THE OHIO STATE UNIVERSITY

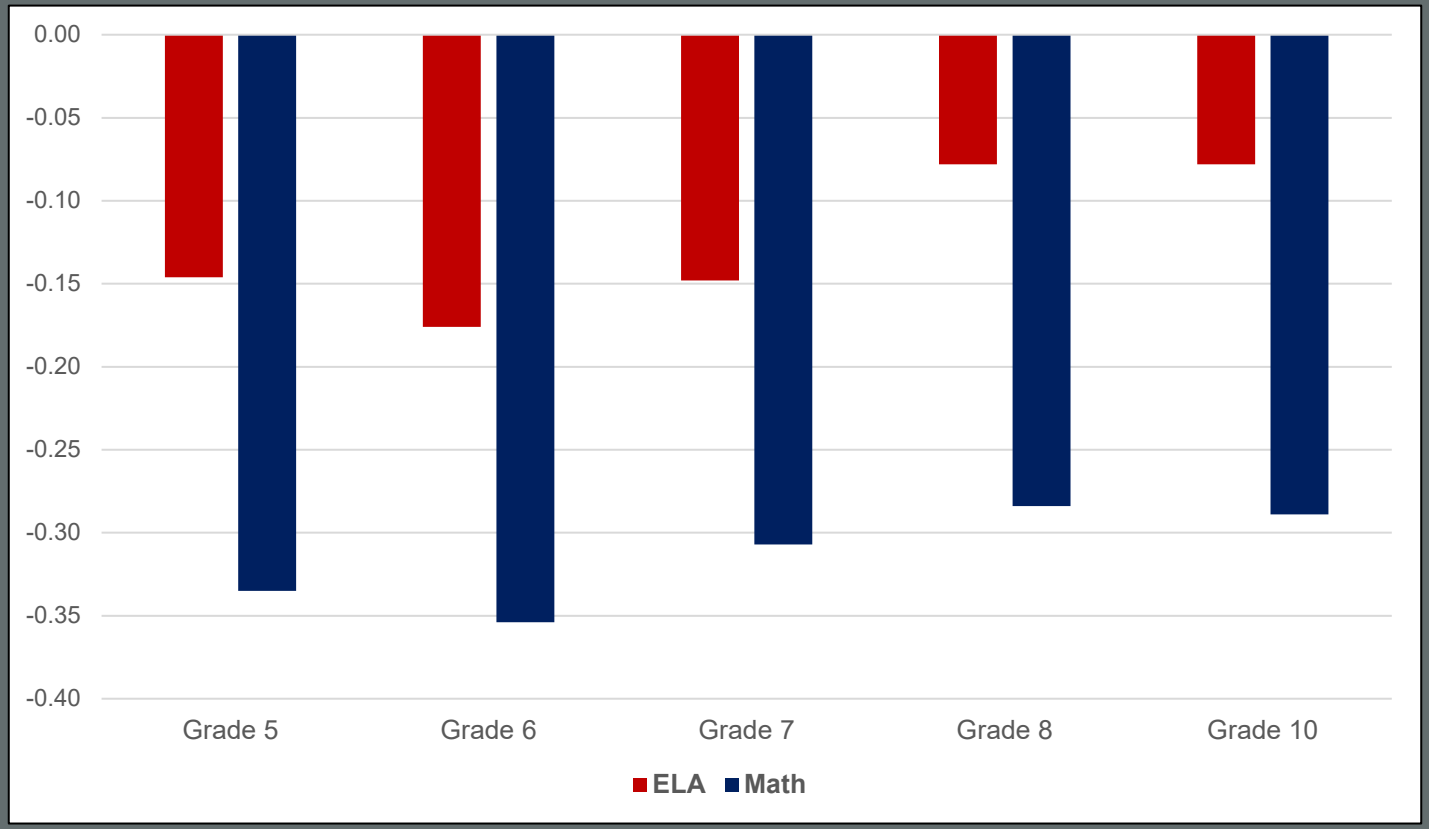
How the Covid-19 Pandemic Affected Student Learning in Ohio

Feb. 2, 2022

Presentation for Crane Research Forum

- **Results from spring 2021 Ohio State Tests**
- We account for ~10% decrease in test participation, other changes in student composition
- **Our approach: Focus on each student's score *growth* over two-year period**
- Example: Compare fifth-grade scores in spring 2021 to same students' third-grade scores from spring 2019
- Compare growth for Covid-impacted students (e.g., fifth graders in 2021) to earlier cohorts (e.g., fifth graders in 2019 and 2018)

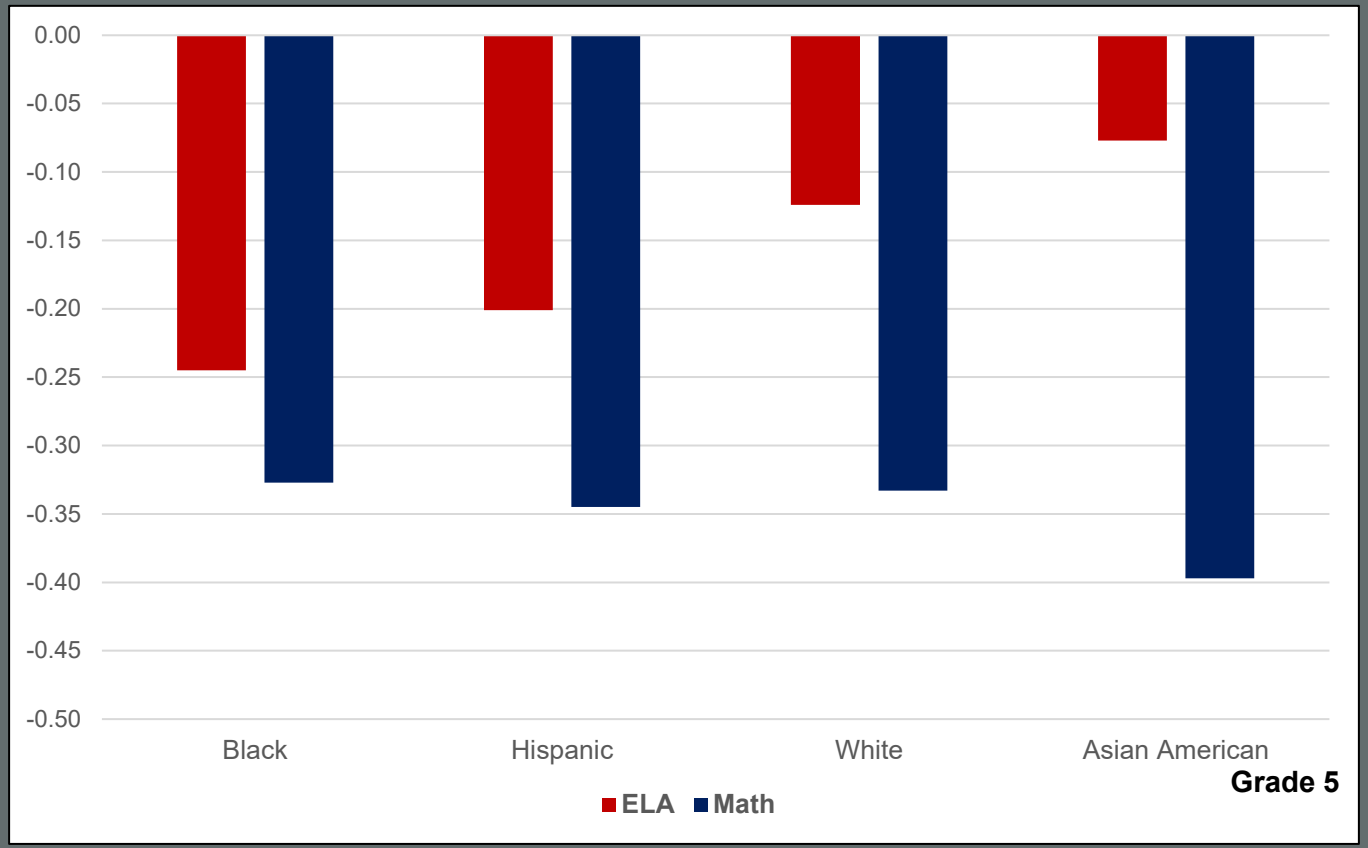
- Our preferred metric (used in slides that follow) is “standard deviation” units
- Used widely in education research, allowing for benchmarking
- Addresses limitations with other measures, such as % of student who are “proficient”
- Don’t worry: Will translate into more intuitive metrics for interpretation!

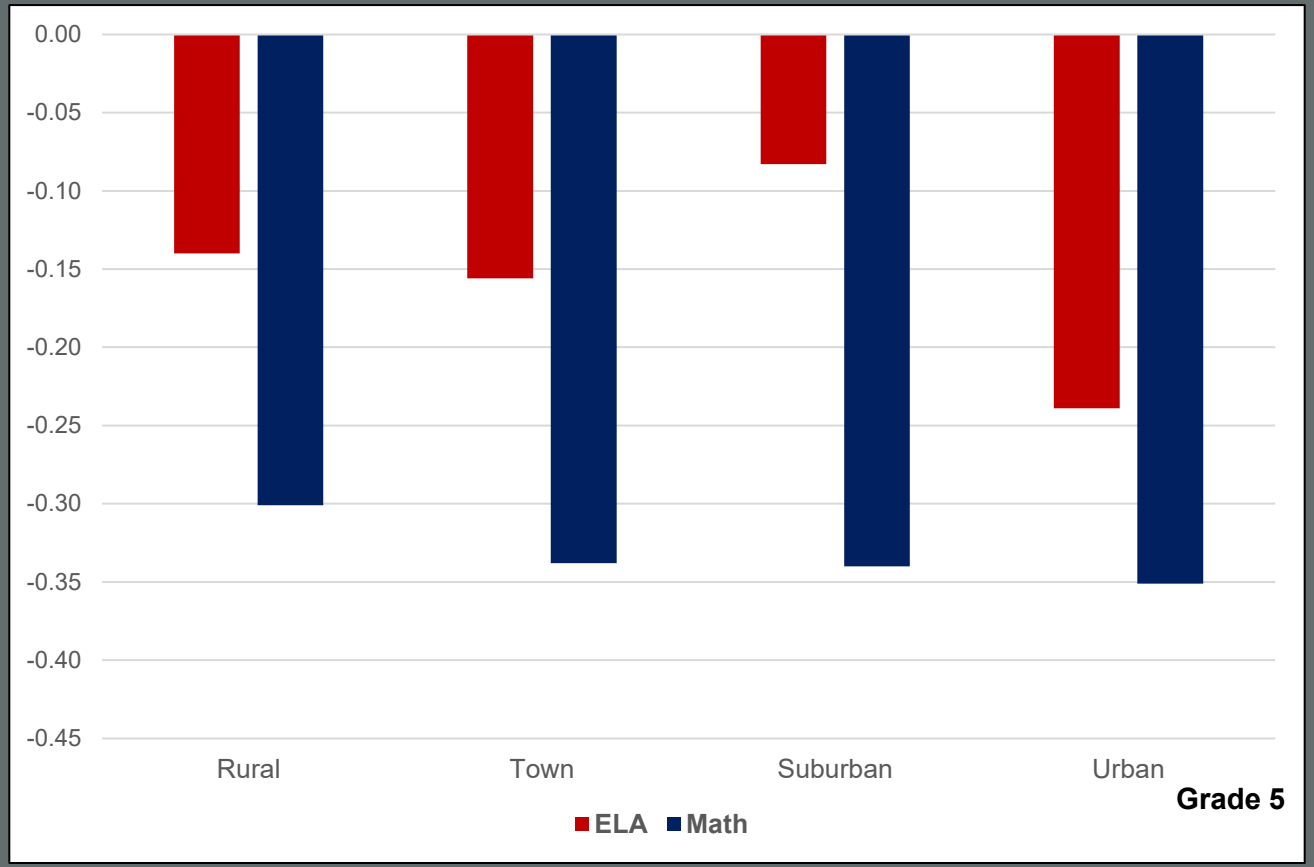

0.00
-0.05
-0.10
-0.15
-0.20
-0.25
-0.30
-0.35
-0.40
Grade 5
Grade 6
Grade 7
Grade 8
Grade 10
ELA
Math

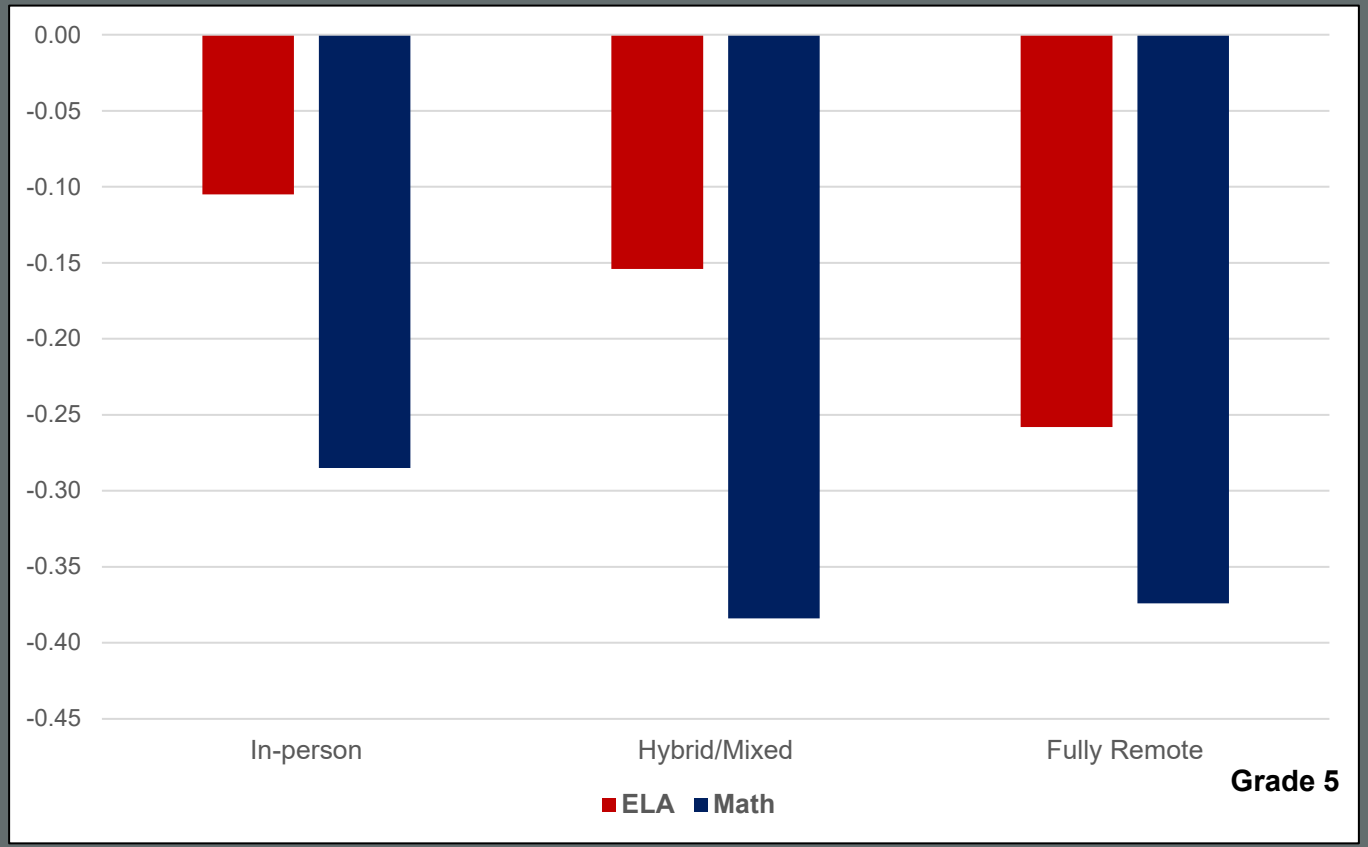
- # How large are these effects?
- **ELA**: $^{1}/_{3}$ to $^{1}/_{2}$ year of typical growth
- **Math**: $^{1}/_{2}$ to **1** year of typical growth
- A decrease of **8%** in share of students achieving grade-level proficiency in **ELA**, **15%** decrease in **math** proficiency
- Represents **larger** disruption for **older students**, because students typically learn more in elementary grades
- If left unaddressed, corresponds to about **3%** loss of **lifetime income**[1], **6%** decrease in future **state GDP**[1]

[1] Eric A. Hanushek and Ludger Woessmann, 2020, *The Economic Impacts of Learning Losses,* Paris: OECD.
[2] Eric A. Hanushek, 2018, "Ohio's Economic Future," Ohio Senate Education Committee.

- # Which students were impacted more?
- In ELA, **disadvantaged** groups saw larger declines
- Non-white, economically disadvantaged, special education, English learners
- In math, consistently large declines **across the board**
- For both subjects, larger declines among students with **less access** to **in-person learning**


0.00
-0.05
-0.10
-0.15
-0.20
-0.25
-0.30
-0.35
-0.40
-0.45
-0.50
Black
Hispanic
White
Asian American
Grade 5
ELA
Math

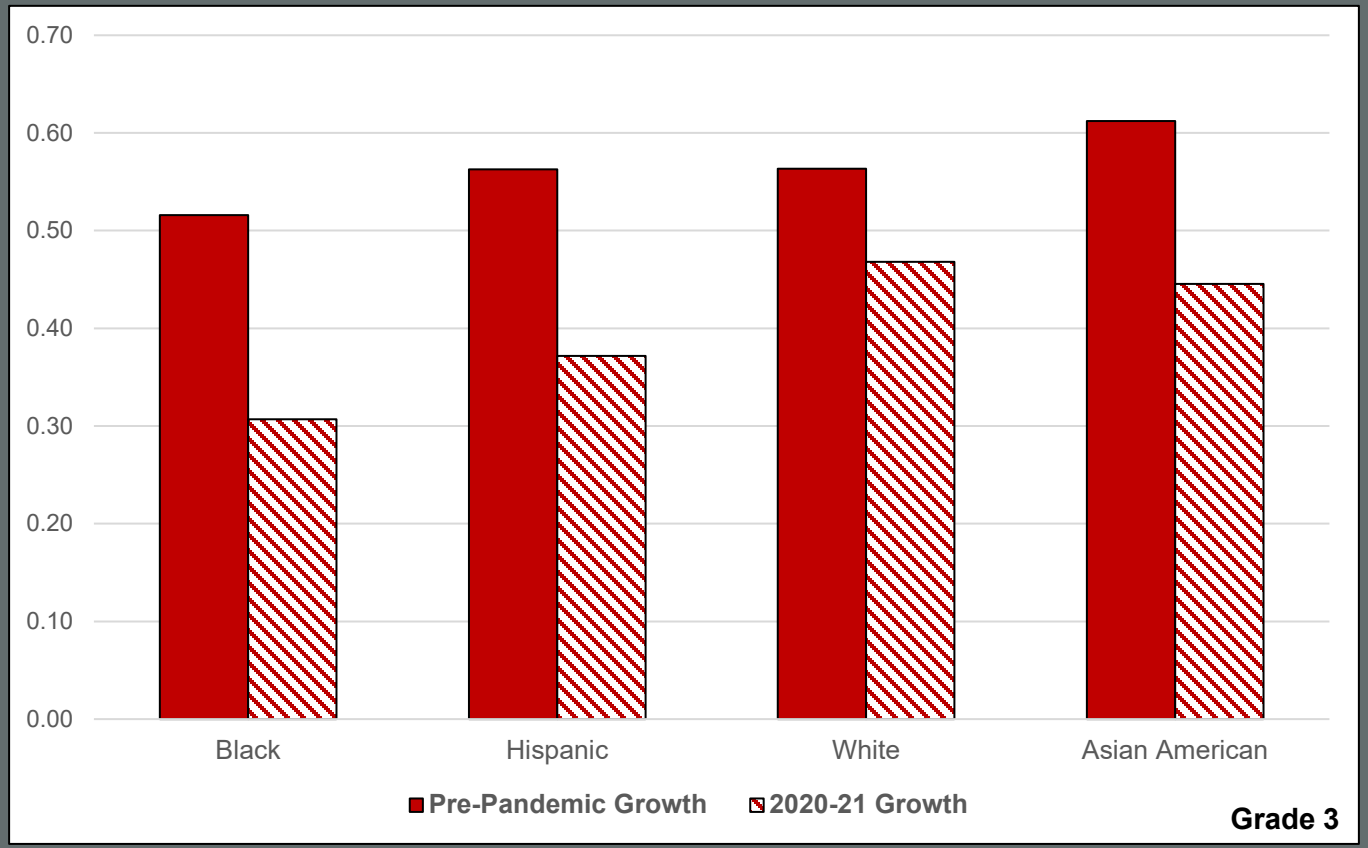

0.00
-0.05
-0.10
-0.15
-0.20
-0.25
-0.30
-0.35
-0.40
-0.45
Rural
Town
Suburban
Urban
Grade 5
ELA
Math

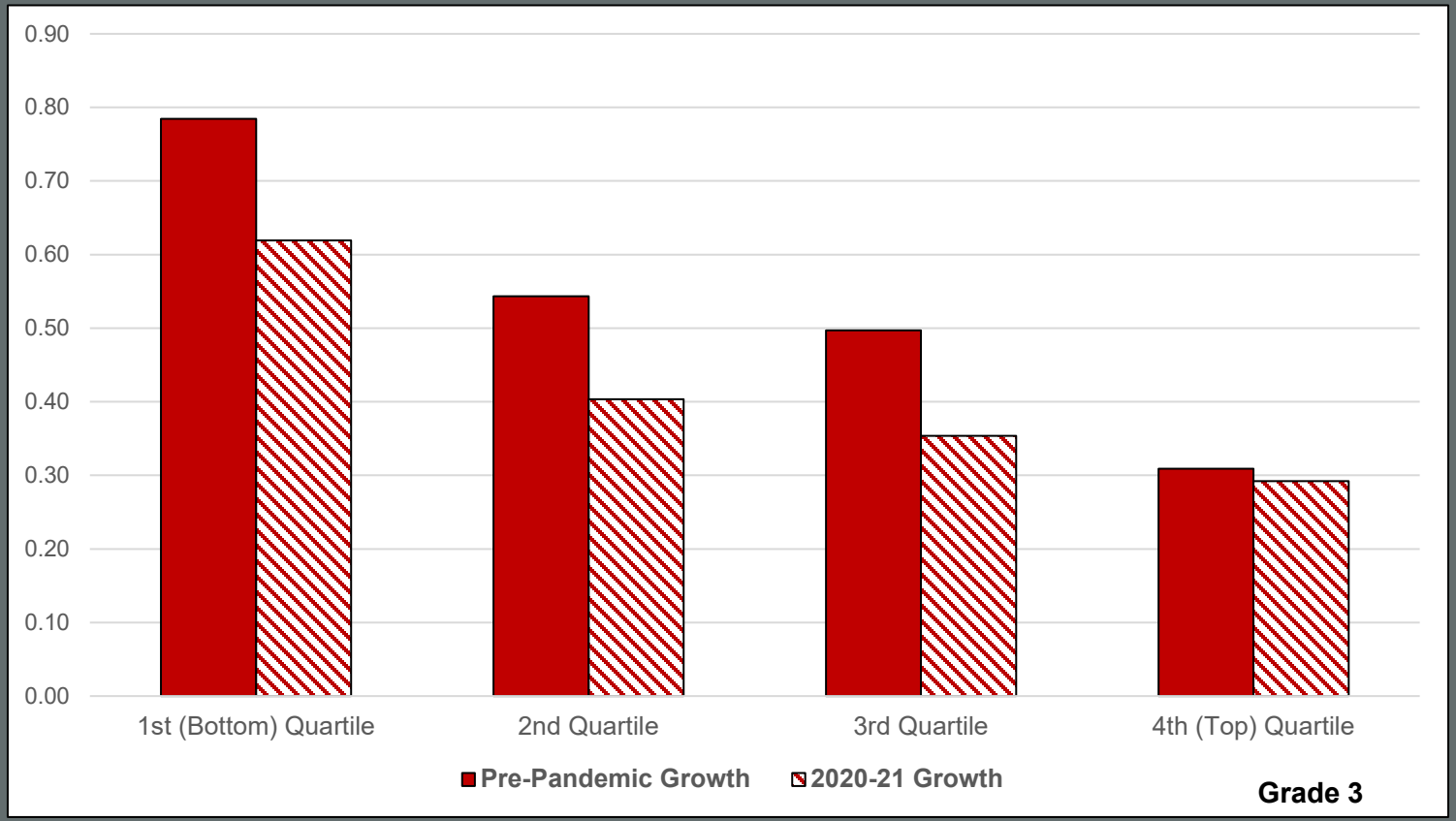

0.00
-0.05
-0.10
-0.15
-0.20
-0.25
-0.30
-0.35
-0.40
-0.45
In-person
Hybrid/Mixed
Fully Remote
ELA
Math
Grade 5

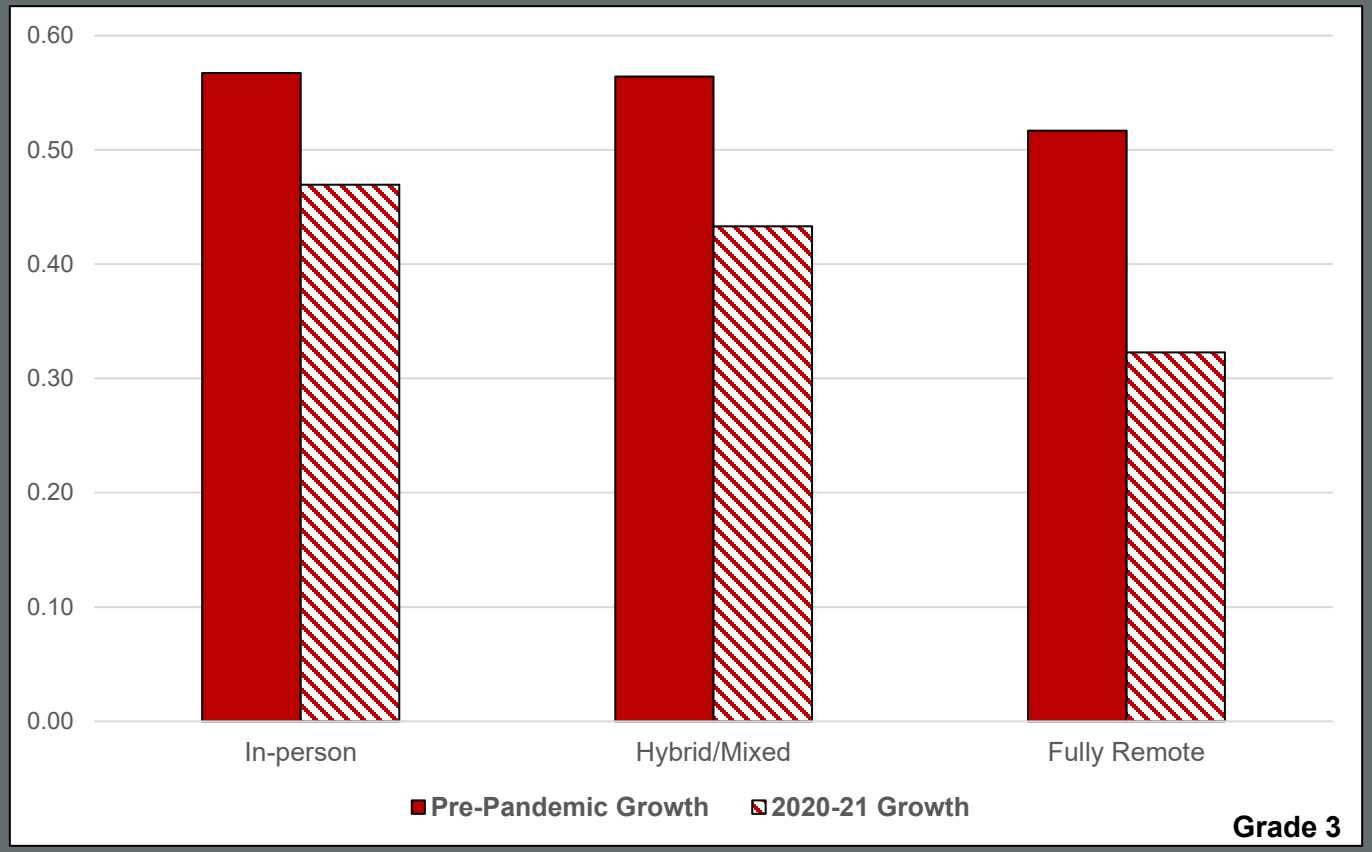
What about charter schools?

- Difficult to separate differences due to school type vs. differences in composition of students served
- Statewide: For brick-and-mortar charter schools, our results were inconsistent across grades and subjects
- Online charters saw smaller decreases, but from a lower baseline (“floor” effects?)
- For residents of districts that spent most of the year in **remote** learning, declines among charter school attendees were modestly smaller in math and for older grades

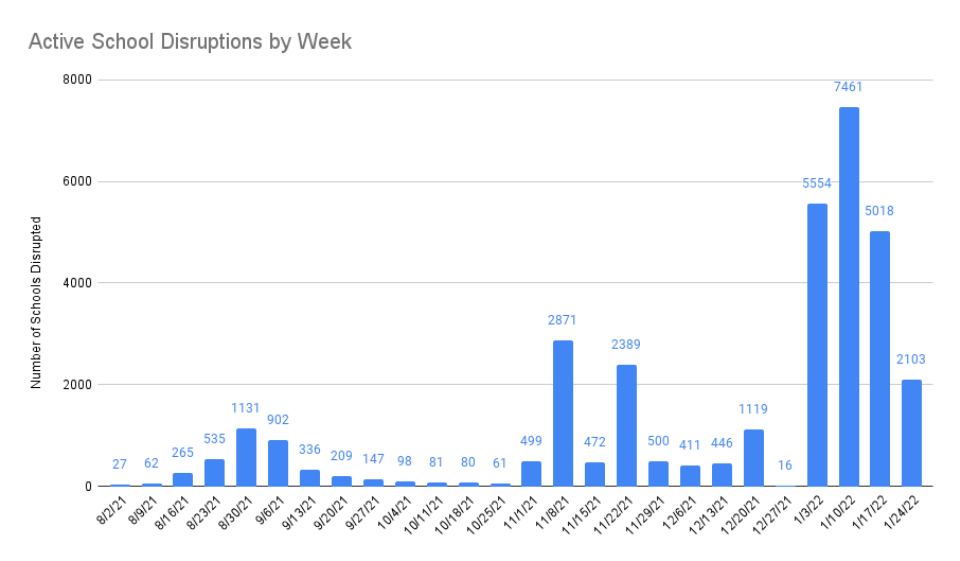
- Did students begin to recover after schools reopened in fall 2020?
- Short answer is no — in fact, they continued to fall further behind
- Evidence from third-grade ELA test, which is given in both fall and spring
- Compare disruptions prior to October 2020 (e.g., school closures) to impacts since then
- At least **one-third** of score decline occurred after schools reopened
- Students learned **20%** less than usual since fall 2020


0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Black
Hispanic
White
Asian American
Pre-Pandemic Growth
2020-21 Growth
Grade 3


0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
1st (Bottom) Quartile
2nd Quartile
3rd Quartile
4th (Top) Quartile
Pre-Pandemic Growth
2020-21 Growth
Grade 3


0.60
0.50
0.40
0.30
0.20
0.10
0.00
In-person
Hybrid/Mixed
Fully Remote
Pre-Pandemic Growth
2020-21 Growth
Grade 3

- Each week of remote learning reduced third-grade ELA achievement by **0.01 SD**
- This accounts for about **one-third** of typical weekly achievement growth
- Speaks to importance of in-person learning, and the costs of **continuing disruption**


Active School Disruptions by Week
Number of Schools Disrupted
8000
6000
4000
2000
0
27
62
265
535
1131
902
336
209
147
98
81
80
61
499
2871
472
2389
500
411
446
1119
16
5554
7461
5018
2103
8/2/21
8/9/21
8/16/21
8/23/21
8/30/21
9/6/21
9/13/21
9/20/21
9/27/21
10/4/21
10/11/21
10/18/21
10/25/21
11/1/21
11/8/21
11/15/21
11/22/21
11/29/21
12/6/21
12/13/21
12/20/21
12/27/21
1/3/22
1/10/22
1/17/22
1/24/22

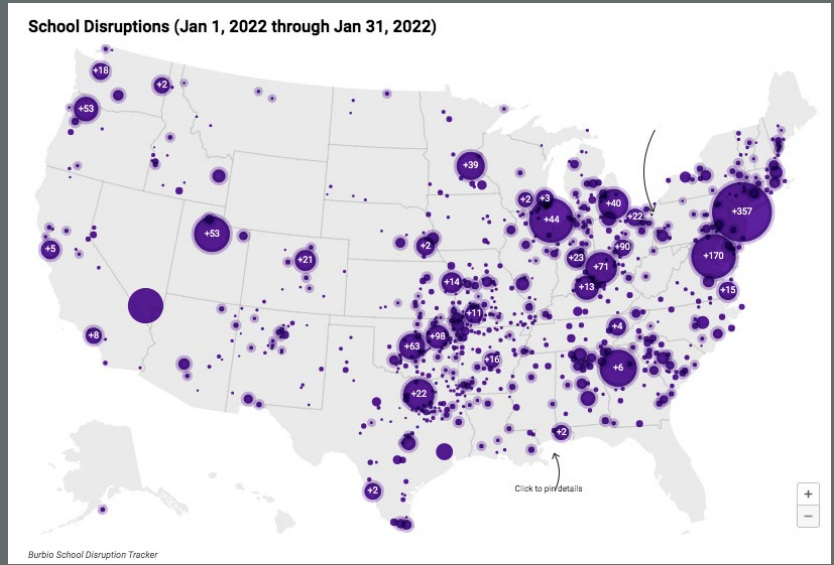
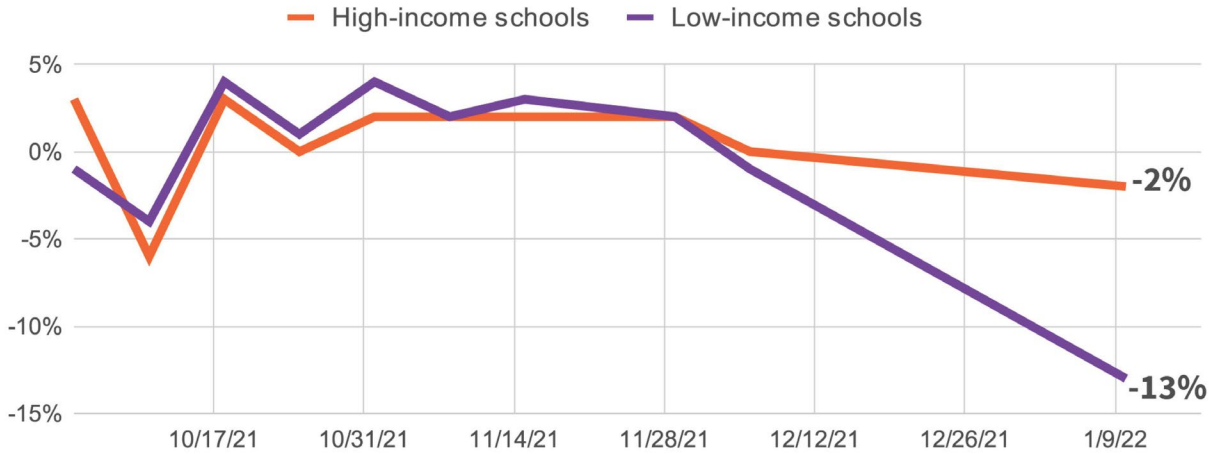

School Disruptions (Jan 1, 2022 through Jan 31, 2022)
Click to pin details
Burbio School Disruption Tracker

Figure 1: *Nationwide* change in weekly student participation in online math learning on Zearn, relative to Fall 2021 baseline



SOURCE: ZEARN

- **Summary: These are very concerning numbers, with clear equity implications**
- Despite criticism of state tests, these data are invaluable for identifying which students have been impacted the most
- Gov. DeWine, legislators, and ODE deserve tremendous credit for administering exams and asking for careful, honest analysis
- An all-hands-on-deck approach is necessary to make up lost ground!