Covid-19 and Preferences for Progressive Taxation: Evidence from a 2020 U.S. Ballot Proposal

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A large political economy literature argues that periods of economic hardship can make redistribution more popular with voters. Based on these claims, recent research has investigated whether the Covid-19 pandemic shocked voters' policy preferences. The results in these studies are inconsistent and based on hypothetical policy proposals. By contrast, in this note, I investigate the relationship between the pandemic and support for progressive taxation using a real world case of revealed voter preferences: a 2020 Illinois ballot proposal to move from a flat to a graduated income tax system. Combining zip code-level health and economic data with local results from the referendum, I find that various indicators of pandemic-related economic burdens are not meaningfully associated with a higher vote share in favour of the progressive tax proposal. Supplementary analyses using a national panel of voters in 2016 and 2020 similarly reveals no association between personal hardships early in the pandemic and support for progressive taxation.

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Introduction

Rising inequality in the United States and other Western countries has fuelled calls in recent years for greater tax progressivity (e.g. Piketty, 2013; Saez and Zucman, 2019). Popular discourse portrayed the Covid-19 pandemic as a potential catalyst for this type of tax reform (e.g. Bukowski and Paczos, 2020). The pandemic constrained government revenues and increased demands for social spending, creating a need for new sources of funding. Lockdowns, unpaid sick time, unexpected healthcare costs and deaths due to the virus caused economic hardship for many households, especially those that were already economically marginalized, while the wealthy increased their wealth share during this period (Chancel, Piketty, Saez, and Zucman, 2021).

A large literature on redistributive policy preferences suggests that voters who saw a decline in their income due to the pandemic should become more supportive of higher taxes on the rich (e.g. Margalit, 2019; Meltzer and Richard, 1981). This shift in preferences may be motivated by concerns about fairness or about one's own material well-being (Fisman, Jakiela, and Kariv, 2015; Alesina and Angeletos, 2005; Cavaille, 2023). Voters could have updated their policy positions directly due to changes in their own economic fortunes or indirectly through changing perceptions of risk and feelings of social solidarity based on the experiences of those close to them.

Evidence for these arguments is mixed. Cross-sectional survey data show a positive relationship between exposure to Covid-19 and support for redistribution (e.g. Klemm and Mauro, 2022; Rees-Jones, D'Attoma, Piolatto, and Salvadori, 2022). Longitudinal and experimental studies have reported weaker evidence, finding that voters did not meaningfully update their redistributive policy preferences during the pandemic (Ares, Bürgisser, and Häusermann, 2021; Blumenau, Hicks, Jacobs, Matthews, and O'Grady, 2024; Cappelen, Falch, Sørensen, and Tungodden, 2021; De Vries et al., 2023; Jurado and Kuo, 2023; Ebbinghaus, Lehner, and Naumann, 2022). This nascent body of research has tended to

focus on hypothetical policy options, using self-reported support for proposals like "short term increases in income taxes on high income earners" (Rees-Jones et al., 2022).

By contrast, in this research note, I study the relationship between the Covid-19 burden and support for progressive taxation in a real world case of voters' revealed preferences. Using local results from an Illinois tax referendum in November 2020, I find that areas that were especially impacted by the pandemic were no more likely to support a more progressive tax system.

The Covid-19 Economic Shock and Redistributive Preferences

During the early period of the Covid-19 pandemic, many voters − especially those that were already economically marginalized − experienced economic hardship as a result of lost employment and earnings, public health lockdowns, and contracting or caring for someone who contracted the virus (Adams-Prassl, Boneva, Golin, and Rauh, 2020). The wealthy were largely insulated from these challenges and by some accounts even increased their wealth share during this period (Chancel et al., 2021). These sudden, widespread and heterogeneous economic impacts were viewed by some as presenting an opportune moment to pursue redistributive reforms (e.g. Bukowski and Paczos, 2020; Schwarzkopff and Alexander, 2020).

There are two main mechanisms by which the economic shock of the pandemic might have shifted mass support for such initiatives. Theoretically, a simple median voter model predicts that a decline in the income of poorer voters will lead to an increase in their demand for taxes on the rich as a way to improve their own well-being (Meltzer and Richard, 1981). An empirical literature on self-interested or "pocketbook" voting lends support to these predictions, finding that voters who experience economic loss often become more supportive of redistributive policies that are likely to benefit themselves (Fisman et al., 2015; Hacker, Rehm, and Schlesinger, 2013; Margalit, 2013; Martén, 2019; Naumann, Buss, and Bähr, 2016; Owens and Pedulla, 2014). Voters that lost their jobs as a result of the pandemic

may therefore have come to see higher taxes on the rich − and presumed increases in social spending or pandemic income supports − as a way to recover lost income.

The pandemic may also have triggered concerns about fairness and deservingness. Prior research finds that preferences for redistribution are shaped by beliefs about how much control individuals have over their economic outcomes (Alesina and Angeletos, 2005; Cavaille, 2023; Fong, 2001; Petersen, Slothuus, Stubager, and Togeby, 2011; Stantcheva, 2020). Support for progressive taxation tends to be higher when people see differences in wealth as exogenous to one's own merit or effort. For this reason, when negative shocks outside the control of poorer voters result in income losses, taxes on the rich can be seen as a "fair" way to provide compensation and acknowledge the wealthy's greater ability to contribute (Alvarado, 2022; Barr, Miller, and Ubeda, 2016; Scheve and Stasavage, 2010, 2016). The exogenous and disparate impacts of the pandemic may therefore have shifted perceptions of fairness, with downstream effects on tax preferences.

These material and fairness considerations can be triggered not just by one's own personal experiences, but also those of family members, friends and the local community. Partly this is because the fate of one's second-degree connections can cause people to update on their own risk of negative economic outcomes (Alt, Jensen, Larreguy, Lassen, and Marshall, 2022; Margalit, 2013). For these voters, redistributive policy can become more appealing as a way to insure oneself against future losses already experienced by those close to them (Iversen and Soskice, 2001; Rehm, 2009). Local conditions may also inform a voter's sense of social solidarity, encouraging feelings of empathy or compassion for others who have experienced hardship (Cappelen et al., 2021; Kessler and Milkman, 2018). For these reasons, voters living in areas that saw a large number of Covid-19 cases or a negative economic shock due to the pandemic may have increased their support for progressive taxation even if they themselves did not experience loss.

The preceding discussion highlights why the Covid-19 pandemic might have either directly or indirectly altered redistributive policy preferences. Yet, in a review of the literature on

economic shocks, Margalit (2019) notes that the attitudinal effects of the events (a) are often transient (e.g. Margalit, 2013; Martén, 2019; although see Naumann et al., 2016) and (b) do not always translate into consistent changes in voting behaviour. In the next section, I explain how the results of a referendum in Illinois can help shed light on whether the Covid-19 pandemic did in fact shift voter preferences.

Case and Empirical Strategy

The 1970 Illinois Constitution explicitly prohibits the state from setting graduated tax rates based on income. In 2018, Democratic gubernatorial candidate J.B. Pritzker campaigned and won on a promise to replace this "flat tax" system with a more progressive scheme. His proposal, put to voters in a 2020 referendum, would have seen those earning below $250,000 continue paying the existing flat rate of 4.95%, or slightly less, while earnings above that figure would be taxed at 7.75% or greater. Proponents of the plan claimed that if the initiative were to pass, only the top 3% of earners would see an increase in their tax bill. Ultimately, 46.7% of voters supported the reform.

To investigate the relationship between the Covid-19 burden and support for this progressive tax proposal, I use data from the Illinois Department of Public Health on the number of Covid-19 cases and deaths that occurred in each zip code before mail-in ballots were sent to voters. I also calculate the percentage change in employment and earnings in each zip code between the week before Illinois first issued a stay-at-home order in 2020 and the same week in 2021.[1] I then merge the case count and employment change data with demographic controls from the 2019 American Community Survey and precinct-level returns from the 2018 and 2020 elections using a geographic weighting scheme.

[1]Ideally, I would compare economic changes between the onset of the pandemic and the referendum, but the Census Bureau only collects this data annually in March; the analysis using this data therefore assumes that the distribution of economic impacts in the first wave roughly correlates with those in the second wave, which peaked after Election Day (see Appendix C for validation of this assumption using county-level data).

I use OLS to regress the proportion of votes in favour of the tax proposal in each zip code on the indicators of pandemic burden described in the previous paragraph. I control for a number of potential confounders (see notes to Table 1) to account for the fact that areas with, for example, more Democratic voters, racialized residents, and people with lower incomes are both more likely to experience Covid-19 cases and support the tax initiative. A set of county fixed effects helps address region-specific sources of confounding.

Results

Table 1 presents the estimates. The first two columns investigate the association between experiences with the virus itself and support for the progressive tax proposal. In the first model focusing on case counts, the relationship is precisely estimated but substantively small: each additional case per 1,000 residents is associated with 0.03 percentage points (p.p.) higher vote share for the tax proposal. Put differently, a one-standard deviation increase in the case count variable (i.e. 12 more cases per 1,000) correlates with just an 0.3 p.p. increase in support. In the referendum, 46.7% of voters supported the tax reform. According to these estimates, Covid-19 cases would have had to be more than *six times* greater than they actually were for support to have increased above 50%. (For comparison, cumulative case counts were only 4.2 times greater after Illinois' massive second wave ended in March 2021).

Perhaps deaths caused by Covid-19, rather than infections, were the type of shock that would increase support for progressive taxation. Mortality statistics were never released at the zip code level, except in Chicago. Restricting my focus to the zip codes in that city, I show in the second column of Table 1 that the relationship between Covid-19 deaths and support for progressive taxation is indeed stronger than for Covid-19 infections (although the estimate here is noisier given the smaller number of zip codes in Chicago). Yet the correlation is still substantively small: each additional death per 1,000 is associated with just one additional p.p. in favour of the tax proposal. For reference, this would be equivalent

Table 1: Zip code-level relationships between the Covid-19 burden and support for progressive taxation

	% supporting progressive taxation (measured from 0 to 100)				
	(1)	(2)	(3)	(4)	(5)
Covid-19 cases per 1,000	0.025*				
	(0.012)				
Covid-19 deaths per 1,000		1.158			
		(0.604)			
Percent loss in employment			0.0003		
			(0.004)		
Percent loss in earnings				−0.007*	
				(0.004)	
Stricter lockdown					−1.008
					(0.650)
Sample	All of Illinois	City of Chicago	All of Illinois	All of Illinois	Lockdown Borders
Observations	1,351	58	1,270	1,270	97
R^2	0.977	0.984	0.979	0.979	0.970
Controls	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	No

Robust standard errors in parentheses. Models include the following covariates: log population, population density, 2018 Democrat gubernatorial vote share, median household income, Gini coefficient, and the share of the population that is: under 18, over 65, Black, Hispanic, living in poverty, holding a bachelor's degree, as well as the percent working in the following industries: education, healthcare and social assistance; leisure and hospitality; government. County FE are not reported in models 2 and 5 because (a) Chicago exists within a single county and (b) lockdown restrictions are constant within counties. Model 5 contains border segment fixed effects. *p<0.05

to the change from a neighbourhood that had zero deaths before the election to the median neighbourhood on this metric.

While Covid-19 cases and deaths do impose financial costs on voters, it is also possible to investigate the pandemic's economic burdens more directly. In the third and fourth columns of Table 1, I report estimates for the association between support for the tax proposal and the percent loss in employment and earnings during the pandemic. For both of these variables, the estimated relationship is essentially zero and inconsistently signed. Even a full standard deviation increase in employment losses (roughly 18 p.p.) correlates with less than 0.1 p.p. greater vote share for the tax reform. The coefficient on the earnings losses variable suggests that economic harms actually decreased support in the referendum, but this estimate is negligible in magnitude.

These null and inconsistent results are corroborated by an investigation into the specific impact of public health restrictions. Until Illinois began reopening in the summer, a statewide lockdown was in effect. After that point, two public health regions were later placed under an additional 2 to 3 weeks of restrictions because of resurgent infection rates. To assess the impact of the longer closures in these regions, I restrict the sample to all zip codes on the border between health regions that did and did not come under the additional restrictions. Zip codes that fall on either side of these borders look very similar on average, including their number of Covid-19 cases, which helps to isolate the specific impact of the restrictions (see Appendix E for balance tests). In the final column of Table 1, I show that areas that were burdened by an extra 2 to 3 weeks of lockdowns were actually one p.p. *less* likely to vote in favour of progressive taxation, although this effect is not statistically significant.

Direct exposure

The evidence in Table 1 reveals no consistent, meaningful relationship between pandemic-related hardships and support for progressive taxation. Yet the aggregate electoral data may be obscuring the fact that only those who were *personally* affected by the pandemic updated

Table 2: First differences in support for progressive taxation in the ANES

	△ Support Millionaire's Tax (0/1)			
Covid-19 infection (0/1)	−0.015			−0.016
	(0.028)			(0.028)
△ Worried about finances (z-score)		0.010		0.009
		(0.010)		(0.010)
△ Currently working (0/1)			0.003	0.006
			(0.021)	(0.021)
Observations	2,625	2,632	2,633	2,616
R^2	<0.001	<0.001	<0.001	0.001

Robust standard errors in parentheses. *p<0.05

their positions on tax policy. To investigate this possibility, I use survey data from a panel of respondents to the 2016 and 2020 American National Election Surveys (ANES). In both of these years, respondents were asked whether they support "increasing income taxes on people making over one million dollars per year." In 2020, respondents also indicated whether they, or someone in their household, had contracted Covid-19. While the 2020 ANES does not contain indicators for economic hardship caused *by* the pandemic, there are items in both survey years capturing respondents' worry about their financial situation and whether they were currently working.

Using a first-differences model, I regress the change in a respondent's support for a millionaire's tax between 2020 and 2016 on an dummy for whether they contracted Covid-19 in 2020 and the changes in their level of financial worry and working status over the same period. This design controls for all time-invariant, respondent-specific characteristics (e.g. gender, race) and election-specific trends in support for progressive taxation.

Table 2 presents the results. Across the three measures of hardship, none of the coefficients are statistically or substantively significant. Those who contracted Covid-19 in

2020 became around 1.5 p.p. less likely to support a millionaire's tax relative to those who weren't infected. Those who became more worried about their personal financial situation, or who lost a job, between 2016 and 2020 were no more likely to increase their support for progressive taxation.

Alternative explanations

The preceding analyses have focused on average associations. But if Democrats exposed to Covid-19's effects updated positively on the need for progressive taxation, while Republicans more stridently opposed this policy, the null results may be driven by countervailing reactions (Gadarian, Goodman, and Pepinsky, 2021). I evaluate this hypothesis by interacting each measure of the Covid-19 burden with each zip code's 2018 gubernatorial Democratic vote share. The results, summarized in Appendix F, are not indicative of polarization. The strength of the relationship between Covid-19 exposure and support for the tax is mostly homogeneous and weak across values of prior partisanship. There is similarly no evidence of heterogeneous responses in the ANES panel data.

It may also be that the pandemic's health and economic burdens disproportionately depressed turnout among voters who would have otherwise supported the tax proposal (Johnson, Pollock, and Rauhaus, 2020). In Appendix J, I re-estimate my main models with referendum turnout as the outcome. The estimated relationships are negative, but substantively very small and statistically insignificant, suggesting the null results are not driven by a systematic demobilization of pro-tax reform voters.

Finally, these null result could be due to some peculiarity of the Illinois political context. Coincidentally, Arizona held a referendum on a similar tax proposal in 2020. In Appendix L, I use the same empirical strategy as in Illinois to re-run my analysis on that state's voting returns. While there are only about a quarter as many zip codes in Arizona as in Illinois − and the coefficient estimates are accordingly less precise − a similar pattern emerges: there is no meaningful association between pandemic-related hardship and support for progressive

tax reform. This finding, in addition to the national results using the ANES, provides confidence that the relationship in Illinois is likely to apply more broadly.

Discussion

Taken together, the results presented here do not suggest that Covid-19-related hardships were associated with increased support for progressive taxation. Where such an association exists, it is substantively very small. Why did this massive shock to voters' economic welfare not coincide with a shift in support for higher taxes on the rich? It could be that voters viewed the pandemic as temporary or "exceptional" and as such it should have no bearing on longer-term redistribution policy (De Vries et al., 2023). Another explanation is that opinions on progressive taxation are highly politicized and resistant to updating. In the referendum data, the correlation between support for the tax proposal and 2018 Democratic gubernatorial vote share is 0.96. In the ANES, less than one-third of voters changed their opinion on a millionaire's tax between 2016 and 2020. When policy positions are so deeply entrenched, or crises are seen as ephemeral, even major economic disruptions may be insufficient to alter voter preferences.

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Appendix

Contents

A Full details of proposed tax rates

At the time of the referendum, all Illinoisans paid an income tax rate of 4.95%. In anticipation of the referendum succeeding, state lawmakers passed a revised schedule in Senate Bill 687 that would implement the proposed progressive tax system. The exact marginal tax rates in that bill were as follows:

1. Single-filers:
    - \$0−\$10,000: 4.75%
    - \$10,001−\$100,000: 4.90%
    - \$100,001−\$250,000: 4.95%
    - \$250,001−\$350,000: 7.75%
    - \$350,001−\$750,000: 7.85%
    - \$750,001 and above: 7.95% on net income
2. Joint-filers:
    - \$0−\$10,000: 4.75%
    - \$10,001−\$100,000: 4.90%
    - \$100,001−\$250,000: 4.95%
    - \$250,001−\$500,000: 7.75%
    - \$500,001−\$1,000,000: 7.85%
    - \$1,000,001 and above: 7.95% on net income

B Data on Covid-19 cases in Illinois

I pull data on the number of Covid-19 cases per zip code from the Illinois Department of Public Health. Because of the public health risks associated with in-person voting, the majority (59.5%) of voters cast their ballots before Election Day in 2020. To account for this, I only record cases that occurred before September 24, when early voting options were first made available to voters. If the IDPH reports no cases for a zip code before this date, I assign 2.5 cases, the midpoint between 0 and 5 (the minimum threshold at which cases are reported at the zip code-level).

Table A1 investigates sensitivity to the choice of cut-off date for counting Covid-19 cases. The first column reports the results from the main text, while the second column is based on cases reported before Election Day. The relationship is weaker when using the measure that includes cases occurring after mail-in-ballots were distributed to voters.

Table A1: Alternative Covid-19 case count dates

	% supporting progressive taxation (measured from 0 to 100)	
	(1)	(2)
Covid-19 cases before mail-in voting begins	0.025*	
	(0.012)	
Covid-19 cases before Election Day		0.012
		(0.008)
Observations	1,351	1,351
R^2	0.977	0.977
Controls	Yes	Yes
County FE	Yes	Yes

Robust standard errors in parentheses. Models includes the following covariates: log population, population density, 2018 Democrat gubernatorial vote share, median household income, Gini coefficient, and the share of the population that is: under 18, over 65, Black, Hispanic, living in poverty, holding a bachelor's degree, as well as the percent working in the following industries: education, healthcare and social assistance; leisure and hospitality; government. *p<0.05

C Data on economic loss

Data on economic changes come from the Census Bureau's County Business Patterns data files. These data correspond to prevailing conditions in all businesses within a zip code on the week of March 12 each year. In 2020, Illinois did not issue a stay-at-home order until March 21, so I treat the 2020 data as the pre-pandemic reference point and calculate percent changes in employment levels and payroll versus 2021. Ideally, I would compare economic changes between the onset of the pandemic and the referendum itself, but since this data is

only available for March of each year, my analyses assume that the distribution of economic impacts in the first wave roughly correlates with those in the second wave, which peaked after Election Day.

To validate this assumption, I use monthly employment data at the county level from the US Bureau of Labor Statistics' Quarterly Census of Employment and Wages. I calculate the average year-over-year change in employment levels for each Illinois county separately for the periods between March and September 2020 (i.e. pre-election) and October 2020 and February 2021 (i.e. post-election). As Figure A1 shows, economic losses in these two periods are closely related. The correlation between these two variables is 0.72 and the association is roughly linear (even when excluding outlier counties with extreme losses). These results provide confidence that the full-year measure used at the zip code level is a sufficient proxy for the negative economic impacts in the period before the referendum.

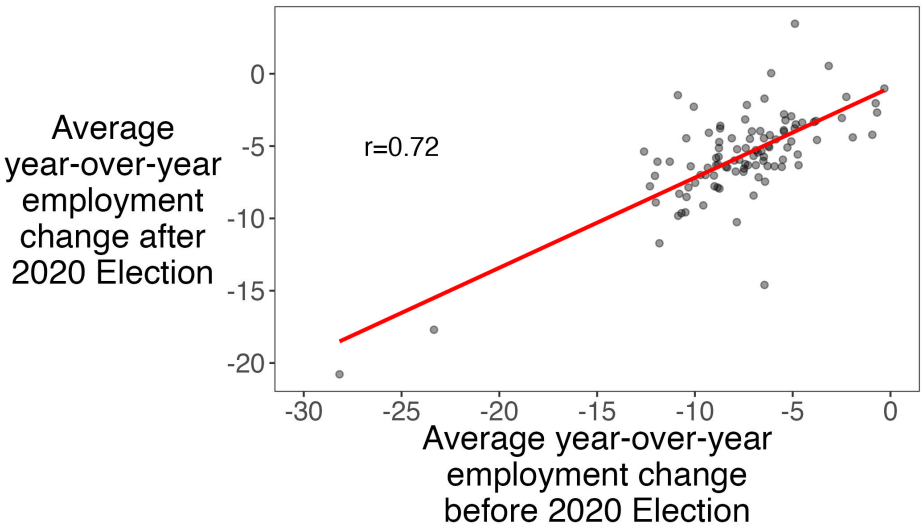

Figure A1: Average year-over-year employment changes by county during the pre-referendum pandemic period and the post-referendum period
Plot reports the average year-over-year change in employment levels for each county in Illinois during the periods between March and September 2020 (x-axis) and October 2020 and February 2021 (y-axis).

D Details on matching precinct-level election results to zip codes

To link precinct-level returns to the zip code-level data on Covid-19 burdens, I assign votes to each zip code using a geographic weighting scheme. The process is as follows:

1. Precinct boundaries are split along zip code boundary lines using the GIS "Union" function. For example, a precinct that is intersected by one zip code boundary would be transformed into two precinct "pieces."

2. I calculate the spatially-weighted number of voters in each precinct piece that voted in favour of a particular candidate or referendum outcome. The specific formula for this is:

$$\left[\frac{\text{Area of precinct piece}}{\text{Area of total precinct}}\right] \times \big(\text{Number of votes cast in precinct}\big)$$

   For example, if the "Yes" option received 100 votes in a precinct, and that precinct was split perfectly equally in two by a zip code boundary line, then the weighted number of "Yes" votes in each precinct piece would be 50.

3. I calculate the total votes cast for a particular candidate or option in a zip code by summing over the spatially-weighted vote totals for each precinct piece within that zip code. For example, if zip code Z contained 50% of Precinct A and 25% of Precinct B, then the total votes cast would be 50% of the votes in A plus 25% of the votes in B.

E Lockdowns test

To test for the effect of public health restrictions on support for the tax proposal, I leverage Illinois' regional approach to reopening after the pandemic's first wave. While initially the entire state was placed under lockdown, Governor Pritzker's reopening plan specified conditions that would trigger mitigation efforts. If a public health region "(a) logged a test positivity rate of 8% or higher for three consecutive days or (b) a sustained a 7-day

increase in hospital admissions for a COVID-like illness, or (c) a reduction in hospital capacity threatening surge capabilities (ICU capacity or medical/surgical beds under 20%)," that region would be placed under additional restrictions, including limiting or suspending indoor service at restaurants and bars and limiting gathering sizes.

Before mail-in voting began, two of the state's 11 regions (mostly defined along county lines) were put under these additional restrictions for 14 and 22 days, respectively. These restrictions went into effect in late August. As Figure A2 shows, further restrictions were also imposed on other regions after mail-in voting began on September 24, but before Election Day. As in my main analysis (see Appendix B), I focus on exposure to pandemic-related hardship before mail-in balloting began because the majority of votes were cast by mail in 2021. That being said, the right panel of Figure A2 shows that the areas that were subjected to additional lockdowns before mail-in balloting began also saw relatively more restrictions compared to neighbouring regions before Election Day as well (52 vs. 0 and 13 days in the southern regions and 35 vs. 5, 6, 12 and 0 days in the northern regions).

To test for the effect of the additional lockdown periods in the two affected regions, I restrict the sample to zip codes falling within 2km of the border between regions that were locked down before mail-in balloting began and those that were not (see Figure A3). Focusing only on these zipcodes improves the similarity between "treated" (locked down) and "control" (not locked down) units. Table A2 reports averages of a number of covariates across each group and tests for significant differences using t-tests. The two groups are very similar on average, with a slightly lower proportion living in poverty in the treated zip codes. Importantly, this design virtually eliminates any average difference in exposure to actual Covid-19 cases across treated and control units, thus helping to isolate the specific effect of the additional lockdown period. If I were to look at all zip codes in public health regions on either side of the border, the number of Covid-19 cases per 1,000 would be 4.1 cases greater on average in treated regions ($p < 0.01$), a relatively large discrepancy given that the standard deviation of this variable is around 12.

The first two columns of Table A3 test whether the lockdowns did in fact result in economic hardship, measured as the percentage change in employment and earnings from March 2020 to March 2021 (see Appendix C). Zip codes that saw additional lockdown restrictions saw 4 and 3 percent lower employment and earnings levels relative to zip codes that look similar but that were not subjected to those restrictions. These estimates are not statistically significant, but the fact that the second time point in these measures is in March 2021 – after the pandemic's second wave and a multitude of other restrictions were enacted – likely increases the noise around the estimates of the first wave lockdowns.

The remaining columns in Table A3 report the effect of the additional lockdowns on the share of voters supporting the progressive tax proposal. The third column reports results without control variables, while the fourth introduces controls to improve statistical efficiency (see table notes). In each case, border segment fixed effects are included to ensure comparisons are made between treated and control units directly opposite each specific border between health regions. Across both specifications, the lockdown lowered support for the tax proposal by just over one p.p., although neither estimate is statistically significant. Finally, as Figure A3 shows, some zip codes straddle the border between health regions. In the final model, I remove these cases and re-run the analysis; the results are nearly identical.

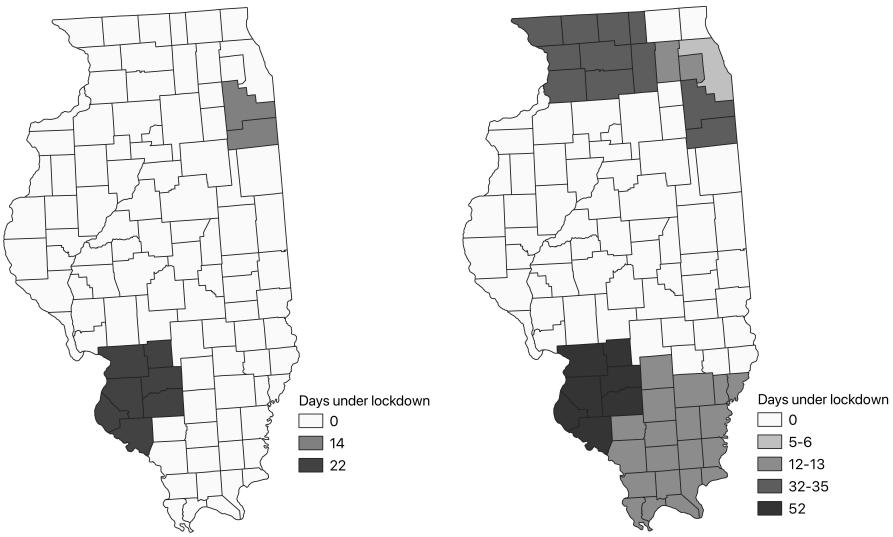

Figure A2: Lockdown restrictions before mail-in voting (left) and Election Day (right)

Plot reports the number of days each county was placed under restrictions (beyond the initial statewide lockdown) before mail-in ballots were distributed on September 24 (left) and Election Day (right).

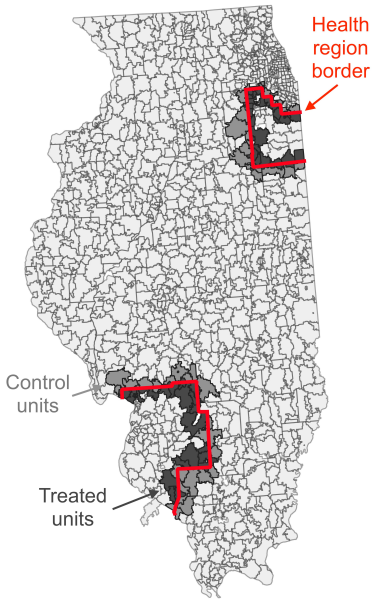

Figure A3: Lockdowns border design

Plot shows outlines (in red) of the two public health regions that came under additional restrictions before voting opened in Illinois. All zip codes within 2km of the border are included in the sample. Determination of treatment status based on whether a zipcode's centroid falls within a public health region that experienced additional lockdowns.

Table A2: Lockdown design balance test

	Additional lockdown?		
	No ("Control")	Yes ("Treated")	t-test p-value
Observations	50	47	
Covid-19 cases per 1,000	16.20	16.75	0.72
Democratic share (2018)	0.42	0.41	0.72
Median HH income	$65,210	$71,793	0.16
Gini coefficient	0.41	0.39	0.20
% Latino	4.88	6.49	0.22
% Black	8.47	8.42	0.99
% in poverty	12.29	9.16	0.04
% working health & education	23.05	23.06	0.99
% working in hospitality	7.29	7.32	0.97
% working in public admin.	4.81	4.53	0.68
% with Bachelor's	13.61	15.79	0.27
% under 18	21.65	23.21	0.15
% over 65	17.49	17.21	0.83
Population density	864.3	643.5	0.36
Population	11,674	11,696	0.99

Table presents the average value of each covariate in the treated and control zip codes. Right-most column reports p-values from t-tests.

Table A3: Lockdowns, economic loss and support for progressive taxation

	Economic losses		% supporting progressive taxation (measured from 0 to 100)		
	Employment	Earnings			
	(1)	(2)	(3)	(4)	(5)
Stricter lockdown	4.310	3.225	−1.151	−1.008	−1.172
	(5.785)	(3.547)	(2.718)	(0.650)	(0.638)
Observations	95	95	97	97	82
R^2	0.174	0.100	0.265	0.970	0.972
Border segment FE	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	No	Yes	Yes

Robust standard errors in parentheses. Models 1, 2, 4 and 5 include the following covariates: log population, population density, 2018 Democrat gubernatorial vote share, median household income, Gini coefficient, and the share of the population that is: under 18, over 65, Black, Hispanic, living in poverty, holding a bachelor's degree, as well as the percent working in the following industries: education, healthcare and social assistance; leisure and hospitality; government. *p<0.05

F Heterogeneous responses

I use an interaction model to investigate whether responses to the pandemic differed by prior partisanship. Figure A4 reports the marginal effects of each indicator of Covid-19 exposure across values of the 2018 Democratic gubernatorial vote share at the zip code level (using both a binned and linear estimator). Overall, the estimates reveal little heterogeneity. In the most generous interpretation, it appears that the relationship between Covid-19 case counts and support for the tax is indeed stronger in areas with a larger share of Democratic voters. Each additional case per 1,000 in highly Democratic areas correlates with an 0.08 p.p. greater vote share for the tax proposal. While this association is around three times larger than the average association in the main text, it is still substantively small and is again insufficient to change whether the proposal would have passed. The estimates from the other two indicators of economic losses are also small in magnitude across all values of prior partisanship.

Figure A5 reports a similar analysis, focusing on the relationship between indicators of pandemic exposure in the ANES and support for the progressive tax proposal by partisanship. These estimates are calculated based on three separate OLS models interacting partisanship (measured in 2016) with each of the variables in the columns, based on the first difference models reports in the main text. Again, there are no significant differences in associations across partisan groups.

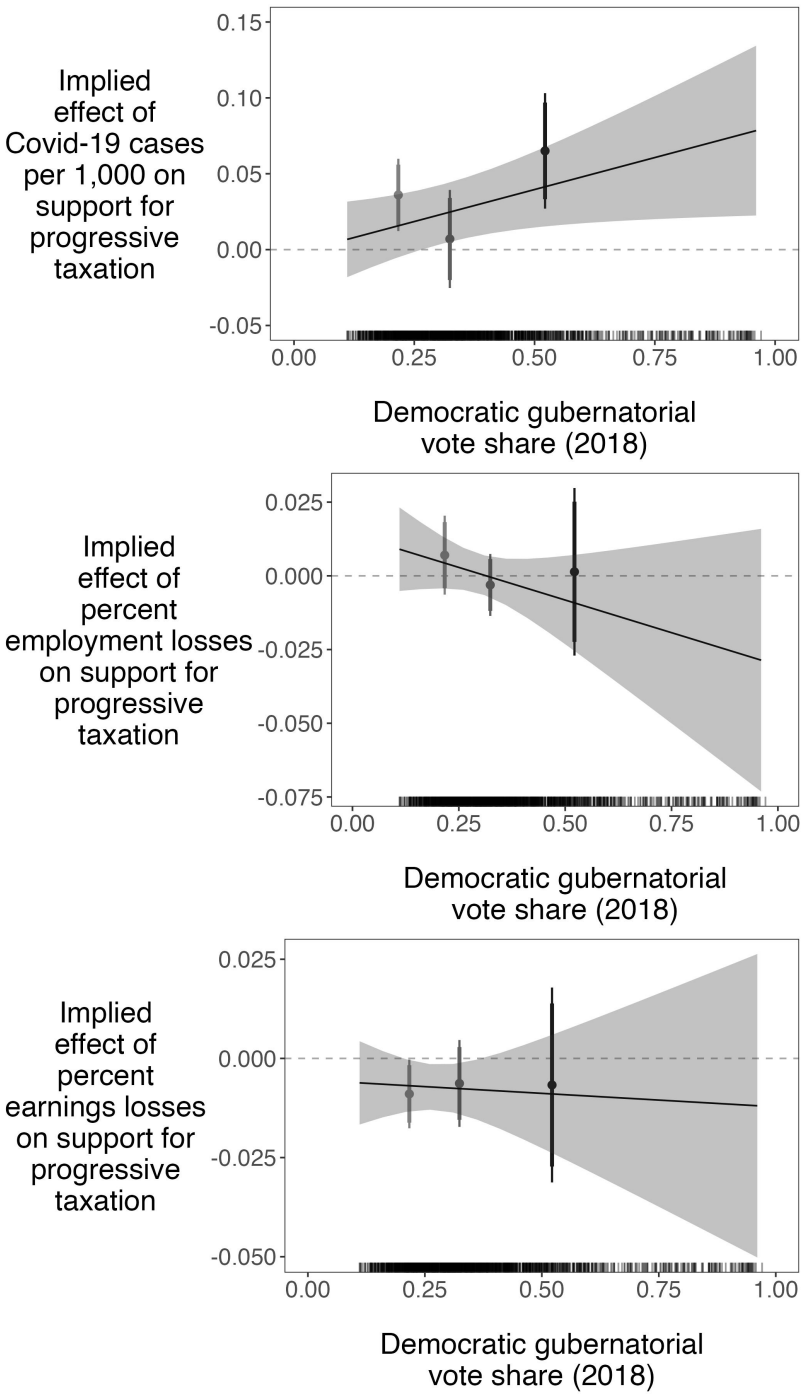

Figure A4: Association between Covid-19 burden and support for the progressive tax proposal by previous gubernatorial election Democratic vote share

Plot summarizes point estimates and 95% confidence intervals from two OLS models interacting each measure of Covid-19 burden with 2018 Democratic gubernatorial vote share, measured linearly and by binning into terciles. The model also adjusts for county fixed effects and the covariates listed in the notes to Table 1. ($n = 1,351$).

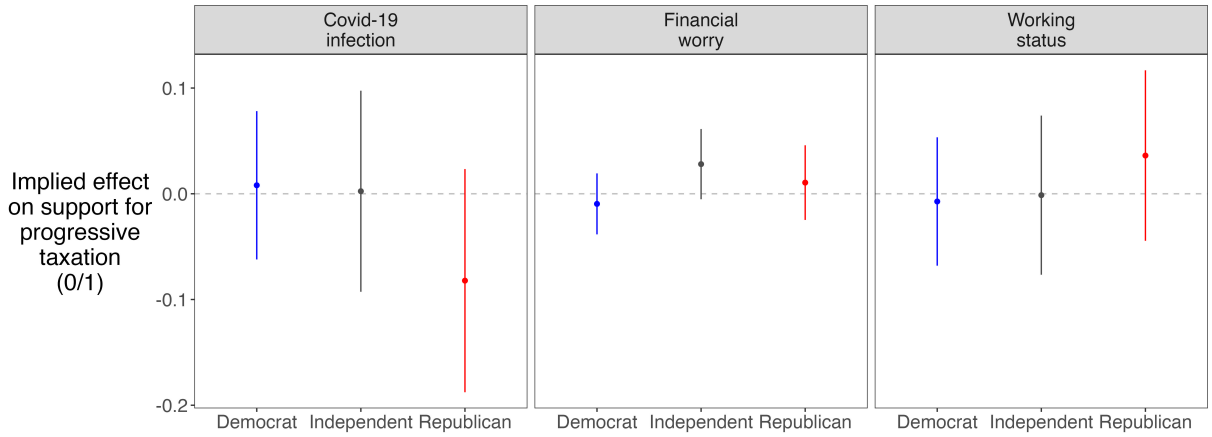

Figure A5: CATE estimates by partisanship in the ANES

Plot summarizes implied conditional average treatment effects of each variable in the columns according to partisanship in the ANES data. Results based on first-differences interaction models specified separately for each column in the plot. (n =2,613, 2,621, 2,620).

G Robustness to covariate exclusion

The main analysis relies on a number of covariates to address observable sources of confounding. To test whether the null result is sensitive to the choice of covariates, I re-run the main model iteratively, dropping one covariate at a time. As Figure A6 shows, across all specifications, the coefficient estimates on each of the indicators of Covid-19 burn are relatively stable, suggesting the estimated relationship is not an artifact of the choice of control variables.

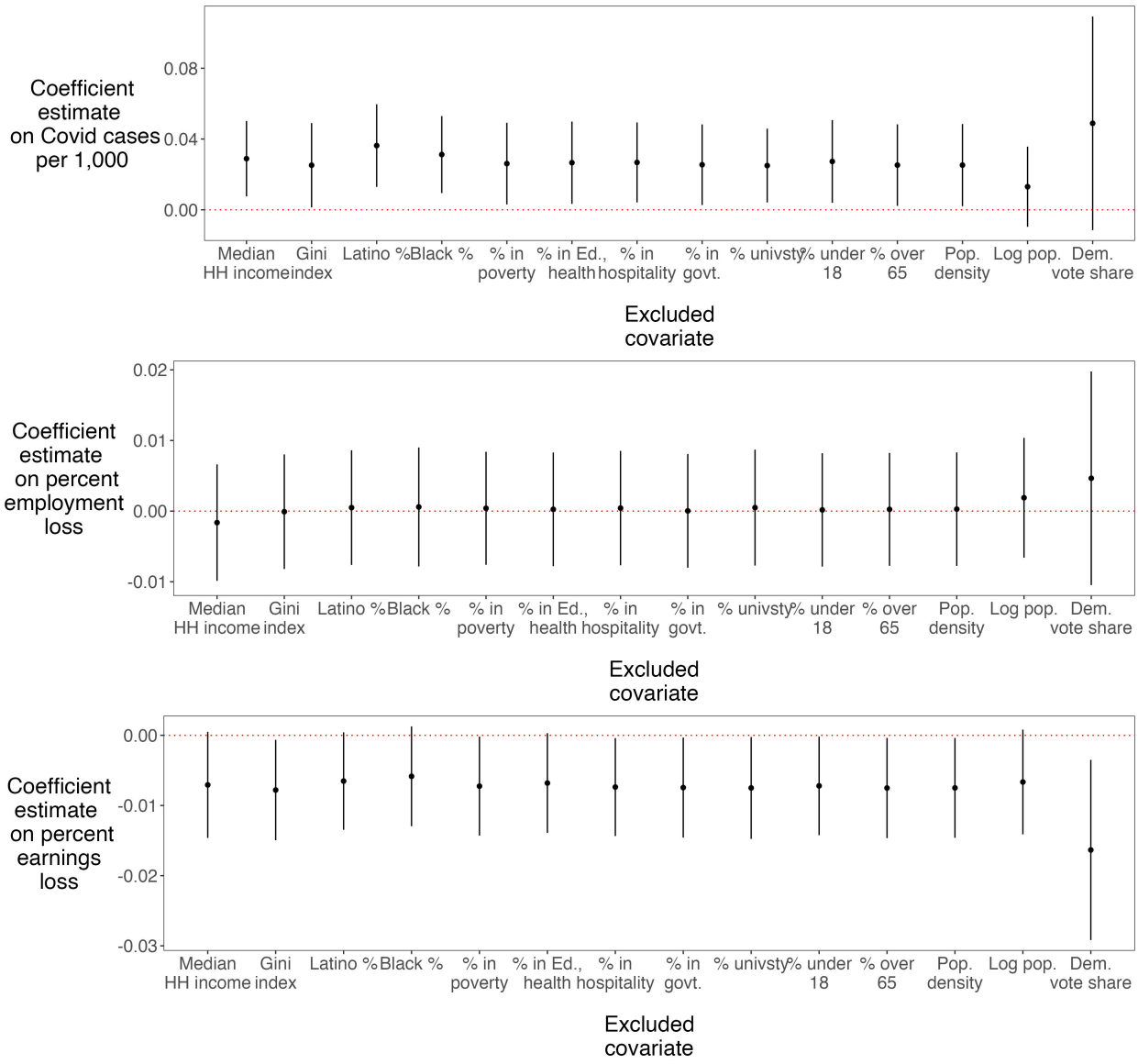

Figure A6: Robustness to covariate exclusion

Plot reports the coefficient estimates for each variable listed on the y-axis from models including all covariates listed on the x-axis *except* the one below the point estimate.

H Robustness to county exclusion

To ensure that the main results are not driven by any one region of the state, I re-run my main models iteratively, dropping one county at a time from the sample. As Figure A7 shows, across all specifications, the coefficient estimates on the indicators of Covid-19 burnde are stable, suggesting the estimated relationships are not driven by any one county.

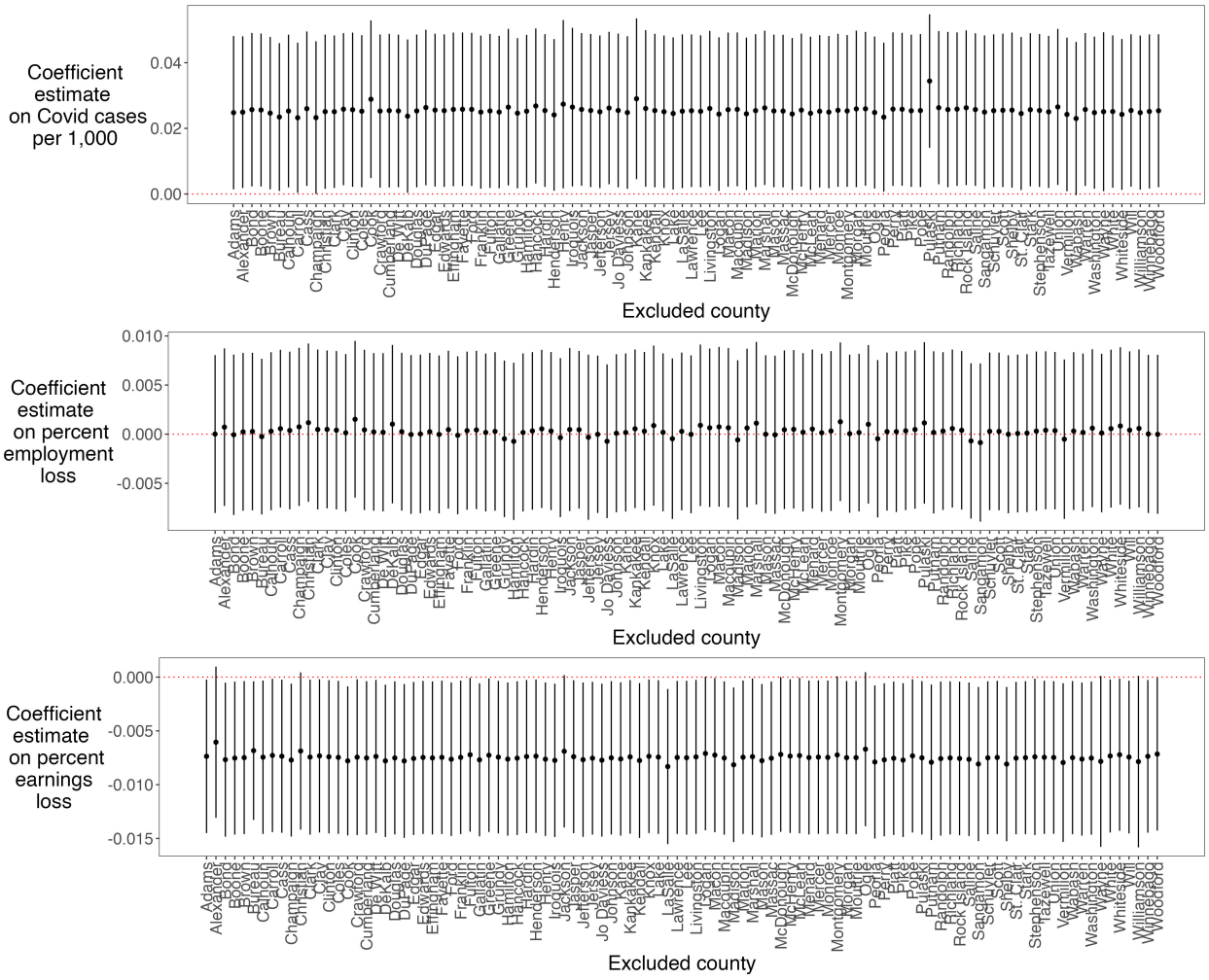

Figure A7: Robustness to county exclusion

Plot reports the coefficient estimates for each variable listed on the y-axis from models including all counties listed on the x-axis *except* the one below the point estimate.

I County-level results

Table A4 replicates the main results at the county-level. The estimates here are significantly noisier given the smaller sample size, but they do not support the hypothesis that the pandemic was associated with increased support for progressive taxation. In the first two models, Covid-19 cases and deaths are actually negatively associated with support for the tax proposal. But these relationships are not particularly strong: a one standard deviation increase in each variable would correlates with 0.6 and 0.1 p.p. decreases in the progressive tax vote share, respectively.

The third column uses employment data to test for the relationship between referendum voting and the pandemic's economic impacts. The independent variable here is measured as the average year-over-year percentage change in employment for the months between March and September 2021. The coefficient in Table A4 suggests that an average employment loss of 7% (the median across counties) would correlate with an increase of just 0.2 p.p. in support for the tax proposal relative to no change in employment.

Table A4: Covid-19 and support for progressive taxation at the county-level

	% supporting progressive taxation (measured from 0 to 100)		
	(1)	(2)	(3)
Covid-19 cases per 1,000	−0.107*		
	(0.052)		
Covid-19 deaths per 1,000		−0.450	
		(0.936)	
△ Employment rate			−2.255
			(7.130)
Observations	102	102	102
R^2	0.962	0.959	0.959
Controls	Yes	Yes	Yes

Robust standard errors in parentheses. Models includes the following covariates: region (north, central, south) FE, log population, population density, 2018 Democrat gubernatorial vote share, median household income, Gini coefficient, and the share of the population that is: under 18, over 65, Black, Hispanic, living in poverty, holding a bachelor's degree, as well as the percent working in the following industries: education, healthcare and social assistance; leisure and hospitality; government. *p<0.05

J Referendum turnout

If the pandemic's health and economic burdens disproportionately depressed turnout in Democratic areas, the null estimates I find may simply be driven by Covid-19 cases demobilizing voters who would have otherwise supported the tax proposal. Table A5 reports the association between turnout in the 2020 progressive taxation referendum and the various indicators of pandemic burden.[2] Across almost all specifications, the estimated relationship is negative, as expected, but substantively very small and statistically insignificant. For example, a full one standard deviation increase in case counts would move turnout by less than one p.p. These findings suggest that the main results are not driven by a systematic demobilization of pro-tax reform voters.

[2]Note that some precincts reported having 0 registered voters. I exclude these precincts from all turnout calculations, but for 4% of zipcodes, no non-missing turnout data is available. The results in Table A5 also exclude those zip codes.

Table A5: Zip code-level relationships between the Covid-19 burden and turnout in the tax referendum

	Voter turnout in tax referendum (measured from 0 to 100)				
	(1)	(2)	(3)	(4)	(5)
Covid-19 cases per 1,000	−0.018				
	(0.014)				
Covid-19 deaths per 1,000		−0.526			
		(0.906)			
Percent loss in employment			−0.004		
			(0.007)		
Percent loss in earnings				0.005	
				(0.006)	
Stricter lockdown					−0.127
					(0.969)
Sample	All of Illinois	City of Chicago	All of Illinois	All of Illinois	Lockdown Borders
Observations	1,297	58	1,221	1,221	94
R^2	0.759	0.950	0.771	0.771	0.658
Controls	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	No

Robust standard errors in parentheses. Models include the following covariates: log population, population density, 2018 Democrat gubernatorial vote share, median household income, Gini coefficient, and the share of the population that is: under 18, over 65, Black, Hispanic, living in poverty, holding a bachelor's degree, as well as the percent working in the following industries: education, healthcare and social assistance; leisure and hospitality; government. County FE are not reported in models 2 and 5 because (a) Chicago exists within a single county and (b) lockdown restrictions are constant within counties. Model 5 contains border segment fixed effects. *p<0.05

K ANES analysis

The ANES analysis is based on a web-based sample of respondents who completed both the 2016 and 2020 waves of the survey. Overall, 78% of respondents completed the second survey in 2020. Those who supported progressive taxation, were working and were less worried about their financial situation were all more likely to be re-surveyed.

The main analysis relies on five variables:

1. **Support for progressive taxation**: "Do you favor, oppose, or neither favor nor oppose increasing income taxes on people making over one million dollars per year?"
    - In the main text, this variable is dichotomized into a support vs. oppose or neither favour nor oppose dummy variable. Results are nearly identical when treating this variable as a three-point scale (see Table A6)
2. **Covid-19 infection**: "Yes" to either "Has anyone in your household tested positive for the coronavirus disease, COVID-19, or has no one tested positive?" or "Has anyone in your household been suspected of having COVID-19 based on their symptoms, or not?"
    - In supplementary analyses, Covid-19 infection was found to be positively associated with working status and financial worry, but not partisanship or support for progressive taxation.
3. **Financial worry**: "So far as you and your family are concerned, how worried are you about your current financial situation?"
    - Measured on a five-point scale from "not at all worried" to "extremely worried". This variable is standardized to have mean zero and s.d. of 1 before taking first differences.
4. **Working status**: Measured slightly differently in each year, but this item is the basis for all work-related questions in each survey:
    - 2016: We'd like to know if you are working now, temporarily laid off, or are you unemployed, retired, permanently disabled, a homemaker, a student, or what?
    - 2020: Last week, did you work for pay at a job or business?

    In each case, the variable is coded 1 if the respondent indicates they are working now and 0 otherwise. Despite the different wording, nearly identical proportions of respondents indicated they were working in each survey year.
5. **Partisanship**: Generally speaking, do you usually think of yourself as a Democrat, a Republican, an independent, or what?

- In the analysis by partisanship, I use the 2016 measure of this variable only. 75% of respondents indicated gave the same answer to this question in both years.

Table A6: First differences in the ANES using 3-point outcome scale

	△ Support Millionaire's Tax (3-point scale)			
Covid infection (0/1)	0.008			0.007
	(0.044)			(0.044)
△ Worried about finances (z-score)		0.013		0.011
		(0.016)		(0.016)
△ Currently working (0/1)			0.010	0.015
			(0.035)	(0.035)
Observations	2,625	2,632	2,633	2,616
R^2	<0.001	<0.001	<0.001	<0.001

Robust standard errors in parentheses. *p<0.05

L Arizona's progressive tax referendum

Are the results from Illinois sensitive to some peculiarity of that state's political context? Like Illinois, Arizona held a referendum on progressive taxation in November 2020. Voters in that state were asked to approve a nearly identical taxation scheme, in which income over $250,000 ($500,000 for joint-filers) would be assessed a 3.5% surcharge on top of the existing 4.5% marginal tax rate. At the time of the referendum, Arizona already had a graduated income tax system, with four tax brackets; the ballot proposal would have effectively created a fifth bracket. Instead of being deposited in a general fund, the revenue for the new tax was to be specifically spent on teacher and classroom support staff salaries, teacher mentoring and retention programs, career and technical education programs, and the Arizona Teachers Academy. Unlike in Illinois, the initiative was opposed by Republican Governor Doug Ducey. The ballot measure was introduced by the Invest in Education Coalition, who collected signatures and sponsored the petition. Voters approved the proposal by a margin of 52 to 48%, but the reform was overturned in the courts as unconstitutional after a lengthy legal

battle.

I assemble zip code-level Covid-19 case data from the Arizona Department of Health (ADH) for the period up to October 7, 2020, when mail-in ballots were sent to voters. Because the ADH suppresses data on tribal reservations, the 7.8% of zip codes containing these geographies are excluded from the analyses. Referendum results are then matched to zip codes using the same spatial-weighting procedure as in Illinois (see Appendix D for details). Indicators for pandemic-era employment and earnings changes are from the same Census Bureau data used in Illinois.

I re-run my main analysis on referendum returns in Arizona and present the results in Table A7. There are only about 25% as many zip codes in Arizona as in Illinois, and the coefficient estimates are accordingly much noisier, but a similar pattern is apparent: Covid-19 cases and economic losses are not meaningfully associated with support for the progressive tax proposal. None of estimates are positive nor significantly different from zero. The fact that the results from this case are similar to those in the main text provides some indication that the findings from Illinois are likely to apply more broadly.

Table A7: Zip code-level relationships between the Covid-19 burden and support for progressive taxation in Arizona

	% supporting progressive taxation (measured from 0 to 100)		
	(1)	(2)	(3)
Covid-19 cases per 1,000	−0.002		
	(0.017)		
Percent loss in employment		0.003	
		(0.008)	
Percent loss in earnings			0.008
			(0.008)
Observations	338	335	335
R^2	0.960	0.965	0.965
Controls	Yes	Yes	Yes
County FE	Yes	Yes	Yes

Robust standard errors in parentheses. Models include the following covariates: log population, population density, 2018 Democrat gubernatorial vote share, median household income, Gini coefficient, and the share of the population that is: under 18, over 65, Black, Hispanic, living in poverty, holding a bachelor's degree, as well as the percent working in the following industries: education, healthcare and social assistance; leisure and hospitality; government. $^{*}p<0.05$