Final Project Memo
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Pitch

Staffing shortages in education have been a topic of conversation since the beginning of the COVID-19 pandemic. One study, conducted by researchers at Brown University and The University of Illinois, estimated that there were more than 36,500 teacher vacancies nationwide with more than 163,500 positions filled by underqualified teachers (those without certification or teaching in a subject for which they are uncertified). However, 13 states did not report any data on vacancies.

When narrowed down by region, 1,515 teacher vacancies were found in the Northeast; 7,421 in the Midwest, 5,018 in the West; and a whopping 22,550 in the South. Overall, teacher vacancies were the highest in Florida at 3,911 and the lowest in Utah at 42.

Nutgraf: When looking at Alabama as a case study on teacher vacancies and retention in southern states, school districts with Black populations above 20% saw lower retention rates and a high number of underqualified teachers. Analysis revealed a pattern that could have major implications for black students in the region.

A study by the Education Policy Center found that "math proficiency rates are just 11% in the Black Belt—less than half of the 23% in non-Black Belt counties."

Potential plans for further analysis and reporting
- Analyze school district demographics and retention rates within each of the Black Belt states and compare them with majority white districts in those states.
- Investigate retention and turnover rates in Mississippi, the other half of the Black Belt
- Search for missing vacancy and retention data in Arkansas and Louisiana.
- Analyze teacher qualifications in states with high vacancy rates.
- Analyze turnover rates in selected districts in addition to retention rates.
- Explore test scores of Black students in populations where retention is low and vacancies are high.
- Investigate inequities in learning outcomes related to vacancies and retention.

Data analysis
1. Downloaded pdfs from U.S. teacher shortage data from U of I and Brown research project
2. Used Tabula to convert pdfs to CSV
3. Cleaned data by removing columns with numbers on underqualified teachers and the amount of teachers per student

4. Narrowed down nationally to three regions with the most vacancies: the South Atlantic (FL, GA, SC, NC, VA, WV, MD, DE), East South Central (MS, AL, TN, KY) and West South Central (TX, OK, AR, LA).
5. Eliminated out-of-date states in order to work with the most recent data available (2021-2022). This left us with 7 states: Alabama, Florida, Mississippi, Maryland, Texas, South Carolina and West Virginia.
6. Downloaded retention rates and teacher recruitment data by district and uploaded them to Flourish
7. Compared the highest retention rates in Alabama with the lowest
8. Analyzed U.S. Census data to juxtapose retention rates with the racial demographics of each school district.

Sources
- [Tuan D. Nguyen, Chanh B. Lam, and Paul Bruno of University of Illinois and Brown University.](#)
- [Alabama Commission on the Evaluation of Services - Teacher Recruitment and Retention](#)
- [U.S. Census Data](#)
- [Education Policy Center](#)

Data visualization and analysis

Southern states with the most teacher vacancies encompass what is known as The Black Belt: central regions of Alabama and Mississippi that are historically underprivileged.

Data on teacher vacancy and retention seem to reveal a correlation between the two especially in states like Alabama where state-wide data on teacher vacancies largely mirrored district-by-district analyses of teacher retention.

Alabama reports 41 vacancies per 10,000 students – with weak teacher retention rates particularly pronounced in school districts with Black populations over 20%.

Chart analysis
The most recent data from the 2021-2022 school year shows that Florida had the highest amount of vacancies, followed by Mississippi and Alabama (Fig.1).
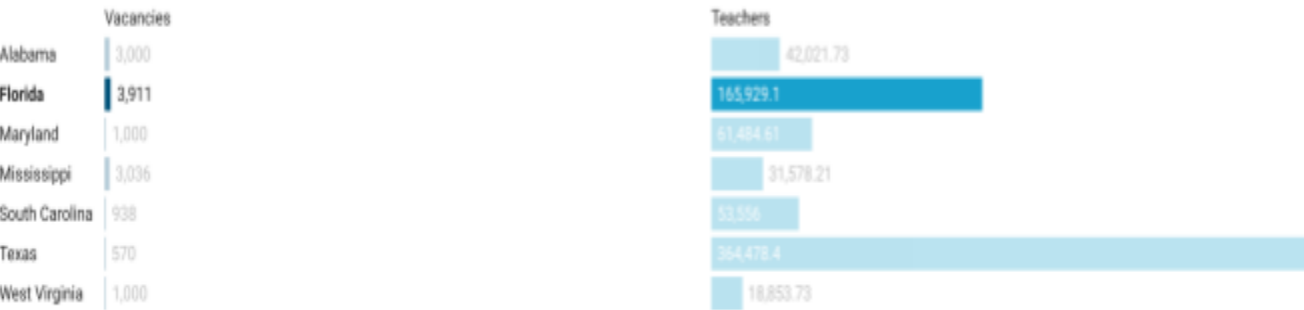
In Fig. 2, for example, Mountain Brook City has the highest percentage of white residents and the lowest percentage of Black residents in the district and its retention rate remains high at 74%.

In most instances, districts with the highest white population maintained a retention rate of over 70%, while districts with the higher percentage of Black residents languish with retention rates under 20% (Fig. 3).

Figure 4 shows that in the 2021-22 school year, Alabama had the highest number of underqualified teachers per 10,000 students, impacting a total of 734,559 students statewide.

States with most teacher vacancies in the southern region

Out of southern states with the highest number of teacher vacancies in the 2021-22 school year, Florida ranks highest.

	Vacancies		Teachers	
Alabama	3,000			42,021.73
Florida	**3,911**		**165,929.1**	
Maryland	1,000		61,484.61	
Mississippi	3,036		31,578.21	
South Carolina	938		53,556	
Texas	570		364,478.4	
West Virginia	1,000		18,853.73	

This data does not include states in which data was unreported (Arkansas and Louisiana).

Chart: Dante Nieto, Rashida Anderson-Abdullah · Source: Brown University and The University of Illinois · Created with Datawrapper

Fig. 2
Retention rates for Alabama school districts with highest white populations
Highest teacher retention rates were all in majority white school districts
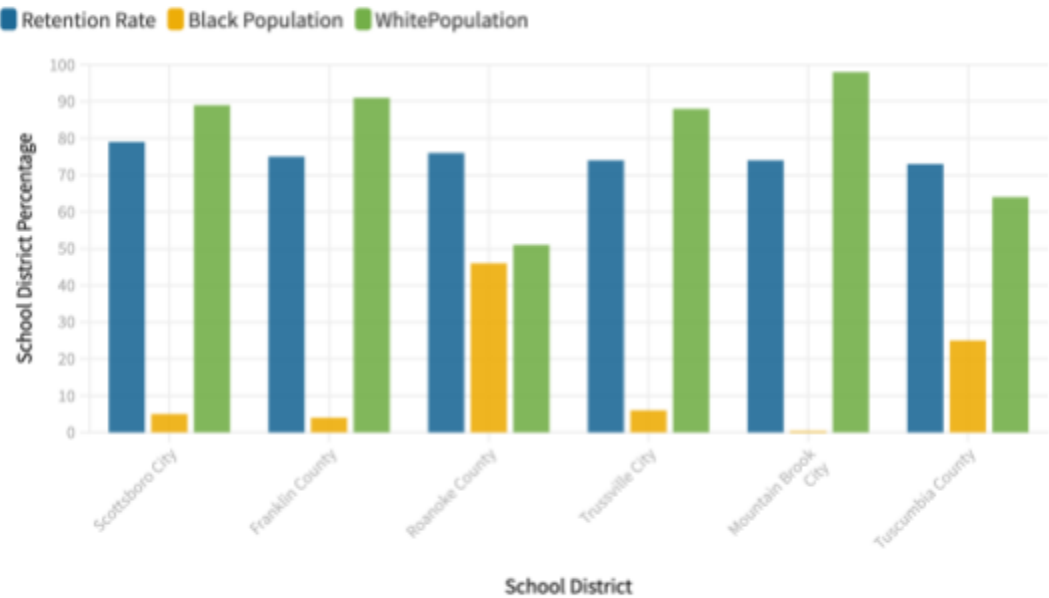
■ Retention Rate ■ Black Population ■ WhitePopulation

Source: Alabama Commission on the Evaluation of Services, U.S. Census Bureau
Chart: Dante Nieto, Rashida Anderson Abdullah

Fig. 3
Retention rates for Alabama districts with highest Black populations
The lowest retention rates were almost all in districts with Black populations higher than 20%
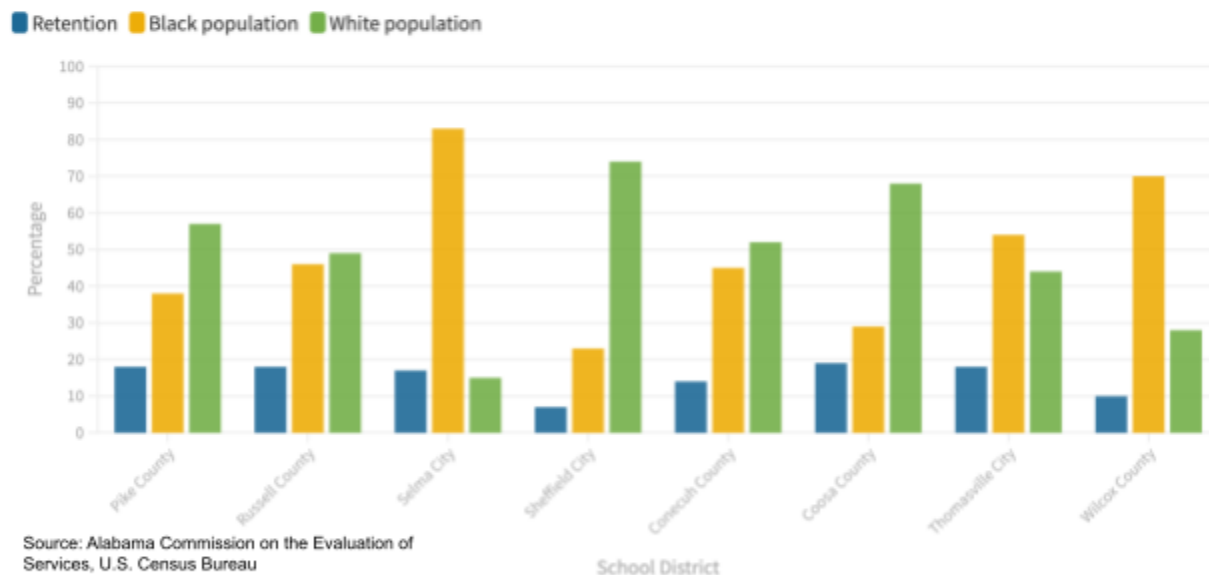
■ Retention ■ Black population ■ White population

Source: Alabama Commission on the Evaluation of Services, U.S. Census Bureau
Chart: Dante Nieto, Rashida Anderson Abdullah

Fig. 4
Underqualified teachers in the southern region
Of the southern states with 2021-22 data, Alabama had the highest count of underqualified teachers per 10,000 students.

Source: Brown University and the University of Illinois
Chart: Dante Nieto and Rashida Anderson-Abdullah