Revisiting Ethnic Differences in In-Person Learning During 2021-2022

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In the spring of 2020, the COVID-19 pandemic closed schools throughout the United States, forcing a shift to remote learning that lasted the rest of the academic year. In the fall of 2020, schools reopened using combinations of in-person, hybrid, and remote learning models with great geographic variability in access to in-person learning. A growing body of research shows important racial differences in the use of in-person learning during the 2020-2021 school year, with Black and Hispanic students returning to in-person learning at lower rates than white students (Camp and Zamarro, 2021; Kurmann and Lalé, 2022). This in-person learning gap raises serious equity concerns as emerging research illustrates how remote learning was associated with both larger decreases in academic performance during the pandemic and a widening racial achievement gap (Goldhaber et al., 2022).

Factors such as the limited availability of in-person learning options (Kurmann and Lalé, 2022) helped explain these observed racial differences. However, preferences captured through different political leanings also appeared to be important (Grossmann et al., 2021; Kurmann and Lalé, 2022). Overall, a combination of factors related to the supply of learning options and differential preferences appear to have contributed to the observed racial modality gaps. In previous research (Camp and Zamarro, 2021), we found that, while Black and Hispanic respondents were 19 and 15 percentage points less likely to report fully in-person schooling in October 2020, several factors including school districts' offerings, political partisanship, the perceived risk from the pandemic, and local COVID-19 outbreaks were all meaningfully associated with and plausibly explained these in-person learning racial gaps.

In the spring of 2021, access to in-person learning expanded as President Biden identified reopening schools as a national priority and COVID vaccines became available. While these

widespread reopenings may have increased access to in-person learning, a significant racial gap remained in the spring of 2021 (U.S. Department of Education, Institute of Education Statistics, 2021).

During the 2021-2022 school year, in-person instruction became the default mode of instruction and public health institutions urged schools to provide an in-person option. The Institute of Education Sciences (U.S. Department of Education, Institute of Education Statistics, 2021) reported that 100 percent of U.S. public schools surveyed offered in-person learning in September 2021. As a result, access to remote learning was on the decline. However, IES (2021) also reported that still 34 percent of U.S. public schools offered remote learning in September 2021, and four percent offered hybrid learning. At the same time, COVID-19 vaccines were widely available for adults and children over 12 years of age at the beginning of the school year, which could help reduce individuals' perceived health risks which may have reduced families' preferences for in-person learning in the previous year.

As our prior research has shown, however, the availability of in-person learning is only one among several factors that explain families' decisions to use in-person, remote, or hybrid learning. There are reasons to believe that families from minority communities may remain hesitant to return to in-person learning. For example, Black and Hispanic individuals have been disproportionately affected by the pandemic, with hospitalization rates almost five times that of whites for both groups (Centers for Disease Control and Prevention, 2020). Families from these communities may have a lower preference for in-person learning due to both the disproportionate impact of COVID-19 on their communities and historic abuse by government and medical establishments.

To examine racial differences in the use of in-person learning during the 2021-2022 school year, we use nationally representative survey data from the Understanding America Study[1] (UAS). The UAS collected information on both respondents' schooling experiences throughout the pandemic. Specifically, we use survey waves from July 2021 and October 2021 to examine both intended schooling mode and actual mode, respectively. The July 2021 data gives us information on families' learning mode preferences that are less affected by the supply of options while the data from October 2021 allows us to study realized racial gaps in attendance that are influenced by both families' preferences and the supply of different learning options.

We find that most respondents (87%) declared they planned to send their children for in-person learning during the 2021-2022 school year as of July and an even higher proportion (91%) reported using in-person learning in October 2021. However, white respondents were still more likely than Black respondents to both report a preference for sending their children to school in person in July and to report attending in-person learning in the fall (Figure 1).

We use logistic regression models[2] to study factors associated with the probability of planning to send the child for full in-person learning in July 2021 and the probability of the child attending fully in-person in October 2021. For ease of interpretation, we report our results as average marginal effects. We find that Black respondents were still 12 percentage points less likely than white respondents to plan to send their children to school in person in July 2021. Similarly, Hispanic respondents were 6 percentage points less likely than white respondents. Both political leanings and trust in media and public health institutions helped explain these

[1]See the technical appendix for more information on the sample and variables.
[2] See the technical appendix for more information on the empirical approach.

observed intentions for in-person gaps, but a statistically significant gap for Black respondents of about 7 percentage points remained unexplained in our most complete model (Table 1).

In October 2021, we find that Black respondents were only 6 percentage points less likely than white respondents to send their child to school in person. We do not find a statistically significant difference between Hispanic and white respondents. When we control for household demographics and student characteristics, the Black-white gap diminishes and becomes statistically insignificant. Political leanings and trust in media and health institutions do not appear to be significantly associated with the probability of attending school in person in October. However, the availability of remote learning is a significant predictor of modality choice. Respondents who reported any availability for remote learning at their child's school were 13 percentage points less likely to report that their child was learning in person. Interestingly, after controlling for parental vaccination status, the Black-white gap increases to 6 percentage points and is again statistically significant. Our results suggest that Black families might still prefer remote learning during the 2021-2022 school year.

We find the Black-white gap in the use of in-person learning persisted during the 2021-2022 school year but was smaller than the gap reported in 2020-2021. Our results also suggest the presence of a mismatch between preferences that Black families have and what they are being offered. As the policy focus moves from COVID mitigation and prevention toward academic recovery, understanding the concerns of families who are reluctant to return to in-person learning is especially important. It is now clear that remote learning during the pandemic was associated with dramatic declines in student achievement (Goldhaber et al., 2022). Our results indicate that concerted efforts may be needed to ensure a quality education for those families from minoritized communities with a preference for remote learning.

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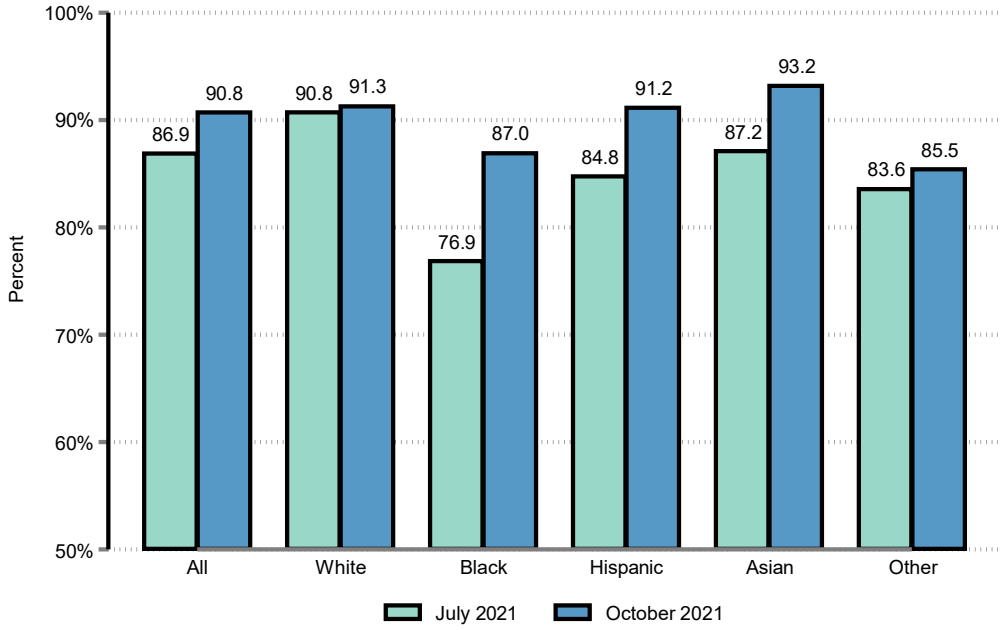
Figure 1. *Percentage of respondents intending and sending their school-age children for in-person learning in July and October 2021*



Source. Data from waves UAS348 and UAS350 of the Understanding Coronavirus in America Tracking Survey. Note. Results weighted using population weights to the Current Population Survey Benchmarks

Table 1. Planning and Use of Fully In-Person Learning (Average Marginal Effects)

	July, 2021			October, 2021		
	N=1,214	N=1,019	N=917	N=1,687	N=992	N=818
Black	-0.120***	-0.061	-0.071*	-0.063**	-0.036	-0.056*
	(0.035)	(0.040)	(0.041)	(0.027)	(0.032)	(0.031)
Hispanic	-0.063*	-0.034	-0.047	-0.004	0.054	0.026
	(0.036)	(0.033)	(0.037)	(0.028)	(0.036)	(0.039)
Other Race/Ethnicity	-0.046	0.024	0.057	-0.033	-0.012	-0.019
	(0.047)	(0.053)	(0.061)	(0.039)	(0.034)	(0.037)
Elementary Student		-0.006	-0.002		-0.001	-0.022
		(0.034)	(0.042)		(0.025)	(0.032)
Middle School Student		-0.014	-0.046		-0.021	-0.057*
		(0.040)	(0.045)		(0.027)	(0.030)
Charter School Student					-0.086***	-0.086**
					(0.030)	(0.033)
Remote Option Available					-0.131***	-0.133***
					(0.042)	(0.042)
Third Party Voter		0.090***	0.087***		-0.103	-0.119
		(0.024)	(0.024)		(0.076)	(0.104)
Biden Voter		-0.040	-0.046		-0.024	-0.026
		(0.032)	(0.034)		(0.023)	(0.029)
Public Health Trust Factor		0.066***	0.067**		-0.008	-0.016
		(0.025)	(0.028)		(0.014)	(0.014)
Trust in Fox News		0.039*	0.030		0.010	0.023
		(0.024)	(0.024)		(0.013)	(0.015)
National Media Trust Factor		-0.079***	-0.080***		0.008	0.010
		(0.023)	(0.026)		(0.015)	(0.014)
COVID-19 Comorbidity Risk			0.007			-0.001
			(0.028)			(0.023)
Fully Vaccinated			0.077**			0.051*
			(0.039)			(0.027)
Household Vaccine Eligible			-0.008			-0.038
			(0.035)			(0.029)
Local COVID-19 Activity			-1.450			-0.720
			(3.110)			(0.596)
Urban			-0.029			0.061*
			(0.045)			(0.035)
Suburban/Mixed			-0.020			0.048
			(0.040)			(0.031)
Demographic Controls	No	Yes	Yes	No	Yes	Yes
Pseudo R^2	0.026	0.137	0.156	0.011	0.185	0.245

Note: ***p≤ .01; **p≤ .05; *p≤ .1; Estimates use sampling weights and heteroskedastic robust standard errors. Demographic controls include respondent gender, family composition, income, and education.

Technical Appendix: Data and Variable Construction

We use two waves of UAS[3] survey data from July 2021 (UAS 348) and October 2021 (UAS 350), which include respondents' demographics including gender, race and ethnicity, education level, household income, and marital status. Because the population of interest is K-12 parents, we drop any respondents who do not report having a child living in the household in kindergarten through twelfth grade. When multiple school-age children are in the household, the UAS team randomly selects one on which to collect detailed information and maintains the same randomly selected child in subsequent surveys unless the child graduates or leaves school, in which case they re-randomize another school-age child in the household. We do not include homeschoolers in our analysis, only parents who indicated that their child is enrolled in a traditional public, charter, or private school.

A significant barrier to the use of remote or hybrid learning may stem from a lack of access to reliable internet or devices. Importantly for our study, the UAS provides internet access and a device to households selected to participate if they did not already have them. The July 2021 data indicates parents' intentions for learning mode in the 2021-2022 school year, whereas the October 2021 data shows parents' reported attendance mode at that time.

[3] https://uasdata.usc.edu/index.php

In-Person Learning

In our July analysis, we use an indicator of whether the parent answers "yes" to the question "*Are you planning to send (selected child) to school in person at the beginning of the 2021-22 school year?*" If the respondent answers "no" or "unsure," we code them as a zero. In October, we use an indicator of whether the parent selects "in-person only" in response to the question "*How is (selected child) currently attending school?*" If the respondent selects "remote only," "both in-person and remote (hybrid)," or "other, please specify," we code them as a zero.

Demographics

We control for the self-reported race/ethnicity of the respondents with three binary variables: Black, Hispanic, and other race/ethnicity. Self-identified white respondents are our reference category. We combine self-identified Asian respondents with the category other race/ethnicity because of limitations in sample size for this group. We also control for gender using a binary variable for self-reported gender (male or female). To control for family composition, we use a binary variable that indicates whether respondents report being married and living with their partner.

Education

We control for the self-reported education level of the respondent with two binary variables: “no college” and “some college” (with “college” as the omitted category). If the respondent reports having a high school degree or less, with no post-secondary education, we categorize them as “no college.” If the respondent reports having some postsecondary experience but no college degree, we categorize them as “some college.” If the respondent reports having a college degree or higher, we categorize them as “college.”

Household Income

Our analysis also includes controls for household income with two binary variables: low income and mid-income. We define low-income respondents as those who report a household income of under $50,000 per year, mid-income respondents as those who report a household income of $50,000 to $100,000 per year, and high-income respondents, the reference category, as those who report a household income of over $100,00 per year.

Political Leanings

We control for political leanings using two binary variables (Biden voter and third-party voter, with Trump voter as the omitted category) built from election data from the UAS 2020 Presidential Election surveys. We merge in data from the post-election survey, which indicates whether respondents voted for Biden, Trump, or a third-party candidate. Among our July 2021 sample, 389 respondents

did not answer the post-election survey. Among our October 2021 sample, there were 674. For these missing respondents, we imputed data from pre-election pool surveys, which indicates which candidate respondents planned to vote for in October or November of 2020. This allowed us to decrease our missingness to 185 of 1,214 respondents (15.2 percent of our sample) in July 2021 and 366 of 1,687 (21.7 percent of our sample) in October 2021.

Public Health and Media Trust

The July survey (UAS 348) asked respondents to rate their trustworthiness of public health institutions and mainstream news sources on a scale of one (do not trust) to four (fully trust). We develop an index of trust in public health institutions by conducting a factor analysis of three variables: trust in the Center for Disease Control and Prevention (CDC), in the Department of Health and Human Services (HHS), and local public health officials. The results of the factor analysis are shown below.

Factor Analysis of Public Health Trust Variables

Factor Analysis for Public Health Trust		
Variable	**Factor1**	**Uniqueness**
Local Public Health	0.894	0.201
HHS	0.931	0.133
CDC	0.921	0.152

Concerning media trust, similar to results by Camp and Zamarro (2021), we found that a unique factor was retained including similar weight for all media sources but Fox News, which appeared to capture a different construct. Therefore, we use two media trust variables. Firstly, we construct a media trust factor that combines trust in CNN, MSNBC, NBC, ABC, CBS, and national newspapers using an orthogonal rotation of the factor analysis results. Secondly, we include a separate variable indicating the respondent's trust in Fox News on a four-point scale from one (do not trust) to four (fully trust). We report the results of our factor analyses for trust in national media below.

Factor Analysis of Media Trust Variables

Factor Analysis for Media Trust		
Source	**Factor1**	**Uniqueness**
CNN	0.927	0.140
MSNBC	0.936	0.125
NBC	0.957	0.085
CBS	0.950	0.097
ABC	0.947	0.104
National Newspapers	0.905	0.181

COVID-19 Comorbidities

In both the July and October surveys, respondents indicate whether they have a significant COVID-19 health risk due to diabetes, high blood pressure, kidney disease, autoimmune disease, lung diseases such as COPD, or obesity. We build a

binary variable to indicate if the respondent reports having been diagnosed with one of these conditions.

Fully Vaccinated

In both July and October, the UAS asks whether the survey respondents are vaccinated, how many doses they have received, and which vaccine they received (Pfizer, Moderna, Johnson & Johnson, or other). If the respondent answered these questions in a previous survey, the survey asks them to confirm the information they previously provided. As of July and October 2021, to be fully vaccinated with the Johnson & Johnson vaccine, only one dose was necessary, and boosters were unavailable. Some respondents may therefore have only received one Johnson & Johnson COVID-19 vaccine dose yet be fully vaccinated according to FDA standards. We, therefore, code respondents with a one for fully vaccinated if the respondent indicated receiving at least two doses of the Pfizer or Moderna COVID-19 vaccines or one dose of the Johnson & Johnson COVID-19 vaccine.

Household Vaccine Eligibility

A household's decisions about in-person learning may involve weighing risks to other family members, particularly those under the age of 12 who were ineligible for any COVID vaccine at the time of the survey. To better capture these dynamics, we also include an indicator variable that takes a value of 1 if all members of the household are older than 12 years old in our final specification.

Local COVID-19 Activity

We merge our survey data with information on county-level COVID-19 incidence collected by the New York Times and use population information from the U.S Census Bureau to construct local COVID-19 incidence rates.

Urbanicity

We use UAS election data to control for urbanicity by building binary variables for the respondent living in an urban or suburban setting, using rural or mixed local as the reference category.

Remote Learning Available

We control for the availability of remote learning using self-reported data from parents. The October 2021 survey asks respondents to estimate what percentage of the students in their child's K-12 school were currently attending school in person at that time. We assume that parents who report that 100 percent of students in their school attend in-person likely know that remote learning is not an option in their school. We use this data to create a binary variable for the availability of remote options that takes the value of zero if the respondent reports 100 percent of students in their child's school attending in-person and one if the respondent reports any other percentage.

Type of School Attended

Prior research has found that students attending charter schools were less likely to attend school in-person than public school students in the 2020-21 school year while students attending private schools were more likely to attend in person than public school students (Camp and Zamarro, 2021). The October 2021 survey asks respondents to indicate if their child attends either a public school, charter school, private school, or virtual school. As virtual schools may be public, charter, or private schools, we exclude respondents who select this answer (N=25) from our analysis.

We then construct dummy variables indicating the sector (public, charter, or private) of each student's school. In our analysis, we find no significant differences between public and private school students and so, we thus include only a dummy variable indicating if a student attends a charter school in our analysis. Full results including an indicator for private school attendance are not meaningfully different and available upon request from the authors.

Grade Level

In both survey waves, respondents are asked to identify which grade the randomly selected child they are asked about is in. The options range from kindergarten to 12th grade. We construct a categorical variable with three levels. Children in fourth grade and lower are categorized as attending an elementary school. Middle

school children are defined as being in 5th – 8th grades. High school children are defined as being in 9th – 12th grades.

Technical Appendix: Analytic Strategy

We use logit models to predict the likelihood of a respondent planning to (in July 2021) or sending (in October 2021) their child to school fully in person controlling on a set of covariates. Because there was a racial in-person attendance gap in the literature documented for the 2020-2021 school year, our first model only includes race as the independent variable of interest, to document the initial racial and ethnic gap in the 2021-2022 school year. The outcome (in-person learning) is a binary variable that takes on a value of one if the respondent *i* reports planning or sending their child to school fully in-person in month *m* (July or October 2021), or zero if the respondent reports their child attending school remotely or using a hybrid model. The model for this regression is as follows:

$$Logit(InPerson_{i_m}) = \beta_1 Race_i + \epsilon_i \quad (1)$$

Following Camp and Zamarro (2021), we estimate two additional models where we sequentially add sets of controls to study which factors could help explain the initial observed racial and ethnic gaps. In all these additional models, we control for demographic information of the respondent, including respondent gender, marital status, income level, and education level (represented in our model as X_i). For both the probability of planning to send the child fully in-person learning in July 2021 and the probability of reporting the child attends fully in-

person in October 2021, we next add information about the child's grade (elementary student and middle school student), type of school (charter school), variables indicating political leanings (whether the respondent is a Biden voter or a third-party voter), and our measures of trust in media (national media trust factor and trust in Fox News) and trust in public health institutions (public health trust factor). The specification for October 2021 in this case also adds a variable capturing the reported availability of remote learning at the child's school.

$$
\begin{aligned}
Logit\left(InPerson_{i_m}\right) &= \beta_1 Race_i + \beta_2 StudentGrade_i \\
&+ \beta_3 Charter_i \\
&+ \beta_4 RemoteOptionAvailable_i \\
&+ \beta_5 Vote2020_i + \beta_6 PublicHealthTrust_i \\
&+ \beta_7 MediaTrust_i + \beta_8 FoxNewsTrust_i \\
&+ \mathrm{X_i} + \epsilon_i
\end{aligned}
\tag{2}
$$

Our final model includes information to capture individuals' risk of COVID-19 infections including binary indicators for COVID-19 comorbidities of the respondent, fully vaccinated status, whether all members of the household are eligible for the vaccine, local COVID-19 incidence rates, and urbanicity:

$$Logit(InPerson_{i_m}) = \beta_1 Race_i + \beta_2 StudentGrade_i + \beta_3 Charter_i + \beta_4 RemoteOptionAvailable_i + \beta_5 Vote2020_i + \beta_6 PublicHealthTrust_i + \beta_7 MediaTrust_i + \beta_8 FoxNewsTrust_i + \beta_9 Comorbidities_i + \beta_{10} FullyVaccinated_i + \beta_{11} HouseholdOver12_i + \beta_{12} LocalCOVIDActivity_i + \beta_{13} Urbanicity_i + \mathrm{X_i} + \epsilon_i \quad (3)$$