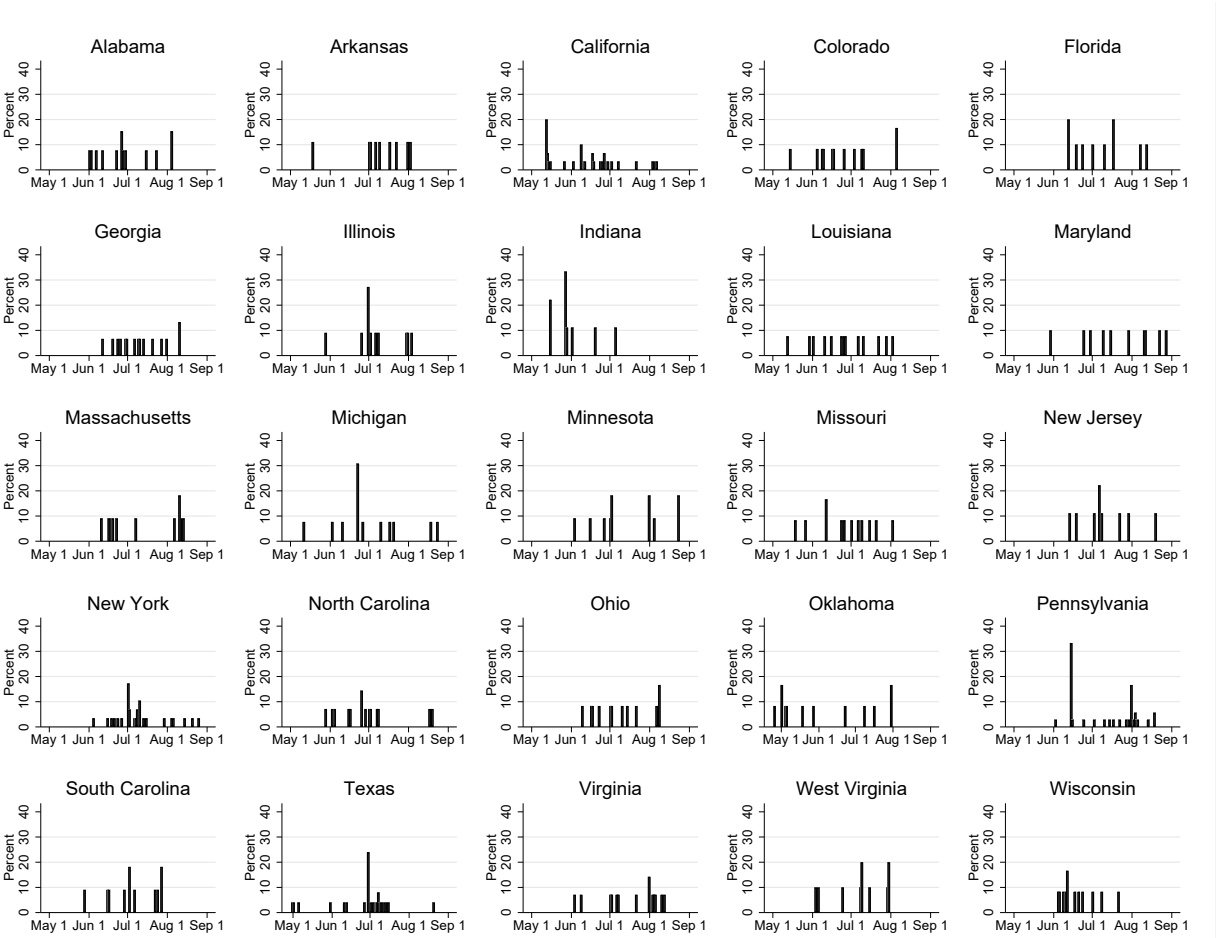
Online Appendix

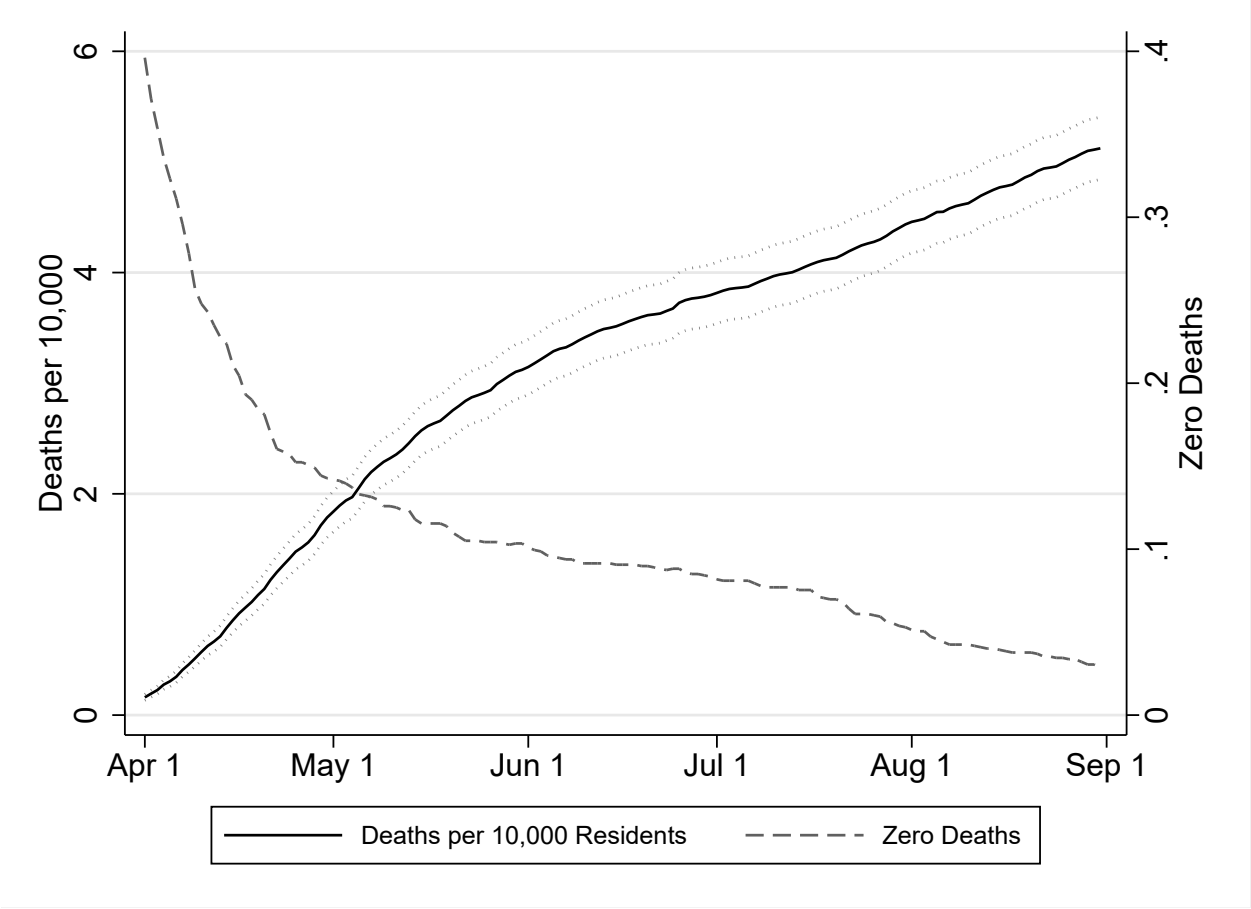
A Additional Figures & Tables

Figure A.1: Decision Dates of Public Universities by State



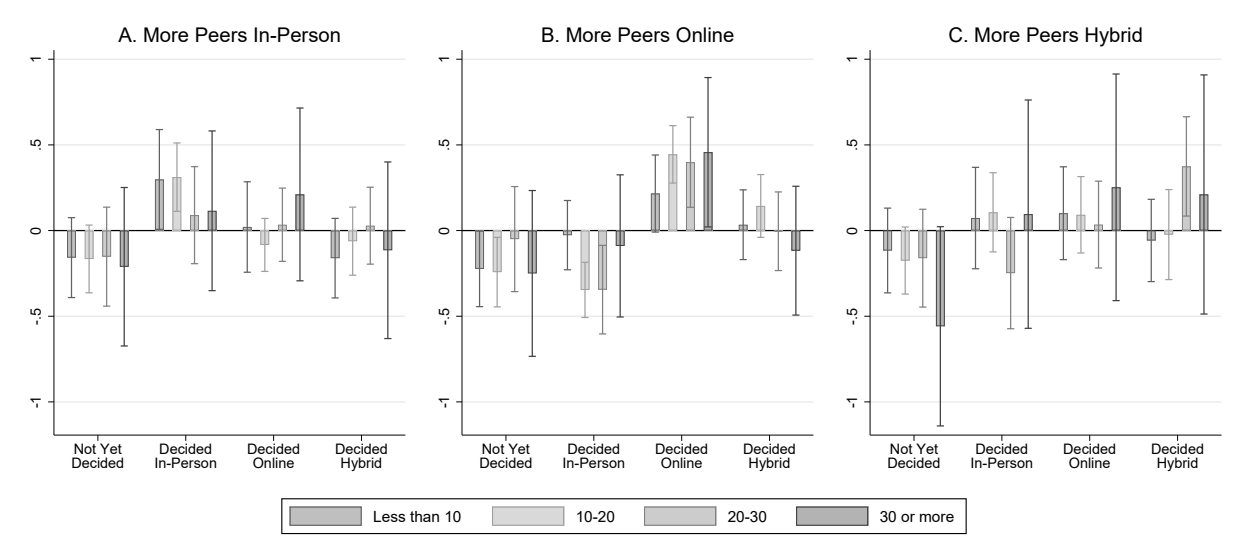
Note: This figure shows the share of public institutions in each state who announced a reopening decision on each day of the summer. In many states, these decisions did not happen simultaneously.

Figure A.2: COVID-19 Deaths Per Capita in College Counties



Note: This figure depicts the average county-level COVID-19 deaths per capita for colleges in our sample. The solid line describes average deaths per 10,000 residents over time. The dashed line describes the proportion of colleges with 0 county-level deaths over time. Only a small proportion of colleges are located in counties that had no deaths, even at the beginning of the summer.

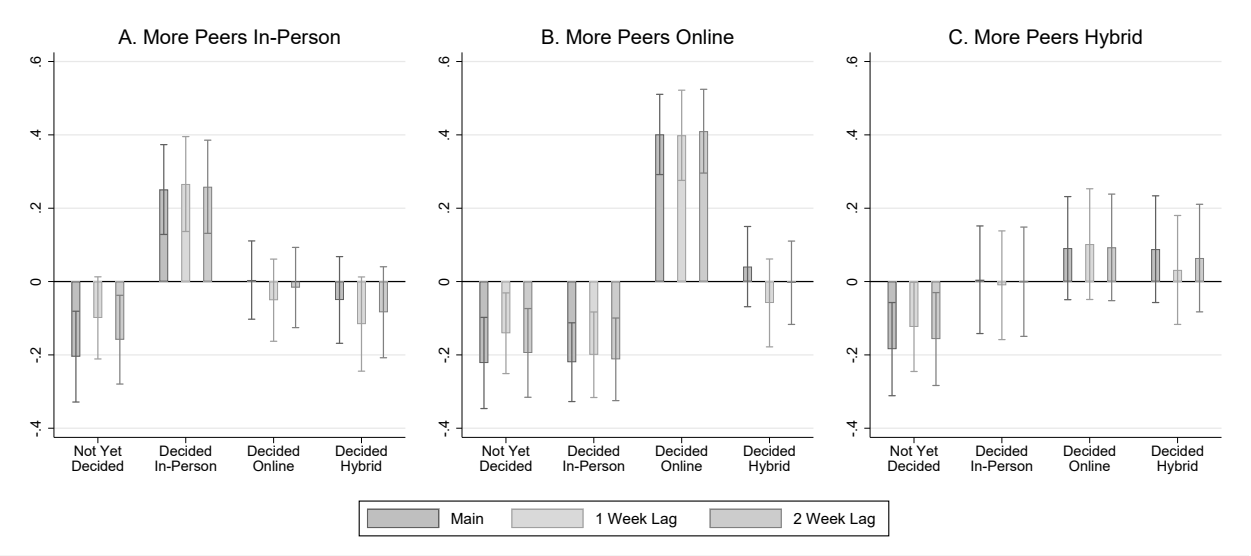
Figure A.3: Heterogeneity by Number of Peers Listed



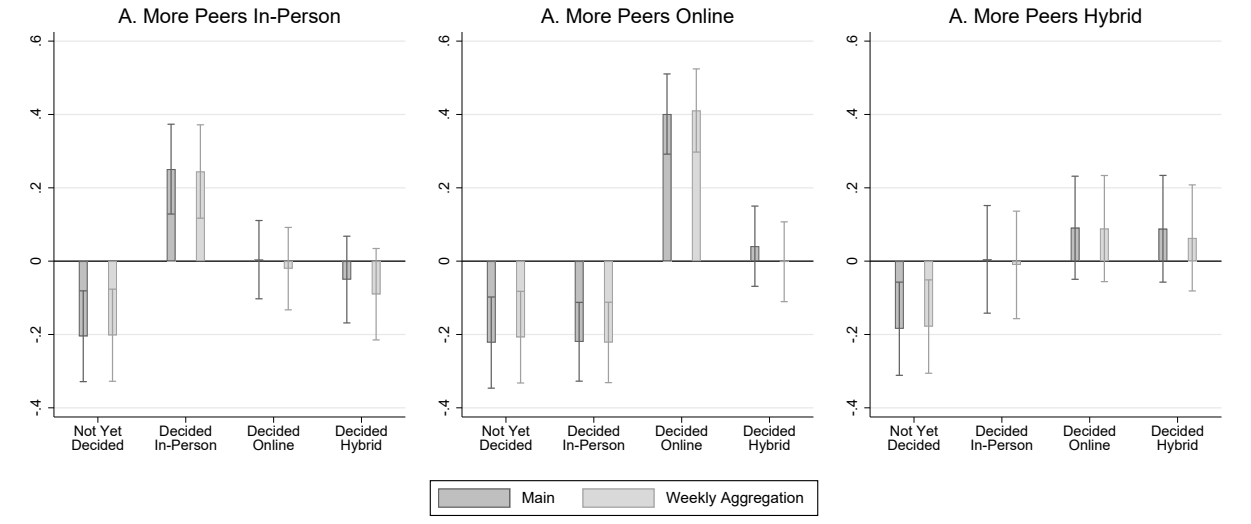
Note: This figure shows how estimated effects of peers on reopening decisions vary by the number of peer institutions a college or university lists. Panel A shows the estimated coefficient on the share of peers that have announced in-person reopenings,where the dependent variable is an indicator for each decision type as shown on the X-axis. Panels B and C show the estimated effects for the share of peers that have announced an online or hybrid reopening.

Figure A.4: Specifications Using Different Lags or Aggregations

(a) Different Lags

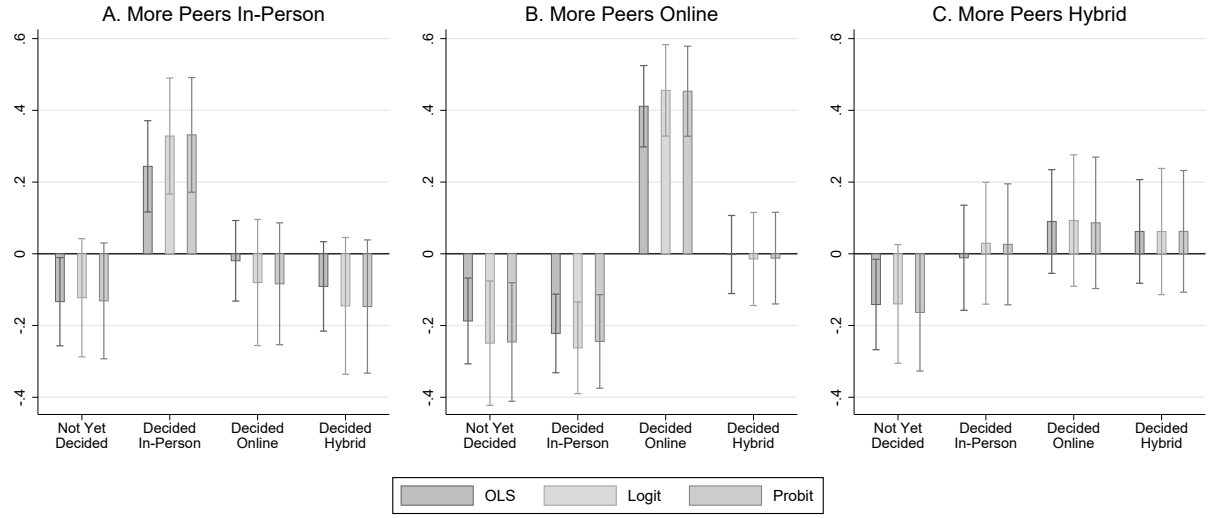


(b) Weekly vs. Daily Aggregation



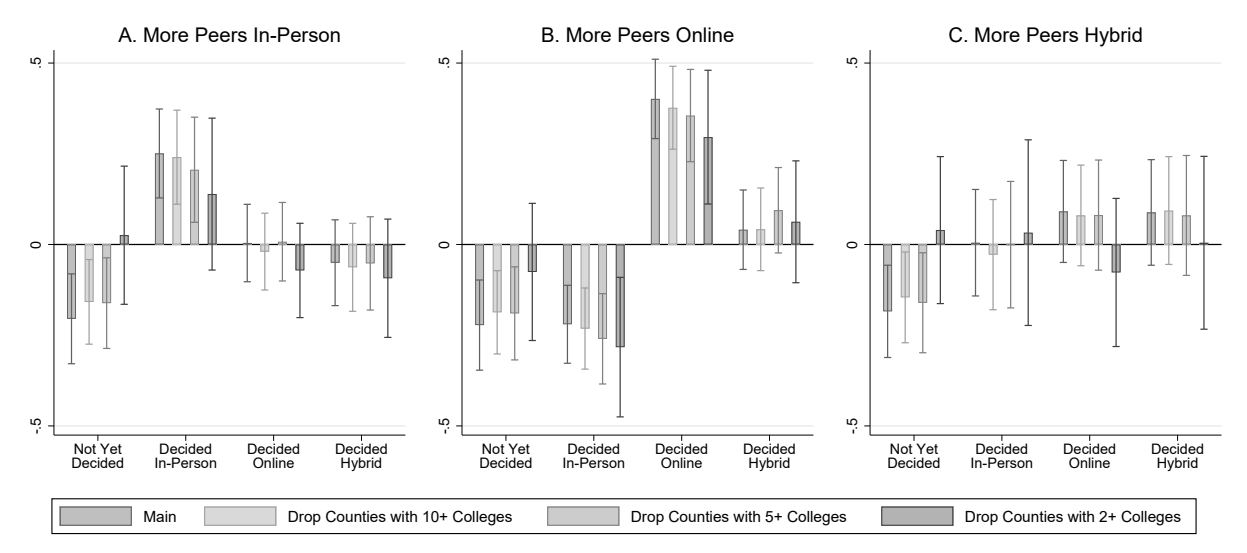
Note: Panel A shows the estimated effects of peers on reopening decisions, using different lagged measures of peer decisions. The main specification includes peer decisions up to date $t-1$, and the 1- and 2-week lagged measures include peer decisions up to date $t-7$ and $t-14$, respectively. Panel B compares our main specification where t represents one day to a version in which t represents one week.

Figure A.5: Non-Linear Functional Forms



Note: This figure shows how estimated marginal effects of peers on reopening decisions vary across functional form assumption. For computational reasons, all results use the weekly aggregation from Appendix Figure A.4. Panel A shows the estimated coefficient on the share of peers that have announced in-person reopenings,where the dependent variable is an indicator for each decision type as shown on the X-axis. Panels B and C show the estimated effects for the share of peers that have announced an online or hybrid reopening.

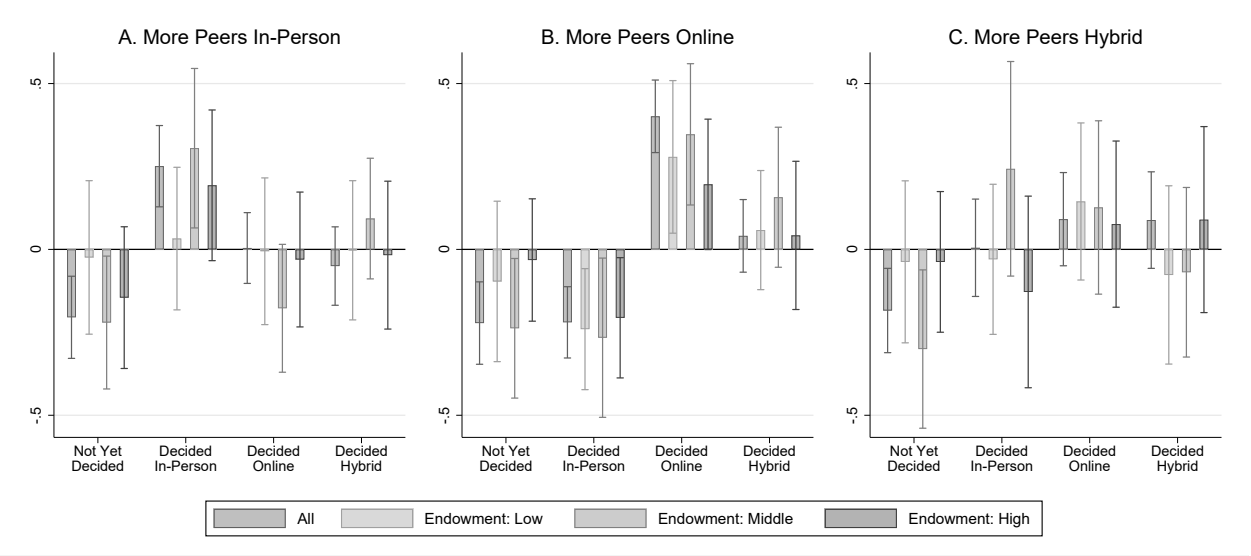
Figure A.6: Specifications with Different Counties Excluded



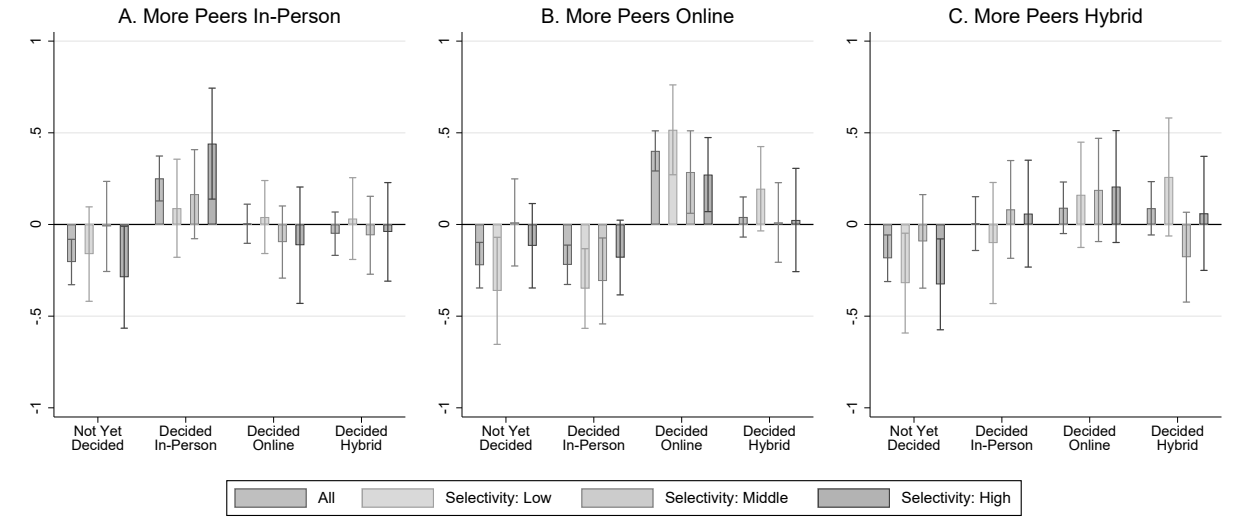
Note: This figure shows how estimated effects of peers on reopening decisions vary when excluding counties with many colleges. Panel A shows the estimated coefficient on the share of peers that have announced in-person reopenings,where the dependent variable is an indicator for each decision type as shown on the X-axis. Panels B and C show the estimated effects for the share of peers that have announced an online or hybrid reopening.

Figure A.7: Heterogeneity by Endowment and Selectivity Terciles

(a) Heterogeneity by Endowment Tercile

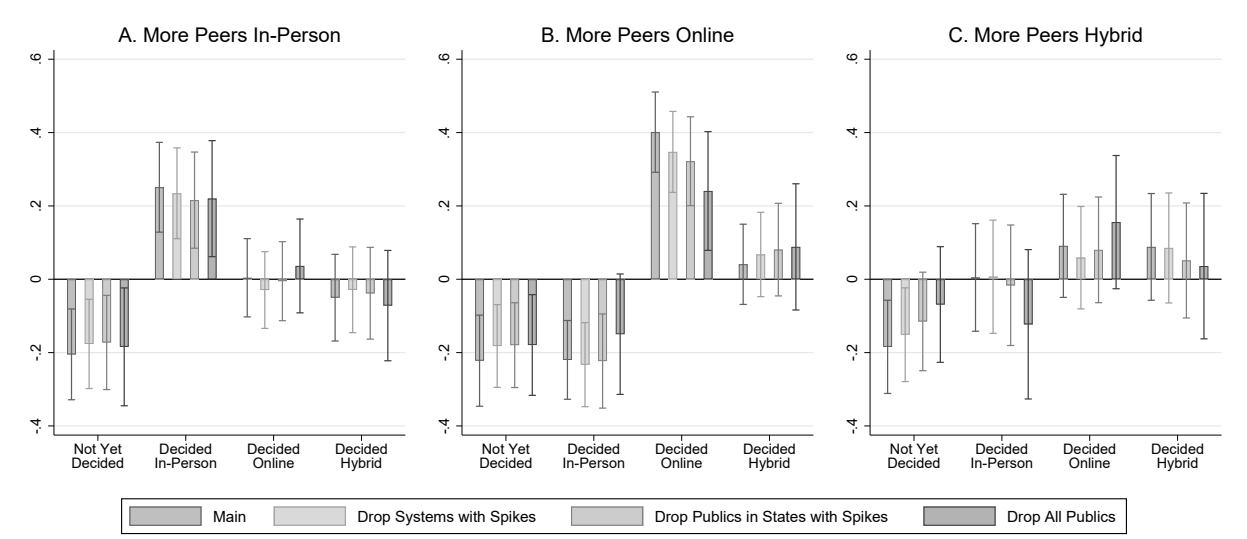


(b) Heterogeneity by Selectivity Tercile



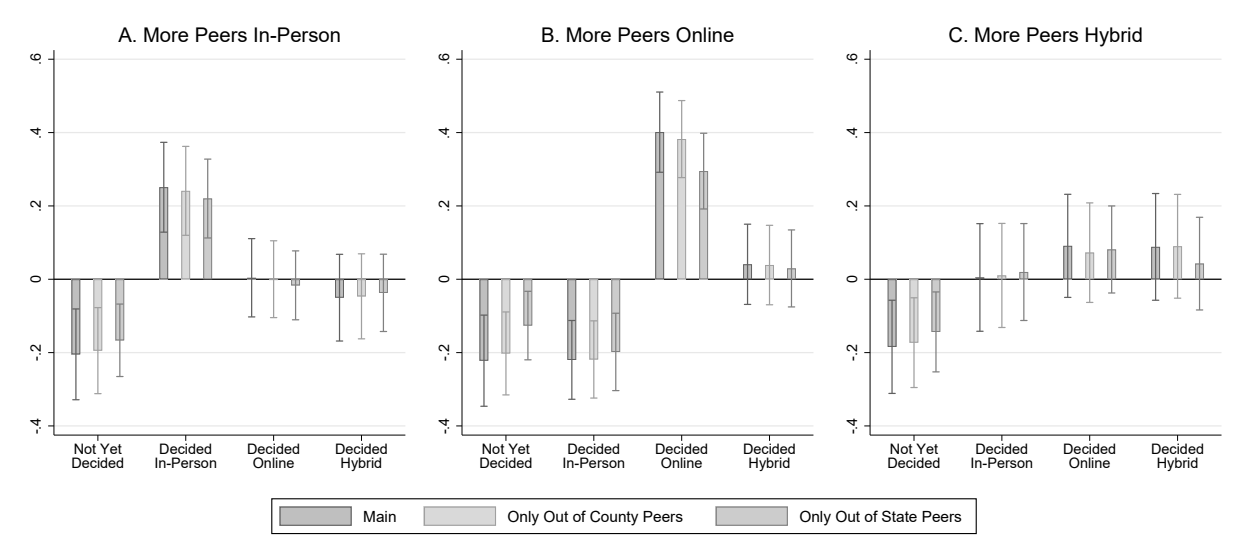
Note: These figures describe how the effect of peer decisions differs across endowment and selectivity terciles. Panel A shows the estimated coefficient on the share of peers that have announced in-person reopenings, where the dependent variable is an indicator for each decision type as shown on the X-axis. Panels B and C show the estimated effects for the share of peers that have announced an online or hybrid reopening.

Figure A.8: Specifications with Public Universities Excluded



Note: This figure shows how estimated effects of peers on reopening decisions vary when excluding different types of public institutions. Panel A shows the estimated coefficient on the share of peers that have announced in-person reopenings,where the dependent variable is an indicator for each decision type as shown on the X-axis. Panels B and C show the estimated effects for the share of peers that have announced an online or hybrid reopening.

Figure A.9: Specifications Excluding Within-County or Within-State Peers



Note: This figure shows how estimated effects of peers on reopening decisions vary when excluding peers in the same county or same state as the institution of interest. Panel A shows the estimated coefficient on the share of peers that have announced in-person reopenings,where the dependent variable is an indicator for each decision type as shown on the X-axis. Panels B and C show the estimated effects for the share of peers that have announced an online or hybrid reopening.

Table A.1: Similarity Between Institutions and Identified Peers

	Obs.	Avg. Peers Listed	Avg. Times Named Peer	Same County	Same State	Same Region	Same Control	Same Carnegie	Same Select. Terc.	Same Endow. Terc.
All	1247	21.24	21.24	0.015	0.167	0.520	0.970	0.824	0.442	0.553
Public	482	20.62	21.07	0.003	0.107	0.449	0.965	0.851	0.452	0.542
Private	765	21.63	21.34	0.023	0.205	0.565	0.974	0.807	0.436	0.560
Bachelor's	464	20.82	20.90	0.011	0.170	0.535	0.977	0.838	0.404	0.572
Master's	535	21.74	20.55	0.019	0.195	0.539	0.965	0.782	0.387	0.524
Doctoral	248	20.95	23.37	0.015	0.100	0.451	0.967	0.888	0.635	0.582
Northeast	324	21.83	21.16	0.025	0.212	0.535	0.960	0.831	0.422	0.570
Midwest	319	20.98	22.00	0.012	0.154	0.508	0.977	0.830	0.458	0.546
South	431	21.47	21.27	0.008	0.138	0.572	0.970	0.820	0.452	0.535
West	173	20.01	19.90	0.022	0.178	0.383	0.977	0.807	0.427	0.580
Less Selective	351	21.58	18.52	0.011	0.204	0.563	0.981	0.797	0.413	0.477
Moderately Selective	370	21.45	20.61	0.015	0.173	0.540	0.970	0.793	0.401	0.502
More Selective	295	20.54	26.76	0.017	0.115	0.457	0.953	0.880	0.687	0.706
Missing Average ACT	231	21.26	19.33	0.021	0.167	0.502	0.975	0.841	0.242	0.555
Low Endowment	404	20.79	18.73	0.012	0.159	0.492	0.971	0.811	0.389	0.531
Medium Endowment	404	22.42	20.44	0.016	0.182	0.551	0.971	0.792	0.407	0.408
High Endowment	404	20.33	25.16	0.020	0.164	0.530	0.968	0.864	0.538	0.758
Missing Endowment	35	23.20	14.09	0.001	0.119	0.360	0.968	0.866	0.350	0.117

Note: This table describes the similarity between a college or university and the peer institutions they identify. Each column reports the average proportion of one's peers that share a given attribute. We define selectivity terciles based on institutions' average ACT scores in 2017-18, and endowment terciles based on their endowment per student in 2017-18.

Table A.2: Peer Similarity Using Alternative Peer Definitions

	Obs.	Avg. Peers Listed	Avg. Times Named Peer	Same County	Same State	Same Region	Same Control	Same Carnegie	Same Select. Terc.	Same Endow. Terc.
Self-Reported Peers	1247	21.24	21.24	0.015	0.167	0.520	0.970	0.824	0.442	0.553
Same Region, Carnegie, and Control	1247	74.530	74.530	0.032	0.161	1.000	1.000	1.000	0.350	0.470
Same Division, Carnegie, and Control	1247	35.661	35.661	0.064	0.309	1.000	1.000	1.000	0.370	0.489
Same Region, Carnegie, Control, and Selectivity Tercile	1016	25.880	25.880	0.080	0.213	1.000	1.000	1.000	1.000	0.572
Same Region, Carnegie, Control, and Endowment Tercile	1212	34.243	34.243	0.066	0.192	1.000	1.000	1.000	0.424	1.000

Note: This table describes the similarity between a college or university and the peer institutions using our alternative defintions of peers. Each column reports the average proportion of one's peers that share a given attribute. We define selectivity terciles based on institutions' average ACT scores in 2017-18, and endowment terciles based on their endowment per student in 2017-18.

Table A.3: Main Effects with Peer Decision Counts

	Not Yet Decided (1)	**Decided In-Person (2)**	**Decided Online (3)**	**Decided Hybrid (4)**
Panel A. Number of peers who have made any decision				
Number decided, t-1	-0.002***	0.000	0.002	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)
County deaths per 10,000	0.005*	-0.004	0.010***	-0.011***
	(0.003)	(0.004)	(0.003)	(0.003)
Observations	189,544	189,544	189,544	189,544
Panel B. Number of peers who have made each decision				
Number decided in-person, t-1	-0.001	0.013***	-0.005***	-0.007**
	(0.001)	(0.003)	(0.002)	(0.003)
Number decided online, t-1	-0.002	-0.011***	0.018***	-0.006**
	(0.002)	(0.003)	(0.002)	(0.002)
Number decided hybrid, t-1	-0.002	-0.005	-0.008***	0.014***
	(0.002)	(0.003)	(0.003)	(0.004)
County deaths per 10,000	0.005*	-0.004	0.010***	-0.011***
	(0.003)	(0.004)	(0.003)	(0.003)
Observations	189,544	189,544	189,544	189,544

Note: This table presents the main estimates of equation (1): the effect of peers' announced decisions and county-level COVID-19 deaths on individual institutions' decisions, using counts of peer decisions rather than shares. Panel A describes the effect of peers making any decision and Panel B describes the effect of each type of decision. Column 1 describes the effects on the likelihood of an institution having not yet made an announcement. Columns 2 - 4 describe the effects on the likelihood of an institution announcing each of the three types of reopening styles. In all specifications, we control for institution and state-by-day fixed effects, as well as the days remaining before an institution's semester start date. We cluster all standard errors at the county level.$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table A.4: Interactions of County Deaths with Institution Relative Size

	Not Yet Decided (1)	**Decided In-Person (2)**	**Decided Online (3)**	**Decided Hybrid (4)**
Panel A. Linear interaction with relative size				
County deaths per 10,000	0.004	-0.005	0.012***	-0.010***
	(0.003)	(0.004)	(0.003)	(0.003)
(County deaths per 10,000)*(Relative size)	0.017	0.071*	-0.072**	-0.016
	(0.019)	(0.041)	(0.033)	(0.037)
Observations	189,544	189,544	189,544	189,544
Panel B. Quadratic interaction with relative size				
County deaths per 10,000	0.004	-0.008**	0.013***	-0.008**
	(0.003)	(0.004)	(0.003)	(0.003)
(County deaths per 10,000)*(Relative size)	0.021	0.327***	-0.160*	-0.187*
	(0.073)	(0.113)	(0.094)	(0.101)
(County deaths per 10,000)*(Relative size)^2	-0.010	-0.765***	0.265	0.511*
	(0.196)	(0.287)	(0.266)	(0.291)
Observations	189,544	189,544	189,544	189,544

Note: The table shows the effects of per-capita COVID-19 deaths on institutions' decisions when we vary the effect by institution size (enrollment) relative to the institution's county population. Panel A shows that institutions that are large relative to the county population are less likely to respond to COVID deaths by reopening online. Panel B shows a quadratic interaction with county size, demonstrating non-linearity in the relationship between size and response to COVID deaths. We cluster all standard errors at the county level.$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table A.5: First Stage Estimates for IV Approach

	Peers Decided		Peers Decided In-Person		Peers Decided Online	
Variable:	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**6)**
Panel A. All Peers						
Peers' COVID-19 deaths per 10,000 residents	-0.014*** (0.002)		-0.019*** (0.002)		0.007*** (0.002)	
Peers' COVID-19 deaths per square mile		-0.011*** (0.001)		-0.014*** (0.002)		0.006*** (0.002)
Partial F-Statistic	55.14	49.72	60.81	32.47	8.958	8.830
Observations	189,544	189,544	189,544	189,544	189,544	189,544
Panel B. Only Out-of-County Peers						
Peers' COVID-19 deaths per 10,000 residents	-0.014*** (0.002)		-0.019*** (0.002)		0.006*** (0.002)	
Peers' COVID-19 deaths per square mile		-0.011*** (0.001)		-0.014*** (0.002)		0.004** (0.002)
Partial F-Statistic	65.40	70.62	66.91	34.70	7.265	4.035
Observations	189,544	189,544	189,544	189,544	189,544	189,544
Panel C. Only Out-of-State Peers						
Peers' COVID-19 deaths per 10,000 residents	-0.015*** (0.002)		-0.021*** (0.003)		0.008*** (0.003)	
Peers' COVID-19 deaths per square mile		-0.016*** (0.002)		-0.018*** (0.002)		0.006** (0.002)
Partial F-Statistic	54.19	85.59	65.30	71.31	9.074	6.567
Observations	189,544	189,544	189,544	189,544	189,544	189,544

Note: This table presents estimates of equation (2): the effect of peers' COVID-19 exposure on their decisions. In all specifications, we control for institution and state-by-day fixed effects, as well as the institution's COVID-19 severity at the county level interacted with a quadratic of their relative size. We cluster all standard errors at the county level.$^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

B Survival Analysis

Because our outcomes of interest can be interpreted as durations (e.g., the time until a college makes a reopening decision), it is natural to consider a survival analysis framework as an alternative to linear regression. We favor the linear regression approach in the main text because it enables us to flexibly account for unobservable changes at the state-by-day levels and easily extends to an IV approach to address potential endogeneity concerns. However, in this appendix, we conduct the survival analysis to demonstrate that the results are generally consistent with those from the linear framework.

We begin with a Cox proportional hazards model (Cox 1972), where the hazard of institution i making any decision at time t, conditional on not having made a decision until time t, is given by:

$$\lambda(t|X_i) = \lambda_0(t)\exp(\mathbf{X_i}\boldsymbol{\beta}) \tag{4}$$

where term $\lambda_0(t)$ is the baseline hazard, which can vary arbitrarily with time. With this specification of the hazard rate, the likelihood that we observe institution i making a decision at time Y_i, given that we observe at least one institution making a decision, is:

$$L_i(\beta) = \frac{\lambda(Y_i|X_i)}{\sum_{js.t.Y_j \geq Y_i}\lambda(Y_j|X_j)} = \frac{\exp(\mathbf{X_i}\boldsymbol{\beta})}{\sum_{js.t.Y_j \geq Y_i}\exp(\mathbf{X_i}\boldsymbol{\beta})}. \tag{5}$$

The key assumption in the Cox proportional hazard model is that the hazards for any two institutions are proportional over time by the factor $\exp(\mathbf{X_i}\boldsymbol{\beta})$, which is why the baseline hazard cancels out in equation 5. What remains is a likelihood function that depends only upon the parameters $\boldsymbol{\beta}$ and the observable characteristics $\mathbf{X}$. We estimate the parameters $\boldsymbol{\beta}$ via maximum likelihood estimation, as is standard. For more details on the estimation procedure, see Greene 2017 and StataCorp 2021. The model can further be extended to allow the observables $\mathbf{X_i}$ to vary with time or to allow coefficients β to vary as a function of time. The estimates shown in Table B.1 show the results from several different specifications.

In column (1), we include the share of peer institutions that have made a decision as of the

previous date and the COVID-19 deaths per capita in the county. The coefficient of 0.769 on the peer share can be interpreted as follows: a 10-pp increase in the share of peers that have made a decision increases the hazard rate by $(\exp(0.769 * 0.10) - 1) * 100 = 8\%$. In column (2), we check for time-varying effects to assess the proportional hazards assumption. We find a negative, though insignificant, coefficient on the interaction of peers' prior-day decisions and the day variable, where days are measured from 1 (April 1) to 153 (August 31). Adding time-invariant, institution-level controls (Carnegie classification and public/private control), as shown in columns (3) and (4), or state fixed effects, as shown in columns 5 and 6, does not change the sign of the estimates but reduces the magnitudes.

Table B.1: Proportional Hazards Model Estimates

	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Share decided, t-1	0.769***	2.458*	0.434*	3.054**	0.124	2.347*
	(0.230)	(1.292)	(0.248)	(1.337)	(0.257)	(1.341)
(Share decided , t-1)*Day		-0.017		-0.027**		-0.023*
		(0.013)		(0.013)		(0.013)
County deaths per 10,000	-0.021***	-0.021***	-0.021***	-0.021***	-0.020**	-0.020**
	(0.006)	(0.006)	(0.006)	(0.006)	(0.010)	(0.010)
Observations	116,625	116,625	116,625	116,625	116,625	116,625
Institution controls	N	N	Y	Y	Y	Y
State FEs	N	N	N	N	Y	Y
Time-varying effect	N	Y	N	Y	N	Y

Note: This table presents estimated coefficients for the survival models as described in this section, where the dependent variable is the time when a university makes any decision. Standard errors are clustered at the county level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

In columns (4) and (6), the time-varying coefficient is marginally significant and negative, suggesting that the peer share may not matter to institutions that have made it through most of the summer without announcing a decision. To interpret the estimates in column (6), consider the effect on the hazard of making a decision in the middle of the summer (e.g., on the 75th day of our sample). On day 75, a 10 percentage point increase in the share of peers who have made a decision increases the hazard rate by $(\exp((2.347 - 0.023 * 75) * 0.10) - 1) * 100 = 6.4\%$. While the magnitude of this estimate is not directly comparable to the results from our linear regression

specifications, the fact that peers' decisions increase the likelihood of an institution announcing a decision confirms our main findings. In addition, the estimated coefficients on the cumulative deaths measure in Table B.1 continue to indicate that institutions were less likely to announce reopening decisions when COVID-19 deaths were increasing.

We can also use survival analysis methods to examine the *type* of decision an institution makes (whether to reopen in-person, hybrid, or online). To do so, we use the competing risks survival model, which accounts for the presence of several "competing" outcomes by constructing subhazard functions that account for the fact that an institution may decide to reopen in-person, online, or hybrid, but can only do one of these (Fine and Gray 1999). The subhazards are assumed to be proportional over time by a factor of $\exp(\mathbf{X}\boldsymbol{\beta})$, analogous to the hazard function in the Cox proportional hazards model.

We present the estimated coefficients for the subhazard of making an in-person reopening decision in Table B.2. Column (1) shows the estimated coefficients without institution-level controls nor state fixed effects and without time-varying coefficients. All of the coefficients on peers' prior-day decisions are positive, but the share of peers that have announced in-person reopening decisions has the strongest positive effect on the likelihood that an institution will reopen in person. These findings differ somewhat from the linear regression framework, where we found a negative relationship between peers' decisions to reopen online and an institution's likelihood of making an in-person decision. However, the estimates in column (2) demonstrate that the proportional subhazard assumption does not hold: the effects vary substantially over time. Still, each specification supports the conclusion that the share of peers that have made an in-person decision has a strong positive effect on an institution's decision to announce an in-person reopening. When a peer announces an online decision, that may be positively associated with a decision to reopen in person because *any* peer decision may encourage a university to make a decision. Adding institution-level controls and state fixed effects in columns (3) through (6) changes the magnitude but not the sign of the estimated effects. In addition, the estimated coefficient on the county-level cumulative deaths variable remains negative across specifications, indicating that institutions are less likely to announce an in-person reopening decision when COVID-19 cases are increasing.

Table B.2: Competing Risk Model Estimates for In-Person Decision

	(1)	(2)	(3)	(4)	(5)	(6)
Share decided in-person, t-1	4.583***	-2.191	4.139***	-2.857	3.338***	-4.218*
	(0.376)	(2.351)	(0.398)	(2.347)	(0.420)	(2.302)
(Share decided in-person, t-1)*Day		0.072***		0.074***		0.0780***
		(0.024)		(0.023)		(0.023)
Share decided online, t-1	1.942***	-8.776***	2.432***	-7.872***	2.668***	-7.942***
	(0.489)	(2.579)	(0.490)	(2.577)	(0.551)	(2.726)
(Share decided online, t-1)*Day		0.108***		0.103***		0.104***
		(0.024)		(0.024)		(0.025)
Share decided hybrid, t-1	3.828***	-5.920**	3.729***	-5.822*	4.040***	-5.905*
	(0.518)	(3.005)	(0.528)	(3.040)	(0.562)	(3.134)
(Share decided hybrid, t-1)*Day		0.098***		0.097***		0.100***
		(0.029)		(0.029)		(0.030)
County deaths per 10,000	-0.035***	-0.038***	-0.041***	-0.043***	-0.028*	-0.030*
	(0.014)	(0.014)	(0.014)	(0.014)	(0.017)	(0.018)
Observations	116,625	116,625	116,625	116,625	116,625	116,625
University Controls	N	N	Y	Y	Y	Y
State FE	N	N	N	N	Y	Y
Time-Varying Effect	N	Y	N	Y	N	Y

Note: This table presents estimated coefficients for the competing risk regressions as described in this section. The outcome is an in-person reopening decision. Standard errors are clustered at the county level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

Table B.3 then shows analogous estimates for the subhazard of announcing an online reopening decision. Across the specifications, we find that peers' decisions increase the likelihood that an institution announces a reopening decision, and in particular, that increases in peers announcing online reopening decisions increases the likelihood that an institution does the same. We also find that institutions are more likely to announce online decisions when COVID-19 deaths in their county are increasing. Taken together with Tables B.1 and B.2, we interpret these results as supporting our conclusions in the main text that peers encourage institutions to announce reopening decisions, and that institutions are most likely to announce the same reopening decision as their peer institutions.

Table B.3: Competing Risk Model Estimates for Online Decision

	(1)	(2)	(3)	(4)	(5)	(6)
Share decided in-person, t-1	3.121***	-5.934***	4.004***	-5.096**	4.472***	-3.211
	(0.389)	(2.330)	(0.422)	(2.469)	(0.450)	(2.647)
(Share decided in-person, t-1)*Day		0.085***		0.085***		0.073***
		(0.022)		(0.023)		(0.024)
Share decided online, t-1	6.194***	-3.503	6.224***	-3.010	5.481***	-5.281**
	(0.424)	(2.510)	(0.388)	(2.656)	(0.493)	(2.496)
(Share decided online, t-1)*Day		0.089***		0.085***		0.098***
		(0.022)		(0.023)		(0.021)
Share decided hybrid, t-1	5.442***	-3.795	5.494***	-3.980	6.055***	-3.251
	(0.475)	(2.484)	(0.481)	(2.567)	(0.482)	(2.677)
(Share decided hybrid, t-1)*Day		0.084***		0.087***		0.085***
		(0.022)		(0.023)		(0.023)
County deaths per 10,000	0.024***	0.020**	0.024***	0.021**	0.053***	0.047***
	(0.011)	(0.011)	(0.010)	(0.010)	(0.017)	(0.017)
Observations	116,625	116,625	116,625	116,625	116,625	116,625
University Controls	N	N	Y	Y	Y	Y
State FE	N	N	N	N	Y	Y
Time-Varying Effect	N	Y	N	Y	N	Y

Note: This table presents estimated coefficients for the competing risk regressions as described in this section. The outcome is an online reopening decision. Standard errors are clustered at the county level. $^{*}p < 0.10$, $^{**}p < 0.05$, $^{***}p < 0.01$

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