



FILLING THE GAP: THE UNTAPPED POTENTIAL OF RESEARCH ON SUBSTITUTE TEACHERS

Dan Goldhaber^{1,2} & Grace Falken²
¹CALDER, American Institutes for Research
²University of Washington

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How important are substitutes in K-12 schooling?

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- How much time do students spend with substitutes in their K-12 career?
 - Teachers are absent about 7% of the time (~160 school days, almost a whole year!) (Wang, 2023)
 - BUT about 1 in 5 substitute requests aren't filled (Frontline Education, 2019)
- What is the impact of teacher absences on students?
 - The marginal absence decreases student test scores by between 0.02 and 0.06% of a SD (Benhenda, 2022; Clotfelter et al., 2009; Hermann & Rockoff, 2012; Miller et al., 2008)
- To what extent do substitute teachers (or different types of subs) mitigate this impact?
 - Certified substitutes reduce this effect compared to non-certified substitutes or unfilled absences (Benhenda, 2022; Clotfelter et al., 2009)
 - We don't know much about the effects of training, but subs don't receive much (90% of districts offer 4 hours or less) (Violet and von Moos, 2020)
- What are the equity implications? How are effects different across student groups?
 - Teacher absences affect students of color and low-income students more than their white, higher-income peers (Kraft et al., 2022; Liu et al., 2022)

What can we learn from analysis of substitute data in your district?

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- Why is substitute coverage not the same everywhere?
 - Which schools, types of schools, and types of teachers have a more or less difficult time finding a substitute? Certain days or subject areas?
- Why are some requests not filled?
 - High quality data (and linkages!) allow us to understand the landscape of substitute supply – this is helpful for (1) identifying the nature of any problems and (2) figuring out potential solutions
 - Do you have enough substitutes to cover the number of requests in your district?
 - Do substitutes mainly live on one side of town?
- Can we make subs better?
 - Different substitute recruiting or standards?
 - Better training?
 - Better or repeated matching to specific groups of schools/students?

What are the levers for policy change?

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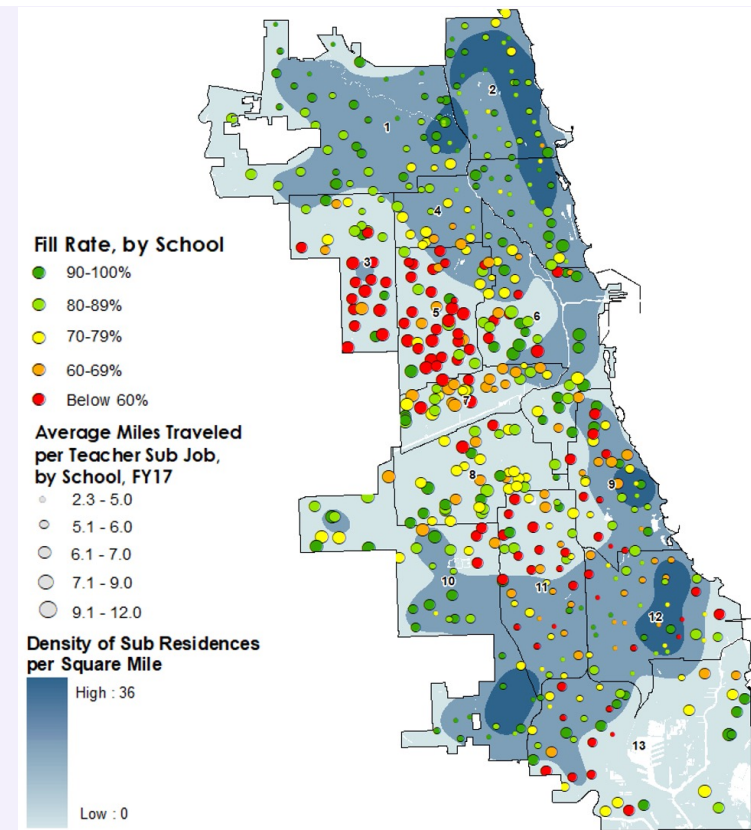
1. How substitutes are matched to schools/jobs
2. Substitute certification education requirements
3. Substitute (and teacher) compensation and information provision

With a few exceptions (stay tuned!), we don't know much about any of these

How research can inform practice: a case study

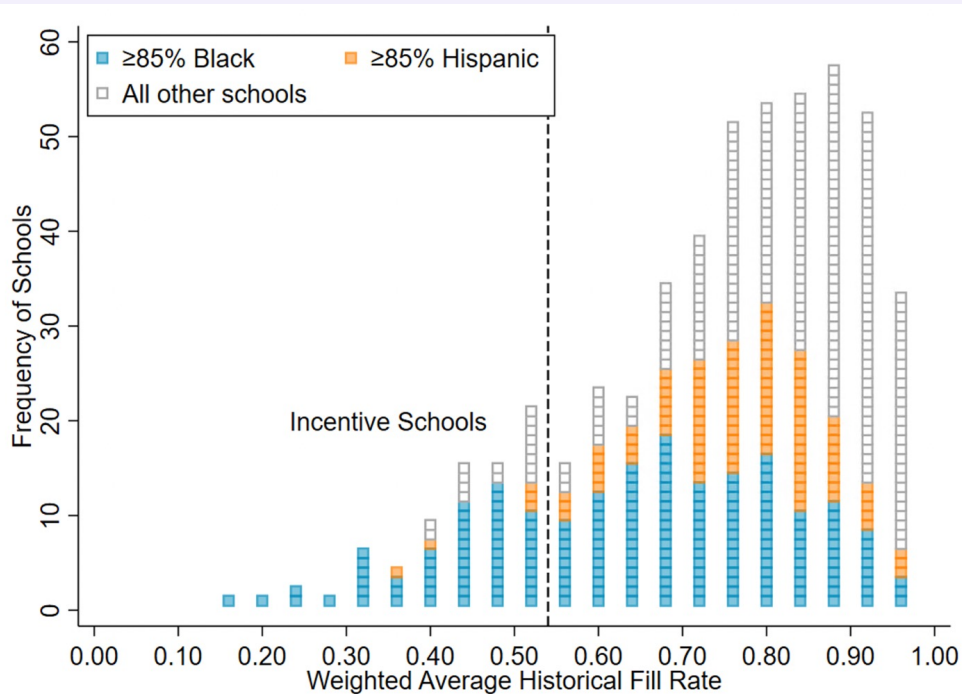
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- What happened:
 - Experimental intervention in substitute daily compensation (in the form of daily bonuses)
 - Chicago Public Schools, 2018-19 and 2019-20 SY
- Why:
 - Aiming to alleviate major inequities in substitute coverage rates across schools



Providing more pay for working in the neediest schools

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- CPS provided daily bonuses (between \$30 and \$40 on top of \$165 daily pay) for substitutes who worked at the 75 schools with the lowest historical fill rates
- These schools predominantly served Black students and were concentrated on the South and West Sides of the city

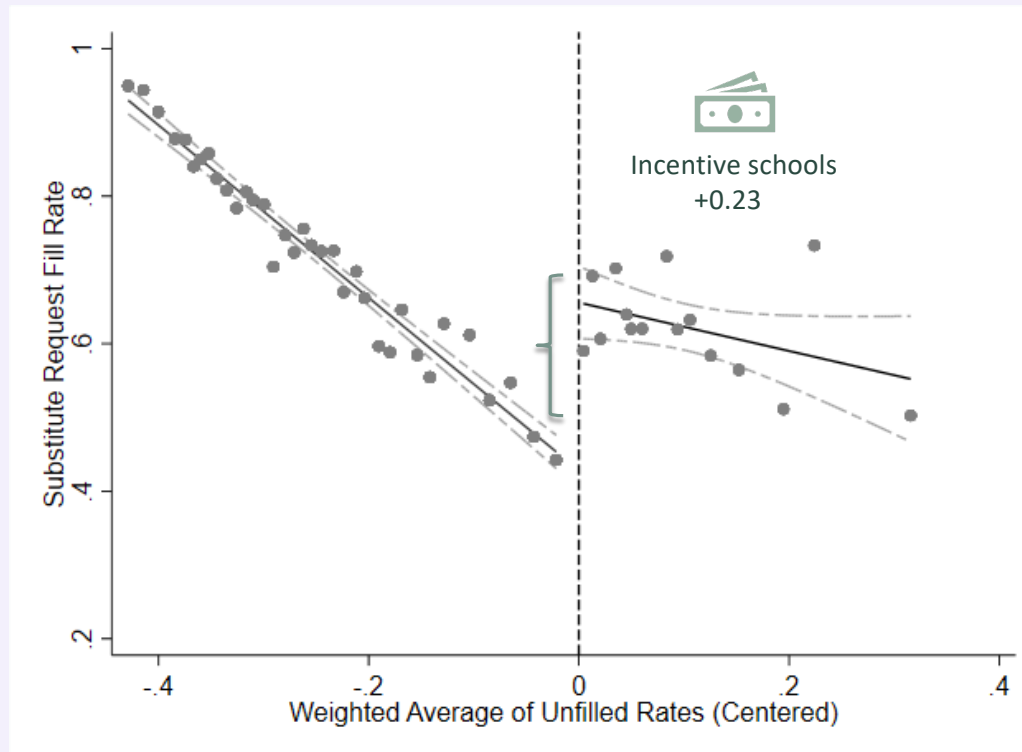
What can we learn from this intervention?

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- How responsive are substitute teachers to compensation incentives in CPS?
- How much \$\$ would it take to make substitute coverage across schools equal?
- What types of substitutes are more / less responsive to incentives?
- How do changes in substitute coverage impact schools and students?

Incentive pay increased substitute coverage by 50%

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Not all substitutes responded to incentive pay

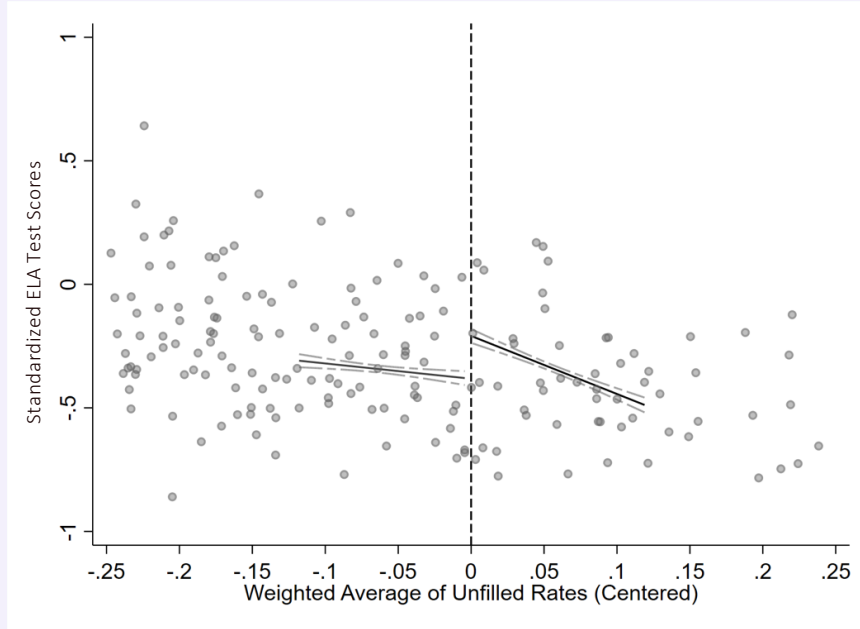
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- Effects were driven by substitutes who had worked in these and other schools before
- Black women were the most responsive demographic group
- Most responsive substitutes were commuting between 10 and 20 minutes to these schools (geographic proximity is important)

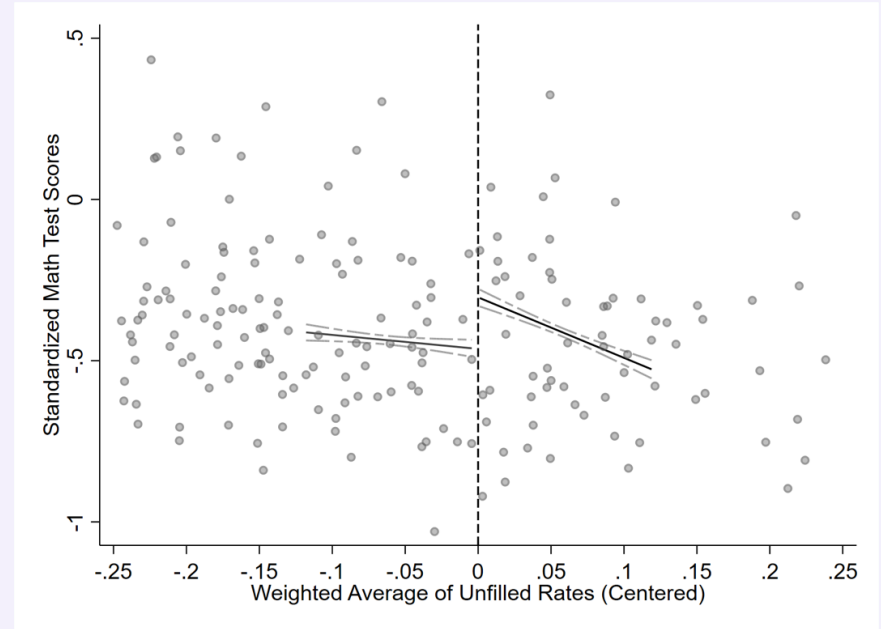
Black students meaningfully benefitted

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English language arts +0.07 SD



Math +0.13 SD



Takeaways: Research-partnership as a means to solving district problems

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- We worked with CPS to design the intervention program so that (1) it aligned with district goals and budget and (2) it allowed for causal analysis
- We communicated regularly with CPS about preliminary findings to inform the second-year intervention
- CPS provided us final cost information so we could construct a cost-benefit analysis of the program

Questions and discussion?

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- We'd love to talk with you about potential research!
- Feel free to reach out to us:
 - Dan Goldaber: dgoldhab@uw.edu
 - Grace Falken: gfalken@uw.edu