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The COVID-19 pandemic caused a severe economic recession in 2020. Historically, during economic recessions, there are large declines in independent (private) school enrollments in the United States. Thus, it would be expected that

The onset of COVID-19 in early 2020 triggered a tragic health crisis in most of the world, including the United States. The health crisis led to an economic crisis as well. From February to April 2020, total non-farm payroll employment fell by 14.7 percent in the U.S. While employment experienced some recovery during subsequent months, they remained 7.5 percent below pre-recession levels in August 2020.[1] The unemployment rate surged from 3.5 percent pre-recession to 14.4 percent in April 2020 and had only improved to 8.4 percent by August 2020.[2]

By way of comparison, payroll employment fell by "only" 6.3 percent over a 26-month period during the "great recession" of 2008-09.[3] Thus, the negative employment shock during the pandemic recession came much faster and was much deeper relative to the negative employment shock during the great recession—where the latter had been the worst shock to American employment since the Great Depression.

Historically, when economic recessions hit the United States, enrollments in independent (private) K-12 schools have declined (McCluskey, 2020). For example, during the great recession total independent school enrollments declined from 5.91 million in 2007 to 5.27 million in 2011—a decline of almost 11 percent (National Center for Education Statistics, 2019a).

These declines in enrollment during economic downturns do not appear to be temporary—by 2017, total independent school enrollments were still about 190,000 students below their 2007 level.[4] In addition, public school enrollments increased by more than 1.4 million students between 2007 and 2017, so a decline in the school-aged population does not explain the decline in independent school enrollments during this time period (National Center for Education Statistics, 2019b).

Lower independent school enrollments due to economic recessions are of policy interest for two reasons. First, families are less likely to get their preferred array of educational and social aspects of schooling for their children if they prefer a given independent school to their public school alternative—but can no longer afford it. Second, student migration from the independent school sector to the public school sector increases costs to taxpayers, as state

A decline in independent school enrollments is to be expected during recessions, as households are more likely to experience unemployment and incomes decline during these economic downturns. For the large majority of independent school students in the United States, their families must pay their cost of attendance, while public schools are universally available at a zero price, as their costs of capital and operation are paid by taxpayers.[5] While some families may prefer the educational and/or social offerings at independent schools for their children—and choose to pay for independen(b)-4 1 Tc -0.J(s)ls sc sec

we report our findings and conclusions. To our knowledge, we are the first paper to analyze the anomalous enrollment patterns in K-12 independent schools in the United States during the recent and sharp economic recession. Given that independent school enrollments tended to remain the same or increase in the wake of the particularly acute pandemic recession, it appears that this time really was different, as compared to the effects of prior economic recessions on K-12 independent schools. The response of the public education sector to the health crisis appears to be a significant reason why independent school enrollments did well during the COVID-19 pandemic and recession—relative to previous economic recessions.

To analyze the change in enrollments in independent schools between fall 2019 and fall 2020, the authors of this paper administered a very brief survey to independent school business officers to ask them questions about their enrollments in fall 2020 as compared to fall 2019; and to what extent their mode of school was fully in-person, a hybrid of in-person and virtual schooling, or fully virtual. These business officers were also asked to share their school's tuition.

The survey was administered in November 2020 to business officers whose independent schools are a member of MISBO. MISBO is a non-profit association serving the business and operational needs of independent schools primarily located in the southeastern U.S. 158 school business officers from fifteen states and the District of Columbia responded to the survey out of 290 MISBO member schools invited to participate for a 54.5 percent response rate. There was no incentive for these business officers to complete the survey—the president of MISBO merely emailed MISBO members and asked them to complete the short survey. The exact survey questions and the states represented in our sample are listed in appendix 1. To maximize our survey response rate, we asked very few questions and did not ask questions that required much effort from respondents.

Since we observed the counties in which each of the independent schools in our sample are located, we -6 (o)z -0.003 Tw ((I,)1 (3 (n)10 (t s)6 (c)8 (ho)1TJ0 Tc 0 Tw (h)10 Tw (c6w (c6w (c6w (c6w (c610

information for the learning modalities for the public school districts that served those counties.[6]

There was a stark difference in learning modalities between independent schools and the public school districts in their counties at the start of the fall 2020 semester. As shown in figure 1 below, 75.5 percent of independent schools in our sample were open "full-time, face-to-face" to start the 2020-21 academic year. Of the public school districts that served their counties, only 24.5 percent were open for full-time, face-to-face learning to start the 2020-21 academic year.

The remaining 24.5 percent of independent schools were open for "hybrid, part time face-to-face" learning. Among the public school districts in their counties, 13.8 percent were open in a hybrid modality, while the remaining 61.6 percent were open in a fully virtual format, with children learning exclusively from home. is1cole (e6e)9.1 (g)le (e (l)4y-801: -Tw 0.23 -J0.005 T-0.009 Td2)p.rnc

Correspondingly, 49 percent of the districts in the full *Education Week* sample were in a virtual-only modality, while 61.6 percent of the public school districts that serve the counties in our sample were open only for virtual instruction.

Valant (2020), Hartney and Finger (2020), and DeAngelis and Makridis (2020) find that public school modality opening decisions were generally not related to the incidence of COVID-19 (as measured by cases and deaths per capita at the county level). Each of these three studies also finds

To explain changes in independent school enrollments between fall 2019 and fall 2020, we included variables in our multiple regression analyses measuring:

- The extent of COVID-19 in each school's county
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We estimated an empirical model using a multinomial logit (MNL) approach. In this specification, our dependent variable, a measure of independent school enrollment changes (*Enroll_status*), is a multinomial variable:

Enroll_status =   3, if enrollment increased (between fall 2019 and fall 2020)
                      2, if enrollment stayed the same
                      1, if enrollment declined.

In a multinomial logit model, the dependent variable *Y* is a vector with indicators (equal to "0" for outcomes not realized and "1" for the outcome that was realized) for each of the possible discrete outcomes. One possible outcome is selected as the "baseline" case and then the relative probability of the occurrence of each of the other outcomes is modeled as a function of a set of explanatory variables. Specifically, if there are k possible outcomes of the dependent variable, and the baseline outcome is denoted by K, the relative probability of each of the other outcome is estimated with the model

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Where $_J$ is a set of coefficients that are multiplied by the set of explanatory variables X_i. This model is estimated for each possible outcome of the dependent variable and then used to reveal the contribution of each explanatory variable on the likelihood of a dependent variable. Thus, for the k possible outcomes, there are k-1 sets of coefficients estimated (Maddala, 1986).

In our model, the dependent value is the change in enrollment at each independent school (*enroll_status*) and the explanatory variables are those related to the presence of COVID-19 in the community, the modality of instruction for the local public schools and a variety of economic factors. For the dependent variable, "decrease in enrollment" was chosen as our baseline value while "same" and "increase" were the other alternative outcomes.
We experimented coding the 14 schools that had no change in enrollments—but had excess demand—

As shown in Table 4 above, health conditions measured by *deaths_percapita* had a positive and statistically significant effect ($p<.002$) on the probability that an independent school

independent school experienced an enrollment decline by 2.7 percentage points—an almost 10 percent increase in the likelihood of experiencing an enrollment decline. This estimated marginal effect is not statistically significant at conventional levels (p<.26). (The *deaths_percapita* marginal effect on the probability that enrollment stayed the same (*enroll_status*=2) is statistically significant (p<.02), which is not reported here.)

The marginal effect of *pct_change_employment* on the likelihood that enrollment declined was less than a third of one percentage point with a p-value near "1." Thus, we detect no impact of economic conditions on independent school enrollments in the wake of the pandemic recession—a sharp break with the history of independent school enrnt

modality for fall 2020.

In addition, future work should also analyze the extent to which independent school enrollments and homeschooling remain level or elevated in fall 2021 and beyond—as the acute health and economic effects of COVID-19 subside. Perhaps the elevated independent school enrollments and homeschooling will persist into the future, or perhaps many students will return to public schools if health conditions are markedly improved and public schools are open for face-to-face instruction in fall 2021.

Bureau of Labor Statistics (2021). *Quarterly Census of Employment and Wages*, Bureau of Labor Statistics, U.S. Department of Labor, https://www.bls.gov/cew

Verstagen, Deborah (2018). "A 50-State Survey of School Finance Policies and Programs," https://schoolfinancesdav.wordpress.com/ .

Below are the questions we asked to the business officers whose schools are members of MISBO. The survey was deployed in November 2020 through email with two reminder emails to those who had not completed the survey. The MISBO membership includes 340 schools located primarily in the southeastern United States. Of these 340, 290 business officers were invited to participate in the survey; for the remaining schools, contact information did not include the business officer.

The survey was as follows:

1. What county (COUNTY not country) is your school in?

2. What state is your school in?

3. Roughly, what is your tuition (an average within about $500)?

4. What is your enrollment?

5. For the current school year (and with a margin of 5 students or more), relative to last year, did your enrollment:

    a. INCREASE
    b. DECREASE
    c. STAY ABOUT THE SAME

6. If your enrollment this year is "about the same" as last year, is it the case that you had excess demand but were unable to add more students because you were at capacity or nearly so?

effect sizes of public_virtual are almost identical to what is in our preferred specification and this variable is statistically significant (p<.03) in both of these specifications (tables A1 and A2). *Deaths_percapita* is not statistically significant, as was the case in our preferred results, and the effect sizes are almost identical to our preferred specification. The statistical significance of the marginal effect of *deaths_percapita* on enroll_status=2 (no change in enrollment) is about the same as our preferred results (p<.002) in this specification (not shown).

In table A3 we display the marginal effects from estimates with one change to our preferred MNL specification—we used county-level *cases_percapita* from August 2020 as our measure of the health conditions present in the county, instead of *deaths_percapita*. As shown below, it appears that *cases_percapita* was not as salient to families when they were making decisions on where to send their children to school—not as salient as *deaths_percapita*. The marginal effect of *cases_percapita*

For the empirical specification in table A5 below, we changed the dependent variable to be dichotomous, Y=1 if the independent school experienced no enrollment decrease between fall 2019 and fall 2020, and Y=0 if the school did experience an enrollment decrease. This specification increases our degrees of freedom, as it requires only one set of coefficients to be estimated. We display the ordinary least squares (OLS) results below. The virtue of OLS is that it is easy to interpret effect sizes from the coefficient estimates. For example, when public schools in the county were open only for virtual instruction (public_virtual=1), the likelihood of private schools experiencing a decline in enrollment fell by 18.15 percentage points—very close to our preferred results from the MNL specification in the body of the paper. The other implications from the preferred MNL specification are highly similar to this OLS specification as well.

R-squared = 0.0353