

Research Brief 2024 – 4:

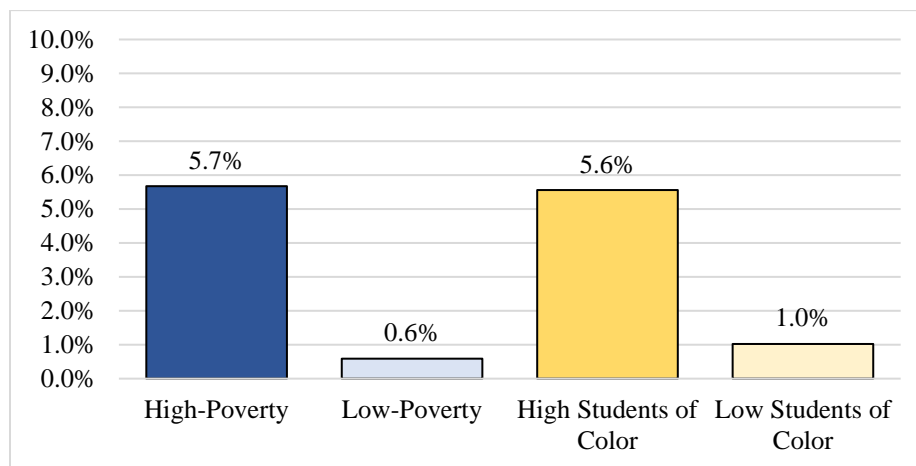
## Turning the Corner? Examining the Increase in the Number of Initially Certified Teachers in Pennsylvania

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Since the 2019-20 academic year—the first affected by the pandemic—there have been growing concerns about teacher staffing challenges in Pennsylvania. Since the pandemic year of 2020, 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 all individuals obtaining initial certification—both in-state and out-of-state.

Recently released data shows how this translates into access to teachers. Figure 1 shows that, in the 2021-22 academic year, 5.7% of teachers in high-poverty districts were employed on emergency permits while 0.6% of teachers in low-poverty districts were employed on emergency permits. Similarly, 5.6% of teachers in districts with high percentages of students of color were employed on emergency permits while 1.0% of teachers in districts with low percentages of students of color were employed on emergency permits.

**Figure1: Percentage of Teachers Employed on an Emergency Permit by District Poverty and Racial Diversity Status (2021-22)**



Data source: Author's graph of PDE ESSA Report from 2021-22

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.

I find that the number of individuals obtaining initial certification in Pennsylvania increased by 27.7%—the second greatest increase since data was first reported in 2010-11. Only the 28.0% increase for 2017-18 was greater. Despite this increase, the number of emergency permits granted also increased by 27.2%. Numerically, there was an 1,839 person increase in the number of individuals granted an emergency permit while there was 1,414 increase in the number of individuals obtaining initial certification.

## Findings

As shown in Figure 2, the number of individuals obtaining initial teacher certification plummeted from nearly 19,000 in 2012-13 to just 5,101 in 2021-22. From 2021-22 to 2022-23, there was a 28.0% increase in the number of individuals obtaining initial certification--an increase of 1,414 potential teachers. This was the second increase of at least 28% since 2017-18. However, despite this increase, the number of individuals obtaining initial teaching certification in 2022-23 was still substantially lower than the number of individuals obtaining emergency certification emergency for all but two years since 2010-11. In 2021-22 there were about 1,600 more individuals obtaining emergency permits than individuals obtaining initial certification. In 2022-23, this difference increased to about 2,000 individuals. We must remember, however, that some individuals are granted an emergency permit while their credentials are being reviewed by the state and then receive their initial certification. Further, long-term substitutes are employed on an emergency permit. Despite the large increase in the number of individuals receiving initial certification, the increase was not large enough to immediately offset the shortage of teachers as evidenced by the number of emergency permits. We will need sustained increases over the next three to five years to substantially reduce the shortage of teachers.

**Figure 2: Number of Initial Certifications and Emergency Permits in Pennsylvania (2010-11 to 2022-23)**



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. Most newly certified teachers in Pennsylvania are from in-state institutions. While the additional individuals entering the Commonwealth to teach certainly helps in addressing the shortage of teachers, out-of-state teachers are not a significant proportion of initially certified teachers. For the last 8 years, the ratio of in-state certificates to out-of-state certificates ranged from a low of 4.4 to 1 to a high of 5.9 to 1.

**Figure 3: Number of Initial Teacher Certificates Issued for In-State and Out-of-State Individuals (2010-11 through 2022-23)**

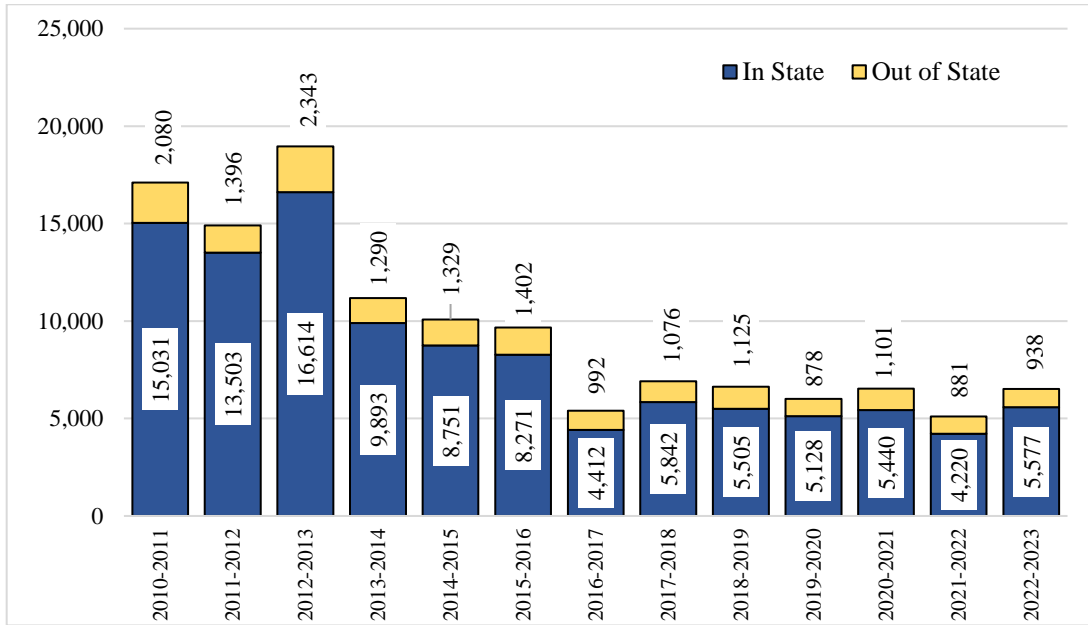
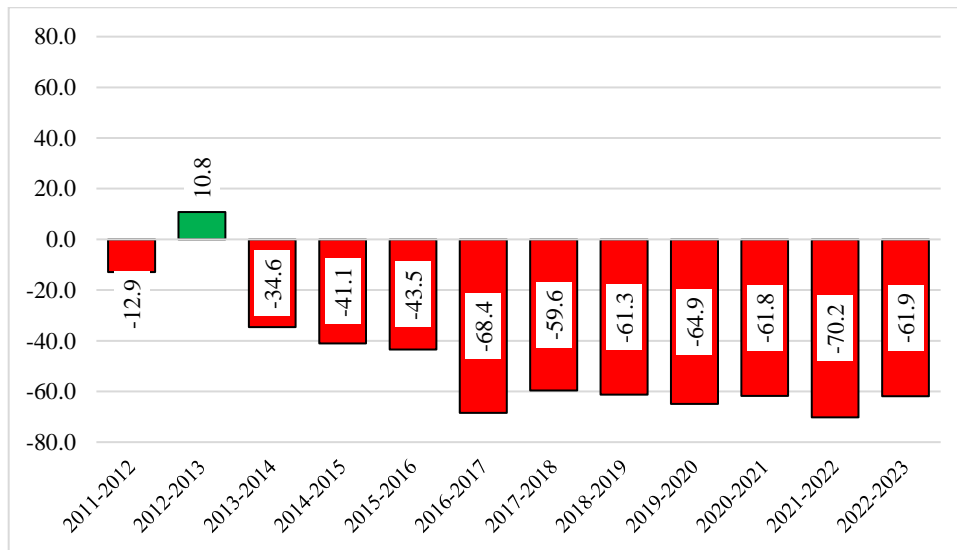


Figure 4 shows the percentage of newly certified teachers relative to the base year of 2010-11. From 2010-11 to 2022-23, the number of initial in-state certificates awarded declined by nearly 62%. At no time since 2016-17 has the number of newly certified teachers been less than about 60% fewer people than the number of graduates in 2010-11. Thus, once again, we see that much progress remains to be made in terms of increasing the number of individuals obtaining initial certification.

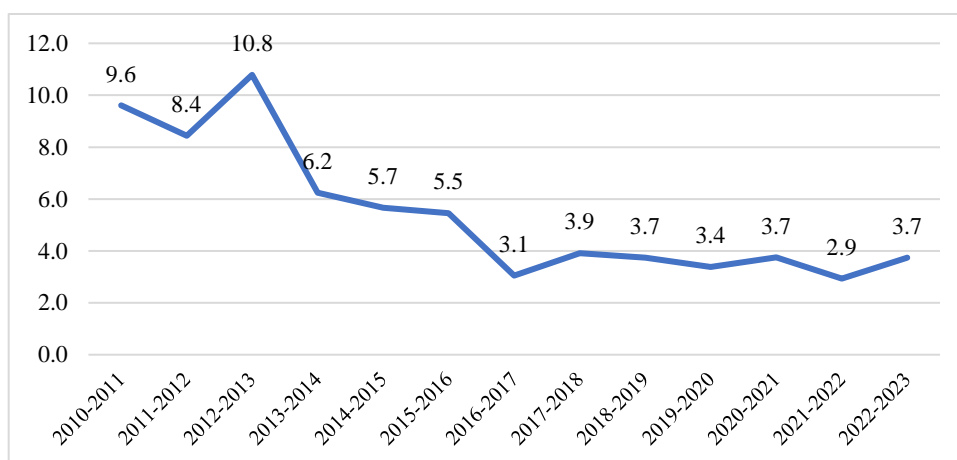
**Figure 4: Percentage of Initial Teacher Certificates Issued Relative to 2010-11. (2011-12 through 2022-23)**



Data source: PDE Act 82 report.

While there has been a decline in the number of individuals obtaining certification, this may not be a critical issue if there has been a similar decline in the number of students. However, as shown in Figure 5, the number of individuals obtaining certification per 1,000 students declined precipitously from 2012-13 through 2016-17 and then remained relatively constant through 2022-23. ***Thus, the number of individuals obtaining certification is declining at a faster rate than the decline in the number of students enrolled in public schools.***

Figure 5: Number of Initial Teacher Certificates Issued per 1,000 Enrolled Pk-12 Students (2010-11 through 2022-23)



Data source: PDE Act 82 report

This overall decline, 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 2022-23. The greatest decline (-88.6%) was for Technology Education while the smallest decline was -54.3% for English Language Arts. All of these declines were substantial and reveal how the supply of teachers in Pennsylvania has declined substantially in just over a decade.

**Table 1: Number and Percent Change in Initial Teacher Certificates Issued from 2011-12 to 2022-23 by Subject Area**

Subject Area	Academic Year		Change: 11 to 23	
	2010-11	2022-23	#	%
PreK & Elementary	6,594	2,257	-4337	-65.8
English Lang Arts	1,302	595	-707	-54.3
Mathematics	632	214	-418	-66.1
Science	675	250	-425	-63.0
Social Studies	1,012	419	-593	-58.6
Health & Phys Ed	503	147	-356	-70.8
Fine Arts	807	301	-506	-62.7
World Languages	240	69	-171	-71.3
Technology Ed	79	9	-70	-88.6
Business/FCS	182	46	-136	-74.7
Special Education	2,922	1,251	-1671	-57.2

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

Table 2 documents the change in the number and percentage of initial certificates from 2021-22 to 2022-23. All subject areas experienced an increase in the number of individuals who obtained an initial certificate.

Numerically, the greatest increase—651--was for pre-kindergarten and elementary. This was a 40% increase in the number of initial certificates granted. This increase is sufficiently large to potentially erase most or all of the existing shortage of teachers in these areas. The second greatest numerical increase—262--was for special education. This was a 26.5% increase in the number of initial certificates granted. The greatest shortage of teachers is for the area of special education, this small increase is helpful but not even close to being sufficient to impact the shortage of special education teachers in any significant way. Indeed, in a forthcoming brief, I will show that 1,251 new special education teachers are insufficient to fill all the special education teacher positions that are vacant or filled by teachers without certification, much less the vacancies that will be created by attrition. Thus, special education will continue to be the subject with the most severe shortage of teachers in Pennsylvania.

The increases for the four core academic subject areas are also insufficient to erase the current shortage of teachers in English Language Arts, mathematics, science, or social studies. We will need to see similar or even greater increases in the coming years to substantially reduce the shortage of teachers.

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

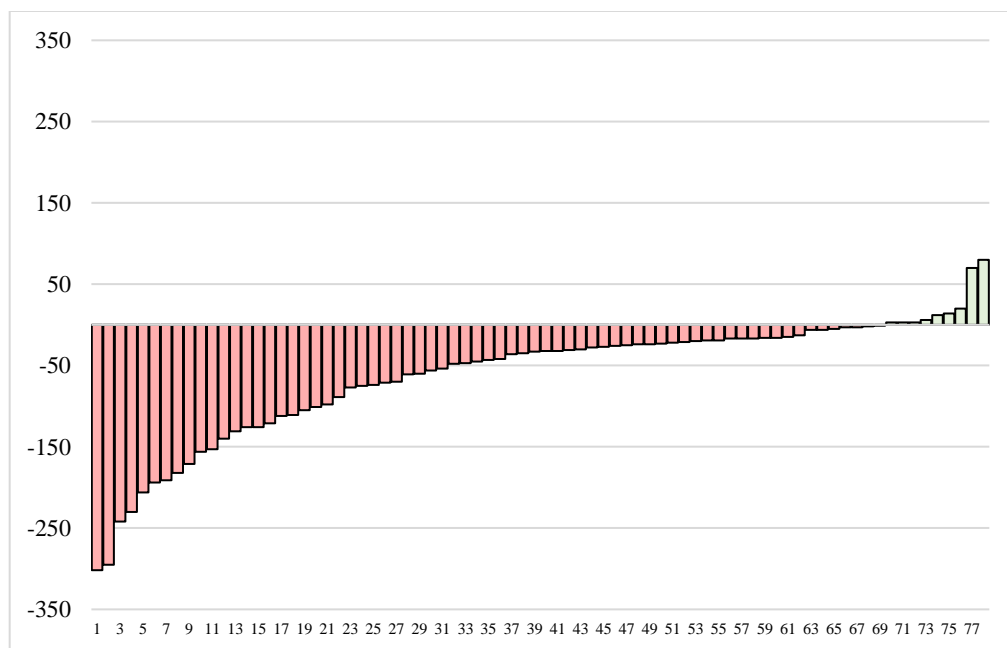
Subject Area	Academic Year		Change: 11 to 23	
	2021-22	2022-23	#	%
PreK & Elementary	1,606	2,257	651	40.5
English Lang Arts	513	595	82	16.0
Mathematics	181	214	33	18.2
Science	170	250	80	47.1
Social Studies	321	419	98	30.5
Health & Phys Ed	95	147	52	54.7
Fine Arts	240	301	61	25.4
World Languages	56	69	13	23.2
Technology Ed	8	9	1	12.5
Business/FCS	25	46	21	84.0
Special Education	989	1,251	262	26.5

Figure 6 shows the change in the number of newly certified teachers by TPP from 2010-11 through 2022-23 by teacher preparation program (TPP). In this analysis, only TPPs with at least 10 graduates in 2010-11 were included in the analysis.

Of the 78 TPPs, 70 experienced a decline in graduates obtaining certification. Specifically:

- Five of the TPPs had declines greater than 200 graduates.
- Fifteen of the TPPs had declines of more than 100 graduates but less than 200 graduates.
- Forty-two TPPs had declines of between 10 and 99 graduates.

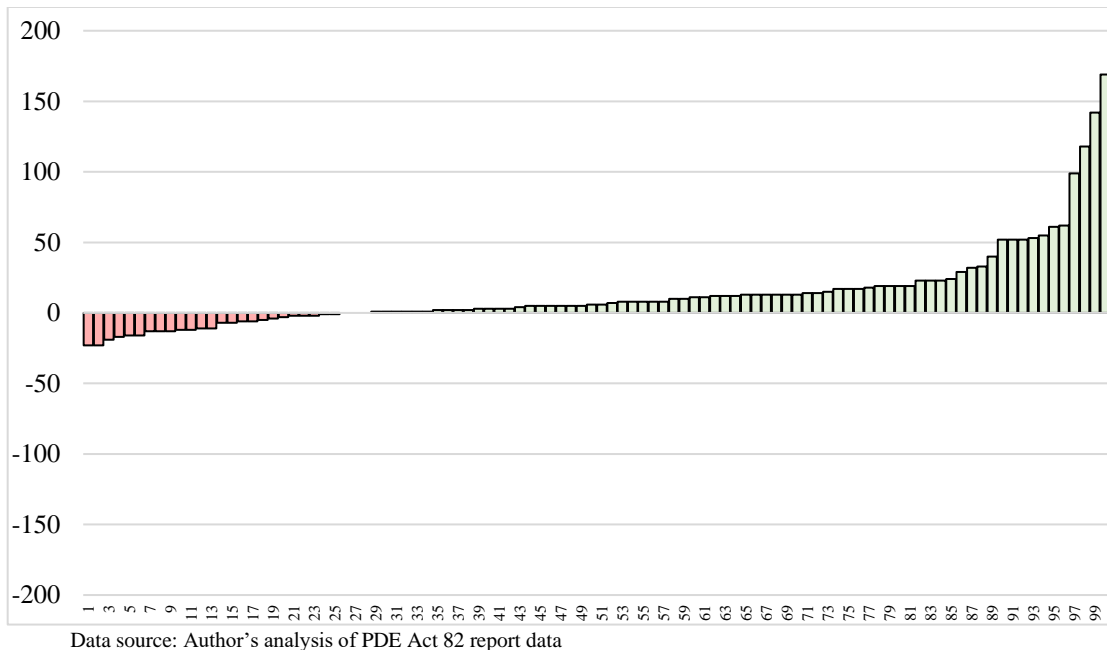
**Figure 6: Change in the Number of Newly Certified Teachers by TPP (2010-11 to 2022-23)**



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

Figure 7 shows the change in the number of newly certified teachers by TPP from 2021-22 through 2022-23 by TPP. Of the 100 TPPs, 72 had an increase in the number of graduates obtaining initial certification. Three TPPs had no change in the number of graduates obtaining initial certification and the remaining 25 TPPs had declines in the number of graduates obtaining initial certification. Three programs had increases greater than 100 while another 40 TPPs had increases of between 10 and 99 graduates. Only thirteen programs had decreases in the number of graduates while the greatest decrease was 23 graduates.

**Figure 7: Change in the Number of Newly Certified Teachers by TPP (20 to 2022-23)**

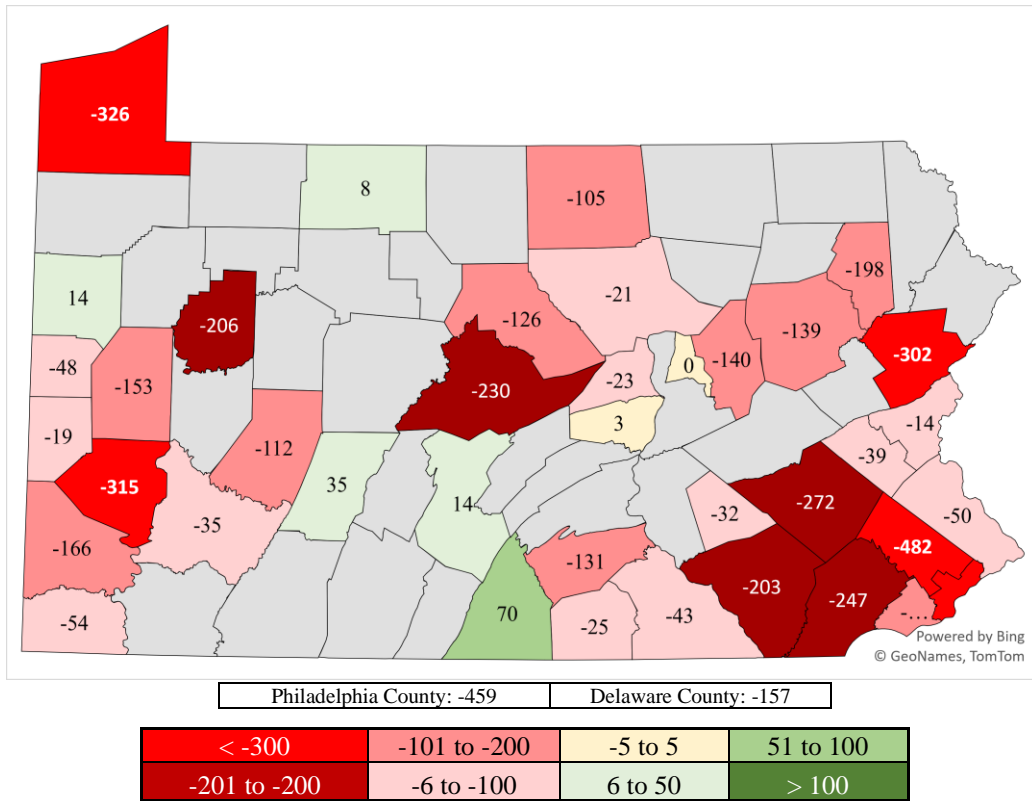


Thus, almost all programs experienced dramatic declines in the number of graduates obtaining initial certification from 2010-11 through 2017-18 and have yet to recover those losses. Indeed, as shown previously in Figure 4, the overall number of initially certified teachers is still about 62% lower than in 2010-11. Most programs, however, also had increases in the number of initially certified graduates from 2021-22 to 2022-23. Thus, many TPPs are at least headed in the right direction in that they have increased their number of initially certified teachers. However, there was a similarly large increase from 2016-17 to 2017-18 which was followed by small decreases over the next three years and then a large decline in the fourth year. We do not yet know if the increases will continue in the coming years. Enrollment trends in TPPs suggest we will see continued increases over the coming years, but there is no guarantee that will happen.

Figure 8 shows the percentage change in the number of newly certified teachers from 2010-11 to 2022-23 by county. Almost all areas of the Commonwealth experienced dramatic declines. The greatest declines were in the Philadelphia metro area followed by the Pittsburgh metro area and then central Pennsylvania. There were some small increases throughout the Commonwealth—mostly due to increases in the past year as shown in Figure 9. These increases were centered in south central Pennsylvania in Franklin and Huntingdon counties.

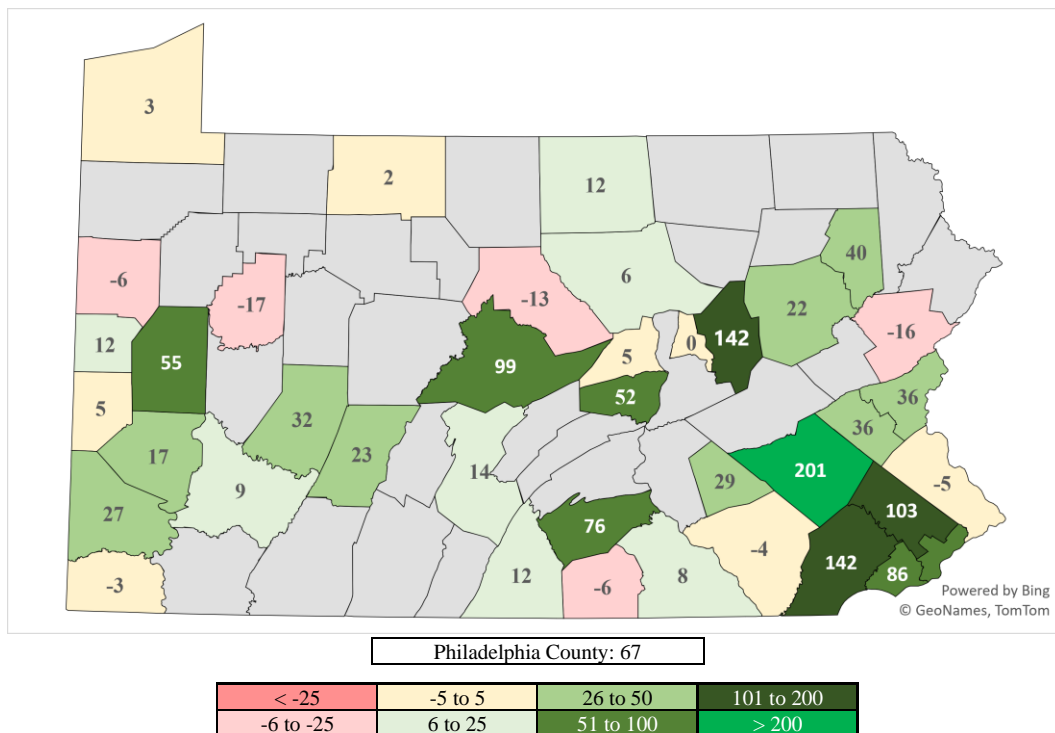
Figure 9 documents the change in the number of TPP graduates by county from 2021-22 to 2022-23. As is evident from the map, there were widespread increases in the number of TPP graduates in almost all counties. Indeed, all but five counties with TPPs experienced increases. The greatest increases were in the Philadelphia metro area, Lehigh area, and central Pennsylvania. In the Philadelphia metro area, Berks, Chester, and Montgomery counties had a collective increase of 446 newly certified teachers.

**Figure 8: Change in the Number of Newly Certified Teachers by County (2010-11 to 2022-23)**



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

**Figure 9: Change in the Number of Newly Certified Teachers by County (2010-11 to 2022-23)**



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

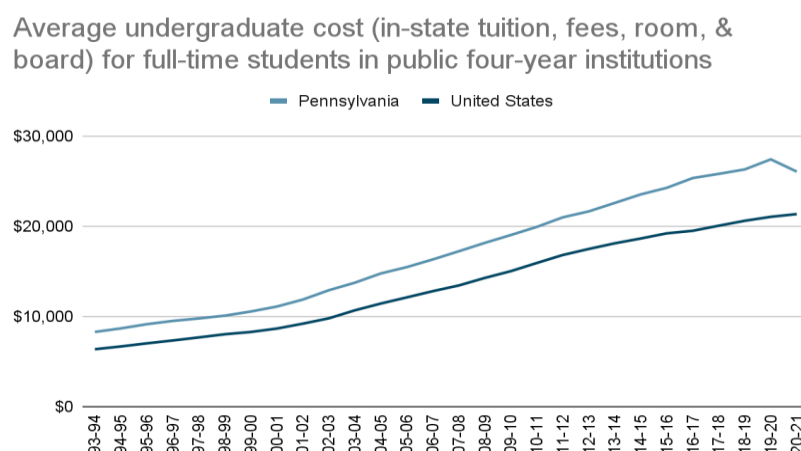
## Possible Causes

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 10. 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 10: Higher Education Costs in the US and in Pennsylvania  
(1993-94 through 2020-21)



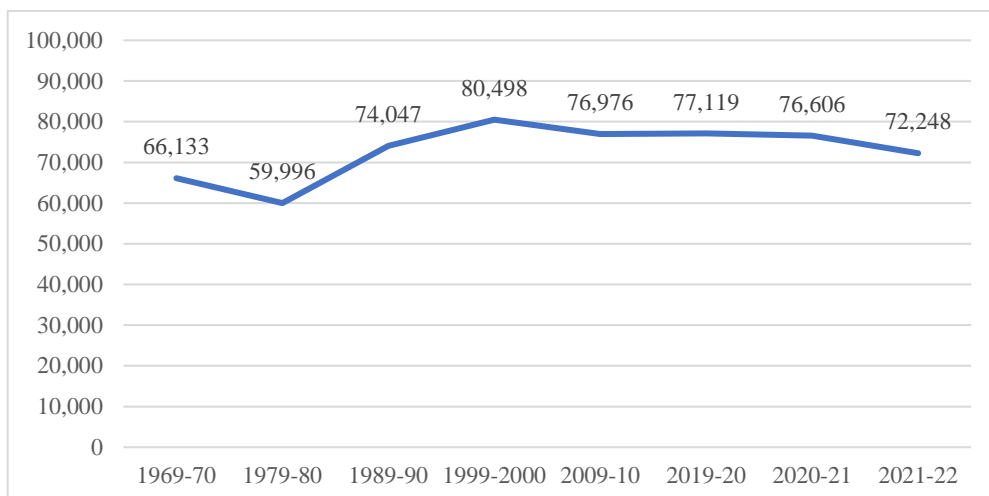
### 2) Stagnant and Declining Wages and Benefits

Average US teacher salaries have remained stagnant for the past 30 years. As shown in Figure 11, 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. Someone 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 11: Wages of Teachers in Pennsylvania in Constant 2018-19 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 for teachers—especially over the past four years. As shown below in Figure 12 that was developed by Matt Kraft of Brown University and 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. In particular, there was a greater than 20 percentage points for, “Teachers teach with enthusiasm”, 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% say that the stress of teaching is worth it. The increase in school shootings is likely one issue related to these worsening teacher working conditions. These results suggest a growing dissatisfaction with teaching as a profession which has started to translate into greater teacher attrition rates around the country.

Figure 12: US Teacher Perceptions of Working Conditions  
(1988 – 2022)

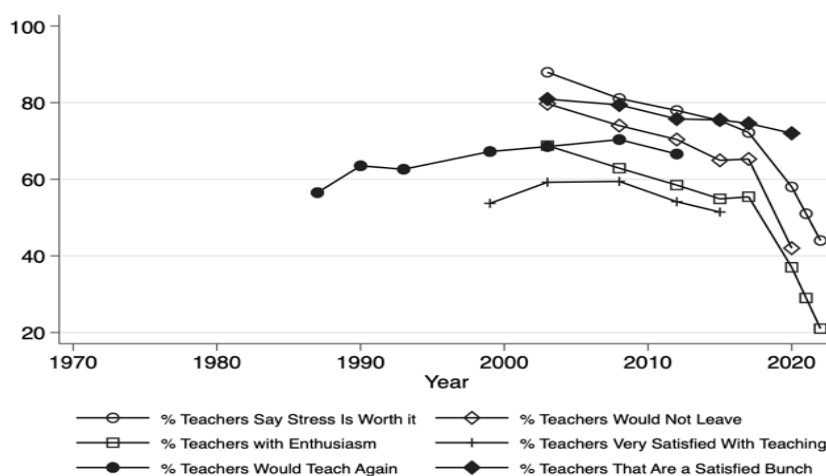


Figure borrowed from: Kraft, M. A., & Lyon, M. A. (2022). The Rise and Fall of the Teaching Profession: Prestige, Interest, Preparation, and Satisfaction over the Last Half Century. EdWorkingPaper No. 22-679. Annenberg Institute for School Reform at Brown University.

## **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 or 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-professionals to enroll in and complete TPPs.

### **Subsidize student teaching**

Research continually shows that student teaching is where a future teacher's most important learning occurs. Many students, however, do not receive the full benefit of this learning opportunity because they have to work in addition to completing their student teaching. The Commonwealth should ensure that no student has to work to complete their student teaching.

### **Pay for 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.

### **Increase 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.

### **Adopt and administer a statewide educator working conditions study**

In partnership with educator organizations and institutions of higher education, the Commonwealth should create, administer, and analyze the results of a statewide educator working conditions study. Results for schools and districts should be kept confidential and only shared with school- and district- leaders. Statewide results should be analyzed and connected to student achievement and educator retention to inform the practices of school- and district leaders. These results will help improve teacher working conditions which will increase teacher retention as well as help recruit individuals into the field.

### **Fund a statewide advertising campaign to elevate perceptions of the teaching profession**

To counteract the impact of negative information about the teaching profession, the Commonwealth and organizations supportive of public education should fund a coordinated media campaign that communicates the positive aspects of being a teacher.

### **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.

### **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.

### **Suggested Citation**

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### **Center for Education Evaluation and Policy Analysis**

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.

### **Pennsylvania Educator Diversity Consortium**

The ***Pennsylvania Educator Diversity Consortium*** is a grassroots organization of early childhood, PK-12, higher education, non-profit, community, and government leaders striving to increase the number of teachers of color, specifically those who identify as Black, Indigenous, and other People of Color, in Pennsylvania. PEDC's vision is of a future in which each learner in Pennsylvania experiences ethnically, racially, and linguistically diverse and culturally relevant and sustaining educators leading their classrooms and educational institutions. Dr. Donna-Marie Cole-Mallott and Karen Parker Thompson, MSOD are the Co-Directors of PDEC.