

Analyzing Regional Retention in New Teacher Placement

Jiwon Son

BACKGROUND INFORMATION

The Ohio educator workforce faces regional staffing challenges, with mismatches between where teachers are prepared and where shortages are most severe. This project examines how the locations of Educator Preparation Programs (EPPs) relate to the first employment districts of newly licensed teachers, offering insight into local teacher labor markets and potential regional teacher resource leakage.

RESEARCH QUESTION

To what extent does the geographic location of a teacher’s Educator Preparation Program (EPP) predict the school district of their first employment?

DATA SOURCES

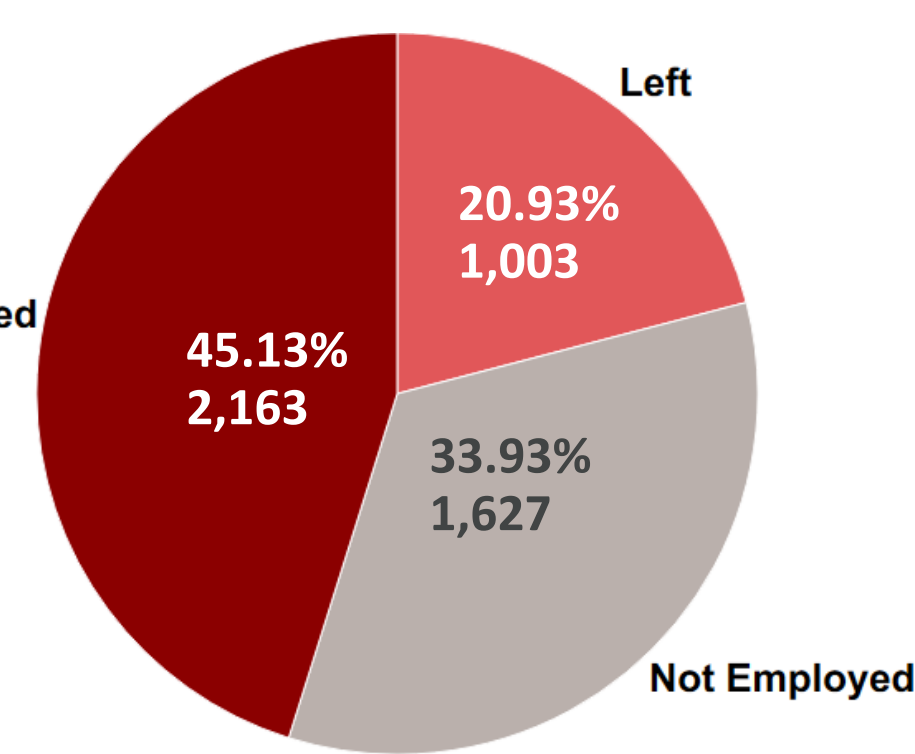
This analysis uses two datasets to track the new teacher’s transition from licensure to employment:

- Records of all individuals who obtained an Ohio teaching license in 2024, including personal identifiers and graduated institution details.
- Employment records for teachers licensed between 2023 and 2025, providing critical links to school districts and specific school-level indicators.

DATA METHOD

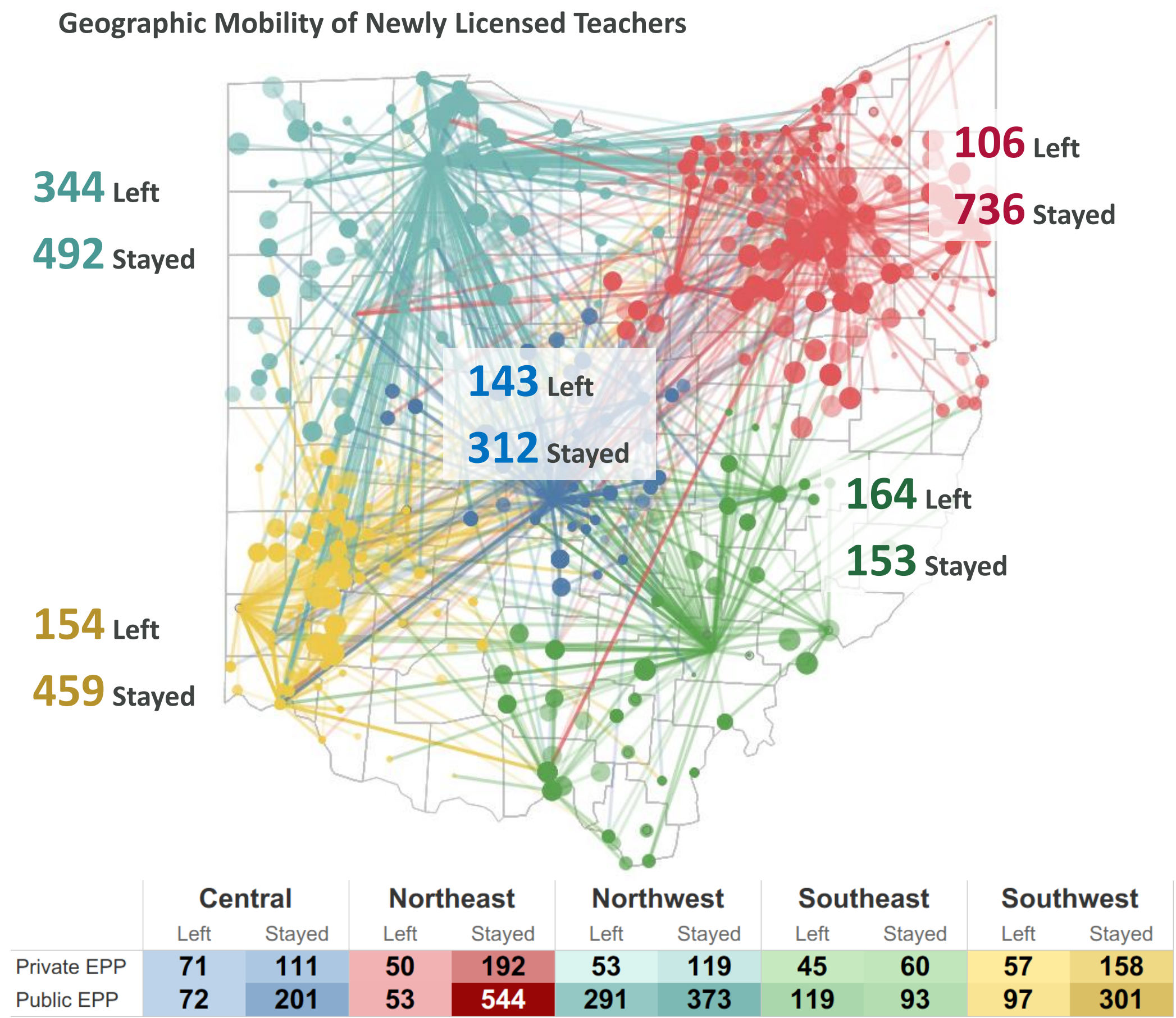
The research pipeline was constructed in RStudio and Tableau. Individual licensure files were left-joined with the 2-year cumulative employment data using unique credential identifiers, and EPP and school coordinates were subsequently mapped via IRN and school name fields. Data cleaning addressed missing codes and assigning geographical data to each institution and district. To avoid inflation from multi-credential tracking or multi-year contracts, employment entries were deduplicated to isolate a single representative first-year hiring event per teacher. A Chi-square test of independence evaluated the macro association between EPP and school regions, while a logistic regression model estimated the exact regional odds ratios for teacher retention.

RESEARCH FINDINGS

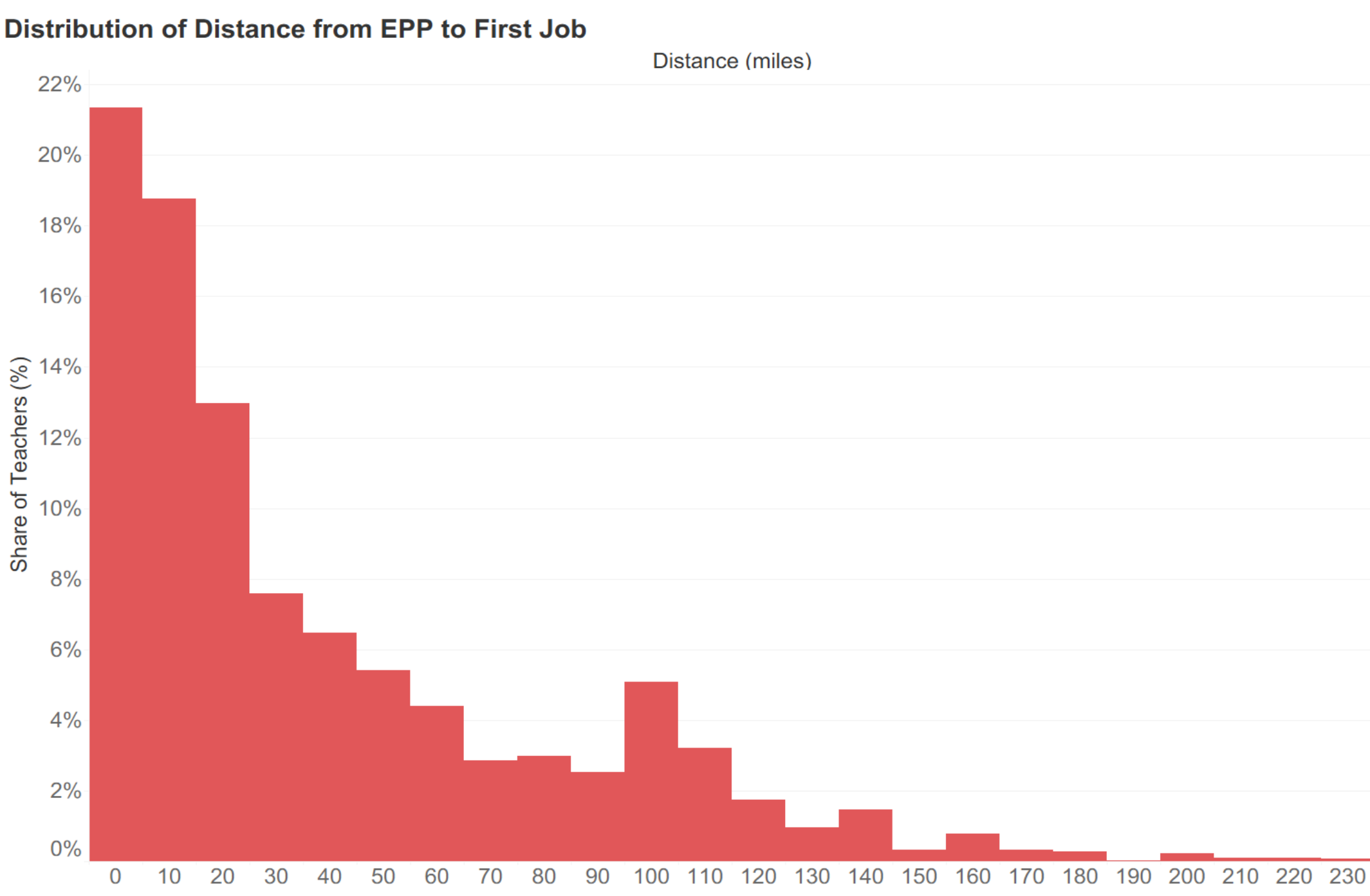


Nearly one-third are labeled “Not Employed,” a category that includes individuals who are not employed as teachers as well as those who could not be located because they took positions in private schools or accepted jobs out of state.

This pie chart illustrates the distribution of all new Ohio teachers licensed in 2024. Among the 4,002 newly licensed teachers, nearly half remained in the same region as their Educator Preparation Program (EPP). About 20 percent chose to teach in a different region.



The lines show the relocation paths of newly licensed teachers, while the dot clusters, scaled by volume, represent those who remain employed near their graduating EPP institutions. Regional color-coding highlights clear geographic patterns. Concentration of short, localized vectors demonstrates strong regional tethering, with most teachers staying within the same area where they were prepared. The Southeast region stands out as an exception: it is the only region where public EPP graduates are more likely to leave than stay.



This histogram groups teacher placements into 10-mile bin intervals. The immediate vertical drop-off illustrates a steep geographic decay function, showing that over 40% of new teachers secure employment within 20 miles of their EPP institution, and placement rates decrease drastically as distance increases.

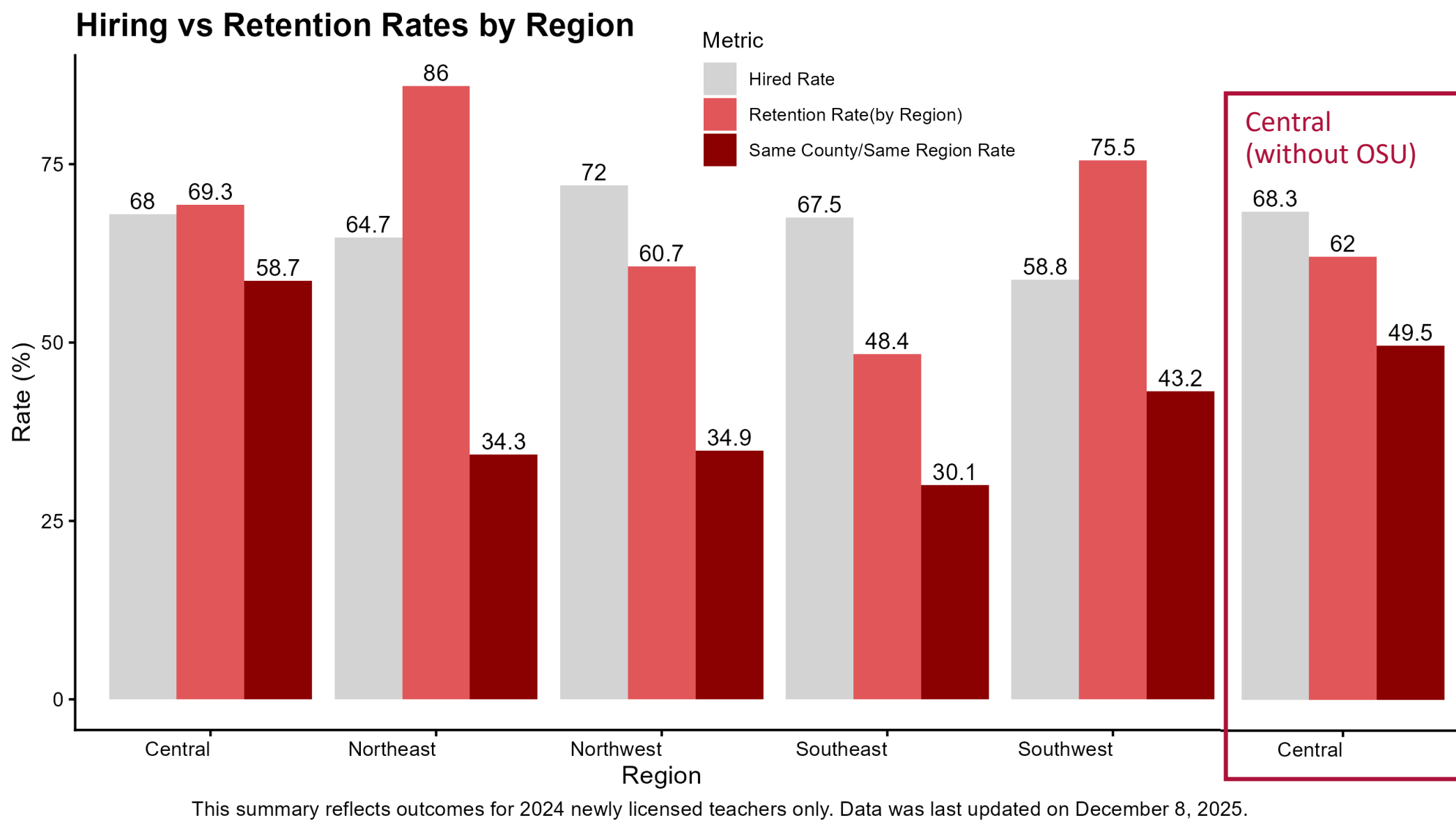
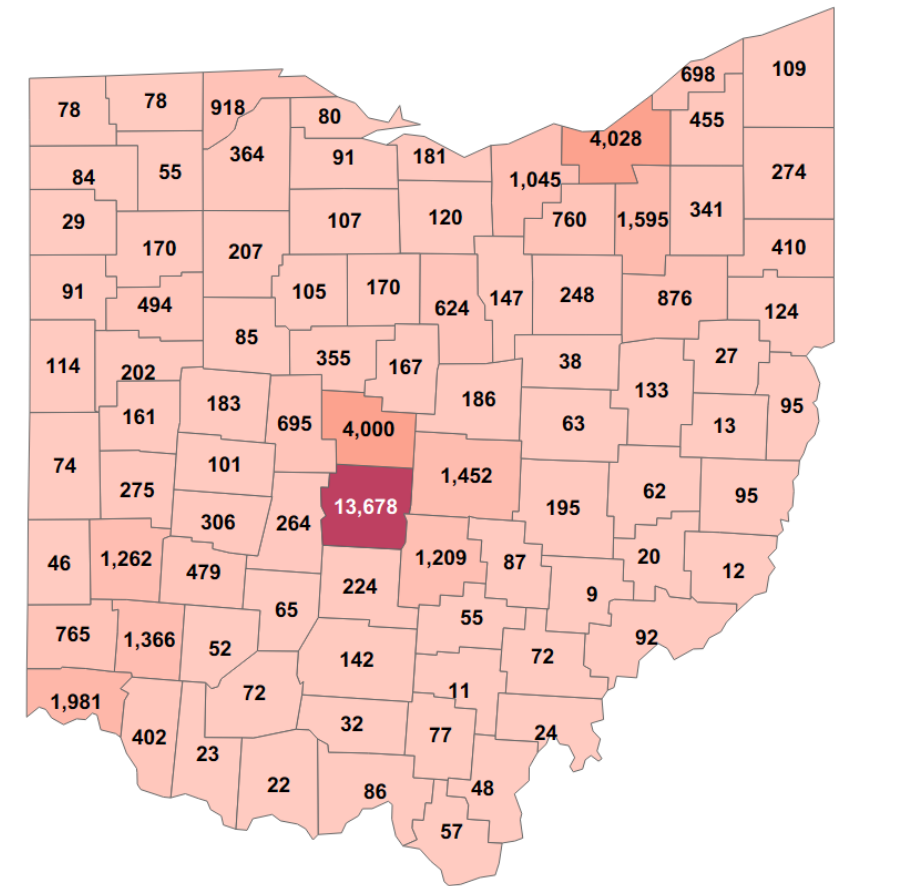


Table 1. Descriptive Summary of Geographic Placement by EPP Region			
EPP Graduate Region	Overall Hired Rate	Regional Retention Rate	Same County Placement Rate
Central	68.0%	69.3%	58.7%
Northeast	64.7%	86%	34.3%
Northwest	72.0%	60.7%	34.9%
Southeast	67.5%	48.4%	30.1%
Southwest	58.8%	75.5%	43.2%

- A chi-squared test examining region and the binary variable indicating whether teachers stayed in the same region shows a statistical difference at the 5% level. The null hypothesis was rejected, suggesting that regional retention rates are not uniform across Ohio.

The grey bar represents the overall hire rate, the light red bar shows the share of employed teachers who stayed within their region, and the dark red bar reflects those who remained in the same county. While statewide hiring levels are relatively uniform, regional retention varies substantially. The Northeast shows strong stability with an 86% retention rate, whereas the Southeast demonstrates notably weaker retention. County-level retention accounts for roughly 30% to 58% of within-region stability, underscoring the importance of localized labor markets.

The Central region is shown twice, once including OSU and once excluding it, to test whether OSU’s statewide draw affects retention. Removing OSU actually lowers the region’s retention rate. Franklin County sends the largest share of OSU students (13,678, or 29.12%), which explains why excluding OSU reduces Central’s apparent stability.



QUANTITATIVE VERIFICATION

Table 2. Logistic Regression Results Predicting Regional Teacher Retention	
	(1)
Intercept	2.261*** [1.855, 2.770]
Northeast	2.707*** [2.026, 3.629]
Northwest	0.683* [0.519, 0.896]
Southeast	0.415*** [0.308, 0.559]
Southwest	1.364* [1.036, 1.798]
Num.Obs.	2526
AIC	2853.2
Intercept is the Central region. * p < 0.05, *** p < 0.001	

The results statistical differences in regional teacher retention across Ohio. Compared with the Central region (intercept), the Northeast has substantially higher odds of retaining newly licensed teachers, while the Northwest and especially the Southeast have significantly lower retention. The Southwest, by contrast, shows stronger retention than Central.

CONCLUSION

Spatial patterns show steep geographic decay, with over 40% of graduates hired within 20 miles of their EPP. Regional placement is strongly tied to preparation location. Logistic regression supports large retention disparities: Northeast graduates are the most likely to stay local, while Southeast graduates are significantly less likely to remain in their region.

LIMITATION

This study has several limitations. The analysis focuses only on the 2024 licensure cohort and includes only in-state public school placements, leaving private-school and out-of-state hires unobserved. As a result, 1,386 of 4,002 graduates are classified as “Not Employed.” Additionally, 136 graduates from out-of-state EPPs were excluded.

BIBLIOGRAPHY

2024_new_teachers. (2025). [Dataset]
2025.12.08_Master_Employment_23_25 (2025) [Dataset]
OhioStateImpact_MapData. (2025). [Dataset].
<https://www.osu.edu/impact/impact-across-ohio>

ACKNOWLEDGEMENTS

OERC – Dr. Josh Hawley, Katie Jennings, Sean Franco
ODHE – Hilary Swinning and the EdPrep Team
My fellow interns – Baardan Dhesi, Ben Jordan, Cassie Yuan