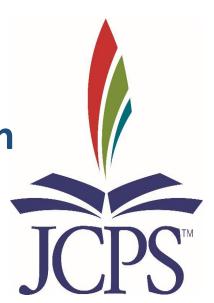
JEFFERSON COUNTY PUBLIC SCHOOLS

Revenue and Student Outcomes Research

January 28, 2020

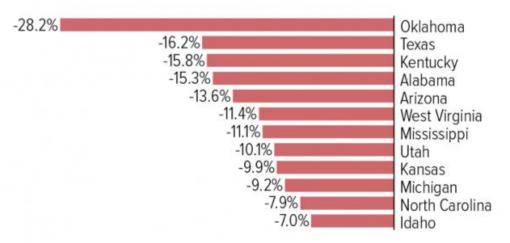




"Kentucky is among the states that have cut public education funding most deeply. ... The state sets aside 15.8 percent less per public school student than it did in 2008 — the third largest drop in the nation" (Barton, 2017, paras. 1-2; Center on Budget and Policy Priorities, 2017, p. 6).

State General Funding Per Student Still Far Below 2008 in at Least 12 States

Percent change in state formula funding* per student, inflation adjusted, fiscal years 2008-2018



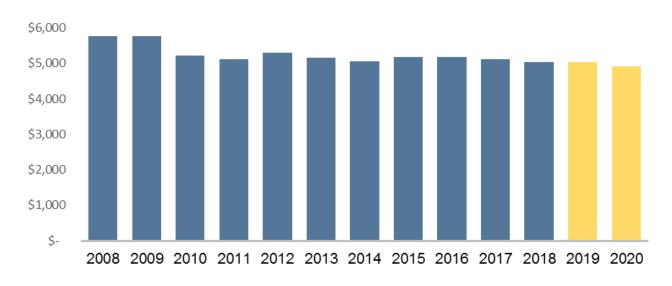
*General or formual funding is the primary form of state K-12 funding. States also typically provide revenue for other, more specific purposes, such as bus transportation and contributions to school employees and pension plans.

Source: CBPP budget and enrollment analysis.



Final Budget Cuts SEEK Per-Pupil Funding 16 Percent from 2008

SEEK per-student funding in 2018 dollars



Source: KCEP analysis of OSBD data and FCCR on House Bill 200.

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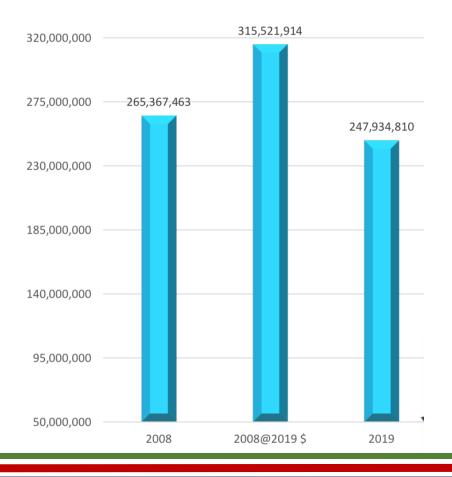
SEEK real dollars per student 2008: \$4,488

SEEK real dollars per student 2020: \$3,820



SEEK allocation to JCPS down \$67,587,104 (13 percent) since 2008.

State SEEK Allocation 2008 VS 2019





State Grant Funding Cuts

FRYSC: 18% decrease

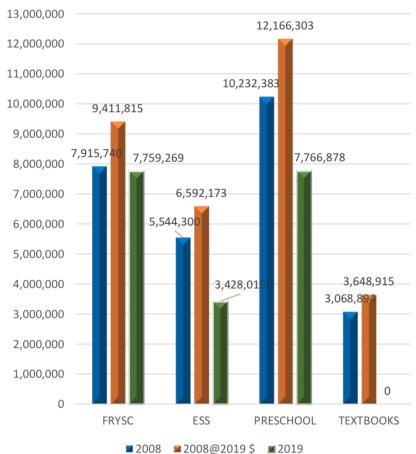
ESS: 48% decrease

Preschool: 36% decrease

Textbooks: 100% decrease

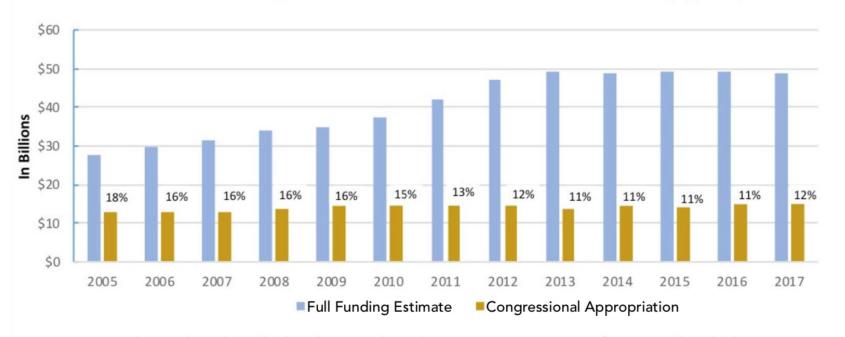
PD: 100% decrease

State Grant Funding 2008 vs 2019





Title I Full Funding (40% Estimate) vs. Actual Appropriation



Source: Original research conducted by the Education Policy and Practice Department, Center for Great Public Schools, National Education Association. February, 2018. See methodology notes at educationdebt.reclaimourschools.org.

"Over the past dozen years, Congressional appropriations for Title I have averaged less than half the promised funding" (Alliance to Reclaim Our Schools, 2018, pp. 4-5).

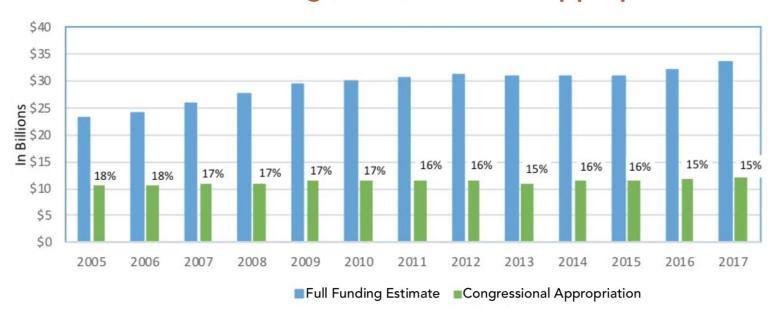


"If Title I was fully funded by Congress, the nation's high-poverty schools could provide:

- health and mental health services for every student, including dental and vision services; and
- a full-time nurse in every Title I school; and
- a full-time librarian for every Title I school; and
- a full-time additional counselor for every Title I school, or
- a full-time teaching assistant in every Title I classroom across the country" (Alliance to Reclaim Our Schools, 2018, p. 5).



IDEA Full Funding (40%) vs. Actual Appropriation



Source: Original research conducted by the Education Policy and Practice Department, Center for Great Public Schools, National Education Association. February, 2018. See methodology notes at educationdebt.reclaimourschools.org.

"Federal funding of IDEA has never approached the promised 40 percent mark. ... State and local governments must not only contribute their share, but also cover the unfunded federal contribution" (Alliance to Reclaim Our Schools, 2018, pp. 5-6).



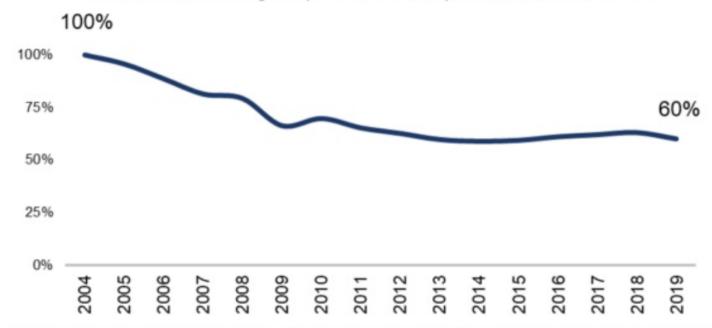
The federal underpayment of IDEA since 2005 amounts to \$2,637 in funding withheld each year for every special needs student in the country, 53 percent of whom are students of color" (Alliance to Reclaim Our Schools, 2018, p. 6).

Between 2005 and 2017, the federal government has shortchanged Kentucky \$9.3 billion of funding in Title I and IDEA funds (Alliance to Reclaim Our Schools, 2018, pp. 19-20).



State Continues Trend of Underfunding Transportation

Percent of state funding compared to share required under SEEK formula.



Source: Kentucky Department of Education. Calculation of state funding compared to share required under SEEK formula for 2019 is an estimate.

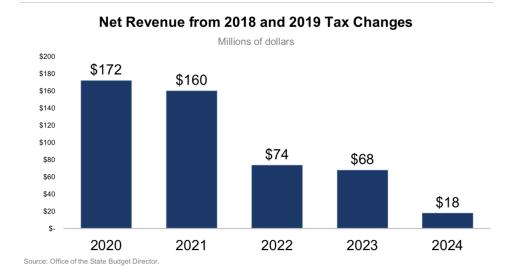
State statute requires that Kentucky fund transportation at 100% but the 2018 budget only funded it at 60% (later adjusted to 66% due to transfer of funds within SEEK) (KCEP, 2019, para. 5).

Revenue To Be Generated by 2018 Tax Bills

Millions of dollars

	2019	2020
Tobacco taxes	\$129	\$110
Sales and use tax	\$208	\$278
Individual income tax	-\$118	-\$118
Corporate income tax	-\$28	-\$72
Total	\$192	\$198
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Source: Office of State Budget Director

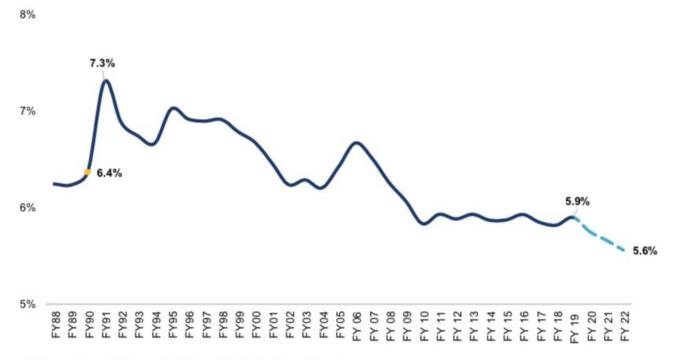


"The [state budget] situation may be so dire that without tax reform to generate additional state tax revenues, we will likely face substantial cuts to base SEEK funding and all other education programs" (KSBA, 2017).



Forecast Shows Continued Erosion in the General Fund

Total General Fund Revenue as a share of Kentucky Personal Income, historical and projected



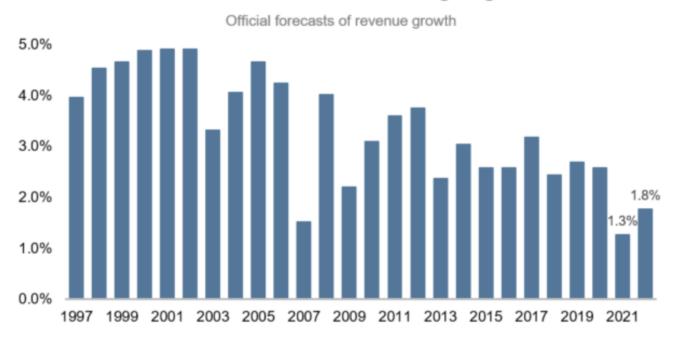
Source: KCEP analysis of data from the Office of the State Budget Director, Bureau of Economic Analysis.

The 2018 state budget will cost Kentucky \$110 million a year, increasing to \$159 million per year by 2024 (KCEP, 2019).



The graph below shows the official CFG growth projections that were the basis of each budget going back to 1997. The estimate for 2021-2022 of 1.3% growth in the first year and 1.8% in the second year is the weakest projected biennium of revenue growth Kentucky has had since the CFG was established.

Next Budget Has Worst Projected Revenue Growth Since Consensus Forecasting Began







LOST REVENUE OF LOWER PROPERTY RATE - FY 2011-12 through FY 2018-19									
	FY 2011-12	FY 2012-13	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18	FY 2018-19	
Compensating rate in 2011-12	15,509,716	16,130,105	16,775,309	17,446,321	18,144,174	18,869,941	19,624,739	20,409,728	
Optimal rate in 2012-13	0	0	0	0	0	0	0	0	
Less than optimal in 2013-14	0	0	7,060,100	7,342,504	7,636,204	7,941,652	8,259,318	8,589,691	
Less than optimal in 2014-15	0	0	0	11,913,215	12,389,744	12,885,333	13,400,747	13,936,777	
Optimal rate in 2015-16 *	0	0	0	0	0	0	0	0	
Optimal rate in 2016-17 **	0	0	0	0	0	0	0	0	
TOTALS	15,509,716	16,130,105	23,835,409	36,702,040	38,170,122	39,696,927	41,284,804	42,936,196	

CUMULATIVE LOST REVENUE - 8 yrs

254,265,318

FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
21,226,117	22,075,162	22,958,168	23,876,495	24,831,555	25,824,817	26,857,810
0	0	0	0	0	0	0
8,933,279	9,290,610	9,662,234	10,048,724	10,450,673	10,868,700	11,303,448
14,494,248	15,074,018	15,676,978	16,304,057	16,956,220	17,634,468	18,339,847
0	0	0	0	0	0	0
0	0	0	0	0	0	0
44,653,644	46,439,789	48,297,381	50,229,276	52,238,447	54,327,985	56,501,105

CUMULATIVE LOST REVENUE - 15 yrs (through 2025-26) 606,952,945





"Studies have invariably found a positive, statistically significant relationship between student achievement gains and financial inputs" (Learning Policy Institute, 2017, p. 5).

"Global resource variables such as [per-pupil expenditures] show strong and consistent relations with achievement" (Greenwald, Hedges, & Laine, 1996, pp. 384-385).

"Our results indicate a causal relationship between per-pupil spending and student outcomes" (National Bureau of Economic Research, 2014, p. 44).

"This consensus — that money does, indeed, matter — is supported by a growing body of high-quality empirical research" (Albert Shanker Institute, 2019, pp. 1-2).

"More equitable and adequate allocation of financial inputs to schooling provides a necessary underlying condition for improving the equity and adequacy of outcomes" (Learning Policy Institute, 2017, p. vii).



"There is strong evidence of a causal effect of school spending on outcomes for children from poor families" (National Bureau of Economic Research, 2014, p. 38).

"Additional funding appears to matter more for ... students from low-income families" (Learning Policy Institute, 2017, p. 1).

"[Recent] studies provide compelling new evidence of the large-scale achievement and economic benefits of substantive and sustained additional funding for schools serving higher-poverty student populations" (Learning Policy Institute, 2017, p. 7).



"As concentrated poverty increases, the costs of achieving any given level of outcomes increase significantly" (Learning Policy Institute, 2017, p. 10).

"The financial assumption underlying IDEA is that on average, the cost of educating a child with disabilities is twice the cost of educating a non-disabled student" (Alliance to Reclaim Our Schools, 2018, p. 5).



"We cannot improve education outcomes without providing schools — particularly schools serving disadvantaged student populations — with the resources necessary for doing so" (Albert Shanker Institute, 2019, p. 2).

"States with greater overall investment in education ... have higher outcomes for low-income students" (Baker & Weber, 2016, p. 24).

"Increases in per-pupil spending ... led to significant increases in the likelihood of graduating from high school and educational attainment for poor children" (National Bureau of Economic Research, 2014, pp. 4-5).



For low-income children, increasing per pupil spending by 10 percent in 12 school-age years increases:

- Likelihood of graduating by 11.6 percentage points
- Adult wages by 9.5 percent
- Family income by 16.4 percent
- Likelihood of being married and never previously divorced by 10 percentage points

For low-income children, increasing per pupil spending by 20 percent in 12 school-age years:

- Increases likelihood of graduating by 23 percentage points
- Increases adult wages by 25 percent
- Increases family income by 52.2 percent
- Decreases adult poverty by 20 percentage points



"The magnitudes of these effects are sufficiently large to:

- "completely eliminate the high school graduation gap between children from poor and non-poor families (Baker & Weber, 2016, p. 5; National Bureau of Economic Research, 2014, p. 36; National Bureau of Economic Research, 2015, p. 26).
- "completely eliminate the family income gap between children from low-income families and those from non-poor families (National Bureau of Economic Research, 2014, p. 38).



	Years of Education		Prob(High School Grad)		Ln(Wage), age 20-45		Ln(annual Family Income), age 20-45		Prob(Adult Poverty), age 20-45	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Spending _(age 5-17)	0.4905**		0.1764***		0.1451***		0.1826**		-0.0811***	
	(0.2473)		(0.0670)		(0.0547)		(0.0799)		(0.0267)	
Spending (age 5-17)*Low Income		0.7853**		0.1900*		0.1932**		0.3239**		-0.1458***
		(0.3737)		(0.1032)		(0.0886)		(0.1280)		(0.0451)
Spending (age 5-17)*Non Poor		0.1212		0.1503*		0.0875		0.0214		0.0039
		(0.4146)		(0.0775)		(0.0767)		(0.1241)		(0.0254)
Number of person-year observations					106,545	106,545	151,349	151,349	151,756	151,756
Number of Individuals	15,353	15,353	15,353	15,353	13,183	13,183	14,730	14,730	14,737	14,737
Number of Childhood Families	4,586	4,586	4,586	4,586	4,454	4,454	4,588	4,588	4,588	4,588
Number of School Districts	1,409	1,409	1,409	1,409	1,395	1,395	1,414	1,414	1,414	1,414

Robust standard errors in parentheses (clustered at school district level)

<u>Data</u>: PSID geocode Data (1968-2011), matched with childhood school and neighborhood characteristics. Analysis sample includes all PSID children born 1955-1985, followed into adulthood through 2011.

"Improved access to school resources can profoundly shape the life outcomes of economically disadvantaged children, and thereby significantly reduce the intergenerational transmission of poverty" (National Bureau of Economic Research, 2015, p. 39).



^{***} p<0.01, ** p<0.05, * p<0.10



"Effective teachers are the most important school-based determinant of student educational performance" (Economic Policy Institute, 2019, p. 1).

"Investments in teacher quality (teacher ability, teacher education, and teacher experience) are particularly effective in raising achievement" (Learning Policy Institute, 2017, p. 5; Greenwald, Hedges, & Laine, 1996, pp. 384-385; National Bureau of Economic Research, 2015, p. 38).



"A sizable body of research has illustrated the connection between staffing qualities and quantities and student outcomes" (Educational Testing Service, 2016, p. 3).

"Higher levels of staffing are also associated with reductions in achievement gaps and improvements to disparities in achievement across schools" (Baker & Weber, 2016, p. 1).



"The key resource that affects the social environment of the school is the number of teachers available per student" (Wenglinsky, 1997, p. 225, see also p. 229).

"Teachers who are responsible for a large number of students tend to be demoralized because they have trouble developing relationships with all their students" (Wenglinsky, 1997, p. 225, see also p. 229).



More teachers per student means:

- Teacher morale improves.
- Student morale is better since they receive more individual attention.
- Relations between principals and teachers improve because teachers feel better and principals do not have to devote attention to individual students that overworked teachers cannot give them (Wenglinsky, 1997, p. 225, see also p. 229).



How Money Matters

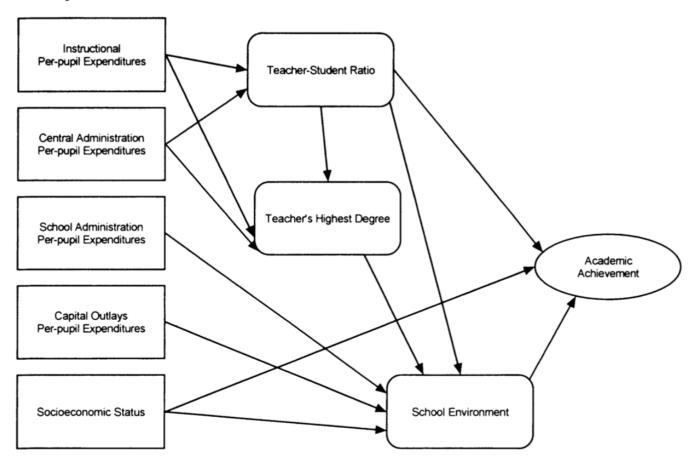


Figure 1. Hypothesized Paths to Achievement



"A series of studies ... identified schools in which students of low socioeconomic status evince high levels of achievement. They found that such schools display a series of relatively uniform characteristics that, they concluded, are associated with high levels of achievement among low SES students (Wenglinsky, 1997, p. 222).

These characteristics include:

- the social environment of the school,
- the relations between teachers and principals,
- and teacher morale.



"Increases in teacher wages have been found in several studies to be associated with increased student achievement" (Learning Policy Institute, 2017, p. 12; Loeb & Page, 2000, p. 395).

"Increases for instruction and support services (which includes expenditures to hire more teachers and/or increase teacher salary along with funds to hire more guidance counselors and social workers) are consistent with the large, positive effects for those from low-income families" (National Bureau of Economic Research, 2014, p. 42; 2015, pp. 37-38).

"High teacher turnover consumes economic resources. ... Filling a vacancy costs \$21,000 on average" (Economic Policy Institute, 2018, pp. 2-3).



"Teacher wages affect teacher quality" (Learning Policy Institute, 2017, p. 3).

"Higher teacher salaries lead to increases in the quality of applicants ... and increases in student outcomes" (Educational Testing Service, 2016, p. 5).

"[We] expect ... substantial increases in achievement if resources were targeted to selecting (or retaining) more educated or more experienced teachers" (Greenwald, Hedges, & Laine, 1996, p. 380; Loeb & Page, 2000, p. 395, 406).



"More equitable and adequate allocation of financial inputs to schooling provides a necessary underlying condition for improving the equity and adequacy of outcomes. ... There is scarce evidence that one can gain stronger outcomes without these resources" (Learning Policy Institute, 2017, p. 1).



"States with greater overall investment in education resulting in more intensive staffing per pupil tend to have higher outcomes for children from low-income families" (Learning Policy Institute, 2017, p. 7).

"A significant body of research points to the effectiveness of class-size reduction for improving student outcomes and reducing gaps among students, especially for younger students and those who have been previously low-achieving" (Learning Policy Institute, 2017, p. 11).

"Often studies find that the effects of class size reduction on achievement ... are most pronounced for students of color and those in schools serving concentrations of students in poverty" (Learning Policy Institute, 2017, p. 11).



HOW DOES MONEY MATTER?

"Class size is, in turn, positively related to school social environment, with schools having more cohesive social environments when they have smaller classes. Finally, cohesive school social environments are positively related to students' achievement above and beyond students' social backgrounds" (Wenglinsky, 1997, p. 221).



HOW DOES MONEY MATTER?

"A recent comprehensive meta-analysis of programs and strategies for improving outcomes for children from low-income households finds interventions that intensify human resources to be particularly effective" (Learning Policy Institute, 2017, p. 11).

"The results suggest that the positive effects are driven, at least in part, by some combination of reductions in class size, having more adults per student in schools, increases in instructional time, and increases in teacher salary" (National Bureau of Economic Research, 2015, pp. 38-39).



HOW DOES MONEY MATTER?

"Fewer students per counselor and fewer students per administrator ... have also been found to improve student outcomes" (National Bureau of Economic Research, 2015, pp. 38-39).

"Per-pupil expenditures for instruction and the administration of school districts are associated with achievement" (Wenglinsky, 1997, p. 221).

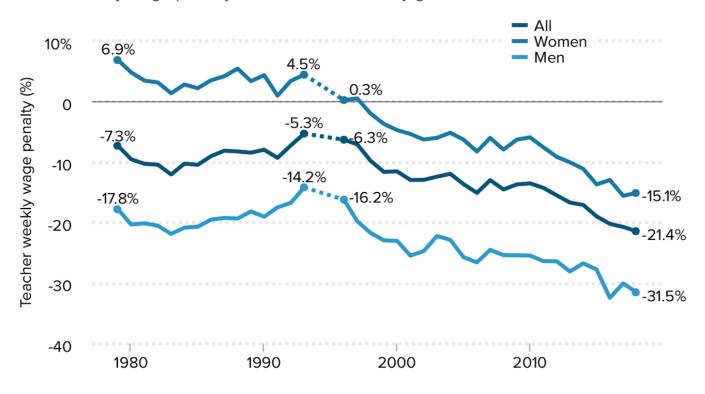




Teacher wage penalty: "the percent by which public school teachers are paid less in wages and compensation than other college-educated workers" (Economic Policy Institute, 2019, p. 1).

Teachers earn 21.4% less than comparable college graduates

Teacher weekly wage penalty for all teachers and by gender, 1979–2018



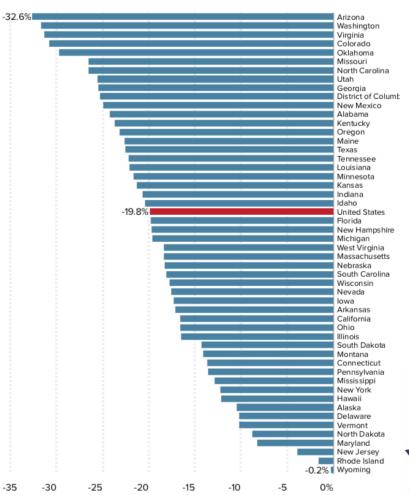


in 21 states and D.C.

Teacher weekly wage penalty, by state, pooled data from 2014—2018

The teacher weekly wage penalty is greater than 20%

The wage penalty in Kentucky is significantly worse than the national average.





"The teacher weekly wage penalty was 5.3 percent in 1993, grew to 12.0 percent in 2004, and reached a record 21.4 percent in 2018" (Economic Policy Institute, 2019, p. 3).

"The wage penalty for men teachers is much larger. ... In 2018, men teaching public school were making 31.5 percent less in wages than comparable men in other professions" (Economic Policy Institute, 2019, p. 3).

"Between 2004 ... and 2018, weekly wages of other college graduates grew \$119 (7.2 percent), while teacher weekly wages dropped \$44 (3.6 percent)" (Economic Policy Institute, 2019, p. 9).



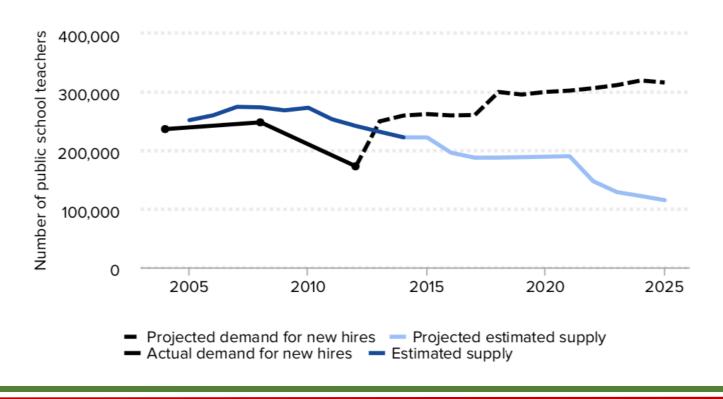
Kentucky now has the 13th highest teacher wage penalty in the nation (Economic Policy Institute, 2019, p. 14).



"The teacher shortage is real, large and growing, and worse than we thought" (Economic Policy Institute, 2018, p. 1).

Teacher shortage as estimated by Sutcher, Darling-Hammond, and Carver-Thomas

Projected teacher supply and demand for new teachers, 2003–2004 through 2024–2025 school years





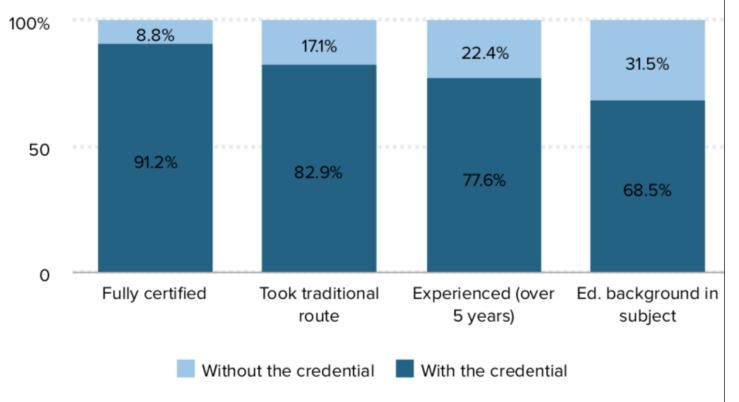
"Providing appropriate compensation is a necessary, major tool in addressing constant shortages" (Economic Policy Institute, 2019, p. 2).

"A substantial body of literature validates the conclusion that teachers' overall wages and relative wages affect the quality of those who choose to enter the teaching profession — and whether they stay once they get in" (Learning Policy Institute, 2017, p. 11).



Teacher credentials

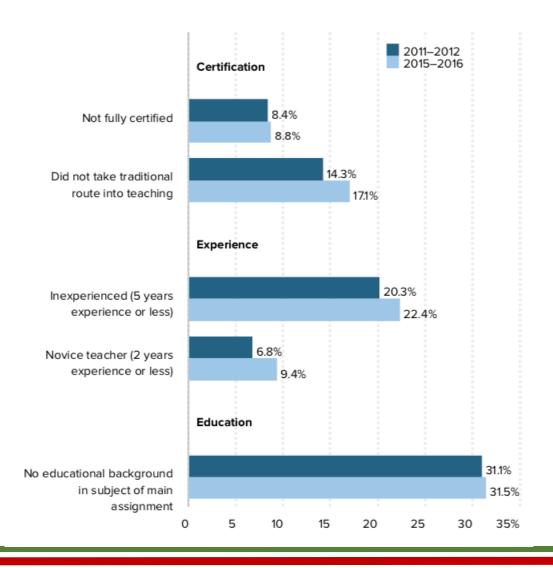
Share of teachers with and without various credentials, by credential, 2015–2016





Change over time in teacher credentials

Share of teachers without various credentials, by type of credential, 2011–2012 and 2015-2016







"Individuals who graduate and have access to quality education throughout primary and secondary school are more likely to:

- find gainful employment,
- have stable families,
- and be active and productive citizens.

They are also less likely to:

- commit serious crimes,
- be enrolled in welfare assistance programs (Mitra, 2011, p.3).



"The public bears a huge financial burden from crime and its related costs to society. ... The National Institute of Justice estimates that these costs total \$450 billion annually" (Mitra, 2011, p. 13).

"The nation currently spends on average over \$13,000 more annually per inmate then per student" (Mitra, 2011, p. 16).



"Studies show that the more formal education a person receives, the less likely he or she is to engage in crime, especially violent crime" (Mitra, 2011, p. 14).

"Several major studies provide compelling evidence that educational programs play a *causal* role in the reduction of crime" (Mitra, 2011, p. 15).

"When arrests are separately analyzed by crime, the greatest impacts of graduation are associated with [reduced arrests for] murder, assault, and motor vehicle theft" (Mitra, 2011, p. 15).



"Graduating from high school ... reduces dependence on public health programs by 60 percent, and cuts by six times the rate of alcohol abuse" (Mitra, 2011, p. 3).

"Average annual public health costs are \$2,700 per dropout, \$1,000 per high school graduate" (Mitra, 2011, p. 3).

"Health insurance premiums are inflated up to 10 percent just to cover the costs of the uninsured, many of whom are dropouts" (Mitra, 2011, p. 21).



"Research over many decades has documented the benefits of education for ... economic growth (Mitra, 2011, p. 10).

"The expansion of ... education in the United States between 1915 and the late 1950s explains beyond any other factor ... the economic dominance of the United States in the 20th century relative to other nations" (Mitra, 2011, p. 10).



"Investing in public education is thus far more cost-effective for the state than paying for the social and economic consequences of underfunded, low quality schools" (Mitra, 2011, p. 3).

"Benefits are received even by people whose relationship to the public school system does not extend beyond 'taxpayer'" (Mitra, 2011, p. 4).



"Increasing spending by 10 percent for all school-age years ... [yields] an internal rate of return of 8.9 percent. This internal rate of return is ... larger than long-term returns to stocks" (National Bureau of Economic Research, 2015, p. 40).





District	Total Real Estate Tax 2018-19	Occupational	Utility	Excise	Motor Vehicle
Anchorage Independent	98.2	0.75	-	-	110.0
Franklin Independent	96.5	-	3.0	-	47.4
Fayette County	81.0	0.50	3.0	-	59.2
Oldham County	78.8	-	3.0	-	64.3
Nelson County	77.2	-	3.0	-	54.8
Henry County	74.3	-	3.0	-	55.3
Bullitt County	73.2	-	3.0	-	47.7
Shelby County	73.1	-	3.0	-	46.5
Jefferson County	72.5	0.75	-	-	58.5
Franklin County	71.5	-	3.0	-	51.0

Estimated Additional Per Pupil Revenues Associated with 4% Increase in Property Tax Revenues

Anchorage Independent	\$457
Silver Grove Independent	\$217
Southgate Independent	\$211
Fayette County	\$188
Jefferson County	\$180

A student in Anchorage (Jefferson Co.) gets \$269 more than a JCPS student — more every year after that — by a simple vote of the Anchorage Board.

Residents of Jefferson County pay less for education than:

- Frankfort by 29.2%
- Anchorage by 20.4%
- Owensboro by 7.7%
- Fayette County 3.0%
- E-town by 1.4%



JCPS is home to 14.7% of Kentucky public school students but has:

- 33.1% of the state's English Learners
- 21.6% of the state's homeless students





Directly responds to the state audit criticism and therefore will help us avoid further state assistance or management.

Assess the need for expenditures.	The Board did not approve the 4% tax rate during the	Γ
	first year of the former Superintendent's tenure.	
	According to the district's calculations, this negatively	
	impacted the district's resources at the rate at \$16	
	Million per year and will continue to do so for every year	
	thereafter. Had it been adopted, a portion of this would	
	have been restricted for facilities.	



Our property tax rate is much lower than surrounding districts.

We need the flexibility of general fund dollars to allocate resources to equity and improved student outcomes.

The nickel tax will only free up \$8 million to \$10 million from the general fund and does not invest directly in students.



It is built into the base and thus compounds year after year.

We will guarantee additional resources indefinitely into the future.

This will help make up for lost revenue due to decisions made by Donna Hargens and David Jones.



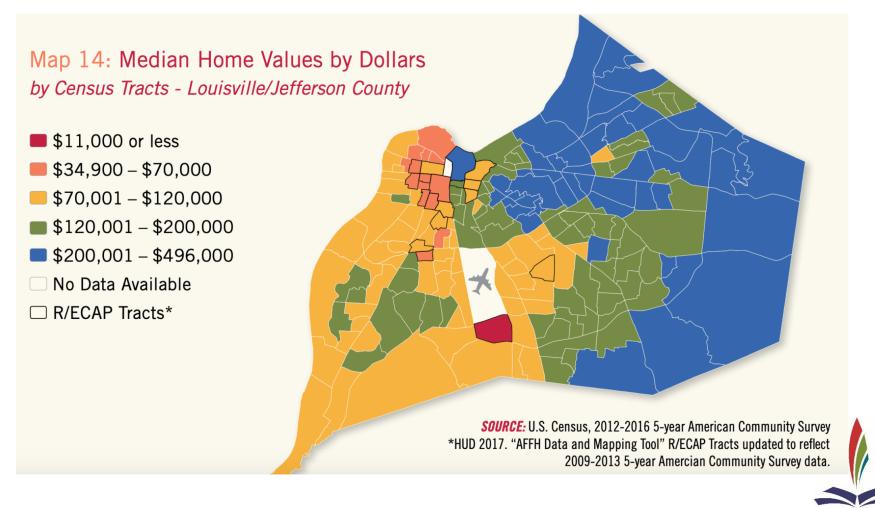
If recalled, the rate simply reverts to 4% revenue growth.

We get the benefits of the nickel by dedicating a portion to facilities.

Jefferson County assessments regularly exceed 4% growth, so we will still get the benefits even when we lower property tax rates in the future to stay at 4%.



Is a fairly progressive tax.



A much better chance to significantly move the needle on student outcomes, especially for low-income, African American, ECE, and English Learner students.

