IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WISCONSIN

MARIA NELSON, JILL SWENSON, MELODY MCCURTIS, BLACK LEADERS ORGANIZING FOR COMMUNITIES, and DISABILITY RIGHTS WISCONSIN,

Plaintiffs,

v.

MARGE BOSTELMANN, JULIE M. GLANCEY, ANN S. JACOBS, DEAN KNUDSON, ROBERT F. SPINDELL, JR., and MARK L. THOMSEN, Commissioners of the Wisconsin Elections Commission;

MEAGAN WOLFE, Administrator of the Wisconsin Elections Commission,

Defendants.

Case No. 20-cv-459-wmc

EXPERT REPORT OF ANTHONY FOWLER, Ph.D.

I. INTRODUCTION

Counsel for Plaintiffs asked me to offer opinions regarding the impact of the COVID-19 pandemic on the 2020 election cycle in Wisconsin. Specifically, I was asked to assess the effect of COVID-19 on the April 2020 Wisconsin election and evaluate whether and to what extent similar outcomes should be expected in the November 2020 election.

This report is based on the information now known to me. I reserve the right to supplement this report or revise my opinions if new or additional information becomes available.

I am compensated for my work on this case at a $400 hourly rate. My compensation in no way depends on the opinions that I offer or the outcome of this case.

II. EDUCATION AND PROFESSIONAL HISTORY

I am an Associate Professor with tenure in the Harris School of Public Policy at the University of Chicago. I am also a Faculty Associate of the Department of Political Science and a founding member of the Committee on Quantitative Methods in Social, Behavioral, and Health Sciences at the University of Chicago. I have a Bachelor's degree in biology from the Massachusetts Institute of Technology (2009) and a Ph.D. in political science from Harvard University (2013).

My research applies econometric methods for causal inference to questions in political science, with particular emphasis on elections and political representation. Specific interests include the causes and consequences of unequal voter turnout, explanations for incumbent success in elections, the politics of policymaking in legislatures, and the credibility of empirical research.

I have published 24 peer-reviewed articles in academic journals including the *American Journal of Political Science*, *Journal of Politics*, *Quarterly Journal of Political Science*, *Political Science Research and Methods*, *Proceedings of the National Academy of Sciences*, *Election Law Journal*, and *Journal of Empirical Legal Studies*. I have also written for *Bloomberg*, *The Washington Post*, and *Boston Review*, and I co-authored an amicus brief for *Arizona Free Enterprise Club v. Bennett*, a U.S. Supreme Court case on campaign finance.

At the University of Chicago, I have taught courses for undergraduate, professional, and doctoral students on elections, campaigns, public opinion, political economy, and quantitative methods. I have coauthored a textbook entitled *Thinking Clearly in a Data-Driven Age* that is currently under contract with Princeton University Press.

I have not provided expert testimony in the last five years. A copy of my curriculum vitae, which includes a list of my publications from the last 10 years, is attached as Appendix A.

III. RELEVANT FACTUAL BACKGROUND

A. Overview of Voting in Wisconsin.

In evaluating the voting process in Wisconsin, I reviewed the Expert Report of Kevin J. Kennedy, certain statutes, and publicly available information detailed in this section. In Wisconsin, 1,850 municipal clerks and 72 county clerks[1] carry out elections across the state at the town, village, and city level.[2] These clerks act in partnership with and under the supervision of the Wisconsin Elections Commission ("WEC"), which is tasked with administering and enforcing Wisconsin elections law.[3] The WEC educates local election officials on Wisconsin election laws, forms, and rules to promote uniform procedures throughout the state.[4]

Between 1.8 million and 3 million voters have participated in each of the various statewide elections dating back to 2000.[5] As of May 1, 2020, Wisconsin had 3,397,693 active registered voters.[6] These voters can cast their ballots in three primary ways: in-person on Election Day at the polls, in-person absentee, and absentee by mail.

Historically, most voters cast their ballots on Election Day at a polling place.[7] Between November 2016 and April 2019, voting on Election Day at the polls made up between 72.7% to 93.9% of all voting.[8] In the April 2020 election, however, Election Day voting at the polls only accounted for 25.6% of the total votes.[9] Voters cast in-person ballots on Election Day at polling places, which are established by the local governing body, with the exception of Milwaukee, where the polling places are established by the board of election commissioners.[10] The number of polling places used in a given municipality can range from as few as one to over two hundred in large cities, like Milwaukee.[11] The distance voters must travel to reach a polling place varies. For example, voters in rural areas may have to travel as far as 6–12 miles to get to their polling places, while in villages and cities, voters may need to travel anywhere from a few blocks to several miles, depending on the number and location of the polling places.[12]

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[1] Wisconsin Elections Commission, "Clerks Home Page," *available at* https://elections.wi.gov/index.php/node/3532 (last accessed Jun. 16, 2020).
[2] Wis. Stat. § 7.15.
[3] Wis. Stat. § 5.05 (1), (2m), (2w).
[4] Wis. Stat. §§ 5.05 (7).
[5] Wis. Elections Commission, "General Election Voter Registration and Absentee Statistics 1984-2016," *available at* https://elections.wi.gov/sites/elections.wi.gov/files/page/general_election_voter_registration_and_absentee_s_40046.xlsx (last accessed Jun. 16, 2020).
[6] Wis. Elections Commission, "May 1, 2020 Voter Registration Statistics," *available at* https://elections.wi.gov/node/6886 (last accessed Jun. 16, 2020).
[7] *See* Wis. Elections Commission, "General Election Voter Registration and Absentee Statistics 1984-2016," *available at* https://elections.wi.gov/sites/elections.wi.gov/files/page/general_election_voter_registration_and_absentee_s_40046.xlsx (last accessed Jun. 16, 2020).
[8] Wis. Elections Commission, "April 7, 2020 Absentee Voting Report" at Table 4 (May 15, 2020), *available at* https://elections.wi.gov/sites/elections.wi.gov/files/2020-05/April%202020%20Absentee%20Voting%20Report.pdf.
[9] *Id.*
[10] Wis. Stat. § 5.25 (2).
[11] *See, e.g.*, "Polling Place List-2020 April Election as of 4-4-20," *available at* https://elections.wi.gov/sites/elections.wi.gov/files/2020-04/Polling%20Place%20List-2020%20April%20Election%20as%20of%204-4-20.xlsx.xlsx (last accessed Jun. 16, 2020).
[12] Expert Report of Kevin J. Kennedy, Appendix B at 4.

Voters who do not vote at the polls on Election Day cast one of two types of absentee ballots.[13] Any registered voter may request an absentee ballot.[14] In recent elections, the majority of absentee ballots were of the in-person variety.[15] In-person absentee ballots are completed and delivered directly to the voter's local municipal clerk's office.[16] Mail-in absentee ballots must be (i) completed in the presence of an adult witness who must verify the voter completed their ballot,[17] and (ii) delivered to the municipal clerk's office by 8:00 p.m. on Election Day.[18] While absentee voting by mail made up between 4.8% and 8.1% of the total votes in the previous six elections, absentee voting by mail made up 61.8% percent of the total votes in the April 2020 election.[19]

Wisconsin held 11 statewide elections between February 2016 and February 2020, giving Wisconsin's voters the opportunity to cast their ballots for a wide range of political offices.[20] Participation rates varied widely across these elections. For example, in November 2016, when Wisconsin voters played an important role in the U.S. presidential election, more than 3 million votes were cast,[21] while in April 2017, when the highest-profile race was for State Superintendent of Public Instruction, only approximately 700,000 votes were cast.[22]

B. The COVID-19 Pandemic.

In considering the effects of the COVID-19 pandemic on Wisconsin voting, I reviewed the Expert Report of Patrick Remington, M.D. I am also generally familiar with the pandemic from my review of publicly available news coverage, from reading academic studies on the pandemic, and from teaching a supervised research course at the University of Chicago on government responses to COVID-19.[23]

The outbreak of the novel coronavirus, COVID-19, began in or before December 2019, when the government in Wuhan, China confirmed that health authorities were treating dozens of cases of

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[13] Voters in certain residential care facilities and retirement homes and voters who are hospitalized may also vote through special voting deputies and agents. *See* Wis. Stat. § 6.875, 6.87 (3).
[14] Wis. Elections Commission, "I want to vote absentee," *available at* https://elections.wi.gov/voters/absentee (last accessed Jun. 16, 2020).
[15] Wis. Elections Commission, "April 7, 2020 Absentee Voting Report" at Table 4 (May 15, 2020), *available at* https://elections.wi.gov/sites/elections.wi.gov/files/2020-05/April%202020%20Absentee%20Voting%20Report.pdf.
[16] Wis. Elections Commission, "I want to vote absentee," *available at* https://elections.wi.gov/voters/absentee (last accessed June 16, 2020).
[17] Wis. Stat. § 6.87.
[18] Wis. Elections Commission, "Absentee Ballots," *available at* https://elections.wi.gov/clerks/guidance-absentee (last accessed Jun. 16, 2020).
[19] Wis. Elections Commission, "April 7, 2020 Absentee Voting Report" at Table 4 (May 15, 2020), *available at* https://elections.wi.gov/sites/elections.wi.gov/files/2020-05/April%202020%20Absentee%20Voting%20Report.pdf.
[20] *See* Wis. Elections Commission, "More Wisconsin Elections Results," *available at* https://elections.wi.gov/elections-voting/results-all (last accessed Jun. 16, 2020).
[21] Wis. Elections Commission, "General Election Voter Registration and Absentee Statistics 1984-2016.xlsx," *available at* https://elections.wi.gov/sites/elections.wi.gov/files/page/general_election_voter_registration_and_absentee_s_40046.xlsx (last accessed Jun. 16, 2020).
[22] Wis. Elections Commission, "Canvass Results for 2017 Spring Election - 4/4/2017 5:00:00 AM," *available at* https://elections.wi.gov/sites/elections.wi.gov/files/2017%20Spring%20Election-Summary%20Report-All%20Offices.pdf (last accessed Jun. 16, 2020).
[23] *COVID-19 Pandemic inspires scholars to change course*, UNIV. OF CHICAGO NEWS (May 7, 2020), *available at* https://news.uchicago.edu/story/covid-19-pandemic-inspires-scholars-change-course.

pneumonia of unknown cause.[24] Researchers later identified a new virus behind the infections.[25] Before long, COVID-19 spread beyond China, and by the end of January 2020, the World Health Organization declared COVID-19 a global health emergency.[26] Throughout February 2020, the death toll in China climbed and cases of COVID-19 were reported around the globe.[27] By the end of February, the number of reported cases spiked in Europe, and the United States reported its first death.[28] Eventually, the total reported cases in the United States surpassed the total reported cases of any other country.[29] President Trump has declared a national emergency, and state officials have ordered at various times as many as 256 million Americans to stay home, but reported cases and deaths in the United States have continued to increase.[30] As of June 12, the United States had over 2.1 million, cases, with the death toll over 116,000.[31]

C. The April 2020 Election.

In April 2020, Wisconsin voters had the opportunity to cast their ballots in the U.S. presidential primary, a Wisconsin Supreme Court election, several other judicial elections, several statewide referendums, and various local races.[32] Because the timing of the election coincided with the COVID-19 global pandemic, there was concern that certain registrants may have been deterred from voting because of the health risks posed by voting at the polls.

At first glance, this concern seems well-founded. Only about 1.5 million votes were cast, more than 25% fewer than the 2.1 million votes cast in April 2016, the last time Wisconsin voters had the opportunity to participate in a U.S. presidential primary.[33] Of course, there are many factors other than COVID-19 that could explain the difference in participation between these two elections, so a more careful empirical investigation is warranted.

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[24] Derrick Bryson Taylor, *How the Coronavirus Pandemic Unfolded: a Timeline*, THE N.Y. TIMES (last updated Jun. 9, 2020), *available at* https://www.nytimes.com/article/coronavirus-timeline.html.
[25] *Id.*
[26] Sui-Lee Wee, *et al.*, *W.H.O. Declares Global Emergency as Wuhan Coronavirus Spreads*, THE N.Y. TIMES (Jan. 30, 2020), *available at* https://www.nytimes.com/2020/01/30/health/coronavirus-world-health-organization.html
[27] *See* Derrick Bryson Taylor, *How the Coronavirus Pandemic Unfolded: a Timeline*, THE N.Y. TIMES (last updated Jun. 9, 2020), *available at* https://www.nytimes.com/article/coronavirus-timeline.html.
[28] *Id.*
[29] Donald G. McNeil Jr., *The U.S. Now Leads the World in Confirmed Coronavirus Cases*, THE N.Y. TIMES (Mar. 26, 2020), *available at* https://www.nytimes.com/2020/03/26/health/usa-coronavirus-cases.html.
[30] Derrick Bryson Taylor, *How the Coronavirus Pandemic Unfolded: a Timeline*, THE N.Y. TIMES (May 12, 2020), *available at* https://www.nytimes.com/article/coronavirus-timeline.html.
[31] WorldoMeter, "United States Coronavirus Cases," *available at* https://www.worldometers.info/coronavirus/country/us/ (last accessed Jun. 12, 2020).
[32] Wis. Elections Commission, "April 2020 Spring Election and Presidential Preference and Primary Result," *available at* https://elections.wi.gov/node/6855 (last accessed Jun. 17, 2020).
[33] Wis. Elections Commission, "April 7, 2020 Absentee Voting Report" at Table 2 (May 15, 2020), *available at* https://elections.wi.gov/sites/elections.wi.gov/files/2020-05/April%202020%20Absentee%20Voting%20Report.pdf.

IV. Data and Methodology

I obtained a current Wisconsin voter file with vote histories beginning with the February 2006 election through the April 2020 election.[34] The file contains a large number of individuals who are inactive because they have moved, passed away, or for various other reasons are no longer eligible to vote. I, therefore, focus exclusively on active registrants. I also focus on those who registered before March 2020, because COVID-19 could have affected the abilities or decisions of some individuals to register, and I want to ensure that any such COVID-19 effects do not bias my conclusions.[35] My sample of interest is therefore comprised of the 3.2 million active Wisconsin voters who registered to vote before March of 2020.

Whether an individual voter turned out in previous elections is a good predictor of whether they will participate in a future election. This is likely because some people are more interested in politics and more civically engaged than others and also because voting is habit-forming.[36] In any case, by utilizing data on prior voting behavior, I can better predict which individuals would have been likely to turn out in April 2020 if not for the COVID-19 pandemic. Specifically, I utilize individual-level voting histories from the 11 preceding statewide elections, which were held between February 2016 and February 2020.

I also collected data on the prevalence of COVID-19 from the Johns Hopkins Coronavirus Resource Center. Specifically, I obtained the cumulative number of confirmed cases by Wisconsin county as of April 6, the day before the April 2020 election. I then divided by county population, rescaled this variable to range from 0 to 1, and merged it with the voter file to create a simple measure of relative COVID-19 severity in each county at the time of the election.

In addition, I collected data on Wisconsin demographics by zip code tabulation areas from the American Community Survey (2013-2018 5-year estimates) and merged it with the voter file. This enables a comparison of voters from neighborhoods with different demographics.

To test whether and for whom COVID-19 deterred participation in the April 2020 election, I utilized linear regressions. In each regression, I control for the prior participation patterns of each individual in order to ensure an apples-to-apples comparison. For example, a comparison of participation in the urban counties with high rates of COVID-19 to that in rural counties with low rates of COVID-19 would be less reliable because of the possibility that urban and rural voters may simply vote at different rates for reasons unrelated to COVID-19. A comparison of voters with the same pattern of previous participation in counties with higher or lower rates of COVID-19, on the other hand, provides a more credible estimate of the effect of COVID-19.

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[34] I received this file from counsel for Plaintiffs on May 14, 2020, and was informed that some small municipalities may not have provided their data on April 2020 turnout by this date. There are 15 municipalities with a total of 12,479 registered voters in the data set with no record of anyone participating in the April 2020 election, and some of these are likely cases in which the turnout data is missing. These voters with potentially missing data comprise only 0.4% of the entire sample, so this is unlikely to affect my subsequent results.

[35] This means that my analysis does not consider those who were eligible to vote but not registered by March 2020. To the extent that COVID-19 made it more difficult for people to register and vote for the first time, my analyses understate the total deterrent effect of COVID-19 on participation.

[36] *See, e.g.*, Marc Meredith, *Persistence in Political Participation*, QUARTERLY JOURNAL OF POLITICAL SCIENCE, 2009 at 187.

There are different ways to control for prior participation rates. I utilize data from the 11 most recent statewide elections discussed above, and I utilize the most flexible possible approach. Specifically, I consider every possible combination of prior voter turnout across these 11 elections (e.g., those who voted only in November 2016 and November 2018 but no other elections are in one category), and I include fixed effects for each possible vote history category. This means that all comparisons are being made between voters who have the same turnout history, and it allows us to estimate the effect of COVID-19 and control for turnout history with weaker assumptions than would be possible with a less flexible approach.[37]

Assessing the effects of COVID-19 on participation is inherently difficult because the kinds of people and communities that are especially affected by COVID-19 are systematically different from others. Specifically, at the time of the April 2020 election, there were more COVID-19 cases in dense, urban parts of Wisconsin, with Milwaukee County seeing far more cases (and cases per capita) than any other county in the state. The communities most affected by COVID-19 also happen to be communities with different underlying levels of political engagement. For these reasons, naïve comparisons between more vs. less affected communities would likely overstate the deterrent effects of COVID-19. My methodology therefore seeks to flexibly control for prior participation in order to make more informative comparisons.

Even after flexibly controlling for 4 years of voting history, those who were more affected by COVID-19 could still be different for unobservable reasons. To assess the validitly of my empirical approach, I ran placebo tests with outcome data from February 2020, and the results suggest that my analyses have identified genuine deterrent effects of COVID-19.

V. OVERVIEW OF KEY OPINIONS

My opinions are based on my education, training, research, experience teaching in the field of public policy, and the documents and other sources listed in Appendix B. My key opinions are as follows:

- The COVID-19 pandemic deterred participation in Wisconsin's April 2020 election.

- Wisconsin voter turnout in the April 2020 election was lower in the counties with the highest prevalence of COVID-19 compared to counties with no confirmed cases at that time. Voting at the polls was especially deterred in the high-prevalence counties. As expected, absentee voting was higher in those counties, but the higher rate of absentee voting was not high enough to offset the decrease in voting at the polls.

- Wisconsin voter turnout in the April 2020 election was lower than expected for voters known to be over the age of 65 and voters who had not previously voted absentee.

- Wisconsin voter turnout in the April 2020 election was lower than expected for communities that are predominantly Black or Hispanic.

[37] Specifically, my flexible approach does not require the linearity and additivity assumptions that would be necessarily with a more traditional regression analysis.

- The deterrent effect of COVID-19 on Wisconsin voters during the April 2020 election was especially great in zip codes where more people rely on public transportation and in economically depressed zip codes with higher rates of unemployment and greater shares of residents without health insurance.

- Similar if not greater levels of deterrence are likely in November 2020 if nothing is done to increase the ease and availability of absentee voting and the safety of in-person voting in Wisconsin.

VI. OPINION ONE: THE COVID-19 PANDEMIC DETERRED PARTICIPATION IN WISCONSIN'S APRIL 2020 ELECTION

To test whether COVID-19 risk deterred people from voting in the April 2020 election, I ran a regression where turnout in April 2020 is the dependent variable and the key independent variable is my measure of COVID-19 prevalence by county. I also include vote-history fixed effects to control for each voter's propensity to vote in the absence of COVID-19. If COVID-19 risk did deter participation, this effect should be greater in places with greater COVID-19 prevalence at the time of the election. (This is not to say that there was no deterrent effect of COVID-19 in counties that had not yet seen a confirmed case, but the effect should be lesser in those places).

Table 1 shows the results of this regression. The coefficient of interest is −.038, which means that, controlling for prior participation, turnout in April 2020 decreased 3.8 percentage points as we shift the analysis from the counties with the lowest prevalence of COVID-19 to the counties with the highest prevalence.

Table 1. Lower Participation in Counties with Higher Prevalence of COVID-19

	DV = Turnout in April 2020
COVID-19 Prevalence	−.038*
	(.019)
Vote-History Fixed Effects	X
Observations	3,234,432

*County-clustered standard errors in parentheses; * $p < .05$.*

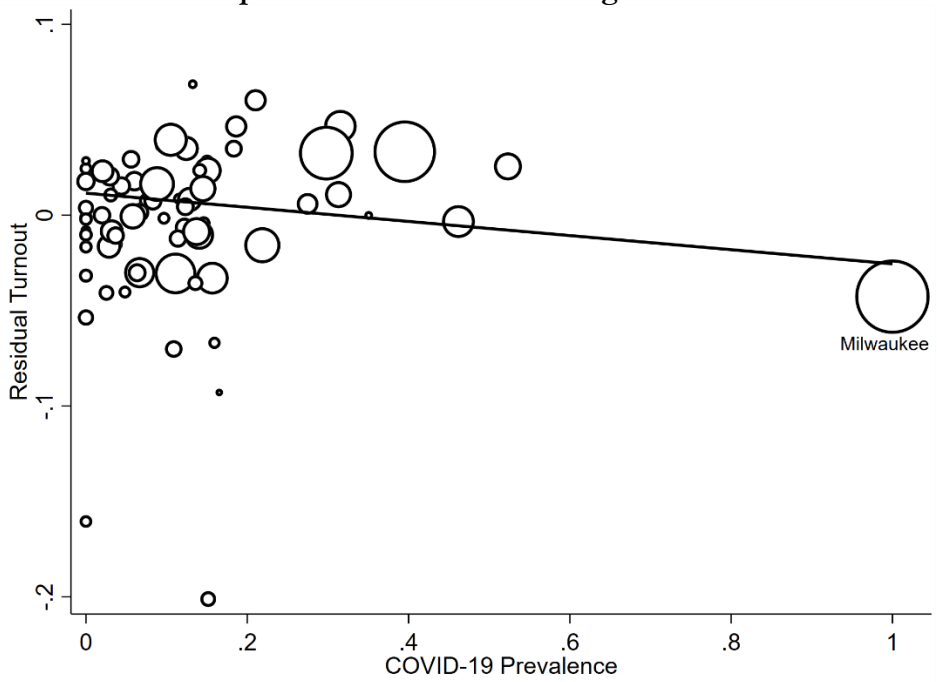
The table also shows, in parentheses, the estimated standard error associated with this estimate.[38] The estimated standard error is .019, which means that if I were to repeat this analysis over and over on independent data samples (i.e., hypothetical new elections with the same underlying conditions but different idiosyncratic variation in participation), the standard deviation of the estimated coefficient would be 1.9 percentage points. Combining the estimated effect of 3.8 percentage points, and the estimated standard error of 1.9 percentage points, it is possible to statistically test whether this result was likely to have arisen by chance. If there was no true relationship between COVID-19 prevalence

[38] When computing the standard errors, I account for county-level clustering, which means that I'm accounting for the fact that I do not have 3.2 million independent data points. Rather, every voter in the same county has the same value of the COVID-19 prevalence variable, and there could be other reasons that participation is correlated within a county. If I didn't make this correction, the estimated standard errors would be much smaller, and the reliability of the result would be misleading.

and participation, the chances of obtaining a result as far from zero as this one are only .045. Based on this low p-value, social scientific convention would classify this result as statistically significant.

Figure 1 illustrates the result visually. The vertical axis shows the average residual turnout in each county (i.e., the rate of turnout minus the expected rate of turnout given prior voting histories), and the horizontal axis shows the measure of COVID-19 prevalence by county. The size of each circle is proportional to the number of registered voters in each county.

Figure 1. Lower Participation in Counties with Higher Prevalence of COVID-19



The county with the highest prevalence of COVID-19 per capita as of April 6, 2020 was Milwaukee County, and the figure shows that this particular data point (at the far right side of the figure) is especially informative. Participation in Milwaukee County was 4.3 percentage points lower than expected given prior voting histories in the county. This suggests that at least 21,000 registered voters were deterred by COVID-19 in Milwaukee County alone.

If I temporarily assume that COVID-19 had no deterrent effect in the lowest prevalence counties where there were no confirmed cases as of April 6, 2020, then the results in Table 1 and Figure 1 indicate that the deterrent effect was about 4 percentage points in the highest-prevalence counties. This suggests that approximately 38,000 people statewide (more than 1 percent of registered voters) did not vote who otherwise would have done so in the absence of COVID-19. This estimate, however, likely understates the true deterrent effect of COVID-19, because there was likely some deterrent effect even in the counties that had not yet seen a confirmed case. In fact, I show evidence in Opinions Three and Four that certain kinds of individuals were deterred from participating even in the low-prevalence counties.

The results also show that the deterrent effect of COVID-19 was 3.8 percentage points greater in the highest-prevalence counties than the lowest-prevalence counties. Said differently, if there was an X-

percentage-point deterrent effect in the low-prevalence counties, there was an X+3.8-percentage-point effect in the high-prevalence counties. In Opinion Three, I estimate that even in the low-prevalence counties, 6.7 percent of individuals who hadn't previously voted absentee were deterred. Because that group comprises 68 percent of eligible voters, this suggests that at least 4.6 percent of voters were deterred even in the low-prevalence counties. Combining this with the result in Table 1, this indicates that at least 8.4 percent (4.6 + 3.8) of voters were deterred in the high-prevalence counties.

VII. OPINION TWO: THE COVID-19 PANDEMIC DECREASED VOTING AT THE POLLS, AND THE INCREASE IN ABSENTEE VOTING WAS NOT ENOUGH TO COMPENSATE FOR THESE LOST VOTES

To the extent that COVID-19 deterred participation in the April 2020 Wisconsin election, I would expect it to especially affect voting at the polls because traveling to and voting in a polling place was associated with health risks. To assess this possibility, I examine the extent to which voting at the polls versus voting absentee corresponded with the prevalence of COVID-19 in a voter's county.

To better predict which voters were likely to vote at the polls or absentee, I not only utilized data showing whether specific voters participated in previous elections but also the method they used to vote. I then compared voters in high-prevalence COVID-19 counties with those in low-prevalence COVID-19 counties who voted in the exact same previous elections and used the exact same method of voting (absentee or at the polls) in each of those elections. In other words, I ran a regression with not only vote-history fixed effects but also vote-method-history fixed effects.[39]

Table 2 shows the results of these analyses. The first column replicates the result of Table 1 but with vote-method-history fixed effects. The estimated effect of COVID-19 prevalence is even greater (4.5 percentage points) with this method of controlling for prior participation. The second column shows that voting at the polls decreased 7.4 percentage points more in the highest-COVID-prevalence counties, and this estimated effect is highly statistically significant ($p < .001$). The final column suggests that COVID-19 may have increased absentee voting, but the estimated effect is not statistically significant and it is not nearly large enough to counteract the significant drop in voting at the polls.

Table 2. COVID-19 Decreased Voting at the Polls More Than It Increased Absentee Voting

	DV = Turnout	At Polls	Absentee
COVID-19 Prevalence	−.045*	−.074*	.029
	(.015)	(.009)	(.022)
Vote-Method-History Fixed Effects	X	X	X
Observations	3,224,425	3,224,425	3,224,425

*County-clustered standard errors in parentheses; * $p < .05$.*

[39] It may initially seem like I am asking too much of the data to include vote-method-history fixed effects. After all, there are over 177,000 possible categories of vote-method history (this is 3 to the 11th power because there are 3 possible options for each election—vote at the polls, vote absentee, and abstain—and 11 different elections). In practice, however, there are less than 30,000 observed combinations in the data. Furthermore, because there are 3.2 million individuals in the sample, we have a lot of registered voters in most of these categories. The two most popular categories have over 250,000 individuals in them, and more than 80 percent of the sample is in a category with at least 1,000 people.

I find that to the extent that COVID-19 decreased voting at the polls, this effect was 7.4 percentage points greater in the high-prevalence versus the low-prevalence counties. Similarly, to the extent that COVID-19 increased absentee voting, the coefficient of .029 in the table above demonstrates that this effect was 2.9 percentage points greater in the high-prevalence counties. As in Table 1, this analysis provides lower-bound, conservative estimates of the effect of COVID-19 on voting at the polls and absentee voting.

The estimates above suggest that in Milwaukee County, where there are almost 490,000 registered voters in my sample, approximately 36,000 people were deterred from voting at the polls, and only about 14,000 people were induced to vote absentee, meaning that the net deterrent effect was greater than 20,000 votes, just as discussed in Opinion One.

On a more macro level, it appears that COVID-19 may have caused a significant decrease in voting at the polls statewide. For example, comparing April 2020 to April 2016, polling-location votes declined by approximately 1.5 million while absentee votes increased by more than 900,000.[40] It is difficult, however, to determine how much of these changes in the levels or methods of voting are attributable to COVID-19 as opposed to other factors that changed over time or varied between these two elections. For example, absentee voting may have become more popular in Wisconsin in recent years for reasons unrelated to the pandemic. It is therefore more methodologically reliable to compare the levels and methods of voting between high- and low-prevalence counties within the April 2020 election.

VIII. OPINION THREE: PARTICIPATION IN THE APRIL 2020 ELECTION WAS LOWER THAN EXPECTED FOR VOTERS WHO HADN'T PREVIOUSLY VOTED ABSENTEE

68 percent of the registered voters in my sample had not previously voted absentee in any of the 11 statewide elections that preceded the April 2020 election. The majority of registered voters were therefore in a position where if they wanted to vote in April 2020, they had to either assume the risks of voting in person during a pandemic or learn how to vote by mail for the first time—a process that required, among other things, proactively applying for an absentee ballot and finding a valid witness.

Because COVID-19 decreased voting at the polls, and because voting absentee for the first time may be burdensome for some voters, I examined whether turnout was lower than expected for those who had not voted absentee in any of the previous statewide elections in my analysis. I also considered whether this was especially true in high-COVID-19-prevalence counties.

To test these hypotheses, I utilized regressions with county-by-vote-history fixed effects to compare people who hadn't previously voted absentee to those who had but who live in the same county and have the same history of participating in previous elections.

Table 3 shows the results of these analyses. The first column shows that people who had never voted absentee were 7.5 percentage points less likely to vote in the April 2020 election than other registered voters in the same county with the same vote history but who had previously voted absentee. In other

[40] Wis. Elections Commission, "Exhibit A Absentee Voting Data 2016-2020" (May 15, 2020), *available at* https://elections.wi.gov/sites/elections.wi.gov/files/2020-05/Exhibit%20A%20Absentee%20Voting%20Data%202016-2020.pdf.

words, turnout was much lower than expected for people who had previously only voted at the polls, and this difference is highly statistically significant ($p < .001$). Multiplying this estimate by the number of registered voters who never voted absentee, I estimate that approximately 166,000 people who had not previously voted absentee were deterred from voting in April 2020 because of the COVID-19 pandemic.

This estimate of 166,000 people deterred is much larger than the 38,000-person figure from Opinion One, but recall that the latter estimate assumed that there was no deterrent effect in the low-prevalence counties. However, in this analysis, I find significant deterrent effects in the low-prevalence counties—at least for those who had not previously voted absentee.

The second column assesses the extent to which this relationship varies across county-level COVID-19 prevalence. The deterrent effect was 6.7 percentage points in the lowest-prevalence counties and 2.5 percentage points higher in the highest-prevalence counties. Thus, in the high-prevalence counties, people who had never voted absentee were 9.2 percentage points less likely to vote in the April 2020 election than expected ($-.067 + -.025 = -.092$), and the difference between low- and high-prevalence counties is statistically significant ($p = .010$). Because there are approximately 330,000 voters in Milwaukee County—the highest-prevalence county—who had never voted absentee, this estimate suggests that at least 30,000 people in Milwaukee County alone were deterred from voting due to the burdens of voting absentee for the first time. Similar calculations suggest that approximately 14,000 people in Dane County, 11,000 people in Waukesha County, 6,000 people in Brown County, and 5,000 people in Racine County who had not previously voted absentee were deterred from voting.

Table 3. Turnout Was Lower Than Expected for Those Who Hadn't Previously Voted Absentee

	DV = Turnout	
Never Absentee	−.075*	−.067*
	(.005)	(.005)
Never Absentee*COVID-19 Prevalence		−.025*
		(.009)
County-Vote-History Fixed Effects	X	X
Observations	3,221,687	3,221,687

*County-clustered standard errors in parentheses; * $p < .05$.*

IX. OPINION FOUR: PARTICIPATION IN THE APRIL 2020 WISCONSIN ELECTION WAS LOWER THAN EXPECTED FOR VOTERS OVER THE AGE OF 65

Another group of eligible voters that was likely deterred from voting in Wisconsin's April 2020 election because of COVID-19 is those who are over the age of 65. The CDC and other health officials have specifically cautioned that individuals over the age of 65 are at especially high risk if they contract

COVID-19,[41] so these high-risk individuals who usually vote at high rates may have been especially deterred from voting.[42]

Unfortunately, Wisconsin does not keep data on the ages of its registered voters, so it is not possible to determine the age of every registrant. However, registration dates for each registrant are available. Because a citizen is not eligible to register until they are 18 years old, voters who registered in or before 1973 are 65 or older. Of course, many individuals who are over the age of 65 will have more recent registration dates because, for example, they moved and re-registered after 1973. By examining those who registered in or before 1973, I am therefore likely only examining a small share of those over 65, but I have identified more than 45,000 registered voters (approximately 1.4 percent of the sample) that I know are at least 65 years old.[43]

Replicating the same methodology from Table 3, I test whether voters known to be 65 or older were less likely than expected to vote and whether this varied with the prevalence of COVID-19 in their county. The results are shown in Table 4. County-vote-history fixed effects ensure that I am comparing voters known to be over 65 to other voters who live in the same county and have the same voting history.

The first column shows that voters known to be 65 or older were 6.2 percentage points less likely to vote in the April 2020 Wisconsin election than other voters in the same counties with the same vote histories. This difference is highly statistically significant ($p < .001$). Interestingly, the second column shows that this difference does not meaningfully vary with the prevalence of COVID-19 in the county. To the extent that COVID-19 deterred older citizens from participating, the effect appears to have been statewide. Even in counties with no confirmed COVID-19 cases, older citizens appear to have been reasonably cautious and were less likely to vote than normal.

If anything, the estimates in Table 4 are biased toward zero, meaning that the true deterrent effect is likely bigger than my estimate. That is because there are likely many other individuals who are over the age of 65 but are not categorized as such because they have later registration dates, and are thus wrongly classified as under 65. Social scientists refer to this phenomenon as attenuation bias.

I have recently analyzed data from the West Virginia voter file for another project,[44] and West Virginia's file includes the year of birth for each registrant. As a point of comparison, 28 percent of West Virginia's registered voters are 65 or older, while only 1.4 percent of the Wisconsin registrants

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[41] Ctrs. for Disease Control and Prevention, "Coronavirus Disease 2019 (COVID-19) - Older Adults," *available at* https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/older-adults.html (last accessed Jun. 17, 2020).
[42] Indeed, a number of newspaper articles about the Wisconsin April 2020 election feature stories about elderly individuals that were deterred from voting or otherwise participating in the election due to COVID-19 risk. *See, e.g.*, Naomi Kowles, *They voted in every election—until April 7. For some Wisconsin voters, absentee ballot issues meant no voice.*, WSAW (Apr. 7, 2020), *available at* https://www.wsaw.com/content/news/They-voted-in-every-electionuntil-April-7-For-some-Wisconsin-voters-absentee-ballot-issues-meant-no-voice-569457591.html; Christina A. Cassidy, *Black voters weighed history, health in Wisconsin election*, AP NEWS (Apr. 8, 2020), *available at* https://apnews.com/be402510fea98fd7c37067ca05fd8e1a.
[43] Many registered voters are listed with a registration year of 1918. Because these people would have to be over the age of 120, I assume this is an administrative error or an internal shorthand used to signal an unknown registration date. Therefore, I code anyone with a registration year between 1919 and 1973 as someone who is known to be over the age of 65.
[44] Anthony Fowler, *Promises and Perils of Mobile Voting*, ELECTION LAW JOURNAL (forthcoming).

are known to be 65 or older based on their registration date.[45] If one assumes that 28 percent of Wisconsin's registrants are 65 or older and that 6.2 percent of them were deterred from voting by COVID-19 (as estimated in the first column of Table 4), this would suggest that more than 50,000 older citizens across the state were deterred.

Table 4. Turnout Was Lower Than Expected for Older Voters

	DV = Turnout	
Over 65	−.062*	−.066*
	(.007)	(.011)
Over 65*COVID-19 Prevalence		.011
		(.012)
County-Vote-History Fixed Effects	X	X
Observations	3,221,687	3,221,687

*County-clustered standard errors in parentheses; * $p < .05$.*

X. OPINION FIVE: THE DETERRENT EFFECTS OF COVID-19 WERE ESPECIALLY GREAT IN PREDOMINANTLY BLACK AND HISPANIC COMMUNITIES

Reports indicate that underrepresented minorities have been more likely to be economically affected by the COVID-19 pandemic, and they have been more likely to die from the disease.[46] I do not have individual-level data on race, but I do have data on the proportion of residents in each zip code that are Black and Hispanic. Therefore, in Table 5, I test whether participation in April 2020 was lower than expected in zip codes with a higher number of Black and Hispanic residents.

In the first column, I use data from the entire state, and I regress turnout on the proportion of the zip code that is Black, the proportion of the zip code that is Hispanic, and county-vote-history fixed effects. The county-vote-history fixed effects ensure that I am comparing registered voters in the same county with the same vote history but who live in zip codes with different shares of Black and Hispanic residents. The estimates show that moving from zip codes that are entirely non-minority to a hypothetical zip code that is entirely Black, turnout is 15 percentage points lower than would otherwise be expected given the county and the prior-vote histories. Similarly, turnout is 18 percentage points lower than would otherwise be expected when the analysis moves from an entirely non-minority zip code to a hypothetical zip code that is entirely Hispanic.

[45] According to the American Community Survey 2018 5-year estimates, 23.7 percent of voting-age residents in West Virginia are over 65, while 20.6 percent of voting-age residents in Wisconsin are over 65. The West Virginia voter file may therefore slightly overstate the proportion of Wisconsin voters who are over 65, but the discrepancy is likely not large. If we assume that only 20.6 percent of Wisconsin's registered voters are over 65 (which is likely a conservative estimate because older citizens are more likely to be registered), the results in Table 4 would imply that more than 40,000 older citizens were deterred from voting by COVID-19.

[46] APM Research Lab, "The Color of Coronavirus: COVID-19 Deaths by Race and Ethnicity in the U.S.," *available at* https://www.apmresearchlab.org/covid/deaths-by-race (last accessed Jun. 18, 2020).

Table 5. Turnout Was Lower Than Expected for Black and Hispanic Communities

	DV = Turnout	
	Statewide	Milwaukee County
Black Share in Zip Code	−.153*	−.148*
	(.017)	(.019)
Hispanic Share in Zip Code	−.181*	−.166*
	(.029)	(.029)
County-Vote-History Fixed Effects	X	
Vote-History Fixed Effects		X
Observations	3,231,685	488,568

*Zip-code-clustered standard errors in parentheses; * $p < .05$.*

One limitation of this analysis is that Wisconsin has few zip codes with a large share of Black or Hispanic residents. In fact, the only zip codes with even a majority of residents who are Black or Hispanic are in Milwaukee County. Therefore, including data from counties with little variation in race across counties could result in less reliable estimates. For this reason, the second column restricts this analysis to registered voters in Milwaukee County, where there is meaningful variation in the racial composition of neighborhoods, and the estimates are thus more reliable. The estimates from only Milwaukee County are similar to those that rely on data from the entire state, confirming that participation was notably lower than expected in communities that are predominantly Black or Hispanic. Furthermore, Milwaukee County had the highest prevalence of COVID-19, so this is an especially useful setting to examine whether COVID-19 disproportionally affected underrepresented communities.

The word *hypothetical* appears above because there are no entirely Black or entirely Hispanic zip codes in the state of Wisconsin. For a more informative number, consider the zip code of 53204 in Milwaukee, which is 70 percent Hispanic and 11 percent black. Column 2 of Table 5 would predict that turnout in this zip code was 13 percentage points lower ($-.166*.70 + -.148*.11 \approx -.13$) than we would have otherwise expected if this zip code had no Black or Hispanic residents. Similarly, in the zip code of 53206 in Milwaukee, which is 2 percent Hispanic and 94 percent Black, the predicted turnout is 14 percentage points lower ($-.166*.02 + -.148*.94 \approx -.14$). There are 8 zip codes in Milwaukee County with enough Black or Hispanic residents such that the predicted deterrent effect is greater than 10 percentage points, and there are 14 zip codes with a predicted effect greater than 5 percentage points.

Figures 2 and 3 illustrate these patterns visually. The vertical axes represent residual turnout, and the horizontal axes correspond to the proportion of the zip code's residents that are Black and Hispanic, respectively. Each circle corresponds to a zip code in Milwaukee County, and the sizes of the circles are proportional to the number of registered voters in each zip code.

Figure 2. Lower Participation in Milwaukee County Zip Codes with a Higher Share of Black Residents

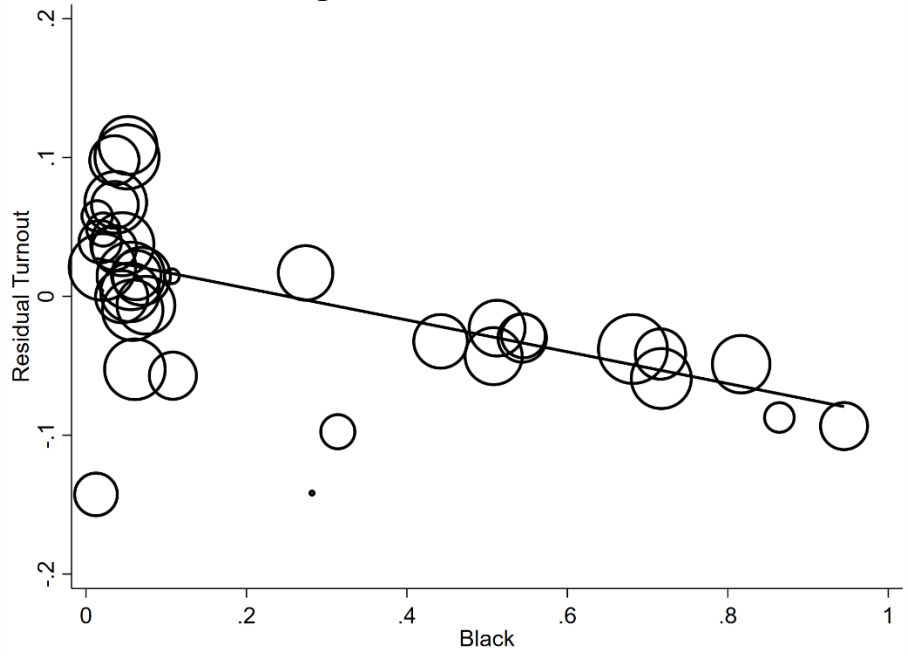
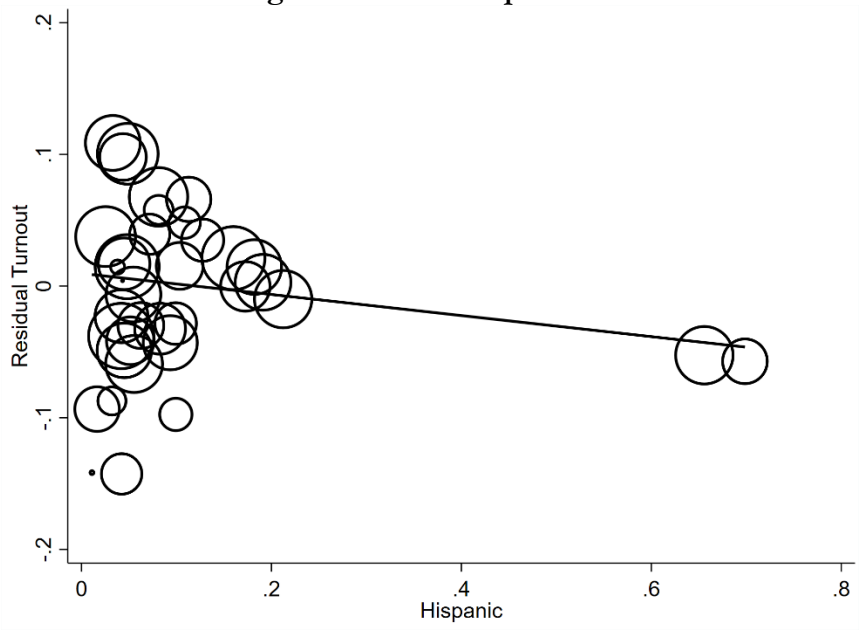


Figure 3. Lower Participation In Milwaukee County Zip Codes with a Higher Share of Hispanic Residents



XI. OPINION SIX: THE DETERRENT EFFECTS OF COVID-19 WERE ESPECIALLY GREAT IN NEIGHBORHOODS WHERE MORE PEOPLE RELY ON PUBLIC TRANSPORTATION AND IN ECONOMICALLY DEPRESSED NEIGHBORHOODS WITH MORE UNEMPLOYMENT AND MORE PEOPLE WITHOUT HEALTH INSURANCE

Because the Wisconsin voter file contains little demographic information, it is difficult to test whether other groups of interest were especially deterred from voting. However, because the address of each registrant is available, I was able to merge zip-code-level demographic data with the voter file, which provides information about the type of neighborhood in which each registered voter lives.

To the extent that participation was lower in high-COVID-19-prevalence counties, I examined whether this was especially great for certain kinds of neighborhoods. I find that the deterrent effects of COVID-19 were especially great in zip codes in which a higher share of residents rely on public transportation, a higher share of households do not own a vehicle, a higher share of the labor force is unemployed, and a higher share of residents do not have health insurance.

For each of these demographic variables, I rescale them so that zip codes at the 5th percentile of the demographic measure are placed at 0 and zip codes at the 95th percentile are placed at 1. This enables an interpretation of the subsequent estimates as the effect of going from a zip code at the 5th percentile of that demographic variable to the 95th percentile. This rescaling has no effect on the subsequent statistical tests (e.g., the p-values will be unchanged), but it makes the estimated coefficients more substantively interpretable. For example, if I included the proportion of residents who use public transportation in the zip code in a regression, the coefficient would tell us about the effect of going from a zip code where nobody uses public transit to a hypothetical zip code where everyone does. But because there are no zip codes in Wisconsin in which everyone relies on public transportation—the highest rate of public transportation usage is 20.3%—it is more informative to think about the effect of going from the 5th percentile (0%) to the 95th percentile (9%).

Table 6 shows the results of these analyses. In each case, I regress turnout in April 2020 on the demographic variable, interaction of the demographic variable and COVID-19 prevalence, and county-vote-history fixed effects. The coefficient associated with the demographic variable reflects the association between the demographic variable and participation in the low-prevalence counties, and the interactive coefficient shows how that association changes as the analysis moves from the lowest to the highest prevalence counties.

The table shows that to the extent that county-level COVID-19 prevalence deterred voters, this effect was 5.6 percentage points greater in zip codes where more people rely on public transportation, 10.9 percentage points greater in zip codes where more households have no vehicle, 5.1 percentage points great in zip codes where more of the labor force is unemployed, and 5.5 percentage points great in zip codes where more people lack health insurance. All of these estimates are statistically significant.

Table 6. Heterogeneity in the Effect of COVID-19 Across Zip Code Demographics

	DV = Turnout			
Public Transportation	−.018			
	(.022)			
Public Transportation*COVID-19 Prevalence	−.056*			
	(.023)			
No Vehicle		−.004		
		(.012)		
No Vehicle*COVID-19 Prevalence		−.109*		
		(.015)		
Unemployment			−.021	
			(.012)	
Unemployment*COVID-19 Prevalence			−.051*	
			(.012)	
No Health Insurance				−.011
				(.010)
No Health Insruance*COVID-19 Prevalence				−.055*
				(.010)
County-Vote-History Fixed Effects	X	X	X	X
Observations	3,218,374	3,217,743	3,218,374	3,218,769

*Standard errors corrected for county- and zip-code-level clustering in parentheses; * $p < .05$.*

These results align with my expectations because the risks of contracting COVID-19 are likely greater in urban neighborhoods where more people rely on public transportation. Similarly, in economically depressed neighborhoods where more people lack health insurance, voting at the polls may be riskier and voting absentee may be more burdensome. These results also bolster the initial result in Table 1 because they demonstrate that the deterrent effect of county-level COVID-19 prevalence was greatest in the communities one would most expect to be affected by the pandemic.

Figure 4 illustrates this result visually by plotting residual turnout for each zip code of Milwaukee County across the share of residents that rely on public transportation. The size of each circle is proportional to the number of registered voters in each zip code. There is a strong, negative, linear relationship between public transportation and residual participation, consistent with the idea that participation was especially deterred in neighborhoods where voting posed the greatest health risks.

The results in Opinions Five and Six are not necessarily independent of one another. For example, neighborhoods with more racial minorities are also likely to have higher unemployment. Once a correlation between race and turnout is identified, there is likely to also be a correlation between unemployment and turnout. Teasing out which factor is most important is difficult because these factors are strongly correlated with one another. Nevertheless, the results suggest that certain kinds of communities were differentially affected in terms of April 2020 election participation: communities with more racial minorities, those that rely on public transportation, those with higher rates of unemployment, and those with higher rates of people without health insurance.

Figure 4. Lower Participation in Milwaukee County Zip Codes that Rely More on Public Transportation

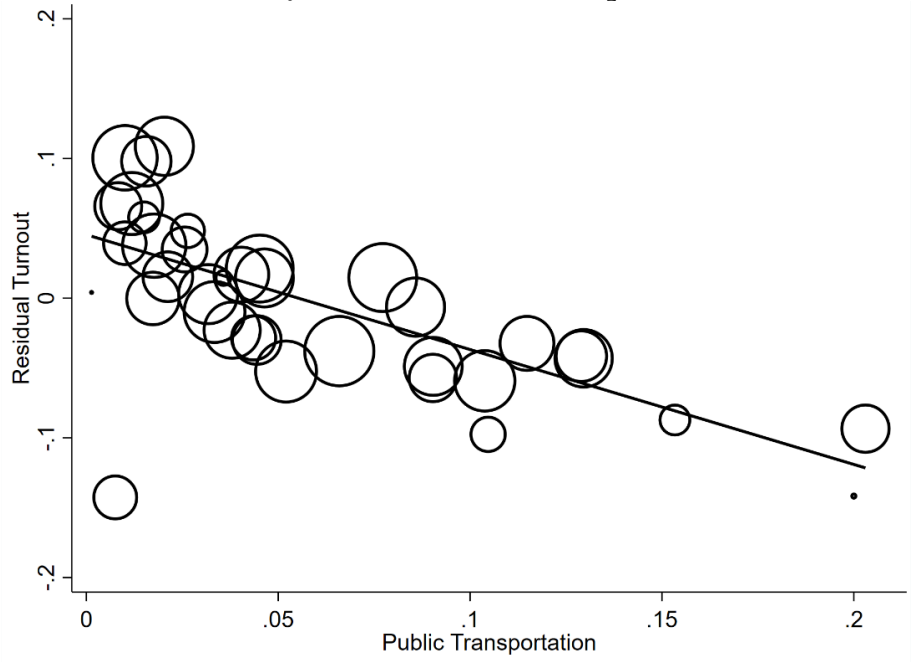
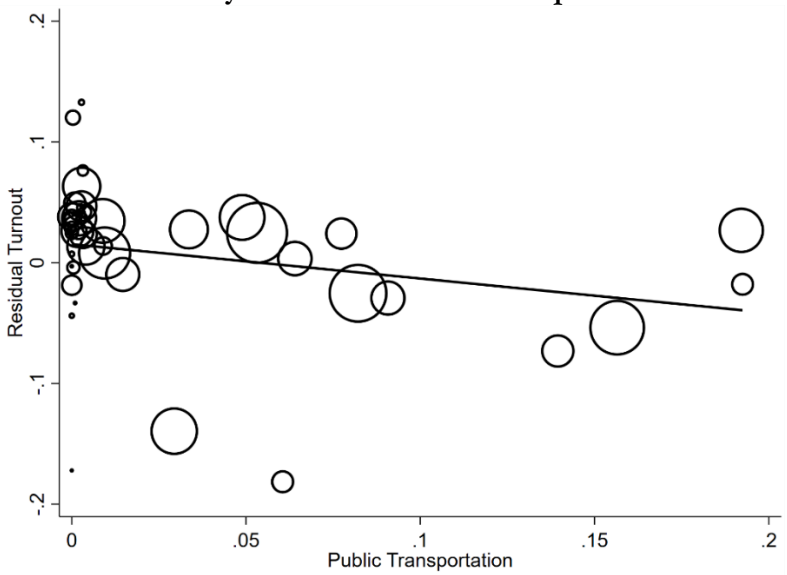


Figure 5. Lower Participation In Dane County Zip Codes That Rely More On Public Transportation



Although Milwaukee County had the highest prevalence of COVID-19 and also the highest levels of public transportation use, the phenomena reflected in Table 6 and Figure 4 are not unique to one county. Wisconsin has 5 counties with at least one zip code where more than 10 percent of residents rely upon public transportation, including Milwaukee, Dane, and Winnebago counties, which respectively contain the cities of Milwaukee, Madison, and Oshkosh. Figure 5 shows the same analysis as in Figure 4 but for Dane County. There were fewer confirmed cases per capita in Dane County

than in Milwaukee county, which explains the weaker negative relationship, but greater deterrent effects are still reflected in the zip codes where more people rely on public transportation.

XII. OPINION SEVEN: SIMILAR IF NOT GREATER LEVELS OF DETERRENCE ARE LIKELY IN NOVEMBER 2020 IF NOTHING IS DONE TO INCREASE THE EASE AND AVAILABILITY OF ABSENTEE-BALLOT VOTING AND THE SAFETY OF IN-PERSON VOTING IN WISCONSIN

Since the April 2020 elections, concerns about COVID-19 have only been exacerbated. Examining more recent data from the Johns Hopkins Coronavirus Resource Center, I see that as of June 15, 2020, 26 counties of Wisconsin had more confirmed COVID-19 cases per capita than Milwaukee County had on April 6, and these 26 counties comprise 74 percent of Wisconsin's state population. Furthermore, Milwaukee County's cumulative cases increased 7-fold between April 6 and June 15.

I have reviewed the expert opinions of Dr. Patrick Remington and understand that he is of the opinion that the pandemic will not be resolved before the November 2020 elections. His opinions seem generally consistent with those of many public-health experts. If the COVID-19 pandemic is not resolved before the elections, similar or higher rates of deterrence are possible in Wisconsin when the state again holds statewide elections in November.

Previous research shows that some groups of citizens face more difficulties in voting and are systematically underrepresented in elections.[47] Additionally, those same low-socioeconomic-status groups also tend to be less responsive to reforms and less likely to adopt new voting technologies.[48] Furthermore, voting is persistent and habit-forming.[49] Someone who was deterred from voting at the polls in April and may have been unable to vote absentee (perhaps because they did not request a ballot in time or could not find a valid witness) could be discouraged about the political process and therefore be less likely to participate in future elections. Furthermore, many of the challenges that deterred these voters in April—including health risks and difficulties of voting by mail—will likely still be present in November.

Importantly, my above-detailed analyses find that the deterrent effects of COVID-19 in April 2020 were not idiosyncratic. They systematically harmed older voters, those who hadn't previously voted absentee, those in urban areas, and those in economically depressed communities. Therefore, if election officials do not make efforts to lower the costs of voting remotely and ensure that every eligible voter has a reasonable opportunity to cast their votes, I would expect to see lower participation in November that especially disadvantages individuals and communities with greater costs of voting and higher risks associated with COVID-19.

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[47] Arend Lijphart, *Unequal Participation: Democracy's Unresolved Dilemma*, AMERICAN POLITICAL SCIENCE REVIEW, Mar. 1997.

[48] Adam Berinsky, *The Perverse Consequences of Electoral Reform in the United States*, AMERICAN POLITICS RESEARCH, 2005 at 471.

[49] Marc Meredith, *Persistence in Political Participation*, QUARTERLY JOURNAL OF POLITICAL SCIENCE, 2009 at 187.

XIII. PLACEBO TESTS ASSESSING THE VALIDITY OF THE EMPIRICAL APPROACH

As mentioned above, although I attempt to flexibly control for prior participation as best as possible, I am aware that there could nevertheless be unobservable differences between the groups that I compare. To further assess the validity of my empirical approach, I have implemented a series of placebo tests. Specifically, I have repeated every regression result above, but pretending that COVID-19 affected the February 2020 election—the most recent statewide election before COVID-19 became a major concern in Wisconsin—rather than the April 2020 election. The placebo tests ignore April 2020 altogether, the outcomes of interest are gleaned from participation in February 2020, and I flexibly control for prior participation in all statewide elections between 2016 and 2019.

Placebo estimates that are closer to zero than the real estimates above would provide further support for my conclusion that COVID-19 deterred participation. If the placebo estimates are comparable to those above, this would suggest that the estimates above could be attributable to noise (i.e., idiosyncratic variation in participation unrelated to COVID-19) or bias.

Tables P1 through P6 below show the results of these placebo tests, with Table P1 showing the placebo estimates that are analogous to the estimates in Table 1 and so on. Many of the estimated coefficients are in the opposite direction of those found for April 2020, meaning that if there are biases, some of them could work in the opposite direction of my findings. For every finding in my report, the placebo estimate is closer to zero than the real estimate. These results bolster my views that COVID-19 deterred participation in April 2020 and that it did so especially for certain groups.

Table P1

	DV = Turnout in April 2020
COVID-19 Prevalence	.030
	(.018)
Vote History Fixed Effects	X
Observations	3,234,541

*County-clustered standard errors in parentheses; * $p < .05$.*

Table P2

	DV = Turnout	At Polls	Absentee
COVID-19 Prevalence	.028	.028	−.000
	(.018)	(.017)	(.001)
Vote Method History Fixed Effects	X	X	X
Observations	3,229,875	3,229,875	3,229,875

*County-clustered standard errors in parentheses; * $p < .05$.*

Table P3

	DV = Turnout	
Never Absentee	−.035*	−.034*
	(.001)	(.001)
Never Absentee*COVID-19 Prevalence		−.003
		(.002)
County-Vote-History Fixed Effects	X	X
Observations	3,227,197	3,227,197

*County-clustered standard errors in parentheses; * $p < .05$.*

Table P4

	DV = Turnout	
Over 65	−.019*	−.012
	(.006)	(.009)
Over 65*COVID-19 Prevalence		−.019
		(.012)
County-Vote-History Fixed Effects	X	X
Observations	3,227,197	3,227,197

*County-clustered standard errors in parentheses; * $p < .05$.*

Table P5

	DV = Turnout	
	Statewide	Milwaukee County
Black Share in Zip Code	.051*	.057*
	(.010)	(.011)
Hispanic Share in Zip Code	.019	.040*
	(.013)	(.013)
County-Vote-History Fixed Effects	X	
Vote History Fixed Effects		X
Observations	3,231,685	488,568

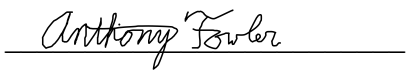
*Zip-code-clustered standard errors in parentheses; * $p < .05$.*

Table P6

	DV = Turnout			
Public Transportation	.007			
	(.004)			
Public Transportation*COVID-19 Prevalence	.028*			
	(.004)			
No Vehicle		.003		
		(.006)		
No Vehicle*COVID-19 Prevalence		.039*		
		(.007)		
Unemployment			−.004	
			(.008)	
Unemployment*COVID-19 Prevalence			.026*	
			(.008)	
No Health Insurance				−.002
				(.004)
No Health Insruance*COVID-19 Prevalence				.015*
				(.005)
County-Vote-History Fixed Effects	X	X	X	X
Observations	3,223,885	3,223,885	3,223,885	3,223,885

*Standard errors corrected for county- and zip-code-level clustering in parentheses; * $p < .05$.*

I declare under 28 U.S.C. § 1746 and penalty of perjury that the foregoing is true and correct.



Anthony Fowler, Ph.D.