



NAEP Alliance

Linking NAEP and COVID Data Hub

Katherine Castellano

Carol Eckerly

Helena Jia

Educational Testing Service

Background

- Schools abruptly shifted to remote instruction in March 2020 due to COVID-19
- School reopening policies varied widely by locale
- Infrastructure wasn't in place to collect data on school learning mode (i.e., in-person, hybrid, virtual) in a systematic way across the country
- Instructional mode data is complex to collect
 - What is the definition of mode?
 - Is mode available at all or to specific groups?
 - What is actual enrollment by mode?
 - How often does this information change?
 - Is the source of the data reliable and complete?

Background

- Despite challenges, there has been great public interest in linking learning mode to student achievement to evaluate the impact of the pandemic related closures
- The National Center for Education Statistics (NCES) has two projects currently underway to link external data sources on learning mode to 2022 National Assessment of Education Progress (NAEP) achievement data
 - 2021 Monthly School Survey (MonthlySurvey) Linking Study
 - Covid School Data Hub (DataHub) Linking Study
- With researchers using different data sources on instructional mode to address similar research questions, it is imperative to:
 - Understand relationships between the data sources
 - Effectively communicate potential nuance in conclusions to the public

Outline

- Data sources providing information about mode of enrollment (e.g., in-person, hybrid, or remote)
 - COVID School Data Hub
 - NAEP Monthly School Survey
 - NAEP assessments
- Describe relationships between data sources
- Spotlight on two states
- Conclusion



Data Sources



Understanding the variables

- Data sources generally get at one of two dimensions related to instructional modes during the 2020-21 school year
 - **Time** an instructional mode was offered
 - Such as percentage of school year or number of months
 - **Volume** of an instructional mode
 - Such as student enrollment or number of classes for a particular instructional mode

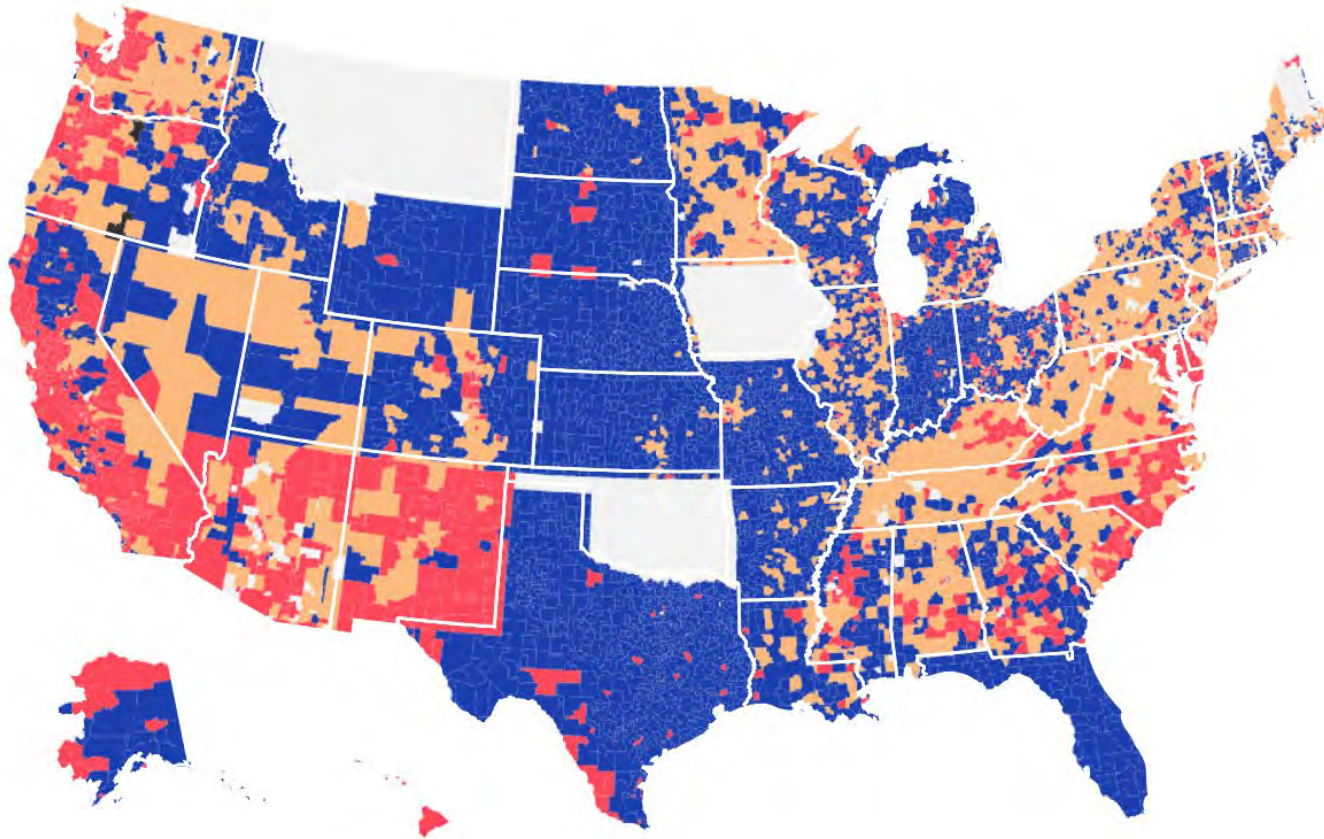
COVID School Data Hub

The COVID School Data Hub (DataHub) is a publicly accessible database of COVID-related data collected and disseminated for the 2020-2021 school year by Brown University researchers

Provides percentage of the school year students **primarily had access** to in-person, hybrid, or remote instruction

- Time offered variable
- Available for most schools in 48 states
- The interval of data collection varies from weekly to biannually
- Reflects the most common learning model in use for the interval
- Each state used their own processes (e.g., surveys, data system) to collect information on offered instructional modes
- Note that 100% of the year in-person does not mean that all students were in-person learning all school year but just that it was offered all year and a common mode (though “common” was defined differently by state)

COVID School Data Hub



U.S. School Learning Models, 2020-21






This map reflects the **most common learning model in use** by states' schools and districts during each month of the 2020-21 school year.

Explore data by state-specific data by clicking on the state on the map, or by viewing our **data and research resources**.

Use the slider to observe changes in school districts' most common learning model between August 2020-May 2021.



January, 2021

-  In Person
-  Hybrid
-  Virtual
-  No Data
-  Closed

Note that not all states have available data at this time.

NAEP Monthly School Survey

- On January 21, 2021, President Biden issued the [Executive Order on Supporting the Reopening and Continuing Operation of Schools and Early Childhood Education Providers](#)
 - Among other tasks about supporting the safe reopening of schools, the order tasked the Secretary to
coordinate with the Director of the Institute of Education Sciences to facilitate...the collection of data necessary to fully understand the impact of the COVID-19 pandemic on students and educators
- IES made use of the already-drawn NAEP sample to survey schools about the current status of instruction.
 - Only reached out to 50% of sample due to pandemic and associated costs
- The 2021 NAEP Monthly School Survey (MonthlySurvey) questionnaire was administered to sampled schools each month between February and June 2021.

Monthly School Survey – Questions #1, 2

1. In [previous month], what did your school offer as the mode of instruction or learning model **for grade [4 or 8 as appropriate] students**?

*Please select **one** square in each row.*

	Offered to all students	Offered to some students	Not offered
Remote or online only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open with both remote/online and in-person instruction (hybrid model)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open with full-time in person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. What is the enrollment and mode of instruction **for grade [4 or 8 as appropriate] students** in your school in [previous month]?

Please enter the number of students in each category.

	Total enrollment	Remote or online only	Open with both remote/online and in-person instruction (hybrid model)	Open with full-time in person
White, not Hispanic	#	#	#	#
Black or African American, not Hispanic	#	#	#	#
Hispanic, of any race	#	#	#	#
Asian, not Hispanic	#	#	#	#
American Indian or Alaskan Native, not Hispanic	#	#	#	#
Native Hawaiian or Pacific Islander, not Hispanic	#	#	#	#
Two or more races, not Hispanic	#	#	#	#
Race/Ethnicity information not available	#	#	#	#
All students	#	#	#	#

NAEP Monthly School Survey Derived Variables

- The survey questions were used to derive variables about duration of in-person learning in the 5-month window
 - MSS Q1: Was in-person instruction never offered, offered starting Feb-May, or offered all months?
 - Time offered variable
 - MSS Q2: What was the average percent of in-person enrollment across the 5 months?
 - Volume variable but averaged over time

NAEP Assessments

- Main NAEP (grade-based) assessed in January-March of 2022
- Survey question from the NAEP School Questionnaire administered to school administrators at participating NAEP schools
- Volume variable

11. For last school year, how was class instruction organized? Select **one** circle in each row.

	Not applicable	None of the classes	Some of the classes	About half of the classes	More than half of the classes	All or almost all of the classes
b. Classes normally taught in person moved to a distance learning format.	(A)	(B)	(C)	(D)	(E)	(F)



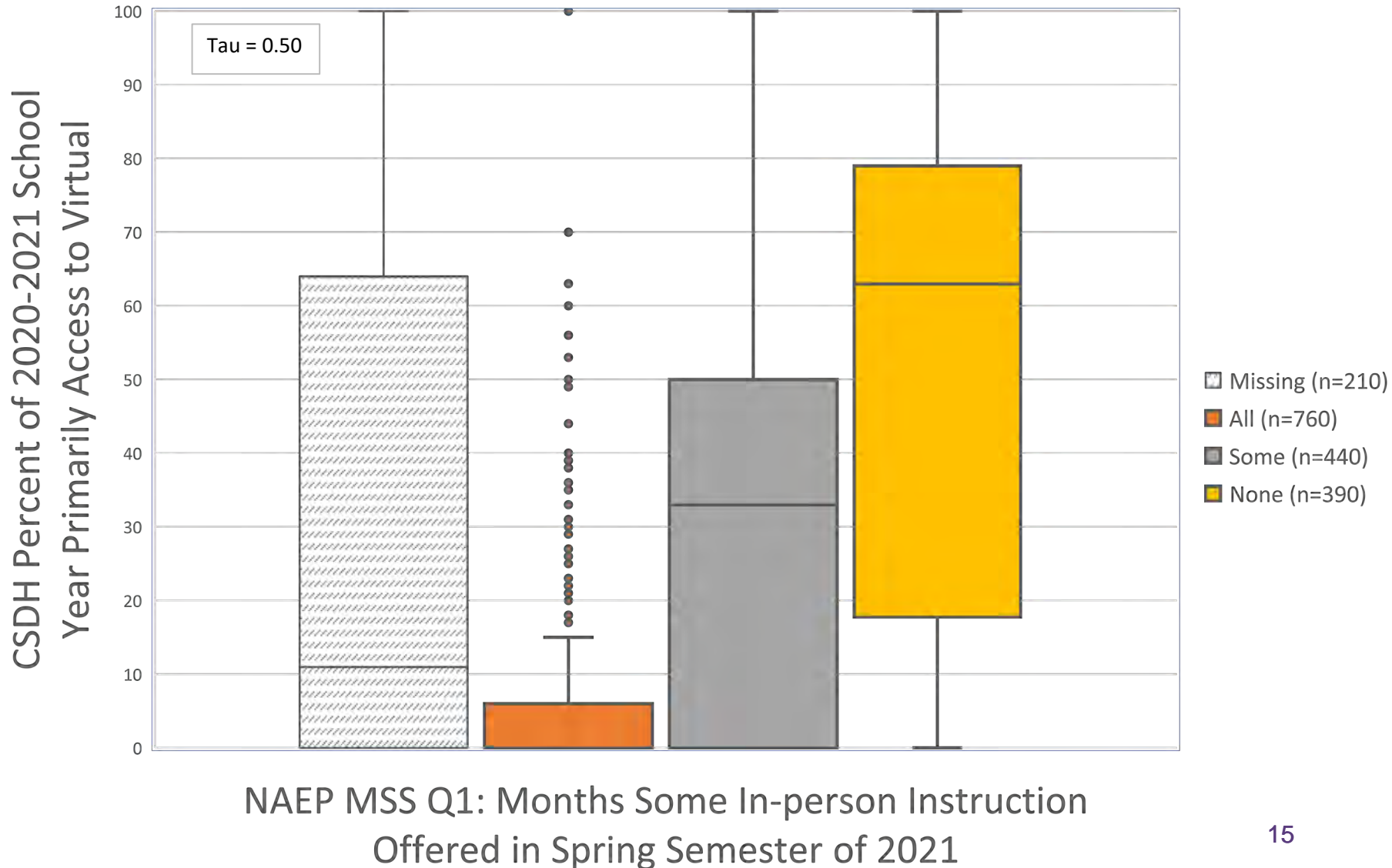
Relationships Between Data Sources



Variables for comparison

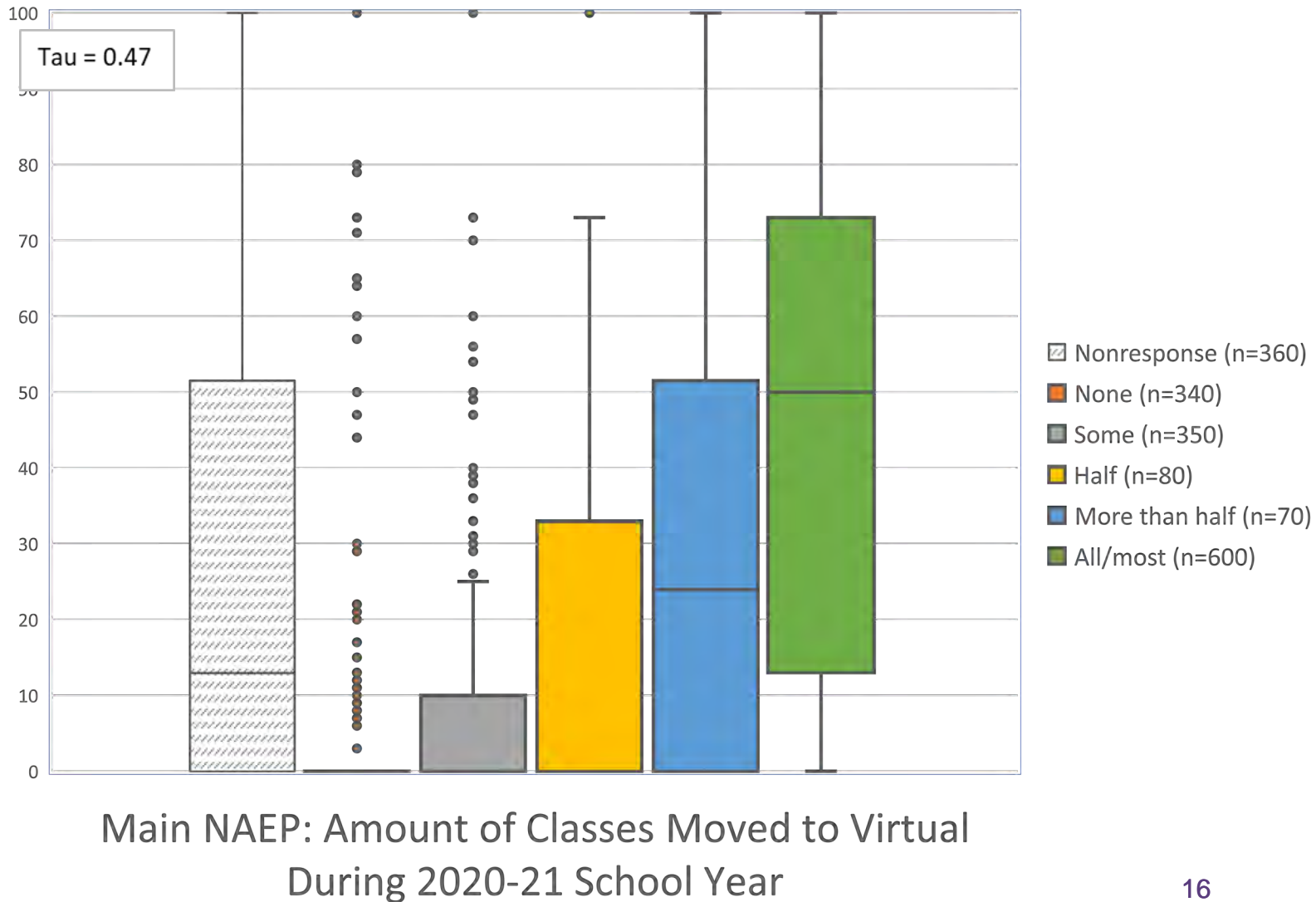
- DataHub
 - Percentage of 2020-2021 school year students primarily had access to virtual instruction
 - Continuous **time offered** variable
- MonthlySurvey Q1
 - Summary of available in-person instruction across five months
 - Categorical **time offered** variable
- MonthlySurvey Q2
 - Average percent of student enrollment in virtual instruction across five months
 - Continuous **volume** (averaged over time) variable
- NAEP Questionnaire
 - Amount of classes moved to distance learning
 - Categorical **volume** variable

Covid School Data Hub time offered variable vs. Grade 4 NAEP Monthly Survey time offered variable

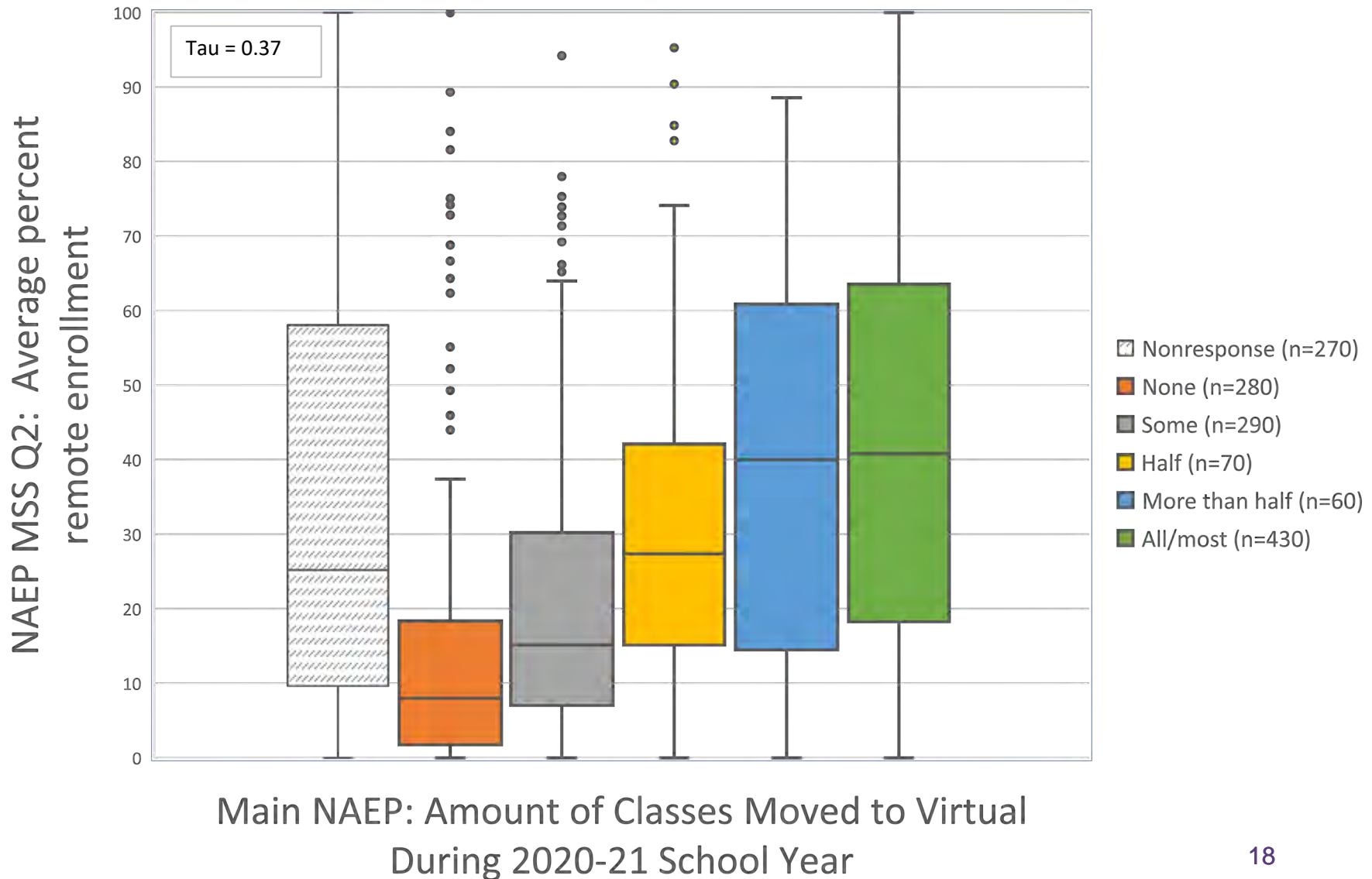


Covid School Data Hub **time offered** variable vs. Grade 4 2022 Main NAEP **volume** variable

DataHub: Percent of 2020-2021 School Year Primarily Access to Virtual



Grade 4 NAEP Monthly School Survey Q2 **volume** (averaged over time) variable vs. Grade 4 2022 Main NAEP **volume** variable





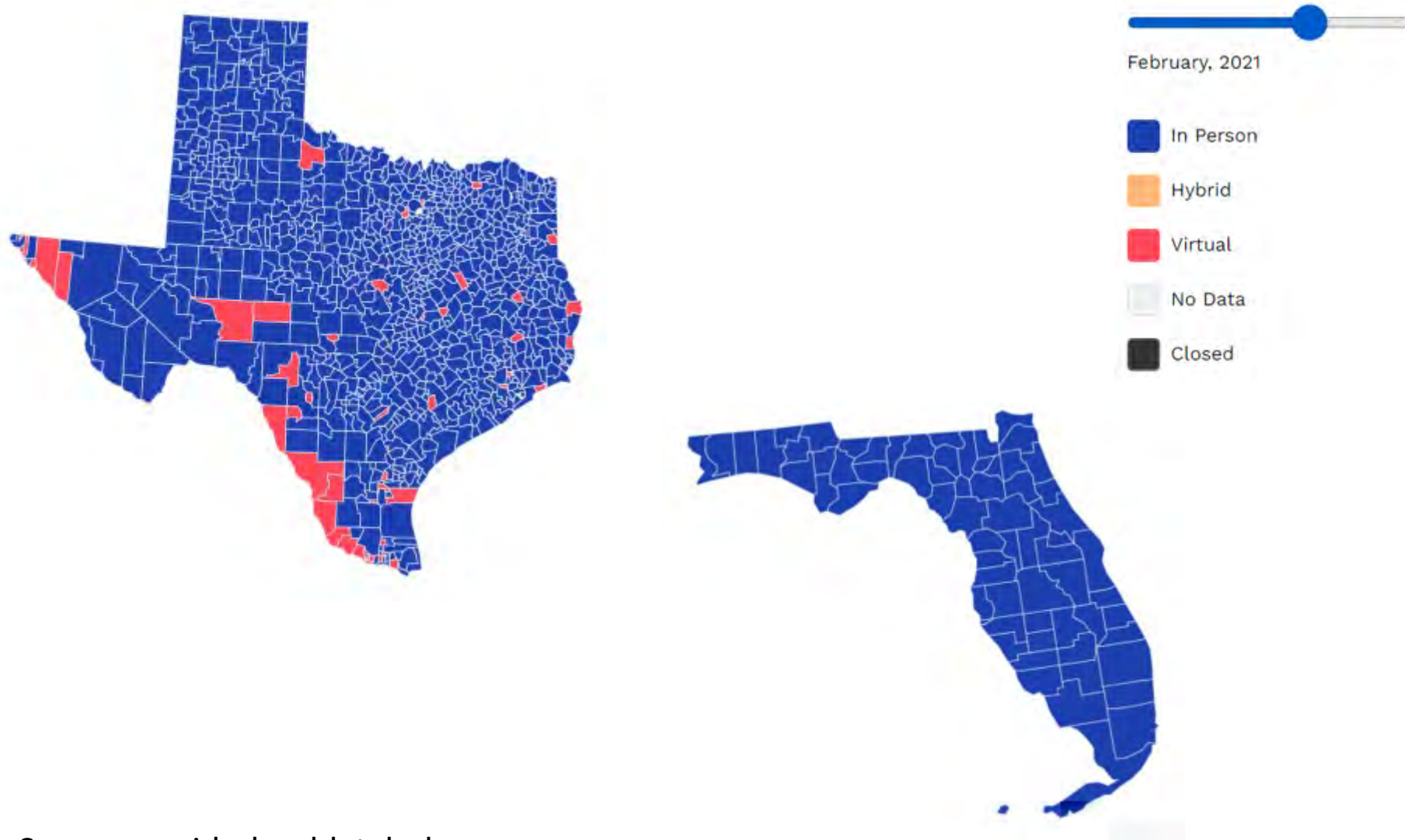
Texas and Florida



Texas and Florida Covid-19 School Data Hub

- Both states had biannual reporting at the school level
 - September 1, 2020 to December 31, 2020
 - January 1, 2021 to June 1, 2021
- Instruction mode classifications:
 - In-person: On-campus enrollment counts were at least 10% of total enrollment
 - Hybrid: Not collected
 - Virtual: On-campus enrollment counts were less than 10% of total enrollment

Texas and Florida – February 2021



Source: covidshooldatahub.com

Texas grade 4: Differing Pictures

- Time offered
 - DataHub
 - 95% of schools (with non-missing in both DataHub and MonthlySurvey) have 100% of year with students primarily having access to in-person instruction (or 0% of year primarily access to virtual)
 - MonthlySurvey
 - Q1: 93% of schools report offering in-person instruction in all five Spring 2021 months
- Volume
 - MonthlySurvey
 - Q2: *The average monthly percent remote enrollment is 32% with a max of 67%*
 - NAEP School Questionnaire
 - 76% of schools (in both DataHub and NAEP) *report some or more classes moving to distance learning*

Florida grade 4: Differing Pictures

- Time offered
 - DataHub:
 - 100% of the schools (with both Hub and MonthlySurvey data) have 100% of year with students primarily having access to in-person instruction (or 0% of year primarily access to virtual)
 - MonthlySurvey:
 - Q1: 100% of common schools report offering in-person instruction in all five Spring 2021 months
- Volume
 - MonthlySurvey
 - Q2: *The average monthly percent remote enrollment is 24% with a max of 67%*
 - NAEP School Questionnaire
 - 69% of schools (in both DataHub and NAEP) *report some or more classes moving to distance learning*



Concluding Remarks



Concluding Remarks

- Important to understand instructional mode data source and variable type
- Often easy to misinterpret
 - Particularly, easy to confuse time offered and volume
- Improved data collection methods needed for recording school data in real time particularly for fast-changing data points
- Choice of instructional mode variable can affect inferences, such as relationship with student achievement



Supplemental Slides



NAEP Monthly School Survey Deriving MSS1 variable I

Can be reported roughly from
least to most in person



1. In [previous month], what did your school offer as the mode of instruction or learning model for grade [4 or 8 as appropriate] students?
Please select one square in each row.

	Offered to all students	Offered to some students	Not offered
Remote or online only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open with both remote/online and in-person instruction (hybrid model)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Open with full-time in person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Category

Remote only

Remote + Hybrid

Hybrid only

Remote + In person

All 3 modes

Hybrid + In person

In person only

NAEP Monthly School Survey

Deriving MSS1 variable II

- MSS Q1 Duration Variable: Percentage of months in which school offered at least some full time in-person instruction (for schools with responses in at least four out of the five months)
- Categories: Never offered, offered starting Feb-May, or always offered full time in-person instruction
- Example of school responses associated with a reporting category of “offered starting Feb-May”

Category	Month 1	Month 2	Month 3	Month 4	Month 5
REM only	X		X		
REM + HYB					
HYB only					
REM + INP				X	X
All 3					
HYB + INP					
INP only					

Grade 4 association summary

	CSDH	MSS Q1	MSS Q2
MSS Q1	0.50	--	--
MSS Q2	0.72	0.41	--
NAEP	0.47	0.20	0.37

	Kendall's Tau
	Pearson's R
	Cramer's V