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ABSTRACT

In November 2017, Maine became the first state in the nation to vote on a key provision of the Affordable Care Act: the expansion of Medicaid. We analyze local voting results to identify characteristics of areas that support Medicaid expansion. Support is strongly correlated with voter education. Places with more bachelor's degree holders more often vote in favor, whereas those with more associate's degree graduates vote against. Other patterns are consistent with economic self-interest. Conditional on education rates, areas with more uninsured individuals who would qualify for expanded coverage tend to vote in favor, while those with more high-income individuals vote against. Also conditional on education rates, greater hospitals employment is associated with support for expansion, but the presence of other health professionals, whose incomes might decrease from expansion, is associated with less support. Extrapolating from Maine to other states, our model predicts that hypothetical referendums on Medicaid expansion would pass in five of the 18 states that had not yet expanded Medicaid coverage.

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The landmark 2012 U.S. Supreme Court decision in *National Federation of Independent Business (NFIB) v. Sebelius* (567 U.S. 519 [2012]) upheld the 2010 Patient Protection and Affordable Care Act (ACA) as federal law. Yet, it limited a key provision of the law that would have expanded health insurance coverage rates for adults in low-income households in all 50 states. Traditional Medicaid limits eligibility based on both financial resources and categorical rules (e.g., age, disability status, and family structure). As enacted, the ACA raised the income eligibility cutoff to 138% of the federal poverty level and removed Medicaid's categorical rules, thereby permitting non-disabled, non-elderly adults with no children to qualify for benefits. The *NFIB v. Sebelius* decision prevented the federal government from requiring states to expand Medicaid but allowed states to elect to do so individually.

Leaving the expansion decision to individual states created uncertainty about the timing and eventual scope of Medicaid expansion under the ACA (Rosenbaum and Westmoreland 2012). The first state expansions came into effect in January 2014. By November 6, 2017, 31 states and Washington, D.C., had expanded their Medicaid programs, while 19 others had not. State expansion of Medicaid largely aligned with Democratic Party control of state government, but other factors, including medical providers' political power and the state's administrative capacity also facilitated expansion (Jacobs and Callaghan 2013; Lanford and Quadagno 2016; Hertel-Fernandez et al. 2016). States' decisions to expand Medicaid have had wide-ranging effects, including on insurance coverage and access to care (Sommers et al. 2015; Courtemanche et al. 2017; Frean, Gruber, and Sommers 2017), labor force participation (Gooptu et al. 2016; Duggan, Goda, and Jackson 2017), rates of uncompensated care at hospitals (Nikpay, Buchmueller, and Levy 2015; Dranove, Garthwaite, and Ody 2016), and payday borrowing (Allen et al. 2017).

Although researchers can estimate the costs and benefits of Medicaid expansion across various subgroups in the population, it is unclear whether these groups actually support or oppose expansion. Little is known about how voting for Medicaid expansion aligns with social and economic characteristics of individuals and local areas. Do those who gain financially from the expansion support it the most at the ballot box?

Opinion polls, such as those conducted by the Kaiser Family Foundation, reveal correlations between individual characteristics, such as race, party affiliation, and Medicaid receipt, and stated opinions about Medicaid expansion (Grogan and Park 2017a, 2017b).¹ Unfortunately, existing surveys lack the ability to identify the opinions of healthcare providers. It is anyhow unclear how stated support for Medicaid expansion in a survey translates into actual voting behavior. Because survey responses carry no economic consequences, respondents may not invest in developing their opinion or respond truthfully (Matusaka and McCarty 2001; Brunner, Ross, and Washington 2011). Furthermore, survey samples may not be representative of the voting population. To overcome these limitations, we instead examine voting data directly from a referendum on Medicaid expansion as a standalone issue.

On November 7, 2017, Maine became the first state in the nation to hold a popular vote on whether to expand Medicaid. In this historic referendum, 59% of votes were cast in favor of expansion. This vote provides a unique view into popular support for the Medicaid expansion when isolated from other political issues. Indeed, to date, it is the only element of the ACA that

¹ Stated support for Medicaid expansion is also greater among people without health insurance and lower among those who believe that Medicaid stigmatizes recipients (Grogan and Park 2017b; Table 4).

has been evaluated through direct democracy. In this article, we analyze how citizens voted across localities in Maine.

Our analysis provides the first empirical evidence on the characteristics of populations that support Medicaid expansion as a standalone ballot issue. This enables us to provide new insight into the factors that affect voting for Medicaid expansion. We identify key economic and demographic factors that correlate with localities in Maine voting in support of Medicaid expansion and assess how these factors align with financial self-interest. Finally, we use these factors to predict vote shares for hypothetical standalone ballot measures on Medicaid expansion in other states. Dissonance between state policy and these predicted voting outcomes point to a potential role for direct democracy in shaping the evolution of Medicaid policy across states.

Background

Politics of Medicaid Expansion

Reflecting the highly politicized nature of the ACA, political partisanship played a large role in states' decisions to expand Medicaid, with Democratic politicians generally favoring expansion and Republicans opposing it. Nevertheless, several Republican-led states have opted to expand their programs. Medicaid expansion was more extensive in states with more affluent residents, state administrative capacity, generous Medicaid coverage rules already in place before the ACA, and politically influential healthcare providers; it was less extensive in areas with higher levels of conservative ideology or racial resentment in the population (Jacobs and Callaghan 2013; Lanford and Quadagno 2016; Hertel-Fernandez et al. 2016). When conservative politicians support expansion, they sometimes do so in combination with other program changes using a Medicaid waiver (Rosenbaum and Westmoreland 2012). This strategy enables them to frame the

expansion as a “reform” to Medicaid rather than as an expansion of the existing program (Grogan, Singer, and Jones 2017).

These various political factors result in state Medicaid expansion policies that appear imperfectly aligned with popular opinion. Barrilleaux and Rainey (2014) find that increased public support for the ACA does not reduce gubernatorial opposition to Medicaid expansion. Grogan and Park (2017a) find that greater public support for Medicaid expansion among whites increases the probability of a state expanding Medicaid but that public support among non-whites does not. The conflict is evident in non-expansion states where large majorities of the population favor expanding Medicaid.² Opinion polling itself may not represent constituents’ preferences if their opinions are not fully formed (Matsusaka and McCarty 2001) or truly reported (Skibba 2016) or if low response rates yield unrepresentative samples (Skibba 2016). Nevertheless, the discrepancy between polling and policy suggests that statewide votes on Medicaid expansion might yield different policy choices in some states.

A central argument for direct democracy is that allowing voters to initiate laws without going through their elected representatives can better align public policy with public opinion (e.g., Lascher et al., 1996; Besley and Case, 2003).³ A key feature of ballot initiatives, like the

² The Kaiser Family Foundation’s Health Tracking Poll asked residents of non-expansion states if they thought their state should expand Medicaid or keep the current program rules. In July 2015, 61% favored expansion and 32% were opposed (KFF 2015). In February 2018, after three more states (Alaska, Montana, and Louisiana) expanded, 56% of the remaining non-expansion states supported expansion and 37% were opposed (KFF 2018).

³ A second argument is that direct democracy increases participation rates and voter turnout, but empirical support for this hypothesis has been limited (see, e.g., Lascher et al. 1996, Tolbert and Smith 2005).

one studied in this paper, is that they allow voters to decide on a single issue in isolation. This achieves an “unbundling” of the various social and economic positions that each candidate for political office offers to voters (Besley and Coate, 2000). Empirical studies that compare states with and without direct democracy provisions find mixed evidence of greater policy alignment (see Besley and Case 2003, p.47, for an early summary of this literature; Bowler and Donovan 2004; Lax and Phillips 2009). In theory, the *ability* to pursue a ballot initiative should in itself affect policy outcomes (Gerber 1996; Besley and Coate 2000). In practice, voters in several states make regular use of the initiative process to create policy (Matsusaka and McCarty 2001; Matsusaka 2005).

Maine is one of 24 states with direct democracy provisions that allow new statutes or constitutional amendments to be adopted through a ballot initiative process, and its politics made Medicaid expansion a natural question to pose to voters. Over the years, Governor Paul LePage vetoed five different bills passed by Maine’s legislature to expand the program under the ACA, despite public opinion polling showing 68% support for expansion (Maine People’s Resource Center 2013). Medicaid expansion’s peripheral status as a political issue likely contributed to this dissonance. The Maine electorate voted in 2017 to expand Medicaid, despite having re-elected Governor LePage only three years earlier. Even after the Maine referendum passed, Governor LePage continued to obstruct its implementation.

Maine Ballot Initiative

The Maine ballot initiative was the first binding vote in any state on a component of the ACA. After a petition for the initiative obtained the required number of signatures, Secretary of State Matthew Dunlap wrote the ballot question and determined that it would be positioned second on

the ballot, following an initiative to allow slot machines or a casino in York County. The question was worded as follows:

Do you want Maine to expand Medicaid to provide healthcare coverage for qualified adults under age 65 with incomes at or below 138% of the federal poverty level, which in 2017 means \$16,643 for a single person and \$22,412 for a family of two?

The original proposed question text asked about “expanding Medicaid to provide health insurance,” but a group of Republican lawmakers advocated for changing “insurance” to “taxpayer-funded health benefits” or “government-funded health benefits” (Thistle 2017a). The group also wanted to include an estimated annual cost in the question text. The final wording (stated above) referred to “healthcare coverage” and did not include estimates of direct costs, federal transfers, or cost savings from the expansion.

The proposed legislation that the question represented was titled “An Act to Enhance Access to Affordable Health Care.” As per direct democracy procedures in Maine, the legislature could amend the law after the vote and before its adoption, but the governor could not veto it. In advance of the vote, the Secretary of State circulated a summary of the legislation; an estimate of its fiscal impact (annual costs of \$54 million to Maine and \$525 million to the Federal government); and two public comments filed in support of the measure. No public comments were filed in opposition to it.

The organization leading the pro-expansion efforts, “Mainers for Health Care,” was a consortium of advocacy groups including: the Maine Center for Economic Policy, the Maine Equal Justice Partners, the Maine People’s Alliance, the Maine Voice’s Network, and the Planned Parenthood of Northern New England Maine Action Fund. They spent nearly \$2 million

on the campaign. The primary opposition group was “Welfare to Work PAC,” run by a former advisor to Governor LePage and formed in late August 2017 (Thistle 2017b); this group spent \$385,000.

Echoing broader Medicaid politics (see Lanford and Quadagno 2016; Hertel-Fernandez et al. 2016), the business community in Maine was divided on the issue. The National Federation of Independent Business of Maine (NFIB) opposed expansion, consistent with its parent organization’s role as the plaintiff in the 2012 *NFIB v. Sebelius* lawsuit. But the Maine Small Business Coalition endorsed expansion as did several health care interest groups, including the Maine Medical Association, the Maine Primary Care Association, and the Maine Hospital Association (Stone 2013; Wight 2017). The Maine Chamber of Commerce did not take a position.

Proponents of the initiative argued for the morality of expanding insurance coverage to low-income individuals; advertisements featured healthcare providers and others making personal appeals for clients or friends who would benefit from the expansion. The economic arguments in favor of expansion centered on obtaining federal subsidies for expansion (Ardoff 2017) and improving the financial status of hospitals (Peterson 2017). The opposition’s arguments focused on the potential costs of the expansion to the state, citing Maine’s experience with a 2002 Medicaid expansion and claiming, in an appeal to senior citizens, that Medicaid expansion would necessitate cutting funding for nursing homes.

Data and Methods

We examine official election results of the November 2017 referendum from the Maine Bureau of Corporations, Elections, and Commissions, which reports nonzero vote totals for 495 localities. Our analysis consists primarily of weighted least squares regressions.

The primary outcome of interest is the vote share in favor of Medicaid expansion. Vote shares reflect actual voting behavior that has real financial consequences for taxpayers, healthcare providers, and people who could potentially become eligible for Medicaid coverage. These real financial consequences distinguish votes on ballot initiatives from responses to survey questions, which suffer from potential biases from survey respondents misreporting their preferences, characteristics, or intentions to vote (Matusaka and McCarty 2001; Brunner, Ross, and Washington 2011).

Explanatory variables are drawn from the U.S. Census Bureau's American Community Survey 5-year estimates (ACS, 2011-2015). There are three exceptions: we obtained information about hospital employment from the American Hospital Association's 2012 Annual Survey; voter registration in August 2017 from the Maine Bureau of Corporations, Elections, and Commissions; and the land area of each locality from the U.S. Census Bureau's 2014 Gazetteer Files. We also examine the determinants of voter turnout, defined as the total number of votes cast in the referendum divided by the number of registered voters. After matching, we are left with a final sample of 491 observations. Summary statistics for all variables are listed in Appendix Table A1. Regressions explaining voting outcomes are weighted by the total number of votes cast in each locality, and turnout regressions are weighted by the number of registered voters.

Because we study a single referendum in a single state, our analysis is limited to identifying correlations in a simple cross-section. The economic and social factors that we study may affect voting patterns in Maine differently than they do in other states. Our analysis is based on observational, not experimental or quasi-experimental, sources of variation. The estimates should be interpreted as correlations, not causal effects. For example, the coefficient estimate associated with college education might reflect the selection of individuals who attend college in addition to (or instead of) the influence of a college education on an individual's voting preference. Our aggregated unit of analysis limits us to studying variation across localities rather than within them. It also reduces the number of observations in the analysis, though each observation represents many votes.

Results

Educational Attainment

The first result to emerge from our analysis is a striking and robust relationship between the Medicaid vote share and educational attainment. Figure 1 reveals the pairwise association. The share of the population with at least a bachelor's degree (x-axis) is plotted against the vote share for Medicaid expansion (y-axis) using a circle for each locality in the data, sized to reflect the total number of votes cast. College education has a strong, positive, and roughly linear association with voting in favor of Medicaid. The association's estimated slope is 0.65 and highly statistically significant ($p < 0.001$). Variation in education also explains a majority of the variation in Medicaid voting across localities ($R^2 = 0.54$).

Although having a college degree is highly correlated with income, controlling for income does not diminish the estimated importance of education. Rather, when variables that

measure the population shares in various annual household income categories (\$25-50K; \$50-75K; \$75-100K; \$100K+) are added to the model, the slope on college education increases to 0.79.

As shown in Table 1, controlling for college education has an important effect on estimates for income categories. When education is not included in the model (column 1), middle-income households are associated with less support for expansion than are low-income households (the difference is statistically significant for households with income of \$50-75K and \$75-100K), but high-income households (with incomes over \$100K) are associated with even stronger support (coefficient = 0.18; $p < 0.001$). Adding the control for college graduates to the model reverses the sign on high-income households to a negative and statistically significant -0.46 ($p < 0.001$), making the general pattern more monotonic (column 2). Relative to the lowest income groups ($< \$25K$ and $\$25K-50K$, which are not statistically distinguishable), middle-income levels are associated with moderate opposition (coefficients = -0.20 and -0.18) and high incomes are associated with the strongest opposition. This reversal of high-income households' association with support from positive to negative by controlling for college education suggests there is a major split within the group between high-income individuals with college degrees who support expansion and high-income individuals with less education who oppose it. This could mean that more income on its own lowers support for redistributive programs, possibly because of the anticipated tax burden and the limited personal benefit,⁴ but that a college

⁴ Although Medicaid expansion in Maine would be funded largely by taxpayers in other states, Maine voters might worry that their expansion could lead other states to follow. They might also be concerned that federal contributions will decrease over time. The federal government, which

education mitigates this effect such that even college graduates with annual incomes above \$100K favor expanding Medicaid.

This variation in support for Medicaid expansion across households in different income categories might also reflect the importance of income inequality. Political economy theory predicts that growing inequality bolsters popular support for redistributive economic policies (Ashok, Kuziemko, and Washington 2015). To examine this hypothesis, we measure income inequality in each locality using the Gini coefficient. Higher levels of local inequality are associated with greater support for Medicaid expansion, both in models with (coefficient = 0.35; $p < 0.001$) and without (coefficient = 0.66; $p < 0.001$) a control for the share of college graduates. Statewide or national levels of income inequality might also affect support for redistributive policies, but we are unable to examine their effect in our setting, because they do not vary within our sample.

Because college graduates are more likely to live in more densely populated areas, the regressions reported in Table 1 and all subsequent tables control for the natural logarithm of population density. That variable is positively related to voting for Medicaid expansion (coefficient = 0.03; $p < 0.001$), consistent with the tendency of more urban areas to support public policies that increase redistribution. Excluding the variable for density makes the estimated impact of college education even larger.

All models also control for the areas' racial and ethnic composition using the population shares of blacks and Hispanics. In opinion polling, a respondent's race is among the strongest

provides 94% of expansion funding in 2018, is set to reduce funding to 90% from 2020 onward, and Congress could decide to reduce it further.

predictors of support for Medicaid expansion (Grogan and Park 2017a, 2017b).⁵ Because race is measured at the locality level in our analysis, it also captures the effects of the locality's racial diversity on policy preferences (Matsubayashi and Rocha 2012). Controlling for race has virtually no effect on the estimated impact of college education.

Column 3 of Table 1 reports results from a specification that also controls for the party affiliation, which is another strong predictor of support for Medicaid expansion (Grogan and Park 2017a, 2017b). We control for party affiliation using the Republican share of registered voters. We exclude party affiliation from our main model because it is itself a political outcome, which may partly reflect voters' preferences about the ACA and Medicaid expansion. Controlling for party affiliation could therefore cause the relationship between college education and support for Medicaid expansion to be understated. Nevertheless, the results in column 3 show that the effect of college remains large and highly statistically significant when we control for party affiliation (coefficient = 0.70; $p < 0.001$).

The relationship between college education and preferences for Medicaid expansion has not been highlighted in previous research on state policymaking or public opinion about Medicaid expansion. The finding builds on opinion polling reported in Table 4 of Grogan and

⁵ Public support for the ACA overall may be affected by race and racial attitudes because of the law's strong association with President Obama. The racial divide in public support for health care reform increased by 20 percentage points between 1993–1994 and 2009–2010 (Tesler, 2012), and experimental evidence shows that linking health care reform to President Obama rather than to President Clinton increases opposition among individuals with higher levels of racial resentment and implicit prejudice (Knowles, Lowrey, and Schaumberg 2010; Tesler 2012).

Park (2017b), which estimates that support for Medicaid expansion is 2.4 times greater among the college educated than among high school dropouts. But that estimate is not statistically significant and Grogan and Park emphasize the importance of race, political partisanship, and health insurance coverage (i.e., being uninsured, a Medicaid beneficiary, or a beneficiary's friend or family member), not educational attainment. Other studies of public opinion about Medicaid expansion, as well as the broader literatures on public opinion about the ACA, its other components, and healthcare reform more generally, have similarly focused on explanatory factors other than educational attainment (see, e.g., Berk, Gaylin, and Schur 2006; Blendon et al. 2008; Sussman, Blendon, and Campbell 2009; Brodie et al. 2010; Grande, Gollust, and Asch 2011; Blendon and Benson 2017).

One potential explanation for the stronger, and more precisely estimated, relationship between college and *voting* for Medicaid, is that college education is related both to holding a more favorable opinion about expanding Medicaid and to being more likely to vote. Sondheimer and Green (2010) and Mayer (2011) show that education increases voter turnout in federal elections. We examine the relevance of this effect in our setting by analyzing turnout in the referendum. The raw correlation between college education and voter turnout across localities in our sample is depicted in Figure 2. The estimation results using turnout as the dependent variable are reported in column 4 of Table 1. Voter turnout is greater in areas where a greater share of the population has a bachelor's degree. A bachelor's degree is associated with 16-percentage-point higher turnout, a 47% increase relative to the sample mean.

The power of college education in explaining Medicaid vote shares naturally raises questions about what aspects of college are driving the positive effect. We investigate this in two ways. First, we consider effects of post-secondary schooling leading to an associate's rather than

a bachelor's degree. Second, we test for differences among graduates of 4-year colleges based on their subject of study. The results are reported in Table 2.

Higher rates of postsecondary education in the form of associate's degrees have a large, *negative*, and significant association with support for Medicaid expansion; this is the opposite of what we find for bachelor's degrees. In our baseline model, an additional 1% of a locality in which voters' highest educational level is an associate's degree (rather than a high school diploma or less) is associated with a 0.70 percentage point lower vote share for Medicaid (column 1). When controlling for party affiliation, the estimate is smaller in magnitude but still highly statistically significant (coefficient = 0.38; $p < 0.001$; column 2). The opposite signs of the vote share associations for bachelor's and associate's degree holders may result from the preferences or economic circumstances of students who obtain 2-year rather than 4-year degrees, their instructional experiences (e.g., part-time versus full-time), or the subjects they study. Associate's degree programs involve less coursework and tend to be more vocationally oriented.

There is also substantial variation in Medicaid support among localities with higher rates of 4-year college graduates based on the graduates' primary field of study. The ACS divides bachelor's degree holders based on the broad subject area of their (first) bachelor's degree. We include in our model the shares of the local population who have bachelor's degrees in each of the following groups: science and engineering; science- and engineering-related fields (such as nursing, architecture, and math teacher education); business; education; and arts, humanities, and others.

The different majors are associated with starkly different voting patterns. Undergraduate business majors appear more similar to 2-year college graduates than their peers with other bachelor's degrees. Localities with more business majors tend to have lower vote shares for

Medicaid. The positive association with bachelor's degree holders overall is driven by substantial positive relationships for science and engineering, education, and arts and humanities majors. The largest association is 0.85–0.97 for arts and humanities majors ($p < 0.001$). Each additional person in an area with one of these degrees is associated with nearly one more vote for Medicaid expansion. The strength of this association could reflect robust preferences by those degree-holders for Medicaid expansion. It may also reflect their being more likely to turn out to vote in the election.

We examine the question of turnout directly by again analyzing the total number of votes cast scaled by the number of registered voters. The results are reported in column 3. We find a large and significant positive relationship between arts and humanities majors and turnout for the Medicaid vote (coefficient = 0.57; $p < 0.001$). We also find a significant increase in turnout associated with more business majors (coefficient = 0.44; $p < 0.01$), which suggests that turnout amplifies the impact of that group's preference against the expansion.

Higher rates of advanced degrees are also correlated with Medicaid voting. We repeated the analysis after breaking down bachelor's degree holders into those with no advanced degree, those with a master's degree, those with a professional degree, and those with a doctoral degree. The model continues to control for the population share with an associate's degree, population density, and race. The estimates imply that bachelor's degree holders without advanced degrees are modestly more supportive of Medicaid expansion than are people without college degrees (coefficient of 0.21; $p < 0.001$), whereas those with master's and doctoral degrees are even more supportive (coefficients of 1.10 and 1.24, respectively; $p < 0.001$) and those with professional degrees are less supportive (coefficient = -0.62 ; $p < 0.05$). Further analysis suggests that the negative estimate for professional degrees is driven by health professionals, as the effect is no

longer present after we control for the population share employed in health care diagnosis and treatment. We examine health professionals in greater detail in the next section.

Interest Groups

Four-year college graduates' strong implied support for Medicaid expansion is interesting in part because it does not obviously align with their economic self-interest. College graduates are less likely to be uninsured or to become eligible for Medicaid under the expansion.

Self-interest is, however, an apparent motivator for other populations. In Table 3, we report results for other directly affected groups. First, we look at the population that is most likely to gain insurance coverage from the proposed expansion of Medicaid: the uninsured with incomes below 138% of the poverty line. Consistent with self-interested voting, areas with higher population shares in this group are significantly more favorable to Medicaid expansion (see column 1; coefficient = 0.78; $p < 0.001$).

We also examine the votes of healthcare providers, who would benefit from their patients gaining expanded insurance coverage that increases demand for their services (Card, Dobkin, and Maestas 2008; Finkelstein et al. 2012; Taubman et al. 2014; Finkelstein et al. 2016). The financial benefit is greater for hospitals, because expansion reduces uncompensated care (Nikpay, Buchmueller, and Levy 2015; Nikpay, Buchmueller, and Levy 2016; Nikpay 2016). Unlike physicians' offices, hospitals are required (by the 1946 Hill-Burton Act and the 1986 Emergency Medical Treatment and Labor Act) to provide care to patients in emergency situations regardless of their ability to pay. Outside the hospital setting, however, the financial impact of Medicaid expansion on healthcare providers is less obvious. Medicaid has a relatively

low reimbursement rate⁶ and physicians may not see much financial gain from its expansion, particularly if some of the expansion comes from crowding out higher-paying private insurance (Frean, Gruber, and Sommers 2017; Kaestner et al. 2017).

Consistent with both incentives, we find that support for Medicaid expansion is positively associated with hospital employment (total full-time equivalent hospital employment as a share of the area population) and negatively associated with non-hospital providers.⁷ Like our finding for the uninsured, the positive association with hospital employment (coefficient = 0.31; $p < 0.001$) is consistent with self-interest as hospitals expected to benefit from an expanded health insurance safety net. These votes align with the Maine Hospital Association’s endorsement of the referendum. Although Maine’s major physician and nurse associations also supported Medicaid expansion, the voting data suggest that their members were less likely to fall in line. The negative association with the population share working in health diagnosis and treatment⁸ (coefficient = -0.71 ; $p < 0.001$) is consistent with healthcare providers outside of hospitals expecting Medicaid expansion to make them worse off because of Medicaid’s low

⁶ Maine has a Medicaid-to-Medicare fee index for “all services” of only 0.64, which is lower than the national average of 0.72 (excluding Tennessee, where data are not available), 37 other states, and the District of Columbia (Zuckerman, Skopec, and Epstein 2017).

⁷ Because of differences in data sources, the geographic basis for the occupation data on all health professionals is the worker’s residence (which is also where they vote), but it is the hospital location for hospital employment.

⁸ This Census occupational category is “health diagnosing and treating practitioners and other technical occupations” and it includes physicians and surgeons, therapists, nurses, dentists, veterinarians, and chiropractors.

reimbursement rate. The association is also negative but statistically insignificant for health technologists and technicians; it is positive and insignificant for healthcare support occupations.⁹

The model in Table 3, column 1, includes controls for the shares of the population with associate's and bachelor's degrees. The other estimates should thus be interpreted as the associations with changes in those variables while keeping the shares of college graduates unchanged. Because workers in health diagnosis and treatment typically have bachelor's degrees, the negative estimate indicates that they are less likely to support Medicaid expansion than other 4-year college graduates, who tend to favor expansion (coefficient in this model = 0.57; $p < 0.001$). The other healthcare provider groups are drawn more from associate's degree holders, who are less likely to support the expansion (coefficient in this model = -0.61; $p < 0.001$).

If we omit the education variables from our regression model, we find a significant positive association for health diagnosis and treatment workers (coefficient = 0.62; $p < 0.001$) and significant negative associations for health technologists and technicians (coefficient = -1.10; $p < 0.001$) and for those in healthcare support occupations (coefficient = -0.89; $p < 0.001$).¹⁰ Taken together, these results appear to show that health diagnosis and treatment

⁹ The Census occupational category "healthcare support occupations" includes nursing, psychiatric, and home health aides, occupational and physical therapists and aides, massage therapists, dental assistants, and pharmacy assistants.

¹⁰ In the model without education controls, the coefficient for the low-income uninsured population share remains positive but is smaller and not statistically significant. This is because the low-income uninsured population has lower average educational attainment, which is otherwise associated with opposition to Medicaid expansion; omitting education controls introduces a downward bias in the estimate for the uninsured.

workers are more supportive of Medicaid expansion than the general population but less supportive than other 4-year college graduates; other healthcare workers are roughly as supportive as others with similar education.

Controlling for party affiliation leaves the estimates qualitatively unchanged but smaller in magnitude. Estimates from a specification with this control, which is reported in column 3, can be compared to those from a specification without it, which is reported in column 1. The magnitude of the coefficient estimate on the population eligible to gain insurance decreases only slightly (from 0.78 to 0.76), the one on hospital employment decreases moderately (from 0.31 to 0.26), and the one on health diagnosis and treatment workers decreases by a lot (from -0.71 to -0.21). All three estimates remain statistically significant. The larger impact of these controls on the negative estimates than on the positive ones has multiple potential interpretations. For example, partisanship could be a bigger factor driving people to vote against expansion than to vote for it; or opposition to the ACA could be more likely to motivate moderates to register Republican than support for it motivates them not to.

Projection to Other States

At the time of Maine's referendum, 18 other states had not yet expanded Medicaid under the ACA. Opinion polls in these states show popular support for expansion (KFF 2018), and advocates are campaigning for ballot initiatives in Idaho, Nebraska, and Utah. Yet it is unclear how these or similar initiatives would fare at the ballot box.

In this section, we use regression estimates from the vote for Medicaid expansion in Maine to project votes for expansion in other states, based on those states' economic and demographic characteristics. The resulting estimates predict how other states would vote in a

referendum similar to Maine's, but does not account for how differences in the context, framing, or timing of ballot initiatives in other states would affect their popularity. Maine is an unusual state in several dimensions. For example, it is more rural, has a smaller minority population, and has lower Medicaid reimbursement rates than average. Yet, it is not homogeneous. To the extent that the variation within Maine can inform variation elsewhere, a regression model estimated across localities in Maine can be used to predict vote shares in hypothetical referendums in other states. Because this assumption is impossible to verify, this exercise is fundamentally speculative in nature.

The goal of this regression is to predict total voting shares rather than to interpret the magnitude of individual coefficients, as we did in the regressions reported above. To increase the model's explanatory power, we include all of the variables (except voter registration) from the previous models. Instead of Republican voter registration, we use President Donald J. Trump's vote share in the 2016 election to capture party affiliation and voting preferences for the Obama agenda, including the ACA. We use Trump's vote share instead of voter party registration because of differences across states in the importance of party registration for selecting candidates for ballots. Altogether, these variables explain 92% of the variation in vote share across localities in Maine.

Figure 3 depicts the results of this analysis on a map of the United States. States are colored based on whether their economic and demographic characteristics make their predicted vote share in a hypothetical Medicaid expansion referendum greater than 50% (blue, for passing the referendum) or less than 50% (red, failure to pass). The figure uses shading to indicate how the predicted passage compares to the current status of the Medicaid expansion in the state.

States are shaded darker when the model predicts a deviation from current policy and shaded lighter when no change is predicted.

Although we project the outcomes of hypothetical referendums in all states, not all states allow citizens to use direct democracy to make laws.¹¹ For states without direct democracy, the projection results indicate how citizens would vote if they could. The projections allow us to identify states where the result of a hypothetical ballot initiative differs from the realized policy outcome. These differences point to a potential role for direct democracy in shaping Medicaid policy.

Among the states that had not expanded Medicaid at the time of the Maine referendum, our model predicts that five would vote in favor of an expansion in a statewide ballot. In decreasing order of predicted vote share, ranging from 57% to 51%, these are Utah, Texas, Wisconsin, Florida, and Virginia.¹² Under current law, citizens in two of those five states (Utah and Florida) have the access to direct ballot initiatives. A hypothetical initiative on Medicaid expansion is predicted to fail in the remaining 13 non-expansion states, with predicted vote shares ranging from 46% (Idaho) to 29% (Mississippi).

¹¹ Twenty-one states have citizen-initiated state statutes: Alaska, Arizona, Arkansas, California, Colorado, Idaho, Maine, Massachusetts, Michigan, Missouri, Montana, Nebraska, Nevada, North Dakota, Ohio, Oklahoma, Oregon, South Dakota, Utah, Washington and Wyoming. Three other states have citizen-initiated constitutional amendments: Florida, Illinois, and Mississippi. Maryland and New Mexico allow citizens to initiate a referendum to veto a new law but not to pass a new one.

¹² Virginia subsequently became an expansion state on June 7, 2018, when Governor Ralph Northam signed into law a state budget that included Medicaid expansion.

We use a similar exercise to predict the outcome of expansion votes in states that have already expanded their Medicaid programs. For these states, we use the proportion of uninsured with incomes below 138% of the poverty line in 2012 (before Medicaid expanded) as the basis for the calculation. Perhaps unsurprisingly, the majority of these states are predicted to support the expansion in a referendum, with vote shares ranging from 77% (Washington, D.C.) to 50.03% (Pennsylvania). However, the model predicts that a referendum to expand Medicaid would fail in 11 states that have already expanded. In decreasing order of predicted vote share ranging from 49% to 33%, these states are Michigan, Iowa, Alaska, Montana, Ohio, Indiana, Kentucky, Arkansas, North Dakota, West Virginia, and Louisiana. Six of these 11 states allow direct democracy ballot initiatives.

This last result should be interpreted carefully. The basis of our prediction is an empirical model of voting in 2017 in a state that had not yet expanded Medicaid under the ACA. This is not the same as predicting how residents of these 11 states would have voted at the time that their program was expanded; some of the reversals may reflect changing preferences rather than an adoption that constituents would not have voted for themselves. The status quo also likely affects voters' preferences. While our model predicts that majorities of voters in some expansion states would not approve a ballot initiative favoring Medicaid expansion, this does not imply that majorities would support a measure that takes away people's benefits by retracting their state's already adopted expansion.

Conclusions

Maine's 2017 referendum on Medicaid expansion provides a unique opportunity to observe how people vote on Medicaid expansion as a standalone issue. Consistent with some votes reflecting

self-interest, we find greater support for Medicaid expansion in areas where more of the population would gain insurance and where hospitals (that would benefit from a reduced need for uncompensated care) have a larger presence. At the same time, we find a robust positive association between the share of an area's population with a bachelor's degree and its support for Medicaid expansion, which appears to contradict financial self-interest. These correlations may reflect the causal impact of a 4-year college education on an individual's preference for Medicaid expansion and voting behavior, but they may also be driven in part by differences in the attitudes of individuals who self-select into college attendance and completion. Uncovering the mechanism that drives this association is an interesting area for future research.

Even without understanding the precise sources of each association, it is possible to use the associations to predict the outcomes of ballot initiatives on Medicaid expansion in other states. Our model predicts that ballot initiatives would pass in five of the 18 the states that had not expanded Medicaid at the time of Maine's vote. Laws in two of these states—Utah and Florida—allow for ballot initiatives. These results suggest that, by allowing voters to isolate the issue of Medicaid expansion in a standalone ballot initiative, state-level direct democracy rights can lead to greater adoption of Medicaid expansion than the level produced through elected state governments. Although direct democracy was originally adopted among Progressive era reforms in the early twentieth century, in recent decades it has been used to limit taxation that supports the social safety net (Tolbert 2003). The outcomes of Maine's referendum and of our analysis indicate that direct democracy can nevertheless still be used to expand the social safety net.

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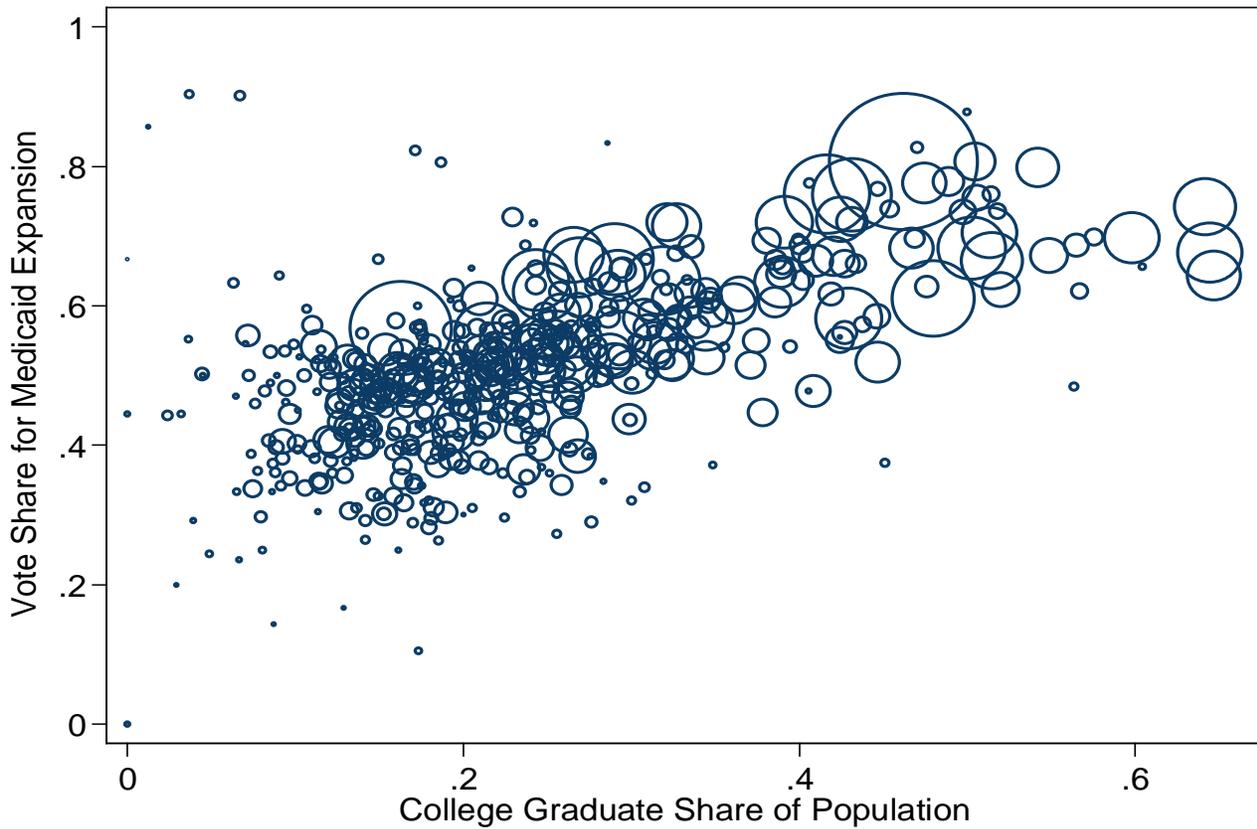
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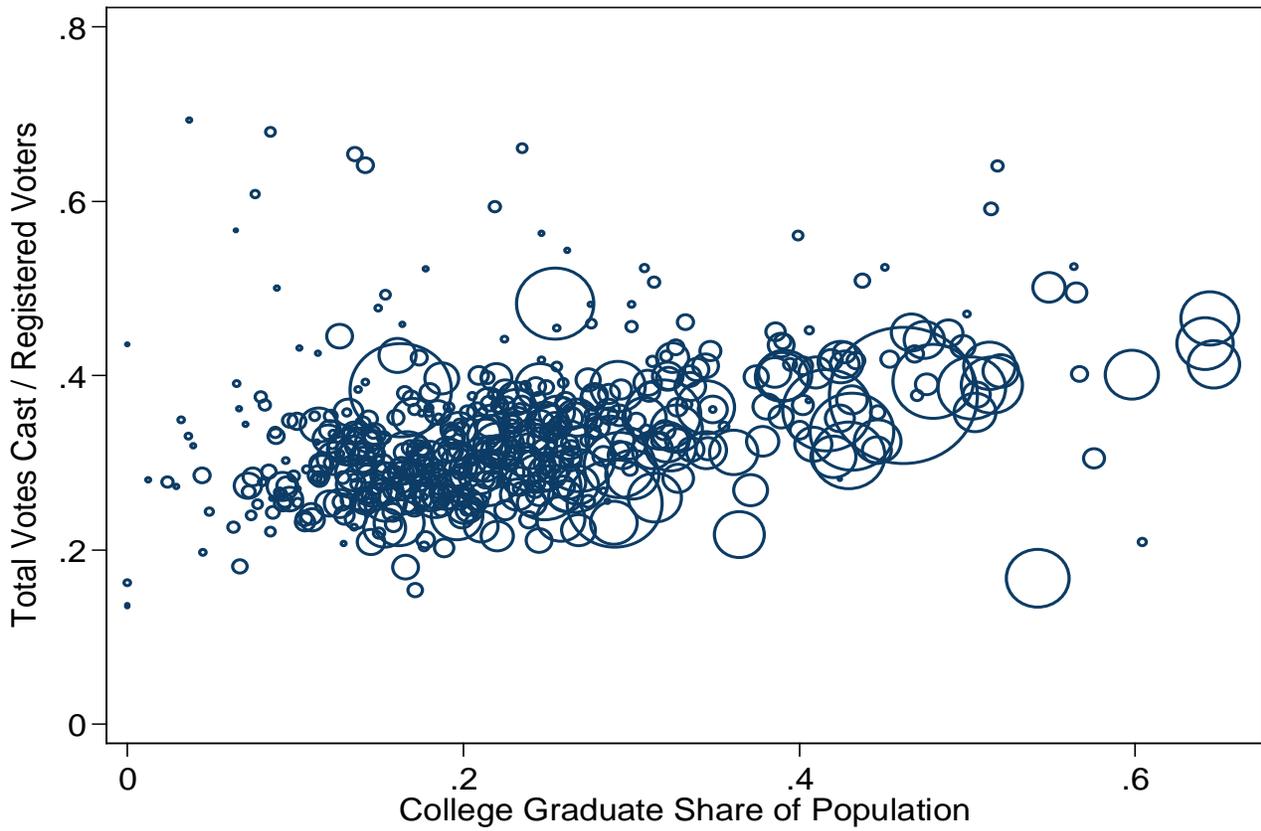
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Figure 1. College Graduates and the Vote Share for Medicaid Expansion



Notes: Each circle represents a locality and its size reflects the total number of votes cast. The x-axis shows the share of the adult population with a bachelor's degree in the locality, and the y-axis shows the share of votes cast in favor of expansion.

Figure 2. College Graduates and Voter Turnout



Notes: Each circle represents a locality and its size reflects the total number of registered voters. The x-axis shows the share of the adult population with a bachelor's degree in the locality, and the y-axis shows the share of registered voters who voted in the referendum.

Table 1
Effect of Household Income on Votes for Medicaid Expansion

<i>Dependent variable:</i>	Vote share for Medicaid expansion			Votes cast / Registered voters
	(1)	(2)	(3)	(4)
Share of population with household income:				
\$25-50K	-0.049 (0.108)	0.022 (0.074)	0.088 (0.059)	0.107 (0.074)
\$50-75K	-0.377*** (0.102)	-0.200*** (0.070)	-0.094* (0.056)	0.012 (0.070)
\$75-100K	-0.236** (0.095)	-0.180*** (0.065)	-0.112** (0.052)	0.195*** (0.065)
\$100K+	0.176*** (0.062)	-0.455*** (0.050)	-0.272*** (0.041)	0.160*** (0.050)
Share of population with bachelor's degree		0.794*** (0.034)	0.698*** (0.027)	0.156*** (0.035)
Controls				
Log population density	X	X	X	X
Race	X	X	X	X
Party affiliation			X	
<i>N</i>	491	491	491	491
<i>R</i> ²	0.54	0.79	0.87	0.25

Notes: This table summarizes results from regressions of voting outcomes on the shares of the population with household income in various categories, the natural logarithm of population density, and the shares of the population that is black and Hispanic. In the models reported in columns 1–3, the dependent variable is the vote share for Medicaid expansion and the regressions are weighted by the total number of votes cast; in the model reported in column 4, the dependent variable is voter turnout and the regression is weighted by the total number of registered voters. The models reported in columns 2–4 include a control for the share of the population with a bachelor's degree. The model reported in column 3 also includes a control for the share of the population that is registered Republican. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 2
Effect of Bachelor's Degree by Major and Associate's Degree on Votes for Medicaid Expansion

<i>Dependent variable:</i>	Vote share for Medicaid expansion		Votes cast /
	(1)	(2)	Registered voters
Share of population with bachelor's degree in:			
Science and engineering	0.496*** (0.089)	0.474*** (0.072)	-0.002 (0.089)
Science and engineering related	0.142 (0.227)	0.409** (0.183)	0.144 (0.234)
Business	-0.657*** (0.146)	-0.332*** (0.118)	0.439*** (0.151)
Education	0.319** (0.157)	0.338*** (0.126)	0.073 (0.162)
Arts, humanities, and other	0.969*** (0.113)	0.854*** (0.091)	0.570*** (0.118)
Share of population with associate's degree	-0.700*** (0.108)	-0.377*** (0.089)	0.199* (0.109)
Controls			
Log population density	X	X	X
Race	X	X	X
Party affiliation		X	
<i>N</i>	491	491	491
<i>R</i> ²	0.78	0.86	0.23

Notes: This table summarizes results from regressions of voting outcomes on the shares of the population whose first bachelor's degree is in the fields shown, the share of the population with an associate's degree, the natural logarithm of population density, and the shares of the population that is black and Hispanic. In the models reported in columns 1 and 2, the dependent variable is the vote share for Medicaid expansion and the regressions are weighted by the total number of votes cast. The model reported in column 2 includes a control for the share of the population that is registered Republican. In the model reported in column 3, the dependent variable is voter turnout and the regression is weighted by the total number of registered voters. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Table 3
Effect of Potential Recipients and Healthcare Employment on Votes for Medicaid Expansion

<i>Dependent variable: Vote share for Medicaid expansion</i>			
	(1)	(2)	(3)
Share of population that is uninsured and has income below 138% of the poverty line	0.782*** (0.169)	0.271 (0.240)	0.764*** (0.134)
Hospital employment / Population	0.312*** (0.092)	0.217* (0.132)	0.256*** (0.074)
Share of population working in:			
Health diagnosis and treatment	-0.711*** (0.143)	0.618*** (0.181)	-0.208* (0.118)
Health technologists and technicians	-0.218 (0.211)	-1.100*** (0.302)	-0.121 (0.168)
Healthcare support occupations	0.132 (0.169)	-0.889*** (0.239)	-0.023 (0.135)
Share of population with:			
Associate's degree	-0.605*** (0.114)		-0.306*** (0.092)
Bachelor's degree	0.575*** (0.029)		0.537*** (0.024)
Controls			
Log population density	X	X	X
Race	X	X	X
Party affiliation			X
<i>N</i>	491	491	491
<i>R</i> ²	0.77	0.51	0.86

Notes: This table summarizes results from regressions of the vote share for Medicaid expansion on the shares of population that is uninsured and has income below 138% of the poverty line, works in a hospital, works in various healthcare professions, is black, and is Hispanic, and the natural logarithm of population density. The models reported in columns 1 and 3 include controls for the shares of the population with an associate's degrees and a bachelor's degree. The model reported in column 3 includes a control for the share of the population that is registered Republican. All of the regressions are weighted by the total number of votes cast in each locality. *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively.

Appendix Table A1
Summary Statistics

	Mean	Std. Dev.
<i>Dependent variables:</i>		
Vote share for Medicaid expansion	0.585	0.119
Votes cast / Registered voters	0.331	0.065
<i>Explanatory variables:</i>		
Share of population with household income:		
\$25-50K	0.233	0.066
\$50-75K	0.200	0.048
\$75-100K	0.153	0.043
\$100K+	0.243	0.118
Income inequality: Gini coefficient	0.430	0.048
Share of population whose highest degree is:		
Associate's degree	0.095	0.026
Bachelor's degree	0.310	0.134
No advanced degree	0.198	0.077
Master's degree	0.079	0.041
Professional degree	0.019	0.017
Doctoral degree	0.014	0.013
Share of population with (first) bachelor's degree in:		
Science and engineering	0.109	0.057
Science and engineering related	0.031	0.015
Business	0.045	0.025
Education	0.047	0.018
Arts, humanities, and other	0.082	0.048
Share of population that is uninsured and has income below 138% of the poverty line	0.032	0.018
Hospital employment / population	0.020	0.039
Share of population working in:		
Health diagnosis and treatment	0.046	0.022
Health technologists and technicians	0.018	0.013
Healthcare support occupations	0.032	0.017
<i>Control variables:</i>		
Log population density	5.305	1.363
Share of population that is:		
Black	0.012	0.019
Hispanic	0.015	0.012
Republican share of registered voters	0.268	0.067

Notes: Summary statistics are weighted by the total number of votes cast in each locality, except for turnout (Votes cast / Registered voters), which is weighted by the number of registered voters. $N = 491$.