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Research Brief 2023 – 5:

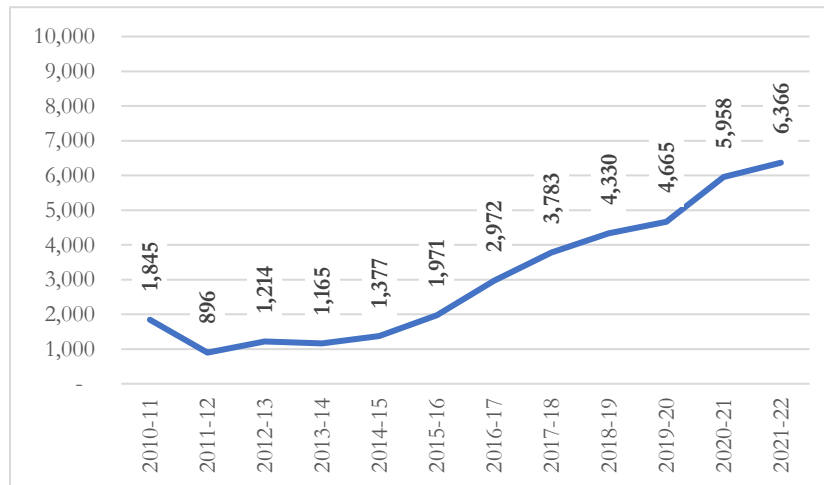
## The Decline Continues: The Dwindling Supply of Teachers from Pennsylvania Teacher Preparation Programs

### Introduction

Since the 2019-20 academic year—the first affected by the pandemic—there have been growing concerns about teacher staffing challenges in Pennsylvania. Reports based on 2020-21 data showed that the number of teachers employed on an emergency permit continued to increase. In fact, for the very first time, the number of teachers on emergency permits exceeded the number of individuals obtaining a teaching certificate from Pennsylvania teacher preparation programs (TPPs). Specifically, there were 6,366 teachers on emergency permits in 2021-22 while 4,220 individuals from Pennsylvania TPPs obtained initial certification.

Recently released data shows this situation worsened in the 2021-22 school year. First, as shown in Figure 1, the number of teachers employed on an emergency permit increased by 408 individuals from 2020-21 to 2021-22. While this change was substantially lower than the increase of nearly 1,300 teachers on emergency permits from 2019-20 to 2020-21, the increase from 2020-21 to 2021-22 was still substantial and certainly headed in the wrong direction.

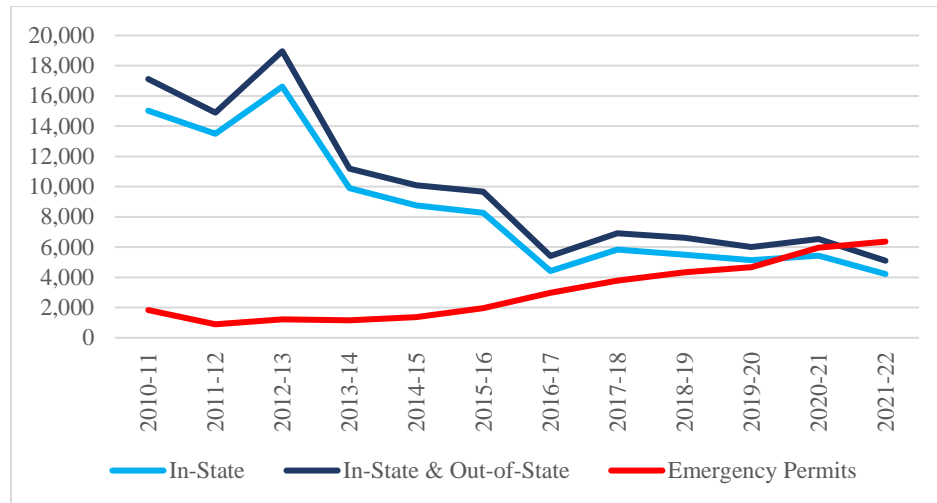
Figure 1: Number of Teaching Positions Filled by Individuals on an Emergency Permit (2011-12 to 2021-22)



Data source: Act 82 Report from PDE

This number is even more concerning when we compare the number of newly certified teachers from Pennsylvania teacher TPPs to the number of teaching positions filled by individuals on emergency permits (see Figure 3). ***For the first time in the history of the Commonwealth, the number of all newly certified teachers (both in-state and out-of-state) was less than the number of teaching positions filled by teachers on emergency permits.***

Figure 2: Comparison of Number of Newly Certified Teachers to Number of Teaching Positions Filled by Individuals on an Emergency Permit



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

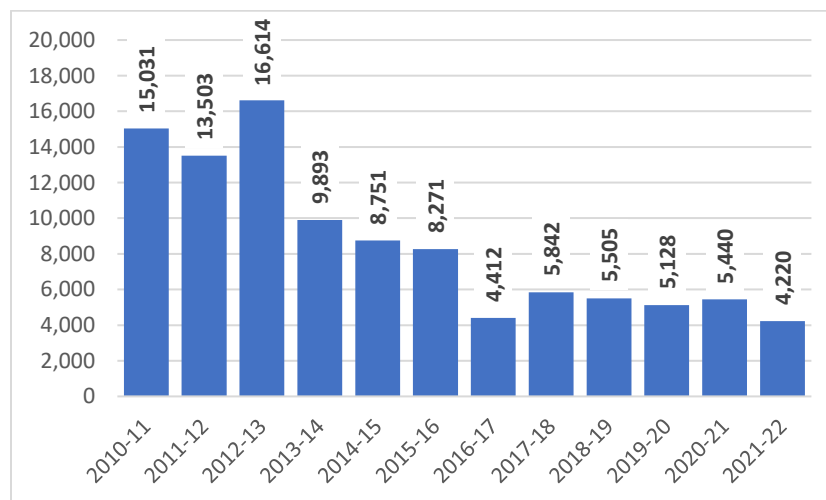
While some of the increase in the number of emergency permits is due to the length of time it takes for PDE to process certification requests (reportedly 14 to 20 weeks), the data is collected at the end of October in the fall of the academic year. Thus, a delay in certification processing would likely affect only a relatively small percentage of teachers by the end of October.

Below, I describe the decline in the number of individuals obtaining certification and then discuss the increase in the number of emergency permits. The final section of this brief includes my conclusions and recommendations for policymakers.

### Number of Newly Certified Teachers

An inadequate supply of teachers can contribute to teacher staffing challenges by reducing the number of applicants for vacant positions and creating situations in which a district cannot find a suitable applicant for a position. As shown in Figure 3, there has been a dramatic decline in the number of individuals obtaining teacher certification in Pennsylvania. ***The 4,220 individuals obtaining certification from an in-state TPPs was the lowest that has been recorded.***

Figure 3: Number of Initial Teacher Certificates Issued for Graduates of Pennsylvania TPPs (2011-12 through 2021-22)



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

Figure 4 shows the percentage of all newly certified teachers from TPPs outside of Pennsylvania. Due to the decline in the number of newly certified teachers from Pennsylvania TPPs, the percentage of all newly certified teachers who were from out-of-state has increased over time. Since 2016-17, the percentage of out-of-state teachers has hovered around 20%. This percentage is important because research out of North Carolina and Texas suggests that out-of-state teachers are less effective in increasing student achievement and more likely to leave their school. Thus, relying on a supply of out-of-state teachers may harm student achievement and increase teacher turnover which is financially costly for districts.

Figure 4: Number of Initial Teacher Certificates Issued for Graduates of Out-of-State TPPs (2011-12 through 2021-22)

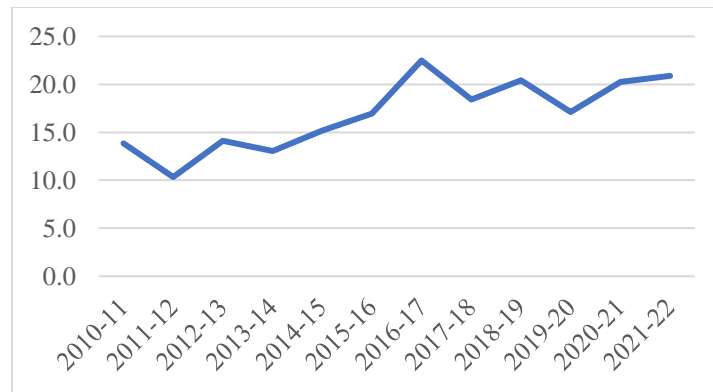
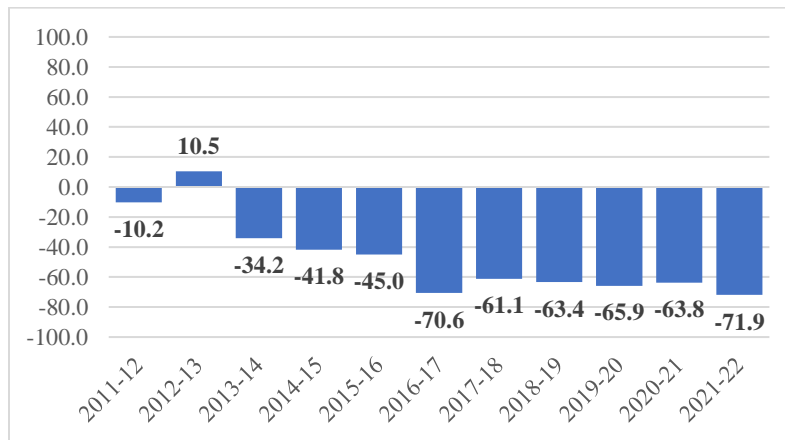


Figure 5 shows the percentage of newly certified teachers relative to the base year of 2010-11. **From 2010-11 to 2021-22, the number of initial in-state certificates awarded declined by nearly 72%.**

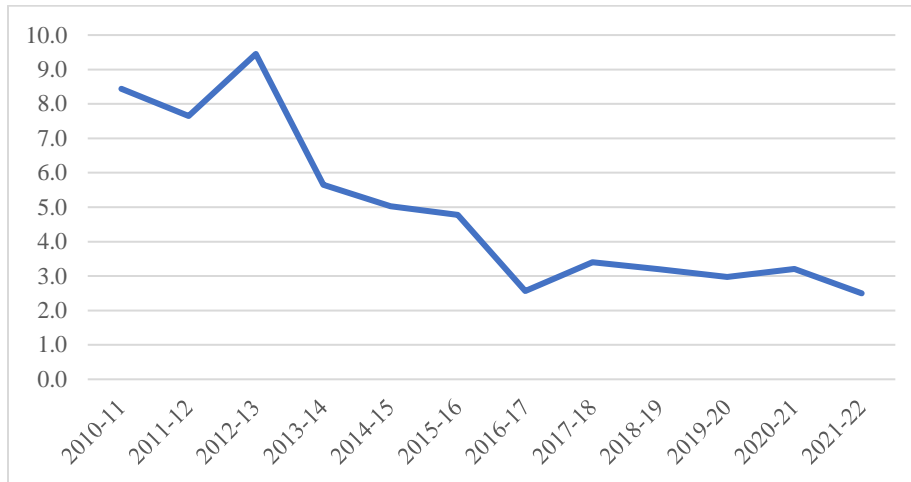
Figure 5: Percentage of Initial Teacher Certificates Issued for Graduates of Pennsylvania TPPs (2011-12 through 2021-22)



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 is also a substantial decline in the number of students. However, as shown in Figure 6, the number of individuals obtaining certification per 1,000 students has declined precipitously over the last decade. **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.**

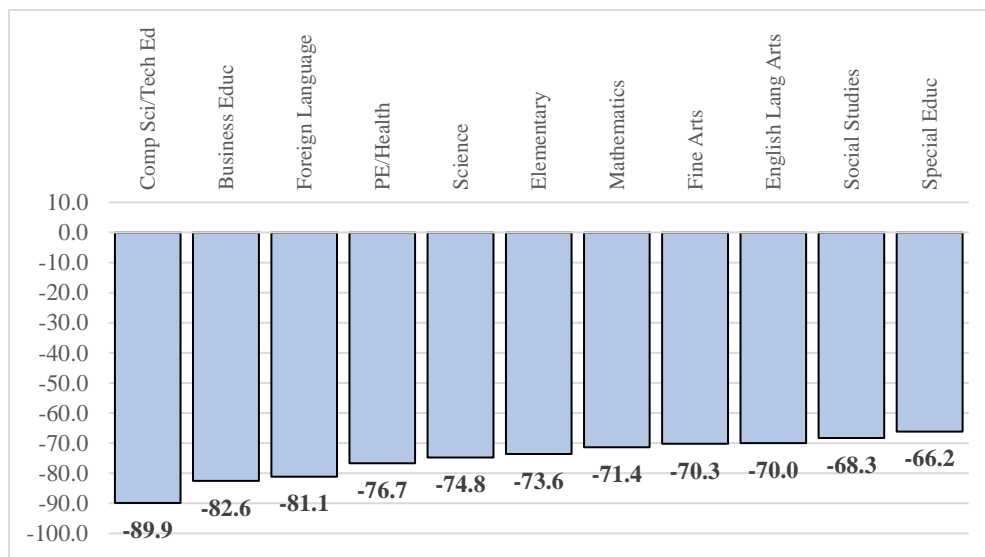
Figure 6: Number of Initial Teacher Certificates Issued for Graduates of Pennsylvania TPPs per 1,000 Enrolled Pk-12 Students (2011-12 through 2021-22)



Data source: PDE Act 82 report

This overall decline, however, masks variation by subject area. As shown in Figure 7, three subject areas had declines of 80% or greater: computer science/technology education, business education, and foreign language. Just two subject areas had declines less than 70%: Social studies and Special education. The other subject areas had declines between 70% and 80%.

Figure 7: Percent Change in the Number of Initial Teacher Certificates Issued for Graduates of Pennsylvania TPPs by Subject Area (2011-12 through 2021-22)



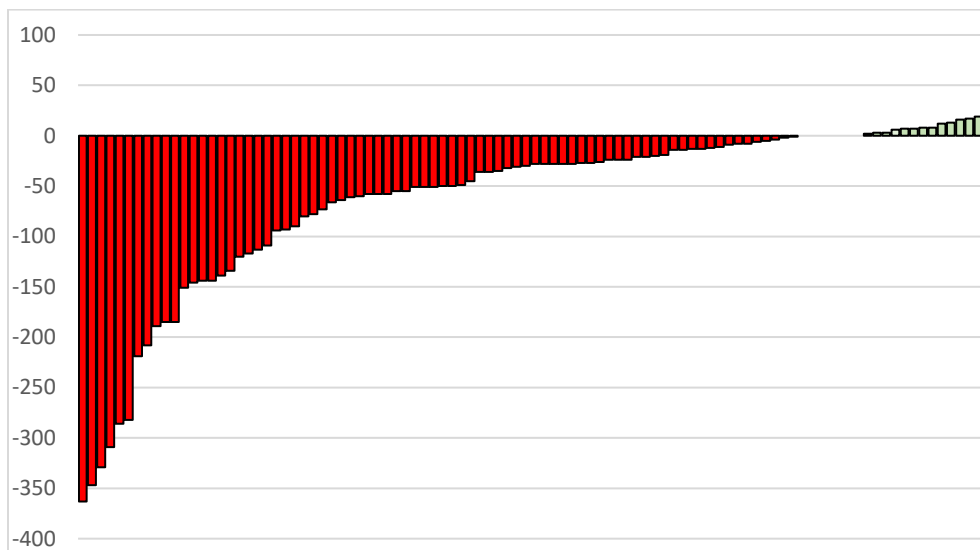
Data source: Author's analysis of PDE Act 82 report data

Figure 8 shows the change in the number of newly certified teachers by TPP from 2010-11 through 2021-22. Most of the 99 TPPs experienced a decline in graduates obtaining certification. Specifically:

- 13 of the programs had a decline of 80% or greater,
- 34 programs had a decline between 60% and 79%,
- 21 programs had a decline between 40% and 59%,
- 10 programs had a decline between 10% and 39%,
- 7 programs had no change, and
- 14 programs had an increase.

All but three of the programs with an increase in the number of newly certified teachers had fewer than 30 newly certified teachers. The four largest programs all experienced declines of between 40% and 55%.

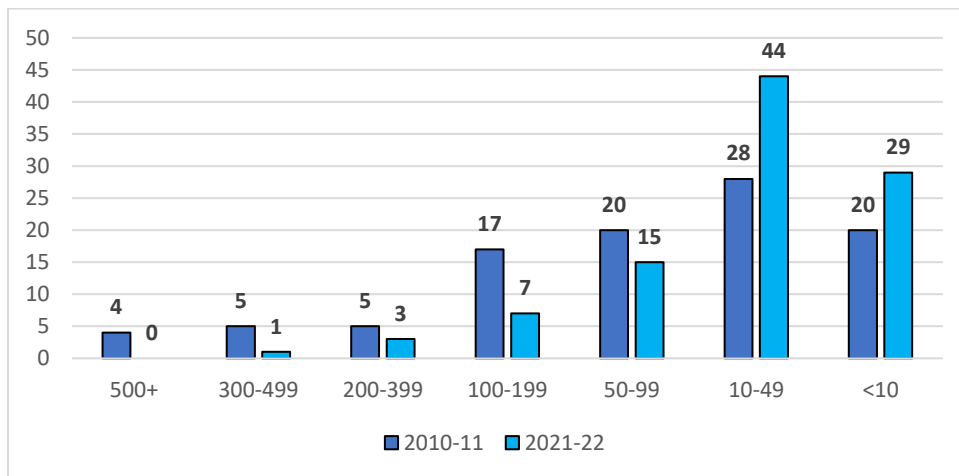
Figure 8: Change in the Number of Newly Certified Teachers by TPP (2010-11 to 2021-22)



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

Figure 9 shows the number of programs for selected ranges of newly certified teachers prepared in 2010-11 and 2021-22. In 2010-11, there were a number of large programs. By 2021-22, there were just a handful of relatively large programs. For example, in 2010-11, there were 14 programs that prepared more than 200 newly certified teachers. In 2021-22, there were just four. At the other end of the spectrum, there were 48 programs in 2010-11 that prepared fewer than 50 newly certified teachers. In 2021-22, there were 73. Thus, most programs are now quite small.

Figure 9: Change in the Number of Newly Certified Teachers by TPP (2011 to 2022)



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

The tide has not turned in the preparation of newly certified teachers. In fact, as shown above, the 2021-22 academic year had the lowest number of newly certified teachers across all years with available data. Moreover, there was a decline of more than 1,200 newly certified teachers from 2020-21 to 2021-22. As shown in Figure 10 below, most TPPs prepared fewer newly certified teachers in 2021-22 than in 2020-21.

Figure10: Change in the Number of Newly Certified Teachers by TPP (2010-11 to 2021-22)

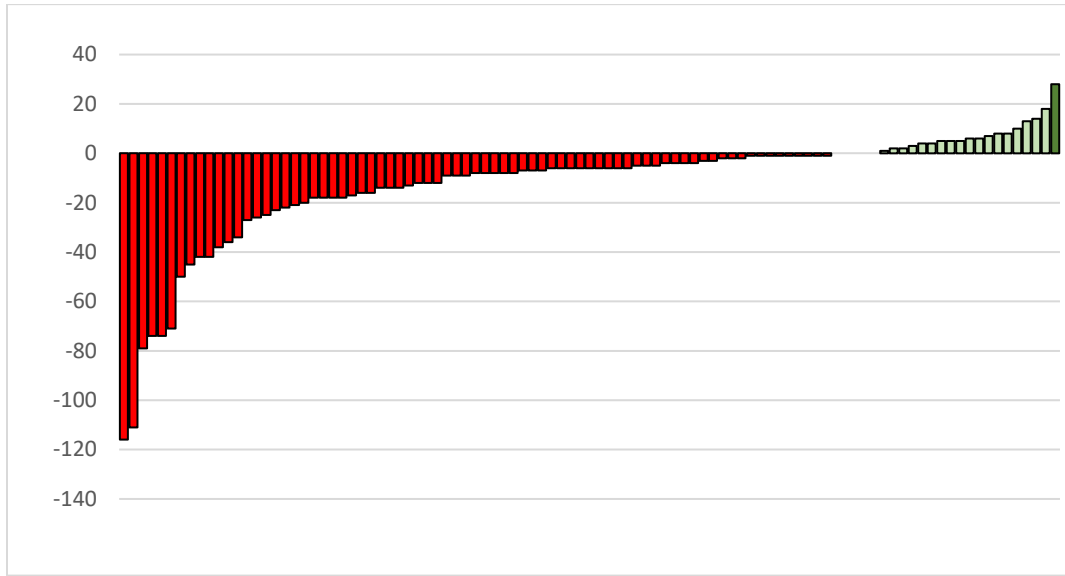
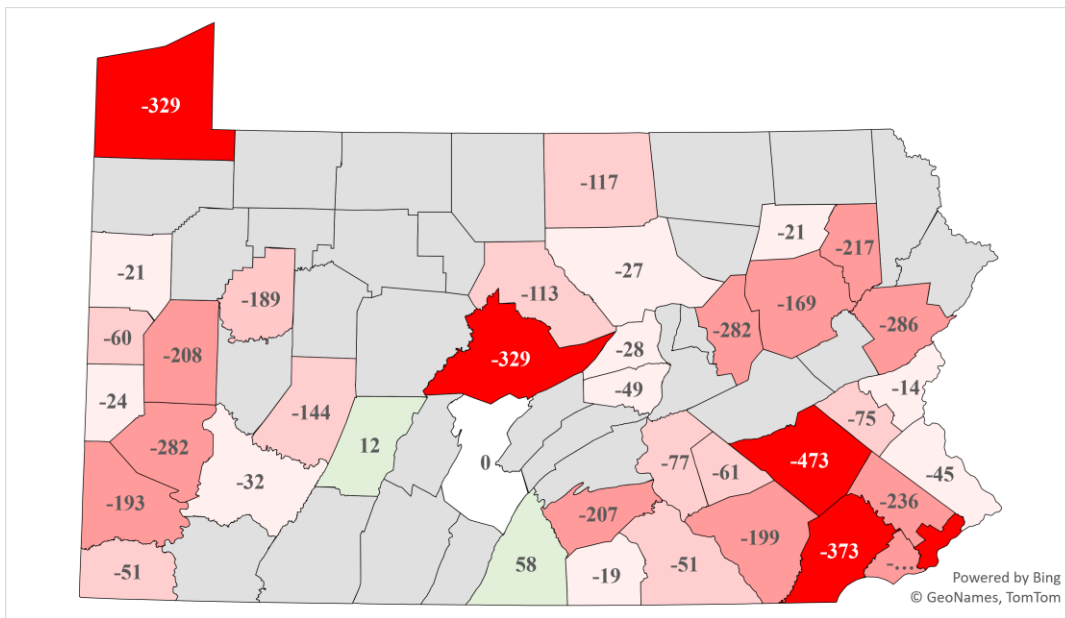


Figure 11 shows the change in the number of newly certified teachers by county. The counties with the greatest declines were Philadelphia County (-944), the counties surrounding Philadelphia, Centre County, and Erie County. Note the many counties do not have any teacher TPPs. This is important since newly certified teachers tend to take positions either close to where they graduated from high school or close to their TPP.

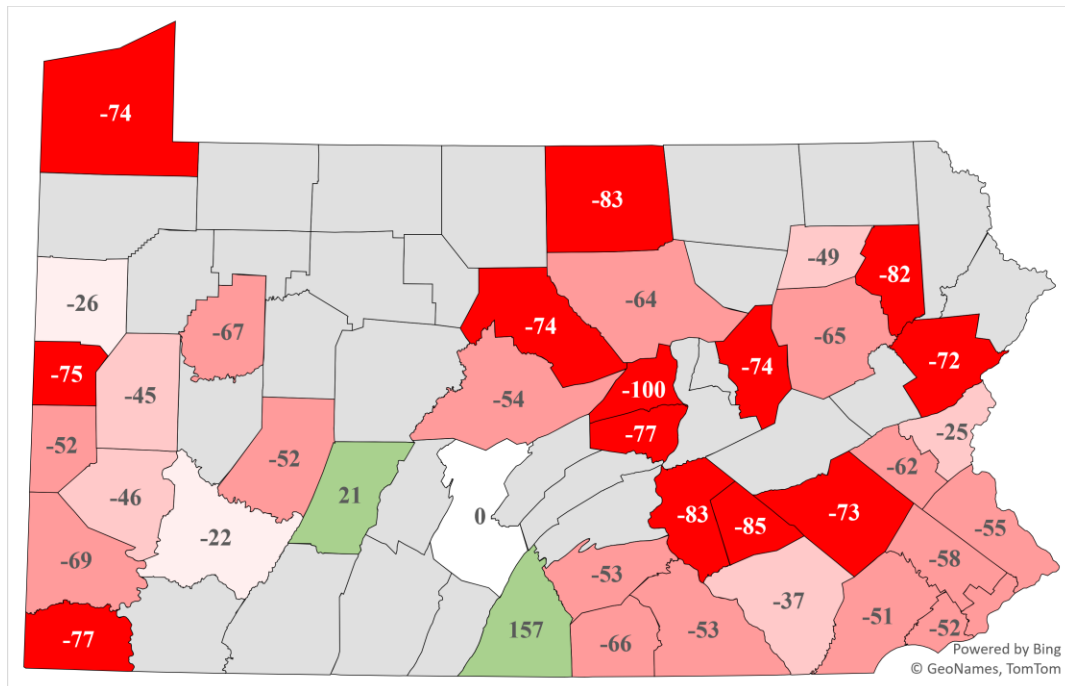
Figure 11: Change in the Number of Newly Certified Teachers by County (2011 to 2022)



	< -300		-149 to -50		No change
	-299 to -150		-49 to -1		> 0

Figure 12 shows the percentage change in the number of newly certified teachers by county. From this perspective, the north central and north east sections of the state experienced the greatest declines as well as Erie County and some of the counties north and west of Philadelphia.

Figure 12: Percent Change in the Number of Newly Certified Teachers by County (2010-11 to 2021-22)



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

< -70	-49 to -30	No change
-69 to -50	-29 to -1	> 0

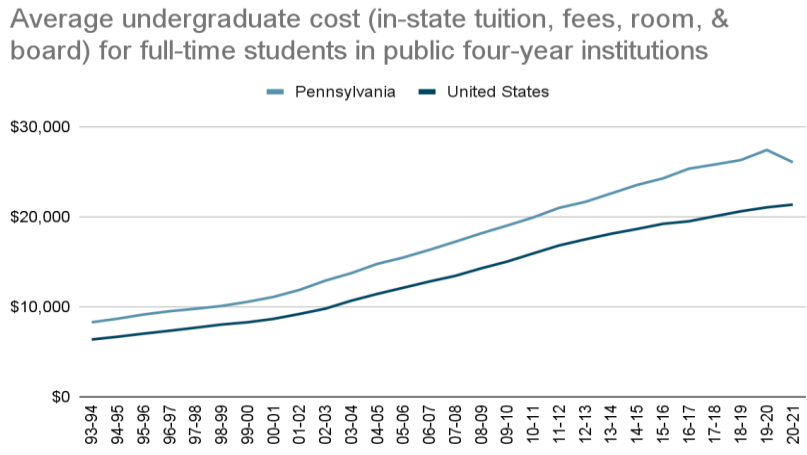
### Possible Causes

There are a number 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 13. 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.

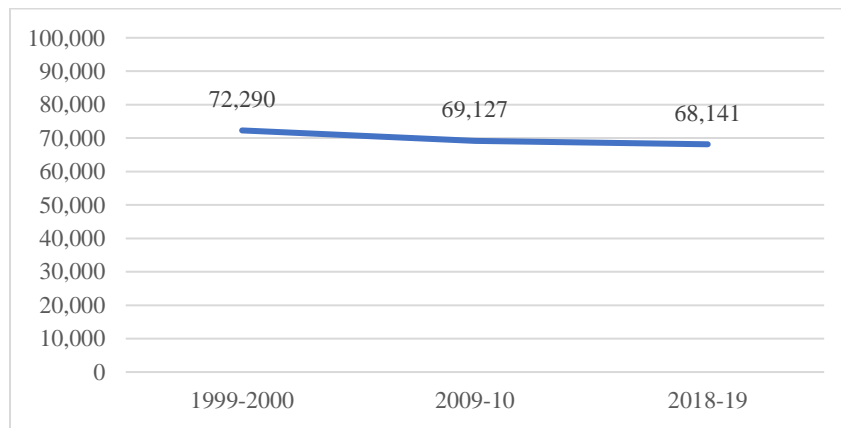
Figure 13: Higher Education Costs in the US and in Pennsylvania (1993-94 through 2020-21)



## 2) Stagnant and Declining Wages and Benefits

Average US teacher salaries have remained stagnant for the past 30 years. As shown in Figure 14, 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 was 10% lower than comparable Pennsylvania workers. Thus, while higher education and other costs have increased over the last two decades, teachers in Pennsylvania have experienced declining wages and benefits. Economically speaking, there has been a growing disincentive to become a teacher in Pennsylvania.

Figure 14: Wages of Teachers in Pennsylvania in Constant 2018-19 Dollars (1999-2000 to 2018-19)



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 15 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 15: US Teacher Perceptions of Working Conditions (1988 – 2022)

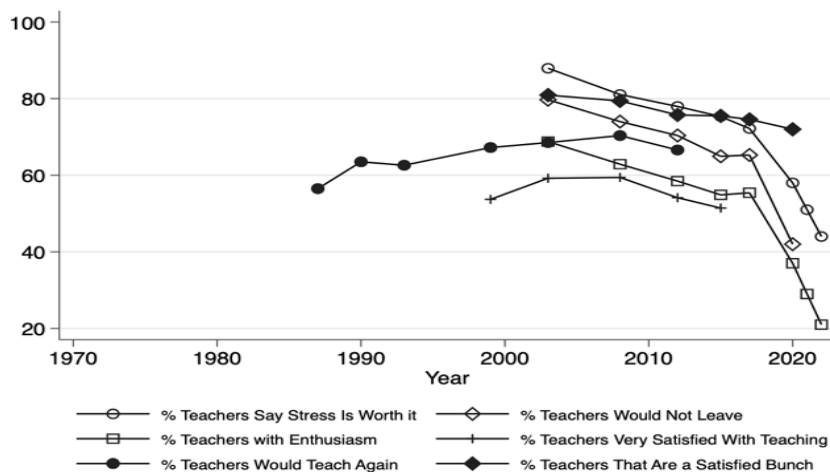


Figure borrowed from: From Kraft, M. A., & Lyon, M. A. (2022). The Rise and Fall of the Teaching Profession: Prestige, Interest, Preparation, and Satisfaction over the Last Half Century. EdWorkingPaper No. 22-679. Annenberg Institute for School Reform at Brown University.

## Conclusions

As shown above, the number of individuals obtaining initial teacher certification in Pennsylvania continues to decline and the supply of teachers in Pennsylvania is less than 30% of the supply just 12 years ago. A reasonable conclusion is that the supply of teachers in Pennsylvania is no longer sufficient to meet the demand of for teachers. While this is true for all subject areas, demand outstrips supply for some subject areas more than others. This will be discussed in future research briefs after the 2022-23 employment data is released.

## 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 o 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.

## **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 state 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.

### **Suggested Citation**

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### **Penn State Center for Education Evaluation and Policy Analysis (CEEPA)**

This brief is part of the CEEPA Policy Briefs Series that provides evidenced-based, peer-reviewed analysis of important educational issues in Pennsylvania and across the US. Dr. Ed Fuller is the Executive Director and Drs. Matt Kelly and Kai Schafft are Associate Directors.