The Paramount Duty of the State:
An Analysis of Washington State Education Budget Reform

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Introduction & Background

The preamble to the Washington state constitution's education clause states that "it is the paramount duty of the state to make ample provision for the education of all children residing within its borders, without distinction or preference on account of race, color, caste, or sex". It was the language of this preamble that motivated the Washington Supreme Court to rule that the state budget was not adequately funding public schools in the 2012 case McCleary v. Washington. The case was filed by two families who wanted to increase public school funding and was modeled after similar lawsuits from the 1990s.

In response to the 2012 decision, the state legislature appointed a special committee to propose increases to the 2013-2015 biennial state budget. The legislature decided on an almost $1 billion increase to the 2013 budget, focusing on increased full-day kindergarten in high-poverty districts, reducing early education class sizes, materials, and new transportation routes. While the legislature passed the budget increases, the Supreme Court determined that the funding levels were still inadequate. The court kept the state under a $100,000 per day fine until 2018, when they ruled that the per-pupil funding levels finally met the constitutional guidelines.

This project aims to answer two main questions: primarily, did the funding from the 2013 court-ordered budget increases actually increase per-pupil funding in the categories the legislature aimed to allocate it to? Second, were there different impacts to per-pupil funding in districts with certain characteristics that were supposedly targeted by the funding increase?

I use a difference-in-differences model to analyze the change in per-pupil funding in Washington before and after the budget reform. This paper serves as a case study on the broader effectiveness of court-ordered school finance reforms to allocate funds as intended. Previous studies on similar court-ordered reforms found that targeted funding often was not allocated as intended, while more general budget increases resulted in increases in student outcomes such as test scores and graduation rates. I document a statistically significant increase in per-pupil funding from state-level sources, but found no significant change in specific funding categories designated in the legislature's budget reform. While the results of this paper can only be directly applied to a parallel scenario—a court-ordered reform allocating budget increases to specific state-wide programs—the larger theme of money not always moving as intended is more widely relevant.

Data

The data for the district-level financial information came from the National Center for Education Statistics. For each selected state, I downloaded data for each district between 2006-2020 for total expenditure, support services expenditure, instruction expenditure, total revenue, and state sources revenue.

The demographic data comes from the Stanford Education Data Archive. I selected data for each district's average free lunch percentage, percentage of English Language Learners (ELL), and racial group percentages. I then created categories for low, low-mid, mid-high, and high poverty districts based on their free lunch percentage.

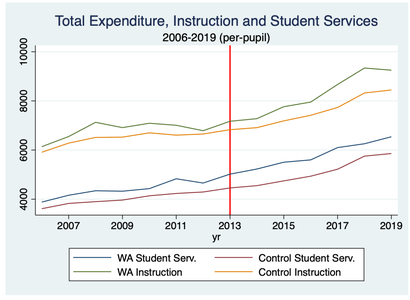
On average, WA spends $5,003 per-pupil on support services, $7,464 per-pupil on instruction, and receives $10,576 from the state per pupil. Similarly, the control states spend $4,933 per pupil on support services, $7,323 per pupil on instruction, and receive $7,930 from the state per pupil.

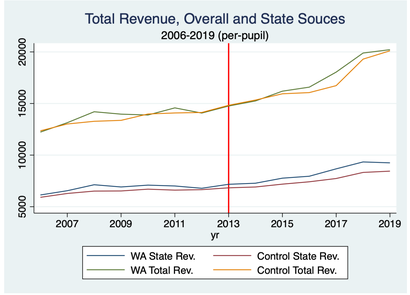
Methodology

I used a difference-in-differences (DID) model for the bulk of my analysis. DID requires a "treatment" group (the group affected by the policy) and a "control" group (not affected by the policy) for comparison.

DID requires an assumption of parallel trends between the treatment and control groups. Parallel trends means that, with the absence of any treatment, the difference in the levels of the variables of interest between the two groups would remain constant across time. Taking the difference between the outcomes of the two groups allows us to isolate the effect from the policy ("treatment) alone.

I selected a group of states as my control (Minnesota, Wisconsin, Colorado and California) based on the similarity of their pre-treatment mean trend line of the group with the pre-treatment trend line for Washington state. The figures below demonstrate the similar trends for all my selected budgetary variables for both Washington and the control states, with a horizontal line marking the pre and post reform periods.





My main DID equation is below. The outcome variable in Equation 2 represents total revenue in district *d* in time *t*. I estimated 5 versions of Equation 2 by replacing total revenue with total expenditure, support service expenditure, instruction expenditure, and state revenue. The δ_1 coefficient represents the DID estimate: the expected marginal change in expenditure if a district is both in Washington state and observed after the policy enactment in 2013. Each of the other three coefficients represent either being pre-enactment, outside Washington state, or both: in other words, they are not directly relevant for my analysis here.

$$Expenditure_{ts} = \beta_0 + \delta_0 Post + \beta_1 Washington + \delta_1 Post * Washington + u \quad (2)$$

$$\text{where } Washington = \mathbb{1}(d \in \text{Washington}), \ \& \ Post = \mathbb{1}(t \geq 2013)$$

I also performed a first-difference and triple-difference regression for each of the financial variables, which indicate the change in Washington state overall and the change in districts with different selected demographics, respectively.

Results

The table below displays the results of the DID regressions on expenditure for support services and for instruction. The "Treatment" coefficient represents the impact estimation: the effect from being in Washington and in the post-reform period. I did not find a statistically significant impact effect in either expenditure subcategory. However, the post-2013 coefficient, which indicates the change over time for the control states, is significant. Each category is about 10% less than the post-2013 coefficient for Washington state alone from the first-differencing model, indicating that there was a difference in the rate of change between Washington and the control states after the reform.

	(1)	(2)
	Support Services	Instruction
Washington	232.9	119.0
	(213.4)	(234.2)
Post-2013	1253.5***	1337.7***
	(95.04)	(59.49)
Treatment	89.86	62.07
	(140.7)	(145.5)
Constant	4250.2***	6705.8***
	(119.5)	(138.5)
N	31030	31026

Heteroskedastcity robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Similar results appear in the second table below for the total revenue and total expenditure variables. Neither have a statistically significant treatment effect but both still have a significant increase in the post-2013 period for the control states. Again, given the lack of a significant treatment effect, the difference in trends for total expenditure in the post-treatment period cannot conclusively be tied to the reform.

Total state revenue was the lone category that had a significant impact estimate. Districts that were exposed to the reform have an estimated $1,196 per-pupil increase in state funding compared to control districts. Given that previous papers have found a $1,000 increase to lead to a .18 standard deviation increase in test scores, the estimate here has the potential to be greatly impactful on student achievement. Overall, the DID analysis displays that the increase in state funding arrived to Washington districts but did not necessarily funnel into the categories that the reform intended.

	(1)	(2)	(3)
	Total Revenue	Total Rev. State Sources	Total Expenditure
Washington	-424.8	1782.1***	-175.1
	(564.8)	(382.3)	(541.1)
Post-2013	3612.6***	1866.5***	3910.4***
	(261.7)	(95.78)	(251.0)
Treatment	-72.27	1195.9***	-35.84
	(356.3)	(228.4)	(390.7)
Constant	14266.7***	7361.6***	13927.1***
	(387.9)	(170.5)	(337.6)
N	31030	31030	31026

Heteroskedastcity robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Conclusion

Across both Washington state as a whole and select categories of districts within the state, I found few significant changes in per-pupil funding for the period after the 2013-2015 budget increases. The only category with a statistically significant change across all district types was revenue from state sources. The most important result from this paper is the lack of significance for the impact estimate on instruction or support services spending. I found that the budget allocation did not result in a noticeable increase in either category that it was intended for. If there was no increase in state revenue, I might assume that the per-pupil values might have been kept constant due to an increase in enrollment in certain districts or another internal factor I did not intentionally control for. However, the positive results for state revenue led me to believe that there is actually a gap in how the funding was distributed to different expenditure subcategories.

The triple-differencing results are also not in line with what the legislators intended. While there was supposed to be extra funding allocated for various programs in high-poverty schools, I instead document a decrease in per-pupil funding in high poverty districts. This flipped result is not encouraging for any legislature looking to implement these kinds of hyper-targeted funding initiatives. As I found in the broader literature about court-ordered budget reforms, this kind of funding does not often distribute itself as lawmakers intend. Although general court-ordered reforms have been shown to significantly increase various student outcomes in the long run, reforms aimed at boosting specific programs cannot be relied on to accurately funnel spending increases.

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