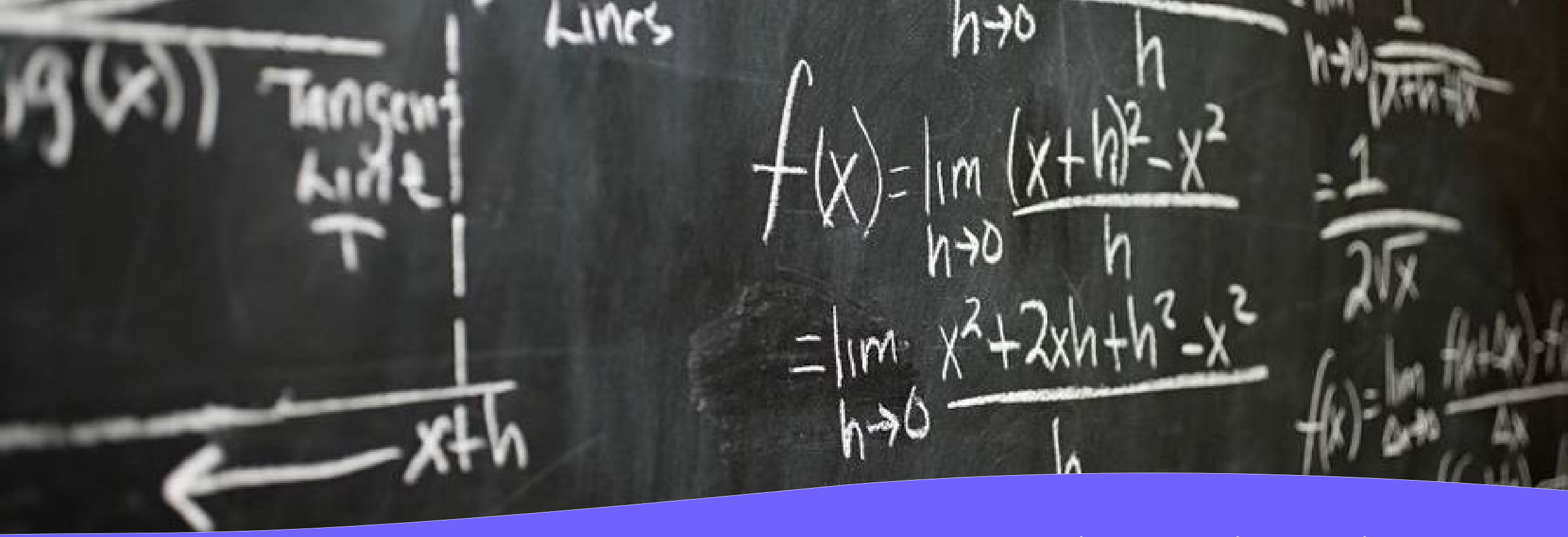

Effects of Covid-19 Pandemic and Learning Loss in SC Public Schools

*For program funding details in compliance with the Stevens Amendment, please visit: dew.sc.gov/funding

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and

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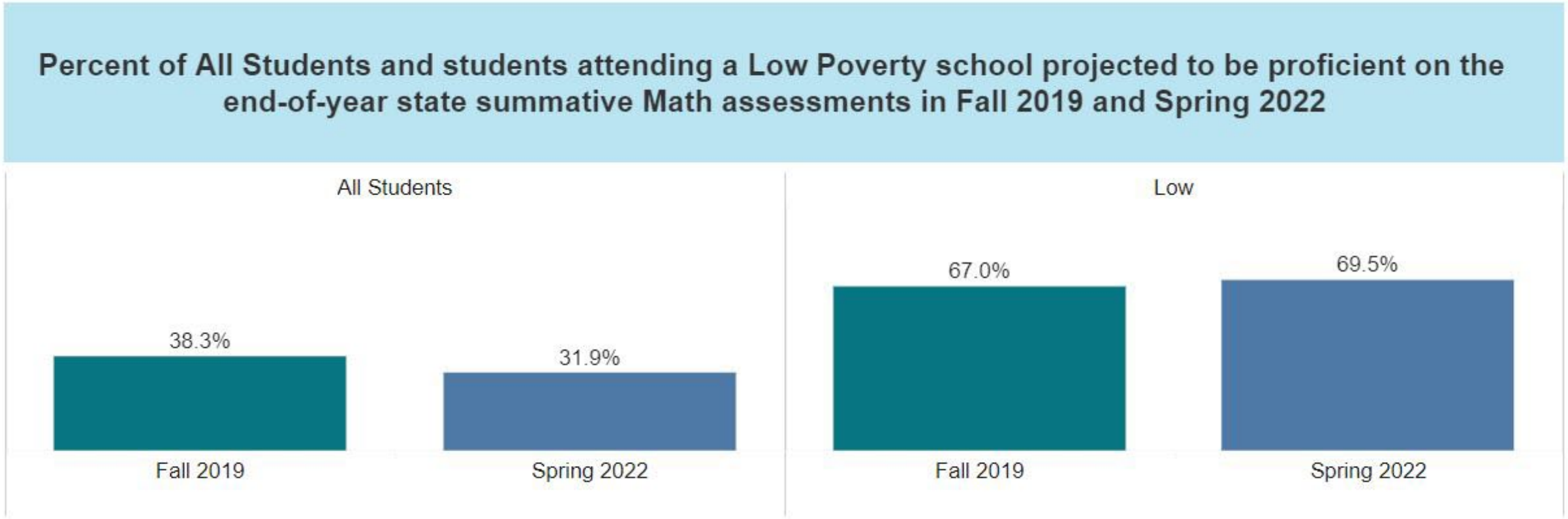
Where We Started



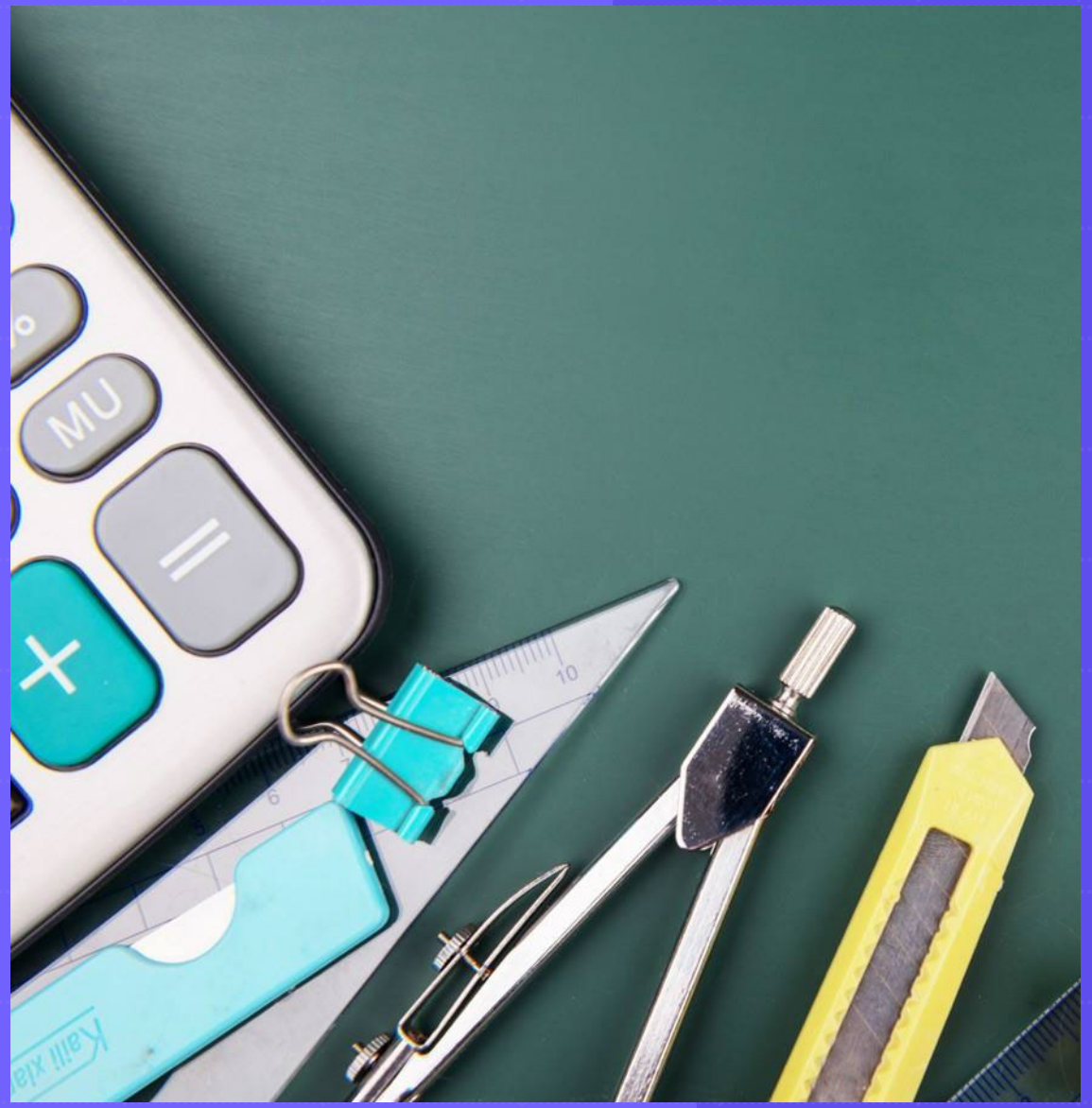
*https://www.nwea.org/exploring-the-educational-impacts-of-covid-19/

Research Agenda

Q: Is remote learning the same as a school break?

Learning Loss: Students learn at similar rates. Education inequality emerges during breaks.

'Learning loss' during the COVID-19 pandemic has disproportionately impacted students from low socioeconomic backgrounds (Betthäuser et al. 2023).



Topics

Intro: School Shutdowns and Learning Loss

Theory and Hypothesis Test

Data Sources

Model and Results

Discussion

Sources of Education Inequality?

Socialization: Poor children are less socialized and exposed to education adjacent extracurricular or leisure activities (Goudeau et al. 2021).

Discourse via political and media sources: Education inequality is driven by school performance and/or funding (Alexander et al. 2001).

Learning resources: The digital divide is a recently emerging example of the differences in access to learning resources observed by class (Allington 2010).

Model Test

Null Hypothesis

School quality determines outcomes.

There is no relationship between pandemic learning loss and poverty or broadband access.

Alternative H1:

Shutdown induced learning loss will be greatest in households lacking access to learning resources

Greater broadband access is associated with lower learning loss.

Alternative H2:

Shutdown induced learning loss is the same as school breaks. Differences in leisure time activities and extracurriculars drive the class divide.

Higher poverty is associated with more learning loss.

Source for Dependent Variable

Grades 3-8, English Language Arts and Math, 2019 is the reference year

District-grade comparison: Difference in percentage of students that score "*does not meet expectations*" in Math (Betthäuser et al. 2023) in the same school district grade across years.

Cohort comparison: Difference in percentage of students that score "does not meet expectations" in Math within district grade cohorts.

SC READY - South Carolina Department of Education - 05/08/2023 2:42 PM

SC READY Scores

Source for Independent Variable

Household Population and Childhood Broadband Access.

<18 with Broadband access/<18 household population

B28005: AGE BY PRESENCE OF A ... - Census Bureau Table

2021 ACS 5 Year School District Level Estimates

Source for Second Independent Variable

School District Level

Ages 5-17 in poverty/5-17 population

Small Area Income and Poverty Estimates (SAIPE) Program (census.gov)

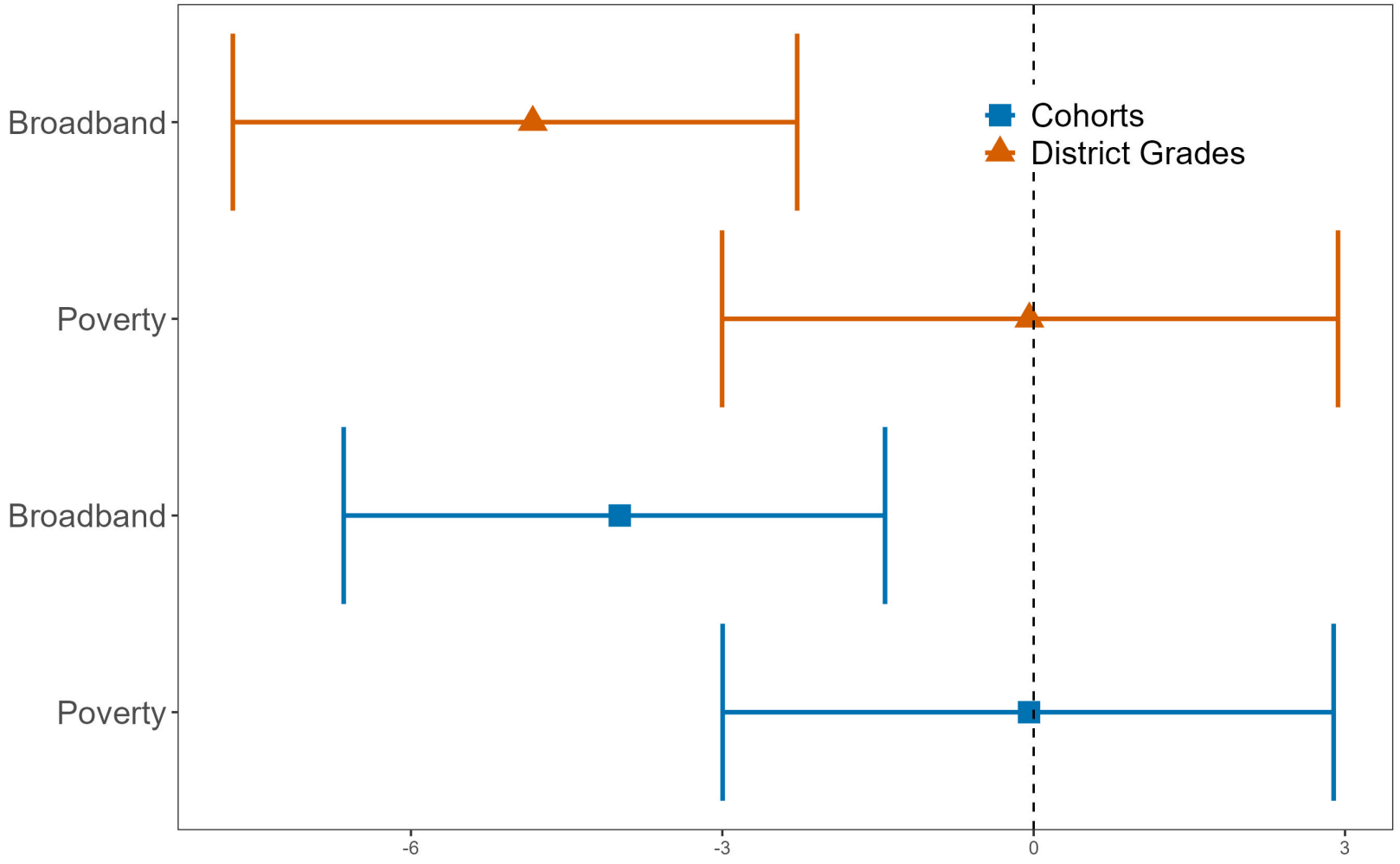
2019 Small Area Income and Poverty Estimates Program (SAIPE)

Table

District	Total # Actively Enrolled Students	Broadband (ACS-Ed Mapping)
Greenville 01	**75,997**	94.60%
Charleston 01	**49,516**	87.80%
Horry 01	**44,673**	91.90%
Berkeley 01	**35,855**	88.90%
Richland 02	**28,374**	92.30%

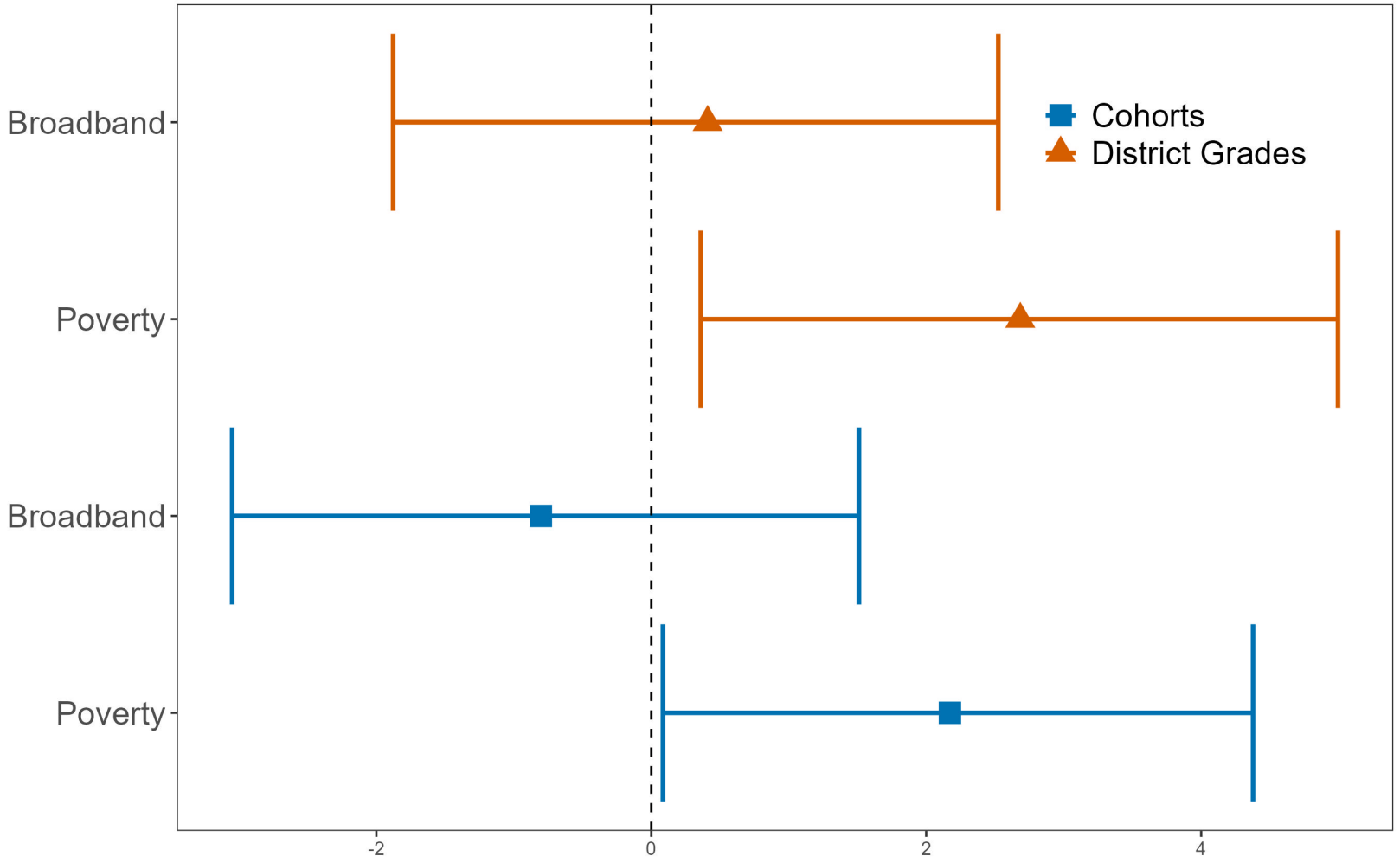
Table

District	Total # Actively Enrolled Students	Broadband (ACS-Ed Mapping)
Florence 04	**705**	64.30%
Hampton 02	**684**	92.30%
Bamberg 02	**679**	84.30%
McCormick 01	**674**	77.20%
Barnwell 19	**608**	87.70%



Two Year Lag Standardized Estimate and 95% Confidence Intervals

*Model: Δscores = Population + Broadband + Poverty w/ non-parametric bootstrapped CIs



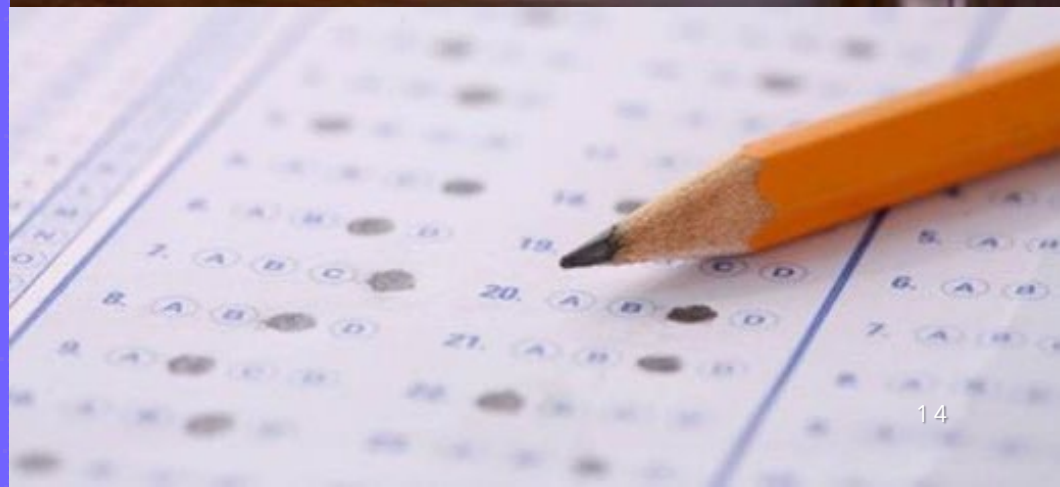
Three Year Lag Standardized Estimate and 95% Confidence Intervals

*Model: Δscores = Population + Broadband + Poverty w/ non-parametric bootstrapped CIs

Results

After two years: Higher rates of broadband internet is associated with less learning loss.

After three years: Higher rates of poverty are associated with higher learning loss.



Final Thoughts

- Well funded and consistent education programs are needed to lessen the effects of poverty on student performance.

Addressing education inequality requires consideration of both accessibility and resiliency.

Need for continued research attention towards the shutdown affected cohorts of students as they progress through their education.

Thank you

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Citations:

Alexander, Karl L., Doris R. Entwisle, and Linda S. Olson. "Schools, achievement, and inequality: A seasonal perspective." Educational Evaluation and Policy Analysis 23.2 (2001): 171-191.

Allington, Richard L., et al. "Addressing summer reading setback among economically disadvantaged elementary students." Reading Psychology 31.5 (2010): 411-427.

Betthäuser, Bastian A., Anders M. Bach-Mortensen, and Per Engzell. "A systematic review and meta-analysis of the evidence on learning during the COVID-19 pandemic." Nature Human Behaviour (2023): 1-11.

Betthäuser, Bastian A., Anders M. Bach-Mortensen, and Per Engzell. "A systematic review and meta-analysis of the evidence on learning during the COVID-19 pandemic." Nature Human Behaviour (2023): 1-11.

Goudeau, Sébastien, et al. "Why lockdown and distance learning during the COVID-19 pandemic are likely to increase the social class achievement gap." Nature Human Behaviour 5.10 (2021): 1273-1281.

U.S. Census Bureau. (2021). 2017-2021 American Community Survey 5-year Public Use Microdata Samples.

U.S. Census Bureau. (2019). 2019 Small Area Income and Poverty Estimates Program (SAIPE).

Appendix 1: Model Summary 3 Year Score Difference by Cohorts

Coefficients:	Estimate	Std. Error	*t*-value	*p*-value
Intercept	12.87	8.13	1.583	0.115
Population	1.82 E-05	6.59 E-06	2.758	0.006**
Poverty Rate	18.87	8.69	2.172	0.031*
Broadband	-6.39	7.95	-0.803	0.423
	Residual Standard Error:	8.346	Degrees of Freedom:	210
	Multiple R^2	0.05683	Adjusted R^2	0.04335
	F-Statistic:	4.217	Degrees of Freedom:	3 and 210
	p-value:	0.006	N:	214

Appendix 1: Model Summary 3 Year Score Difference by District Grades

Coefficients:	Estimate	Std. Error	*t*-value	*p*-value
Intercept	-7.12 E-02	5.40	-0.013	0.989
Population	5.19 E-06	4.34 E-06	1.196	0.232
Poverty Rate	15.25	5.68	2.684	0.008**
Broadband	2.17	5.29	0.410	0.682
	Residual Standard Error:	7.779	Degrees of Freedom:	427
	Multiple R^2	0.01956	Adjusted R^2	0.01267
	F-Statistic:	2.839	Degrees of Freedom:	3 and 427
	p-value:	0.038	N:	431

Appendix 1: Model Summary 2 Year Score Difference by Cohorts

Coefficients:	Estimate	Std. Error	*t*-value	*p*-value
Intercept	37.45	7.44	5.031	0.000***
Population	5.90 E-06	5.66 E-06	1.042	0.298
Poverty Rate	-0.35	7.93	-0.045	0.964
Broadband	-28.75	7.21	-3.99	0.000***
	Residual Standard Error:	8.299	Degrees of Freedom:	284
	Multiple R^2	0.07362	Adjusted R^2	0.06383
	F-Statistic:	7.523	Degrees of Freedom:	3 and 284
	p-value:	0.000	N:	288

Appendix 1: Model Summary 2 Year Score Difference by District Grade

Coefficients:	Estimate	Std. Error	*t*-value	*p*-value
Intercept	32.06	5.70	5.629	0.000
Population	1.69 E-06	4.45 E-06	0.379	0.705
Poverty Rate	-0.25	5.97	-0.041	0.967
Broadband	-26.78	5.55	-4.826	0.000
	Residual Standard Error:	8.003	Degrees of Freedom:	433
	Multiple R^2	0.07233	Adjusted R^2	0.0659
	F-Statistic:	11.25	Degrees of Freedom:	3 and 433
	p-value:	0.000	N:	437