Is the Cure Worse than the Disease?
Short Term Labor Market Effects of COVID-19 Case Rates and School Closures in the U.S.

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(Note: Equal contribution by all authors, who are listed alphabetically)
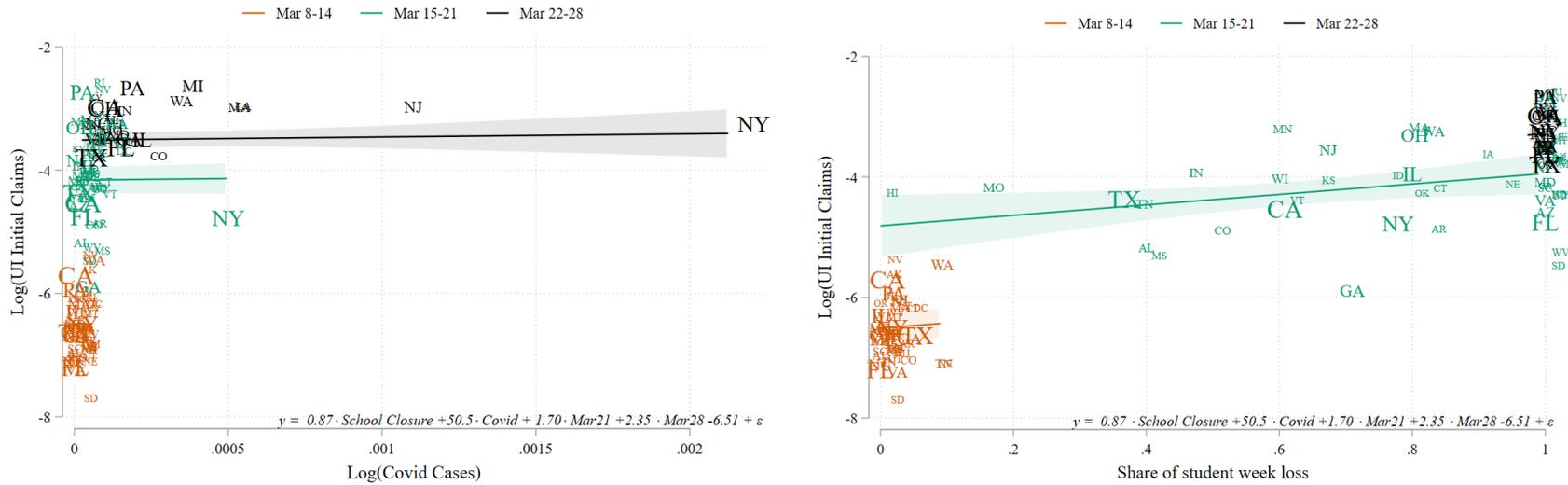
Supplementary Materials

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Figure S.1

Panel A shows the relationship between the weekly per capita COVID-19 cases in each state on the horizontal axis and log of new unemployment insurance claims that week per 1,000 workers on the vertical axis. Panel B shows the relationship between the school days in a week missed per student due to school closure in the state on the horizontal axis and log of new unemployment insurance claims that week per 1,000 workers on the vertical axis. We report data for March 7-14 in orange, March 15-21 in green and March 22-28 in black. Solid lines show fitted estimates from a regression that includes a dummy variable for the week of March 15-21, a separate dummy variable for the week of March 22-28, per capita COVID-19 cases in each week, and the share of school days lost (Table S.1 Model (8)). State labels are sized in proportion to their 2019 population. The shaded area corresponds to the 95% confidence interval calculated from standard errors clustered at the state level.

Table S.1. Relationship between state labor markets, school closures COVID-19 cases and time (weighted - including New York)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Time Effect	School Closures			COVID-19 Cases			School Closures + COVID-19 Cases		
	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)
Mar 21	2.338*** (0.172)	1.699*** (0.337)	1.717*** (0.377)	1.778*** (0.509)	2.334*** (0.171)	2.516*** (0.190)	2.451*** (0.198)	1.697*** (0.336)	1.832*** (0.378)	1.802*** (0.532)
Mar 28	3.213*** (0.0903)	2.360*** (0.403)	3.583 (2.997)	-4.183 (2.941)	3.197*** (0.0945)	3.308*** (0.0983)	3.251*** (0.106)	2.347*** (0.397)	4.436 (3.421)	-2.160 (3.378)
Student week loss		0.869** (0.390)	1.576 (4.262)	2.860 (3.243)				0.868** (0.392)	-1.955 (2.830)	1.112 (4.347)
Mar 21 × Student week loss			-0.714 (4.339)	-2.047 (3.484)					2.843 (2.990)	-0.219 (4.686)
Mar 28 × Student week loss			-1.917 (5.042)	4.590 (2.809)					0.805 (5.146)	4.317 (3.507)
Log(COVID-19 cases)					55.77 (108.7)	16446.3*** (4003.5)	8373.5** (3773.4)	50.49 (106.7)	18276.6*** (5191.8)	7611.5 (7564.0)
Mar 21 × Log(COVID-19 cases)						-17308*** (3576.0)	-9164.4** (3538.8)		-19242*** (4763.1)	-8534.5 (7037.8)
Mar 28 × Log(COVID-19 cases)						-16353*** (3947.5)	-8291** (3730.5)		-18183*** (5150.3)	-7536.3 (7469.5)
States' F.E.				X			X			X
N	156	156	156	156	156	156	156	156	156	156
Adj. R2	0.867	0.873	0.871	0.925	0.866	0.871	0.921	0.872	0.876	0.926
R2	0.868	0.875	0.875	0.952	0.868	0.875	0.949	0.875	0.882	0.954

Standard errors clustered at the state level in parentheses. UI initial claims expressed in per employed person and COVID-19 cases in per capita terms, both within each state. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table S.2. Relationship between state labor markets, school closures COVID-19 cases and time (unweighted - excluding New York)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Time Effect	School Closures			COVID-19 Cases			School Closures + COVID-19 Cases		
	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)
Mar 21	2.529*** (0.0906)	1.822*** (0.276)	1.821*** (0.289)	1.756*** (0.232)	2.505*** (0.0912)	2.420*** (0.121)	2.483*** (0.118)	1.802*** (0.278)	1.694*** (0.298)	1.674*** (0.250)
Mar 28	3.238*** (0.0642)	2.367*** (0.333)	4.716** (2.141)	-1.673 (2.058)	3.118*** (0.0794)	3.264*** (0.0709)	3.307*** (0.0748)	2.252*** (0.337)	6.705*** (2.322)	-2.904 (2.195)
Student week loss		0.884** (0.333)	0.811 (4.123)	1.851 (2.732)				0.880** (0.334)	-4.499* (2.305)	0.151 (3.174)
Mar 21 × Student week loss			0.0748 (4.146)	-0.868 (2.725)					5.368** (2.376)	0.858 (3.201)
Mar 28 × Student week loss			-2.278 (4.485)	3.089 (2.873)					1.030 (3.669)	6.076* (3.053)
Log(COVID-19 cases)					725.5** (301.2)	17555.0*** (2919.0)	9043.5** (4131.1)	715.5** (292.8)	23533.8*** (4382.0)	9651.4 (5907.1)
Mar 21 × Log(COVID-19 cases)						-11915*** (3209.9)	-6396.7* (3511.6)		-18040*** (4830.6)	-7146.4 (5662.6)
Mar 28 × Log(COVID-19 cases)						-17053*** (2915.6)	-9107.3** (3981.4)		-23026*** (4400.1)	-9753.3 (5844.7)
States' F.E.				X			X			X
N	153	153	153	153	153	153	153	153	153	153
Adj. R2	0.869	0.875	0.874	0.938	0.871	0.877	0.930	0.877	0.883	0.938
R2	0.871	0.878	0.878	0.961	0.873	0.881	0.955	0.880	0.889	0.962

Standard errors clustered at the state level in parentheses. UI initial claims expressed in per employed person and COVID-19 cases in per capita terms, both within each state. $p < 0.1$, $p < 0.05$, $p < 0.01$

Table S.3. Relationship between state labor markets, school closures COVID-19 cases and time (unweighted - including New York)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Time Effect	School Closures			COVID-19 Cases			School Closures + COVID-19 Cases		
	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)	Log(UI init. claims)
Mar 21	2.514*** (0.0902)	1.802*** (0.277)	1.800*** (0.290)	1.735*** (0.232)	2.507*** (0.0901)	2.630*** (0.114)	2.591*** (0.106)	1.795*** (0.278)	1.880*** (0.287)	1.768*** (0.234)
Mar 28	3.238*** (0.0630)	2.359*** (0.334)	4.659** (2.102)	-1.966 (2.046)	3.204*** (0.0724)	3.315*** (0.0710)	3.277*** (0.0721)	2.325*** (0.335)	5.614** (2.244)	-1.214 (2.251)
Student week loss		0.892** (0.335)	0.820 (4.117)	1.896 (2.743)				0.892** (0.336)	-4.082* (2.292)	0.0854 (3.132)
Mar 21 × Student week loss			0.0733 (4.138)	-0.905 (2.735)					4.975** (2.346)	0.932 (3.141)
Mar 28 × Student week loss			-2.230 (4.469)	3.337 (2.861)					1.757 (3.513)	4.416 (3.011)
Log(COVID-19 cases)					167.8 (177.8)	16414.4*** (3235.5)	6092.2 (3821.2)	167.2 (176.4)	21467.4*** (4657.6)	7017.6 (5942.5)
Mar 21 × Log(COVID-19 cases)						-16510*** (3016.4)	-6832.6* (3626.3)		-21542*** (4404.4)	-7697.0 (5763.0)
Mar 28 × Log(COVID-19 cases)						-16249*** (3199.8)	-6082.8 (3778.0)		-21300*** (4626.9)	-7011.7 (5895.4)
States' F.E.				X			X			X
N	156	156	156	156	156	156	156	156	156	156
Adj. R2	0.869	0.876	0.874	0.938	0.869	0.871	0.929	0.876	0.877	0.937
R2	0.871	0.878	0.878	0.960	0.872	0.875	0.955	0.879	0.884	0.961

Standard errors clustered at the state level in parentheses. UI initial claims expressed in per employed person and COVID-19 cases in per capita terms, both within each state. $^{*} p < 0.1$, $^{**} p < 0.05$, $^{***} p < 0.01$

Table S.5. Individual state unemployment insurance claims and model residuals

State	Initial Claims (DoL) 14-Mar	Initial Claims (DoL) 21-Mar	Initial Claims (DoL) 28-Mar	Residuals 28-Mar	State	Initial Claims (DoL) 14-Mar	Initial Claims (DoL) 21-Mar	Initial Claims (DoL) 28-Mar	Residuals 28-Mar
Hawaii	1,589	8,817	48,861	0.81	Missouri	4,016	42,246	96,734	-0.02
Pennsylvania	15,439	377,451	405,880	0.62	Maryland	3,864	42,981	83,536	-0.11
Kentucky	2,785	49,023	112,726	0.54	South Carolina	2,093	31,826	64,856	-0.12
Michigan	5,338	128,006	311,086	0.51	Virginia	2,706	46,277	114,104	-0.12
Rhode Island	1,108	35,847	28,067	0.47	Arizona	3,844	29,348	89,064	-0.12
Puerto Rico	1,172	20,148	45,218	0.46	North Dakota	415	5,662	12,591	-0.13
Ohio	7,046	196,309	272,129	0.37	Oklahoma	1,836	21,926	44,970	-0.19
California	57,606	186,333	878,727	0.37	Georgia	5,445	12,140	132,386	-0.21
Nevada	6,356	92,298	71,419	0.33	Tennessee	2,702	38,077	94,492	-0.24
Washington	14,240	129,909	187,501	0.29	Illinois	10,870	114,114	178,133	-0.25
Alaska	1,120	7,847	14,523	0.28	Nebraska	795	15,700	24,572	-0.28
Idaho	1,031	13,586	32,240	0.28	Mississippi	1,147	5,519	30,946	-0.29
Indiana	2,596	59,755	146,243	0.26	Florida	6,463	74,313	227,000	-0.33
Montana	817	15,349	19,540	0.19	New Jersey	9,467	115,815	205,515	-0.35
Vermont	659	3,784	14,443	0.18	Texas	16,176	155,426	275,597	-0.41
New Hampshire	642	29,379	27,454	0.16	Oregon	4,269	30,054	42,502	-0.45
Alabama	1,819	10,892	80,186	0.15	Arkansas	1,382	9,275	26,944	-0.45
Kansas	1,755	23,563	54,739	0.15	West Virginia	865	3,536	14,166	-0.48
Delaware	472	10,776	18,987	0.14	D.C.	1,213	14,462	14,868	-0.50
Iowa	2,229	40,952	58,453	0.13	Colorado	2,321	19,774	60,784	-0.56
North Carolina	3,533	94,083	170,881	0.12	Utah	1,305	19,690	28,560	-0.62
Minnesota	4,010	115,773	109,896	0.12	Wyoming	517	3,653	4,675	-0.71
Maine	634	21,459	23,535	0.10	Connecticut	3,440	25,100	33,182	-0.76
Wisconsin	5,190	51,031	110,724	0.07	South Dakota	190	1,761	6,645	-0.77
Louisiana	2,255	72,438	97,830	0.06					
Massachusetts	7,449	148,452	181,062	0.05					
New Mexico	869	18,105	28,182	0.02					

The Residuals Unemployment Claims column indicates the deviation of observed unemployment insurance claims from the claims predicted in Column 8 of Table 2 for March 28th. States with positive residuals have higher claims than are predicted by the model. States with negative residuals have lower unemployment claims than predicted by the model.