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Mitigating the Pandemic Learning Loss:

Differential Effects of California's K-12 Weighted Formula Aid on Student Performance

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Research Question

- How has the implementation of California's Local Control Funding Formula (LCFF) impacted K-12 educational setbacks during the COVID-19 pandemic, particularly for the student groups that LCFF was designed to support in improving their academic outcomes?

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School Finance History in California

- 1978-2013: CA relied on 50 categorical funding programs with mandated spending.
  - 30% local property tax, 60% state general fund.
- 2012: Ranked last in per-pupil spending adjusted for cost of living (Johnson, 2023).
- National Assessment of Educational Progress (NAEP) tests: Showed significant achievement gaps by SES, race, and ethnicity.

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Local Control Funding Formula (LCFF)

- LCFF was adopted in 2013 to try to close achievement gaps.
- Weighted funding formula provides more aid to high-need students (English Learners, low-income, homeless, foster youth) (Lafortune & Herrera, 2023).
- Funding breakdown (Ed100)
  - 1) **Base Grant**
  - 2) **Supplemental:** + 20% per high-need student.
    - Provided to every district.
  - 3) **Concentration:** + 50% per high-need student.
    - 55% of students must qualify as at-need.

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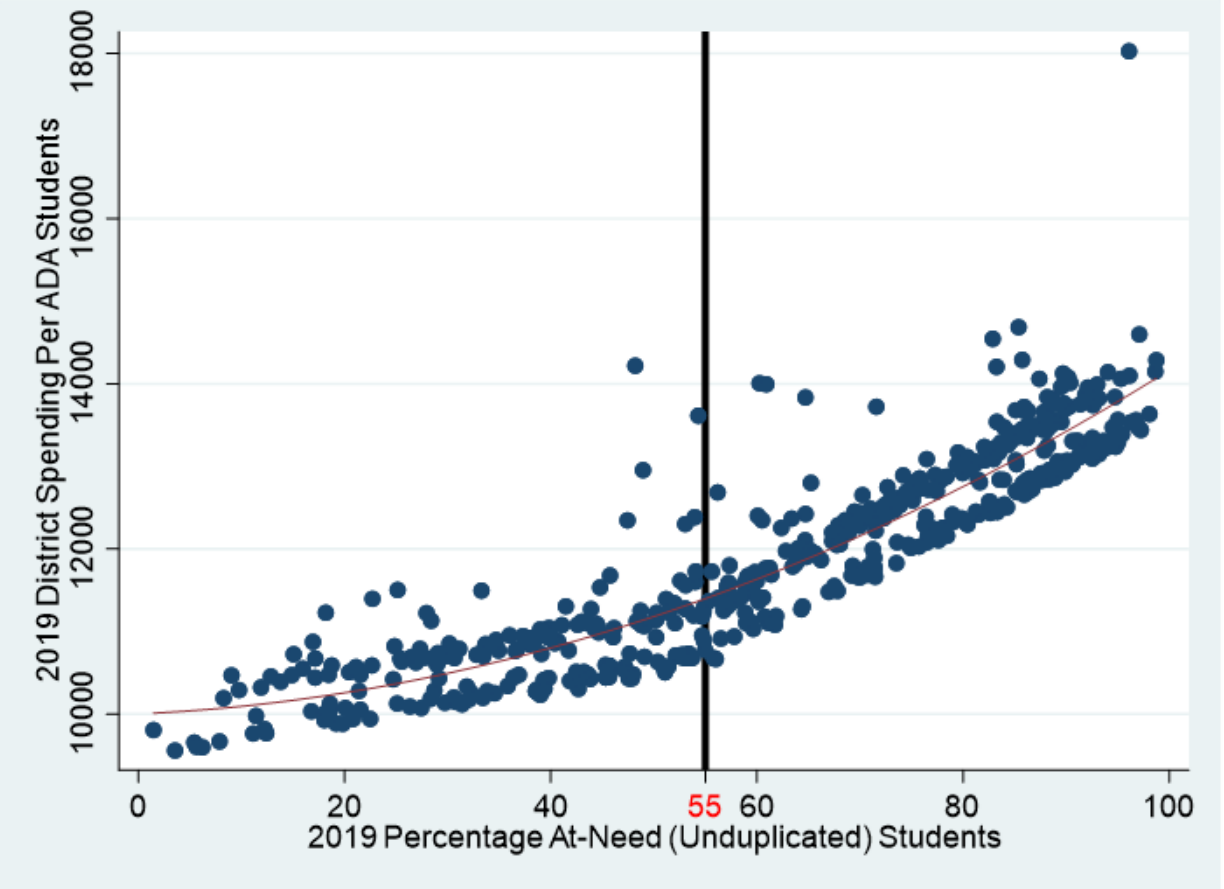

Figure 1: Simple Quadratic Plot of 2019 Per-Pupil District Spending Against 2019 Percentage Unduplicated At-Need Students

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Student Weighted Funding Formula Consensus

- Research shows targeted per-pupil spending improves outcomes (Jackson & Mackevicus, 2021; Jackson et al., 2016; Hyman, 2017).
- Lafortune & Mehlotra (2021)
  - Under LCFF, resources were more equitably distributed, test score gaps narrowed by district, and A-G completion rose in high-need districts.

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Dependent Variable

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- Difference in average 8th-4th grade math scores between 2019-2022.
- Black students face the largest achievement gaps:
  - 2.2 grades behind pre-pandemic, 2.8 grades post-pandemic
  - Largest pandemic learning loss: .53 grades
- Source: Stanford Educational Data Archive (SEDA)

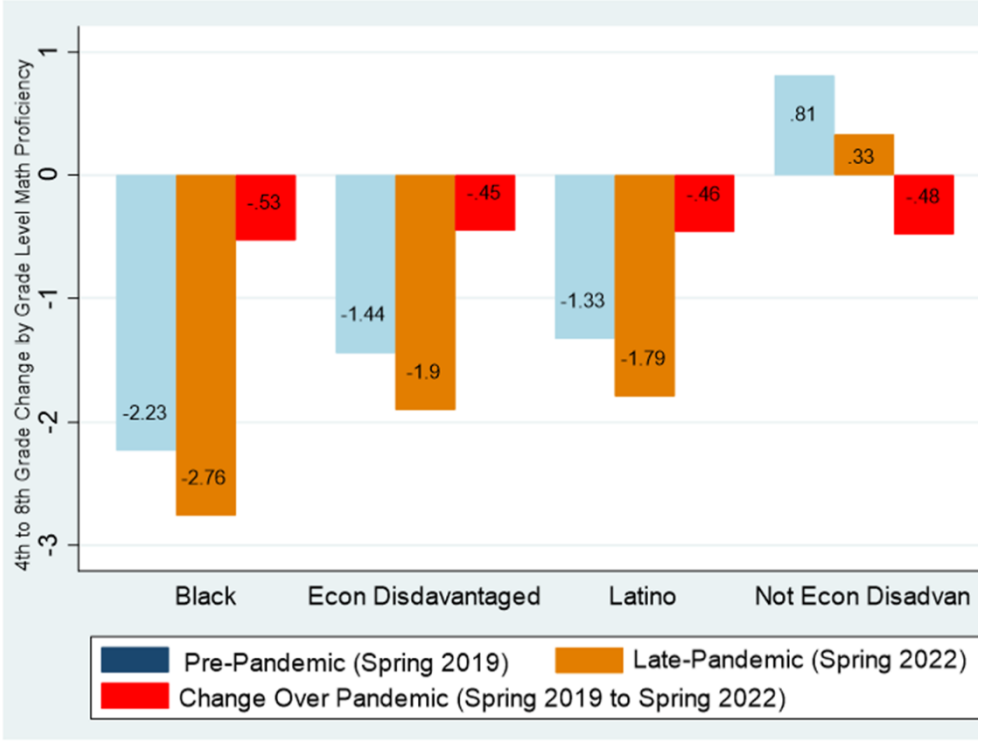

Figure 2: Comparison of Average Annual Learning Loss for Pre and Late Pandemic Grade-Level Equivalent Math Proficiency

Explanatory Variables

- EV 1: Decimal % Unduplicated Students in a district.
- EV 2: Decimal % Unduplicated Students at or above 55% of the district population (Interaction with dummy variable).
  - = EV1 * Dummy (where 1 = percent unduplicated > .55)
- Source: California Statewide LCFF Summary Data 2018-19
- *Unit of Analysis: District Level

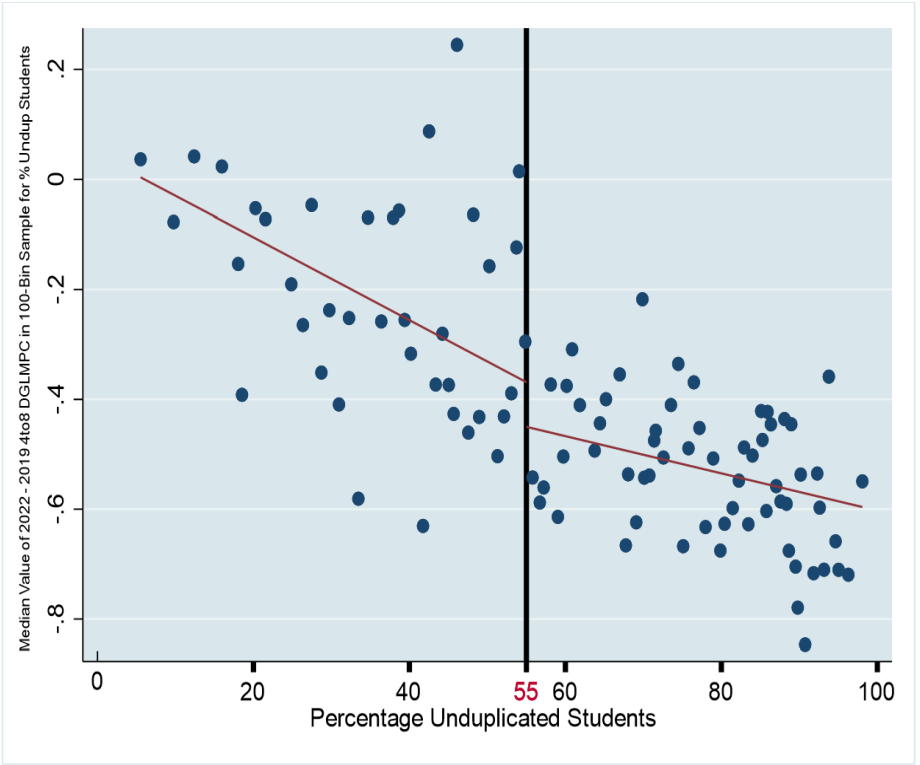

Figure 3: Simple Kinked Plot of Pandemic (2019 to 2022) 4th to 8th Grade Annual Learning Loss (Median 100-Bin 3to8DGLCMPA) against 2019 Percentage Unduplicated Students

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Student Sample / Variable Name	All	Economic Disadvantaged	Not Economic Disadvantaged	Latino	Black
Decimal % Unduplicated Students	-1.265*** (0.208)	-0.961*** (0.259)	-1.126*** (0.216)	-1.051*** (0.250)	-1.141* (0.693)
Decimal % Unduplicated Students ≥ 0.55	0.722*** (0.227)	0.585* (0.306)	0.251 (0.330)	0.627** (0.281)	0.380 (0.920)
2019 8th to 3rd Grade Annual Average 3to8DGLCMP^^	-0.116*** (0.022)	-0.115*** (0.028)	-0.103*** (0.034)	-0.114*** (0.023)	-0.107** (0.053)
Decimal % Household Unemployed	-1.931*** (0.704)	-1.979*** (0.728)	-3.516*** (1.170)	-1.947*** (0.700)	-0.245 (2.359)
Decimal % Latino/a Students	-0.140 (0.107)	0.121 ().145)	0.098 (0.145)	-0.029 (0.143)	0.646 (0.406)
Decimal % Black Students	-0.459* (0.261)	0.432 (0.298)	0.439 (0.422)	-0.106 (0.244)	-0.141 (0.840)
Decimal % Asian-American Students	0.656*** (0.132)	0.348** (0.159)	0.814*** (0.167)	-0.001 (0.138)	0.942 (0.591)
Decimal % Native American Students	1.188 (0.950)	1.572 (1.448)	2.336* (1.287)	2.242 (2.009)	-9.756* (5.858)
Decimal % Special Education Students	-1.394** (0.590)	-1.037 (0.735)	-1.303 (0.887)	-1.115* (0.660)	5.644 (3.581)
Decimal % Students in Urban Local Schools	-0.061* (0.034)	-0.092** (0.044)	-0.052 (0.056)	-0.077** (0.037)	-0.063 (0.095)
Total Enrollment (10K)	0.015*** (0.004)	0.011*** (0.003)	0.019*** (0.005)	0.011*** (0.003)	0.004 (0.005)
Enrollment/Race Composition Change Dummy	-0.089** (0.038)	omitted	-0.059 (0.047)	-0.113** (0.045)	-0.065 (0.110)
Constant	-0.154 (0.122)	-0.259* (0.148)	-0.203 (0.160)	-0.292* (0.157)	-1.768*** (0.574)
R-Squared	0.317	0.250	0.307	0.231	229
Observations	512	361	369	406	71

^Estimated in Stata using robust standard errors for heteroskedasticity. Asterisks indicate the degree of statistical significance in a two-tailed test with *** > 99% confidence, ** = 95 to 99% confidence, and * = 90 to < 95% confidence.

^^ Calculated for the same student group as the dependent variable.

Table 1: Regression Discontinuity Analysis of the Influence of Additional Per-Pupil State Funds on 4to8DGLAMP if District's At-Need Students Greater than 55%^

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Findings

Student Sample	All	Economic Disadvantaged	Not Economic Disadvantaged	Latino	Black
Decimal % At Need (Unduplicated) Students Effect	-1.265	-0.961	-1.126	-1.051	-1.141
[Decimal % At Need (Unduplicated) Students Effect - Decimal % Unduplicated Students Effect ≥ 55%]	0.543	0.376	not stat sig	0.424	not stat sig
[Decimal % At Need (Unduplicated) Students Effect - Decimal % At Need (Unduplicated) Students Effect ≥ 55%] / Decimal % At Need (Unduplicated) Students Effect	42.9%	39.1%	not stat sig	40.3%	not stat sig

Table 2: Unduplicated Students' Effect on 4to8DGLCMP as Compared to Effect Change After Unduplicated Students Exceed 55%

- Evidence that LCFF concentration grants work to reduce learning loss by 40% for student samples of All, Economically Disadvantaged, & Hispanic students.
- No evidence that LCFF concentration grants work to reduce learning loss for student groups of Not Economically Disadvantaged & Black.

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Policy Recommendations

- Improve accountability by requiring explicit reporting on how funds support high-need students.
- Increase LCFF funding levels to better support programs that address learning gaps, particularly for Black students.
- Direct funding to school sites instead of districts for better targeting of resources.

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Addressing the Equity Gap

- California Reparations Taskforce (2023)
- Equity Multiplier
  - A current demonstration project that increases funding for school sites with the highest concentrated poverty. $900 per qualifying student.
  - Requires LCAPs to set goals and track progress for schools receiving equity funds.
  - 7% of black students will receive this funding.

*Prop in 209 in CA prohibits a specific weight given based on race/ethnicity.

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Questions?