Pork during Pandemics: Federal Spending and Public Health Crises

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Abstract

The United States has faced four salient pandemics in the twenty-first century: H1N1 or Swine Flu in 2009, Ebola in 2014, Zika in 2017, and COVID-19 in 2020. Each pandemic garnered significant public attention, prompting Congress to act by allocating emergency funds to states, localities, and federal agencies like the Department of Health and Human Services. This article asks: during pandemics, do actors in the Executive Branch continue to pursue parochial distributions of much needed funds? How, if at all, do the exigencies related to public health emergencies alter the distributive outputs of political institutions? Using spending data pursuant to four pandemics from eight federal agencies, I show that pandemic spending is less parochial than spending during normal times. I also contrast pandemic spending with other public health spending to isolate the effect of pandemics from general public health spending.

"...we ought not to recklessly appropriate money, at least we ought, as a rule, to take the time to ascertain for what purpose it is going to be spent, how it will be spent, and as to whether the scope of the appropriation is within the possibilities of its helpful expenditure."

—Senator Oscar Underwood concerning the flu pandemic in 1918¹

"The Executive Branch must be accountable to [the] taxpayers. Financial relief to address the coronavirus pandemic should not be turned into a slush fund for a president seeking reelection, with little accountability to the people whose money he is spending."

— Senator Patrick Leahy concerning COVID-19 in 2020^2

As the two quotations uttered on the floor of the US Congress a century apart indicate, concerns over how funds appropriated by Congress to combat pandemics will be allocated by

¹U. S. Congress 1918, 10896

²U. S. Congress 2020, S2055

the Executive Branch have always pervaded congressional decisions to delegate and appropriate (*Cf.* Epstein and O'Halloran 1996, 1999; Volden 2002). During non-emergency periods in American politics, that concern is indeed justified. Districts represented by members of Congress that share the president's party consistently receive more federal money than those of the opposing party (Berry, Burden and Howell 2010; Christenson, Kriner and Reeves 2017; Rogowski 2016) and geographies that are important to the president's reelection likewise receive more federal money than those less important (Dynes and Huber 2015; Kriner and Reeves 2015). But might the large and immediate societal cost stemming from the pursuit of a parochial distribution of lifesaving resources lead the Executive Branch to pursue a more efficient distribution of funds?

The political economic literature on distributive politics makes clear that political actors with discretion over distributive programs use that discretion to further their own interests, be it reelection, coalition building, or strengthening the party brand for members of Congress and the president, or currying favor with and avoiding sanction by political overseers and interest groups for bureaucrats (Bertelli and Grose 2009; Bickers and Stein 1996; Evans 2004; Hudak 2014; Lee 2000, 2002, 2003; Mayhew 1974). However, empirical and theoretical treatments of distributive politics either aggregate over time or assume "normal" conditions. The potential devastation associated with pandemics produces good reasons to believe that pandemics should meaningfully alter elites' distributive calculus. Studying distributive politics during pandemics is important for bettering our understanding of how institutions made up of individuals with strong personal incentives respond to pandemics: problems of national scale that require collective action.

In this article, I examine federal spending both in the aggregate and disaggregated across eight federal agencies both during non-emergency periods and during four twenty-first century pandemics: H1N1 in 2009, Ebola in 2014, Zika in 2016, and COVID-19 in 2020. I find that although during normal, non-emergency periods, presidential co-partisanship is a significant predictor of federal outlays, during pandemics there is no evidence of a presidential

co-partisan advantage. I then compare COVID-19 spending to spending on the opioid crisis, a public health problem without the public urgency of an infections pandemic, in order to isolate the independent effect of pandemics beyond general public health emergencies.

Pandemic Spending in the United States

Despite the horizontally and vertically fragmented structure of the US government, public health crises require centralized, national responses. Legislators in the early 20th century knew as much when appropriating one million dollars to the Public Health Service to combat the flu pandemic in 1918 (about \$17 million in 2020 dollars). "[O]rdinarily I would not be in favor of this bill, but with the emergency that is upon us at this time I see no other way to control it" admitted William R. Green, a representative from Iowa (U. S. Congress 1918, 11273).

Although legislators knew they had to act, partisan battles over how the Democratic Wilson administration would implement their authorization took center stage during debate. Boies Penrose, Republican senator from Pennsylvania, asked to Thomas S. Martin, Democratic senator from Virginia, "Then the Senator's thought is to appropriate this \$1,000,000 and investigate the propriety of the appropriation afterwards?" Martin, President Wilson's co-partisan, responded "Not to investigate it at all, but to leave it to the officers of the Government to expend it for the purposes indicated." Unsatisfied with Martin's laissez-faire attitude toward delegation, Penrose snapped back "Well, has the Senator any idea whatever as to how the money is to be expended?" Sticking to his initial retort, Martin maintained "The Medical Department of the Government is to expend it" (U. S. Congress 1918, 10895).

One of the only recorded distributive policy choices to combat the 1918 pandemic is the Public Health Service's creation of ten new hospitals in Palo Alto, CA, Greenville, SC, Alexandria, LA, Dansville, NY, Norfolk, VA, Chicago, IL, Washington, D.C., Jacksonville, FL, and East Norfolk, MA (Public Health Service 1919). Of the nine hospitals opened in

states with electoral college votes, six were opened in states won by President Wilson. But of the thirty states Wilson carried, only twenty percent saw a new hospital while of the eighteen states Wilson's Republican opponent Charles Evans Hughes carried, seventeen percent saw a new hospital, hardly constituting a presidential co-partisan advantage. Of the nine hospitals, six went to congressional districts represented by Democrats and three to districts represented by Republicans.³ Three percent of Democratic districts and one percent of Republican districts received a hospital.

A century later, partisan battles over the implementation of distributive programs have only intensified. In 2020, Democrats held up what would become the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) over concerns that there would not be enough oversight of a \$500 billion appropriation to the Treasury to issue loans. While information on spending in 1918 to combat the influenza pandemic are not readily available, systematic data on how the federal government allocated funds pursuant to four twenty-first century pandemics are.

Table 1 displays a two-by-two table of those four pandemics by severity and the president's party. I classified Zika and Ebola as not severe since each reported very few cases. Zika, a mosquito-borne virus associated with birth defects, resulted in only 5620 reported cases in the United States (Centers for Disease Control and Prevention 2019b,c) and Ebola, a potentially deadly virus spread though direct contact, resulted in only four reported cases in the United States (Centers for Disease Control and Prevention 2015). On the other hand, both COVID-19 and H1N1, two respiratory diseases, resulted in tens of millions of cases and tens or hundreds of thousands of deaths in the United States. COVID-19 also resulted in an almost full shutdown of public gatherings in the United States including school, government office,

³For all but the Palo Alto and Chicago hospitals, the district was represented by the party that carried the state's electoral vote. Palo Alto, however was represented by a Republican and Chicago districts by Democrats.

⁴Cochrane, Emily, Jim Tankersley, and Jeanna Smialek. "Emergency Economic Rescue Plan in Limbo as Democrats Block Action." New York Times (March 22, 2020) https://www.nytimes.com/2020/03/22/us/politics/coronavirus-economic-rescue-plan.html; Stein, Jeff. "Treasury's power over \$500 billion loan program becomes key sticking point in coronavirus aid bill." Washington Post (March 22, 2020) https://www.washingtonpost.com/business/2020/03/22/treasury-coronavirus-senate-corporate-loan/.

and business closures and H1N1 resulted in over 700 school closures (Klaiman, Kraemer and Stoto 2011).

If pandemics sufficiently alter governmental officials' distributive calculus, the moderating effect of a severe one likely would much greater than for a mild one, implying that COVID-19 and H1N1 are the most likely cases for a reduction in parochialism. Additionally, Democratic presidents tend to favor direct spending, and a host of findings in the distributive politics literature hold only for Democratic presidents (Reingewertz and Baskaran 2019). Republicans' core constituencies tend to be more fiscally conservative so more spending, even if it goes to those constituents, may not be Republicans' preferred policy choice (Reingewertz and Baskaran 2019). Together, these imply that severe pandemics under Republican presidents should result in the smallest discrepancy in outlays to presidential co- and contra-partisans, while minor pandemics under Democratic presidents should result in the most parochial distribution of federal funds. Specifically, spending to combat COVID-19 should be the least parochial and spending to combat Ebola should be the most parochial.

Table 1: Typology of Twenty-First Century Pandemics

		Severity	
		Severe	Not Severe
President's Party	Republican	COVID-19	Zika
		(2020)	(2016-17)
	Democratic	H1N1	Ebola
		(2009-10)	(2014)

Note: At the time of writing, COVID-19 has resulted in 2.4 million cases and 121,809 deaths (Centers for Disease Control and Prevention 2020a). During the H1N1 outbreak in 2009 and 2010, the United States reported 60.8 million cases, 274,304 hospitalizations, and 12,469 in the United States (Centers for Disease Control and Prevention 2019a). During the Zika outbreak in 2016 and 2017, the United States reported 5620 cases (Centers for Disease Control and Prevention 2019b,c). During the Ebola outbreak in 2014, the United States reported four cases (Centers for Disease Control and Prevention 2019b,c).

Thus, two hypotheses emerge. First, during pandemics, there should no relationship, or a less robust relationship than during normal periods, between federal spending and presidential co-partisanship. Second, the relationship between federal spending and presidential co-partisanship should be conditioned by the severity of the pandemic and the president's party. To test these hypotheses, I collected spending data from the Department of the Treasury on outlays related to COVID-19, Zika, Ebola, and H1N1. I then aggregated those data either to the state- or congressional district-level, and then further disaggregated them by the agency responsible for disbursing the funds.⁵

Since only four major pandemics have occurred since the Treasury began releasing detailed spending data, the test of the conditional hypothesis from above is necessarily limited. That said, figure 1 displays the linear relationship between population and spending, and popular vote share for the governing president and all federal spending across the four twenty-first century pandemics.⁶ The governmental responses to Zika, Ebola, and H1N1 were not as dramatic as the response to COVID-19, leaving me unable to conduct agency-level analyses of spending. In each case, a strong relationship between population and spending indicates a more or less efficient distribution of resources, while a positive relationship between popular vote share and spending indicates favoritism toward the president's supporters.

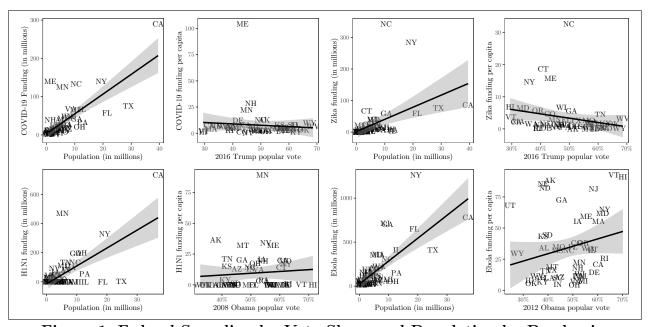


Figure 1: Federal Spending by Vote Share and Population by Pandemic.

⁵Data were retrieved from usaspending.gov.

⁶Locally estimated scatterplot smoothed (LOESS) curves allowing nonlinear relationships display substantively similar findings.

For COVID-19, a severe pandemic during a Republican presidency, the relationship between population and funding is quite strong and positive, while there is no relationship between vote share for President Trump, the governing president, and spending. For Ebola however, a mild pandemic during a Democratic presidency, the relationship between vote share for President Obama, the governing president, and spending is positive, indicating favoritism toward the president's supporters. These data are consistent with the conditional hypothesis that mild pandemics during Democratic administrations are likely to result in a parochial distribution of funds, while severe pandemics during Republican administrations are likely to result in a more even distribution.

Since the between-pandemics analysis essentially comprises four observations, no strong conclusions can be drawn. However, the findings are suggestive of a moderating or dosage effect of severity and the president's party. Since severe pandemics result in more deaths and illnesses, the societal costs of pursuing a parochial distribution of funds are much higher. Mild pandemics, on the other hand, may be insufficient to meaningfully alter officials' distributive calculus, particularly during periods of Democratic control of the presidency. Dichotomizing pandemics into severe and not severe obscures important information concerning how severe a pandemic might be, but with a limited sample of pandemics such a classification is appropriate.

Testing the main hypothesis that pandemic spending might be more evenly distributed than spending during normal periods of time, requires additional data and empirical strategies. The following section compares how each of eight agencies spent discretionary funds from 2007–2018 and how they spend funds appropriated to them by Congress to combat COVID-19.

COVID-19 Spending

I collected data on how the Departments of Commerce, Defense, Health and Human Services, Justice, and State, National Credit Union Administration, National Science Foundation, and US Agency for International Development allocated funds from 2007–2018 to measure each agency's baseline or normal level of presidential favoritism. Estimating baseline presidential favoritism in each agency is important since existing work has found that the implementation of presidential particularism varies by agency (Berry and Gersen 2016; Napolio 2020). I then estimated the following least squares model for each agency:

$$ln(\text{Outlays}_{it}) = \alpha + \beta^{\text{All}} \text{Presidential Co-Partisan}_{it} + \xi X_{it} + \delta + \varepsilon$$
 (1)

where subscript i indexes congressional districts, subscript t indexes Congresses, presidential co-partisan is a binary variable taking the value of one if the district receiving the outlay was represented by the member of Congress from the same party as the president, X is a matrix of covariates, and δ is a vector of state-level fixed effects. Thus, β^{All} identifies the within-state effect of presidential co-partisanship on all outlays.

I also collected data on how those eight agencies allocated funds appropriated to them by Congress to combat COVID-19 and aggregated them to the congressional district level. Since COVID-19 is ongoing at the time of writing, I only include data on the first quarter of outlays. I then estimated a Bayesian least squares regression model via Markov chain Monte Carlo sampling of COVID-19 outlays on copartisanship and covariates with the estimated coefficients from estimating equation 1 serving as informative priors. I set each coefficient's prior variance to the largest value that still ensures the coefficient is statistically distinguishable from zero in the direction estimated from equation 1. If the estimate was not distinguishable from zero, I use the estimated variance from equation 1, ensuring I do not shrink any variances.⁷ Using these values as priors is a reasonably informative choice that

⁷For example, since the value of β^{All} is positive for most agencies, I set the prior variance on $\beta^{\text{COVID-19}}$ to the largest value such that the 90% credible interval touches but does not overlap zero. To find that

nonetheless allows for the data to update estimates. Specifically, for each agency I estimate

$$ln(\text{Outlays}_i) \sim \mathcal{N}(\alpha + \beta^{\text{COVID-19}} \text{Presidential Co-Partisan}_i + \xi X_i + \delta, \sigma^2)$$
 (2)

where the prior on $\beta^{\text{COVID-19}}$ is

$$\beta^{\text{COVID-19}} \sim \mathcal{N}\left(\beta^{\text{All}}, \max\left[\left(\frac{|\beta^{\text{All}}|}{1.64}\right)^2, \sigma(\beta^{\text{All}})\right]\right)$$
 (3)

where $\sigma(\beta^{\text{All}})$ is the estimated variance on β^{All} from equation 1.

Thus, β^{All} serves as the prior, the COVID-19 spending data provides information with which to update the estimate of presidential particularism, and $\beta^{\text{COVID-19}}$ is the mean of the posterior distribution of the effect of copartisanship on COVID-19 outlays. This empirical strategy allows me to estimate the effect of copartisanship on COVID-19 spending while incorporating prior beliefs about each agency's baseline presidential favoritism estimated from realistic models of the data-generating process.

If spending during COVID-19 favors presidential co-partisans less than during normal periods of American politics, then $\beta^{\text{COVID-19}} < \beta^{\text{All}}$ for most agencies. In other words, the effect of sharing the president's party on outlays should be less for pandemic spending than normal spending. Requiring $\beta^{\text{COVID-19}} \leq 0$ is a more conservative test and would imply that there is no positive relationship between presidential co-partisanship and federal spending.

Figure 2 displays the effect of presidential co-partisanship on outlays for COVID-19 spending ($\beta^{\text{COVID-19}}$) in blue and all spending (β^{All}) in black, along with 95% credible intervals. Each model controls for district population, district median income, whether the member of Congress representing the district serves on the appropriations committee, whether they serve on the ways and means committee, whether they won their previous election with $\overline{\text{value}}$, I solve $\beta^{\text{All}} - 1.64 \times \phi = 0$ for ϕ . Since the normal distribution is symmetric, the prior variance is $\phi^2 = \left(\frac{|\beta^{\text{All}}|}{1.64}\right)^2$. For estimates not distinguishable from zero, the variance, by definition, is sufficiently large that it overlaps zero, so finding ϕ^2 would shrink the variance. So, for null estimates, I use the estimated variance, $\sigma(\beta^{\text{All}})$.

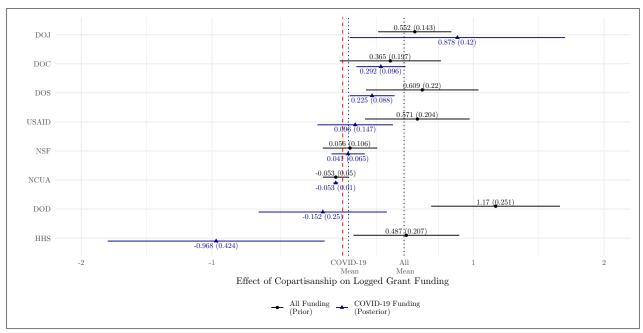


Figure 2: Comparing Effects of Copartisanship. Estimates derived from models controlling for district population, district median income, whether the member of Congress representing the district serves on the appropriations committee, whether they serve on the ways and means committee, whether they won their previous election with a margin of less than five points, state fixed effects, and—in the case of the models including all funding from 2007–2018—the president's party. Error bars represent 95% credible intervals from the posterior distribution.

a margin of less than five points, state fixed effects, and—in the case of the models including all funding from 2007–2018—the president's party.

For all agencies except the Department of Justice, the effect of presidential co-partisanship on outlays is smaller for COVID-19 spending than all spending, with two of those differences statistically distinguishable from zero at the 0.05 level, implying a less parochial distribution of funds during COVID-19 than during normal periods. Additionally, the estimate for the Department of Health and Human Services is negative and statistically distinguishable from zero at the 0.05 level, passing the more conservative test ruling out a positive relationship between presidential co-partisanship and spending. Spending by the Department of Health and Human Services, the agency most closely related to the public health aspects of the governmental response to COVID-19, favors presidential co-partisans the least, instead favoring presidential contra-partisans.⁸

⁸Although popular and media attention have focused on President Trump's spars with contra-partisan governors (see, e.g., Shear, Michael D., and Sarah Mervosh. "Trump Encourages Protest Against Governors

The negative effect of copartisanship on spending by the Department of Health and Human Services deserves further investigation. The conservative interpretation of the estimate is simply that the estimate rejects a one-tailed hypothesis test of a positive effect, but since the model incorporated information about the baseline level of presidential favoritism through an informative prior, the negative effect appears to be substantively important given that is not overwhelmed by the positive prior.

One potential explanation for the negative effect of copartisanship for the Department of Health and Human Services is that COVID-19 cases were clustered in cities and other urban or metropolitan areas, and therefore funds had to flow to cities, which tend to be represented by Democrats. To examine whether congressional district's urbanism is driving the results, I estimate new models using Bayesian regression as above including each district's Census-estimated percent of residents living in a principal city and an interaction term between urbanism and copartisanship. Table 2 reports results from these models. 10

The first model shows that including a district's urbanism does moderate the large negative effect of copartisanship, yet the relationship remains negative, still indicating no presidential favoritism. The second model including the interaction term, indicates that the effect of presidential copartisanship is negative at all levels of urbanism. The coefficient on presidential copartisan indicates that the effect of copartisanship on spending in districts where no residents live in cities is -0.355. The effect of copartisanship on spending in districts at the 25th percentile of urbanism is -0.688, at the median is -1.034, and at the 75th percentile is -1.616. The effect of copartisanship recovered from the main analysis is approximately the effect of copartisanship for districts at the 45th percentile of urbanism (10.4% of residents

Who Have Imposed Virus Restrictions." New York Times (April 29, 2020) https://www.nytimes.com/2020/04/17/us/politics/trump-coronavirus-governors.html), similar models at the state level with an indicator variable for contra-partisan governors recover null results for both all spending and COVID-19 spending across all eight agencies.

⁹Although measuring and conceptualizing "rurality" is difficult (Nemerever and Rogers Forthcoming), using the percent of residents living in a principal city is sufficient to capture the urbanism of each congressional district for my purposes.

 $^{^{10}}$ I use uninformative priors on the new parameters for *percent urban* and the interaction between *presidential copartisan* and *percent urban*.

Table 2: Effect of Copartisanship and District Urbanism on HHS Outlays

	Dependent variable:	
	Logged Outlays	
	(1)	(2)
Presidential	-0.377	-0.355
Copartisan	(0.441)	(0.487)
Percent	13.625	13.834
Urban	(2.443)	(2.518)
Pres. Copart. ×		-5.879
Percent Urban		(4.756)
Observations	435	435
State FEs	Yes	Yes

Note: Unit of analysis is the congressional district. Estimates control for district population, district median income, whether the member of Congress representing the district serves on the appropriations committee, whether they serve on the ways and means committee, whether they won their previous election with a margin of less than five points, and state fixed effects. Standard deviation of the posterior distribution reported in parentheses.

in a principal city in absolute terms). The average Republican district is almost exactly at the 45th percentile of urbanism, so the main results are not overwhelmed by the effects of urbanism, although urbanism did indeed play a large role.

Together, the analyses imply that almost all agencies implementing distributive programs in response to COVID-19 have done so in a manner that privileges the president's copartisans less than during "normal" periods in American politics. Of the eight agencies studied, the Department of Health and Human Services, one of the agencies most responsible for the scientific and medical response to COVID-19, privileged presidential co-partisans the least, with some evidence indicating that it funneled more funds to Democrats, presidential contrapartisans, although that effect is somewhat moderated by congressional districts' urbanism since COVID-19 cases were clustered in urban areas early on.

Counterfactual Public Health Emergency: The Opioid Crisis

While comparing COVID-19 to all spending facilitates comparisons between pandemic spending and "normal" spending, using all spending likely includes outlays that are not appropriate counterfactual outlays to pandemic ones. Therefore, this section compares Department of Health and Human Services spending related to the opioid crisis and COVID-19.

The opioid crisis represents a public health emergency without the widespread public urgency associated with infectious pandemics, offering a counterfactual distributive program implemented by the same agencies in the same policy area during a similar time period. The opiod crisis lacks the characteristics of a pandemic, having accelerated at a slower pace than COVID-19 and engendering a social and political etiology that has centered on medical doctors' prescription practices and individual responsibility rather than unsolicited risk as with COVID-19 or other pandemics (Dasgupta, Beletsky and Ciccarone 2018; Meldrum 2016), yet it has resulted in over 450,000 deaths in the United States since 1999 (Centers for Disease Control and Prevention 2020b). Thus, the opioid crisis facilitates the isolation of the effect of pandemics on spending apart from general public health emergencies.

Figure 3 displays the estimated effect of presidential co-partisanship on Department of Health and Human Services funding for COVID-19, all funding from 2007–2018, and spending related to the opioid crisis from 2007–2018. Estimates for the opioid crisis and COVID-19 were estimated using Bayesian regression as in the previous analysis. The effect of presidential co-partisanship on spending related to the opioid crisis is indistinguishable from the effect on all spending, indicating that pandemic spending during COVID-19 favors presidential co-partisans both less than all spending and spending on a public health emergency without the social and political meaning ascribed to pandemics. This suggests that severe pandemics, and COVID-19 specifically, engender a distributive calculus significantly different than did general public health emergencies, resulting in a less parochial distribution of funds lacking any clear favoritism toward presidential co-partisans.

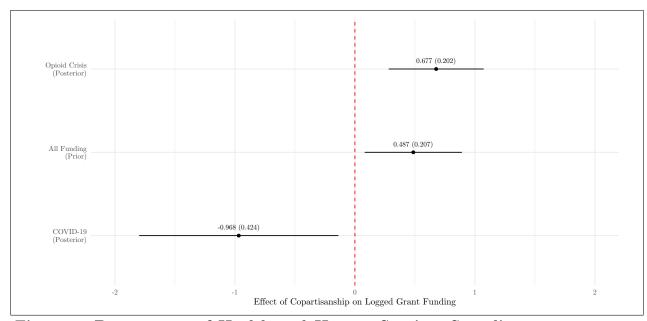


Figure 3: Department of Health and Human Services Spending. Estimates derived from models controlling for district population, district median income, whether the member of Congress representing the district serves on the appropriations committee, whether they serve on the ways and means committee, whether they won their previous election with a margin of less than five points, state fixed effects, and—in the case of the models including all and opioid funding—the president's party. Error bars represent 95% credible intervals from the posterior distribution.

Discussion and Conclusion

The foregoing analysis provides evidence that spending during pandemics does not benefit presidential co-partisans as much as spending does during "normal" periods of American politics. For severe pandemics, such as the COVID-19 outbreak in 2020, spending data reveal presidential favoritism neither in the aggregate at the state level, nor disaggregated by agency at the congressional district level. The moderating effect of pandemics on parochial spending cannot be explained by the idiosyncrasies of public health policy since spending within the Department of Health and Human Services during pandemics displays no presidential favoritism even though it does during "normal" periods. More convincingly, the moderating effect of pandemics cannot be explained by the idiosyncrasies of public health emergencies as demonstrated by the presidential favoritism associated with spending related to the opioid crisis, an ongoing public health crisis responsible for almost half a million deaths in the United States in the twenty-first century.

This article does not suggest, however, that spending during pandemics is somehow immune from traditional distributive politicking. Indeed, anecdotal evidence suggests that certain programs have benefited elected officials, 11 others have favored states important to President Trump's reelection, 12 and still others have been directed toward furthering the preexisting policy goals of cabinet secretaries. 13 Additionally, at the time of writing, the federal government is still disbursing funds to combat COVID-19, so the analysis presented in this article should be interpreted as such. The evaluation of ongoing events necessitates ascribing more uncertainty to any analysis than the evaluation of past events. Instead, I argue the large and immediate cost associated with socially inefficient spending during pandemics might induce a less parochial distribution of federal funds and I find evidence that the first quarter of COVID-19 outlays were distributed less parochially than outlays during "normal" periods of American politics.

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