

Testimony to the House Public Education Committee
Educator Shortages
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Chairman Harris, Chairman Schweyer, and esteemed committee members:

Thank you for the opportunity to testify today. My name is Ed Fuller and I am here today representing myself. I am a professor in the College of Education at Penn State and have studied educator workforce issues since 1998. Formerly, I was the Director of Research at the Texas State Board for Educator Certification and helped research educator workforce issues for the State of Texas. Further, I have written expert witness reports or testified as an expert witness on educator workforce issues in four state school finance court cases. Finally, I have published scores of articles on educator workforce issues.

As you are aware, *addressing educator workforce issues is important because research has consistently shown that the educator workforce has a large and direct impact on student outcomes*—including academic achievement, attendance, graduation, entry into post-secondary education, and future life chances. In fact, the primary mechanism by which money matters to student outcomes is that money can be used to improve the quality of educators and reduce educator turnover.

An inadequate supply of teachers, teacher shortages, rising attrition, large variability in the quality of educator preparation programs can wreak havoc on the educational opportunities of children in a state—particularly our most vulnerable children who rely the most on an excellent system of schooling. Indeed, these issues have a much greater impact on students of color, students living in poverty, homeless students, special education students, and English Learner students. than other students.

To address the serious issues in Pennsylvania, the Commonwealth must develop a coherent vision for the educator workforce that begins with recruiting future teachers while they are in our K-12 schools and ends with ensuring the Commonwealth strongly supports all teachers, but especially our beginning teachers with a system of induction and coaching.

There are numerous policy options available to address these issues. However, adopting piecemeal reforms instead of adopting a coherent and systemic approach will not meet the needs of our children, educators, or the Commonwealth. Thus, I suggest several reforms that would work coherently to address the issue from multiple perspectives. Given the current state of affairs and how our system severely disadvantages students of color, students living in poverty, and students in schools in underfunded districts, we have a moral imperative to act now and invest in ensuring every child in the Commonwealth has access to a well-prepared and well-qualified cadre of educators.

Is There an Educator Shortage?

While the Commonwealth does not currently collect data that directly measures any shortage of educators in the Commonwealth, the available evidence strongly suggests the following:

1. There is a shortage of teachers and likely a shortage for other educator roles (principal, school psychologist, school counselor).
2. The shortage is getting worse, not better.
3. The shortage is more acute for some subject areas and roles than other subject areas and roles.
4. The shortage of teachers is very serious in schools with greatest percentages of children of color and children living in poverty.
5. Shortages have existed in some types of schools for decades with little recognition of their plight.
6. Shortages are strongly associated with school funding patterns.
7. There is a shortage of teachers of color.

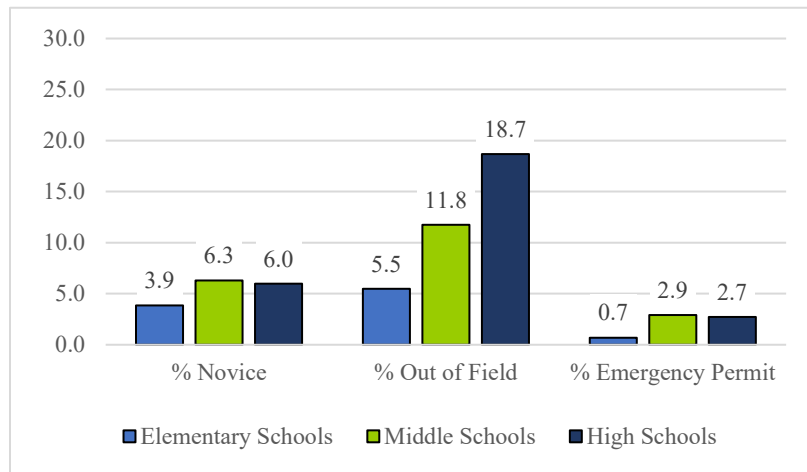
Teacher Shortages

While we currently do not have direct evidence on the shortage of teachers or other educators in Pennsylvania, the evidence strongly suggests there is a shortage. For example, consider the following percentages for two measures of teacher quality:

- Almost **12%** of teachers are assigned out-of-field (teaching a subject or grade for which they are not fully certified)
- Almost **2%** of teachers are not certified to teach and are teaching on an emergency permit.

This, however, masks large differences by school level. As shown in Figure 1 in the Appendix, ***middle- and high- schools have far greater percentages of teachers assigned out-of-field and teachers employed on an emergency permit.***

Figure 1: Teacher Qualifications in Pennsylvania Schools* by School Level (2020-21)

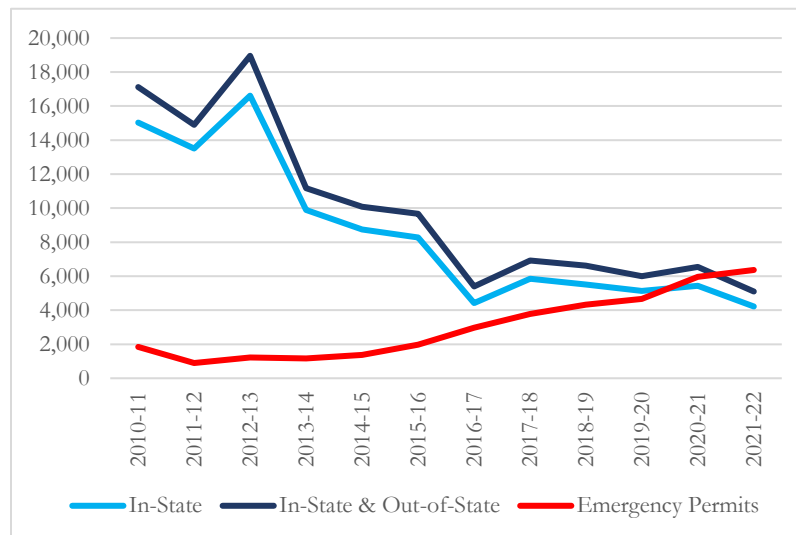


Data Sources: Educator Equity data 2020-2021 and Future Ready school data from PDE website; Analysis by author

*Includes only schools with at least 20 teachers

In addition, as shown in Figure 2, ***the number of teachers employed on an emergency permit now exceeds the number of teachers obtaining certification each year*** in Pennsylvania.

Figure 2: Number of Initial Teaching Certificates and Number of Teachers Employed on an Emergency Permit



Data Sources: Act 82 Report of 2023 from PDE; Analysis by author

Is the Shortage for All Subject Areas?

We currently do not have information on the number of teachers assigned out-of-field or who are employed on an emergency permit by subject area. However, the available data suggests the answer is both yes and no. Yes because at least some districts in every part of the Commonwealth experience a shortage of teachers in some subject areas. No because the shortage is likely more pervasive and more acute for some subject areas than others. My analysis of the available data suggests acute shortage areas, in no particular order, for the following subject areas: English Language Arts, mathematics, science, foreign language, foreign language, physical and health education, business education, special education, and English Language Learner. Even within subject areas, there are specific courses for which shortages may be more acute. For example, very few individuals obtained certification in physics, chemistry, or Latin in 2022.

However, we need far more accurate information on the vacancy rates and degree of difficulty in hiring teachers by specific subject area and school to fully understand the situation and craft specific policies to efficiently address the issues.

Are Shortages Distributed Evenly Across Schools in the Commonwealth?

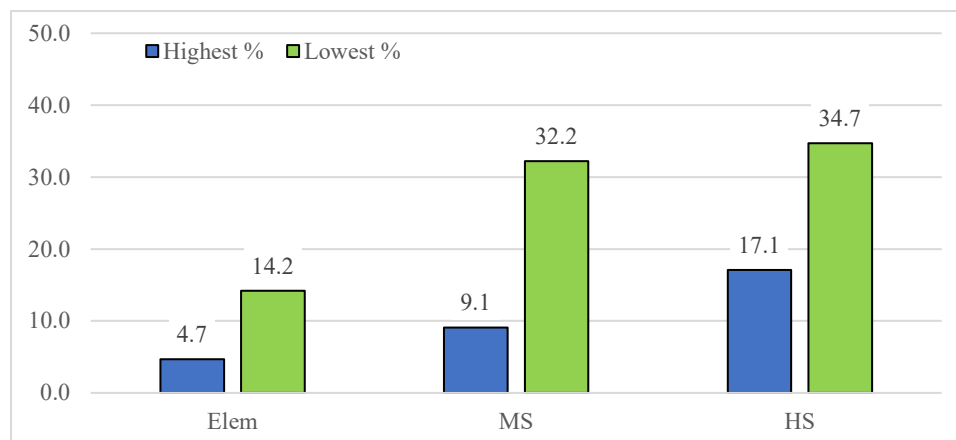
The answer is unequivocally no.

While the vacancy data being collected this fall will provide more detailed information, the available data strongly suggests that shortages are much more acute in schools serving relatively high percentages of students of color and students living in poverty.

In the analyses shown in Figures 2 and 3, schools were divided into ten groups based on the percentage of students enrolled in the school. The figures include the results for schools with the greatest percentages of students of color and the lowest percentages of students of color.

For all three school levels, the percentage of out-of-field teachers were substantially greater in schools with the greatest percentage of students of color than in schools with the lowest percentage of students of color.

Figure 2: Percentage of Teachers Assigned Out-of-Field
by Lowest and Highest Deciles of the Percentage of Students of Color in the School*

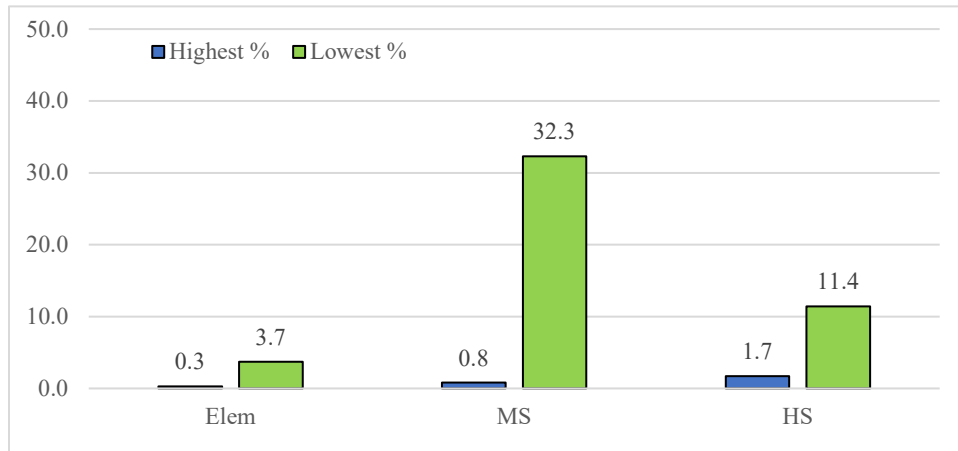


Data Sources: Educator Equity data 2020-2021 and Future Ready school data from PDE website; Analysis by author

Only schools with more than 20 teachers were included in the analysis

The same trend appeared for the percentages of teachers employed on emergency permits. Specifically, for all three school levels, the percentages of teachers on emergency permits were substantially greater in schools with the greatest percentage of students of color than in schools with the lowest percentage of students of color.

Figure 3: Percentage of Teachers Employed on Emergency Permits by Lowest and Highest Deciles of the Percentage of Students of Color in the School*



Data Sources: Educator Equity data 2020-2021 and Future Ready school data from PDE website; Analysis by author

Only schools with more than 20 teachers were included in the analysis

Thus, students in *schools with the highest percentages of students of color had substantially less access to well-qualified teachers* than students in schools with the lowest percentages of students of color.

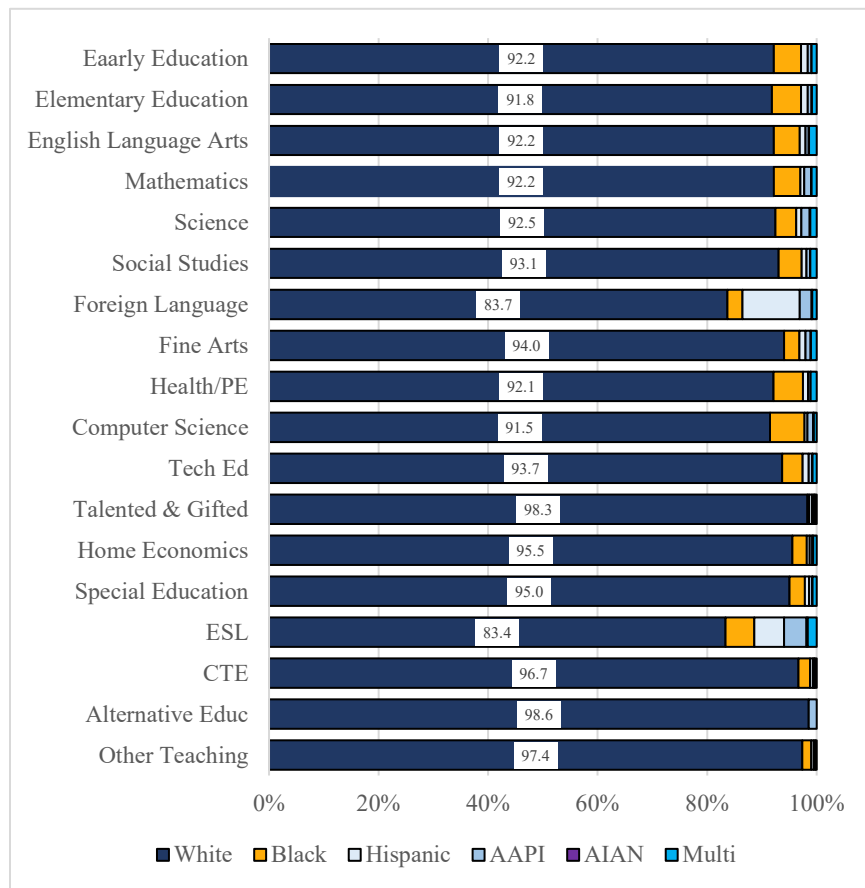
The trends are similar, but not as disparate, for the analysis by the percentage of students participating in the federal free and reduced-price meal program.

In addition, the available data suggests urban schools at all three school levels have significantly greater teacher shortages than schools in suburban areas, towns, or rural areas. This is a function of the high number of charter schools in urban areas and the high number of underfunded districts in urban areas that are often surrounded by much wealthier suburban districts.

Is there a Shortage of Teachers of Color?

As with every other state, the answer is yes. *Research for Action* has consistently identified the dramatic underrepresentation of teachers of color in almost every district in the Commonwealth. My own research has shown that the percentage of teachers of color is less than 10% for 16 of the 18 subject areas for teachers while the percentage of students of color is around 40% in growing. While the percentage of teachers has increased for 13 of the 18 subject areas from 2014 to 2022, only one subject area (Foreign Languages) had an increase of greater than three percentage points. During the same time, the percentage of students of color increased by nine percentage points. Thus, while some slight progress has been made in this area, the progress pales in comparison to the increase in the percentage of teachers of color. In fact, the Commonwealth has only fallen further behind in this area over the past decade.

Figure 4: Racial Characteristics of Pennsylvania Teachers by Subject Area (2021-22)



Data Source: Author analysis of PDE employment file for 2021-22 and racial data for educators.

This is important for all Pennsylvanians because research has consistently demonstrated that teachers of color improve the academic outcomes of *all* students, but particularly students of color. In fact, having just one Black teacher dramatically increases the odds of a Black student entering college and completing college. Thus, there is a huge return on investment for the Commonwealth of ensuring a more diverse educator workforce.

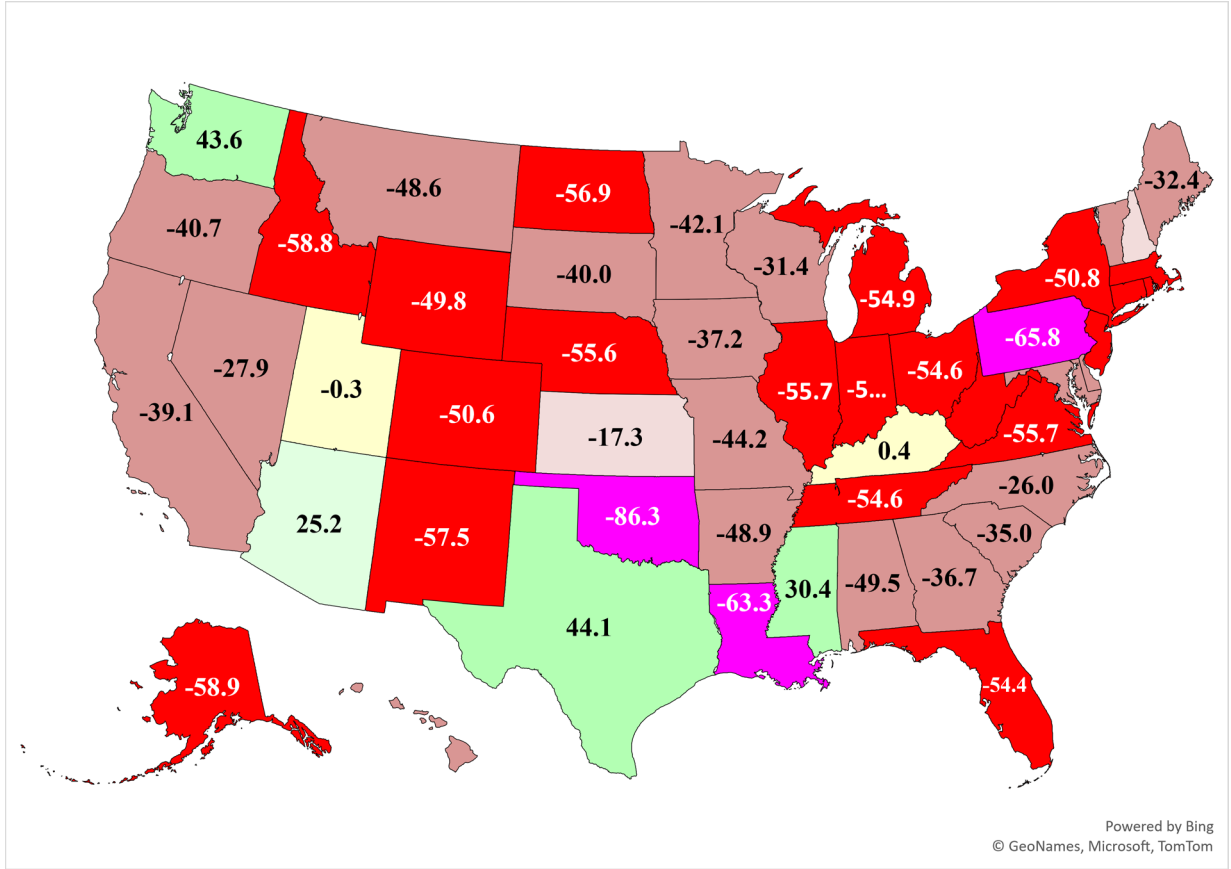
What is Causing the Shortage?

There are multiple causes of the shortage of teachers in Pennsylvania.

Declining Enrollment in TPPs

The most prominent cause is the dramatic decline in the number of students enrolled in and completing TPPs in Pennsylvania. Since 2010, as shown in Figure 5, Pennsylvania has experienced the second greatest decline in the number of students enrolled in TPPs in the country. This is caused by several factors, including some of the issues identified below. In fact, research suggests there has been a decline among K-12 students in becoming a teacher. Much of this decline is attributable to declining salaries, prestige, and working conditions.

Figure 5: Percent Change in the Number of Teacher Preparation Program Enrollees by State (2008-09 to 2020-21)

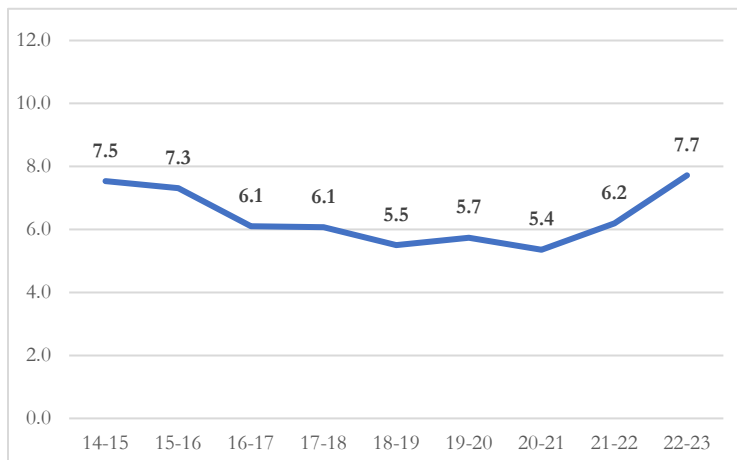


Data Source: Title I enrollment data from USDoE. Graph by Author

Rising Teacher Attrition

In addition, teacher attrition has increased substantially in the past three years. From 2022 to 2023, Pennsylvania lost 9,617 teachers. Yet, in 2022, Pennsylvania only certified 4,200 new teachers. The remaining positions need to be filled by teachers returning to the profession, teachers entering from out of state, or teachers on an emergency permit. This trend will only exacerbate the existing shortage.

Figure 6: Annual Teacher Attrition Rates (14-15 to 22-23)

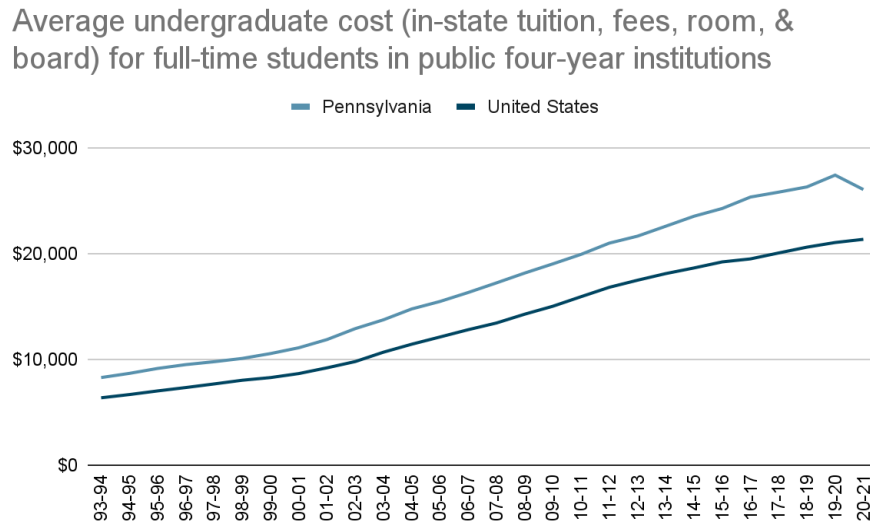


Data Source: PDE Educator Employment files; Author's analysis

Costs of Higher Education

Pennsylvania has one of the highest costs for higher education and costs in Pennsylvania increased at a faster rate than the nation from around 2010 to 2020 as shown in Figure 7. This is the time span during which there was a dramatic decrease in enrollment in Pennsylvania TPPs.

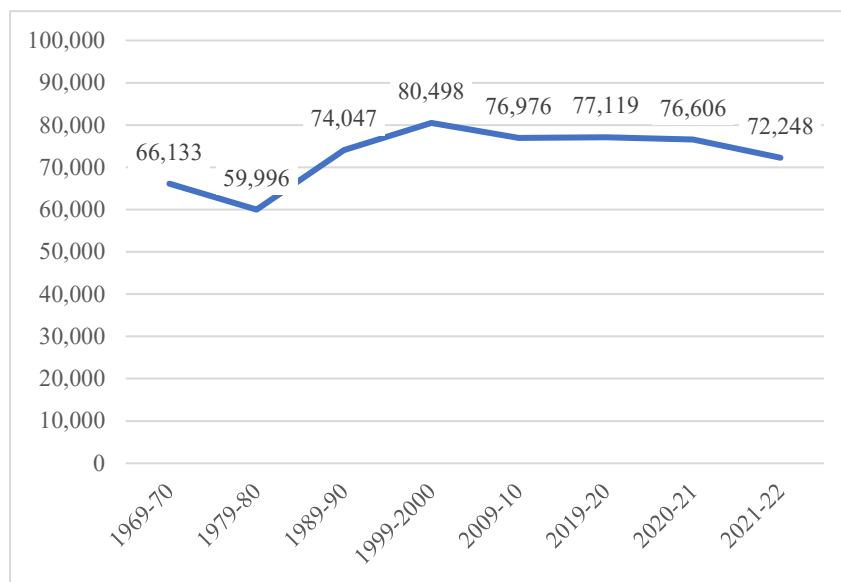
Figure: 7



Stagnant or Declining Wages and Benefits

Average teacher salaries in Pennsylvania have remained stagnant or declined for the past 30 years. As shown in Figure 8, there was a large increase in salaries from 1979-00 to 1999-2000 when the US made large investments in improving the quality of the educator workforce. Since that time, there was a slow and steady decline in average salaries through 2020-21. From 2021 to 2021-22, there was a significant decline of more than \$4,000. While some of these changes are explained by changes in teacher experience levels, the evidence suggests that teacher wages in Pennsylvania have been—at best—stagnant over the last 3 decades.

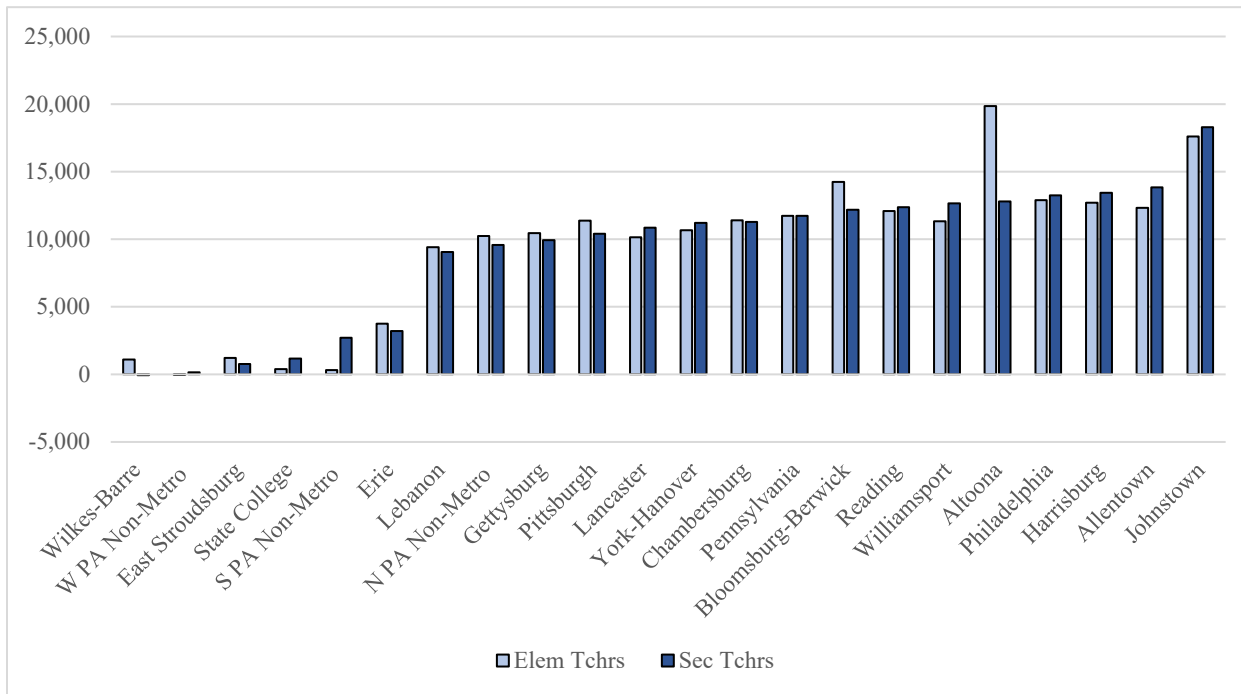
Figure 8: Average Teacher Salaries in Constant 2021-22 Dollars (1969-70 to 2021-22)



Data source: Author’s analysis of PDE data from the National Center for Education Statistics

One sector of employment that competes for many of the same individuals as who might consider entering the educator workforce is nursing. Both sectors are predominantly female, are both considered “helping professions” and both require an undergraduate degree, and many individuals also obtain a master’s degree. In Pennsylvania, the median salary for nurses is greater than the median salary for teachers in 20 of the 22 labor markets used by the Census Bureau. In fact, the nurses earn at least \$10,000 more than teachers in 15 of the 22 labor markets. This provides a huge disincentive to enter teaching—especially coupled with growing student loan debt.

Figure 10: Difference in Median Salary between Nurses and Teachers in Pennsylvania by Labor Market (2022)



Worsening Teacher Working Conditions

Recent research has shown that teacher working conditions have declined significantly for teachers—especially over the past four years. As shown below in Figure 11 that was developed by Dr. Matthew Kraft of Brown University and Dr. Melissa Arnold Lyon at the University of Albany, the perceptions of teachers across the US have declined since 2004 and declined precipitously from 2018 to 2022. There was a greater than 20 percentage point increase for, “Teachers teach with enthusiasm”, as well as a greater than 30 percentage point decline for both, “Teachers would not leave” and “Teaches say stress is worth it.” By 2022, only about 20% of teachers reported teaching with enthusiasm, about 40% stated they would not leave teaching, and about 44% said that the stress of teaching was worth it. Thus, there is a growing dissatisfaction with teaching as a profession which has started to translate into greater teacher attrition rates around the country. The increase in school shootings, verbal attacks of teachers as groomers, and claims that teachers are indoctrinating students are three issues that are likely contributing to these worsening working conditions and growing dissatisfaction.

Figure 11: US Teacher Perceptions of Working Conditions
(1988 – 2022)

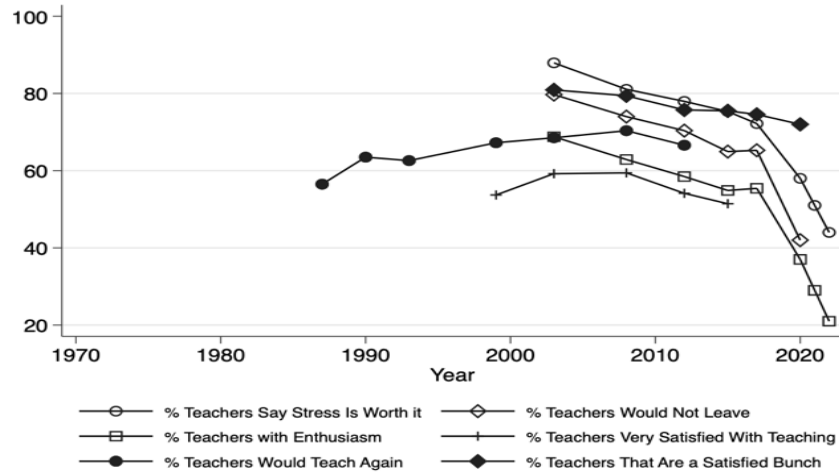


Figure borrowed from: From Kraft, M. A., & Lyon, M. A. (2022). The Rise and Fall of the Teaching Profession: Prestige, Interest, Preparation, and Satisfaction over the Last Half Century. EdWorkingPaper No. 22-679. *Annenberg Institute for School Reform at Brown University*.

Declining Prestige

Consistent with the decline in salaries is the decline of prestige held for teachers. In the US, prestige is generally correlated with teacher salaries. The greater teacher salaries are relative to other professions, the greater the prestige of teaching. The large investments in teacher salaries in the 1980s resulted in a dramatic increase in the prestige of teaching. Dr. Matt Kraft at Brown University reviewed the available evidence on the prestige of teaching and found that:

By 1993, parents’ desire for their children to teach had increased again to above 65%, where it remained until 2011, but then declined to its lowest recorded levels with just 37% of parents wanting their child to become a teacher in 2022. ***Strikingly, between 2009 and 2022 the percentage of parents who saw teaching as a favorable career for their children fell by half.***

The decline in prestige directly affects the interest of individuals in becoming a teacher. Specifically, the lower the prestige, the fewer people who desire to enter the profession. This is particularly true for the ‘best and the brightest’ who want to enter a profession with high prestige and salaries. Indeed, with declining salaries, plummeting working conditions, and declining prestige, even teachers are unlikely to recommend teaching as a career.

Inequitable Funding

Even round 2012 when there was a greater supply of teachers and lower teacher attrition, some schools in the Commonwealth still suffered from difficulty in finding well-qualified teachers and keeping those teachers in the schools. These “hard-to-staff” schools exist in large part to the Commonwealth’s inequitable school finance system. These schools simply don’t have the financial resources to offer salaries that are competitive in their labor market. Thus, they always have the greatest difficulty in attracting and retaining teachers. This difficulty is shown in the tables and graphs below.

Table 1 shows the differences in aggregate teacher salaries between schools in the highest funded districts and schools in the lowest funded districts. There are three analyses—differences per pupil, differences by classroom, and differences by school. The analyses are disaggregated by school level. In every single instance, schools in the highest funded districts had greater expenditures on teacher salaries. At the per pupil level, the average difference was \$1,415 at the elementary school level, \$1,781 at the middle school level, and \$2,208 at the high school. When aggregated to the average size of schools, the difference in expenditures was more than \$700,000

at the high school level, more than \$1,330,000 at the middle school level, and more than \$2,200,00 at the high school level. These are substantial differences that alter the life chances of children simply because the state has created a funding formula that ensures children from lower income areas do not have access to the same human resources as their peers in more affluent communities.

Table 1: Per Pupil, Per Classroom, and Per School Differences in Expenditures on Teacher Salaries Between Schools in the Highest Funded Districts and Schools in the Lowest Funded Districts

Labor Market	Per Pupil			Per Classroom			Per School		
	EL	MS	HS	EL (20)	MS (25)	HS (30)	EL (500)	MS (750)	HS (1000)
	Allentown-Bethlehem	552	1,472	1,653	11,033	36,799	49,602	275,826	1,103,968
Harrisburg-Carlisle	1,537	na	784	30,740	na	23,533	768,488	na	784,428
Lancaster	1,297	628	1,839	25,949	15,701	55,164	648,722	471,037	1,838,786
York-Hanover	1,181	1,432	3,280	23,614	35,796	98,400	590,358	1,073,866	3,279,998
Philadelphia	732	802	1,825	14,645	20,051	54,757	366,137	601,528	1,825,247
Pittsburgh	1,675	2,542	2,426	33,501	63,553	72,768	837,529	1,906,579	2,425,595
Reading	2,072	2,349	1,302	41,438	58,734	39,073	1,035,944	1,762,024	1,302,444
Average	1,415	1,781	2,208	28,300	44,533	66,250	707,492	1,336,000	2,208,321

Specifically, these differences in expenditures translate into differences in access to well-qualified teachers, stable cadres of educators, counselors, and librarians. In comparison to schools in the highest funded districts, schools in districts with the lowest levels of funding have:

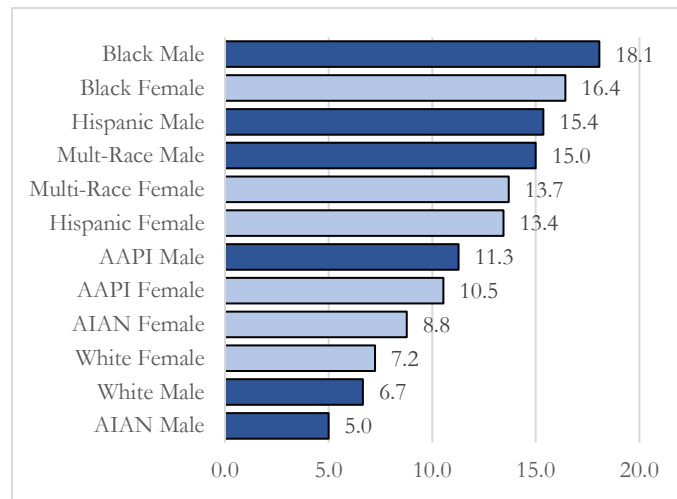
- Greater percentages of novice teachers.
- Greater percentages of teachers assigned out-of-field.
- Greater percentages of teachers employed on an emergency permit.
- Greater teacher attrition.
- Greater assistant principal attrition.
- Greater principal attrition.
- Less access to school counselors.
- A greater number of students per counselor.
- Less access to school librarians.
- A greater number of students per librarian.

All of these issues of access to educators have been shown to influence student outcomes. Thus, students in our schools located in the most under-funded districts do not have access to the human resources needed to ensure they can compete academically with their peers in well-funded districts.

Because children of color are disproportionately enrolled in schools located in underfunded districts, students of color have even less access to the aforementioned human resources than their white peers. However, the disparities are significantly greater between schools serving large proportions of children of color and schools serving white children as shown in figures 3 and 4 above.

Further, because teachers of color are also disproportionately employed in schools located in underfunded districts and in charter schools, teachers of color have far greater attrition rates than their white peers as shown below.

Figure 12: Teacher Attrition Rate
by the Intersection of Race and Sex (2022-23)



Data Source: PDE Educator Employment files; Author's analysis

Barriers to Entry

Over the last three decades, states have adopted numerous requirements and tests that serve as barriers to entry into teaching. The adoption of many of these requirements appears to have resulted in the dramatic increase in teacher quality during the 1980s and 1990s. However, after 2000, states adopted additional entry requirements as well as instituted test-based accountability for schools and teachers.

Some of these requirements are associated with greater teacher quality and effectiveness while others appear to have no association. For example, Pennsylvania has required passage of a basic skills test and a relatively high score on the Praxis certification test to obtain certification. In addition, the Commonwealth also requires a student to earn a 3.0 GPA to enter a teacher preparation program. Yet, there is no evidence that these requirements increase teacher quality or effectiveness but reduce the supply of individuals entering teaching.

Potential Solutions

Given the severity of the shortage of educators and the importance of a quality educator workforce to our children and our economy, we need to develop and implement a systemic and coherent set of policies to address the issue. Below, I provide some recommendations for improving the educator workforce and eliminating our shortage of educators. I divide the teacher pipeline into two sections: pre-employment and employment. I begin, however, with three recommendations that address both sections.

Recommendations that Address Multiple Sections of the Pipeline

K-12 Funding/Increase Salaries: Perhaps the most important recommendation is to adopt a Basic Education Funding formula that provides funding that is sufficient to meet the varying needs of districts in the Commonwealth. This may mean that districts with students who face the greatest challenges will receive more dollars per pupil than districts serving students with fewer obstacles. Ideally, this infusion of funding will increase salaries. Any increase in salaries would help create a greater incentive to enter teaching as well as a greater incentive to remain in teaching. Research has consistently found an association between an increase in salaries and greater interest in teaching and greater teacher retention in the profession.

However, an enhanced and more equitable school funding system is not, by itself, solve the issues of the educator workforce. A new funding system must be coupled with other policies that address the various causes of the educator shortage.

Teacher Working Conditions: While the Commonwealth cannot directly improve teacher working conditions through policy, there are several steps that the Commonwealth could take to help improve teacher working conditions. The first step would be to fund a teacher working conditions study administered every other year. The data from individual districts and schools would be shared confidentially with district and school leaders. The Commonwealth could also offer professional development in interpreting the results and acting upon the information to improve teacher working conditions. This would cost in the range of \$1-2 million dollars, with about \$750,000 for survey administration and data analysis and the remaining money professional development, support, and evaluation of the effort.

Invest in Data Collection, research, and Evaluation Efforts: As noted throughout my research briefs and this testimony, we currently do not have sufficient data to fully understand our educator workforce pipeline. Without a complete understanding, we cannot create the most effective strategies, nor can we understand the effects that adopted strategies might have. Thus, the Commonwealth should invest in a comprehensive and coherent system of data collection, research, evaluation, and communication plan. This should include partnerships with universities and research organizations within the Commonwealth. The estimated cost would be between \$5 and \$10 million depending on the scope of the effort.

Pre-Employment

Grow Your Own Programs: The Commonwealth should invest in Grow Your Own programs that include dual-enrollment options in which students can earn both high school and college credit while beginning their path towards becoming a teacher.

Elevate the Teaching Profession Campaign: The Commonwealth should invest in an advertising campaign that elevates the profession of teaching. This should focus on all individuals in the Commonwealth, but especially K-12 students and their parents.

State Funded Teacher Scholarships: The Commonwealth should provide scholarships for individuals committed to entering the teaching profession in a subject area identified as having an acute shortage by PDE or becoming employed in a hard-to-staff school as identified by PDE.

State-Funded Loan Forgiveness Program: In addition to direct scholarships, the Commonwealth should fund a loan forgiveness program for individuals who commit to teaching for a specified period in a high-need subject area of a hard-to-staff school.

Stipends for Student Teaching: The Commonwealth should provide funds for students with a demonstrated financial need who are enrolled in student teaching. The purpose would be to ensure that no student enrolled in student teaching had to work more than 10 hours per week during their student teaching placement. Research has consistently found that the student teaching experience is the most critical learning opportunity for future teachers. Individuals need to be able to devote their full time and attention to learning how to teach during this experience.

Financial Support for Teacher Residencies: Many individuals would like to enter teaching after completing their undergraduate degree in another field. Entering the teaching profession for such individuals is extremely time-consuming and expensive. Creating a more efficient way to enter the profession while still maintaining quality preparation would greatly expand our supply of teachers, especially of teachers of color. Thus, the Commonwealth should fund one-year residency programs.

Reduce the Cost of Certification: Given the importance of a well-qualified educator workforce, the Commonwealth should subsidize the cost of taking certification tests and obtaining certification. The dollar amount could be determined on a sliding scale of personal income.

Teacher Preparation and Certification Task Force: The Commonwealth should convene a Task Force that is charged with conducting a comprehensive review of all the policies governing teacher preparation. The purpose of the Task Force would be to remove unnecessary barriers to entry into the profession while enhancing the quality of preparation provided.

Provide Additional Funding to Educator Preparation Programs: Because of funding issues, many universities are reducing support for educator preparation programs at precisely the time when the Commonwealth needs educator preparation programs to increase the supply and enhance quality. For example, recent research has shown that an increase in student teachers' perceptions of their university student teaching advisor substantially increases the odds that the student teacher will enter the teaching profession. Preparation programs could submit proposals for additional funding that would include an evaluation of the effect of the funding.

Fund Greater Oversight and Evaluation of Preparation Programs: In return for greater funding, educator preparation programs would be subject to more intensive reviews and evaluations of their programs. For example, the Commonwealth could fund surveys of principals and teachers as one component of an assessment of each teacher preparation program. Several states already have such systems in place.

Employment

Mentoring and Induction: Research has consistently found that well-funded and coherent mentoring and induction programs increase the retention of beginning teachers. We know that our greatest attrition rates are for beginning teachers and teachers past retirement eligibility. For example, my recent analysis of teachers in Philadelphia County revealed that about one out of every 3 beginning teachers in the county did not return to the teaching profession. This was true for district schools and charter schools. Reducing this attrition would substantially decrease demand for additional teachers.

Support and Fund Career Ladders within Teaching: Many teachers cannot earn a substantial raise without changing districts or moving into a non-teaching position. For example, of the about 9,600 teachers who quit from 2022 to 2033, nearly 1,800 of them took other non-teaching positions. This was 18% of all teachers who quit. The Commonwealth should collaboratively develop a state funded teacher career ladder that provides additional pay or stipends for teachers performing other job duties such as mentoring beginning teachers, coaching other teachers, or quasi-administrative roles. The Commonwealth already has a Teacher Leader option, yet few individuals have taken advantage of this option.

Ensure Principal Preparation Program Quality: Principals are critical to teacher development and retention. Arguably, the Commonwealth has allowed a race to the bottom where programs now require as few as five courses online to earn principal certification. The Commonwealth should adopt more stringent criteria for programs and create more robust evaluation systems to assess the effectiveness of preparation programs.

Re-Design the Teaching Profession: Most ambitious of all would be to re-think and re-design the teaching profession. Our current system of teaching requires teachers to work substantial numbers of hours after working all day and then often working a second job to make ends meet no longer meets the needs of our society. The Commonwealth should invest in working groups to start re-designing how teaching and the teaching profession operates in the Commonwealth. There are certainly other models that yield more effective teachers with lower attrition than the model we currently have in place.

Conclusion

Increasing the supply of teachers while enhancing the quality of the educator workforce will be difficult. Doing so will require collaboration among numerous groups and bi-partisan agreement on the necessity of ensuring every child in Pennsylvania has access to a well-prepared, well-qualified, and effective teacher. We need our leaders to have the political will and the best interests of children at heart to take this opportunity to build a world-class education system systems tat serves the needs of every child and lays the foundation for a strong economy. Our children—especially the most vulnerable ones--have waited far, far too long for the Commonwealth to meet their needs. We need action now.