COLORADO
Department of Education

Technical Advisory Panel Meeting

September 24, 2020

Agenda

- **Welcome–** Elena & Dan
- **Accountability Stakeholder Committee Updates & TAP Feedback –** Carol Eaton/Lisa Medler
- **Historical Skip Year Growth -** Marie Huchton
- **Future Items, Public Comments & Closing** – Elena & Dan

Welcome & Introductions

- **Welcome!**
  - The purpose of the TAP is to provide non-binding technical recommendations to CDE regarding the Colorado Growth Model, state accountability, and other topics as needed.

- **Meeting Logistics:**
  - Non-members please add your Name/Affiliation to the chat box.
  - Everyone please mute your sound.
  - We ask all non-TAP members to hold any comments until the end of the meeting. We do this to ensure we have sufficient time to address all meeting agenda items.

Accountability Stakeholder Committee Updates & TAP Feedback

Carol Eaton & Lisa Medler

Stakeholder Advisory Group

Pulled from C.R.S. 22-2-112. Commissioner Duties.

- Convene a stakeholder group to
  - Review the impact of the covid-19 pandemic and the resulting disruption of the 2019-20 school year, including student transition to remote learning and the cancellation of the state assessments, accountability, accreditation, and educator evaluation systems for the 2019-20 school year
  - Discuss how the cancellation of state assessments will impact accountability, accreditation, and educator evaluations during the 2020-21 school year and whether future modifications are needed regarding the accountability, accreditation, and educator evaluation systems as a result of, and in response to, the covid-19 pandemic and possible further disruptions
  - Make recommendations regarding whether and how to proceed with state assessments, accountability, accreditation, and educator evaluations during the 2020-211 school year and how the systems can continue to effectively measure student achievement and growth and provide an accurate, credible, and comparable assessment of the quality of the public education system throughout the state following the covid-19 pandemic

—Web-page: http://www.cde.state.co.us/safeschools/covid-stakeholder-group

Discussion Items

- Consensus on how to represent TAP input (group shared agreements or individual member ideas)

- Under what conditions should 2020-21 state assessments be administered? What purposes should the assessment results be used for?

- Under what conditions should state accountability (e.g., frameworks, improvement planning, accountability clock, accreditation) move forward in 2021-22? What adjustments (if any) should be made?

Historical Skip Year Growth

Marie Huchton

Background

- In a normal year, growth calculations reflect the amount of progress a student has made from the prior year's summative assessment result (e.g. CMAS, PSAT and SAT) to the current year's result in comparison to their academic peer group
- In 2019, student progress was measured sequentially from year to year- so 2018 to 2019

2018 2019 2020 2021 2022

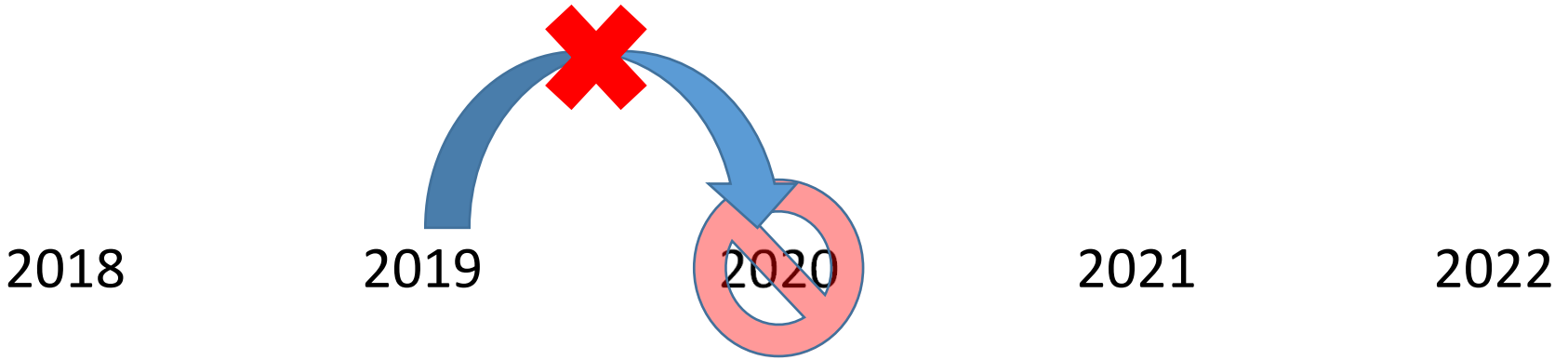
Background

- Growth for 2020 should have captured student progress from 2019 to 2020

2018 2019 2020 2021 2022

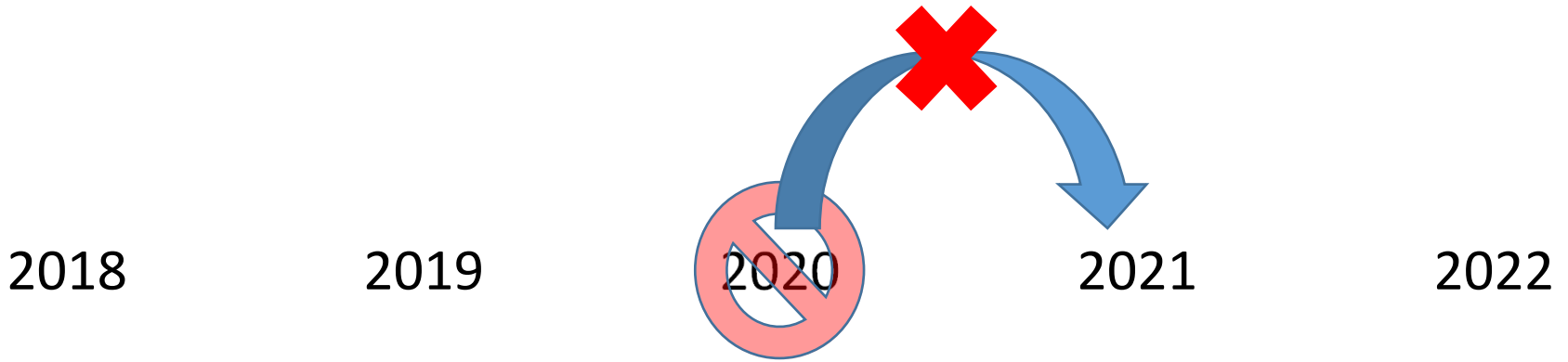
Background

- Growth for 2020 should have captured student progress from 2019 to 2020
- But since we didn't administer state assessments in 2020, we don't have any student results on which to calculate growth



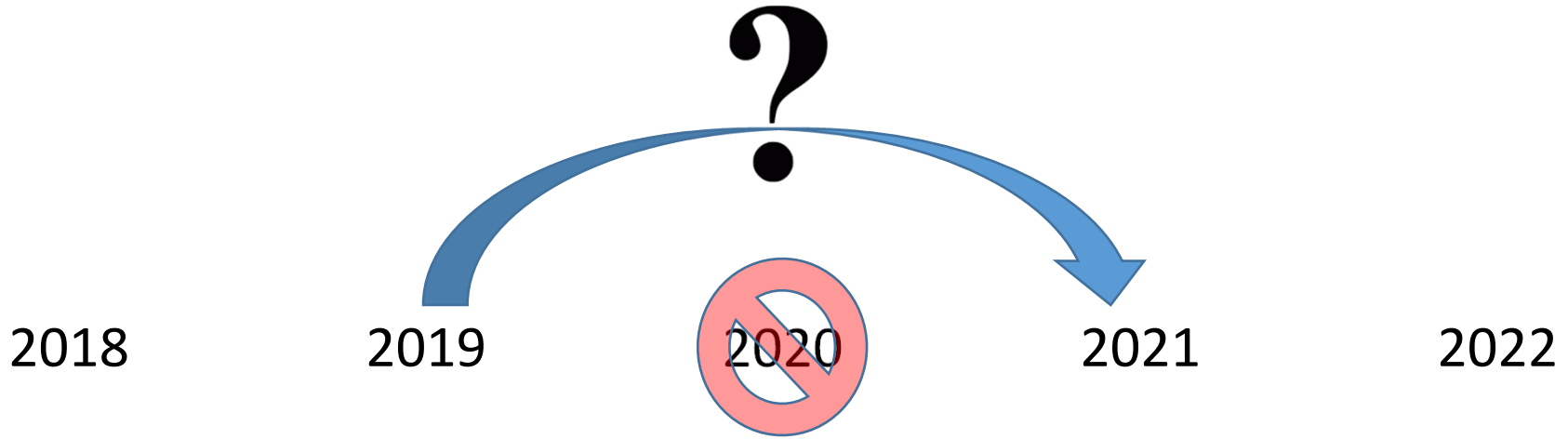
Background

- Which means that we also won't be able to calculate sequential year growth for 2021 either



Background

- Can we calculate growth from 2019 to 2021, skipping over the lack of 2020 results?
- Theoretically sure, but would skip-year growth results be comparable to the sequential year outcomes?



Historical Skip-Year Analyses

- We won't know for sure until we get the 2021 student results
- But there are analyses using historical data that we can run to see if skip-year growth would result in comparable inferences to sequential or one-year growth under normal circumstances
- It's important to check for comparability at all levels of potential inference:
  - Student
  - School
  - District
  - Disaggregated group
  - State accountability

Historical Skip-Year Study from NCIEA

- Last TAP meeting, we discussed the RILS presentation Damian Betebenner from NCIEA put together with suggested analyses on skip-year growth using historical data
- Today we are going to review the preliminary outcomes from the study on CMAS ELA & math skip-year growth that Damian and NCIEA have conducted at CDE's request

- Note- We are still editing and finalizing the report, and will send it out as soon as possible. However, in the interests of getting TAP feedback to the Stakeholder Group in time for meaningful conversation, we wanted to present the high-level results today for your consideration and potential recommendations.

Data Details

- Study looked at CMAS g3-8 ELA and Mathematics student data from 2016 to 2019
- We do not have enough consecutive years of students taking PSAT 9, PSAT 10, and SAT to run these analyses at the high school level
- Growth percentiles are mostly aggregated using means (for ease of comparability), use of medians is specifically noted

	One-Year Growth	Skip-Year Growth
Growth interval	2018 to 2019	2017 to 2019
Additional priors	2016, 2017	2016
Growth results for grades	4-8	5-8

Sequential and skip-year SGP counts and percentages for 2019 by content area and grade

			Sequential		Skip Year	
Content Area	Grade	Total Students	Count	Percent	Count	Percent
ELA	4	60,483	57,016	94.3	–	–
	5	63,129	59,069	93.6	55,502	87.9
	6	62,000	58,502	94.4	55,099	88.9
	7	60,066	56,384	93.9	53,457	89.0
	8	56,449	52,607	93.2	50,131	88.8
Mathematics	4	61,519	58,558	95.2	–	–
	5	63,210	60,182	95.2	57,148	90.4
	6	62,080	58,623	94.4	55,873	90.0
	7	60,137	56,444	93.9	53,498	89.0
	8	56,461	51,699	91.6	50,172	88.9

- Overall, about 6.6% fewer students have skip-year SGPs than one-year SGPs

Student-Level: Sequential and skip-year SGP correlation and mean/standard deviation for 2019 by content and grade

			Sequential		Skip Year	
Content Area	Grade	SGP Correlation	Mean	SD	Mean	SD
ELA	4	–	50.1	28.8	–	–
	5	0.86	50.2	28.9	50.1	28.8
	6	0.91	50.2	28.9	50.3	28.9
	7	0.87	50.2	28.9	50.3	28.9
	8	0.88	50.1	28.9	50.3	28.8
Mathematics	4	–	50.1	28.8	–	–
	5	0.83	50.1	28.9	50.1	28.8
	6	0.91	50.2	28.9	50.2	28.9
	7	0.85	50.2	28.9	50.3	28.8
	8	0.89	50.3	28.9	50.4	28.9

- Strong correlations between 0.83 and 0.91

Student-Level: Sequential and skip-year SGP outcomes

- For students with both skip-year and one-year SGPs,
  - 80 percent showed differences of less than 18 percentile points between calculation methodologies across grades and contents
  - 20 percent showed differences of 18 or more.
- Dropping the most recent score from growth calculations when each year of a students' scores differ greatly will lead to highly discrepant SGPs.
- Historical Colorado data suggest that there is a close relationship at the student level between skip-year growth and one-year growth that could be used to draw inferences about what the one-year growth would be if the student tested in 2020.

School-Level: mean and standard deviation of MSGPs, and correlation of MSGPs with mean prior achievement

Filter	Content Area	Sequential			Skip Year		
		Mean	SD	Corr	Mean	SD	Corr
All Students	ELA	50.2	7.5	0.29	50.4	9.5	0.17
	Mathematics	50.0	8.5	0.25	50.1	11.0	0.15
Skip-Year Subset	ELA	50.6	8.7	0.16	50.4	9.5	0.17
	Mathematics	50.4	10.1	0.13	50.1	11.0	0.15

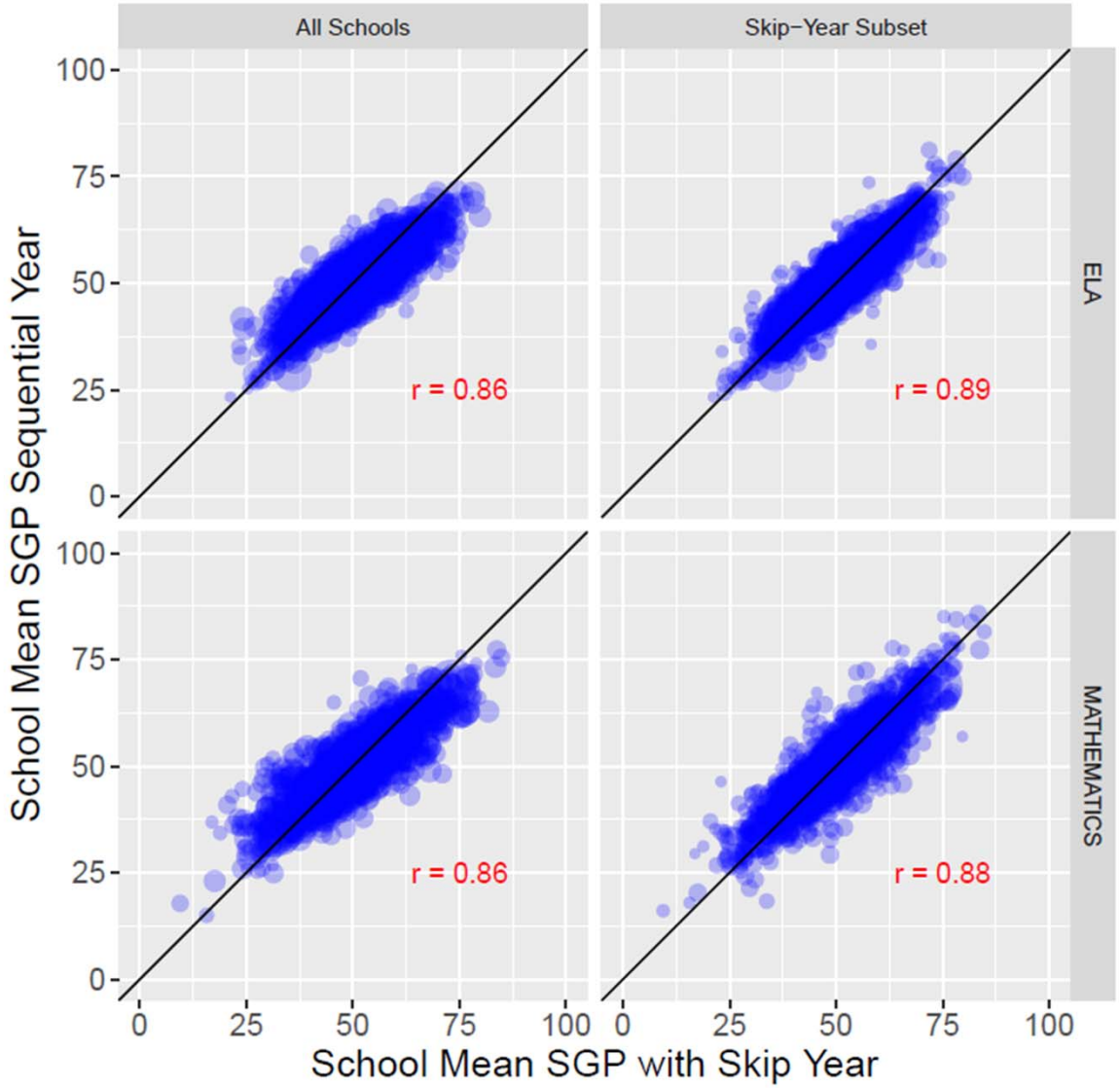
- Because one-year analyses included 4th grade growth and skip-year analyses did not, school level results were summarized in two ways:
  1. All Students - Calculated using all available skip-year and one-year growth scores
  2. Skip-Year Subset - Calculated using only students with both a skip-year and one-year growth score

School-Level: Sequential and skip-year SGP outcomes

- School-level correlations between one-year growth and average achievement are generally between 0.1 and 0.3
- Focusing on the skip-year subset, schools show
  - Similar mean SGPs and slightly higher standard deviations for skip-year results
  - Similar correlations (0.13 to 0.17) with achievement outcomes
- Correlations between one-year and skip-year median SGPs for schools (minimum N of 10) are very high, demonstrating that schools with high median one-year SGPs predominantly have high median skip-year SGPs and vice-versa.

Content Area	All Students	Skip-Year Subset
ELA	0.86	0.89
Mathematics	0.86	0.88

School-Level: Sequential- and skip-year mean SGP by content area and student filter



- Shows the school level MSGP correlations by content area for All Students and Skip-Year Subset.
- Bubble sizes are representative of school size, and the black diagonal line represents perfect correlation (i.e. no difference).

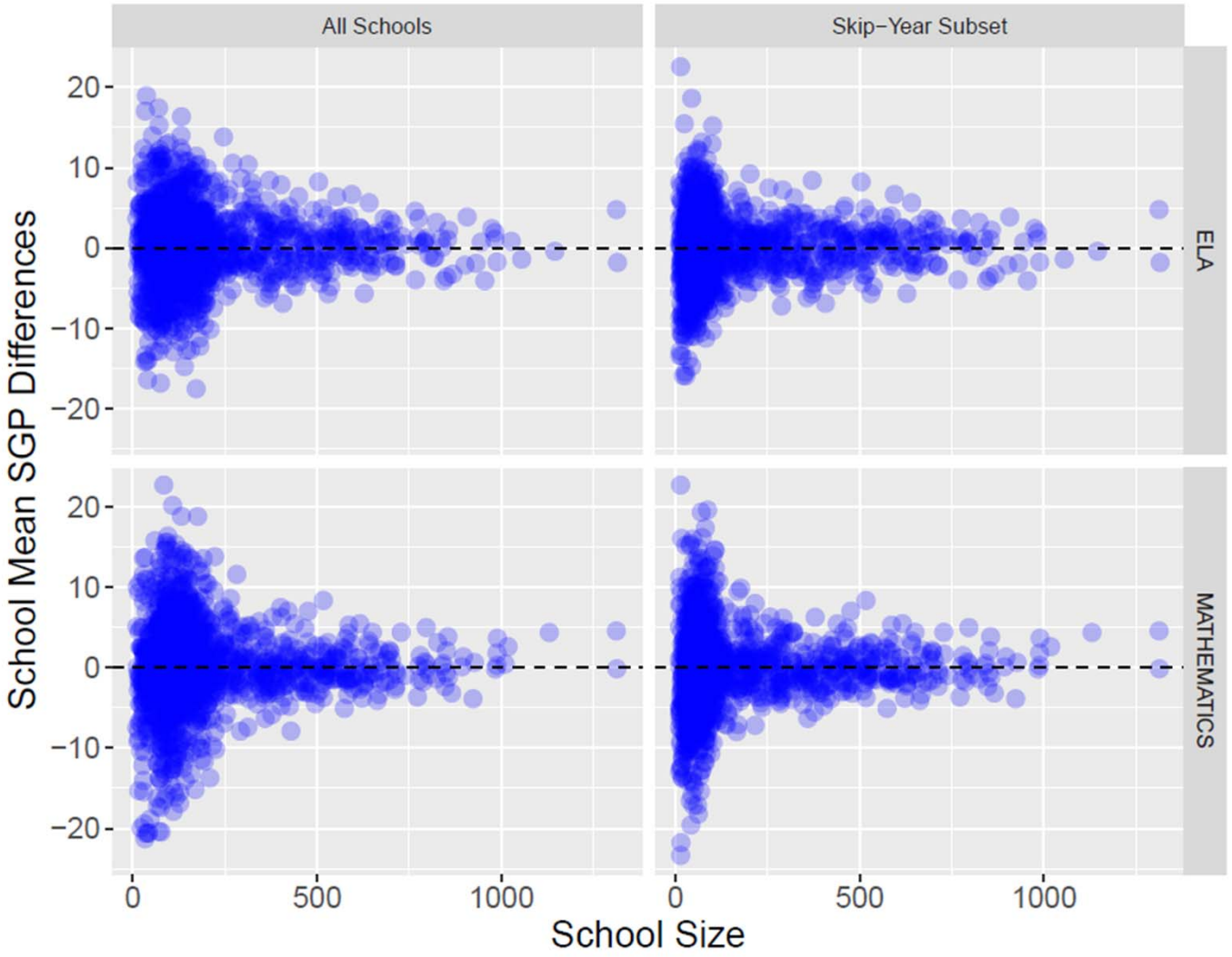
School-Level: Skip-year to one-year median and 95th percentile absolute differences

- Absolute differences were calculated between one-year and skip-year median SGPs to provide the average magnitude of difference for the state by content area.

Filter	Content Area	Median Difference	95%ile Difference
All Students	ELA	2.83	9.96
	Mathematics	2.93	12.41
Skip-Year Subset	ELA	2.48	8.52
	Mathematics	2.87	10.61

- Small differences on average (around 2 percentile points), but 5 percent of schools report differences of nearly 10 in ELA and more than 12 in math.

School-Level: Mean SGP differences by content area and student inclusion filter



- School size is significant driver of differences.
- Mean SGP differences defined as skip-year MSGP minus one-year MSGP.
- Positive numbers show an increase in schools' MSGP when using skip-year calculations, and vice-versa.

School-Level: Sequential and skip-year SGP outcomes

- School level differences like student level differences were, on average, minor.
- However, numerous schools showed one-year/skip-year differences that were not minor and could possibly lead to a different accountability rating.
- CDE will be following up with impact analyses of 2019 performance framework sub-indicator, indicator and overall rating differences using skip-year growth outcomes.

Demographic Subgroup Analyses

- It's important to investigate student achievement and growth outcomes for already at-risk student populations who may be differentially impacted by disrupted educational experiences during the COVID-19 pandemic.
- Issues around opportunity to learn can be investigated using growth gaps comparisons for relevant demographic subgroups.
  - Students eligible for free or reduced-price lunch programs (FRL)
  - English Learners (ELL)
  - Students with disabilities (SWD) who have an IEP

FRL Status: Sequential and skip-year SGP correlation and mean/standard deviation for 2019 by content area

			Sequential		Skip Year	
Content Area	FRL Status	SGP Correlation	Mean	SD	Mean	SD
ELA	No	0.88	51.4	28.8	52.1	28.8
	Yes	0.88	48.5	28.8	47.7	28.8
Mathematics	No	0.86	51.4	28.8	52.4	28.7
	Yes	0.89	48.5	28.9	47.4	28.8

- No significant differences within the two groups' mean SGPs
- However, across both content areas the growth gap between the FRL/non-FRL groups increased from approximately 3 points for the sequential analyses to roughly 5 points using the skip-year estimates.

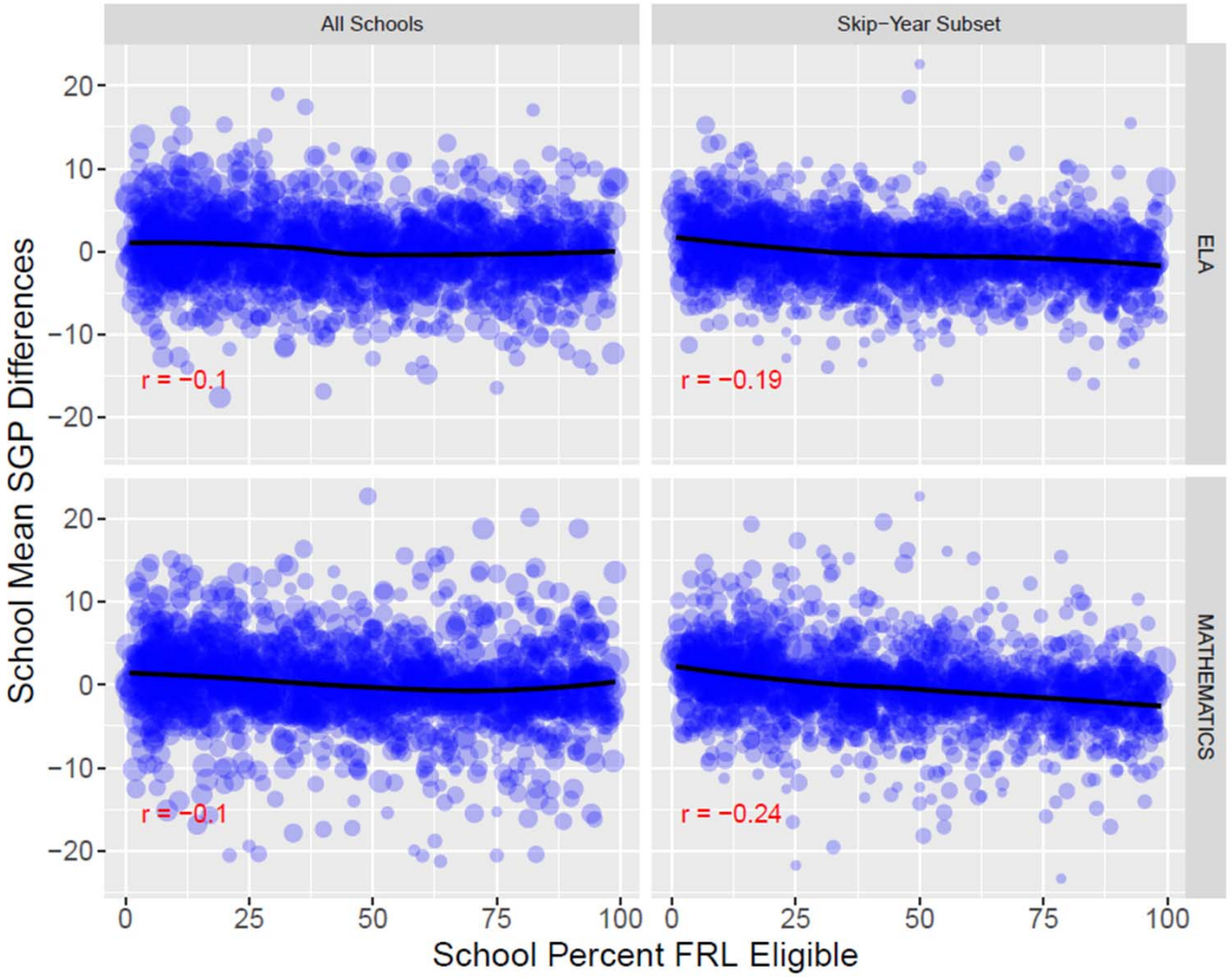
Note: Excludes grade 4, and includes only students who could have received a skip-year SGP

FRL Status: School level correlations between median SGPs and percent FRL by student inclusion filter

Filter	Content Area	Sequential	Skip Year
All Students	ELA	-0.21	-0.22
	Mathematics	-0.20	-0.21
Skip-Year Subset	ELA	-0.12	-0.20
	Mathematics	-0.07	-0.18

- Results provided for both all students (including 4th graders) and and for the subset of students that have both a sequential and skip-year SGP calculated in 2019.
- Negative correlation between school growth and the percentage of FRL students indicates that schools with larger FRL populations tend to demonstrate lower academic growth.

FRL Status: Mean SGP difference by percent FRL by content area and student inclusion filter



- Mean SGP differences defined as skip-year MSGP minus one-year MSGP.
- Slight negative relationship suggests that, on average, schools with larger FRL populations are slightly more likely to be nega-tively impacted using skip-year growth.

ELL Status: Sequential and skip-year SGP correlation and mean/standard deviation for 2019 by content area

			Sequential		Skip Year	
Content Area	ELL Status	SGP Correlation	Mean	SD	Mean	SD
ELA	No	0.88	50.2	28.9	50.5	28.9
	Yes	0.91	49.7	28.7	48.0	28.6
Mathematics	No	0.86	50.3	28.9	50.6	28.8
	Yes	0.92	48.9	29.0	47.0	28.8

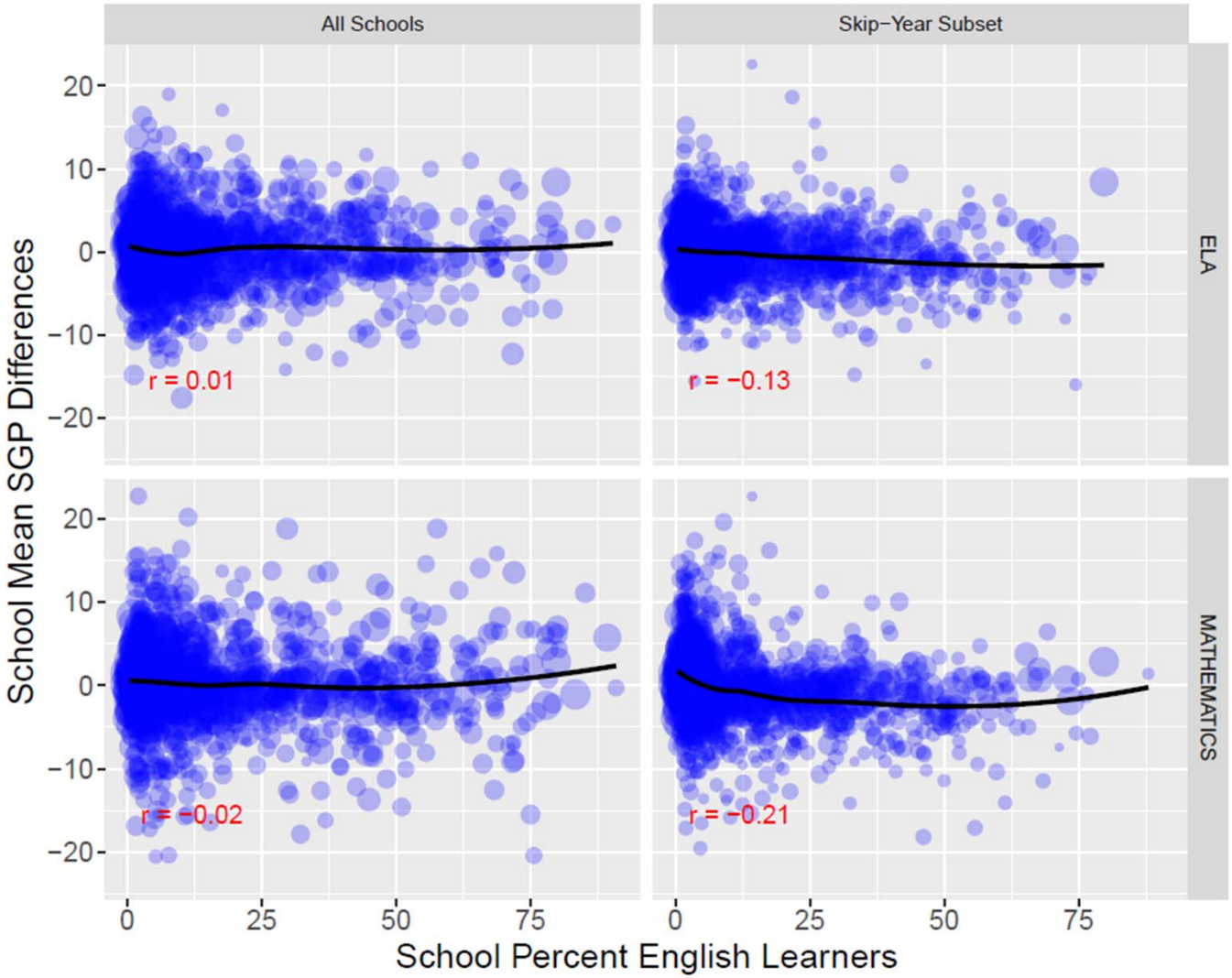
- No significant differences within the two groups' mean SGPs
- However, ELL typical growth in both ELA and mathematics are about 2 points lower using the skip-year analysis, in increasing the otherwise modest growth gap between ELL and non-ELL students.
- Note: Excludes grade 4, and includes only students who could have received a skip-year SGP

ELL Status: School level correlations between median SGPs and percent ELL by student inclusion filter

Filter	Content Area	Sequential	Skip Year
All Students	ELA	-0.07	-0.05
	Mathematics	-0.07	-0.07
Skip-Year Subset	ELA	0.03	-0.03
	Mathematics	0.04	-0.07

- Results provided for both all students (including 4th graders) and for the subset of students that have both a sequential and skip-year SGP calculated in 2019.
- Correlation between school growth and the percentage of ELL students is minimal.

ELL Status: Mean SGP difference by percent ELL by content area and student inclusion filter



- Mean SGP differences defined as skip-year MSGP minus one-year MSGP.
- Slight negative relationship suggests that, on average, schools with larger ELL populations are slightly more likely to be negatively impacted with the use of skip-year analysis.

SWD Status: Sequential and skip-year SGP correlation and mean/standard deviation for 2019 by content area

			Sequential		Skip Year	
Content Area	IEP Status	SGP Correlation	Mean	SD	Mean	SD
ELA	No	0.88	50.6	28.9	50.9	28.9
	Yes	0.91	46.6	28.4	44.4	28.2
Mathematics	No	0.86	50.6	28.9	50.8	28.8
	Yes	0.92	46.5	28.7	45.0	28.6

- No significant differences within the two groups' mean SGPs
- However, across both content areas the growth gap between the SWD/non-SWD groups increased from approximately 4 points for the sequential analyses to roughly 6 points using the skip-year estimates.

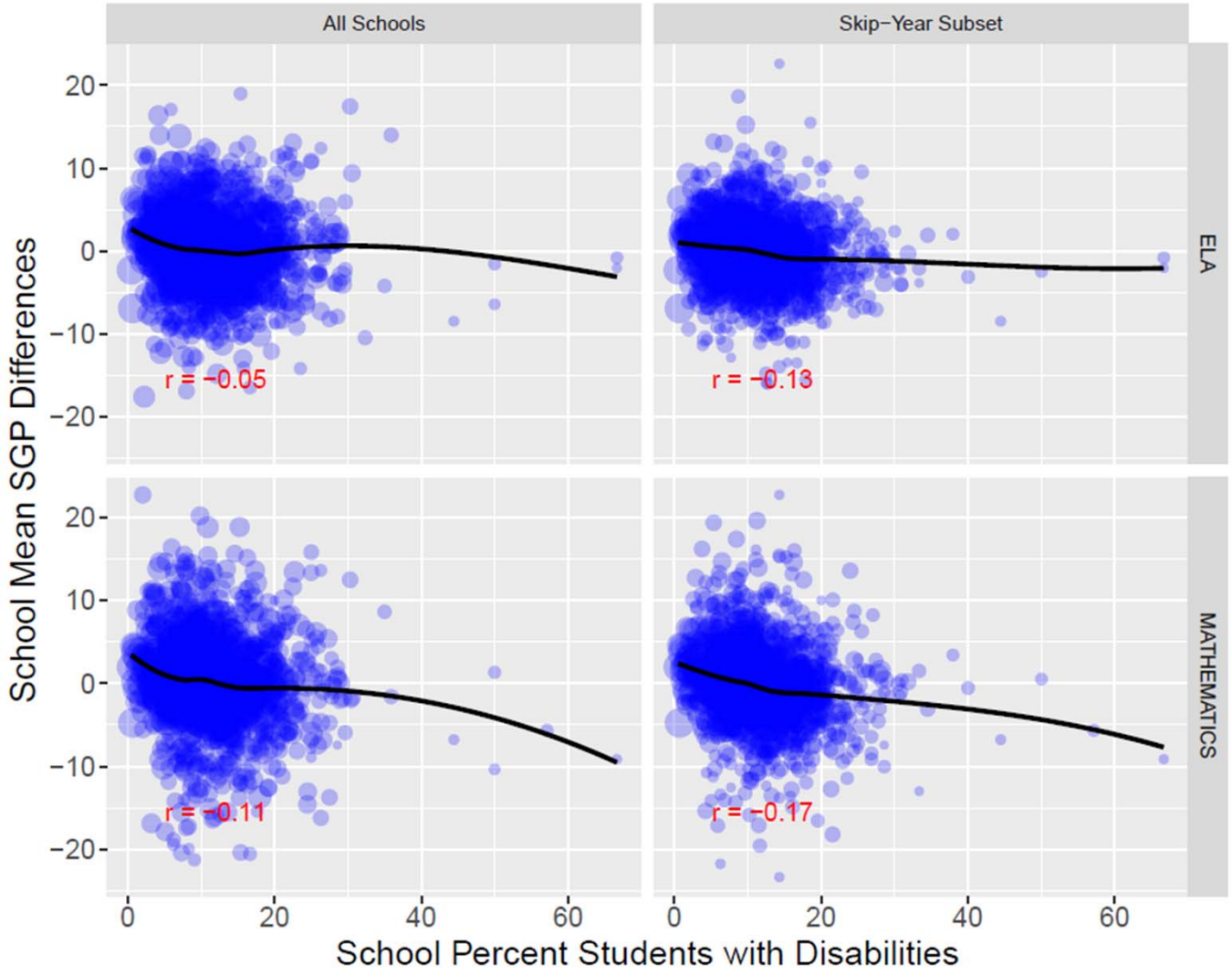
Note: Excludes grade 4, and includes only students who could have received a skip-year SGP

SWD Status: School level correlations between median SGPs and percent SWD by student inclusion filter

Filter	Content Area	Sequential	Skip Year
All Students	ELA	-0.15	-0.14
	Mathematics	-0.13	-0.16
Skip-Year Subset	ELA	-0.12	-0.17
	Mathematics	-0.09	-0.16

- Results provided for both all students (including 4th graders) and for the subset of students that have both a sequential and skip-year SGP calculated in 2019.
- Negative correlation between school growth and the percentage of students with disabilities indicates that schools with larger SWD populations tend to demonstrate lower academic growth.

SWD Status: Mean SGP difference by percent SWD by content area and student inclusion filter



- Mean SGP differences defined as skip-year MSGP minus one-year MSGP.
- Slight negative relationship suggests that, on average, schools with larger SWD populations are slightly more likely to be nega-tively impacted using skip-year growth.

Summary of skip-year analyses

- No systematic differences between sequential year and skip year growth outcomes at the following levels:
  - Student
  - School
  - District
  - Disaggregated group- observed differences were minor
- However, for a small proportion of students and schools significant differences do exist and may change inferences about performance.
- These historical analyses based on “usual“ educational circumstances and the current circumstances are far from usual, it is likely that spring 2021 skip-year data will exhibit greater deviations.

Summary of skip-year analyses

- We will have to wait until data become available next summer to determine if 2021 skip-year growth calculations are similar enough to these historical analyses to be used in lieu of one-year growth results for reporting and accountability purposes.

TAP input around possible 2021 skip-year growth for Stakeholder Group

- As the policy-oriented members of the Stakeholder Group consider scenarios in which it would be appropriate to calculate and report skip-year growth in 2021, what key concepts and/or recommendations should Carol communicate on behalf of the TAP?

Technical Advisory Panel

- Meeting Summary:
  - Suggested future analysis
  - TAP recommendations from this meeting
- Public Comment
- Close Meeting
  - Next Scheduled Meeting, Thursday, October 22nd, 1-4.