

CENTER FOR EVALUATION & EDUCATION POLICY ANALYSIS (CEEPA) COLLEGE OF EDUCATION, PENN STATE UNIVERSITY

Brief 2025-2: Stagnant Supply of Teachers: Where Do We Go from Here?

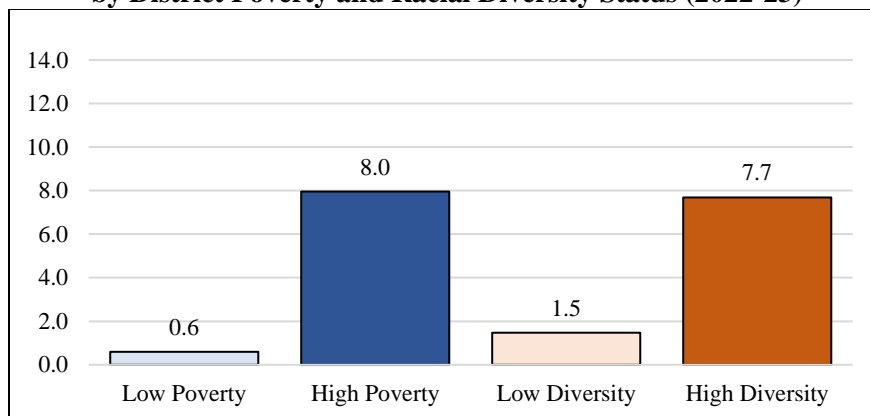
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For almost a decade, there have been growing concerns about teacher staffing challenges in Pennsylvania. Indeed, there has been a steady increase in the number of teaching positions filled by teachers on an emergency permit rather than a certified teacher. In fact, for the 2020-21 school year, the number of emergency permits issued exceeded the number of individuals obtaining a teaching certificate from Pennsylvania teacher preparation programs (TPPs). In the 2021-22 school year, the number of emergency permits issued exceeded the number of individuals obtaining initial certification—both in-state and out-of-state.

Recently released data shows how this translates into access to teachers. Each year, the Pennsylvania Department of Education (PDE) releases information about teacher quality in their Every student Succeeds Act (ESSA) report card. This data is presented in Figure 1. The graph shows that, in the 2022-23 academic year, 8.0% of teachers in high-poverty¹ districts were employed on emergency permits while 0.6% of teachers in low-poverty districts were employed on emergency permits. Similarly, 7.7% of teachers in districts with high percentages of students of color² were employed on emergency permits while only 1.5% of teachers in districts with low percentages of students of color were employed on emergency permits. Thus, the growing school staffing difficulties have the greatest impact on districts serving the students with the greatest academic needs. This highlights the fact that we currently have a very inequitable system of education.

**Figure1: Percentage of Teachers Employed on an Emergency Permit
by District Poverty and Racial Diversity Status (2022-23)**



Data source: Author's graph of PDE ESSA Report from 2022-23

In March of 2025, the Pennsylvania Department of Education recently released data on the number of teachers obtaining initial certification and the number of teachers granted an emergency permit. This report relies on this new data to examine trends in these areas.

We find that the number of newly certified teachers remains entirely inadequate to ensure that every child in Pennsylvania is taught by a well-qualified teacher. In fact, Pennsylvania continues to fall behind in efforts to provide an equitable education for all students. Without a concerted effort by lawmakers to dramatically increase the number of effective newly certified teachers, too many children in the Commonwealth will continue to receive an inadequate education. Not only does this have devastating impacts on individual children and communities, but an insufficient supply of teachers also has a negative effect on the overall economy of Pennsylvania.

¹ PDE does not provide a definition for high- or low- poverty districts.

² PDE does not provide a definition for high- or low- diversity districts.

Findings

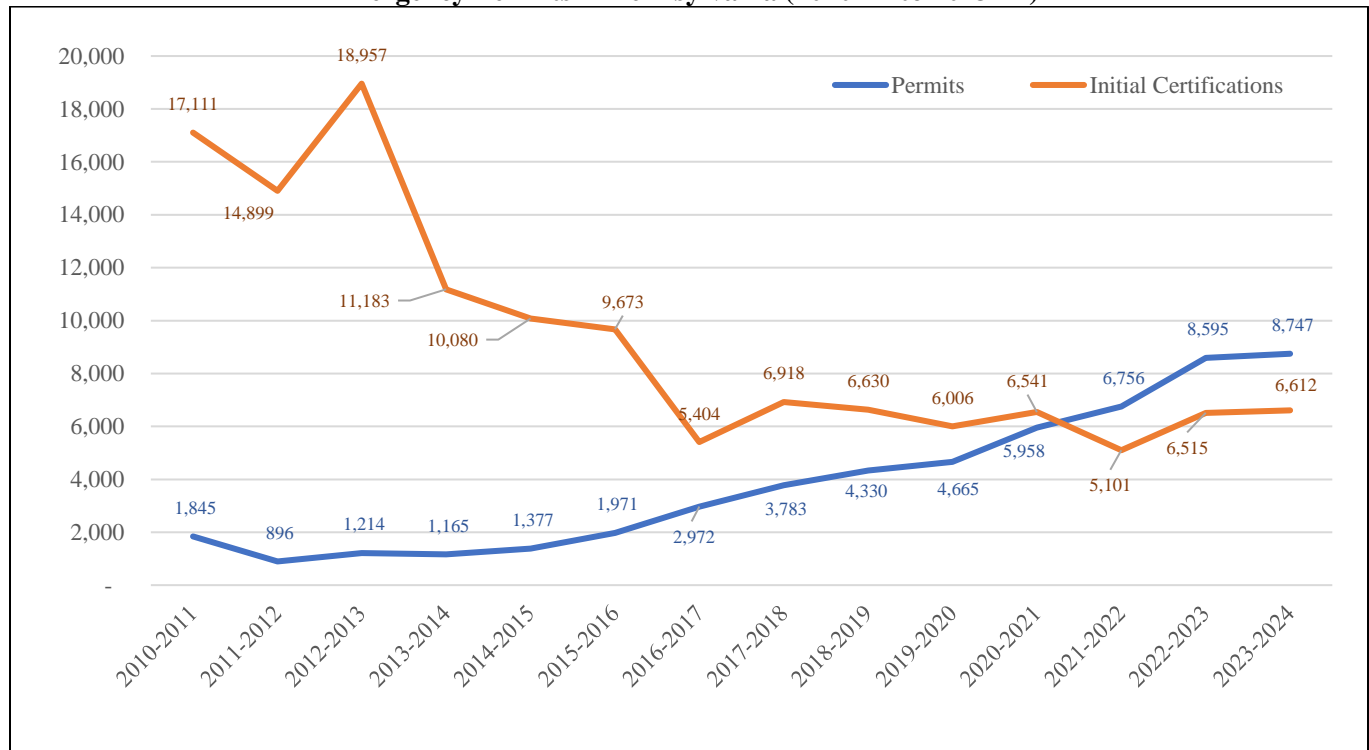
As shown in Figure 2, we find that the number of individuals obtaining initial certification in Pennsylvania increased by 1.5%. This was only 97 more prospective teachers than the prior year. The overall number of newly certified teachers was 6,612, which was the second highest number of newly certified teachers since 2016-17.

The bad news is that the number of emergency permits increased 1.8% to 8,747. This was the greatest number of emergency permits since data has been collected. For example, in 2011-12, there were fewer than 1,000 emergency permits.

We draw your attention to the fact that the gap between the number of emergency permits and the number of newly certified teachers has increased from 2021-22 which was the first year that the number of emergency permits exceeded the number of newly certified teachers. ***Even if every newly certified teacher took a teaching position in Pennsylvania, they would still not replace every classroom led by a teacher on an emergency permit.***

We will need the number of newly certified teachers to increase by 50% over the next three to five years if we are to eradicate the shortage of teachers in the Commonwealth.

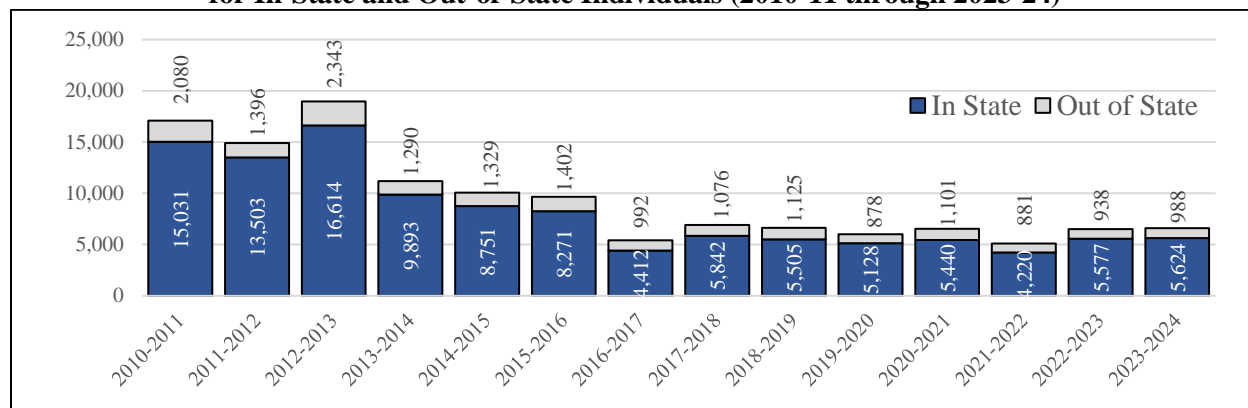
**Figure 2: Number of Initial Certifications and
Emergency Permits in Pennsylvania (2010-11 to 2023-24)**



Data source: Author's graph of PDE Act 82 Report data

Figure 3 shows the number of individuals obtaining initial teaching certification from in-state institutions and from out-of-state institutions. By far, most newly certified teachers in Pennsylvania are from in-state institutions. Since 2010-11, out-of-state teachers have comprised between 9% and 17% of initially certified teachers. While the addition of out-of-state teachers certainly provides needed help with the supply of teachers in Pennsylvania, increasing the number of out-of-state teachers is not going to solve the teacher supply problem in the Commonwealth.

Figure 3: Number of Initial Teacher Certificates Issued for In-State and Out-of-State Individuals (2010-11 through 2023-24)



Data source: PDE Act 82 report.

This overall number of newly hired teachers, however, masks variation by subject area. As shown in Table 1, there was at least a 50% decline in the number of initial certificates granted from 2010-11 to 2023-24 for each of the 11 subject areas. Notably, English Language Learner (ELL) is not listed as a subject area because Pennsylvania does not require certification in ELL.

The greatest decline (-84.8%) was for Computer Science and Technology Education while the smallest decline was 53.1% for English Language Arts. All these declines were substantial and reveal how the supply of teachers in Pennsylvania has changed dramatically in just over a decade. While teacher attrition has long been a driver of teacher shortages, the data in Table 1 underscores the fact that a declining teacher supply has also had a large effect on the existing shortage of teachers in Pennsylvania.

Table 1: Number and Percent Change in Initial in-State Teacher Certificates Issued from 2011-12 to 2023-24 by Subject Area

Subject Area	Academic Year		Change: 2011 to 2024	
	2010-11	2023-24	#	%
PreK & Elementary	6,594	2,348	-4,246	-64.4
English Lang Arts	1,302	611	-691	-53.1
Mathematics	632	266	-366	-57.9
Science	675	223	-452	-67.0
Social Studies	1,012	424	-588	-58.1
Health & Phys Ed	503	177	-326	-64.8
Fine Arts	807	304	-503	-62.3
World Languages	240	55	-185	-77.1
Comp Sci / Tech Ed	79	12	-67	-84.8
Business/FCS/CTE	331	57	-274	-82.8
Special Education	2,786	1,140	-1,646	-59.1

Data source: Dr. Fuller's analysis of PDE Act 82 report data

Table 2 documents the change in the number and percentage of initial certificates from 2022-23 to 2023-24. In last year's report, all subject areas experienced an increase in the number of individuals who obtained an initial certificate. This is not the case in this year's report. Of the 11 subject areas, 8 experienced an increase in the number of individuals obtaining certification while 3 experienced a decline in the number of people obtaining initial teacher certification.

Numerically, the greatest increase in individuals obtaining certification was 91 for Early Childhood Education and Elementary Education. This was a 4.0% increase in the number of initial certificates granted. The greatest percentage increase was 33.3% for Computer Science/Technology Education.

Despite the seemingly large increase, the increase reflects only a 3 person increase from the 9 people obtaining initial certification in 2022-23 and the 12 people in 2023-24.

The greatest decline was in special education. There was a decline of 111 people obtaining initial certification in Special Education from 2022-2023. This was almost a 9% decline. Given that this is the subject area with the greatest shortage of teachers in Pennsylvania, this is a disheartening finding.

In the four core course areas, there was a slight increase for Social Studies (+5), a slightly greater increase for English Language Arts (+16), a moderate increase in Science (+30), and a large increase in Mathematics (+52). The increase in Mathematics was noteworthy because there has been a longstanding shortage of such teachers.

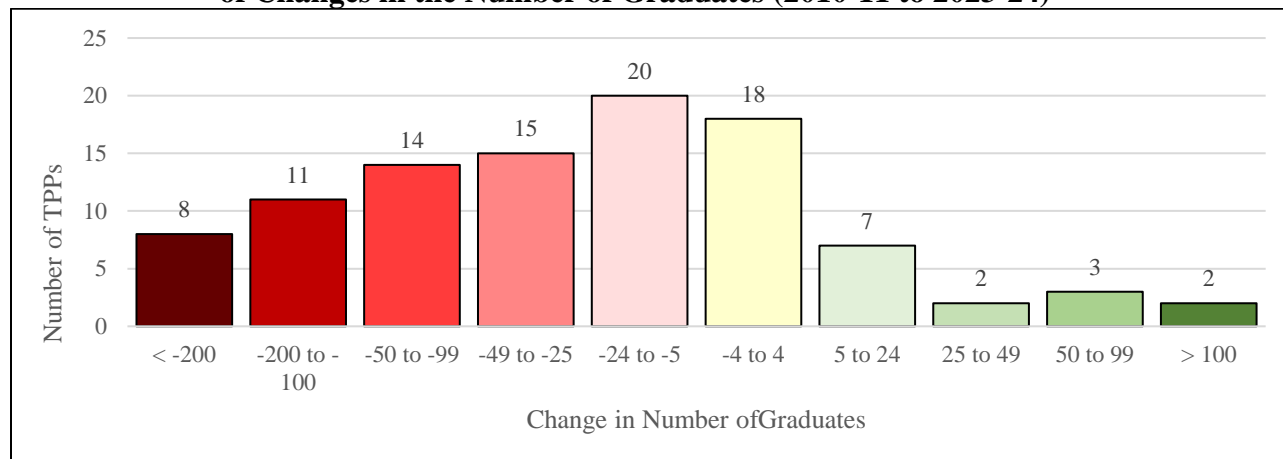
Table 2: Number and Percent Change in Initial In-State Teacher Certificates Issued from 2021-22 to 2022-23 by Subject Area

Subject Area	Academic Year		Change: 23 to 24	
	2022-23	2023-24	#	%
PreK & Elementary	2,257	2,348	91	4.0
English Lang Arts	595	611	16	2.7
Mathematics	214	266	52	24.3
Science	193	223	30	15.5
Social Studies	419	424	5	1.2
Health & Phys Ed	147	177	30	20.4
Fine Arts	301	304	3	1.0
World Languages	67	55	-12	-17.9
Comp Sci / Tech Ed	9	12	3	33.3
Business/FCS/CTE	59	57	-2	-3.4
Special Education	1,251	1,140	-111	-8.9

Data source: Dr. Fuller's analysis of PDE Act 82 report data

Figure 4 shows the number of teacher programs in selected ranges of changes in the number of graduates from 2010-11 to 2023-24. Eight TPPs had declines of more than 200 students while another 11 had declines of between 100 and 200 graduates. Almost 70 TPPs reported declines of at least five graduates. Only 14 TPPs reported an increase in the number of graduates from 2020-11 to 2023-24. Strikingly, only seven TPPs had an increase of more than 24 graduates. There were nearly five times as many TPPs with declines as TPPs with increases in the number of newly certified teachers. Thus, the vast majority of TPPs had declines in the number of graduates.

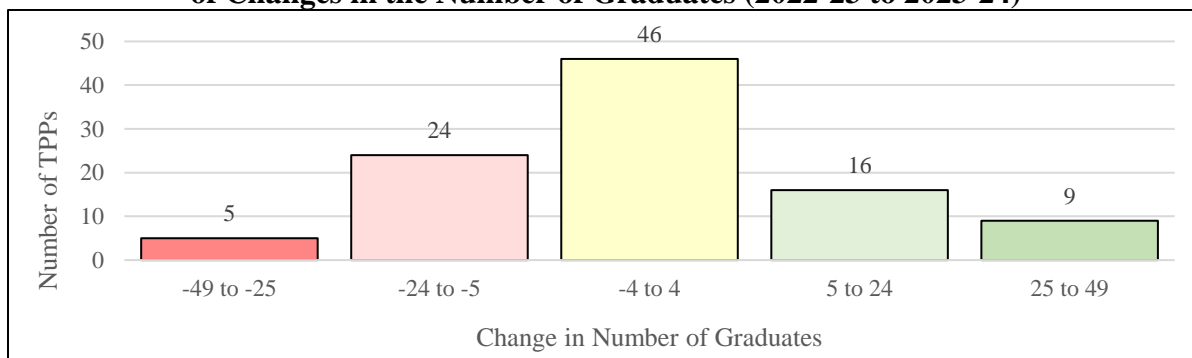
Figure 4: Number of Programs with Selected Ranges of Changes in the Number of Graduates (2010-11 to 2023-24)



Data source: Dr. Fuller's analysis of PDE Act 82 report data

Figure 5 shows the number of TPPs in selected ranges of changes in the number of graduates from 2022-23 through 2023-24. Of the 100 TPPs, 46 experienced no real change in the number of graduates obtaining initial certification. There was a moderate decrease for 24 programs and only five programs had a significant decrease in graduates receiving certification. While more TPPs experienced a decrease than an increase, there were TPPs with increases in the number of initially certified teachers. Specifically, 16 programs had a moderate increase in graduates and nine had a large increase.

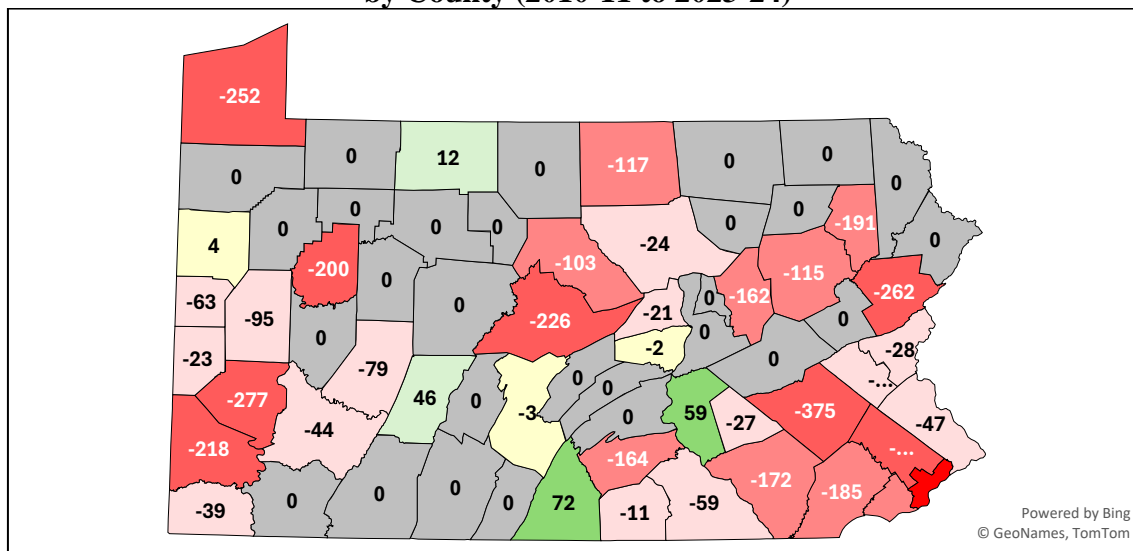
Figure 5: Number of Programs with Selected Ranges of Changes in the Number of Graduates (2022-23 to 2023-24)



Data source: Dr. Fuller's analysis of PDE Act 82 report data

Figure 6 shows the change in the number of newly certified teachers from 2010-11 to 2023-24 by county. Almost all areas of the Commonwealth experienced dramatic declines. The greatest declines were in the Philadelphia metro area--specifically Philadelphia County (-791), Berks County (-375), and Montgomery County (-280). Further, Monroe County (-262) was another eastern county with a large decline of more than 200 prospective teachers. On the western side of the state, both Allegheny County (-277) and Erie County (-252) experienced large declines as well. Most of these counties include large cities and hold much of our population.

Figure 6: Change in the Number of Newly Certified Teachers by County (2010-11 to 2023-24)



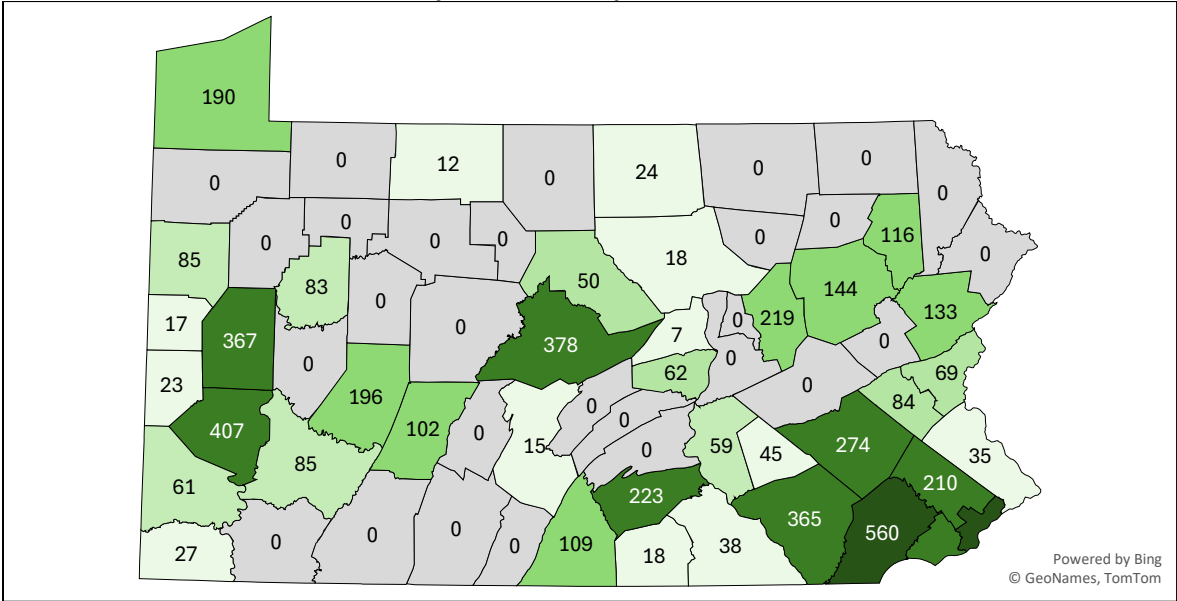
Data source: Author's analysis of PDE Act 82 report data

Philadelphia	Delaware
-791	-114

< -400	-400 to -201	-200 to -101	-100 to -6	-5 to 5	6 to 50	51-100
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Figure 7 displays the number of newly certified teachers in 2023-24 by county. Not surprisingly, there were many newly certified teachers in the greater Philadelphia metro area as well as the areas around Lehigh, Harrisburg, and Allegheny. All these areas have many students and teachers as well as preparation programs. Centre County also had a large number of graduates obtaining certification which is not surprising given that Penn State has been one of the largest TPPs in Pennsylvania for at least a decade. However, there are relatively few students and teachers in Centre or surrounding counties.

Figure 7: Number of Newly Certified Teachers by TPP County (2023-24)



Data source: Author’s analysis of PDE Act 82 report data

Philadelphia					
Philadelphia			Delaware		
552			365		
0	1-25	26-100	100-199	200-499	500+

Does Supply Meet Demand?

The important question is, “Does the supply of newly certified teachers meet the demand for teachers in Pennsylvania?”

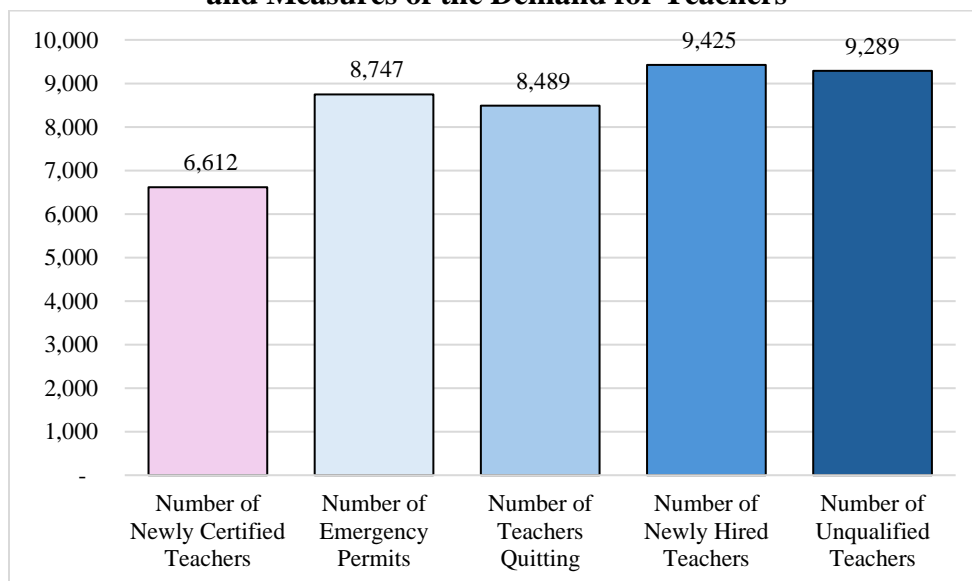
Unfortunately, that is a complicated question to answer. First, PDE currently does not provide the data necessary to accurately calculate the demand for teachers. Second, there are other sources of the supply of teachers than newly certified teachers. The most prominent of these additional sources of supply is the reserve pool of teachers. The reserve pool of teachers is the group of teachers who were not employed as teachers in the prior year but were previously employed as teachers. For example, if a newly hired teacher in 2024-25 was not employed as a teacher in 2023-24 but was employed as a teacher in any year prior to 2023-24, then that newly hired teacher would be a member of the reserve pool. Unfortunately, PDE does also not provide the data necessary to estimate the size of the reserve pool.

Given these issues, we can only roughly estimate the demand for teachers. Figure 8 includes four rough measures of the demand for teachers: number of teachers employed on an emergency

permit, number of teachers quitting the teaching profession, number of newly hired teachers, and number of unqualified teachers. The actual demand for teachers is likely some combination of newly hired teachers and the number of unqualified teachers. With additional data from PDE, we could better estimate the number.

The four measures of demand range from a low of 8,489 (Number of teachers quitting) to 9,289 (number of unqualified teachers). In each case, the demand for teachers far exceeds the number of initially certified teachers. Specifically, the demand for teachers exceeds the number of initially certified teachers by between 1,900 and 2,800 teachers. While not all the demand for teachers would be met by initially certified teachers, this comparison shows that demand is currently outstripping supply.

Figure 8: Number of Initially Certified Teachers and Measures of the Demand for Teachers



Our best measure of whether our supply is meeting demand is information on vacancies and emergency permits. Vacancies have remained about the same over the last two years and the number of emergency permits continues to increase. Thus, all the available evidence reveals that the supply of teachers is woefully inadequate. **We must increase the supply of teachers to ensure every child is taught by a certified teacher.**

Conclusion

The supply of teachers is wholly insufficient to meet the demand for teachers in Pennsylvania. From 2012 to 2017, there was a dramatic decline in the number of newly certified teachers from which the Commonwealth has never recovered. The number of newly certified teachers has bounced between 5,000 and 7,000 for the last seven years. This number is not sufficient to meet the demand for teachers as evidenced by the large increase in the number of emergency permits over the same time frame. Further, as shown in a prior report, there remain more than 2,000 vacant teaching positions and that number has remained constant over the last two years.

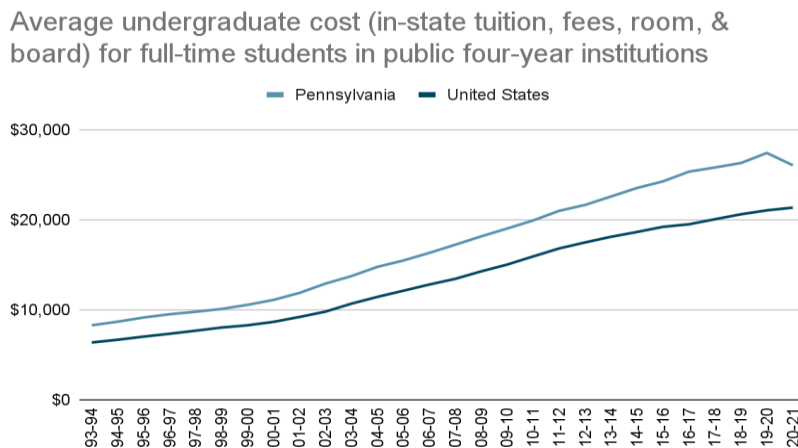
Possible Causes

There is a myriad of possible causes of the dramatic and sustained decline in the number of newly hired teachers in Pennsylvania. However, without surveying and interviewing high school students about their career aspirations, we simply do not fully understand the reasons behind the decline. Below are some possible reasons for which there is some research to suggest the issue is affecting enrollment in and completion of TPPs.

1) Increasing Costs of Higher Education

Over the last 27 years, the cost of attending higher education steadily increased across the US and costs were greater in Pennsylvania than in most states as shown in Figure 9. Further, costs increased more rapidly in Pennsylvania from 2010 onward after substantial cuts were made to higher education in Pennsylvania. Increased costs create a great barrier to enrollment in higher education---especially for students from families who are not wealthy. Moreover, many lower-income families are very hesitant to take on loans, thus do not see any viable path to attending and completing college.

Figure 9: Higher Education Costs in the US and in Pennsylvania
(1993-94 through 2020-21)

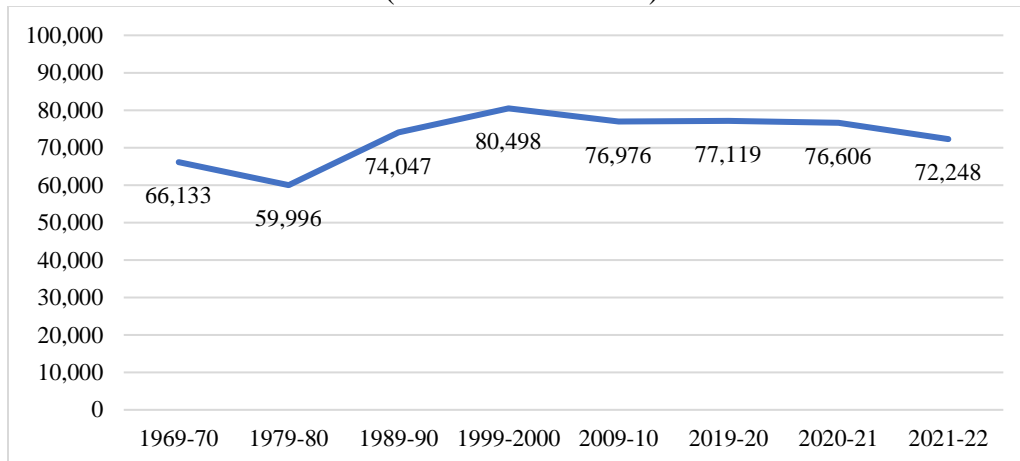


2) Stagnant and Declining Wages and Benefits

Average US teacher salaries have remained stagnant for the past 30 years. As shown in Figure 10, average teacher salaries in Pennsylvania have declined over the last two decades. In 2018, these wages were 12% lower than other Pennsylvania workers with comparable education levels. As for benefits, the General Assembly reduced benefits for beginning teachers in 2019. When combined, the 2018 wages and benefits of teachers were 10% lower than comparable Pennsylvania workers. Since that time, wages have fallen by about \$5,000. Some of this change is due to changes in the distribution of teachers by years of experience, specifically, there is a greater percentage of teachers with less than five years of experience and a lower percentage of teachers with more than 25 years of experience.

Thus, while higher education and other costs have increased over the last two decades, teachers in Pennsylvania have experienced declining wages and benefits. There has been, then, a growing economic disincentive to become a teacher in Pennsylvania.

Figure 10: Wages of Teachers in Pennsylvania 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

3) Worsening Teacher Working Conditions

Recent research has shown that [teacher working conditions have declined significantly—](#)especially over the past four years. Indeed, Kraft and Lyon conclude that, “The current state of the teaching profession is at or near its lowest levels in 50 years.” They attribute to the poor state of the teaching profession to a number of cases with working conditions being one of the primary causes.

Conclusions

As shown above, the number of individuals obtaining initial teacher certification in Pennsylvania increased rather substantially last year. This was only the third increase since 2012-13 and only the second substantial increase. However, the increase only brought the number of initially certified teachers in line with the average for the last seven years. The supply of newly certified teachers remains inadequate given the high demand for teachers as evidenced by the large number of teacher vacancies and teaching positions filled by teachers employed on an emergency permit (see forthcoming brief).

Recommendations

Policymakers must address the issue of too few individuals entering and completing TPPs in Pennsylvania. Below are some recommendations to address the issue.

Reduce the Cost of Obtaining a Teaching Certificate

The Commonwealth should provide scholarships and offer loan forgiveness programs to provide an economic incentive for individuals to enter teaching. Such programs should provide the greatest incentives for specific shortage areas—especially special education. The loan forgiveness program could be created in such a way that the amount of forgiveness would be greatest for those choosing to teach in a hard-to-staff school. In addition, the Commonwealth should provide financial support to para-professional to enroll in and complete TPPs. There has been some movement in this area, but it is too early to know if these efforts will be successful.

Fully Fund Student Teaching Stipends

While there has been an initial investment in student teaching stipends, we need to fully fund this effort. This holds the potential for recruiting more teachers and especially retaining more teachers. If we do not fully fund the stipends, then the available stipends should be provided based on demonstrated economic need.

Provide Free Certification Tests

For many students, the costs of taking teacher certification tests are a barrier to entry into the profession. The Commonwealth should make all certification tests free or very affordable.

Develop an Education Dual Enrollment Program

The Commonwealth should support the creation of teacher pathways that begin in elementary school and offer a dual-enrollment program for students interested in becoming a teacher in Pennsylvania.

Improve Teacher Salaries

Young adults entering college make their decisions about what to study based, in part, on a cost-benefit calculation. Currently, the cost-benefit calculation suggests that entering teaching is an economically bad decision. By reducing the cost of becoming a teacher and raising teacher salaries, the Commonwealth can make this calculation result in a positive incentive to enter teaching.

Conduct a Comprehensive Review of Teacher Preparation Policies

PDE should review or contract with organization(s) to review the policy environment around teacher preparation in the Commonwealth. The review should consider how policies facilitate or impede the quality preparation of individuals for teaching positions in the Commonwealth. The review should also examine Grow Your Own Programs and other quality alternative pathways.

Adopt a Teacher Preparation Program Quality Review Effort

PDE should create a TPP quality review effort that includes analysis of state administrative data, surveys of TPPs graduates, surveys of employers of graduates of TPPs, and periodic in-person program reviews.

Create a New Data Collection and Analysis Plan

PDE should collaborate with organizations and individuals to conduct a comprehensive review of current educator workforce data collection and analysis efforts and propose a new system that would provide detailed and actionable data. This is necessary to better understand the issues underlying various issues regarding teacher supply, demand, and staffing challenges. As noted in this report, we don't have the data to fully understand supply and demand issues in Pennsylvania.

Support Differentiated Career Advancement

To obtain a substantial increase in salary, teachers must either transfer to a higher paying district or enter into another job role such as counselor or administrator. However, many teachers prefer not to leave the classroom. Supporting pay increases for teachers to advance into formal Teacher Leader positions associated with greater pay for greater responsibilities would help create pathways to greater salaries as well as reduce the substantial time burden on school leaders which is a primary cause of the 20% annual turnover rate for principals.

This brief is co-sponsored by the Pennsylvania State University College of Education and the Pennsylvania Educator Diversity Coalition.

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This brief is part of the CEEPA Research and Policy Brief Series that provides evidenced-based, peer-reviewed analysis of important educational issues in Pennsylvania and across the US. The Executive Director is Dr. Ed Fuller. He is a Professor in the Education Policy Studies Department at Penn State University. The Center is supported by Dr. Kim Lawless, the dean of Penn State's College of Education.