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The Pathways of Policy Feedback: How Health Reform Influences Political Efficacy and Participation

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How do policy feedback effects occur? A growing number of rigorous empirical studies provide evidence that new policies can, indeed, stimulate new politics, such as increased political participation among citizens, but greater understanding is needed of the underlying mechanisms and long-term policy feedback effects. This paper puts forth a dynamic theory of the mechanisms through which policy experiences may influence political participation, focusing particularly on political efficacy. We use five waves of panel data collected over 8 years to investigate the impact of the Affordable Care Act (ACA), controlling for pre-existing ideology and socio-economic and demographic factors. We analyze the impact of resource and interpretive effects and disentangle direct and indirect effects. We find that the ACA has elevated Americans' political efficacy and political participation with large and enduring effects, and we show the pathways through which this has occurred.

KEY WORDS: ACA, policy feedback, efficacy, political participation

政策反馈效果是如何发生的？越来越多的严谨实证研究表明，新政策的确能刺激新政治，例如公民政治参与的提升。　然而关于潜在机制和长期政策反馈效果的研究依旧欠缺。本文对政策反馈机制提出一项动态理论。通过聚焦于政治效能　我们用这一动态理论阐释政策经历如何能通过该机制影响政治参与。我们使用了8年时间内收集的五轮面板数据，调查了《平价医疗法案》（*ACA*）的影响。将先前存在的意识形态及社会经济因素和人口因素加以控制之后，我们分析了资源的影响、诠释性效果，并区分了直接效果和间接效果。我们发现，*ACA*对于提升美国选民的政治效能和政治参与由着显著和持续的影响，我们还表明了该效果出现的不同路径。

关键词: 《平价医疗法案》(ACA), 政策反馈, 政治效能, 政治参与

¿Cómo se producen los efectos de retroalimentación de las políticas? Un número creciente de estudios empíricos rigurosos proporciona evidencia de que las nuevas políticas pueden estimular nuevas políticas, como una mayor participación política entre los ciudadanos, pero se necesita una mayor comprensión de los mecanismos subyacentes y los efectos de retroalimentación de las políticas a largo plazo. Este artículo presenta una teoría dinámica de los mecanismos a través de los cuales las experiencias políticas pueden influir en la participación política, con especial atención a la eficacia política. Utilizamos cinco oleadas de datos de panel recopilados durante ocho años para investigar el impacto de la Ley del Cuidado de Salud a Bajo Precio (ACA), controlando la ideología preexistente y los factores

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socioeconómicos y demográficos. Analizamos el impacto de los recursos y los efectos interpretativos y separamos los efectos directos e indirectos. Descubrimos que la ACA ha elevado la eficacia y la participación política de los estadounidenses con efectos importantes y duraderos, y mostramos las vías por las que esto ha ocurrido.

PALABRAS CLAVE: ACA, comentarios sobre políticas, eficacia, participación política

Introduction

A growing number of rigorous empirical studies offer evidence for E.E. Schattschneider's claim (1935) that "new policies create a new politics," demonstrating, for example, that benefit expansion may be followed by elevated political participation. There is a need, however, for continued progress in understanding the underlying mechanisms through which such feedback effects operate. Earlier studies advanced theories of policy feedback about the existence of mechanisms but lacked the over-time data necessary to probe them rigorously (Campbell, 2003; Mettler, 2005, 2011; Soss, 1999). Recent studies in health care (Campbell, 2020; Header, 2020; Larsen, 2019) and other social policy areas (e.g., Waston, 2014; Weaver & Lerman, 2010) have made advances in specifying whether or not policy changes actually influence participation rates, some of which are advantaged by experimental and quasi-experimental data and methods (e.g., Baicker & Finkelstein, 2019; Clinton & Sances, 2018; Haselswerdt, 2017; Haselswerdt & Michener, 2019; Michener, 2018). Our study builds on this broad body of prior work by increasing attention to the underlying pathways through which policies influence participation and in identifying longer-term effects.

Building on valuable prior scholarship, we develop and test a dynamic theory of *how* policy feedback effects onDATA AND METHODS political participation occur. We explore potential pathways, including resource effects and interpretive effects, and we disentangle direct and indirect effects. In particular, we focus on whether policies foster a key interpretive effect: citizens' sense of political efficacy, either their belief that government is responsive to them (external efficacy) or their own political capacity (internal efficacy). We then examine whether efficacy, in turn, promotes political participation.

Policy feedback theory focuses on a change in individual political participation over time, but few studies have been able to follow individuals before, during, and after policy experiences (for an exception, see Baicker & Finkelstein, 2019). Recent studies use sophisticated methodological approaches, but data limitations restrict their analysis to short-term immediate effects (Clinton & Sances, 2018; Haselswerdt, 2017), and sometimes only in a single state (e.g., Baicker & Finkelstein, 2019; Haselswerdt & Michener, 2019; Michener, 2018). As a result, empirical investigation of how feedback effects occur and whether they endure over the long term still lags behind theory development. Our five-wave national panel study of the Affordable Care Act (ACA) from its enactment in 2010 through 2018 tracks the

policy experiences of the same set of individuals, along with subsequent changes in their political efficacy and political behavior. This permits us to focus on individual experiences with and reactions to the most sweeping law affecting Americans' social welfare that has been adopted in the United States since Medicare and Medicaid in 1965 (Jacobs & Skocpol, 2015) , and a rich source for the study of policy feedback effects (e.g., Lerman & McCabe, 2017; Lerman, Sadin, & Trachtman, 2017).

We find that the ACA is generating positive effects on Americans' political participation, both directly, through resource effects, and indirectly, through enhanced political efficacy. Our results indicate that policy feedback effects can be large and more enduring in the long-term than the immediate short-term effects reported in many previous studies, suggesting the need to study how policy shapes political behavior in a dynamic manner. This research also adds to the burgeoning literature that joins policy studies and political behavior, demonstrating the feedback approach as a fruitful framework for understanding sources of political efficacy and democratic citizenship (Mettler & Soss, 2004).

Policy Feedback, Political Efficacy, and Participation

New advances in policy feedback research have not yet been matched by comparable scrutiny of the mechanisms that account for *how* policy feedback happens. Figure 1 maps potential pathways between policy experiences and political participation, tracing how they could occur through the intervening mechanisms of interpretive and resource effects.

The Mechanisms of Resource and Interpretive Effects

Earlier research on policy feedback reports evidence that policies increase beneficiaries' resources and incentives to defend and expand programs, and that in turn "locks" them in. For instance, Andrea Campbell shows that Social Security increases the money and time of older Americans by enabling them to retire, and thus it elevates their political involvement (Campbell, 2003). In addition, Social Security benefits heighten seniors' incentive to participate, as Campbell observes: "Seniors' increasing stake in government activity drives their participation rates up as they have more interest in and want more say about the policies that affect their lives so fundamentally" (2003, p. 36). Federal student financial policies, by extending access

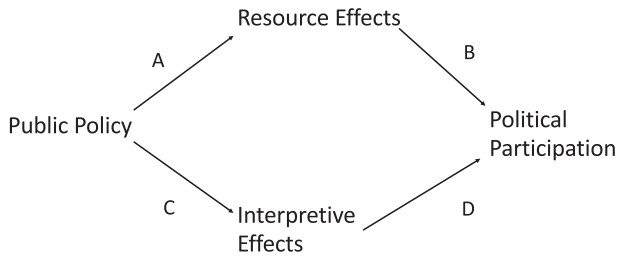

Figure 1. Policy Feedback and Political Participation.

to higher education, also fuel political participation (Rose, 2018). Such resource effects are depicted by path AB in Figure 1.

Another body of research finds that policies may influence participation through interpretive effects or "political learning," which result from how citizens experience and respond to administrative routines associated with policy implementation, benefit delivery, or the dissemination of information about them (Pierson, 1993; Schneider & Ingram, 1993). This research points to a pathway in Figure 1 that begins with policy and leads to interpretive effects and then to an impact on political participation; this is represented by the CD path.

Interpretive effects may take two different forms. The first type involves the responses of individuals to new programs that directly affect them personally. Joe Soss (1999) contrasts the negative messages program administrators conveyed to recipients of Aid to Families with Dependent Children (AFDC), versus the positive messages received by Social Security Disability Insurance (SSDI) recipients. He reasons that beneficiaries extrapolated from these policy experiences to derive messages about government generally, which in turn influenced whether they considered political participation worthwhile. The G.I. Bill's education and training benefits boosted political participation, in part through the interpretive effects of being included in a well-administered program that treated recipients with dignity and respect, as honored beneficiaries (Mettler, 2005). Waston (2014) contributes new evidence that work-based welfare has a decisive effect on political participation by reducing means-tested recipients' internal and external efficacy in many advanced welfare states.

The second type of interpretive effects occurs when citizens generally, whether policy beneficiaries or non-beneficiaries, respond to public policies and their perceived effects for the broader political community, such as "the United States as a whole." Research indicates that individuals may focus on the circumstances of the broader public (Ananat & Washington, 2009; Mutz & Young, 2011; Page, 1996) and may, in particular, consider the national or collective implications of recent and past health care reform (Jacobs & Mettler, 2018, 2020; West, 2016). Mass communications, interpersonal relationships, and government mailings convey information to Americans about Social Security that heightens their appreciation for the program's broader impact on the United States as a whole and on recipients generally (Cook & Jacobs, 2010).

Expectations about the mechanisms of policy feedback have not yet been subjected to rigorous, over-time analysis that would permit us to disentangle resource and interpretive effects. Neither do we know how such effects are transmitted, such as whether they operate only in a direct manner or possibly also in indirect ways. Nor do we know how they may evolve over time, as policy experiences develop.

The Concept of Political Efficacy: Assessing the Health of Democracy

The concept of political efficacy is "the feeling that individual political action does have, or can have, an impact upon the political process" and is "worthwhile"

(Campbell, Gurin, & Miller, 1954). Scholars distinguish two distinct forms of political efficacy: an *internal* dimension of "beliefs about one's own competence to understand and to participate effectively in politics," and an *external* dimension defined as "beliefs about the responsiveness of governmental authorities and institutions to citizen demands" (Craig, Niemi, & Silver, 1990, p. 290). Research demonstrates that individuals with a stronger sense of efficacy participate more, whereas low efficacy is associated with civic disengagement (Pollock, 1983; Zimmerman, 1989).

We draw on research on political efficacy (Feldman & Sol Hart, 2016; Fiorina et al., 2008; Kahne & Westheimer, 2006; Karp & Banducci, 2008; Margni, 2017; Scotto and Xena, 2015) to operationalize the policy feedback concept of "interpretive effects" and examine its connections to policy and political participation that are outlined in Figure 1. Although scholars of political behavior have tended to neglect the influence of public policies on efficacy, a few policy feedback scholars have detected such effects. Soss (1999) shows that program beneficiaries who encountered an unresponsive program exhibited a diminished sense of external political efficacy, which in turn reduced their political participation. Punitive policies may also depress political efficacy. For instance, Amy Lerman and Vesla Weaver observe that individuals who have had more interactions with the criminal justice system experience lower political efficacy, in both its internal and external forms (2014, p. 136, 151). In contrast, education programs are associated with higher internal efficacy (Buckley & Schneider, 2007, p. 231; Fleming, 2014; Lavery, 2017).

To investigate the influence of policy on efficacy, we need to control for political ideology and other potentially confounding demographic influences on political participation. Is policy feedback offset or blocked by either personal identities and characteristics, or today's intense ideological attitudes? Prior studies demonstrate that factors such as education and gender are potent influences on individuals' civic engagement, and research on voting and American politics finds that ideology contributes to the sorting of individuals into rival "teams" (Abramowitz, 2010; Burns, Schlozman, & Verba, 2001; Verba, Schlozman, & Brady, 1995). It is reasonable to expect that the implementation of expanded health coverage for working-age Americans, a goal long awaited by liberals, would enhance their sense of government responsiveness and, conversely, diminish that of conservatives.

Theoretical Expectations

We use the implementation of the ACA since 2010 to explore the theoretical expectations presented in Figure 1 about how policy influences political participation through resource and interpretive effects. Various pathways may be apparent:

1. *Positive resource effects of policy on participation*. Policies that increase the resources and incentives of beneficiaries will, in turn, lead to higher participation. This is depicted by path AB in Figure 1.
2. *Positive interpretive effects of policy on participation*. Political participation will increase when policy experiences generate positive interpretive effects through the course of policy implementation. This is shown by path CD in Figure 1.

3. *Negative resource or interpretive effects*. Conversely, harmful policy experiences—such as the loss of insurance—may trigger negative resource and interpretive effects and depress political participation.
4. *Indirect effects through political efficacy*. Policy experiences may influence political efficacy, a key interpretive effect, and this may in turn affect political participation. This would amount to an indirect effect on participation, whereas the other effects noted above would be direct effects.

DATA AND METHODS

Panel Design

Our empirical analysis draws on an original panel data study of the ACA's impact on individuals' efficacy and political participation across five waves from the law's passage in 2010 through the 2018 elections. Several earlier empirical studies of policy effects relied primarily on cross-sectional data that constrained their ability to determine whether observed attitudes and behavior actually result from the policy intervention or instead emanate from pre-existing characteristics that are not known or cannot be controlled for in statistical analysis (e.g., Campbell, 2003; Mettler, 2005; Soss, 1999). More recently, scholars have used experimental (Baicker & Finkelstein, 2019) or quasi-experimental designs (Clinton & Sances, 2018; Haselswerdt, 2017; Haselswerdt & Micheter, 2019; Lerman, 2019): they typically study a state or compare similar states or counties—some of which feature newly enacted or expanded policies and others that do not—and considered whether those areas differ in subsequent rates of voting or other measures of participation. While such approaches excel in their capacity to make causal inferences about the occurrence of policy feedback, their data are less well-positioned to investigate underlying mechanisms, in some instances because they lack individual-level data. Only a few feedback studies to date have utilized panel data to track feedback effects over time at the individual level (e.g., Baiker & Finkelstein, 2019; Bruch, Ferree, & Soss, 2010; Hopkins & Parish, 2019; Morgan & Campbell, 2011, chap. 7; Weaver & Lerman, 2010).

Our panel approach collected in-depth data from the same group of individuals soon after the passage of the ACA in 2010 and continued through the implementation of key provisions in 2012, 2014, 2016, and 2018. The first wave in fall 2010 surveyed 1,200 adults; this included 1,000 in a national random sample plus an oversample of 200 individuals who were between the ages of 18 and 64 and living in low-income households with incomes under $35,000. New panelists, a total of 276, were added as oversamples in subsequent waves to boost the overall sample size. We returned to these same 1,200 individuals with the same questionnaire during the subsequent waves: in 2012, after the *National Federation of Independent Business v. Sebelius* Supreme Court decision; in 2014, one year after the health insurance exchanges began and 9 months following the start of the Medicaid expansions; in 2016, leading up to the presidential election between Donald Trump and Hillary Clinton; and in 2018, after President Trump and congressional Republicans pursued repeal and other steps to undermine the ACA. In each case, the interviews

were conducted during the election season in September and October, when health reform received heightened attention. The 2010 survey used landlines only; the subsequent four waves used both mobile phone numbers and landlines.

The first wave in 2010 produced 1,197 completed interviews, and 781 of them were retained in the subsequent wave of 2012. The initial attrition rate from Wave 1 to Wave 2 is 35 percent, which is comparable to the ANES 2008–9 panel study. We retained respondents over time through regular communications and incentives,[1.] which also help us to maintain a relatively stable number of completed interviews across the subsequent waves. The number of total completed interviews for Waves 2–5 are 1,057, 1,077, 1,063, and 949, respectively.

For the most recent Wave 5 in 2018, among the 949 completed interviews, 694 were retained from Wave 1 in 2010, and 255 were from the supplementary samples from waves 2, 3, and 4. Forty-four percent of the original 2010 survey (524 individuals) responded to all five waves, and 58 percent (691 individuals) participated in both 2010 and 2018. In addition, the number of in-sample observations included in our analysis for this paper is 2,875, pooling participants across the five survey waves, each of whom participated in at least two waves.[2.]

In sum, our panel data allow us to: (i) examine whether changes in political behavior and efficacy result from new experiences with specific ACA benefits, while controlling for respondents' ideology and demographic characteristics; (ii) identify policy feedback mechanisms and pathways of policy effects on political participation.

Measures and Variables

We developed dependent and independent variables to investigate whether the pathways in Figure 1 explain the ACA's impact on political participation as it was implemented from 2010 to 2018.

What We Are Explaining: Political Participation. We examined two familiar measures of political participation. The first uses a 5-point scale to gauge the *intent to vote*: "How likely is it that you will vote in the upcoming November election?" Respondents were offered five responses: definitely will vote, probably will, probably won't, definitely won't vote, or already voted.[3.] The second is an indicator of general *political activism* beyond voting: "Some people tell us that they take part in other political activities besides voting. For example, people may volunteer to work on the campaign of a candidate for public office; they may contact elected officials about issues that concern them; or they may contribute money to a political organization or candidate, or they may do other things to express their political views. Thinking back over the past two years since January 2017, how would you rate your level of political activity aside from voting: not at all active, slightly active, somewhat active, very active, or extremely active?"

Interpretive Effects. We use two types of measures of interpretive effects. The first, political efficacy, we regard as an intervening variable, and it includes several indicators. Our survey included both traditional measures of political efficacy (Morrell 2003, 2005) as well as new ones we created to focus explicitly on health care-

related attitudes. Respondents were asked their level of agreement, indicated on a seven-point scale, with each of the following seven statements: (1) "Public officials don't care much what people like me think"; (2) "Public officials care about making health care more affordable"; (3) "People like me do not have any say about what the government does"; (4) "People like me have no say if an insurance company refuses to grant us coverage"; (5) "I feel that I have a pretty good understanding of the important political issues facing this country"; (6) "I think I have fairly good understanding of what I need to know about my health care coverage"; and (7) "I consider myself well qualified to participate in politics."

We use principal component analysis (PCA), a data reduction technique, to create three index variables, in which positive values refer to high efficacy and negative values refer to low efficacy.[4.]

- *Political Efficacy* is a standardized factor index of all seven-survey items, ranging from −3.13 to 2.41, with a mean of zero and standard deviation of 1. The measurement score of 0 pinpoints the average level of efficacy. Positive measurement scores refer to higher efficacy, while values below zero refer to lower efficacy.
- *External Efficacy* is a standardized factor index based on the first four survey items used in the overall efficacy index (Questions 1 through 4 listed above), and the observed range for this variable is −1.52 to 2.55.
- *Internal Efficacy* is a standardized factor index based on items the remaining three items using in the overall efficacy index (Questions 5 through 7 listed above), and the observed range for this variable is −3.32 to 0.99.

The second measure of interpretive effects relates to the political learning fostered by policy and, in particular, the recognition of the ACA's impact on the country. While policy feedback research has typically concentrated on the responses of individuals to new programs that directly affect them, research indicates that interpersonal relationships and mass communications transmit information and awareness about the impact of policy beyond those who are direct beneficiaries (Jacobs & Mettler, 2018; Mutz & Young, 2011; Page, 1996). We constructed a 1-to-7 ordinal scale to capture how individuals view ACA's impact on the United States as a whole. Respondents who reported "1" are those who think that the ACA has made things much worse for the United States as a whole, while those reporting a "7" think that the ACA has made things "much better." In 2010, we observe that about one-third of the respondents thought the ACA made the United States as a whole better off, and this percentage increased to 41 percent in 2018. The percent of respondents who thought the ACA did not make any difference dropped from 24 percent in 2010 to 10.75 percent in 2018. The percentage of respondents who thought the ACA made the United States worse off remained steady, with 38.1 percent in 2010 and 42 percent in 2018.

Resource Effects. We have four measures of resource effects, each of which tracks the tangible policy experiences of respondents. The first two indicate whether a respondent's health insurance status changed, whether by gaining insurance or losing it. Respondents were asked to report their insurance status, which we used to track whether they gained insurance, lost it, or experienced no change between two

survey waves. Using "no change" response as the reference category, we created two dichotomous variables—"gained insurance" and "lost insurance." This allows us to study positive resource effects (uninsured individuals when surveyed previously gaining insurance in the subsequent two years) as well as the reverse negative experiences. The percent of respondents who reported gaining or losing insurance coverage is quite small across the four survey waves from 2012 to 2018. Compared to the baseline wave in 2010, 24 respondents (3.77 percent of the total number of 636 in-sample cases) reported gaining insurance and 25 (3.93 percent) reported losing insurance coverage. In 2014, the percent of respondents who gained insurance was about 5.92 percent, and only about 2 percent of the respondents reported losing insurance coverage. In 2018, about 2 percent of the respondents reported gaining insurance and the rate of losing insurance was about 2.5 percent.

We also tracked resource effects through the reports of respondents about the usage of specific features of the ACA by themselves and their family within the past two years. We asked respondents about the impact of two specific new benefits included in the ACA on respondents themselves and their families: "help for seniors to pay for prescription drugs" and "tax credits and other subsidies to help people pay for health insurance." In each case, the question inquired about the extent of impact of the benefit, on a five-point scale ranging from "none" to "a great deal."[5.] Based on Wave 5 in 2018 (total $n = 949$), about 13 percent of the respondents reported that the ACA subsidies had a great deal or quite a bit of impact on themselves and families, 12.75 percent of the respondents reported some positive impact of the ACA subsidies. About 6 percent of the respondents rated the ACA subsidies with a little impact, and the remaining two-thirds of the respondents reported no impact of the ACA subsidies. As for the question measuring ACA's impact on helping for seniors to pay for prescription drugs, in 2018, 55.6 percent of the respondents reported no impact, 34 percent of the respondents rated the ACA with some, quite a bit, or a great deal of positive impact, and the remaining 9 percent reported a little impact of the ACA.

Control Variables. We include a standard battery of demographic and political measures that may offset or overtake policy effects. We control for respondents' gender (coded as "1" for female and "0" for male), race and ethnicity (non-white), respondents' ages, education,[6.] and income (under $35,000). To examine the potentially confounding effect of ideology, we measured it along a 7-point scale from 1 for "extremely conservative;" 4 for "moderate or middle of the road;" and 7 for "extremely liberal."

Lagged Dependent Variable. In all panel models, we include the value of the dependent variable for the most recent prior data point that was available. This allowed us to control for the inertial elements of political efficacy and participation as well as to capture long-run policy feedback effects. A greater coefficient of the lagged DV indicates that political efficacy and political participation are exerting more path-dependent effects.

Methods. We analyzed the pathways from the ACA's policy experiences to political participation using multiple methods, including dynamic panel regression models

with Autoregressive Distributed Lag (ADL) of the dependent variable, fixed effects model, causal mediation analysis (Imai, Keele, & Tingley, 2010), and the difference-in-difference approach. We include models based on the ADL approach in the manuscript, because it estimates both the short-term and long-term policy effects. The Supporting Information document reports on alternative analyses, which produce consistent statistical results and similar substantive findings.

ADL is commonly used to analyze dynamic panel data (Anderson & Hsiao, 1982; Ann & Schmidt, 1995; Zhu, 2013), especially when the dependent variable is path-dependent (Arellano & Carrasco, 2003; Greene, 2003; Honoré & Kyriazidou, 2000). This specification allows us to determine whether policy variables are responsible for changes in political efficacy and political behavior since 2010. Furthermore, this specification allows us to capture how the long-run feedback effects, if any, are distributed across the eight-year period of the panel study.

Our panel includes individuals from varying socioeconomic backgrounds and diverse political perspectives. These factors might become sources of heteroskedasticity. To account for potential heterogeneity, we specify robust standard errors for each empirical model.

FINDINGS

Our panel study suggests that the ACA's policies are associated with significant political participation. Seventy-one percent of Americans who gained coverage by 2018 reported that they had already voted or said they would "definitely" cast a ballot compared to 64 percent of those who lost coverage. Why are Americans benefiting from the ACA particularly involved politically? Has this dynamic changed between the ACA's enactment in 2010 and 2018? We investigate these questions, examining the paths identified in Figure 1.

The Effects of Health Reform on Political Efficacy

One of the most fundamental questions in contemporary liberal democracies is whether citizens believe that they are full, meaningful, and influential participants in the political process. Our analysis reveals strong evidence that the ACA's implementation since 2010 is producing significant and continuing changes in political efficacy despite potentially potent confounding factors—particularly, political ideology and the locking in of prior attitudes and beliefs.[7.]

Table 1 indicates that the ACA, through two pathways, is leading individuals to see themselves increasingly as being efficacious, an interpretive effect. Consistent with path C in Figure 1, Model 1 in Table 1 indicates that overall political efficacy increases as a result of a salient and life-changing positive policy experience—the effect of gaining insurance coverage ($b = 0.205$, $p < 0.01$).[8.] Gaining insurance particularly boosts the confidence of Americans in their own political capacity, or internal political efficacy (Model 3, $b = 0.218$, $p < 0.01$). This statistically significant coefficient in Model 3 indicates a large substantive impact. The median internal efficacy score

is 0.166 based on our baseline wave in 2010. An increase in internal efficacy by 0.218 means a substantial boost (more than doubled) compared with the median 2010 baseline. Even for the most efficacious respondents, this is a substantial increase. For example, the 75th percentile of internal efficacy in 2010 is 0.785. Taking this as the baseline, a positive coefficient of 0.219 means an increase in their internal efficacy by 27.8 percent.

Table 1. The Effects of Health Reform on Political Efficacy, 2010–8 (Panel Regression Models with Lagged Dependent Variable)

Independent Variables	Political Efficacy[a] (1)	External Efficacy[b] (2)	Internal Efficacy[c] (3)
ACA subsidies help self/family	0.002	0.089	0.0005
	(0.013)	(0.015)	(0.012)
ACA drug coverage help self/family	0.014	0.007	0.009
	(0.011)	(0.012)	(0.010)
Gained insurance	0.205***	0.054	0.218***
	(0.079)	(0.087)	(0.068)
Lost insurance	−0.180*	−0.178*	−0.084
	(0.103)	(0.108)	(0.10)
ACA makes US better off	0.047**	0.082***	0.003
	(0.009)	(0.010)	(0.008)
Female	−0.101***	−0.045	−0.111***
	(0.029)	(0.032)	(0.027)
Nonwhite	−0.075*	−0.064	−0.028
	(0.047)	(0.045)	(0.038)
Age	0.0004	−0.002	0.002***
	(0.001)	(0.001)	(0.001)
Income less than 35k	0.024	0.088**	−0.043**
	(0.038)	(0.042)	(0.036)
Ideology	−0.027***	−0.035***	−0.006
	(0.013)	(0.014)	(0.010)
Education	0.097***	0.069***	0.078***
	(0.011)	(0.013)	(0.010)
Lagged DV	0.539***	0.445***	0.587***
	(0.018)	(0.017)	(0.019)
N	2,662	2,003	2,820
R^2	0.403	0.300	0.427

[a]Variable *Political Efficacy* is a factor index based on a principle-component factor model over seven survey items measuring political efficacy. The question wording for the seven survey items are as the following: (1) "Public officials don't care much what people like me think"; (2) "Public officials care about making health care more affordable"; (3) "People like me do not have any say about what the government does"; (4) "People like me have no say if an insurance company refuses to grant us coverage"; (5) "I feel that I have a pretty good understanding of the important political issues facing this country"; (6) "I think I have fairly good understanding of what I need to know about my health care coverage"; and (7) "I consider myself well qualified to participate in politics." We create the factor index in the way that positive values refer to high efficacy and negative values refer to low efficacy.

[b]External Efficacy is a factor index based on the first five survey items (1)–(4) used in the overall efficacy index.

[c]*Internal Efficacy* is a factor index based on items (5)–(7) used in the overall efficacy index.

*$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.

We expect this may be due to program recipients feeling more fully incorporated into the political community or having gained greater confidence in their own skills as they navigated the complex process of attaining coverage through the ACA marketplaces, enrolling in Medicaid, or purchasing private insurance plans. These individuals did not experience increased external efficacy or trust in government responsiveness. Moreover, the negative policy experiences of individuals who lost insurance appear to depress overall political efficacy and external efficacy. They may have concluded that government is unresponsive to them. While the positive policy effects are highly significant, however, this negative policy effect is isolated and marginally significant at the 0.10 level.[9.]

Our analysis of panel data allows us to take a new step in policy feedback research by tracking the ACA's changing impact on individuals over time. Our results for the variable "gained Insurance" tell us the ACA's short-term effect on efficacy over the course of 2 years. We are able, however, to go a step further by capitalizing on our panel data and inclusion of the lagged dependent variable. Our calculations indicate that the estimated long-term cumulative positive effect of "gained Insurance" on overall political efficacy is 0.445.[10.] Compared with those who did not experience any change in insurance coverage, gaining insurance coverage is associated with a total cumulative increase in the efficacy score of 0.445 between 2012 and 2018. Our political efficacy variable is a standardized factor index, with a zero mean and standard deviation of 1. An increase in efficacy score of 0.445 reflects a sizable difference between those who gained coverage and who did not experience any change in insurance coverage. By the same methods of calculation, gaining insurance coverage is associated with a total cumulative increase in the internal efficacy score of 0.528 between 2012 and 2018.

Because our panel regression models reflect the dynamic feedback effects of the ACA, we use Figure 2 to display the substantive effects of gaining insurance on internal political efficacy across the full span of our panel study. To produce Figure 2, we use post-estimation simulations and out-sample predictions to calculate and show how the predicted internal efficacy varies under two scenarios: (i) gained insurance and (ii) no change (King, Tomz, & Whittenberg, 2000; Williams & Whitten, 2011). For each scenario, the mean predicted efficacy level and the 95% confidence intervals are calculated for the full span of our panel study starting in 2010. All other explanatory variables are held constant at their means in this visual.

Figure 2 displays substantial differences in efficacy between those who gained insurance coverage and those who did not experience changes in coverage. From the ACA's passage in 2010 until 2018, Americans who received new insurance became more internally efficacious, while those whose insurance status remained unchanged did not experience such transformation.[11.]

The second pathway involves the interpretive effect associated with the ACA's impact on the nation as a whole. With the ACA's implementation generating political learning and dissemination of information about its purpose, the awareness of health reform's impact on United States exerted a significant effect on political efficacy. This indicates that those who shifted toward the view that the law "made things better" for the country became more efficacious with time (Table 1, Model 1,

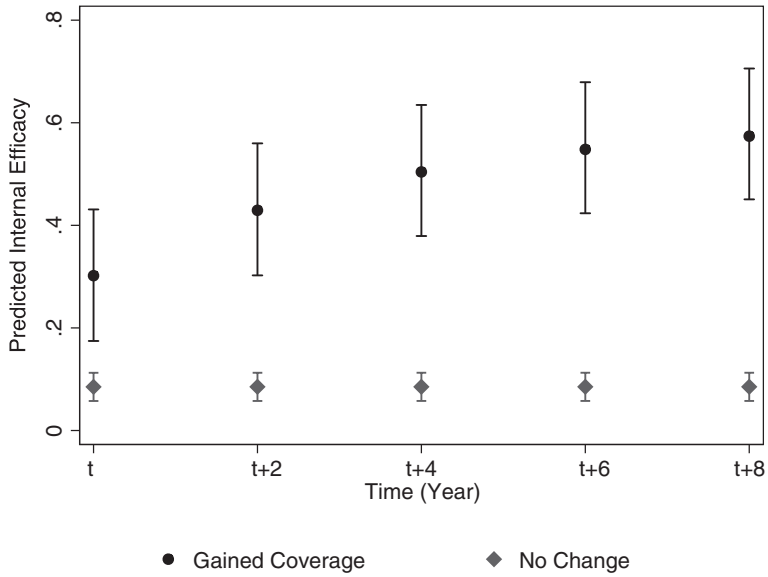

Figure 2. The Dynamic Effects of Gaining Insurance Coverage on Internal Efficacy, 2010–8 (Based on Table 1 Model 3).

$b = 0.047$, $p < 0.01$). This is consistent with path C in Figure 1. Witnessing the ACA's national impacts including the lower uninsured rates and the new guaranteed insurance coverage for those with pre-existing conditions appears to have increased external efficacy (Model 2, 0.082, $p < 0.01$). It makes sense that those whose personal values make them predisposed to favor the government's role in providing health coverage for Americans would experience an increased sense that government is responsive to people like them.

The lagged dependent variables in Models 1 and 2 in Table 1 indicate that perceptions of the ACA's "impact on the US" also produced a long-term cumulative increase in overall efficacy score by 0.102 (Table 1, Model 1) and a long-term cumulative increase in external efficacy score by 0.148 (Table 1, Model 2). Figure 3 visualizes the dynamic effect of perceptions of the ACA's national impact on respondents' external efficacy. Respondents who think the ACA has made the United States much better off report significantly higher external efficacy than those who think the ACA has made the United States much worse. The group-wise differences in external efficacy are not only persistent throughout the period of our panel study, but also enlarge as time goes by. In other words, those who think the ACA positively affect the United States would have increase external efficacy over time, while those who perceive the ACA as damaging to the United States would have decreased external efficacy over time.

Evidence that positive experiences with the ACA increased efficacy from 2010 to 2018 holds despite a potent set of controls. The results we present persist after controlling for entrenched ideology and demographic traits. Those variables produced expected effects; for example, being male, white, and highly educated was each associated with higher overall political efficacy, as was being conservative.[12.]

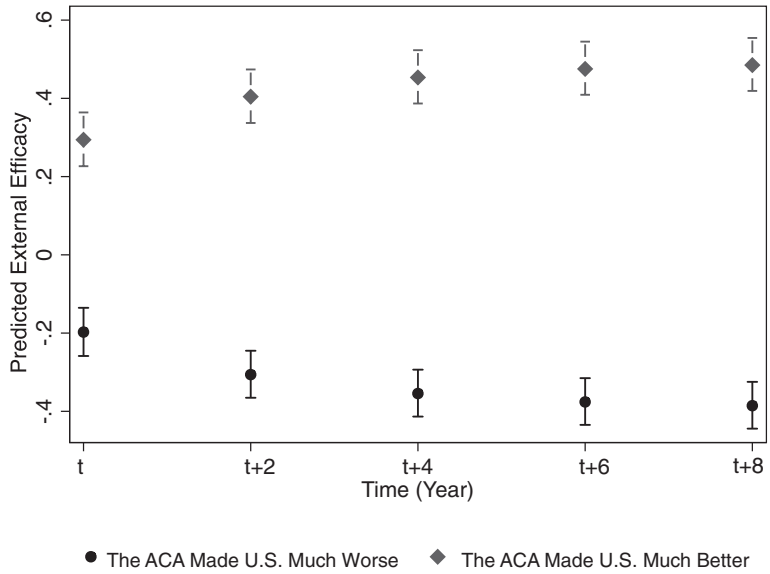

Figure 3. The Dynamic Effects of Perceptions on the ACA's Impact on the United States on External Efficacy, 2010–8 (Based on Table 1 Model 2).

What is striking, however, is that policy experiences influenced the interpretive effect of political efficacy after robust controls. Moreover, those effects grew in magnitude over time as temporal experiences of policies generated a deepened sense of political responsiveness or capacity. We also scrutinized the specification of our model to check for reverse causality and found no evidence for it (see Supplemental Information, Section 5). Now we turn to examine how such effects, in turn, shaped political participation.

In sum, we find multiple pathways by which health care reform affects political efficacy. Our findings indicate that the overall feedback effect on political efficacy might be greater for recipients than those for nonrecipients. Nonrecipients' experience of an interpretive effect is mostly expressed through external efficacy, as policy changes align with their views about government responsiveness. Benefit recipients, however, might experience both a resource effect and an interpretive effect, expressed through both internal and external efficacy.

The Effects of the ACA on Political Participation

The implementation of Social Security is credited with increasing political participation among seniors. Table 2 indicates that the ACA is now also leading individuals to increase their political participation through two pathways that lead from the interpretive and resource effects analyzed in Table 1.

Our analysis disentangles the causal path of the ACA's impact on political behavior by including the change over time in both internal and external political efficacy. These two change measures use the internal and external efficacy indexes

reported in Table 1 and are based on the difference in respondents' internal and external efficacy scores between the two survey waves. Positive values indicate increases in efficacy from two years ago, while negative values reflect decreases in efficacy. We use these change measures as independent variables to account for two forms of political participation—intention to vote and taking part in political activities beyond voting.

Table 2 indicates the differential impact of two resource effect variables on political participation. The variable "gained insurance" exerts a direct and significant effect in increasing the intention to vote in models 1 and 2 ($b = 0.119$, $p < 0.05$ and $b = 0.111$, $p < 0.05$, respectively). This is consistent with path AB in Figure 1. In addition, the resource variable "ACA subsidies help self/family" increases general political activism (Model 3, $b = 0.072$, $p < 0.01$ and Model 4, $b = 0.075$, $p < 0.01$). These results mirror theoretical expectations that resources extended through public policies may make political participation more feasible for individuals and they may also provide incentives for it.

Table 2 also shows that the ACA also influenced both voting intention and political participation indirectly, through interpretive effects, as indicated in path D in Figure 1. Changes in both internal and external efficacy influence voting intention (Model 2, $b = 0.033$, $p < 0.05$ and $b = 0.057$, $p < 0.01$). Changes in internal (but not external) efficacy influence political activism (Model 4, $b = 0.083$, $p < 0.01$). These results are in accord with theoretical expectations that elevated political efficacy stimulates political participation; they are the first empirical evidence we are aware of that demonstrates, with panel data, the role that public policy itself plays a role in these dynamics.

Disentangling interpretive and resource effects offers new insights into policy feedback dynamics. The mechanisms of policy feedback work in both direct and indirect ways. Table 2, considered together with Table 1, provides evidence that the ACA's influence on political participation works through resource effects as well as interpretive effects—specifically, changes in internal and external political efficacy. The variable for ACA subsidies in Model 4 offers evidence of the direct effects of resource effects on political activism—namely, the path AB. This variable was not statistically significant in Table 1; this suggests that it is not channeled indirectly through political efficacy. Gaining insurance, in contrast, demonstrates direct resource effects (Table 2, Model 2) as well as indirect interpretive effects, which in turn foster internal efficacy, as seen in Table 1. In other words, gaining insurance stimulates both pathways AB and CD, fostering greater participation through both mechanisms. Losing insurance, in contrast, does not have a clearly discernable effect on political participation: it exerts only a statistically marginal and negative impact on general and external political efficacy (Table 1) and has no direct effect on either measure of political participation (Table 2). If the loss of health insurance depresses voting, the effect is weak at best.

The view that the ACA is making the United States as a whole better off did not have a direct effect on political participation. The results in Table 1 indicate, however, that this viewpoint does stimulate voting through the indirect path of external efficacy (path C).

Table 2. The Effects of Health Reform on Political Participation, 2010–8 (Panel Regression Models with Lagged Dependent Variable and Change in Efficacy)

Independent Variables	Intention to Vote[a] (1)	Intention to Vote (2)	Political Activities[b] (3)	Political Activities (4)
ACA subsidies help self/family	0.012	0.009	0.072***	0.075***
	(0.009)	(0.009)	(0.015)	(0.016)
ACA drug coverage helps self/family	0.001	0.002	−0.004	−0.007
	(0.007)	(0.007)	(0.015)	(0.010)
Gained insurance	0.119**	0.111**	0.073	0.057
	(0.054)	(0.055)	(0.086)	(0.095)
Lost insurance	−0.016	−0.006	0.042	0.065
	(0.077)	(0.082)	(0.102)	(0.108)
ACA makes US better off	0.005	0.003	−0.005	−0.008
	(0.006)	(0.006)	(0.010)	(0.012)
Female	0.006	−0.0002	−0.035	−0.044
	(0.020)	(0.021)	(0.038)	(0.034)
Nonwhite	−0.005	0.007	0.070	0.075
	(0.035)	(0.029)	(0.047)	(0.048)
Age	−0.004***	−0.005***	0.007***	0.007***
	(0.028)	(0.001)	(0.001)	(0.001)
Income less than 35k	−0.125***	−0.132***	−0.033	−0.036
	(0.027)	(0.028)	(0.043)	(0.045)
Ideology	−0.003	−0.003	0.012	0.018
	(0.008)	(0.029)	(0.012)	(0.013)
Education	0.027***	0.027***	0.064***	0.059***
	(0.007)	(0.008)	(0.013)	(0.013)
Change in external efficacy	–	0.033**	–	−0.018
		(0.010)		(0.018)
Change in internal efficacy	–	0.057***	–	0.083***
		(0.015)		(0.022)
Lagged DV	0.501***	0.491***	0.533***	0.529***
	(0.029)	(0.031)	(0.017)	(0.021)
N	2,868	2,652	2,875	2,655
R^2	0.331	0.324	0.341	0.338

[a]The question wording for *Intention to Vote* is as the following: "How likely is it that you will vote in the upcoming November election? Would you say you (1) definitely WON'T vote, (2) probably WON'T vote, (3) probably WILL vote, (4) definitely WILL vote, or (5) have you ALREADY VOTED in the November general election?"
[b]The question wording for *Political Activities Beyond Voting* is as the following: "Some people tell us that they take part in other political activities besides voting. For example, people may volunteer to work on the campaign of a candidate for public office; they may contact elected officials about issues that concern them; or they may contribute money to a political organization or candidate, or they may do other things to express their political views. Thinking back over the past two years since January 2015, how would you rate your level of political activity aside from voting: not at all active, slightly active, somewhat active, very active, or extremely active?"
**$p < 0.05$, ***$p < 0.01$.

Figure 4 displays the substantive effects of changes in internal political efficacy on political activism from 2010 to 2018, using post-estimation dynamic simulations to show how the predicted level of political activism differs across two scenarios: (i) those who experienced an increase in internal efficacy compared with two years ago; and (ii) those who experienced a decrease in internal efficacy compared with two

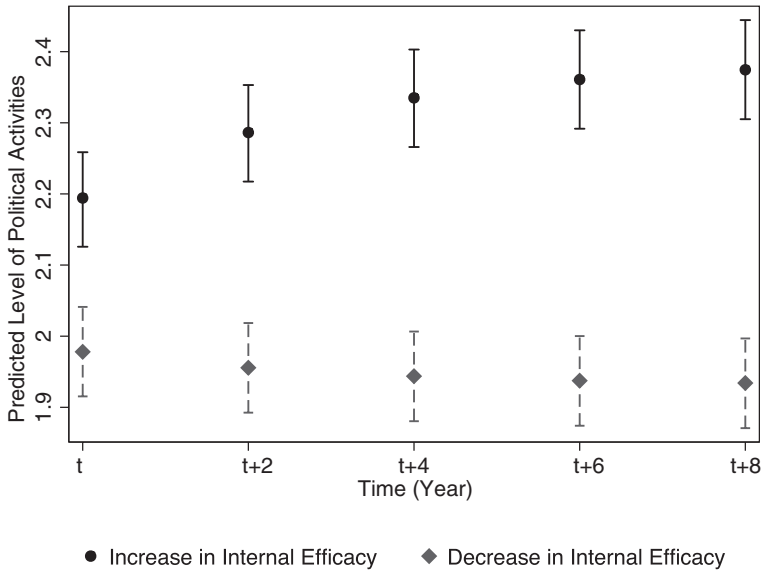

Figure 4. The Dynamic Effects of Changes in Internal Efficacy on Political Activities Beyond Voting, 2010–8 (Based on Table 2 Model 4).

years ago. We set the two scenarios as an increase and decrease in internal efficacy by one standard deviation, while holding all other explanatory variables constant at their means.

Figure 4 shows that health reform's impact in raising internal political efficacy has been particularly influential in increasing political activism from 2010 to 2018. Specifically, individuals with increased internal efficacy exhibit a much higher level of political activism than those with decreased internal efficacy. The gap across two scenarios persists over time and widens, becoming greater in 2016 and 2018 ($t + 6$ and $t + 8$) than what was observed during our first survey wave in 2010. In short, we found evidence of a variety of pathways through which experiences with the ACA stimulated political participation, elevating individuals' intention to vote and fostering their greater involvement in a range of other political activities. Some features of the ACA have yielded direct resource effects by stimulating the capacity and/or incentive of policy recipients to participate in the political process, and some have spurred interpretive effects by indirectly promoting greater political participation. In some cases, resources themselves shaped political efficacy and, in turn, affected political participation.

THE MECHANISMS AND DYNAMISM OF POLICY FEEDBACK AND IMPLICATIONS FOR DEMOCRACY

For more than a quarter-century, scholars have suggested that the experiences of citizens with government programs over time change their resources and interpretations of their political capacity and the responsiveness of policy (Schneider & Ingram, 1997; Pierson, 1995). Research on policy feedback as a dynamic process

defined by the interplay of individuals and government programs over time has been limited, however, due to inadequate data. Recent research on the ACA or prior Medicaid expansions in specific states use different research designs but report a consistent pattern of policy feedback effects, with elevated participation following from new access to benefits (e.g., Baicker & Finkelstein, 2019; Clinton & Sances, 2018; Haselswerdt, 2017). We build on these important new studies to make three contributions. First, we use a unique national panel study of the ACA since its passage in 2010 to investigate policy feedback as a series of iterative, over-time interactions of individuals with policy during a tumultuous decade. Second, we extend valuable recent research on the effects of Medicaid on participation by investigating whether such participatory effects occur nationwide, among the general population, and over a longer period of time. Third, we address longstanding challenges to disentangling the micro-foundations of policy feedback (Pierson, 1993) by systematically identifying the mechanisms that link policy experiences to changing political attitudes and behavior (Jacobs & Mettler, 2018).

Our findings confirm that the 2010 health care law is exerting positive impacts on political efficacy and political behavior, consistent with prior research on policy feedback effects on voting (Clinton & Sances, 2018) and attitudes toward the ACA (Hopkins & Parish, 2019; Lerman & McCabe, 2017). Experiences with the ACA exerted positive effects in terms of generating stronger political efficacy. Capitalizing on our over-time panel study since the ACA's passage in 2010, we pinpoint the positive longer-term cumulative effects of new health policies: the impacts of implementation snowballs as individuals become more accustomed to new benefits and protections. These results hold up despite potent controls for political ideology, demographic factors, and the locking in of prior attitudes and behaviors.

Building on the growing body of research on policy feedback that broadly connects policy with politics, we take a new step by examining the understudied and dynamic pathways associated with policy effects. Our analysis identifies how resource and interpretive effects work separately and together as mechanisms in facilitating policy feedback. Our results confirm pathways identified in Figure 1. We found that policies contain resources that affect political behavior directly as well as indirectly, by influencing political efficacy and in turn, political behavior. In addition, our analysis indicates that policies give people experiences that convey lessons and shape perceptions, which can, in turn, influence their sense of political efficacy and subsequently, their political behavior.

Echoing recent health care research on policy feedback and public opinions, our research suggests the ACA's future may depend on policy feedback. If beneficiaries continue to value the ACA's positive impacts over its negative ones and become more politically efficacious and active in politics, then the program may "lock-in" and become sustainable even in the face of efforts to repeal it. The salient positive policy feedback effects can become a source of policy resilience, reinforcing the law over time (Jacobs, 2014; Jacobs, Mettler, & Zhu, 2019; Jacobs & Mettler, 2020).

How policies shape politics is an important question for understanding stability and change in the policy process (Béland & Schlager, 2019). The ACA's extraordinary salience and partisan polarization call for future research to explore whether

our theoretical framework and panel data approach are generalizable to other social policies. Variations in partisanship, policy salience, and policy design may impact the nature and degree of the direct and indirect links between attitudinal and behavioral feedback effects.

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Notes

1. Our "Supporting Information" (SI) document provides a detailed description of the panel study approach and finds no evidence of significant distortion due to the most significant common challenge of panel data attrition.
2. The number 2,875 represents the largest number of cases involved in any of our models and comes from the political activity model (Table 2, Model 3). Information observed in 2010 is treated as an explanatory variable. Based on the model for political activity, the breakdown of panelists by waves is: 2012, 639 panelists; 2014, 712 panelists; 2016, 767 panelists, and 2018, 757 panelists.
3. The use of surveys to measure voter participation may produce overestimates due to memory failure and efforts by respondents impress interviewers by inflating how much they participated in the past election. Our survey waves were administered, however, before the November election and follow the convention seen in many political science pre-election surveys, such as the ANES and CCES pre-election waves. If respondents over-report voting, this may be relatively consistent over time in a panel study in which the same individuals are interviewed. Because our analytic interest is in studying

change, we do not expect over-reporting to vary significantly year to year in terms of each wave of the panel study.

4. All three factors exceed the standards for reliability and consistency. We include all the seven efficacy items in the first PCA model to produce the overall efficacy index. All the seven items load positively on the first factor, with an Eigenvalue of 1.88 and Cronbach's alpha of 0.53. The second index, external efficacy index, is produced based on a PCA model that includes items (1)–(4). Our PCA confirms that all the five items load positively on one single factor, with an Eigenvalue of 1.67 and Crobach's alpha of 0.52. The internal efficacy index is predicted based on a PCA model that includes items (5)–(7). Similarly, we observe that all three items load positively on one single factor, with an Eigenvalue of 1.62 and Crobach's alpha of 0.57.
5. The question wording is the following: "I'm going to read to you a list of some of the features of the health care law that was enacted in 2010. For each one, please answer this question: How much of an impact has this feature had on you and your family: a great deal, quite a bit, some, a little, none? [Help for seniors to pay for prescription drugs; Tax credits and other subsidies to help people pay for health insurance]."
6. Education is measured on a 5-point scale based on whether they reported their education as below high school to high school, some college or Associate degree, Bachelor's degree, and graduate or professional degree. This categorization is based on responses to the following question: "What is the last grade or class that you completed in school or college?" Because we over-sample low-income individuals, in our sample, near one-third of the respondents had income below 35k.
7. To examine the potential impacts of alternative political conditions, we also included partisanship, using a standard 7-point scale—from 1 for "strong Republican;" 4 for "independent;" and 7 for "strong Democrat"—and found no significant differences in the results reported below. Replacing ideology with partisanship did not significantly alter the results we report. In the Supporting Information document (Section 8), we present additional analysis that examines if policy feedback effects drastically differ across respondents' ideology. We do not find evidence for significant heterogeneous effects by ideology. Gaining insurance coverage increases efficacy for both conservatives and liberals. There are some differential effects by partisanship—gaining insurance coverage has greater positive effects on efficacy for Democrats and independents, than for Republicans.
8. In Section 3 of the SI, we report panel regression models for *Political Efficacy*, *Intention to Vote*, and *Political Activities beyond Voting*, showing standardized regression coefficients.
9. Our results also suggest the positive resource effects are larger in magnitude compared with the negative resource effects associated with the loss of insurance coverage. The marginal significance of the lost insurance variable is confirmed by the descriptive statistics and the Bayesian Heckman Selection analysis in Section 4 of the SI.
10. We calculated the long-term effect as, $\frac{\beta}{1-\alpha}$ where β is the coefficient of the key explanatory variable and α is the coefficient of the lagged dependent variable (De Boef & Keele, 2008; Williams & Whitten, 2012).
11. The methods used to produce Figure 2 are the Clarify package of King et al. (2000) and Williams and Whitten's "dynsim" package that extends the Clarify program to autoregressive dynamic panel data models (Williams & Whitten, 2011, 2012).
12. Our key findings on how health care reform shapes political efficacy remain robust after controlling for changes in education and income instead of levels of education and income. We also explored if frequent changes (i.e., instability) in insurance coverage affect efficacy. We find that instability in insurance coverage has some chilling effect on political efficacy.

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Supporting Information

Additional Supporting Information may be found in the online version of this article at the publisher's web site:

Table 1: Panel Regression Models with Year Fixed Effects

Table 2: Panel Regression Models with Year Fixed Effects

Table 3: Heckman Selection Models for Political Efficacy

Table 4: Heckman Selection Models for Political Participation

Table 5: Alternative Specification: Penal Regression Models with Fixed Effects

Table 6: Full Models Reported in Table 1 and 2, with Standardized Coefficients

Table 7: The Number of In-Sample Cases Reporting Changes in Insurance Coverage

Table 8: ACA's Feedback Effects on Political Efficacy: Bayesian Heckman Selection Model

Table 9: ACA's Feedback Effects on Intention to Vote: Bayesian Heckman Selection Model

Table 10: ACA's Feedback Effects on Political Activities beyond Voting: Bayesian Heckman Selection Model