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Partisanship, Race, Markets, and Public Health: The Politics of Pandemic School Operations for Reopening and Beyond

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Partisanship, Race, Markets, and Public Health: The Politics of Pandemic School Operations for Reopening and Beyond

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Abstract: Partisanship influenced learning modality after the pandemic's onset, but it is unknown whether partisanship predicted other aspects of educational operations. We study the role of partisanship, race, markets, and public health in predicting a range of operations—from modality to family engagement to social-emotional support to teacher PD—throughout 2020-21 in the context of Virginia. Districts' partisan makeup and racial composition were similarly predictive of in-person offerings throughout 2020-21 but partisanship was less predictive over time. District characteristics explained limited variation in other aspects of operations, though districts with larger private school sectors provided more supports. Results emphasize the role of partisanship, race, and markets in reopening but also suggest school operational decisions were less politicized than choice of modality.

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Motivation & Context

Political polarization in the United States has increased dramatically over the past four decades and seeped its way into a wider range of domains both related and seemingly unrelated to public policy (Iyengar, Shanto, & Westwood, 2015). Education has traditionally been considered unique relative to other policy areas and therefore provides a particularly interesting context in which to study political polarization (Henig, 2013). More specifically, the institutions primarily responsible for education policy decision-making—local school boards—were designed in ways intended to insulate them from national and statewide partisan political dynamics. They are single-purpose institutions that focus solely on education and operate separately from the rest of local government, in contrast to general-purpose governments like city councils and municipalities that take up decisions related to a variety of policy areas (Kirst & Wirt, 2009). School board races are often nonpartisan affairs in which ballots do not inform voters of the candidates' party affiliations and are typically held off-cycle (in different years than) national elections (Anzia, 2014). Although school systems are certainly not immune from political forces, public opinion on education policy issues has tended to be less polarized based on citizens' party affiliations than other policy topics (Houston, 2021; Shapiro, et al., 2021).

In recent years, however, scholars have documented a decline in what Henig (2013) has termed "educational exceptionalism" as leaders at more centralized levels of government and in executive roles have taken on greater authority over schools, as evidenced by a rise in reforms such as mayoral control and state takeover, among other changes (e.g., Schueler & Bleiberg, 2021). Given these shifts in both partisan polarization (in general) and education governance (in particular), are the politics of education becoming increasingly wrapped up in a more partisan, polarized, and nationalized political dynamic? Has COVID-19, which brought about the most

substantial disruption to the nation's school system in our lifetimes, made the politics of education as polarized as other policy areas in the U.S.? The role of partisanship in shaping school reopenings and operations in the aftermath of the COVID-19 pandemic's onset provide an important context in which to explore these questions.

Indeed, the existing evidence suggests that partisanship has played a significant role in educational policymaking in the post-pandemic period. With a primary focus on the initial decisions regarding the learning modality (i.e., in-person, hybrid, or remote) that would be used as PK-12 schools reopened in the fall of 2020, scholars have documented that the partisan makeup of a local community was more predictive of whether the schools in that community reopened for in-person learning than measures of public health (Singer, 2022). More specifically, districts home to a greater share of Republican voters were more likely to experience in-person learning. This pattern held in analyses using national data (DeAngelis & Makridis, 2021; Harris & Oliver, 2021; Hartney & Finger, 2021; Valant, 2020) as well as statewide data from New York (Fox, Lee, Sorensen, & Martin, 2021) and Michigan (Grossman et al., 2021). Importantly, most of these studies find that public health measures did play some role, particularly those studies that look beyond the initial reopening decisions to modality changes throughout the 2020-21 year. However, when looking within states, the predictive power of partisanship tended to be a reliably stronger predictor of initial fall modality than measures of COVID-19 incidence.

These findings on PK-12 learning modality are consistent with the association between partisanship and a variety of other aspects of education and public health policy and opinion in this period. For example, statewide partisanship was more predictive of the likelihood that institutions of higher education reopened for in-person instruction in the fall of 2020 than public health metrics (Snideman et al., 2022) and was also predictive of the speed with which a state

eased its broader social distancing policies (Adolf et al., 2021). Public opinion data has shown a strong connection between partisanship and willingness to stay home and take steps to mitigate disease spread (Clinton et al., 2021) and support for masking in general (Milosh et al., 2021), as well as masking and vaccine mandates in schools (Henderson et al., 2021; Silver et al., 2022). In terms of the direction of the effects, in all cases, individuals identifying with the Democratic party or communities with a greater share of Democrats were more supportive of mitigation efforts and less likely to experience in-person reopenings.

One limitation of this literature is that most studies that have examined the relative importance of partisanship versus public health factors in explaining learning modality after the onset of the pandemic have focused on the initial fall 2020 reopenings. It is important, however, to understand how these relationships might have changed over time, especially given the fall reopenings occurred not long after then-President Trump publicly called for a return to in-person learning and not long before the November 2020 presidential election. Previous research has shown that U.S. presidents, including Trump, have the ability to polarize public opinion with their public statements (Collins, 2021; West et al., 2018). As a result, the partisan differences in initial school reopenings could have reflected the momentary salience of reopenings and association of in-person learning with the sitting Republican President. Therefore, if we want to understand the true extent to which education policy has become embroiled in national polarized debates in a more enduring way, we must look beyond the start of the 2020-21 school year. Indeed, the three papers that have examined these relationships beyond fall 2020 found that partisanship remained predictive of learning modality nationwide (e.g., Christian, Jacob, & Singleton, 2022) but was less predictive by February 2021 (Harris & Oliver, 2021) and by the end of the 2020-21 year (Houston & Steinberg, 2022) than it was in fall 2020.

Education researchers have also demonstrated that politics played a role in shaping school reopenings through the influence of organized labor. Studying 250 large districts across the U.S., Marianno et al. (2022) find that communities with greater teacher union influence spent fewer weeks learning in person in the fall of 2020. With broader national samples but different measures of union strength, DeAngelis and Makridis (2021), Harris and Oliver (2021), Hartney and Finger (2021), and Houston and Steinberg (2022) all come to similar conclusions. Singer et al. (2022) undertook deep-dive case studies of five urban districts and also found that the organized labor landscape and features of the local labor market played a key role in determining school reopening outcomes and timing, though in ways that were interrelated with pandemic conditions, partisanship, and parental preferences. This all suggests that education policymaking in the pandemic environment has hardly been insulated from politics in the way that those who designed our system of local school board governance likely imagined it would.

Scholars have more recently sought to complicate the "politics or science" framing that came to dominate the earlier public discussion about school reopenings (Singer et al., 2022). One key factor that has sometimes been underappreciated in these conversations is the role of race. Indeed, researchers have documented that the racial composition of the district was associated with clear differences in which districts experienced the most in-person learning. For example, using anonymized mobile phone data on people's movements, Parolin and Lee (2021) infer that remote learning in fall of 2020 was more common in schools serving higher shares of students of color. Similarly, Haderlein et al. (2021) use nationally representative parent survey data from April 2020 to May 2021 to document that Black and Hispanic students had less access to in-person learning than White students. These findings were consistent with patterns of associations found in Virginia, the context of the present study (Sachs, Miller, & Schueler, 2022).

Of course, race and ethnicity, partisan identification, and risk of exposure to COVID-19 are all correlated with one another which complicates the task of isolating the unique role of race. There are, however, a few studies that have attempted to use multivariate models to tease out the relative importance of each of these factors which suggest that race indeed played a unique role. Camp and Zamarro (2021) analyze a nationally representative survey and find racial and ethnic differences in the extent to which students accessed in-person learning in fall 2020, even controlling for partisanship and public health measures, with Black and Hispanic students experiencing less in-person learning than White students. Using national data, Harris and Oliver (2021) find that schools in districts serving greater Black and Latino/a populations were more likely to have remote instruction in both fall of 2020 and through February 2021, even controlling for partisanship and COVID-19 positivity measures. These authors also find that, in the fall, the partisanship of the community was more predictive of learning modality than the racial composition, by about twice as much. By February 2021, however, the role of partisanship had decreased while the role of race remained constant such that both factors were equally predictive of remote learning rates. What is less clear is the extent to which racial and ethnic differences in access to in-person learning reflected race-based differences in parental preferences for in-person schooling, an issue we return to in the discussion section.

One important limitation of the existing research on predictors of education policy in the pandemic era is its exclusive focus on learning modality as a measure of school operations. This has typically been operationalized as a binary measure of in-person learning (or not), share of days spent in-person, or sometimes as a categorical measure of learning modality (fully in-person, hybrid, or fully remote). Indeed, this is an important outcome given initial evidence suggests that, regardless of the potentially legitimate health risks it involved (Goldhaber et al.,

2022a), in-person learning did provide an academic advantage for students relative to remote learning, and race- and class-based in-person learning opportunity gaps appeared to contribute to widening inequality in academic outcomes (Jack et al., 2022; Goldhaber et al., 2022b). However, there are a host of other aspects of school and district operations—beyond learning modality—that affected student and teacher experience during this period. For example, there was likely substantial variation in how much support districts provided families for home-based learning, how much social and emotional support they provided for students and staff, the extent to which districts used assessments, the extent to which they provided individualized instructional supports to students, the use of synchronous versus asynchronous instruction, and health practices (e.g., social distancing, sanitation, masking). However, so far, the literature has not done much to explore these aspects of how schools operated and how students and staff experienced reopening, let alone examine the relative role of partisanship, race, markets, and public health in predicting differences in these operational characteristics.

We address these limitations by examining the predictors of school reopening modality and a broader set of characteristics of pandemic school operations in the context of Virginia where we developed a unique set of data to track these features of educational operations. These data allow us to contribute to the literature on the factors shaping educational policy in the post-pandemic-onset period in three primary ways. First, in addition to modality, we examine a variety of additional dimensions of school district operations based on original coding of a wide range of publicly available documents (e.g., reopening plans districts submitted to the state, public communications with families). Second, we go beyond an examination of the initial fall 2020 reopening decision to examine learning modality throughout the 2020-21 school year to see whether there is evidence of a more enduring role for partisanship in education policymaking

than can be gleaned from fall 2020 reopenings alone. Third, we complicate the politics versus public health narrative that has dominated the discussion so far by examining additional predictors of reopening—most notably highlighting the role of the racial composition of the district and competitive market forces—in predicting variation in modality and operations.

Beyond the availability of unique data, Virginia is a particularly interesting context in which to explore these topics for at least two reasons. First, in the period under study, Virginia was without collective bargaining. Given previous studies have shown union strength played a role nationally in predicting reopening patterns, it is useful to learn how the other key predictors—partisanship, race, markets, and public health—functioned in a context without unions, typically one of the most powerful interest groups participating actively in education policy and politics.[1] Second, relative to other states, Virginia relied on high levels of remote instruction during the 2020-21 school year. Specifically, Goldhaber and colleagues (2022b) place Virginia in the highest quartile among all states of 2020-21 weeks spent in remote learning. Jack and colleagues (2023) report Virginia had the lowest mean percentage of 2020-21 spent in the fully in-person learning mode (9 percent) of the 12 states in their analysis (versus a state-level mean of 48 percent). Therefore, an examination of school operations beyond the reopening modality may be especially important in this context.

Data and Measures

Reopening Year Operations Data

To measure district operations in 2020-21, we collected and coded a variety of publicly available documents generated by each school district to describe and communicate to the public their operations and operational changes throughout the year. Our first wave of data collection

[1] Prior to May 1, 2021, Virginia prohibited public sector employees from unionizing and engaging in collective bargaining. Teachers could form and belong to associations that lobbied on their behalf.

included the mandatory reopening plans submitted by all 132 districts to the Virginia Department of Education (VDOE) in advance of the fall 2020 reopening. In the second wave, we supplemented the original reopening plans with updated plans submitted to the VDOE later in the 2020-21 year and by searching each district's current website and using The Wayback Machine, an internet archive, to locate documents providing updated information about districts' reopening operations throughout 2020-21. We also combed through each district's Facebook pages and Twitter feeds. The first wave of data collection yielded one or two documents for each district (some put their health plan in a separate document), while the second wave yielded a total of 1,062 documents for analysis, an average of 8 documents per district ranging from 2 to 26. Across waves, we observed that district reopening documents varied with respect to length, number, clarity, and features of reopening addressed. It is important to note that these documents measure what districts communicated to the VDOE, parents, teachers, and the broader public about their intentions for school operations and, therefore, might not reflect what occurred in fact in each district (especially if the district did not release another document updating their operations). Results using these data, therefore, are best interpreted as measures of what districts emphasized and communicated which are likely related to what districts actually did.

We analyzed these documents again in two waves, starting with the initial fall 2020 reopening plans and then reviewing these again along with the documents released throughout 2020-21. For each wave, we developed and iteratively refined sets of a priori codes that were grounded in the work of other research teams as well as theory around features of district reopening that had the potential to impact student outcomes, adapting these codes to fit the Virginia context. The second wave of codes prioritized features of district operations that we wanted to track throughout 2020-21. In particular, we relied on the codes used to generate the

COVID-19 Response Database at the Center for Reinventing Public Education (CRPE), a national research organization that was one of the few that attempted to collect information on district operations–at least for 100 large and urban districts–in the wake of COVID-19 in real time (e.g., Gross, Opalka, & Gundapaneni, 2020). The codes we adapted from this source fell into eight rough categories related to family engagement, equity, instruction, technology, public health, and staff support. We detail these codes in appendix Tables A1 and A2.

The first wave included 72 codes, and the second wave included 77 codes. Given the volume of data collected, our team included a total of 19 unique coders – 9 in the first wave and 14 in the second (four of the coders in both waves). In both waves we used descriptive coding to tag segments of text and recorded the content of the text for each code as a categorical indicator, with selected text entry follow-up for some codes in a separate document (Saldaña, 2013). In each wave a lead coder led an initial coder training to establish common understandings of the codes and indicators, maintained a shared codebook, and led weekly coding meetings to reach consensus on all coding decisions for documents coded by the whole group, small groups, or pairs - approximately half of the documents were coded by more than one coder. We used this process to establish interrater reliability and reached a minimum of 80% coding agreement prior to consensus discussions for the first wave and 90% for the second wave before proceeding with solo coding of documents. We then collapsed the coding from all the individual documents to the district level. The lead author took the first pass at this effort, then the co-authors provided feedback on the decision rules that informed updates to the final collapsed variables.

Using the resulting data, we undertook Principal Component Analysis (PCA) that led us to eliminate a small number of items that ultimately did not fit in our theorized PCA models. Most of these eliminated items were heavily skewed and therefore were not capturing much

meaningful variation. In other cases, we eliminated a few items for which we did not have a strong theoretical basis for their inclusion in a particular component. For example, we eliminated items that measured whether districts gave detailed information about instruction in each of the learning modalities, in part because they did not fit within any of our constructs neatly and in part because we determined that they were better captured by the learning modality tracking data. This process resulted in eight constructs representing various facets of district operations. We ran a separate PCA for each of the eight constructs. Given our items were either binary or ordered categorical, we conducted our PCA on a mixed correlation matrix of all items that included tetrachoric and polychoric correlations, depending on the type of variable. Empty cells were corrected for continuity by using a value of 0.5. Each of the PCAs had relatively large and positive loadings for all items, with similar magnitudes across items, and only a single component with eigenvalue greater than one. The constructs and individual indicators are listed in Table 1 along with the item loadings and fit statistics. In Table 2 we show that none of the constructs have a correlation greater than 0.37 with another construct.

The first construct is “family engagement” which assesses the extent to which the district emphasized engaging with students’ families. Example indicators related to whether the district stated that they used family feedback to inform reopening plans, provided families with guidance for learning at home, and recommended check-ins with families at the start of the school year. The second construct, “SEL support”, measures how much a district emphasized providing social and/or emotional learning supports to students or staff. Indicators included, for example, whether the district stated that it would provide SEL supports for students, that schools were expected to provide counselors or social workers, and acknowledged the SEL needs of staff. The third construct, “assessment use”, captures the emphasis districts placed on assessments, including

whether they stated there was a plan to assess student learning in the fall and/or to monitor progress throughout the year. Fourth is "expectations" meant to capture the extent to which districts emphasized the expectations they had for students and teachers. These expectations addressed issues such as whether schools were required to provide students with grades, teachers were required to provide feedback on student work, and named a required number of instructional minutes. "Teacher professional development" is the fifth construct meant to measure the extent to which districts emphasized instructional supports for teachers. These include topics such as offering pandemic-specific instructional professional development or providing coaching for teachers in the remote setting. The sixth construct is "health protocols." It assesses the extent to which districts emphasized the health precautions they were taking in the reopening year, such as sanitation, providing personal protective equipment (PPE), requiring face masks in instructional spaces, training staff on health best practices, and more. Seventh is "technology support" which includes items measuring whether districts said they would provide home-based internet for all students who needed it, devices for a majority of grades, and traditional tech support for at-home learning. The final construct is "learning needs support" meant to capture the extent to which districts indicated they planned to provide students with services designed to address the negative impacts of pandemic-related disruptions to learning such as extended learning time, tutoring, and synchronous instruction.

Learning Modality Data

To track how the learning modality offered to students changed throughout the year, we constructed a district-by-grade-by-day database. The initial source of information were the documents described above. Three coders recorded the weekly attendance rotation (a series of five letters, one for each day, indicating which, if any, students were offered in-person learning)

and the day the rotation went into effect. Next, the coders scoured each district's websites, Facebook pages, and Twitter feeds for additional information on changes. As a check on the completeness of the database, the coders took advantage of the fact that the typical district announcements of a change indicated the current attendance in effect. In the few cases where this did not match the rotation in the database, the coders conducted a targeted search for when the current rotation began. The coders also recorded changes that resulted in the district closing for a day or more, which sometimes occurred after a COVID-19 outbreak.[2] They also consulted each district's calendar to identify the first and last day of the year and school holidays and breaks.

Each attendance rotation mapped onto one of three learning modalities. There was one attendance rotation for the fully in-person modality (AAAAA, indicating that all students could attend in-person five days a week) and one rotation for the fully remote modality (XXXXX, indicating that no students could attend in-person on any days of the week). All other rotations indicated some sort of hybrid learning in which students could attend in-person on some days and remote on other days. An example is the ABABR hybrid rotation. This indicates the district divided the grade into two groups (A and B) and that Group A could attend school in person on Monday and Wednesday while Group B could attend in person on Tuesday and Thursday. Each group learned remotely on the days their group did not attend school in person, and both groups learned remotely on Friday.

This uniquely rich database allowed us to create multiple measures of learning modality as shown in Table 3. These included the percentage of the year the district operated in each modality as well as the percentage of the year students were offered in-person learning. This

[2] We did not document changes that impacted less than half of a grade in a district. For instance, if a district closed one of its three elementary schools because of an outbreak, then our data does not reflect this change. These instances of selective within-grade closures and changes were rare.

final measure counts the days in the fully in-person modality as well as the in-person learning days from the hybrid modality. For example, students had access to two days of in-person learning under the ABABR hybrid rotation, four days under the AARAA rotation, and 1 day under the ABRCD rotation. We applied weights to each grade when calculating these percentages so that the measures represent the learning modality offered to the average student in the district. Two additional measures count the number of days when the district made a change to any grades' attendance rotation and the number of days when that change resulted in movement across the three modalities.

Predictors Data

We relied on data from a variety of sources to measure the predictors of district learning modality and reopening year operations, summary statistics for which are in Table 4. First, our measure of partisanship is based on the share of a given school district's voters that voted for the Republican candidate (Donald Trump) in the 2016 Presidential election. These data were obtained from the Virginia Department of Elections website. In Virginia, voting precincts generally are all within a single school district which allowed us to calculate voting information at the school district level.

We obtained public health metrics from the Virginia Department of Health website. These included measures of cumulative county- and city-level counts of COVID-19 cases, hospitalizations, deaths over the period from the earliest reports in spring of 2020 through late 2021. We prioritized hospitalizations on the theory these were more accurate than case counts and, especially early in the pandemic, were more numerous than deaths. Counties and cities were then mapped onto school districts. (In Virginia, cities are independent from counties. The two towns with separate school districts were mapped to the county in which the town is located.)

We then used the overall population size of the district to generate measures of hospitalizations per 100,000 residents as of August 15th, 2020 and January 15th and April 15th, 2021.

Data on the demographic characteristics of the school-going population such as the share of Black, Hispanic, and economically disadvantaged students, and enrollment counts are publicly available from the VDOE. We use data from 2018-19, the last pre-COVID school year. Finally, we obtained information on the share of students enrolled in private schools within each district as of the 2019-20 school year from the National Center of Education Statistics website. These data helped us capture the role of market-based competition in school reopening decisions.

Analytic Methods

To assess the relative predictive power of various district characteristics on reopening and operational decisions, we rely on multiple regression which allows us to test the role of each predictor, holding all the other predictors constant. More specifically, we fit the following model:

$$Y_d = \beta + \alpha P_d + \gamma H_d + \delta' R_d + \lambda' X_d + \varepsilon_d$$

Here, Y_d is an outcome related to school operations during the 2020-21 school year for district d such as the percentage of the year spent learning in person or the standardized component score for the extent of social-emotional learning support represented in publicly available plans. P_d represents the partisan makeup of a district (share that voted for the Republican candidate) in the 2016 Presidential election. H_d is our public health measure, the number of COVID-19 hospitalizations per 100 thousand residents. R_d represents the racial and ethnic composition of the district in fall 2019, including a measure of the percentage of the student population identified as Black and the percentage identified as Hispanic. X_d is a vector of additional district-level baseline characteristics, including the percentage of students classified as economically

disadvantaged, the district's student enrollment, the share of students in the district enrolled in private schools, and annual per pupil expenditures (2018-19).

We run two versions of our model for each outcome, one with unstandardized predictors to allow for substantive interpretations of the coefficients and another with standardized predictors for a comparison of magnitudes across predictors. The latter allows us to test the relative role of each factor compared to the others. We do not cluster standard errors as data are at the district level. Prior to including them in models, we log transformed predictor variables that were not normally distributed, including our measures of COVID-19 rates, percent Hispanic, district enrollment, private school enrollment, and educational expenditures. We follow West (2022) and add a small constant to all values of the log transformed variables to avoid a situation where observations with a value of zero are dropped during the log transformation process.

Findings

Describing Virginia's School Districts

We provide district-level descriptive statistics in Table 4 for all 132 school districts in Virginia. The average district served 9,777 students across 15 schools and had a majority-White student population where 22 percent of students identified as Black and 10 percent Hispanic. In the average district, a little less than half—47 percent—of students were economically disadvantaged and per pupil spending was $12,220 prior to the pandemic in 2018-19. On average, seven percent of students were enrolled in private schools in 2019-20. Sixty percent of districts were classified as rural. By mid-August 2020, there were an average 89 COVID-19 hospitalizations per 100 thousand residents at the district level. This increased to 247 hospitalizations in January 2021 and 353 in April 2021. Finally, in the average district, 55 percent of voters cast their ballot for the Republican Presidential candidate (Trump) in 2016.

In Table 3 we provide summary statistics for the learning modality outcomes we analyze, showing that the average district provided in-person learning for 41 percent of the 2020-21 school year. This is largely due to the common use of the hybrid learning modality, which involved some in-person learning. We observe only 7 percent of the year was spent in the full in-person learning modality for the average Virginia district. Over the course of the 2020-21 year, the average district experienced two changes in learning modality (remote, hybrid vs. fully in-person) and two changes to the rotation patterns for how districts rotated through student groups.

Predictors of Learning Modality

We begin by examining the relationships between district characteristics and the share of the 2020-21 school year spent learning in person, the share spent in each of three modalities (fully in-person, hybrid, fully remote), and the number of rotation and modality changes. In Figure 1, we visually display unconditional bivariate relationships between the percentage of the year spent learning in-person and key measures of partisanship, public health, and race/ethnicity. We find that the partisan makeup of a district was predictive of how much opportunity students had to learn in person in that district throughout the 2020-21 school year. More specifically, districts with a larger share of residents who voted for a Republican candidate prior to the reopening year spent a larger percent of 2020-21 learning in person. This was true even after controlling for other district characteristics measured prior to the reopening year including the percentage of economically disadvantaged students, district size, private school sector size, and per pupil expenditures, as we show in Table 5. More specifically, an additional percentage point of Republican vote share was associated with an additional 0.51 percentage point of the year spent learning in person. This seemed to be driven primarily by differences between time spent in a hybrid vs. fully remote modality as the fully in-person modality was quite rare.

We find that the racial and ethnic composition of districts was also predictive of reopening decisions. As we show in Figure 1, districts serving larger concentrations of Black and Hispanic students offered less in-person learning. The direction of these relationships remained, even after controlling for the district's partisan makeup along with other district characteristics. More specifically, a one-percent greater share of Black students was associated with 0.28 fewer percentage points of the year spent in person. The relationship for percent Hispanic remains negative but is smaller than the magnitude for percent Black and is not statistically significant using the multivariate model. When we examine the results using standardized predictors (column 2 of Table 5), we see that the racial composition of the district—specifically the share of Black students—was only slightly less predictive of time spent in person as partisanship. Districts serving a larger share of Black students were offered less time in a hybrid learning mode and offered more time in the fully remote mode than students of other racial groups.

We observe a negative unconditional relationship between baseline COVID-19 hospitalization rates and the percentage of the year the district offered in-person learning (see Figure 1), where a higher hospitalization rate predicts less opportunity for in-person learning. However, once we control for the other district characteristics, our measure of public health is not a statistically significant predictor of the percentage of the year the district offered in-person learning and the magnitude of the relationship is smaller than that for partisanship and for the share of Black students. Districts with higher hospitalization rates made less use of the hybrid mode and more use of the fully remote mode, although neither of these relationships achieves statistical significance using the multivariate model.

The district characteristics we examined were not associated with differences in the number of changes to learning modality or rotation patterns during the 2020-21 school year. The

share of economically disadvantaged students served by a district, the share in private schools and the annual expenditures were not predictive of any of the learning modality outcomes.

The analyses we have presented so far pool outcomes for the entire 2020-21 year which obscures some interesting differences over time. We illustrate these differences in Table 6 where we display results from the same models described above but where we replaced the outcome with information on the percentage of in-person learning at three particular points in time (during the months of September 2020, February 2021, and May 2021), alongside the pooled results for the 2020-21 year as a whole in the right-most columns for comparison. For each column we replace the measure of COVID-19 incidence with a measure of the cumulative COVID-19 rates on the 15th of the month prior to the month in which the outcome was measured.

As we show in the first two columns, COVID-19 rates did predict the extent of in-person learning in the initial reopening, as did partisanship and the shares of Black and economically disadvantaged students served by a district. Partisanship was the strongest predictor with the COVID hospitalization rates and the shares of Black and economically disadvantaged students having similar predictive power in fall 2020. By February 2021, the only significant predictors were partisanship and the share of Black students, and their magnitudes were very similar. The relationship between the COVID-19 rate and in-person learning was much smaller than in September and not statistically significant. The R-squared for the February 2021 was slightly higher than in September 2020.

By May 2021, our predictors do a poorer job explaining variation in how much in-person learning districts offered as evidenced by the smaller R-squared. The magnitude of the partisanship, public health, and race/ethnicity predictors are all smaller for the May outcome than at the two earlier time points. This was likely due to the fact that on February 5th Governor

Northam ordered districts to begin offering at least some in-person learning by March 15th. We show this shift towards more in-person learning in the kernel density plot in Figure 2. Interestingly, only the share of Black students in a district remains a statistically significant predictor of in-person learning in May 2021. Neither partisanship nor COVID-19 hospitalization rates appeared to play a role in predicting in person learning by May 2021.

Predictors of Reopening Year Operations

Next, we turn our attention to the relationship between district characteristics and the features of district operations beyond learning modality, as captured by our coding of district operations documents released throughout the 2020-21 school year. In Table 7 we report unconditional bivariate correlations between each of the district characteristics and the measures reopening year operations identified via PCA. In general, the larger the share of voters supporting the Republican candidate, the lower the district's average emphasis on the reopening operations we measured. More specifically, heavily Republican districts were less likely to emphasize family engagement, SEL supports, expectations, teacher professional development, technology support, and learning needs support, although only some of these correlations achieve statistical significance. The main exception is that the greater the Republican vote share, the greater the emphasis on health protocols which could reflect the fact that Republican districts were more likely to reopen for in-person learning and therefore may have been more focused on health protocols than those districts that relied on more remote instruction. These correlations for the COVID-19 hospitalization rates are nearly always the opposite sign as those for the partisanship measure. Districts with higher hospitalizations rates gave greater emphasis to family engagement, teacher professional development, and technology support.

When it came to the racial and ethnic composition of the districts, systems serving a greater share of Black students were less likely to emphasize health protocols and more likely to emphasize family engagement and technology support. Almost none of the correlations based on the share of Hispanic students, share of economically disadvantaged students, district size, or per pupil expenditures reach statistical significance. Interestingly, the percent of students served by private schools was positively correlated with district emphasis on family engagement, SEL support, assessment use, expectations, technology support, and learning needs support, though again only some of the correlations achieve statistical significance.

Of course, many of these district characteristics are correlated with one another, motivating our multivariate regression analysis, the results of which we report in Table 8. Once we include all predictors in a single model, virtually none of the individual predictors remain statistically significant. In other words, district characteristics prior to the reopening year were less predictive of these measures of district operations than of learning modality. The R-squared for models predicting district reopening characteristics were between 0.04 and 0.14 whereas the R-squared for our model predicting in-person learning was 0.54—nearly four times higher than the highest reopening model. We estimate that given our sample size and number of predictor variables, we have 0.80 power to detect a minimum "effect" of 0.10 at $p < 0.10$. Therefore, the lack of predictive relationships does not simply seem to be because we are underpowered to detect effects. A few relationships are significant, however. Districts with a higher Republican vote share were less likely to emphasize family engagement, and districts with a greater share of economically disadvantaged students gave less emphasis to teacher professional development.

The most noteworthy finding from Table 8 concerns the share of students enrolled in private schools which significantly predicts district emphasis on a number of reopening

operations. Specifically, districts with a greater concentration of private school students were more likely to emphasize assessment use, expectations, and technology support (all correlations that achieve statistical significance). There is also a positive relationship with family engagement, SEL support, and learning needs support but none are statistically significant. In results shown in appendix Table A3, we confirm that our findings on the predictors of district operations are not due to variation in time spent learning in-person by running our model after controlling for various measures of access to in-person learning throughout the year.

Robustness Checks

We also estimated models using alternative specifications to assess the sensitivity of our results regarding the role of partisanship, public health, and race in districts' learning modality and operating decisions. (Results available from authors on request.) First, we replaced our preferred measure of partisanship based on the 2016 Presidential election with the Republican vote share for the more recent 2018 contests for U.S. Senate and U.S. House of Representatives as well as 2019 races for State Senate and State House of Delegates. Second, we estimated models using alternate public health measures—COVID-19 case and death rates. Finally, instead of using a district's student population characteristics, we leveraged similar characteristics of the district's residents. To measure the populations' characteristics, we gathered county- and city-level data from the U.S. Census Bureau website on racial/ethnic composition, poverty rates, median household income, and percent 25 and older with at least a Bachelor's degree as of 2019. County- and city-level data on the unemployment rate from 2015 to 2020 came from the BLS website. OTresults were not sensitive to any of these alternate measures.

Discussion

The long-term impacts of the COVID-19 pandemic on students, teachers, and schools will depend in great part on how districts and schools operated in the first full school year following the pandemic's onset. Much emphasis has been placed on the relative role of political partisanship, above and beyond the role of public health risks, in determining the extent of in-person learning offered. Leveraging rich, original data on district operations, our analysis explored a wider range of school operations—likely to have impacted the experiences of students, families, and teachers—and highlighted how they varied in the Commonwealth of Virginia. Our findings expand upon the existing literature regarding the roles of partisanship, public health, race and ethnicity, and markets in predicting district operations.

We accomplish this by leveraging a rich original dataset unlike those analyzed in prior research. Whereas much of the literature on learning modality only considers initial reopening decisions in fall 2020, we also examine this decision at two other time points and for the year as a whole. Our data allow us to examine the percent of the year the district offered either of the three modalities (fully in person, hybrid, or fully remote) but also to exploit the heterogeneity of the hybrid modality to create a measure of the amount of in-person learning offered to the average student in each district. This metric, calculated using daily measures of learning modality, provides a more accurate picture of modality than the more commonly-used weekly measures. Furthermore, unlike prior work, our analysis considers other district-level decisions that theoretically impacted teachers and students from their emphasis on family engagement to social-emotional supports to teacher professional development to learning needs support, and more. These measures also reflect the full year, rather than just the districts' reopening decisions.

Our findings confirm prior research that identified partisanship as the strongest predictor of a district's learning modality. This is true when we consider district decisions during the entire

month of September as well as the full year. Our full-year results suggest this is because districts with lower Republican vote shares were more likely to embrace the fully-remote modality than were districts with higher Republican vote shares to select the fully in-person modality. We believe this highlights the value of our percent in-person learning measure as it captures all the ways in which the hybrid modality was implemented (Sachs et al., 2022). Our findings also echo other recent papers in that we observe that the role of partisanship diminished over the course of the year. In Virginia, this coincided with Governor Northam's mandate that all districts offer at least some in-person learning. The predictive strength of partisanship lends support to the theory that education policy's insulation from partisan politics is on the decline.

However, the partisan makeup of a district did much less to predict aspects of district operations beyond learning modality. Of the other dimensions of operations, partisanship was only a significant (negative) predictor of family engagement. Districts with a greater Republican vote share were less likely to gather feedback from families to inform their initial reopening plan, to provide families guidance for learning at home, to recommend check-ins with families before the start of the school year, and to commit to sharing learning data with families. Why this is, we cannot be sure, but our analysis does rule out these districts' lower reliance on remote learning as the reason. It could be that these districts served populations that were more determined to carry on with life as it was before the pandemic. Under that mindset, districts could be reacting to their families' preferences by not engaging with them on pandemic-related tasks like drafting a state-mandated reopening plan, emphasizing learning at home, or offering start of the year check-ins.

Public health—specifically, COVID-19 prevalence—was the second largest predictor of how much in-person learning districts offered at the start of the school year; however, this was not predictive at other points during the year or of other operations. This may suggest that

COVID-19 statistics heading into the start of the school year influenced how families balanced COVID-19 precautions on one hand with in-person learning on the other. As the year progressed, decisions about in-person schooling may have become less connected to actual COVID-19 rates and more to perceptions of safety and risk that were already formed. It is important to note that both the public health and learning modality measures followed a dynamic process throughout the year. That process could involve modality decisions including the spread of the disease. Our analysis is not able to model this complex relationship. It is possible that districts were responsive to case rates in their local communities when deciding whether to reopen or remain open in-person, for example, during the winter of the 2020-21 year. The type of longitudinal analysis required to capture this responsiveness is beyond the scope of the current paper.

The racial and ethnic composition of a district, specifically the percentage of Black students served, was the only district characteristic that significantly predicted in-person learning at all three time points we examine. The magnitude of the negative association between a district's percentage of Black students and in-person learning grew between September 2020 and February 2021 when it is the largest predictor. And while the magnitude shrank in May 2021 to below the size of the September 2020 association, race remained a significant predictor and was the only significant predictor of in-person learning in Spring 2021. The coefficient on the percentage of Hispanic students, while never a significant predictor of the percent of in-person learning, was always the same direction as the percent of Black students. Neither were significant predictors of any of the other district operations.

It is not yet clear how much of these racial differences in in-person learning offerings reflected race-based differences in families' preferences for learning modality versus variation in the preferences of district leaders over how much in-person learning to make available to

families depending on the racial composition of the community, regardless of those families' preferences. The answer based on the emerging literature appears to be a bit of both. First, several national surveys show Black and Hispanic parents expressing greater hesitancy about in-person learning and/or stronger preferences for a remote option than White parents, on average, through the 2020-21 school year (Collins, 2021; Haderlein et al., 2021; Rapaport et al. 2020). Several observers have hypothesized that the tragically higher rates of COVID-19 exposure and death among Black and Hispanic citizens than among White citizens could explain racial/ethnic differences in concern about the health risks associated with a return to in-person schooling.

Scholars have provided survey-based evidence on a variety of reasons behind families' learning modality preferences. Polikoff et al. (2021) illustrate that the primary reasons parents reported for hesitance about in-person learning in July 2021 were related to concerns about (a) health and safety risks as well as (b) beliefs about their child being happier or more successful at home versus at school. It is not clear how much of these concerns and/or beliefs were connected to COVID-19 or other heightened concerns about safety and climate disproportionately affecting students of color. Camp and Zamarro (2021) more directly tackle the issue of ethnic differences in modality preferences and find that both the extent of local outbreaks in a respondent's community and their own personal perceived risk from COVID-19 play a sizeable role in explaining differences in families' use of in-person options, even controlling for other factors such as availability of in-person learning and partisanship. Similarly, using a mixed methods analysis of a December 2020 nationally representative survey, Calarco and colleagues (2021) find racial disparities in disease risk help explain race-based differences in parental choice of in-person instruction. However, they also reveal through an analysis of open-ended responses that parental availability for home-based learning support seemed to play a role. In short, because

Black and Hispanic parents were less likely to be employed during the pandemic than White parents, they were more likely to report being available to provide support for remote instruction at home, "allowing them to center health risk in their decision-making." Another mixed methods analysis shows the importance that parental work and childcare needs played in shaping preferences for in-person learning (Cotto & Woulfin, 2021). Overall, parental preferences appeared to play a role in explaining racial differences in in-person learning availability.

That said, access to in-person learning also appeared to play a role, beyond parental preferences. Based on the Camp and Zamarro (2021) and Calarco et al. (2021) studies, it appears that lower levels of availability of in-person learning options in communities serving larger concentrations of Black and Hispanic students was predictive of which types of learning modalities students experienced, even after controlling for parents' self-reported concerns about health risks, actual COVID-19 rates, and parental availability for learning support. Kogan (2021) also points out that racial disparities in access to in-person instruction may have itself contributed to race-based differences in preferences for in-person learning. For example, perhaps school closures provided a signal from educational leaders to parents suggesting either that reopening was unsafe or that in-person learning was not particularly important (or both).

Regardless of the reasons, Black and Hispanic students had less access to in-person learning during the reopening year, raising serious concerns about persistent ethno-racial inequality in educational outcomes. Evidence is emerging that academic performance declined more among students who spent less time learning in-person (e.g., Fahle et al., 2023). In Virginia, the average White student had access to in-person learning for 39.2% of the year compared to 28.3% for Black and 27.2% for Hispanic students (Sachs et al., 2022). This likely contributed to the widening difference in math and reading test performance between White and

Black and Hispanic Virginian students in the first pandemic year (Miller & Schueler, 2022), along with other unequal impacts of the pandemic beyond differences in learning modality. Therefore, regardless of the merits of reopening decisions, the pandemic made an already unacceptable educational situation worse.

Our findings also contribute new evidence on the role of market pressures in district operations during the reopening year. Although not predictive of learning modality, the private school sector's market share was predictive of several other dimensions of district operations. The greater the market share in a district, the greater the emphasis that district placed on assessment use, expectations, and technology support in its public documents. This potentially suggests that market-based competition played a role in driving public school district operations in the reopening year even more so than it drove learning modality decisions. This is consistent with earlier findings that among students in the Virginia public school system there was a non-trivial increase in the share of students exiting for private schools from pre-pandemic times to the first post-pandemic onset year (Schueler & Miller, 2022).

The most significant overarching theme from our analysis is that this set of district characteristics—partisanship, race, markets, and public health—had much greater explanatory power with respect to learning modality than district operations. We suspect this may be due to the highly visible and consequential nature of the learning modality decision. The decision to shift to remote instruction, even for a short period of time, immediately impacts every family who now must adjust their schedule to accommodate care for their children and support at home learning throughout the day rather than just in the evening. This impacts their employers and businesses that rely on parents working from the office. A community notices when bus stops stay empty and school buses disappear from the streets. On the flip side, perceived health risks

for students and teachers were likely more salient when it came to the decision to offer in-person learning than for other features of school operations. As a result, more external voices may have contributed to districts' learning modality decisions. On the other hand, the other operations address more internally focused procedures such as assessment use and professional development for teachers. During the reopening year, the general public's attention was not yet trained on the internal workings of schools as it became the following year and remains so. Perhaps this allowed these decisions to be made based on the educators' understandings of students' and teachers' needs, more free of external forces than for modality decisions.

Conclusion

Partisan polarization has seeped into a greater number of policy domains in recent decades, even in education where the local governance structure was designed to insulate policymaking from national partisan politics. Scholars have shown the partisan makeup of a community played a significant role in shaping the learning modality districts used when reopening in the first fall after the pandemic's onset but until now had not yet examined whether it predicted other consequential characteristics of educational operations in this period. We studied the relative role of partisanship, race, markets, and public health in predicting reopening modality and examined a range of additional characteristics of school operations in the first full school year after the pandemic's onset (2020-21) gleaned from reopening plans and other public updates districts released throughout the year in the context of Virginia. Our results emphasize the role of partisanship, race, and markets in reopening decisions but also suggest that school operational decisions were not as politicized as the choice of learning modality.

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Table 1. Items Contributing to District Reopening Operations Characteristics Components, SY 2020-21

Family Engagement	**Wave**	**Load**
Feedback informs plans	Fall 2020	0.53
Guidance provided for learning at home	Fall 2020	0.75
Family check-ins recommended before start of year	Fall 2020	0.73
Learning data will be shared	Fall 2020	0.64
SEL Support	**Wave**	**Load**
Acknowledges SEL needs of students	2020-21	0.88
Provides SEL supports for students	Both	0.88
Schools expected to provide counselors/social workers	Fall 2020	0.55
Acknowledges SEL needs of staff	2020-21	0.92
Provides SEL supports for staff	2020-21	0.90
Partner organizations deliver SEL services	Fall 2020	0.43
Health Protocols	**Wave**	**Load**
Changed building practices for physical distancing	Fall 2020	0.96
Changed building sanitation protocols	Fall 2020	0.94
Provides guidelines for transportation health protocols	Fall 2020	0.83
Provides guidelines for food service health protocols	Fall 2020	0.83
Provides guidelines for behavioral norms for health	Fall 2020	0.93
Supplies PPE for all employees	Fall 2020	0.63
Requires face masks in instructional spaces	Fall 2020	0.78
Plan for determining future rolling school closures	Fall 2020	0.60
Updated sick leave policy for COVID-19	Fall 2020	0.70
Guidance provided for health	Fall 2020	0.54
Health data will be shared	Fall 2020	0.63
Provides staff training for health best practices	Fall 2020	0.67

Assessment Use	**Wave**	**Load**
Plan to assess student learning in the fall	Both	0.69
Plan to monitor academic progress through the year	Both	0.91
Specified assessment to be used for monitoring	2020-21	0.85
Expectations	**Wave**	**Load**
Reiterated schools required to take attendance	Fall 2020	0.70
Defines attendance in remote setting	2020-21	0.69
Schools required to provide grades	Fall 2020	0.80
Requires teacher feedback on student work	Fall 2020	0.79
Names required minimum instructional minutes	Fall 2020	0.59
Teacher Professional Development	**Wave**	**Load**
Offered COVID-specific instructional PD	Fall 2020	0.70
Provides coaching to teachers in remote setting	Fall 2020	0.84
School day time set for PD, planning or collaboration	Fall 2020	0.69
Tech Support	**Wave**	**Load**
Provides home-based internet for all students in need	Both	0.77
Majority of grades provided devices for all students in need	2020-21	0.77
Provides tech support for at-home learning	2020-21	0.57
Learning Needs Support	**Wave**	**Load**
Plans to offer summer school or ELT	Both	0.65
Plans to provide tutoring	Both	0.58
Majority of grades provided synchronous instruction in remote mode	Both	0.45
Provides interventions based on learning needs diagnostic	Fall 2020	0.64

Note: Each row provides a summary of the item and the reopening plans that contribute to the coding of the item (e.g., Fall 2020 Reopening Plan, 2020-21 Amendments to Reopening Plans, Both), as well as loadings for each item.

Table 2. Correlations Between District Reopening Operations Characteristics

	Family Engage-ment	SEL Support	Assess-ment Use	Expecta-tions	Teacher PD	Health Protocols	Tech Support
Social-Emotional Learning Support	0.33**						
Assessment Use	0.25*	0.27*					
Expectations	0.32**	0.15	0.24*				
Teacher Professional Development	0.37***	0.27*	0.24*	0.27*			
Health Protocols	0.03	0.14	0.04	-0.03	-0.02		
Technology Support	0.30**	0.18+	0.21+	0.28*	0.18+	0.00	
Learning Needs Support	0.15	0.20+	0.37***	0.28*	0.17	0.03	0.23*

Note: + = .10, * = .05, ** = .01, *** = .001

Table 3. Reopening Characteristics for School District Communities, SY 2020-21

Characteristic	Mean	SD	Min	Max
N Days in Session	177.35	5.11	161.00	186.00
% Days In-Person, Whole Year	41.39	20.63	0.00	95.88
% Days In-Person, Sept. 2021	22.98	28.03	0.00	100.00
% Days In-Person, Feb. 2022	39.32	27.82	0.00	100.00
% Days In-Person, May 2022	67.66	20.13	0.00	100.00
% Days Fully Remote Modality, Whole Year	31.79	26.98	0.00	100.00
% Days Hybrid Modality, Whole Year	61.69	28.01	0.00	100.00
% Days Fully In-Person Modality, Whole Year	6.52	16.51	0.00	95.88
N Modality Changes, Whole Year	3.10	2.46	0.00	14.00
N Attendance Rotation Changes, Whole Year	3.95	2.85	0.00	16.00

Note: N = 132 for all characteristics.

Table 4. Characteristics of School District Communities

Characteristic	Mean	SD	Min	Max
Public School District Characteristics				
Enrollment (1000s)	9.78	21.32	0.21	187.83
% American Indian or Alaskan Native	0.30	0.56	0.00	6.00
% Asian	1.85	3.09	0.00	22.13
% Black	22.06	21.57	0.00	90.23
% Hispanic	9.51	10.69	0.33	65.54
% Native Hawaiian or Pacific Islander	0.11	0.13	0.00	0.94
% White	61.03	24.70	2.74	99.02
% Two or More Races (non-Hispanic)	5.15	2.69	0.11	12.65
% Economically Disadvantaged	47.29	14.29	0.00	80.58
Per Pupil Expenditures (1000s)	12.22	2.13	9.16	20.65
Community Demographic Characteristics				
% in Private Schools (2019-20)	5.56	6.65	0.00	33.75
Public Health Characteristics				
COVID-19 Hospitalizations/100k Aug 2020	88.91	87.31	0.00	593.56
COVID-19 Hospitalizations/100k Jan 2021	246.93	136.14	0.00	999.69
COVID-19 Hospitalizations/100k April 2021	353.12	177.62	45.41	1343.33
Republican Vote Share				
2016 Presidential Election	55.22	16.35	10.53	81.97

Notes. N = 132 for all characteristics. All characteristics measured in SY 2018-19 unless otherwise noted.

Table 5. Unstandardized and Standardized Predictors of Whole Year District Learning Modality Characteristics, SY 2020-21

	% Days In Person		% Days Fully In-Person Modality		% Days Hybrid Modality		% Days Fully Remote Modality		N Modality Changes		N Attendance Rotation Changes	
Republican Vote Share (2016)	0.51**	8.31**	0.31+	5.12+	0.63*	10.37*	-0.95***	-15.50***	-0.02	-0.33	-0.00	-0.05
	(0.16)	(2.62)	(0.18)	(2.98)	(0.25)	(4.10)	(0.20)	(3.34)	(0.03)	(0.44)	(0.03)	(0.52)
COVID-19 Hosp-italizations/100k [a]	-2.30	-2.38	0.53	0.55	-3.59	-3.73	3.07	3.18	0.06	0.06	-0.04	-0.05
	(1.59)	(1.65)	(1.81)	(1.87)	(2.49)	(2.58)	(2.03)	(2.10)	(0.27)	(0.28)	(0.32)	(0.33)
% Black	-0.28**	-5.97**	0.05	1.08	-0.26+	-5.60+	0.21+	4.52+	-0.01	-0.27	-0.01	-0.30
	(0.10)	(2.13)	(0.11)	(2.42)	(0.15)	(3.33)	(0.13)	(2.71)	(0.02)	(0.36)	(0.02)	(0.43)
% Hispanic [a]	-1.00	-0.80	2.47	1.96	1.11	0.88	-3.57	-2.84	-0.55	-0.44	-0.05	-0.04
	(2.48)	(1.97)	(2.82)	(2.24)	(3.89)	(3.09)	(3.16)	(2.51)	(0.42)	(0.33)	(0.50)	(0.39)
% Economically Disadvantaged	0.11	1.62	-0.16	-2.35	0.12	1.77	0.04	0.58	-0.01	-0.19	-0.01	-0.11
	(0.11)	(1.51)	(0.12)	(1.72)	(0.17)	(2.37)	(0.13)	(1.93)	(0.02)	(0.26)	(0.02)	(0.30)
Enrollment (1000s) [a]	0.87	0.84	1.12	1.08	-2.66	-2.57	1.54	1.49	0.58*	0.56*	0.32	0.31
	(1.66)	(1.60)	(1.88)	(1.81)	(2.59)	(2.50)	(2.11)	(2.04)	(0.28)	(0.27)	(0.33)	(0.32)
% Private Schools [a]	-0.67	-0.70	-0.58	-0.61	2.23	2.35	-1.66	-1.74	-0.26	-0.27	-0.03	-0.04
	(1.34)	(1.41)	(1.52)	(1.60)	(2.09)	(2.20)	(1.70)	(1.79)	(0.23)	(0.24)	(0.27)	(0.28)
Per Pupil Expend-itures (2018) [a]	-13.36	-2.07	2.27	0.35	-20.55	-3.18	18.28	2.83	1.95	0.30	1.42	0.22
	(10.38)	(1.60)	(11.77)	(1.82)	(16.22)	(2.51)	(13.20)	(2.04)	(1.75)	(0.27)	(2.08)	(0.32)
Constant	150.42	41.39***	-33.69	6.52***	233.59	61.69***	-99.90	31.79***	-12.96	3.10***	-8.76	3.95***
	(104.50)	(1.26)	(118.48)	(1.43)	(163.38)	(1.97)	(132.97)	(1.60)	(17.61)	(0.21)	(20.91)	(0.25)
Standardized predictors		x		x		x		x		x		x
N	132		132		132		132		132		132	
R-squared	0.54		0.07		0.39		0.56		0.07		0.03	

Notes: + p < .10, * p < .05, ** p < .01, *** p < .001. Standard errors in parentheses. COVID-19 hospitalization measure was as of August 15, 2020.

[a] The variable was transformed using the natural log (x+1) to improve normality.

Table 6. Unstandardized and Standardized Predictors of Percentage of Days In-Person Learning at Specific Timepoints Throughout SY 2020-21

	September 2020		**February 2021**		**May 2021**		**Whole Year**	
Republican Vote Share (2016)	0.58*	9.42*	0.57*	9.25*	0.31	5.07	0.51**	8.31**
	(0.25)	(4.01)	(0.22)	(3.68)	(0.20)	(3.23)	(0.16)	(2.62)
COVID-19 Hospitalizations/100k [a]	-6.19*	-6.42*	-1.79	-1.19	0.01	0.01	-2.30	-2.38
	(2.44)	(2.53)	(3.02)	(2.01)	(4.05)	(1.88)	(1.59)	(1.65)
% Black	-0.29+	-6.23+	-0.44**	-9.48**	-0.22+	-4.75+	-0.28**	-5.97**
	(0.15)	(3.26)	(0.13)	(2.88)	(0.12)	(2.55)	(0.10)	(2.13)
% Hispanic [a]	-0.89	-0.70	-3.34	-2.66	-1.48	-1.17	-1.00	-0.80
	(3.80)	(3.02)	(3.14)	(2.50)	(2.76)	(2.20)	(2.48)	(1.97)
% Economically Disadvantaged	0.44**	6.23**	0.14	1.99	-0.08	-1.12	0.11	1.62
	(0.16)	(2.32)	(0.15)	(2.17)	(0.14)	(2.00)	(0.11)	(1.51)
Enrollment (1000s)	0.69	0.67	-0.80	-0.77	0.71	0.69	0.87	0.84
	(2.54)	(2.45)	(2.33)	(2.25)	(2.04)	(1.96)	(1.66)	(1.60)
% Private Schools [a]	-1.34	-1.41	0.52	0.54	-1.79	-1.89	-0.67	-0.70
	(2.05)	(2.15)	(1.88)	(1.97)	(1.64)	(1.73)	(1.34)	(1.41)
Per Pupil Expenditures (2018) [a]	3.19	0.49	-24.43	-3.78	-4.57	-0.71	-13.36	-2.07
	(15.87)	(2.45)	(15.02)	(2.32)	(12.81)	(1.98)	(10.38)	(1.60)
Constant	-25.34	22.98***	257.77+	39.32***	106.23	67.66***	150.42	41.39***
	(159.82)	(1.93)	(154.44)	(1.77)	(132.84)	(1.55)	(104.50)	(1.26)
Standardized predictors		x		x		x		x
N	132		132		132		132	
R-squared	0.41		0.50		0.27		0.54	

Notes: + p < .10, * p < .05, ** p < .01, *** p < .001. Standard errors in parentheses. COVID-19 hospitalization rates were as of the 15th of the month preceding the listed outcome (e.g., for the February outcome, we use COVID-19 rates as of January 15, 2021) and as of August 15, 2020 for the whole year model.

[a] The variable was transformed using the natural log (x+1) to improve normality.

Table 7. Bivariate Correlations Between District Baseline Characteristics and District Reopening Operations Characteristics

	Family Engagement	**SEL Support**	**Assessment Use**	**Expectations**	**Teacher PD**	**Health Protocols**	**Technology Support**	**Learning Needs Support**
Republican Vote Share (2016)	-0.31***	-0.05	0.02	-0.13	-0.19*	0.29***	-0.27**	-0.09
COVID-19 Hospitalizations/100k [a]	0.19*	0.05	-0.10	-0.05	0.15+	-0.05	0.17*	-0.02
% Black	0.23**	-0.02	-0.07	0.06	0.09	-0.25**	0.18*	-0.02
% Hispanic [a]	0.12	0.03	-0.10	-0.03	0.11	-0.07	0.14	0.14
% Economically Disadvantaged	0.01	-0.10	-0.16+	-0.07	-0.19*	-0.06	0.05	-0.16+
Enrollment (1000s) [a]	0.06	0.09	0.00	0.13	0.14	-0.13	0.11	0.20*
% Private Schools [a]	0.12	0.14	0.15+	0.22*	0.04	-0.15+	0.32***	0.14
Per Pupil Expenditures (2018) [a]	0.15+	0.08	0.02	0.05	0.02	-0.17+	0.11	0.10

Notes: + $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$. Standard errors in parentheses.

[a] The variable was transformed using the natural log (x+1) to improve normality.

Table 8. Unstandardized and Standardized Predictors of District Reopening Operations Characteristics, SY 2020-21

	Family Engagement		**SEL Support**		**Assessment Use**		**Expectations**		**Teacher Professional Development**		**Health Protocols**		**Technology Support**		**Learning Needs Support**	
Rep. Vote Share (2016)	-0.02+	-0.31+	0.00	0.04	-0.00	-0.03	-0.01	-0.18	-0.01	-0.22	0.01	0.19	-0.01	-0.19	0.01	0.15
	(0.01)	(0.18)	(0.01)	(0.18)	(0.01)	(0.18)	(0.01)	(0.18)	(0.01)	(0.18)	(0.01)	(0.18)	(0.01)	(0.17)	(0.01)	(0.18)
COVID-19 Hosp./100k [a]	0.13	0.13	0.11	0.11	-0.01	-0.01	-0.05	-0.05	0.17	0.17	0.07	0.08	0.08	0.08	-0.06	-0.06
	(0.11)	(0.11)	(0.11)	(0.12)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
% Black	0.00	0.01	-0.00	-0.04	-0.00	-0.03	-0.00	-0.03	-0.00	-0.00	-0.01	-0.13	-0.00	-0.00	0.00	0.09
	(0.01)	(0.14)	(0.01)	(0.15)	(0.01)	(0.15)	(0.01)	(0.15)	(0.01)	(0.14)	(0.01)	(0.14)	(0.01)	(0.14)	(0.01)	(0.15)
% Hispanic [a]	-0.12	-0.10	-0.12	-0.10	-0.22	-0.17	-0.27	-0.21	-0.14	-0.11	0.09	0.07	-0.09	-0.07	0.13	0.10
	(0.17)	(0.13)	(0.17)	(0.14)	(0.17)	(0.14)	(0.17)	(0.13)	(0.17)	(0.13)	(0.17)	(0.13)	(0.16)	(0.13)	(0.17)	(0.13)
% Econ. Dis-advantaged	-0.00	-0.05	-0.01	-0.10	-0.01	-0.16	-0.00	-0.03	-0.02*	-0.24*	-0.00	-0.05	0.00	0.04	-0.01	-0.12
	(0.01)	(0.10)	(0.01)	(0.11)	(0.01)	(0.10)	(0.01)	(0.10)	(0.01)	(0.10)	(0.01)	(0.10)	(0.01)	(0.10)	(0.01)	(0.10)
Enrollment (1000s) [a]	-0.04	-0.04	0.08	0.08	-0.02	-0.02	0.12	0.12	0.03	0.03	-0.11	-0.11	-0.01	-0.00	0.18	0.17
	(0.11)	(0.11)	(0.12)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
% Private Schools [a]	0.01	0.02	0.11	0.12	0.18+	0.19+	0.18+	0.19+	-0.06	-0.06	-0.06	-0.06	0.25**	0.27**	0.08	0.08
	(0.09)	(0.09)	(0.09)	(0.10)	(0.09)	(0.10)	(0.09)	(0.10)	(0.09)	(0.10)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.10)
Per Pupil Exp. (2018) [a]	0.03	0.00	0.77	0.12	0.11	0.02	-0.10	-0.02	-0.25	-0.04	-0.32	-0.05	-0.16	-0.02	1.00	0.15
	(0.70)	(0.11)	(0.72)	(0.11)	(0.71)	(0.11)	(0.71)	(0.11)	(0.70)	(0.11)	(0.70)	(0.11)	(0.69)	(0.11)	(0.71)	(0.11)
Constant	0.70	-0.00	-7.56	-0.00	-0.11	-0.00	1.98	0.00	3.53	-0.00	2.43	0.00	1.47	-0.00	-9.99	-0.00
	(7.03)	(0.08)	(7.28)	(0.09)	(7.17)	(0.09)	(7.11)	(0.09)	(7.05)	(0.09)	(7.01)	(0.08)	(6.90)	(0.08)	(7.14)	(0.09)
Stndzd. Pred.		x		x		x		x		x		x		x		x
N		132		132		132		132		132		132		132		132
R-squared		0.11		0.04		0.07		0.09		0.10		0.11		0.14		0.08

Notes: + p < .10, * p < .05, ** p < .01, *** p < .001. Standard errors in parentheses.

[a] The variable was transformed using the natural log (x+1) to improve normality.

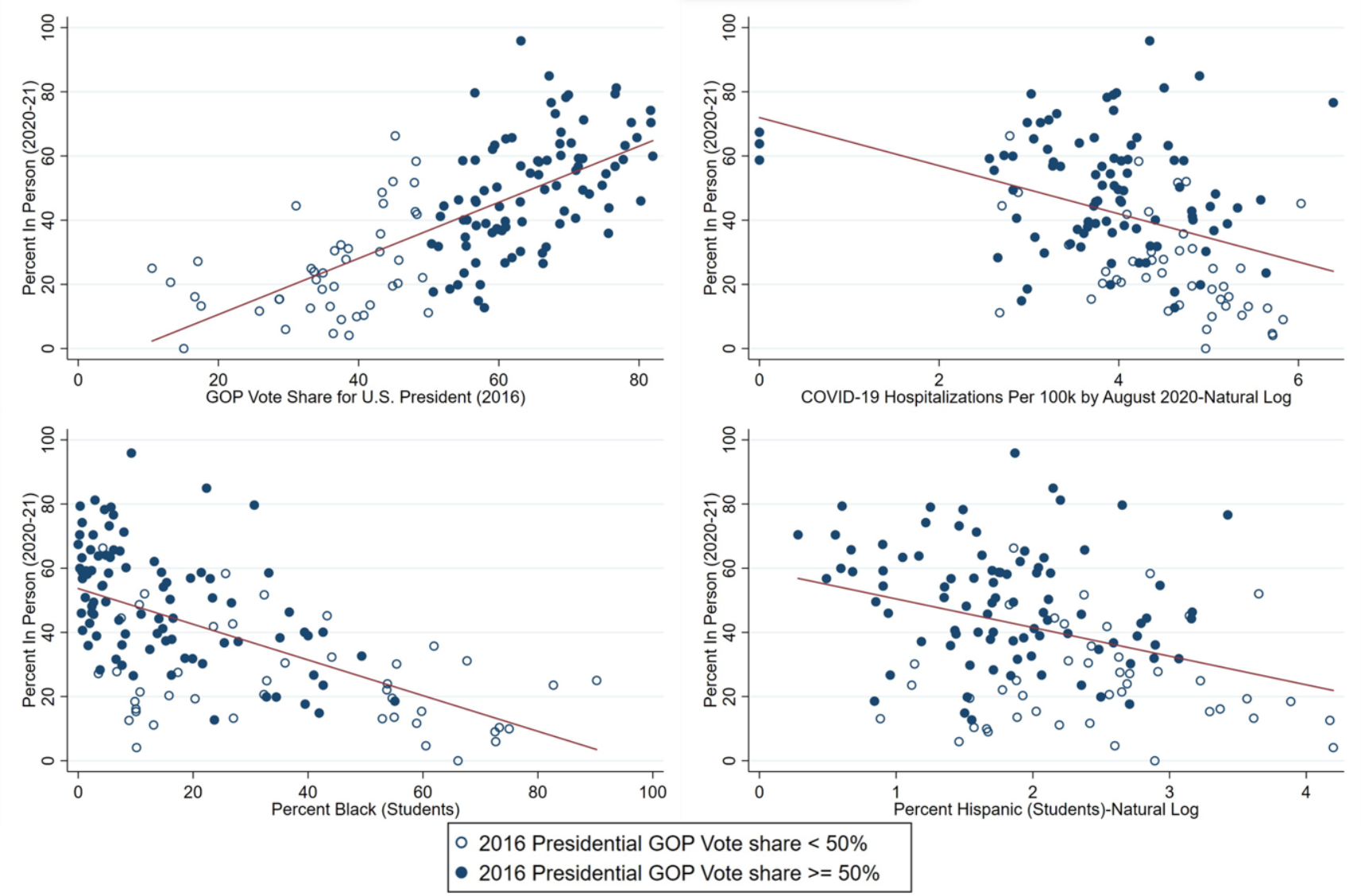

Figure 1. Unconditional bivariate relationships between percent of the 2020-21 year spent learning in person and measures of partisanship, health, and race/ethnicity.

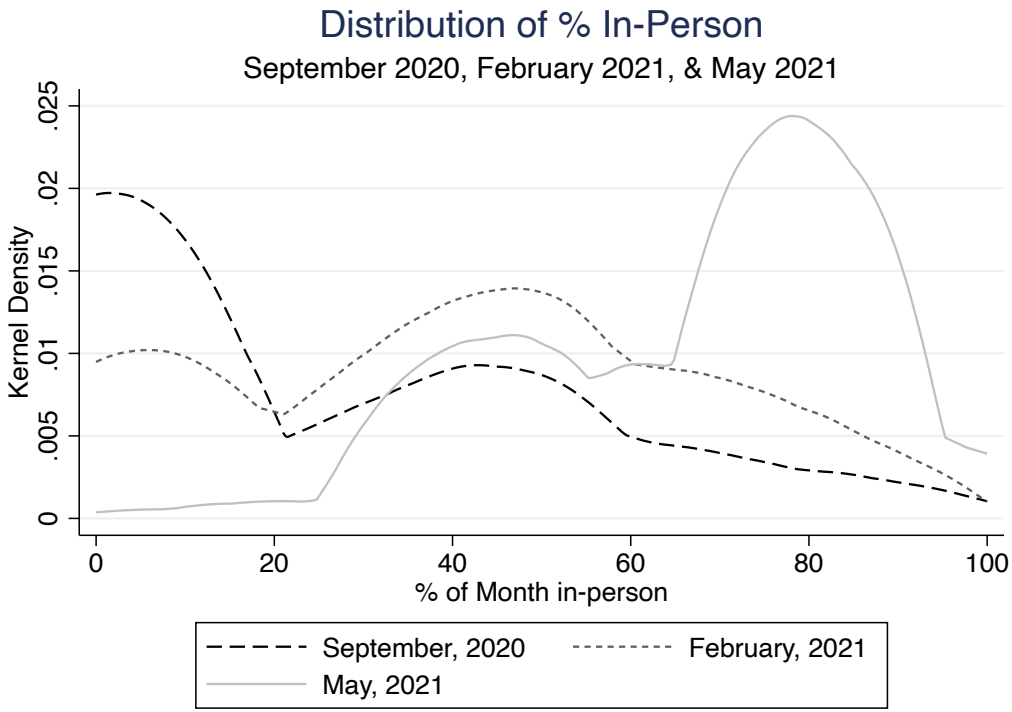

Figure 2. Kernel density plot of percent in person at three time points during 2020-21.

Appendix A.

Table A1. Wave 1 Codes by Category: Fall 2020-21 Reopening Plans

Code #	Code Description
Clear, inclusive, and regular communication	
1.1	District communicates expectation that student learning data will be shared with families
1.2	District communicates expectation that health and safety data will be shared with families
1.3	District solicits and uses feedback to inform plans for next school year (2020-2021)
1.4	District offers guidance or training to parents in how to help students learn at home
1.5	District offers guidance or training to parents in effective health and safety practices
1.6	District requires teacher-family check-ins when engaged in remote learning
Effective resource allocation	
2.1	Plan explains changes to district or school staff roles to support student learning
2.2	District plan includes partnership(s) with outside organizations to deliver services
Clear fall reopening plan	
3.1	Actual learning mode on first day of school
3.2	Actual Elementary school format per plan (assuming health and safety allow) on first day of school
3.3	Actual Middle school format per plan (assuming health and safety allow) on first day of school
3.4	Actual High school format per plan (assuming health and safety allow) on first day of school
3.5	2020-21 Calendar Changes
3.6	First day of school (2019-2020)
3.7	Last day of school (2019-2020)
3.8	First day of school (2020-2021)
3.9	Last day of school (2020-2021)
3.10	District provides detail for fully in-person learning scenario
3.11	District provides detail for fully remote learning scenario
3.12	District provides detail for hybrid learning scenario
3.13	District provides full-time remote "home choice" option
3.14	District prioritizes serving elementary students (does not include pre-K)
3.15	District prioritizes serving vulnerable populations (e.g., EL, SWD, other at-risk students)
3.16	District mentions racial equity as a priority and/or considers racial equity in which students to prioritize for services and in-person instruction

(continued)

Table A1. Wave 1 Codes by Category: Fall 2020-21 Reopening Plans (continued)

Code #	Code Description
3.17	Type of schedule modification for hybrid learning
3.18	Plan names required minimum number of instructional minutes
3.19	Minimum number of instructional minutes required per week
3.20	District has a plan to provide social, emotional, and mental health services
3.21	District expects all schools to provide access to counselors or social workers
3.22	District requires schools to take attendance
3.23	District requires schools to provide student grades
3.24	District modifies grading format
3.25	District has a plan to monitor students' academic progress throughout the year
3.26	District recommends or requires a homeroom or an advisory system across schools
Structured and meaningful 2020-21 learning plan	
4.1	District sets expectation that remote curriculum be provided for core courses
4.2	District will provide remote curriculum for all grade levels
4.3	District will provide remote instruction for all grade levels
4.4	Type of remote instruction offered to students
4.5	District expects teachers to provide feedback on student work for students engaged in remote learning
4.6	District has a plan to provide interventions or increased supports based on student learning loss diagnostic
4.7	District plans to provide tutoring to students
4.8	District has a plan for supporting high school students with college and career preparation (test prep, counseling, etc.)
4.9	District requires teacher/student check-ins when engaged in remote learning
4.10	District expects schools to diagnose entering student learning loss
Educational services for vulnerable populations	
5.1	District has a plan to provide specific support to students with language barriers
5.2	District has a plan to provide specific support to students experiencing homelessness/transitional students
5.3	District has a plan to provide specific support to students with disabilities
Support to Staff	
6.1	District offered COVID-19 specific instructional professional development
6.2	District explicitly states that it has increased time dedicated to teacher PD and/or collaboration
6.3	District provides staff training for health and safety best practices
6.4	District has plan to provide coaching to teachers during the year in remote learning setting
6.5	District sets aside time during the school day for professional learning, planning, and/or collaboration

(continued)

Table A1. Wave 1 Codes by Category: Fall 2020-21 Reopening Plans (continued)

Code #	Code Description
Health and safety measures in place	
7.1	District communicates changes to building practices for all schools to ensure physical distancing
7.2	District communicates changes to building health sanitation and protocols
7.3	For in person learning, district communicates guidelines to transportation forms, routes and sanitization practices
7.4	For in person learning, district communicates guidelines to food services to prevent cross-contamination
7.5	For in person learning, district communicates guidelines in expectations for behavioral norms to prevent cross-contamination
7.6	District supplies PPE for all employees
7.7	District requires face masks
7.8	District has a plan or policy for determining future rolling closures if confirmed infection(s) of staff or students
7.9	District's sick leave policy is updated to reflect COVID-19 preferences
Equitable access to education is ensured for all students	
8.1	Plan commits to provide devices for all students in need
8.2	Plan commits to provide hotspot/wifi access for all students in need
8.3	District recommends or requires home visits or virtual family/student check ins before the start of year

All codes were included in the collapsed codes for the analysis.

Table A2. Wave 2 Codes by Category: Through Year Reopening Operations

Code #	Code Description
Clear reopening plan	
1.1	District provides full-time remote "home choice" option
1.2	Date by which families needed to make a decision
1.3	For what time period were families selecting from among the available options?
1.4*	Staffing of home choice option
1.5*	District prioritizes serving vulnerable populations for in-person instruction in school buildings
1.5.1	Type of vulnerable populations prioritized for in-person instruction
1.7	District defines "attendance" for the remote setting
1.7.1*	How does the district define attendance in the remote setting?
1.8*	District modified its grading format from pre-COVID year(s)
1.8.1	If the District changed its grading format from previous year(s), what changes were made?
1.9	District changed its grade retention policy from previous year(s)
1.9.1	If the District changed its grade retention policy, what changes were made?
1.10*	District has a plan to assess student learning in the fall (via formative or diagnostic assessment)
1.10.1	How did the district assess learning in the fall - K-2?
1.10.2	How did the district assess learning in the fall - 3rd - 5th grade?
1.10.3	How did the district assess learning in the fall - middle school?
1.10.4	How did the district assess learning in the fall - high school?
1.10.5	Will the fall assessment(s) be administered in-person or online/virtually?
1.11*	District has a plan to monitor students' academic progress throughout the year (via formative or diagnostic assessment)
1.11.1*	Did the district specify which assessments would be used to monitor students' academic progress throughout the year?
1.11.2	Which assessments were used to monitor students' academic progress throughout the year for K-2 students?
1.11.3	Which assessments were used to monitor students' academic progress throughout the year for 3rd-5th grade students?
1.11.4	Which assessments were used to monitor students' academic progress throughout the year for middle school (6th-8th grade) students?
1.11.5	Which assessments were used to monitor students' academic progress throughout the year for high school (9th-12th grade) students?
1.12*	District plans to provide tutoring

(continued)

Table A2. Wave 2 Codes by Category: Through Year Reopening Operations (continued)

Code #	Code Description
1.12.1	If yes to 1.12, specify for whom, how they were identified, and what programming was offered to these students
1.13*	District plans to offer summer school instruction or another form of extended learning time?
1.13.1	If yes to 1.13, specify for whom, how they were identified, and what summer programming or extended learning time was offered to these students
1.14*	District acknowledges the social, emotional, and mental health needs of students?
1.14.1*	District discusses services or supports to address social, emotional, and mental health needs of students
1.15	If "Yes" to 1.14.1, identify new services provided to students
1.15.1*	District acknowledges the social, emotional, and mental health needs of staff?
1.15.2*	District discusses services or supports to address social, emotional, and mental health needs of staff
1.15.3	If "Yes, COVID" to 1.15.2, identify new services provided to staff
Structured and meaningful 2020-21 learning plan	
2.1*	In what format(s) will the district provide remote curriculum?
2.2	District will provide remote curriculum for all students
2.2.1	If district DOES NOT provide remote curriculum for all students, for which students is remote curriculum provided?
2.3.1 to 2.3.14*	Type of remote instruction offered to *{pre-kindergarten, kindergarten, first-grade, …, eleventh-grade, twelfth-grade}* students
2.4*	Were any teachers assigned to teach multiple modes?
2.4.1	IF SELECTED "Yes" to 2.4: Did district expect teachers to simultaneously/concurrently (see note) teach students in-person and online?
2.4.2	If yes to 2.4.1, then for which grades or student groups
Equitable access to education is ensured for all students	
3.1.1 to 3.11.14*	Plan commits to provide devices for *{pre-kindergarten, kindergarten, first-grade, …, eleventh-grade, twelfth-grade}* students in need
3.2*	Plan commits to provide internet connectivity for students in need
3.2.1*	District commits to providing tech support for at-home learning throughout the school year

Codes with an asterisk were included in the collapsed codes for the analysis.

Table A3. Standardized Predictors of District Reopening Operations Characteristics with and without Controlling for the Percentage of Year In-Person, SY 2020-21

	Family Engagement		SEL Support		Assessment Use		Expectations		Teacher Professional Development		Health Protocols		Technology Support		Learning Needs Support	
Rep. Vote Share (2016)	-0.31+	-0.35+	0.04	-0.03	-0.03	-0.02	-0.18	-0.14	-0.22	-0.15	0.19	0.10	-0.19	-0.20	0.15	0.06
	(0.18)	(0.18)	(0.18)	(0.19)	(0.18)	(0.19)	(0.18)	(0.19)	(0.18)	(0.18)	(0.18)	(0.18)	(0.17)	(0.18)	(0.18)	(0.18)
COVID-19 Hosp./100k [a]	0.13	0.14	0.11	0.13	-0.01	-0.01	-0.05	-0.06	0.17	0.15	0.08	0.10	0.08	0.09	-0.06	-0.04
	(0.11)	(0.11)	(0.12)	(0.12)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
% Black	0.01	0.04	-0.04	0.02	-0.03	-0.04	-0.03	-0.05	-0.00	-0.06	-0.13	-0.07	-0.00	0.00	0.09	0.15
	(0.14)	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.15)	(0.14)	(0.15)	(0.14)	(0.15)	(0.14)	(0.15)	(0.15)	(0.15)
% Hispanic [a]	-0.10	-0.09	-0.10	-0.09	-0.17	-0.17	-0.21	-0.22	-0.11	-0.12	0.07	0.08	-0.07	-0.07	0.10	0.11
	(0.13)	(0.13)	(0.14)	(0.14)	(0.14)	(0.14)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)
% Econ. Dis-advantaged	-0.05	-0.06	-0.10	-0.11	-0.16	-0.16	-0.03	-0.02	-0.24*	-0.23*	-0.05	-0.06	0.04	0.04	-0.12	-0.14
	(0.10)	(0.10)	(0.11)	(0.11)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
Enrollment (1000s) [a]	-0.04	-0.05	0.08	0.07	-0.02	-0.02	0.12	0.12	0.03	0.03	-0.11	-0.12	-0.00	-0.01	0.17	0.16
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
% Private Schools [a]	0.02	0.02	0.12	0.13	0.19+	0.19+	0.19+	0.18+	-0.06	-0.07	-0.06	-0.05	0.27**	0.27**	0.08	0.09
	(0.09)	(0.09)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)	(0.10)	(0.10)
Per Pupil Exp. (2018) [a]	0.00	0.01	0.12	0.14	0.02	0.01	-0.02	-0.02	-0.04	-0.06	-0.05	-0.03	-0.02	-0.02	0.15	0.18
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
% Year In Person Lrng.		0.00		0.01		-0.00		-0.00		-0.01		0.01+		0.00		0.01+
		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)		(0.01)
Constant	-0.00	-0.20	-0.00	-0.40	-0.00	0.04	0.00	0.17	-0.00	0.39	0.00	-0.44+	-0.00	-0.05	-0.00	-0.45+
	(0.08)	(0.27)	(0.09)	(0.27)	(0.09)	(0.27)	(0.09)	(0.27)	(0.09)	(0.26)	(0.08)	(0.26)	(0.08)	(0.26)	(0.09)	(0.27)
N	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132	132
R-Squared	0.11	0.11	0.04	0.06	0.07	0.07	0.09	0.09	0.10	0.12	0.11	0.13	0.14	0.14	0.08	0.10

Notes. + p < .10, * p < .05, ** p < .01, *** p < .001. Standard errors in parentheses.

[a] The variable was transformed using the natural log (x+1) to improve normality.