

# The Link between Democratic Institutions and Population Health in the American States

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## Abstract

**Context:** This project investigates the role of state-level institutions in explaining variation in population health in the American states. Although cross-national research has established the positive effects of democracy on population health, little attention has been given to subnational units. The authors leverage a new data set to understand how political accountability and a system of checks and balances are associated with state population health.

**Methods:** The authors estimate error correction models and two-way fixed effects models to estimate how the strength of state-level democratic institutions is associated with infant mortality rates, life expectancy, and midlife mortality.

**Findings:** The authors find institutions that promote political accountability are associated with lower infant mortality across the states, while those that promote checks and balances are associated with longer life expectancy. They also find that policy liberalism is associated with better health outcomes.

**Conclusions:** Subnational institutions play an important role in population health outcomes, and more research is needed to understand the link between democracy and health. The authors are the first to explore the link between democratic institutions and population health within the United States, contributing to both the social science literature on the positive effects of democracy and the epidemiological literature on subnational health outcomes.

**Keywords** democracy, American states, institutions, population health, representation

Epidemiologists document significant variations in health trends across the American states. For instance, several US states' life expectancies have decreased since 2010, but the largest decreases occurred in New Hampshire, Kentucky, Maine, Ohio, West Virginia, South Dakota, New Mexico,

Utah, Indiana, Mississippi, and Tennessee (Woolf and Schoemaker 2019). Other states did not experience decreases in life expectancy, and 13 states showed a marked increase (Woolf and Schoemaker 2019). When ranked across 39 different health outcomes, Mississippi, Alabama, Louisiana, and Kentucky are frequently among the least healthy states, while Utah, Massachusetts, Hawaii, and Connecticut tend to be at the top (Woolf et al. 2016). The pattern of poorer health in the southern states is evident across a wide range of measures of health and well-being (Wilmoth et al. 2010), and the gap in adult mortality between the southern states and the healthier regions has widened considerably over time (Fenelon 2013). Furthermore, areas with lower levels of educational attainment have seen a dramatic rise in deaths of despair from drug overdoses and suicides (Case and Deaton 2020). These geographic patterns are consequential. By one estimate, as much as 50% of the life-expectancy gap between the United States and other high-income countries between 1980 and 2000 is attributable to the growing subnational variations in health (Wilmoth et al. 2010).

Scholars typically focus on three main approaches to explain these geographic patterns: a behavioral risk factors approach (Elo et al. 2019; Fenelon and Preston 2012; Woolf and Schoemaker 2019), a health systems approach (Finkelstein et al. 2012; Sommers et al. 2012; van der Wees, Zaslavsky, and Ayanian 2013), and an economic approach (Case and Deaton 2020; Monnat and Pickett 2011; Pickett and Wilkinson 2015; Ruhm 2019). Despite a growing recognition that politics matters (e.g., Dawes 2020; Gamm and Kousser 2021; Greer et al. 2017), political approaches are largely absent from the literature looking at health outcomes across the American states.

We take an explicit political approach and focus on institutions that relate to the “rules of the game” that are arguably antecedent to commonly studied components of health. We estimate various models looking at the association of two continuous measures of democracy in the American states—political accountability and a system of checks and balances—with composite measures of state health outcomes over time. We find modest support for the hypothesis that stronger democratic institutions are associated with better population health in the American states. Our models suggest that institutions that promote political accountability are associated with lower infant mortality across the states, and institutions that promote a system of checks and balances are associated with longer life expectancy. We find additional evidence that liberal policies are correlated with improved health outcomes, although public policy does not fully account for the associations between democratic institutions and population health. Finally, additional analyses suggest that these results are

largely immune to the addition of downstream effects, such as smoking behavior, health insurance, and economic inequality.

Our article responds to recent calls by epidemiologists and medical sociologists to scale up analyses of health-place relationships and consider how well-being is associated with political conditions at the macro level (Bambra, Smith, and Pearce 2019; Gagnon et al. 2017). Our findings also contribute to the emerging literature on “public health political science” (Fafard and Cassola 2020). By providing comparative analyses of the American states, our findings point to the importance of the political context in understanding population health outcomes. The broader implication of our work is that healthy communities depend on the abundance of democratic institutions.

### **A Political Approach to Studying Subnational Population Health Outcomes**

Studies have found that democracies have longer life expectancy (Patterson and Veenstra 2016; Wigley and Akkoyunlu-Wiggley 2011), lower infant and child mortality (Okada 2018) and rates of parasitic disease (Thornhill, Fincher, and Aran 2009), and higher levels of self-rated health (Krueger, Dovel, and Denney 2015) compared to nations that are not democracies. Because of these studies the World Health Organization now views “effective governance” as a key social factor of health outcomes around the world (Kickbusch and Gleicher 2012). The COVID-19 pandemic has only further stimulated interest in understanding how democracy is associated with public health outcomes (Alon, Farrell, and Li 2020).

Whether the presence and the strength of democratic institutions help explain population health outcomes across the American states remains an open question. We might not immediately expect the positive association between democratic institutions and health to generalize to the subnational level. Comparative health studies often measure democracy using a dichotomous indicator taken from the Polity IV or Freedom House data set (Navarro et al. 2006). Other studies look at democratization (Mackebach, Hu, and Looman 2013), conflict (Iqbal 2020), corruption (Achim and Borlea 2018), and length of time a country has been a democracy (Keefer 2007). Regime type, levels of conflict or corruption, and the age of democratic governance are not factors within the American context. The variations in democratic institutions that do exist across the American states may be too small to contribute to geographic variations in population health.

At the same time, the vast literature in state politics shows that even slight variations in democratic institutions can lead to meaningful differences in policies and outcomes. To give one example, states with the initiative process tend to have lower taxes and spend less compared to states without the initiative process (Matsusaka 2018). Direct democracy also matters for social policies such as parental abortion notification and capital punishment (Gerber 1996), same-sex marriage bans (Lewis 2011), and minority rights policies (Gerber and Hug 2001). And in the last decade, progressive activists have been able to utilize the ballot initiative to pass their priorities on gun control, marijuana legalization, and minimum wage increases (Ferraiolo 2017). Given that liberal policies are associated with improved citizen health (Montez et al. 2020), the influence of state institutions such as the ballot initiative might well be associated with geographic trends in health.

Democratic institutions also precede public policies that are likely to impact variations in the commonly studied determinants of health. Political choices are “the causes of the causes of the causes of geographical inequalities in health” (Bambra, Smith, and Pearce 2019: 38). By having a fuller understanding of the political forces associated with health outcomes, public health scholars can “conduct more realistic research and evaluation,” anticipate opportunities and constraints on governmental action, and “design more effective policies and programs” (Oliver 2006: 195).

We focus on two concepts associated with democratic institutions: political accountability and checks and balances. The definitions of these concepts that we use in this study have their origins in the vast political science literature on institutional variations across the American states and in studies on global variations in health.

### Political Accountability

A key difference in institutional design across the American states is the extent to which elected officials are held accountable. Institutions structure influence of public demands on elite behavior both during campaigns and while politicians are in office. During campaigns, campaign finance laws (Barber 2016; La Raja and Schaffner 2015) and expansive voter registration laws (Mitchell and Wlezien 1995; Wolfinger and Rosenstone 1980), for instance, force ambitious politicians to look beyond small coalitions of support and appeal to the broader public. Stricter campaign finance rules also reduce the effect of moneyed interests by theoretically shifting the

balance of power closer to the public. While politicians are in office, certain institutions, such as ballot initiatives and popular referenda, allow citizens to directly communicate preferences to elites (Gerber 1996; Matsusaka 2018). There is evidence that elites adjust their positions to align with the majority after high-profile popular vetoes (Kogan 2016; Kousser, Lewis, and Masket 2007). Finally, differences in staffing, pay, and office resources influence the extent to which legislators learn about conditions in their district (Maestas 2000; Squire 1993); some states have professionalized legislatures—which facilitate direct contact with constituents—while others do not.

The comparative health literature suggests that one reason democracies boast better health outcomes is because of increased accountability structures. The argument here is that when accountability pressure is high, politicians are forced to respond to a larger electorate by enacting more inclusive policies that are protective of marginalized populations, which leads to better health outcomes. Patterson and Veenstra (2016) found that countries with higher levels of public deliberation have lower infant mortality rates compared to countries that limit public input. Gamm and Kousser (2021) argue that electoral pressure generates incentives to improve general public health and welfare. Similarly, Case and Deaton (2020) argue that the increase in deaths of despair is at least partially driven by the disproportionate influence of moneyed interest in American politics weakening the electoral connection between working-class citizens and political elites.

At the same time, we might expect for accountability institutions to increase public input at the expense of equity, particularly in the American case, where the government is most responsive to wealthy citizens (Gilens and Page 2014) who are healthy (Pacheco 2021). A government that is too responsive to majoritarian opinion may be able to achieve electoral success without contributing to the overall well-being of the electorate. Sances (2016), for example, analyzed institutional reforms in New York towns and found that elected property assessors showed more bias against low-income residents than did appointed property assessors. Similarly, despite increased political engagement by Black residents and a larger number of elected Black officials, Mississippi remains primarily responsive to statewide majority white opinion (Grogan and Park 2017; Jones 2019). In Mississippi's case, accountability structures might actually undermine population health outcomes by enhancing the political voice of white residents who are less favorable toward expansive health policies.

## A System of Checks and Balances

Institutions associated with a system of checks and balances also vary across the American states. Here we are primarily interested in what Lijphart (1999) refers to as consensus-oriented institutions. When power is distributed more across separate branches of government, policy change requires a larger coalition of actors to succeed. For example, professionalized legislatures have a higher capacity to develop legislation and oversee other branches of government (Maestas 2000, 2003). Legislatures with low levels of professionalism may be reliant on outside interests or the executive branch for policy solutions (Jansa, Hansen, and Gray 2019). When the house speaker has a high level of power, the lower house can interact with other political entities in a more unified and coherent manner (Clucas 2001; Mooney 2013). Similarly, governors also see significant variation in their ability to influence policy change. In some states, bureaucrats are appointed by the governor, which enables the executive branch to conduct extensive oversight (Dometrius et al. 2013) and produce new regulations and policies (Beyle 1968), while in other states, power is more concentrated in the legislative branch.

States with rules that simultaneously empower both the executive and legislative branches of government are expected to have policies that better reflect a range of governing actor interests, which may be associated with better population health outcomes, since deliberations about optimal solutions force disparate interests to reach consensus. These types of rules also prevent one actor from unilaterally proposing legislation, which matters for health. For instance, countries with institutions that restrict the decision latitude of a unilateral actor had lower infant mortality compared to countries without this system (Patterson and Veenstra 2016). Consensus-oriented institutions are also associated with higher life expectancy (Patterson 2017).

On the other hand, a strong system of checks and balances might also lead to significant gridlock, which may be detrimental to public health. By increasing the size of the coalition needed to pass legislation, checks and balances could slow down or stop the ability to move the status quo (Tsebelis 1995). With sufficiently strong veto actors, a motivated minority may be able to block policies that would benefit the broader population, as Immergut (1990) found in the case of medical groups that blocked reforms to Switzerland's health care system. If a governing actor with veto power is captured by special interests, a small group may be able to block change to protect its own interest. Even without special interest capture, Crepaz (2001)

found that systems with separated powers tended to reduce the ability of the state to implement redistributive policy. A strong system of checks and balances may hamper the creation of redistributive or welfare policies needed to address public health concerns.

To summarize, we argue that democratic institutions within the American states—particularly political accountability structures and a system of checks and balances—are potentially important factors associated with geographic health outcomes. Yet, the divergent literatures from comparative political science and population health lead us to opposite expectations. Strong political accountability structures may be not only associated with better population health but also lead to unwanted health outcomes. While the presence of a strong system of checks and balances suggests that policy change must have broad consensus (which could benefit general welfare), it also increases opportunities for a small group to stop policy change. Further complicating this story is a question of whether the status quo is desirable. If the status quo improves population health, then a robust system of checks and balances may preserve an optimal policy, but if the status quo is suboptimal it will also be difficult to change. Overall, we do not have clear expectations for the association between either political accountability or a system of checks and balances and population health outcomes in the states.

### Measuring Democratic Institutions in the 50 States

We use subnational democracy scores developed by LaCombe (2021). LaCombe uses a Bayesian exploratory factor analysis on state institutional and electoral data from 1975 through 2016 to identify two democratic institutions across the states: *accountability pressure* and *checks and balances*.<sup>1</sup> Institutions associated with accountability pressure include those that affect state elections (e.g., campaign finance regulations, voter registration laws) as well as those that affect the pressure for elected officials to respond to constituents (e.g., the ballot initiative, legislative professionalism, term limits).<sup>2</sup> The checks-and-balances measure includes institutions that affect the relative power of different branches of

1. See LaCombe (2021) for more details on both the data collection process and the measurement strategy.

2. LaCombe combines the first two dimensions because they are parts of the same underlying concept of accountability, but as a robustness check, we have replicated all models in the online appendix with the disaggregated accountability pressure scores (see online appendix). Inferences are largely unchanged.

**Table 1** Descriptive Statistics

Variable	Observations	Mean	SD	Min	Max
Infant mortality	1,150	6.69	1.39	3.47	11.46
Life expectancy	2,100	76.28	2.210	70.2	81.7
Mortality	950	351.47	67.59	241.6	567.9
Political accountability	2,100	-.002	1.20	-3.33	3.20
Checks and balances	2,100	.013	.79	-2.37	1.40
Percent smoker	1,199	2.6	3.95	8.8	32.6
Proportion with insurance	1,550	.87	.04	.74	.97
Gini index	2,050	.55	.05	.43	.71
Policy liberalism	2,000	.04	1.1	-2.53	2.81
Dif. infant mortality	1,100	-.07	.72	-3.62	3.44
Dif. life expectancy	2,050	.14	.26	-.9	1.3
Dif. mortality	900	.22	9.84	-38.4	43
Party control	1,960	1.12	.68	0	2

Note: Dif. = differenced versions of a variable.

government (e.g., speaker power, gubernatorial power, veto override rules).<sup>3</sup> The measures are standardized with a mean of 0 and are normally distributed. Higher scores indicate a stronger accountability structure and a stronger checks-and-balances system. Descriptive statistics are included in table 1. In a multivariate analysis, these scores are not associated with state income per capita and the percentage of the population with at least a bachelor's degree, which helps alleviate fears of a spurious relationship between institutions and health.

### Measuring Population Health Outcomes in the 50 States

We use three common outcomes to characterize health across the 50 states: infant mortality from 1995 to 2016, life expectancy at birth from 1975 to 2016, and midlife all-cause mortality from 1999 to 2016. Infant mortality

3. While some institutions included in this concept are picking up on the size of the gridlock interval (Krehbiel 1996), most of the institutions in this measure refer to the distribution/concentration of power rather than negative agenda control. The chief institutions contributing to the measure, including legislative professionalism, ballot initiative, and gubernatorial power, may increase policy-making activity in the states as citizens can effectively use the threat of initiatives to force legislative action (Gerber 1996; LaCombe and Boehmke 2021). To test if the system of checks and balances is associated with less policy change, we correlated this measure with Boehmke et al.'s (2020) measure of policy innovation across 800 state policies. We found a small negative correlation (-.05). This suggests that checks and balances are not associated with rates of policy adoption; if anything, they decrease the probability of innovations.

rates come from the National Center for Health Statistics of the Centers for Disease Control and Prevention (CDC) (Ely and Driscoll 2021), while life expectancy at birth and midlife all-cause mortality come from Woolf and Schoomaker (2019). Infant mortality is the rate of death of an infant before his or her first birthday per every 1,000 live births. It is calculated by taking the number of infant deaths per state year and dividing by the number of live births per state year. Life expectancy at birth is an estimate of the number of years a newborn is predicted to live based on period life table calculations (see Woolf and Schoomaker 2019 for more details). Midlife mortality refers to the death rate of adults aged 25 to 64 years per 100. Figures A2–A5 in the online appendix show variation across states on these measures; descriptive information is shown in table 1. ANOVA analyses confirm significant variation at both units of analysis with 28%, 64%, and 5% of the variance occurring within states for infant mortality, life expectancy, and midlife mortality. This descriptive information is helpful for determining our empirical strategy as we describe in the next section.

### Methodological Approach

There is complexity in estimating models that account for both unit heterogeneity and autocorrelation for cross-sectional time series data (see Beck and Katz 1995, 2011). Proper identification of the modeling strategy requires understanding the source of variation in the dependent and independent variables as well as the limitations of the data. As we have already indicated in the ANOVA analyses, the source of variation for the dependent variables differs, with some variables (life expectancy) having a majority of variance between states, and others (mortality) having a majority of variance within states. We have data for all three outcomes for all 50 states ( $N = 50$ ), but for infant mortality there are 22 years ( $T = 22$ ), for life expectancy there are 41 years ( $T = 41$ ), and for mortality there are 18 years ( $T = 18$ ). In all cases,  $T$  is large enough to capture dynamic patterns, and asymptotics exist in both  $N$  and  $T$  (see Wooldridge 2010 for more information). Our measures of political accountability and a system of checks and balances also vary across time (35% and 27% of the variance is within states, respectively), although they are sluggish and slow to change (Plümper and Troeger 2007).

Beck and Katz (2011) advise analysts to first model the dynamics appropriately before dealing with cross-sectional issues, because correctly modeling dynamics may eliminate the need for unit fixed effects. To this end, Fisher-type unit root tests based on an augmented Dickey-Fuller test

indicate that the null hypothesis that all panels contain unit roots can be rejected for life expectancy, but not for infant mortality or midlife adult mortality. The correlation between all three variables and lagged values is high.<sup>4</sup>

A major concern with time series cross-sectional data is that systemic factors (e.g., national-level policies) or unit-specific forces (e.g., state economics) that are not included in the model lead to omitted variable bias. Systemic factors can be controlled away with variables that capture time trends, while unit fixed effects account for unit heterogeneity. These solutions are atheoretical and may lead to an overparameterization of the model (Achen 2005). There is also concern that including unit fixed effects with a lagged dependent variable (LDV) creates biased estimates (e.g., Nickell 1981), although others suggest this bias is small when  $T$  is greater than 5 (Beck and Katz 2011). Still others advise against unit fixed effects when the researcher wishes to include unit-invariant covariates or predictors that change gradually over time (Clark and Linzer 2015). In these cases, a random effects estimator may be preferable, even in the presence of bias, to reduce variance (Clark and Linzer 2015). The larger point is that alternative model specifications often lead to drastically different conclusions (Wilson and Butler 2007), and in the absence of perfect theory and data, it is difficult to decide which model specification is closest to the “truth.”

We report results using multiple model specifications. First, we model the dependent variables as the one-year *difference* and include an LDV to correct for autocorrelation (Beck and Katz 1995).<sup>5</sup> More specifically, we estimate an error correction model (ECM) with panel-corrected standard errors. Modeling our dependent variables as first differences has two benefits. First, these types of models essentially purge the regression of any unobserved state-specific fixed effects. ANOVA analyses on the differenced dependent variables confirm that virtually all the variation is within states (99%, 98%, and 95% for differenced infant mortality, differenced life expectancy, and differenced midlife mortality, respectively). Second, we can allow for the possibility that the treatment effect of democratic institutions

4. The correlation between infant mortality<sub>*t*</sub> with infant mortality<sub>*t-1*</sub>, infant mortality<sub>*t-2*</sub>, and infant mortality<sub>*t-3*</sub> is .87, .86, and .86, respectively. The correlation between life expectancy<sub>*t*</sub> with life expectancy<sub>*t-1*</sub>, life expectancy<sub>*t-2*</sub>, and life expectancy<sub>*t-3*</sub> is .99, .99, and .98, respectively. The correlation between mortality<sub>*t*</sub> with mortality<sub>*t-1*</sub>, mortality<sub>*t-2*</sub>, and mortality<sub>*t-3*</sub> is .99, .98, and .97, respectively.

5. The correlation between *differenced* infant mortality<sub>*t*</sub> with infant mortality<sub>*t-1*</sub>, infant mortality<sub>*t-2*</sub>, and infant mortality<sub>*t-3*</sub> is -.49, .009, and .03, respectively. The correlation between *differenced* life expectancy<sub>*t*</sub> with life expectancy<sub>*t-1*</sub>, life expectancy<sub>*t-2*</sub>, and life expectancy<sub>*t-3*</sub> is -.26, .08, and .09, respectively. The correlation *differenced* between mortality<sub>*t*</sub> with mortality<sub>*t-1*</sub>, mortality<sub>*t-2*</sub>, and mortality<sub>*t-3*</sub> is -.16, .11, and .13, respectively.

on health requires some extended period of time. An ECM allows for the estimation of both short- and long-term effects of independent variables and tells us how quickly the system returns to equilibrium or the overall mean after being disrupted. Since both of our democratic variables are time-varying, we include differenced and lagged versions.<sup>6</sup> We also include fixed effects of year to capture common trends. For these dynamic models, we decided against state fixed effects because the differenced outcomes are already purged of the between-state variation and because our main independent variables, while dynamic, are slow to change (see Clark and Linzer 2015).<sup>7</sup>

Not including state fixed effects, however, may result in biased coefficients as the result of an omitted variable. It is possible that some unobserved factor affects both democratic institutions and population health outcomes. As a result, we present a second set of models that attempt to describe the between-state association of democratic institutions and population health outcomes. This type of model specification is especially important to include for dependent variables when the majority of the variance is between units, as is the case for midlife mortality. For these models, the estimates of the effect of democratic institutions are contemporaneous and non-time-varying. We still control for common time trends by including fixed year effects.

We initially present models without extensive control variables since we argue that democratic institutions set up the rules of the game that likely affect the public policy process and the types of policies that are enacted. Policies in turn affect commonly studied correlates of state health, including behavioral risk factors (such as percentage smoking or obesity), health systems (such as percentage insured), and economic conditions (such as educational attainment and income inequality). Empirically, our first step is to determine whether an association exists between democratic institutions and population health outcomes. Including factors that are causally subsequent to and likely correlated with these democratic institutions prevents us from identifying these direct associations (see, for instance, Achen 2005; Lenz and Sahn 2021).

6. The coefficient on the differenced independent variable gives the short-term effect on the dependent variable, while the coefficient on the lagged independent variable gives the long-term effect on the dependent variable. To get the estimated short-term effect of a unit change in X, we simply multiply this effect by the coefficient on the differenced independent variable. To get the estimated long-term effect of a unit change in X, we divide the coefficient by the error correction rate and then multiply it by a unit change in X.

7. We also footnote when inferences change with the inclusion of state fixed effects for the dynamic models.

## Results: Democratic Institutions and State Population Health Outcomes

Table 2 shows the results from estimating an ECM with panel-corrected standard errors on the first differences of infant mortality, life expectancy, and midlife mortality. Recall that the coefficient on the LDV gives the error correction rate with a value closer to zero, indicating a slow return to equilibrium. As shown in table 2, the coefficient on the LDV for infant mortality, life expectancy, and adult mortality is  $-.185$ ,  $-.008$ , and  $-.002$ , respectively, suggesting that the three population health outcomes are slow—and in some cases very slow—to return to equilibrium when disrupted.

Turning to the coefficients shown in table 2, there is modest empirical support for the hypothesis that stronger democratic institutions are associated with improved population health in the states. Results suggest that as political accountability increases, infant mortality decreases; however, this association takes time to materialize. The model predicts that a .77 increase in political accountability (which is roughly two standard deviations above the mean change) is associated with decreases in infant mortality rate by .21 (e.g.,  $[.77/.185]^*-.05$ ), although this association is distributed gradually over the long run. The coefficient on political accountability fails to reach statistical significance in all other instances.

Table 2 also shows that a system of checks and balances is associated with state health outcomes. Specifically, the model predicts that as a system of checks and balances increases, both infant mortality and adult mortality decrease and life expectancy increases. There is variation in how long it takes the effects to materialize. The model predicts that a .65 increase in a system of checks and balances (which is roughly 2 standard deviations above the mean change) is associated with a decrease in the infant mortality rate by .52 (e.g.,  $[.65/.185]^*-.15$ ), an increase in life expectancy by 2.28 years (e.g.,  $[.65/.008]^*.028$ ), and a decrease in the adult mortality rate by 429 (e.g.,  $[.65/.002]^*-1.319$ ), although these relationships are distributed gradually over the long run. The model does not predict any immediate effects of checks and balances on population health outcomes.<sup>8</sup>

None of these estimated effects are trivial. To put these numbers in perspective, in 2018, there were 3.79 million live births in the United States, although birth rates varied across states (CDC 2020). A deduction

8. The coefficient for both versions of the political accountability measure remains statistically significant with the addition of state fixed effects for infant mortality ( $\beta = -.53^*$  for differenced version;  $\beta = -.88^{***}$  for lagged version). The coefficients for a system of checks and balances for life expectancy and mortality fail to reach statistical significance with the inclusion of state fixed effects.

**Table 2** Panel Corrected Standard Error Models with Institutional Measures and LDV

	Infant mortality 1996–2016	Life expectancy 1975–2016	Midlife mortality 1999–2016
LDV	-.19*** (.04)	-.01 (.01)	-.002 (.01)
D. Accountability	.12 (.29)	-.04 (.07)	-1.82 (5.01)
L. Accountability	-.05* (.03)	.004 (.01)	-.46 (.63)
D. Checks and Balances	-.08 (.32)	.08 (.08)	11.70 (6.90)
L. Checks and Balances	-.15*** (.04)	.03** (.01)	-1.32* (.63)
Constant	1.11*** (.28)	.88* (.36)	.05 (2.63)
Observations	1050	2050	850
R-squared	.13	.34	.24

Notes: LDV = lagged dependent variable, L. = lagged variable (1-year), and D. = differenced. Panel corrected standard errors are in parentheses. Models include fixed effects for year.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

by .21 and .52 in the infant mortality rate would equate to roughly 21 and 52 fewer infant deaths for every 100,000 annual live births, respectively. Likewise, in 2018, there were approximately 164 million people aged 25–64 years living in the United States. A deduction of 429 in the all-cause mortality rate for adults aged 25 to 64 years is a substantively large effect. US life expectancy reached 78.7 years in 2018; an increase by 2.28 years would also be significant.

Table 3 provides additional empirical evidence of an association between democratic institutions and population health outcomes in the states. The model presented in table 3 is a two-way fixed effects model and controls for heterogeneity across states and time. As shown in table 3, political accountability is associated with infant mortality and midlife mortality, and a system of checks and balances is associated with life expectancy and midlife mortality. Substantively, the model predicts that for every unit increase in political accountability structures, there is an associated .711 decrease in infant mortality and a 13.9 decrease in midlife mortality. Likewise, a unit increase in institutions that promote checks and balances leads to a .376 increase in life expectancy and 18.18 decrease in the all-cause mortality rate among residents aged 25–64 years.

**Table 3** Two-Way Fixed Effects Models with Institutional and Policy Liberalism Measures

	(1)	(2)	(3)	(4)	(5)	(6)
	Infant mortality	Life expectancy	Midlife mortality	Infant mortality	Life expectancy	Midlife mortality
Accountability	-.71* (.28)	-.03 (.23)	-13.95 (13.54)	-.43 (.32)	.01 (.17)	-7.44 (15.03)
Checks and balances	.24 (.29)	.38* (.17)	-18.18 (18.65)	-.12 (.32)	.41** (.14)	-6.25 (21.75)
Policy liberalism CW				.13 (.23)	.65*** (.15)	-13.26 (11.43)
Democratic control				-.02 (.07)	.01 (.05)	1.35 (2.27)
Constant	9.61*** (.39)	7.85*** (.39)	447.72*** (32.70)	9.56*** (.55)	72.10*** (.49)	445.69*** (41.00)
Observations	1100	2100	900	980	1960	784
R <sup>2</sup>	.848	.956	.961	.849	.965	.967

Notes: Standard errors are in parentheses. CW = Caughey and Warshaw. All models include fixed effects for state and year and clustered standard errors by state.  
\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

## Liberal Policy as an Intermediate Factor

Above we find moderate support for the hypothesis that political accountability structures and a system of checks and balances are associated with population health outcomes in the American states. We suspect that if democratic institutions improve citizen health, it is likely because they create environments that promote certain types of policies. Liberal policies, such as regulations on unhealthy behaviors, laws that expand access to and affordability of health care, and redistributive policies that provide a wider social safety net are associated with improved citizen health (Montez et al. 2020). Can these policies help explain the association between democratic institutions and population health outcomes in the states?

To answer this question, we add state policy measures to the previous analyses. Specifically, we use Caughey and Warshaw's (2018) yearly measure of state policy liberalism, which was created by using a dynamic latent variable model on data on 148 state policies. Policy domains in this measure include abortion (e.g., parental notification), criminal justice (e.g., the death penalty), drugs and alcohol (e.g., marijuana decriminalization), education (e.g., per-pupil education spending), the environment (e.g., clean air laws), civil rights (e.g., gay marriage), gun control (e.g., handgun regulation), labor (e.g., right-to-work laws), social welfare (e.g., Aid to Families with Dependent Children/Temporary Assistance for Needy Families), taxation (e.g., income tax rates), and other miscellaneous laws including fireworks bans and bicycle helmet laws (Caughey and Warshaw 2018). Most important for our analyses, policies associated with democratic institutions as well as policy outcomes (e.g., infant mortality rates) are excluded from this measure. Because this variable is dynamic, we include both differenced and lag versions in the time series models. Higher values indicate more liberal state policies.

We also include measures of state partisan control for two reasons. First, there is growing evidence that partisan control is associated with population health outcomes. Rodríguez et al. (2022b), for instance, found that states with Republican administrations had lower infant mortality rates compared to states with Democratic administrations, particularly after the political realignment of the 1960s (see also Rodríguez et al. 2022a). States where the majority of residents voted for the Democratic presidential candidate had better childhood health outcomes compared to states that supported the Republican presidential candidate (Paul et al. 2022), and Democratic counties had lower COVID-19 death rates compared to

Republican counties (Chen and Karim 2021). Second, there is extensive evidence showing that partisan control is associated with the ideology informing public policies as well as the adoption of health policies. Caughey, Xu, and Warshaw (2017), for instance, found that Democratically controlled states had more liberal policies compared to Republican-controlled states, and there is evidence that this relationship has grown stronger in recent years (see also Erikson, Wright, and McIver 1993). States controlled by the Democrats spend more on Medicaid (Kousser 2002) and are more likely to adopt Affordable Care Act (ACA) state exchanges early on (Rigby and Haselswerdt 2013) and to expand Medicaid under the ACA (Barrilleaux and Rainey 2014). Evidence suggests that partisan control also played a large role in the adoption of mitigation policies for COVID-19 (Warner and Zhang 2021).

We measure partisan control using data from the Correlates of State Policy Project (Grossman, Jordan, and McCrain 2021). A 1 on this measure indicates that the state legislature and governor are both controlled by Democrats, a 0 indicates that party control is divided between the parties, and a -1 indicates Republican control in both the legislature and the governor's office.

### Results: Liberal Policies as Intermediate Factors

Results on liberal policies as intermediate factors are presented in tables 3 and 4.<sup>9</sup>

As shown in table 4, state policy liberalism is associated with all three measures of population health, while partisan control is only associated with infant mortality, albeit in the opposite direction. The model predicts that a .20 increase in policy liberalism (which is roughly two standard deviations above the mean change) decreases the infant mortality rate by .10 (e.g., [.20/.28]\*-.16), increases life expectancy by .24 (e.g., [.20/.021]\*.025), and decreases mortality by 12.5 (e.g., [.20/.019]\*-1.13), although these effects are distributed gradually over the long run. The positive association between policy liberalism and population health is largely consistent with Montez et al. (2020). The association between political accountability and population health remains largely unchanged with the addition of state policy liberalism and partisan control. Similar to results presented in table 2, political accountability is associated with a decrease in infant mortality but is not associated with life expectancy and midlife

9. The sample sizes for life expectancy and midlife mortality are reduced with the addition of the policy liberalism measures because they are only available until 2016.

**Table 4** Error Correction Model with Institutional and Policy Liberalism Measures

	Infant mortality	Life expectancy	Midlife mortality
LDV	-.27*** (.05)	-.02** (.01)	-.02 (.01)
D. Accountability	.02 (.30)	-.02 (.06)	.55 (4.52)
L. Accountability	-.05* (.03)	.00 (.01)	-.32 (.65)
D. Checks and balances	.22 (.30)	.14 (.08)	3.69 (7.52)
L. Checks and balances	-.15*** (.04)	.03** (.01)	-1.73* (.79)
L. Policy liberalism	-.16*** (.04)	.03*** (.01)	-1.13* (.46)
D. Policy liberalism	-.28 (.22)	.06 (.05)	.32 (3.58)
L. Democratic control	.08* (.03)	-.01 (.01)	.41 (.55)
D. Democratic control	-.04 (.06)	-.01 (.02)	.03 (.92)
Constant	1.78*** (.38)	1.83*** (.50)	6.22 (3.95)
Observations	931	1911	735
R <sup>2</sup>	.181	.350	.215

Notes: LDV = lagged dependent variable, L. = lagged variable (1-year), and D. = differenced. Panel corrected standard errors are in parentheses. Models include fixed effects for year.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

mortality. A system of checks and balances remains significant in all three models using conventional levels.<sup>10</sup>

We see similar results in table 3, which presents the two-way fixed effects model. Policy liberalism is positively associated with life expectancy and negatively associated with midlife mortality, but it is not associated with infant mortality. Partisan control is not associated with our public health outcomes with this specification. Substantively, the model predicts that for every unit increase in state policy liberalism, there is an associated .66 increase in life expectancy and a 13.26 decrease in midlife mortality.

10. The coefficient for the political accountability measure remains statistically significant with the addition of state fixed effects for infant mortality ( $\beta = -.57^*$  for differenced version;  $\beta = -.84^{***}$  for lagged version).

With the addition of the policy liberalism score, neither political accountability nor a system of checks and balances are significantly associated with midlife mortality, providing some evidence that state policy liberalism may be a mediating factor. At the same time, the model shows that a system of checks and balances is still positively associated with life expectancy. We interpret the results in tables 3 and 4 as providing mixed evidence that liberal policies account for the association between democratic institutions and population health outcomes.

### **Results: Including Intermediate Factors from Public Health**

As we stated above, previous research has focused almost exclusively on the influence of intermediate factors, such as behavioral risk factors, health systems, and socioeconomic conditions, on population health. How do our inferences about the roles of democratic institutions and state policy liberalism change once we control for these important factors? To answer this question, we include covariates that tap into these three intermediate factors. To measure behavioral risk factors, we include the percentage of adult smokers. We include smoking behavior as opposed to other risk factors (e.g., obesity rates) because of previous research (Fenelon and Preston 2012) and data availability. This measure is available from 1995 through 2017 and is obtained from the CDC's Behavioral Risk Factor Surveillance System Prevalence and Trends Data (CDC 2020). We account for the health systems approach by including a measure of the proportion of adults who are insured (either privately or publicly), using data from the Annual Social and Economic Supplement from the Current Population Survey from 1988 to 2016. While health insurance is only part of the health systems approach, we believe it accurately captures an important dimension of the quality of health care. Finally, we include a measure of state-level income inequality—the Gini index—to account for economic conditions (Frank 2009). The Gini index measures the relative wealth distribution of a state's residents, with higher values indicating high levels of inequality. Here again, there are multiple measures we could include to capture economic conditions; we believe that state-level income inequality is most aligned with previous work in this area (Pickett and Wilkinson 2015).

As before, we estimate an ECM with an LDV and panel-corrected standard errors as well as a two-way fixed effects model that includes contemporaneous independent variables. Since all of the covariates tapping into intermediate factors are time-varying, we include differenced and lagged versions in the ECM. Results are shown in tables 5 and 6.

**Table 5** Error Correction Model with Additional Determinants of Health Outcomes

	(1) Infant mortality 1996–2016	(2) Life expectancy 1975–2016	(3) Midlife mortality 1999–2016
LDV	-.29*** (.05)	-.04*** (.01)	-.03** (.01)
D. Accountability	.05 (.30)	.02 (.08)	.39 (4.33)
L. Accountability	-.04 (.03)	.004 (.01)	-.19 (.63)
D. Checks and balances	.33 (.27)	.06 (.10)	5.57 (7.08)
L. Checks and balances	-.10** (.03)	.03* (.01)	-1.21 (.79)
L. Policy liberalism	-.15*** (.03)	.04*** (.01)	-.96* (.46)
D. Policy liberalism	-.25 (.23)	.08 (.07)	.91 (3.56)
L. Percent smoker	.03** (.01)	-.01** (.004)	.54** (.18)
D. Percent smoker	-.01 (.02)	-.01 (.01)	.49 (.29)
L. Proportion insured	.26 (.51)	.12 (.20)	-15.91 (11.62)
D. Proportion insured	.56 (1.63)	-.60 (.47)	24.37 (24.24)
L. Gini index	-.37 (.72)	.37 (.27)	-18.40 (1.08)
D. Gini index	1.05 (2.18)	-.25 (.88)	87.46* (34.41)
L. Democratic control	.07* (.03)	-.01 (.01)	.31 (.52)
D. Democratic control	-.03 (.06)	.003 (.02)	.08 (.89)
Constant	1.25 (.74)	3.33** (1.04)	23.87 (14.56)
Observations	-.29***	-.04***	-.03**
R <sup>2</sup>	(.05)	(.01)	(.01)

Notes: LDV = lagged dependent variable, L. = lagged variable (1-year), and D. = differenced. Panel corrected standard errors are in parentheses. Models include fixed effects for year.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .

**Table 6** Two-Way Fixed Effects Model with Additional Determinants of Health Outcomes

	(1) Infant mortality 1996–2016	(2) Life expectancy 1975–2016	(3) Midlife mortality 1999–2016
Accountability	-.41 (.32)	.33 (.30)	-6.79 (13.91)
Checks and balances	-.12 (.34)	-.03 (.31)	-8.61 (21.10)
Policy liberalism	.10 (.24)	.40* (.20)	-1.52 (1.14)
Percent smoker	.01 (.02)	-.08*** (.02)	3.03*** (.75)
Proportion insured	1.84 (1.80)	-.52 (1.61)	47.10 (69.23)
Gini index	-.17 (1.31)	.32 (.91)	-4.12 (36.46)
Democratic control	-.03 (.07)	-.01 (.05)	1.27 (2.07)
Constant	7.84*** (1.60)	76.67*** (1.90)	353.36*** (95.47)
Observations	979	979	783
R <sup>2</sup>	.849	.972	.970

Notes: Standard errors are in parentheses. Fixed effects for state and year.

\*  $p < .05$ , \*\*\*  $p < .001$ .

As shown in table 5, democratic institutions associated with political accountability are no longer associated with changes in population health outcomes in the states once we control for percentage smokers, percentage insured, and state Gini index. On the other hand, a system of checks and balances remains statistically significant and in the expected direction for infant mortality and life expectancy. Table 6 points to similar inferences. As shown in table 6, the coefficient on political accountability is statistically significant and in the expected direction for infant mortality, even with the addition of the policy liberalism measure and other intermediate factors associated with behavioral risks, the health system, and socioeconomic conditions. A system of checks and balances fails to reach statistical significance.

### Limitations

Observational data analyses are plagued by two threats to inference: endogeneity and omitted variable bias. We are less concerned about

endogeneity given that our goal is to explore associations—not identify causal relationships—between democratic institutions and population health. In addition, many of the institutions in the data set were adopted more than 100 years ago and preceded many of the large gains in well-being seen in the 20th century. We suspect that endogeneity—even if we were identifying causal relationships—is a small concern. Omitted variable bias is more of an issue. It is possible that some unobserved factor is responsible for the observed positive association that we find between democratic institutions and population health outcomes. Our two-way fixed effects models (in tables 3 and 6) may be enough to address these concerns, yet these models hinge on the assumption that there are no state-specific time-varying confounders. The most obvious state-specific time-varying confounder is past state health outcomes. We control for path dependency directly by including LDVs (shown in tables 2, 4, and 5); in many of these model specifications, the positive association between democratic institutions and health outcomes remains significant. Other state-specific time-varying confounders include party control and policy liberalism; we control for both of these factors in our models. Nonetheless, it is possible that we have not fully controlled for important state-specific time-varying confounders.

## Conclusions

Democracy is a dominant and valued principle of the modern world that is promoted within the international community and across the United States. Democratic institutions are expected to be associated with citizen well-being and population health. While US states offer less variation than that observed in cross-national research, there is still significant variation in state-level institutional design. Overall, we believe that our empirical analyses provide evidence that (1) there is an association between democratic institutions and population health outcomes in the American states, and (2) the questions of *how* and *why* democratic institutions are associated with population outcomes are complicated and ripe for future research. We estimated more than 15 different model specifications, and in almost every model at least one of our measures of democratic institutions reached statistical significance. The most consistent finding is that institutions that promote checks and balances are positively associated with life expectancy; the next most consistent finding is that institutions that promote accountability are negatively associated with infant mortality.

We encourage additional research on the identification of mechanisms linking democratic institutions to population health at the subnational

level. A fruitful extension of this research would be to look at how democratic institutions relate to health inequalities within states across demographic characteristics, such as gender, race, socioeconomic status, and immigration status. If political accountability promotes a diversity of participation and voices in the political process, we might expect a reduction in health disparities. On the other hand, if majoritarian institutions amplify the voices of the most advantaged at the expense of others, we might expect for these same institutions to be associated with larger health gaps. Interestingly, in preliminary analyses, we find empirical support for the latter scenario. We find that the ratio between Black/white life expectancy is higher in states with strong political accountability structures, meaning there are greater disparities between Black and white life expectancy in these states. This evidence suggests that gains in public health outcomes associated with stronger political accountability may come at the expense of Black residents. Clearly, more research is needed to confirm these preliminary results.<sup>11</sup>

Additionally, future research might focus less on generalized measures of population health, such as life expectancy, infant and child mortality, adult mortality, or levels of reported self-rated health. While studies that look at generalized measures of population health are important, they do little to inform public health scholars about the role of democratic institutions during public health crises. We would expect not only that democracies have better health overall than other types of governments but also that they respond to emerging public health crises in more effective and equitable ways. Exploring how political accountability and a system of checks and balances are associated with COVID-19 health outcomes across the states would be particularly enlightening.

Finally, we cannot ignore the fact that institutions are malleable and ever changing, especially in a federalist system such as in the United States. As democratic laboratories, states are continually experimenting with their institutional frameworks, and these experiments have consequences for the distribution of political power, resources, and voice. Furthermore, given the growing polarization of American politics, future work should focus on how partisan control can moderate potential institutional associations with population health. Our results suggest that these types of institutional changes have the potential to affect population health and explain geographic heterogeneity within the American states. And healthy communities might very well depend on an abundance of democratic institutions.

11. See online appendix for model of life expectancy by race.

■ ■ ■

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## References

- Achen, Christopher H. 2005. "Let's Put Garbage-Can Regressions and Garbage-Can Probits Where They Belong." *Conflict Management and Peace Science* 22, no. 4: 327–39.
- Achim, Monica Violeta, and Sorin Nicolae Borlea. 2018. "The Impact of Corruption on Population Health." *Population Health Management* 21, no. 1: 84.
- Alon, Ilan, Matthew Farrell, and Shaomin Li. 2020. "Regime Type and COVID-19 Response." *FIIB Business Review* 9, no. 3: 152–60.
- Bambra, Clare, Katherine E. Smith, and Jamie Pearce. 2019. "Scaling Up: The Politics of Health and Place." *Social Science and Medicine* 232: 36–42.
- Barber, Michael J. 2016. "Ideological Donors, Contribution Limits, and the Polarization of American Legislatures." *Journal of Politics* 78, no. 1: 296–310.
- Barrilleaux, Charles, and Carlisle Rainey. 2014. "The Politics of Need: Examining Governors' Decisions to Oppose the 'Obamacare' Medicaid Expansion." *State Politics and Policy Quarterly* 14, no. 4: 437–60.
- Beck, Nathaniel, and Jonathan N. Katz. 1995. "What to Do (and Not to Do) with Time-Series Cross-Section Data." *American Political Science Review* 89, no. 3: 634–47.
- Beck, Nathaniel, and Jonathan N. Katz. 2011. "Modeling Dynamics in Time-Series–Cross-Section Political Economy Data." *Annual Review of Political Science* 14: 331–52.
- Beyle, Thad L. 1968. "The Governor's Formal Powers: A View from the Governor's Chair." *Public Administration Review* 28, no. 6: 540–45.
- Boehmke, Frederick J., Mark Brockway, Bruce A. Desmarais, Jeffrey J. Harden, Scott LaCombe, Fridolin Linder, and Hanna Wallach. 2020. "SPID: A New Database for Inferring Public Policy Innovativeness and Diffusion Networks." *Policy Studies Journal* 48, no. 2: 517–45.
- Case, Anne, and Angus Deaton. 2020. *Deaths of Despair and the Future of Capitalism*. Princeton, NJ: Princeton University Press.

- Caughey, Devin, and Christopher Warshaw. 2018. "Policy Preferences and Policy Change: Dynamic Responsiveness in the American States, 1936–2014." *American Political Science Review* 112, no. 2: 249–66.
- Caughey, Devin, Yiqing Xu, and Christopher Warshaw. 2017. "Incremental Democracy: The Policy Effects of Partisan Control of State Government." *Journal of Politics* 79, no. 4: 1342–58.
- CDC (Centers for Disease Control and Prevention). 2020. "Prevalence and Trends Data." Behavioral Risk Factor Surveillance System, Prevalence Data and Data Analysis Tools, February 5. [https://www.cdc.gov/brfss/data\\_tools.htm](https://www.cdc.gov/brfss/data_tools.htm).
- Chen, Hsueh-Fen, and Saleema A. Karim. 2021. "Relationship between Political Partisanship and COVID-19 Deaths: Future Implications for Public Health." *Journal of Public Health*, April 29. <http://doi.org/10.1093/pubmed/fdab136>.
- Clark, Tom S., and Drew A. Linzer. 2015. "Should I Use Fixed or Random Effects?" *Political Science Research and Methods* 3, no. 2: 399–408.
- Clucas, Richard A. 2001. "Principal-Agent Theory and the Power of State House Speakers." *Legislative Studies Quarterly* 26, no. 2: 319–38.
- Crepaz, Markus. 2001. "Veto Players, Globalization, and the Redistributive Capacity of the State: A Panel Study of 15 OECD Countries." *Journal of Public Policy* 21, no. 1: 1–22.
- Dawes, Daniel E. 2020. *The Political Determinants of Health*. Baltimore: Johns Hopkins University Press.
- Dometrius, Nelson C., Cynthia Bowling, Margaret R. Ferguson, and Deil S. Wright. 2013. "State-Level Measures of Institutional Budgetary Influence from the American State Administrators Project: 1964–98." *State Politics and Policy Quarterly* 13, no. 1: 107–20.
- Elo, Irma T., Arun S. Hendi, Jessica Y. Ho, Yana C. Vierboom, and Samuel H. Preston. 2019. "Trends in Non-Hispanic White Mortality in the United States by Metropolitan-Nonmetropolitan Status and Region, 1990–2016." *Population and Development Review* 45, no. 3: 549–83.
- Ely, Danielle M., and Anne K. Driscoll. 2021. "Infant Mortality in the United States, 2019: Data from the Period Linked Birth/Infant Death File." *National Vital Statistics Reports* 70, no. 14: 1–18.
- Erikson, Robert S., Gerald C. Wright, and John P. McIver. 1993. *Statehouse Democracy: Public Opinion and Policy in the American States*. Cambridge: Cambridge University Press.
- Fafard, Patrick, and Adele Cassola. 2020. "Public Health and Political Science: Challenges and Opportunities for a Productive Partnership." *Public Health* 186: 107–9.
- Fenelon, Andrew. 2013. "Geographic Divergence in Mortality in the United States." *Population and Development Review* 39, no. 4: 611–34.
- Fenelon, Andrew, and Samuel H. Preston. 2012. "Estimating Smoking-Attributable Mortality in the United States." *Demography* 49, no. 3: 797–818.
- Ferraiolo, Kathleen. 2017. "State Policy Activism via Direct Democracy in Response to Federal Partisan Polarization." *Publius* 47, no. 3: 378–402.

- Finkelstein, Amy, Sarah Taubman, Bill Wright, Mira Bernstein, Jonathan Gruber, Joseph P. Newhouse, Heidi Allen, Katherine Baicker, and Oregon Health Study Group. 2012. "The Oregon Health Insurance Experiment: Evidence from the First Year." *Quarterly Journal of Economics* 127, no. 3: 1057–1106.
- Frank, Mark W. 2009. "Inequality and Growth in the United States: Evidence from a New State-Level Panel of Income Inequality Measures." *Economic Inquiry* 47, no. 1: 55–68.
- Gagnon, France, Pierre Bergeron, Carole Clavier, Patrick Fafard, Elisabeth Martin, and Chantal Blouin. 2017. "Why and How Political Science Can Contribute to Public Health? Proposals for Collaborative Research Avenues." *International Journal of Health Policy and Management* 6, no. 9: 495–99.
- Gamm, Gerald, and Thad Kousser. 2021. "Life, Literacy, and the Pursuit of Prosperity: Party Competition and Policy Outcomes in 50 States." *American Political Science Review* 115, no. 4: 1442–63.
- Gerber, Elisabeth R. 1996. "Legislative Response to the Threat of Popular Initiatives." *American Journal of Political Science* 40, no. 1: 99–128.
- Gerber, Elisabeth R., and Simon Hug. 2001. "Legislative Response to Direct Legislation." In *Referendum Democracy: Citizens, Elites, and Deliberation in Referendum Campaigns*, edited by Matthew Mendelsohn and Andrew Parkin, 88–108. London: Palgrave Macmillan.
- Gilens, Martin, and Benjamin I. Page. 2014. "Testing Theories of American Politics: Elites, Interest Groups, and Average Citizens." *Perspectives on Politics* 12, no. 3: 564–81.
- Greer, Scott L., Marleen Bekker, Evelyne De Leeuw, Matthias Wismar, Jan-Kees Helderma, Sofia Ribeiro, and David Stuckler. 2017. "Policy, Politics, and Public Health." *European Journal of Public Health* 27, suppl. 4: 40–43.
- Grogan, Colleen M., and Sunggeun Park. 2017. "The Racial Divide in State Medicaid Expansions." *Journal of Health Politics, Policy and Law* 42, no. 3: 539–72.
- Grossmann, Matt, Marty P. Jordan, and Joshua McCrain. 2021. "The Correlates of State Policy and the Structure of State Panel Data." *State Politics and Policy Quarterly* 21, no. 4: 430–50.
- Immergut, Ellen M. 1990. "Institutions, Veto Points, and Policy Results: A Comparative Analysis of Health Care." *Journal of Public Policy* 10, no. 4: 391–416.
- Iqbal, Zaryab. 2020. *War and the Health of Nations*. Redwood City, CA: Stanford University Press.
- Jansa, Joshua M., Eric R. Hansen, and Virginia H. Gray. 2019. "Copy and Paste Lawmaking: Legislative Professionalism and Policy Reinvention in the States." *American Politics Research* 47, no. 4: 739–67.
- Jones, David K. 2019. "Political Participation in the Least Healthy Place in America: Examining the Political Determinants of Health in the Mississippi Delta." *Journal of Health Politics, Policy and Law* 44, no. 3: 505–31.
- Keefer, Philip. 2007. "Clientelism, Credibility, and the Policy Choices of Young Democracies." *American Journal of Political Science* 51, no. 4: 804–21.
- Kickbusch, Ilona, and David Eric Gleicher. 2012. *Governance for Health in the 21st Century*. Copenhagen: World Health Organization Regional Office for Europe.

- Kogan, Vladimir. 2016. "When Voters Pull the Trigger: Can Direct Democracy Restrain Legislative Excesses?" *Legislative Studies Quarterly* 41, no. 2: 297–325.
- Kousser, Thad. 2002. "The Politics of Discretionary Medicaid Spending, 1980–1993." *Journal of Health Politics, Policy and Law* 27, no. 4: 639–72.
- Kousser, Thad, Jeffrey B. Lewis, and Seth E. Masket. 2007. "Ideological Adaptation? The Survival Instinct of Threatened Legislators." *Journal of Politics* 69, no. 3: 828–43.
- Krehbiel, Keith. 1996. "Institutional and Partisan Sources of Gridlock: A Theory of Divided and Unified Government." *Journal of Theoretical Politics* 8, no. 1: 7–40.
- Krueger, Patrick M., Kathryn Dovel, and Justin T. Denney. 2015. "Democracy and Self-Rated Health across 67 Countries: A Multilevel Analysis." *Social Science and Medicine* 143: 137–44.
- LaCombe, Scott J. 2021. "Measuring Institutional Design in US States." *Social Science Quarterly* 102, no. 4: 1511–33.
- LaCombe, Scott J., and Frederick J. Boehmke. 2021. "The Initiative Process and Policy Innovation in the American States." *State Politics and Policy Quarterly* 21, no. 3: 286–305.
- La Raja, Raymond, and Brian Schaffner. 2015. *Campaign Finance and Political Polarization: When Purists Prevail*. Ann Arbor: University of Michigan Press.
- Lenz, Gabriel S., and Alexander Sahn. 2021. "Achieving Statistical Significance with Control Variables and without Transparency." *Political Analysis* 29, no. 3: 356–69.
- Lewis, Daniel C. 2011. "Direct Democracy and Minority Rights: Same-Sex Marriage Bans in the US States." *Social Science Quarterly* 92, no. 2: 364–83.
- Lijphart, Arend. 1999. *Patterns of Democracy: Government Forms and Performance in Thirty-Six Countries*. New Haven, CT: Yale University Press.
- Mackenbach, Johan P., Yannan Hu, and Caspar W. N. Looman. 2013. "Democratization and Life Expectancy in Europe, 1960–2008." *Social Science and Medicine* 93: 166–75.
- Maestas, Cherie. 2000. "Professional Legislatures and Ambitious Politicians: Policy Responsiveness of State Institutions." *Legislative Studies Quarterly* 25, no. 4: 663–90.
- Maestas, Cherie. 2003. "The Incentive to Listen: Progressive Ambition, Resources, and Opinion Monitoring among State Legislators." *Journal of Politics* 65, no. 2: 439–56.
- Matsusaka, John G. 2018. "Public Policy and the Initiative and Referendum: A Survey with Some New Evidence." *Public Choice* 174, no. 1: 107–43.
- Mitchell, Glenn E., and Christopher Wlezien. 1995. "The Impact of Legal Constraints on Voter Registration, Turnout, and the Composition of the American Electorate." *Political Behavior* 17, no. 2: 179–202.
- Monnat, Shannon M., and Camille Beeler Pickett. 2011. "Rural/Urban Differences in Self-Rated Health: Examining the Roles of County Size and Metropolitan Adjacency." *Health and Place* 17, no. 1: 311–19.
- Montez, Jennifer Karas, Jason Beckfield, Julene Kemp Cooney, Jacob M. Grumbach, Mark D. Hayward, Huseyin Zeyd Koytak, Steven H. Woolf, and Anna Zajacova. 2020. "US State Policies, Politics, and Life Expectancy." *Milbank Quarterly* 98, no. 3: 668–99.

- Mooney, Christopher Z. 2013. "Measuring State House Speakers' Formal Powers, 1981–2010." *State Politics and Policy Quarterly* 13, no. 2: 262–73.
- Navarro, Vicente, Carles Muntaner, Carme Borrell, Joan Benach, Águeda Quiroga, Maica Rodríguez-Sanz, Núria Vergés, and M. Isabel Pasarín. 2006. "Politics and Health Outcomes." *Lancet* 368, no. 9540: 1033–37.
- Nickell, Stephen. 1981. "Biases in Dynamic Models with Fixed Effects." *Econometrica* 49, no. 6: 1417–26.
- Okada, Keisuke. 2018. "Health and Political Regimes: Evidence from Quantile Regression." *Economic Systems* 42, no. 2: 307–19.
- Oliver, J. Eric. 2006. *Fat Politics: The Real Story behind America's Obesity Epidemic*. New York: Oxford University Press.
- Pacheco, Julianna. 2021. "The Policy Consequences of Health Bias in Political Voice." *Political Research Quarterly* 74, no. 1: 46–58.
- Patterson, Andrew C. 2017. "Not All Built the Same? A Comparative Study of Electoral Systems and Population Health." *Health and Place* 47: 90–99.
- Patterson, Andrew C., and Gerry Veenstra. 2016. "Politics and Population Health: Testing the Impact of Electoral Democracy." *Health and Place* 40: 66–75.
- Paul, Megan, Ruya Zhang, Bian Liu, Payam Saadai, and Brian A. Coakley. 2022. "State-Level Political Partisanship Strongly Correlates with Health Outcomes for US Children." *European Journal of Pediatrics* 181, no. 1: 273–80.
- Pickett, Kate E., and Richard G. Wilkinson. 2015. "Income Inequality and Health: A Causal Review." *Social Science and Medicine* 128: 316–26.
- Plümper, Thomas, and Vera E. Troeger. 2007. "Efficient Estimation of Time-Invariant and Rarely Changing Variables in Finite Sample Panel Analyses with Unit Fixed Effects." *Political Analysis* 15, no. 2: 124–39.
- Rigby, Elizabeth, and Jake Haselswerdt. 2013. "Hybrid Federalism, Partisan Politics, and Early Implementation of State Health Insurance Exchanges." *Publius* 43, no. 3: 368–91.
- Rodríguez, Javier M., Byengseon Bae, Arline T. Geronimus, and John Bound. 2022a. "The Political Realignment of Health: How Partisan Power Shaped Infant Health in the United States, 1915–2017." *Journal of Health Politics, Policy and Law* 47, no. 2: 201–24.
- Rodríguez, Javier M., Arline T. Geronimus, John Bound, Rixin Wen, and Christina M. Kinane. 2022b. "Partisan Control of US State Governments: Politics as a Social Determinant of Infant Health." *American Journal of Preventive Medicine* 62, no. 1: 1–8.
- Ruhm, Christopher J. 2019. "Drivers of the Fatal Drug Epidemic." *Journal of Health Economics* 64: 25–42.
- Sances, Michael W. 2016. "The Distributional Impact of Greater Responsiveness: Evidence from New York Towns." *Journal of Politics* 78, no. 1: 105–19.
- Sommers, Ben, Rick Kronick, Kenneth Finegold, Rosa Po, Karyn Schwartz, and Sherry Glied. 2012. "Understanding Participation Rates in Medicaid: Implications for the Affordable Care Act." *Public Health* 93, no. 1: 67–74.
- Squire, Peverill. 1993. "Professionalization and Public Opinion of State Legislatures." *Journal of Politics* 55, no. 2: 479–91.

- Thornhill, Randy, Corey L. Fincher, and Devaraj Aran. 2009. "Parasites, Democratization, and the Liberalization of Values across Contemporary Countries." *Biological Reviews* 84, no. 1: 113–31.
- Tsebelis, George. 1995. "Decision Making in Political Systems: Veto Players in Presidentialism, Parliamentarism, Multicameralism, and Multipartyism." *British Journal of Political Science* 25, no. 3: 289–325.
- van der Wees, Philip J., Alan M. Zaslavsky, and John Z. Ayanian. 2013. "Improvements in Health Status after Massachusetts Health Care Reform." *Milbank Quarterly* 91, no. 4: 663–89.
- Warner, Mildred E., and Xue Zhang. 2021. "Social Safety Nets and COVID-19 Stay Home Orders Across US States: A Comparative Policy Analysis." *Journal of Comparative Policy Analysis* 23, no. 2: 176–90.
- Wigley, Simon, and Arzu Akkoyunlu-Wigley. 2011. "The Impact of Regime Type on Health: Does Redistribution Explain Everything?" *World Politics* 63, no. 4: 647–77.
- Wilmoth, John R., Carl Boe, and Magali Barbieri. 2010. "Geographic Differences in Life Expectancy at Age 50 in the United States Compared with Other High-Income Countries." In *International Differences in Mortality at Older Ages: Dimensions and Sources*, edited by Eileen M. Crimmins, Samuel H. Preston, and Barney Cohen, 333–66. Washington, DC: National Academies Press.
- Wilson, Sven E., and Daniel M. Butler. 2007. "A Lot More to Do: The Sensitivity of Time-Series Cross-Section Analyses to Simple Alternative Specifications." *Political Analysis* 15, no. 2: 101–23.
- Wolfinger, Raymond E., and Steven J. Rosenstone. 1980. *Who Votes?* New Haven, CT: Yale University Press.
- Wooldridge, Jeffrey M. 2010. *Econometric Analysis of Cross-Section and Panel Data*. Cambridge, MA: MIT Press.
- Wolf, Steven H., and Heidi Schoomaker. 2019. "Life Expectancy and Mortality Rates in the United States, 1959–2017." *JAMA* 322, no. 20: 1996–2016.
- Wolf, Steven H., Emily Zimmerman, Amber Haley, and Alex H. Krist. 2016. "Authentic Engagement of Patients and Communities Can Transform Research, Practice, and Policy." *Health Affairs* 35, no. 4: 590–94.