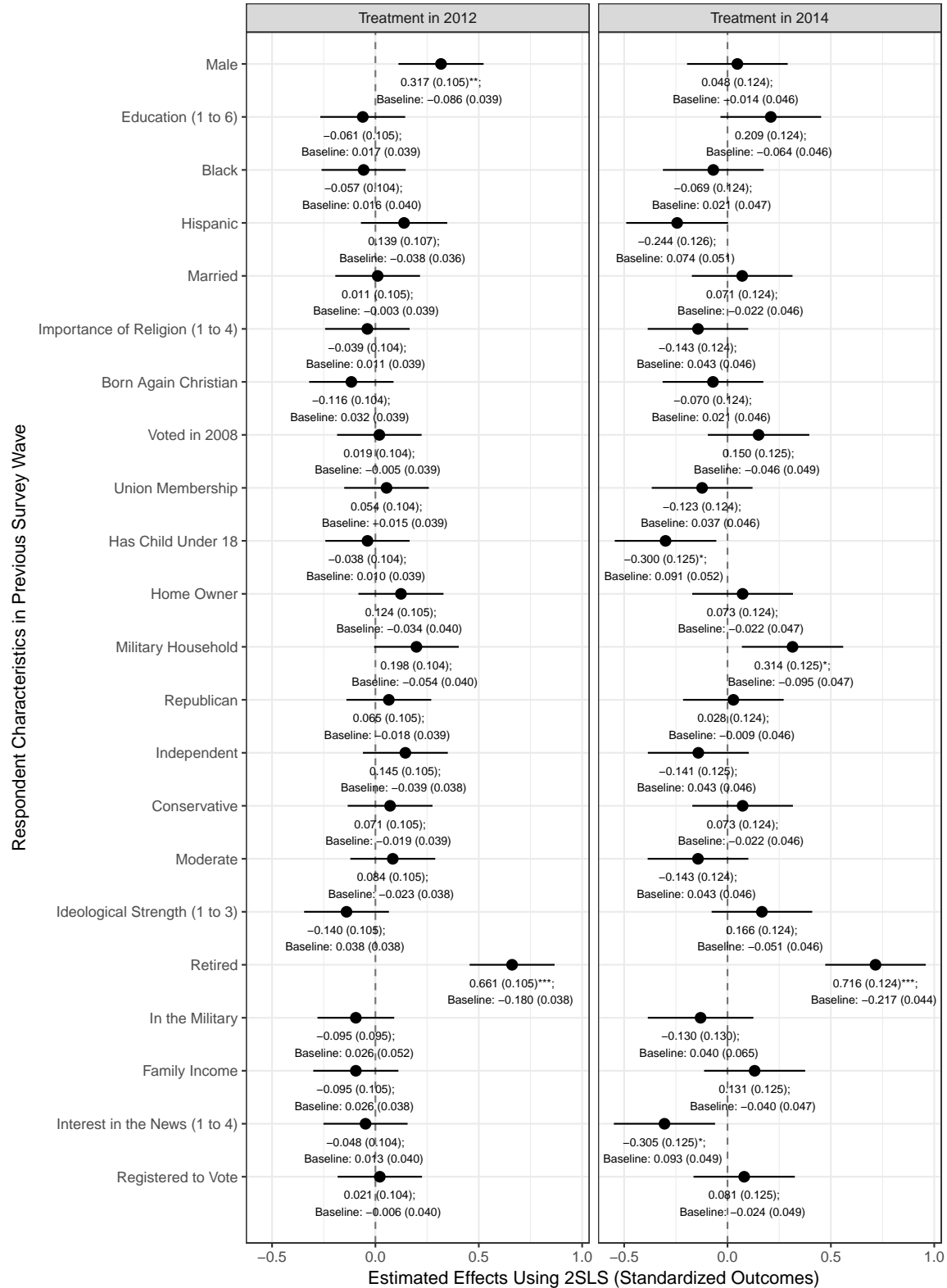


Figure A.5: Balance Test: Panel RDD IV Estimates



A.3 Robustness Checks

A.3.1 OLS Estimates

Figure A.6: OLS Estimates: 2010-2012 Cross-sectional CCES Surveys

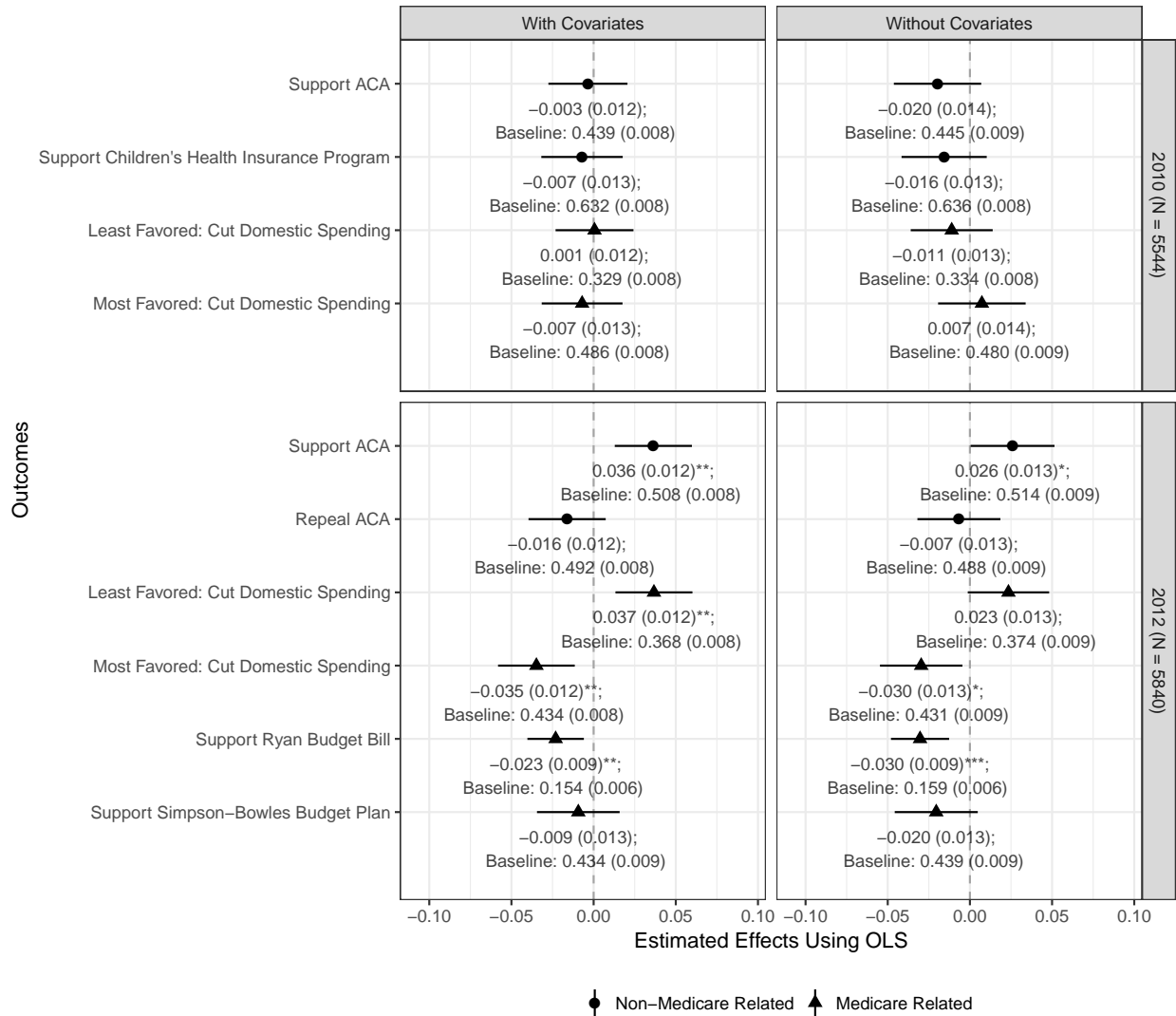


Figure A.7: OLS Estimates: 2014-2016 Cross-sectional CCES Surveys

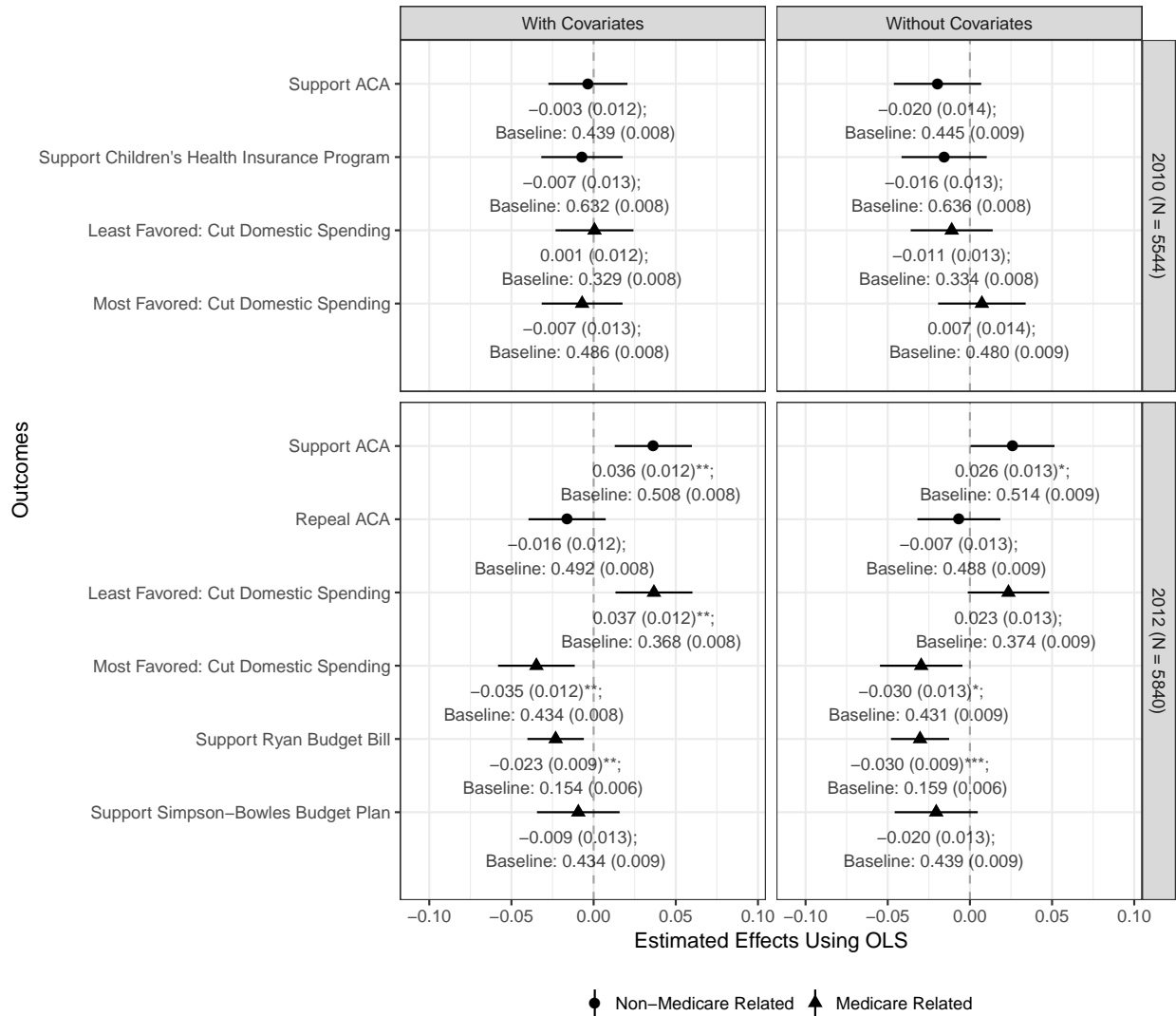
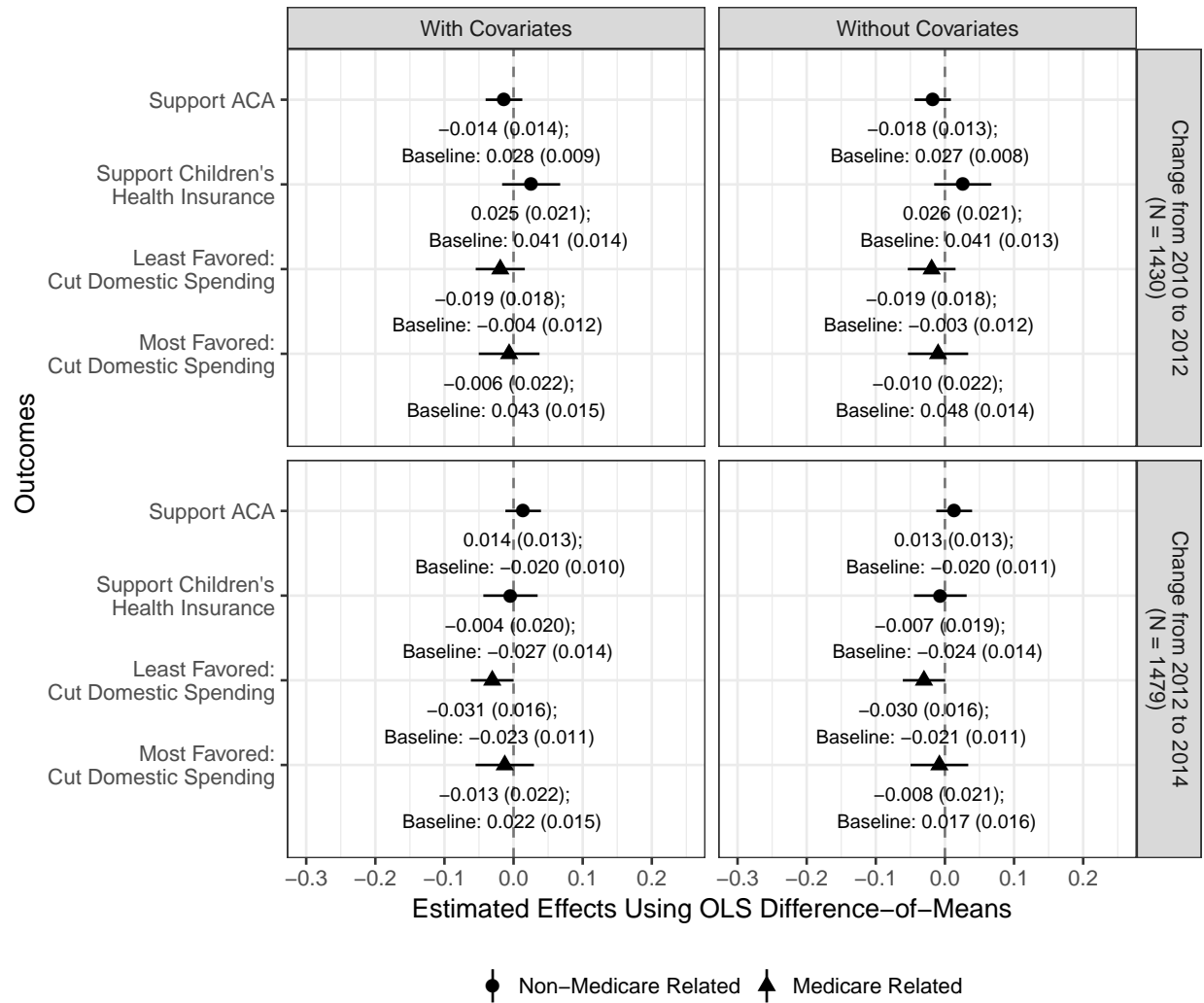


Figure A.8: OLS Estimates: Panel Study



A.3.2 Those Who Did Not Have a Job in the Past Five Years

Figure A.9: RDD IV Estimates 2012: Those Who Did Not Have a Job in the Past Five Years

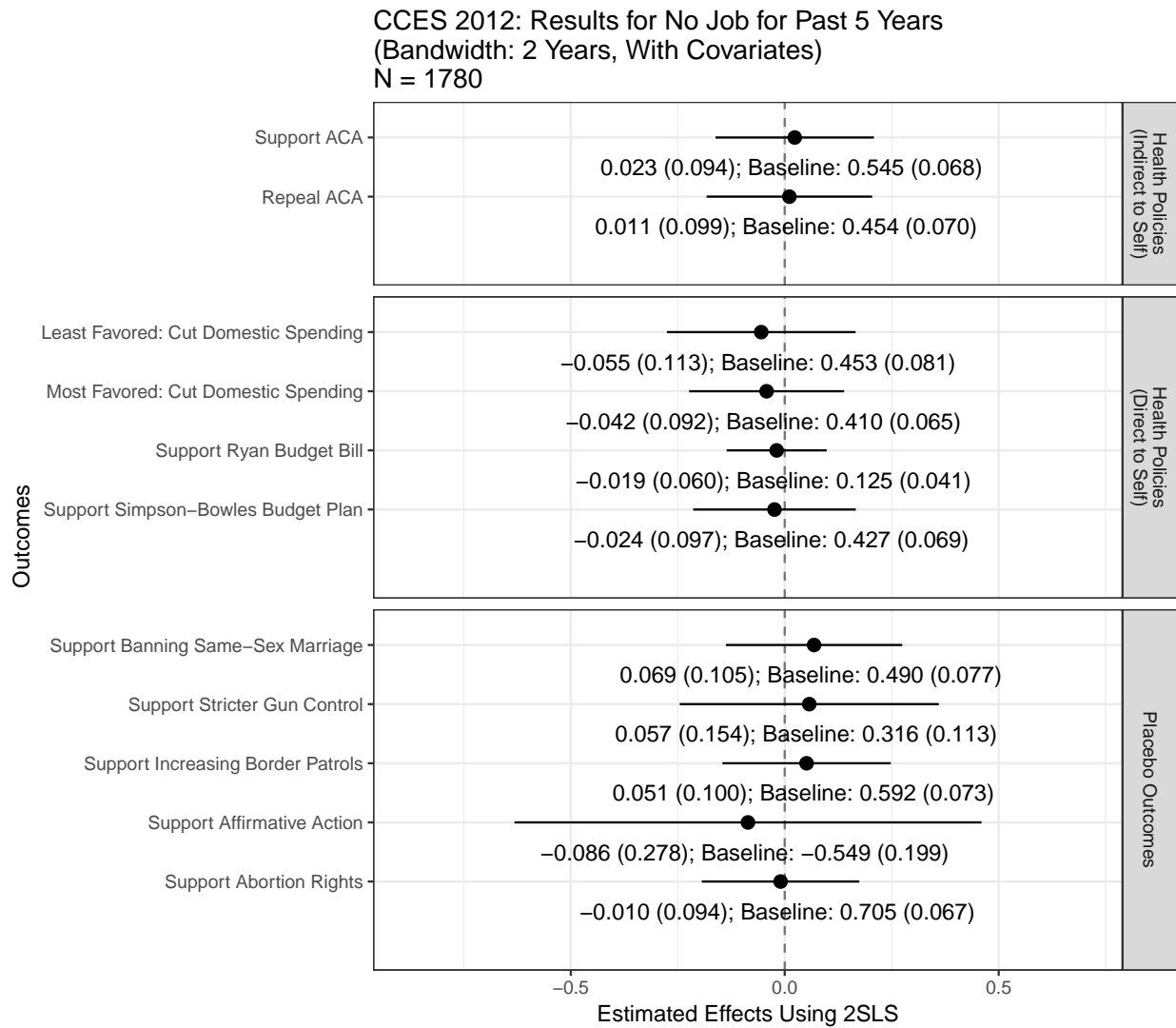
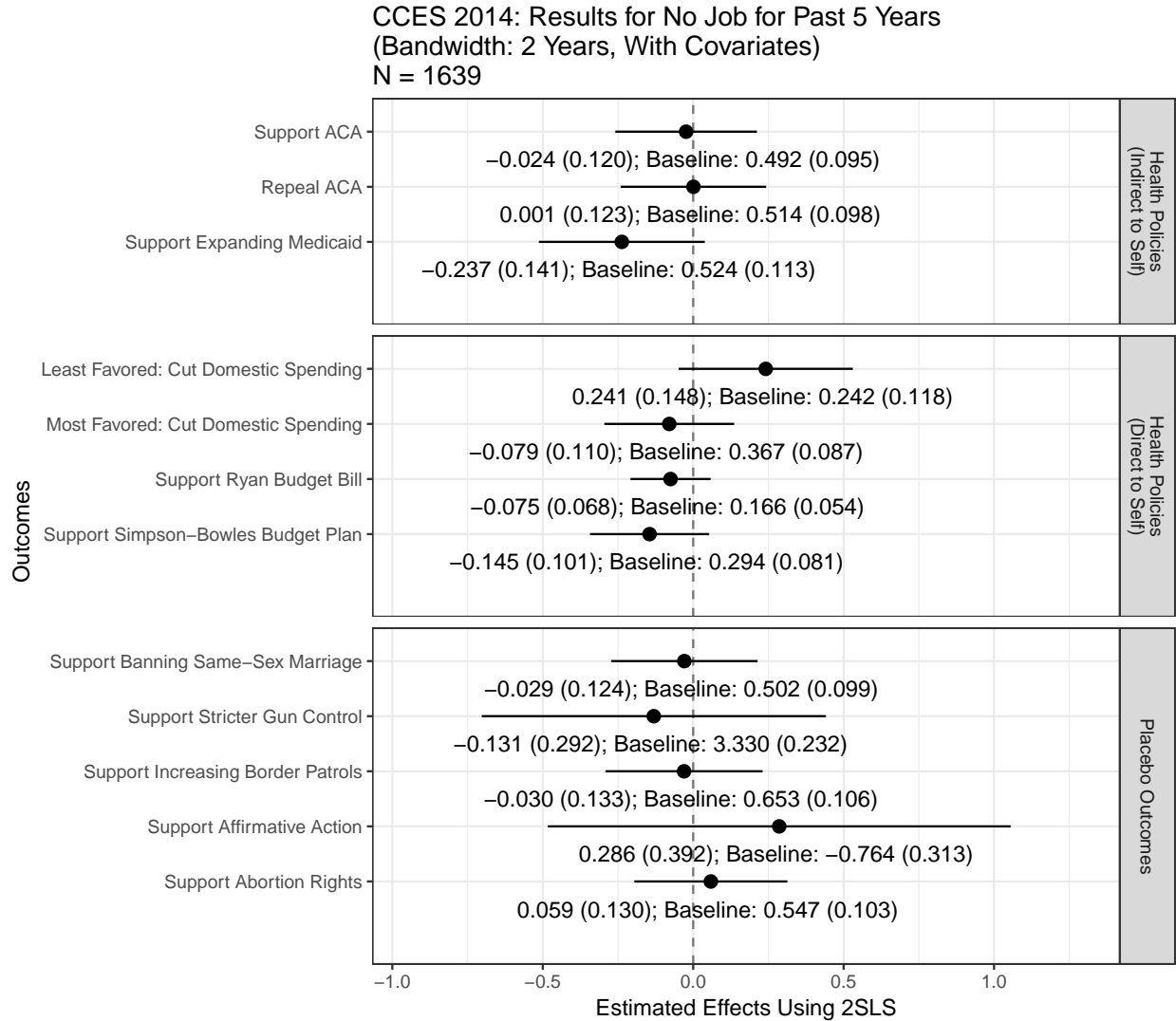


Figure A.10: RDD IV Estimates 2014: Those Who Did Not Have a Job in the Past Five Years



B Appendix: NSF Graduate Research Fellowship Study

Unless otherwise noted, heteroscedasticity-consistent standard errors are reported between the parentheses next to the effect estimates. The error bars represent 95% confidence intervals calculated from the robust standard errors. p -value stars on the effect estimates follow the convention of $* < 0.05$, $** < 0.01$, $*** < 0.001$.

B.1 Procedure for Matching Subjects' Donation Records

I followed this procedure to match subjects with their donation records:

1. Search if any donor matches the subject's first and last name.
2. For female subjects who changed their last name, search using both their maiden names and married names.

3. For subjects with nicknames or more commonly use their middle names, also search using their nicknames or middle names.
4. If there are no name matches, record the subject's donation as \$0.
5. If there is a name match, check if the donor's middle name matches the subject's middle name. In addition, check if the donor's employers and locations (i.e., city and state) matches the subject's current or past employers or locations. If all three match, record the matched donor's donation record. If the donor's middle name is not available, download if the her employers and location matches those of the subject.

B.2 Survey Text

The text of the survey appears below. Matto Mildenberger and I designed the survey as an omnibus survey for two separate projects. As a result, not all the questions from the survey are discussed in the paper.

NSF_apply: Have you ever applied to the National Science Foundation Graduate Fellowship Program?

- Yes
- No
- I don't remember

Those who replied "No" are taken to a page that states they are not eligible to take the survey.
edu: What degrees do you have? Please check all that apply.

- Bachelor's Degree
- Master's Degree
- PhD
- MD
- Law Degree
- Other advanced degree(s)

identity: Would you describe yourself as a scientist or social scientist?

- Yes, always
- Yes, sometimes
- No, never

If the subject answered "No, never" to the previous question, they are shown this message:

That's OK! In fact, we want to hear your opinions even more. We hope you'll continue taking our survey. Your opinion is particularly important to us.

fund: Within the last five years, have you received any funding for a research project?

- Yes
- No

Those who answered "Yes" to the previous question are shown this following question:

funder: Over the past five years, which sources did you receive research funding from? Select as many as apply.

- US federal government
- State government
- Foreign government
- Private foundations or non-profit organizations
- Industry
- Direct support from a university or college
- Scientific professional associations

group: Are you a member of the following scientific organizations? Select as many as apply.

- American Association for the Advancement of Science
- National Academy of Sciences
- National Academy of Engineering
- National Academy of Medicine
- Union of Concerned Scientists
- A scientific organization within my discipline
- Other [text box]

policy1 Which of these statements comes closer to your own view, even if neither is exactly right?

- Scientists should take an active role in public policy debates about issues related to science and technology.
- Scientists should focus on establishing sound scientific facts and stay out of public policy debates.

- I don't know

policy2: Which of these statements comes closer to your own view, even if neither is exactly right?

- Scientists should take an active role in public policy debates when they are topic experts on an issue.
- Scientists should focus on establishing sound scientific facts and stay out of public policy debates, even when they are topic experts on an issue.
- I don't know

fedfund: Do you think that government funding for scientific research should be increased, kept the same, or decreased?

- Increased
- Kept the same
- Decreased
- I don't know

nsf1: Do you think that government funding for the National Science Foundation should be increased, kept the same, or decreased?

- Increased
- Kept the same
- Decreased
- I don't know

nsf2: Do you think that government funding for the National Science Foundation Graduate Research Fellowship Program should be increased, kept the same, or decreased?

- Increased
- Kept the same
- Decreased
- I don't know

comm1: How often, if ever, do you talk with policymakers about research findings?

- Often
- Occasionally

- Rarely
- Never

comm2: How often, if ever, do you talk with reporters about new research findings?

- Often
- Occasionally
- Rarely
- Never

social1: How often, if ever, do you post about science on social media?

- Often
- Occasionally
- Rarely
- Never

social2: How often, if ever, do you post about political issues on social media?

- Often
- Occasionally
- Rarely
- Never

This is the first of two experiments embedded within the survey. Respondents are randomly assigned to read one of three paragraphs before answering the questions *march1* and *march2*.

Condition 1: The March for Science was a series of rallies and marches held in Washington, DC and over 300 cities across the world on April 22, 2017. The goal of the March was to promote science and to call on politicians and policymakers to enact policies based on scientific evidence.

Condition 2: The March for Science was a series of rallies and marches held in Washington, DC and over 300 cities across the world on April 22, 2017. The goal of the March was to promote science and to call on politicians and policymakers to enact policies based on scientific evidence. Many March participants wanted to resist the Trump Administration's attacks on science and protest federal science policy's general direction.

Condition 3: The March for Science was a series of rallies and marches held in Washington, DC and over 300 cities across the world on April 22, 2017. The goal of the March was to promote science and to call on politicians and policymakers to enact policies based on scientific evidence. Many March participants wanted to resist Republican party attacks on science and protest federal science policy's general direction.

march1: Did you support or oppose the March for Science?

- Strongly support
- Somewhat support
- Neither support nor oppose
- Somewhat oppose
- Strongly oppose
- I don't know

march2: Did you participate in the March for Science? Select as many as apply.

- I participated in the march in Washington, DC
- I participated in the march in another city
- I donated to the March for Science
- I did not participate in the March for Science

This is the second of two experiments embedded within the survey. Respondents are randomly assigned to read the following before answering the question *comfort*.

comfort: Imagine you have a colleague who studies climate change. Their specific expertise is on [economics/climate science]. In recent years, your colleague has become frustrated with the slow pace of climate change policy action in the United States. This colleague has begun to make public statements, speeches and testimony in support of the US taking more aggressive climate [economics/climate science].

comfort: How comfortable are you with the behavior of your colleague?

- Very comfortable
- Somewhat comfortable
- Neither comfortable or uncomfortable
- Somewhat uncomfortable
- Very uncomfortable

age: In what year were you born? [Drop-down menu]

race: What is your race or origin? Select as many as apply.

- White
- Hispanic, Latino or Spanish origin
- Black or African American
- Asian

- Native American
- Native Hawaiian or Other Pacific Islander
- Other

employ: What is your current employment status?

- Working full time now
- Working part time now
- Temporarily laid off
- Unemployed
- Student
- Homemaker
- Retired
- Permanently disabled
- Other

Those who selected “working full time now” or “working part time now” are asked the following question:

employer: Which of these best describes your current employer?

- University or college
- Business or industry
- Government
- Non-profit organization
- Other

field: What is your primary field or scientific discipline?

- Chemistry
- Computer and Information Sciences & Engineering
- Engineering
- Geoscience
- Life Science

- Materials Research
- Mathematical Science
- Physics & Astronomy
- Psychology
- Social Science
- STEM Education & Learning Research
- I no longer work in any scientific discipline

citizen: Which of these statements best describes you?

- I was born in the USA.
- I am an immigrant to the USA and a naturalized citizen.
- I am an immigrant to the USA but not a citizen.

Those who indicated that they are US citizens are asked the following question:

register: Which of these statements best describes you?

- I am absolutely certain that I am registered to vote in my precinct, election district, or by mail.
- I'm not sure if I am registered to vote.
- I am not registered to vote.

party: In politics today, do you consider yourself a Republican, Democrat, Independent, or something else?

- Republican
- Democrat
- Independent
- Something else

Those who answered “Independent” or “Something else” in the previous question are asked the following question:

party2: As of today, do you lean more to the Republican Party or more to the Democratic Party?

- Republican Party
- Democratic Party

- I do not lean to either party

ideo: In general, would you describe your political views as...

- Very conservative
- Conservative
- Moderate
- Liberal
- Very Liberal

amount: Thank you for completing this survey! You have been entered into a lottery to win one of three \$100 cash prizes. If you want, we can donate a portion of your prize to one of the following organizations should you win the prize. Please let us know below how much you would like to donate and which organization you would like to donate.

Optional Donation Amount:

org: Preferred Donation Organization:

- American Association for the Advancement of Science
- American Cancer Society
- Union of Concerned Scientists
- The Red Cross
- March for Science
- None

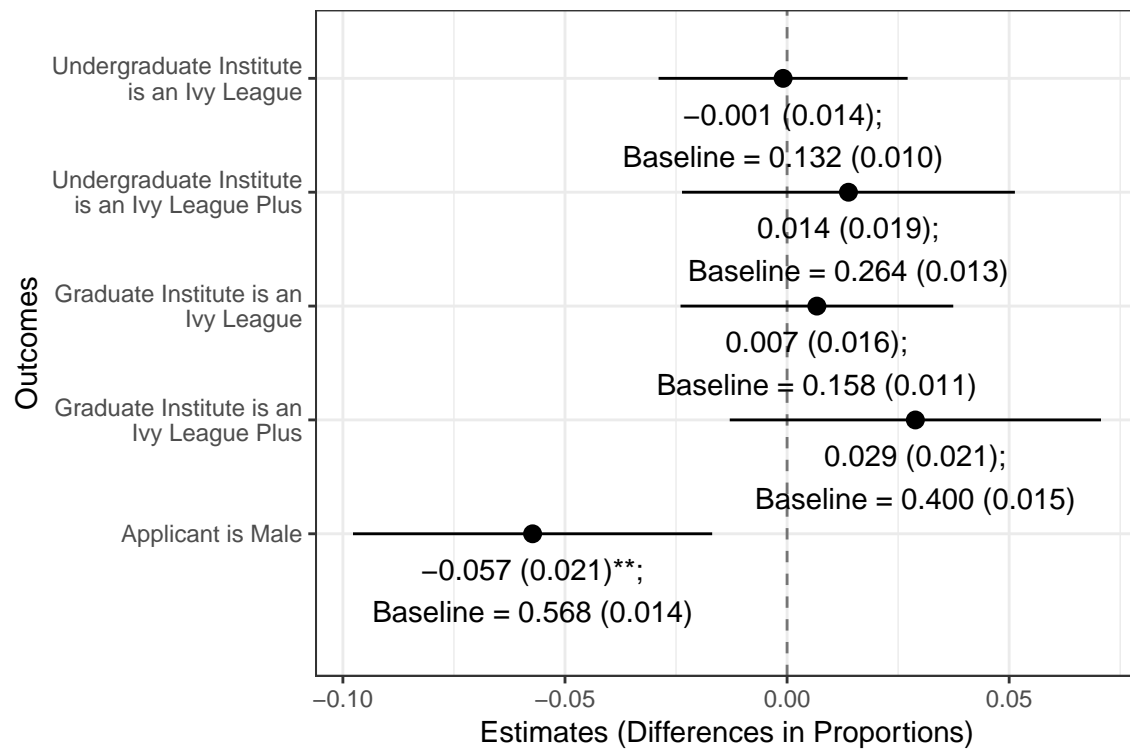
End of the Survey Text:

Thanks for your participation in this survey! Your responses will help us better understand the role of science in American society today. We will be in touch by email if you are selected to win one of the three \$100 cash prizes.

We welcome feedback from you. If you have suggestions or comments for us, please write in the textbox below.

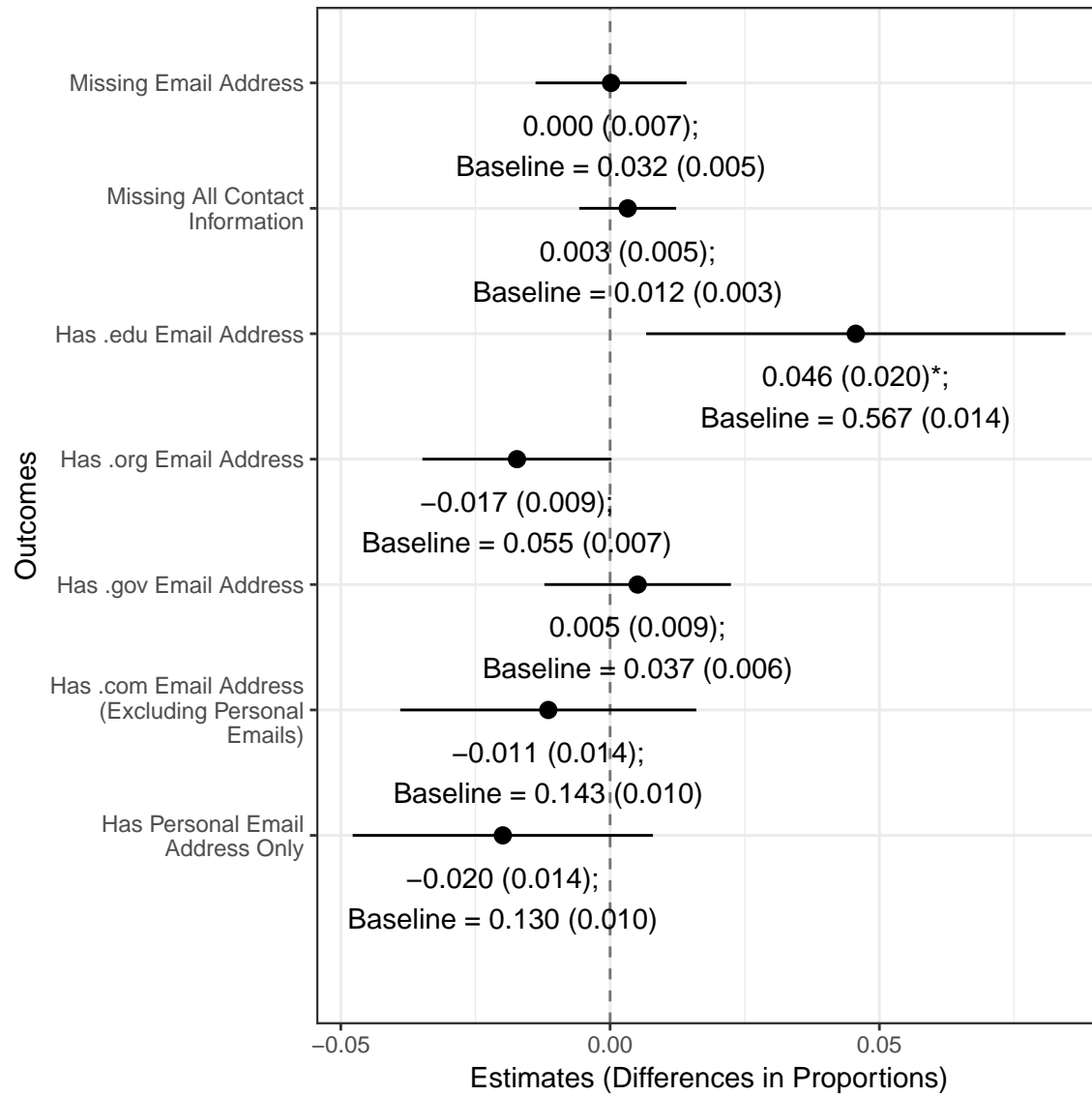
B.3 Additional Figures and Tables

Figure A.11: Full Sample: Comparing Differences in Background Characteristics Between Winners and Non-winners



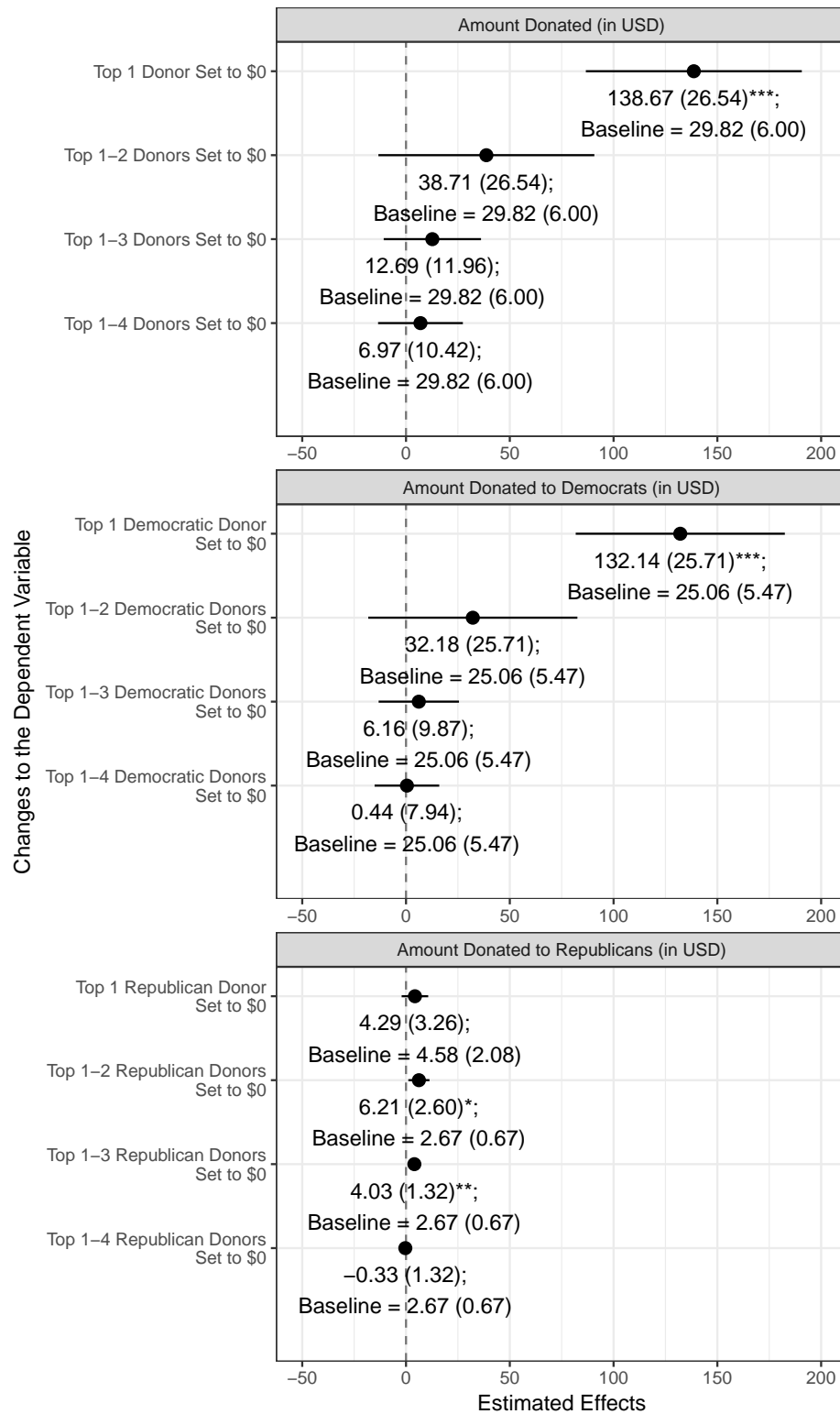
$N = 2119$

Figure A.12: Comparing Differences in Contact Information Between Winners and Non-winners



$N = 2119$

Figure A.13: Robustness Check: Effect of Being Awarded the NSF Graduate Research Fellowship on Political Donations



$N = 2119$

Table A.1: Summary Statistics of Respondents and Non-respondents

	Did Not Take Surve	Took Survey	Difference
Award Winner	0.480	0.511	-0.031 (0.026)
Undergraduate Institute Is an Ivy League	0.134	0.122	0.012 (0.017)
Undergraduate Institute Is an Ivy League Plus	0.271	0.269	0.002 (0.023)
Graduate Institute Is an Ivy League	0.161	0.180	-0.019 (0.019)
Graduate Institute Is an Ivy League Plus	0.419	0.421	-0.002 (0.025)
Applicant is Male	0.560	0.481	0.080 (0.026)**
Year Applied	2007.309	2008.731	-1.422 (0.306)***
Field: Chemistry	0.066	0.058	0.008 (0.012)
Field: Computer Science	0.042	0.034	0.008 (0.010)
Field: Engineering	0.183	0.156	0.026 (0.019)
Field: Geosciences	0.023	0.016	0.007 (0.007)
Field: Life Sciences	0.378	0.387	-0.008 (0.025)
Field: Material Sciences	0.001	0.002	-0.001 (0.002)
Field: Math	0.026	0.042	-0.016 (0.010)
Field: Physics and Astronomy	0.064	0.056	0.008 (0.012)
Field: Psychology	0.122	0.132	-0.010 (0.017)
Field: Social Sciences	0.094	0.116	-0.022 (0.016)

Table A.2: Predicting Survey Response Using Applicants' Characteristics

	Estimates	<i>p</i> -value
Award Winner	0.016 (0.018)	0.392
Undergraduate Institute Is an Ivy League	-0.025 (0.036)	0.482
Undergraduate Institute Is an Ivy League Plus	0.013 (0.028)	0.640
Graduate Institute Is an Ivy League	0.027 (0.029)	0.361
Graduate Institute Is an Ivy League Plus	-0.006 (0.022)	0.779
Applicant is Male	-0.045 (0.020)	0.020
Year Applied	0.006 (0.001)	<0.001
Field: Computer Science	0.003 (0.057)	0.953
Field: Engineering	0.011 (0.041)	0.781
Field: Geosciences	-0.051 (0.065)	0.433
Field: Life Sciences	0.023 (0.039)	0.545
Field: Material Sciences	0.260 (0.370)	0.482
Field: Math	0.136 (0.068)	0.047
Field: Physics and Astronomy	0.016 (0.050)	0.755
Field: Psychology	0.030 (0.045)	0.497
Field: Social Sciences	0.070 (0.047)	0.136
Intercept	-12.496 (3.008)	<0.001
<i>N</i> = 2119		
<i>F</i> -statistic	<i>F</i> (16, 2102) = 2.475	<i>p</i> -value = 0.001

Table A.3: Summary Statistics of the Survey Sample

	No Award	Award	Difference
Undergraduate Institute Is an Ivy League	0.127	0.127	<-0.001 (0.033)
Undergraduate Institute Is an Ivy League Plus	0.245	0.240	-0.005 (0.043)
Graduate Institute Is an Ivy League	0.181	0.181	<0.001 (0.038)
Graduate Institute Is an Ivy League Plus	0.402	0.407	0.005 (0.049)
Applicant is Male	0.505	0.417	-0.088 (0.049)
Under-represented Minority	0.064	0.074	0.010 (0.025)
Asian	0.103	0.108	0.005 (0.030)
Born in the US	0.900	0.895	-0.005 (0.030)
<i>N</i> = 408			

Table A.4: Predicting Award Using Survey Sample's Respondent Characteristics

	Estimates	<i>p</i> -value
Undergraduate Institute Is an Ivy League	0.033 (0.103)	0.746
Undergraduate Institute Is an Ivy League Plus	-0.023 (0.081)	0.772
Graduate Institute Is an Ivy League	-0.006 (0.080)	0.943
Graduate Institute Is an Ivy League Plus	0.017 (0.064)	0.784
Applicant is Male	-0.091 (0.051)	0.074
Under-represented Minority	0.028 (0.099)	0.775
Asian	0.004 (0.087)	0.962
Born in the US	-0.002 (0.089)	0.985
Intercept	0.537 (0.093)	<0.001
<hr/>		
<i>N</i> = 408		
<i>F</i> -statistic	<i>F</i> (8, 399) = 0.434	<i>p</i> -value = 0.901