

# MONEY AND FREEDOM: THE IMPACT OF CALIFORNIA'S SCHOOL FINANCE REFORM ON ACADEMIC ACHIEVEMENT AND THE COMPOSITION OF DISTRICT SPENDING

Rucker Johnson, University of California, Berkeley

Sean Tanner, WestEd

## Background

Several studies have recently estimated the causal effect of increased school spending on student success by analyzing major school finance reforms. These reforms increased expenditures per pupil and, consequently, narrowed gaps in performance on standardized tests, increased high school graduation rates, and bolstered adult success in the labor market (Candelaria & Shores, 2015; Card & Payne, 2002; Jackson, Johnson, & Persico, 2016; Johnson and Jackson, 2017; Lafortune, Rothstein, & Schanzenbach, 2015).

While this body of research reveals a clear link between per-pupil spending and student outcomes on average, there is some evidence that historically disadvantaged students are not the prime beneficiaries of many school finance reforms. This is primarily because reforms have typically sought to equalize spending across levels of district property wealth, which is only partially correlated with student-level disadvantage (Hoxby, 2001; Hyman, 2013; Lafortune, Rothstein, Schanzenbach, 2015). Moreover, many reforms transferred considerable fiscal power to state governments, that could place restrictions on how district revenues could be spent. It is unclear how efficacious these strategies are in enhancing student achievement, particularly that of historically disadvantaged students.

## Research Questions

California's recent major school finance reform, the Local Control Funding Formula (LCFF) signed into law in 2013, provides an opportunity to separately test for the effects of a substantial change in the levels of funding and reductions of restrictions on school financial resources, within a policy directed specifically at disadvantaged students rather than district property wealth. Specifically, we assess whether the additional funding and reduction in restrictions on expenditures improve standardized tests and graduation rates, and whether it reduced disparities in such outcomes between advantaged and disadvantaged students. We also examine potential mechanisms through which the funding changes impact student academic success.

## Setting

The policy was enacted in California in the 2013-2014 school year. It impacts public school districts state wide, with the exception of small and exceptionally affluent districts. California is a demographically and geographically diverse, populous state, with just over 1,000 school districts containing more than 10,000 schools and 6 million students. Prior to the LCFF policy, California's per pupil expenditures ranked near the bottom of the nation.

## Population

Our focus is on all cohorts of students who were enrolled in public secondary schools between 2003 and 2016.

## Intervention

The LCFF is California's attempt to overcome decades of legal and economic turmoil that had placed the state's average district revenues, just prior to the policy change, among the nation's lowest. The policy reallocates district revenues based almost entirely on the proportion of unduplicated disadvantaged students in each district -- those who qualify for free- or reduced-price lunch, have limited English proficiency, are in foster care, or are homeless. Moreover, the state relinquished many of the restrictions on how districts could spend their revenues, creating a great deal more flexibility for some districts but not others. Given the magnitude and heterogeneous nature of changes to school finance that resulted from LCFF, the policy provides a test of how financial resources and flexibility can each shape student achievement.

## Research Design

Using school and district fixed effects as well as dynamic changes in the decade leading up to the policy, we leverage the heterogeneous, abrupt changes in funding induced by LCFF in a two-stage least squares event-study framework. We present event-study figures that show no evidence of pre-existing time trends in student outcomes (conditional on controls), which supports the validity of the research design.

We simultaneously account for potential impacts of releasing funding from restrictions on how it is spent, using a district's pre-LCFF reliance on restricted funding as an instrument for the proportion of district revenue that is subject to restrictions (interacted with post-LCFF years). In this way, we are able to jointly test the impact of increases in per-pupil spending and the impact of greater district discretion in how it is spent, independently of one another, in the same model.

## Data Collection and Analysis

We use publicly available data on student achievement and demographics, as well as district finances. We norm all test scores to the NAEP scale (Reardon, Kalogrides, & Ho, 2018). For cohorts born between 1990 and 2000, we constructed a school-by-cohort-level panel data set of per-pupil spending, high school graduation rates, and student achievement in high school in math and reading.

## Results

To preview the results, we find that LCFF-induced increases in school spending led to significant increases in high school graduation rates and academic achievement, particularly among poor and minority students. A \$1,000 increase in district per-pupil spending experienced in grades 10-12 leads to a 5.9 percentage-point increase in high school graduation rates on average among all children, with similar effects by race and poverty. On average among poor children, a \$1,000 increase in district per-pupil spending experienced in 8<sup>th</sup> through 11<sup>th</sup> grades leads to a 0.19 standard-deviation increase in math test scores, and a 0.08 standard-deviation increase in reading test scores in 11<sup>th</sup> grade. These improvements in high school academic achievement closely

track the timing of LCFF implementation, school-age years of exposure, and the amount of district-specific LCFF-induced spending increase (and are independent of the effects of changes in the proportion of funding that is subject to restrictions).

### Conclusions

Increases in per-pupil spending caused by LCFF led to meaningful increases in high school graduation rates and student achievement, yet two limitations bear mentioning. The impacts of the new policy are still reverberating, and unintended negative consequences (such as revenue recapture by local taxpayers) may take years to manifest. The study relies on aggregate measures of student performance and so does not address within-district allocation – a key topic for further exploration. Nevertheless, this new research evidence suggests that money targeted to the needs of disadvantaged students, and allocated by local districts to meet those needs, can make a difference in student outcomes.

### References

- Candelaria, C. A., & Shores, K. A. (2015). *Court-Ordered Finance Reform on Spending and Graduation Rates*.
- Card, D., & Payne, A. A. (2002). School Finance Reform, the Distribution of School Spending, and the Distribution of SAT Scores. *Journal of Public Economics*, 83(1), 49–82. Retrieved from <http://www.nber.org/papers/w6766>
- Hoxby, C. M. (2001). All School Finance Equalizations are not Created Equal. *Quarterly Journal of Economics*, 116(4), 1189–1231. <https://doi.org/10.1162/003355301753265552>
- Hyman, J. (2013). *Does Money Matter in the Long Run? Effects of School Spending on Educational Attainment*.
- Jackson, C. K., Johnson, R. C., & Persico, C. (2016). THE EFFECTS OF SCHOOL SPENDING ON EDUCATIONAL AND ECONOMIC OUTCOMES: EVIDENCE FROM SCHOOL FINANCE REFORMS. *Quarterly Journal of Economics*, 131(1).
- Lafortune, J., Rothstein, J., & Schanzenbach, D. W. (2015). *School Finance Reform and the Distribution of Student Achievement* (NBER Working Paper No. 22011). Cambridge, MA. <https://doi.org/10.1017/CBO9781107415324.004>
- Reardon, S. F., Kalogrides, D., & Ho, A. (2018). *Validation methods for aggregate-level test scale linking : A case study mapping school district test score distributions to a common scale* (CEPA No. 16-09).