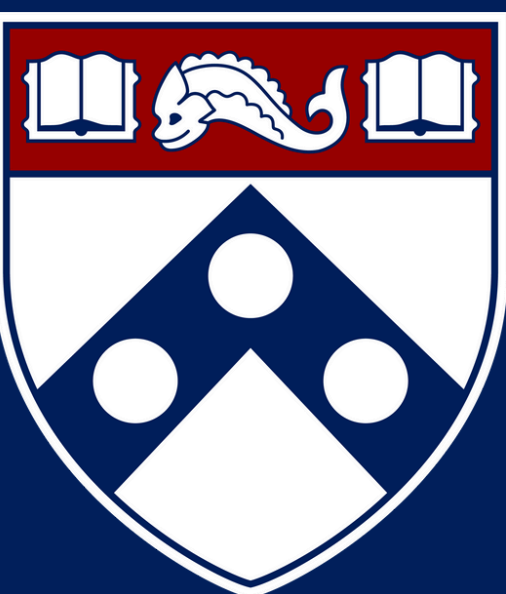


The Distribution and Allocation of Teachers in an Urban School District

Jilly Huang - COL 2027

Advisor: Dr. Sade Bonilla - Education Policy, Penn Graduate School of Education



Background & Method

- Nationwide teacher shortage, especially in urban areas and in STEM, special education, and CLD fields.
- National Board Certification (NBC):** “The most respected professional certification available in education.” School districts use NBC as a means to increase pay & improve retention.
- Emergency Certification (EC):** Temporary teaching credential for individuals without traditional certification. This alternative licensure originated in the 1980s due to fewer college students pursuing a degree in education, especially in high need subjects.
- Method:** Utilized the **chi-square test** to analyze the distribution of specially certified teachers across grade levels and their concentration in schools with special populations by year. I assessed whether the distribution of EC and NBC teachers **differed significantly** across grade level and student populations.

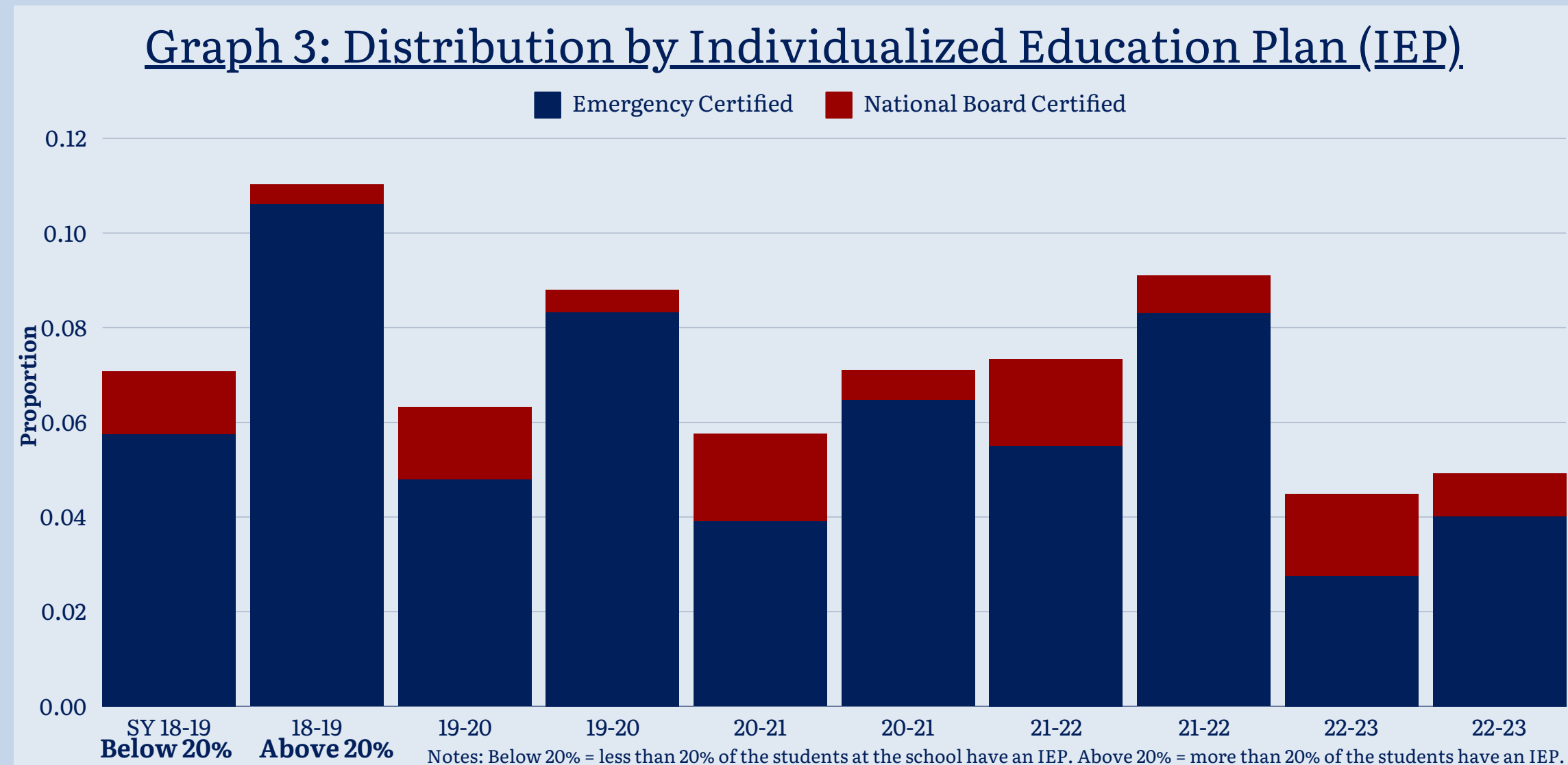
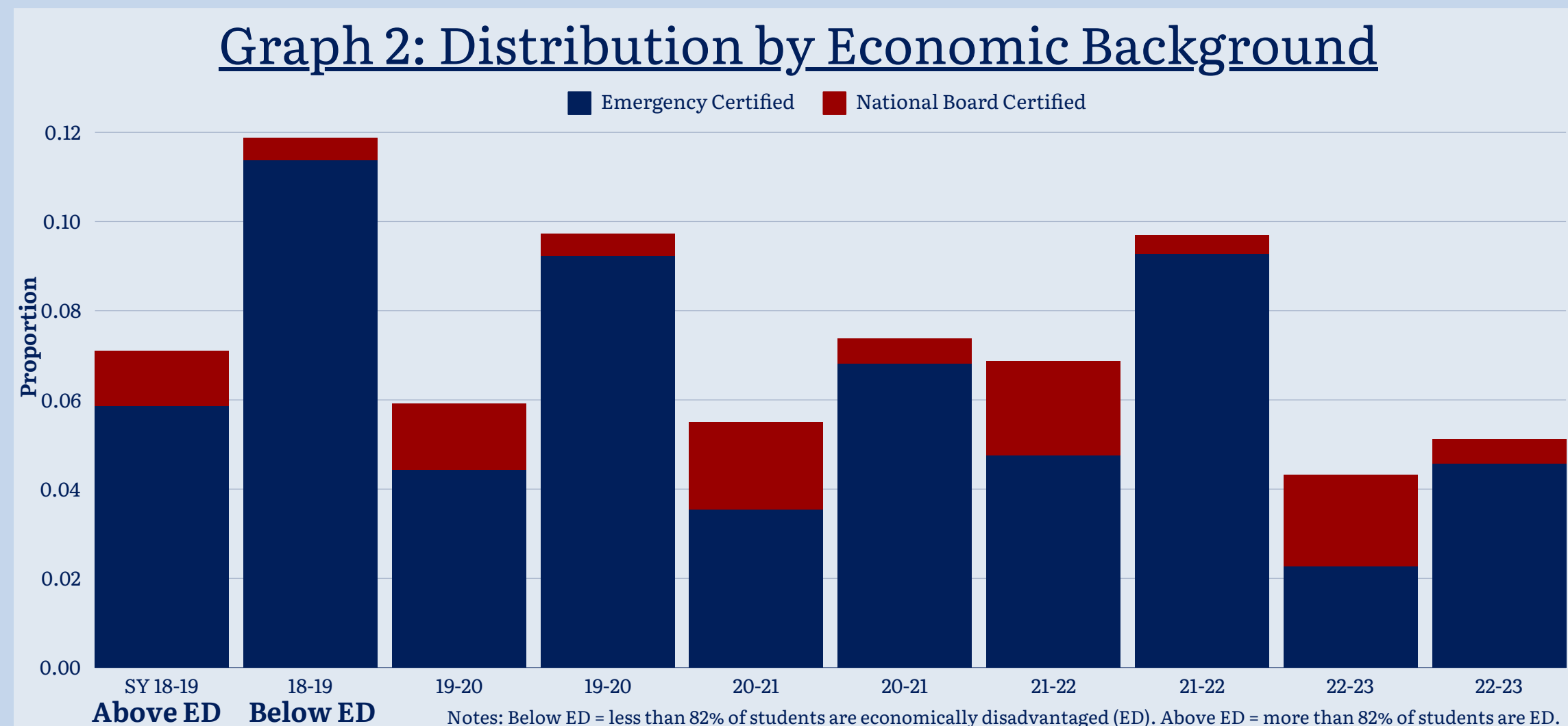
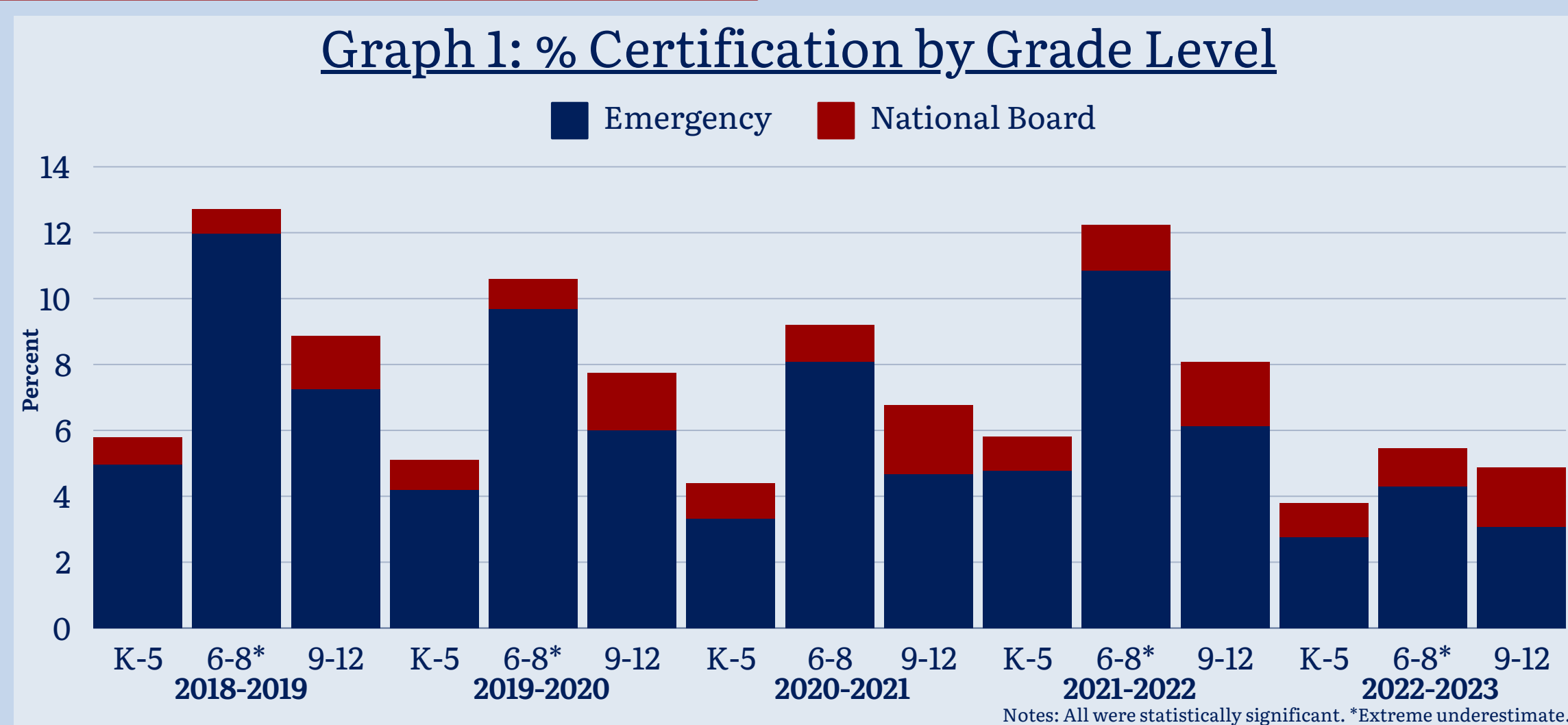
Research Questions

- How were specially certified teachers **distributed** across different **grade levels** from 2018-2019 to 2022-2023?
- Were specially certified teachers **more concentrated** in schools serving higher populations of **IEP students, Economically Disadvantaged students (ED), or English Learners** during this period?

References:

- Cavalluzzo, L. C. (2004). Is National Board Certification an Effective Signal of Teacher Quality?. CNA Corporation.
- Lieberman, M. (2022). All teaching shortages are not equal: 4 takeaways from new research. Education Week. <https://www.edweek.org/leadership/all-teaching-shortages-are-not-equal-4-takeaways-from-new-research/2022/12#:~:text=In%20the%20first%20two%20decades,%2D>
- National Board Certification. NBPTS Main Site. (2024, July 31). <https://www.nbpts.org/>
- Pendharkar, E. (2023). The number of students in special education has doubled in the past 45 years. Education Week. <https://www.edweek.org/teaching-learning/the-number-of-students-in-special-education-has-doubled-in-the-past-45-years/2023/07>
- Roth, D., & Swail, W. S. (2000). Certification and Teacher Preparation in the United States.
- Teacher shortages in the U.S: Challenges, Solutions & Initiatives in 2024. Teachers of Tomorrow. (2024). <https://www.teachersoftomorrow.org/blog/insights/teacher-shortages-in-the-us/>
- What Is an Emergency Teaching Certification? Benefits and Requirements in 2023. Teachers of Tomorrow. (2023). <https://www.teachersoftomorrow.org/blog/insights/emergency-teaching-certification/>

Data Trends



Findings & Analysis

Graph 1:

- Middle school grade students were **more likely** to have Emergency certified teachers - over 250 EC teachers than what would be expected overall
- NBC teachers primarily clustered in high school, leading to an underestimate of the true amount

Graph 2:

- Emergency certified teachers tend to work in schools with **higher proportions** of low-income students.
- There has been a gradual increase in NBC teachers over the years, with a notable addition of 14 NBC teachers at schools with less than 82% economically disadvantaged students.
- The p-value is consistently below 0.05, nearing 0.00 across all years, indicating statistical significance and leading to the rejection of the null hypothesis.

Graph 3:

- Schools with a higher population of students with special needs are more likely to have an EC teacher and less likely to have an NBC teacher

However, teachers are generally distributed as expected by subject. Still, there is a significant number of EC teachers, but also NBC teachers, in STEM than anticipated.

Takeaway: There is not equal access to Emergency and National Board Certified teachers in regards to grade level and special student populations.

Next Steps: Determine whether certification is related to teacher effectiveness.

Funded by GfFMUR



PennCURF
CENTER for UNDERGRADUATE RESEARCH & FELLOWSHIPS