



Right Services
Right People
Right Time
Right Way

Teacher Supply & Demand: Defining the Teacher Shortage Problem

As previously shown in [Teacher Recruitment and Retention](#), between 2006 and 2020, Alabama experienced a decline in Pre-K thru 12th grade student enrollments, while seeing an increase in the total number of teachers. This indicates the statewide teacher “**supply**” has outpaced many of the factors that would normally lead to increased “**demand**” for teachers.

Teacher Shortage

A teacher shortage occurs when a school or district does not have the ability to staff vacancies with individuals who are qualified to teach in the fields needed.

ACES examined data from multiple statewide data sets¹ to provide context and benchmarks around remaining supply² and demand factors:

- How does teacher turnover affect supply and demand (*Teacher Retention and Attrition*)
- What is first-time teacher turnover (*Teacher Attrition*)
- How first-time teachers enter the system (*New Teacher Pathways and Transfers*)
- How long teachers are retained (*Teacher Retention and Attrition*)

Figure 1: Factors that impact teacher supply and demand

Supply Factors	Demand Factors
Teacher Retention	Teacher Attrition
Traditional Teacher Pathways (Traditional Educator Prep Programs)	Pupil-Teacher Ratio (1 st report)
Non-traditional Teacher Pathways (Alternative Educator Prep Programs)	Population Growth (1 st Report)
Out of State/Transfers	Student Enrollment (1 st Report)

For Alabama to maintain an ongoing understanding of its teacher workforce supply and demand, Alabama will need to collect and report more targeted information. While all states report teacher information to the U.S. Department of Education, some states collect information beyond the federal requirements and make it publicly available.³ The information collected and reported by states like Illinois and Colorado help those states maintain an on-going comprehensive understanding of their workforce needs. Although the Alabama State Department of Education (ALSDE) reports annually to the US Department of Education information that describes the teacher workforce, this information does not assist in furthering the understanding of factors impacting the state’s teacher supply or demand.

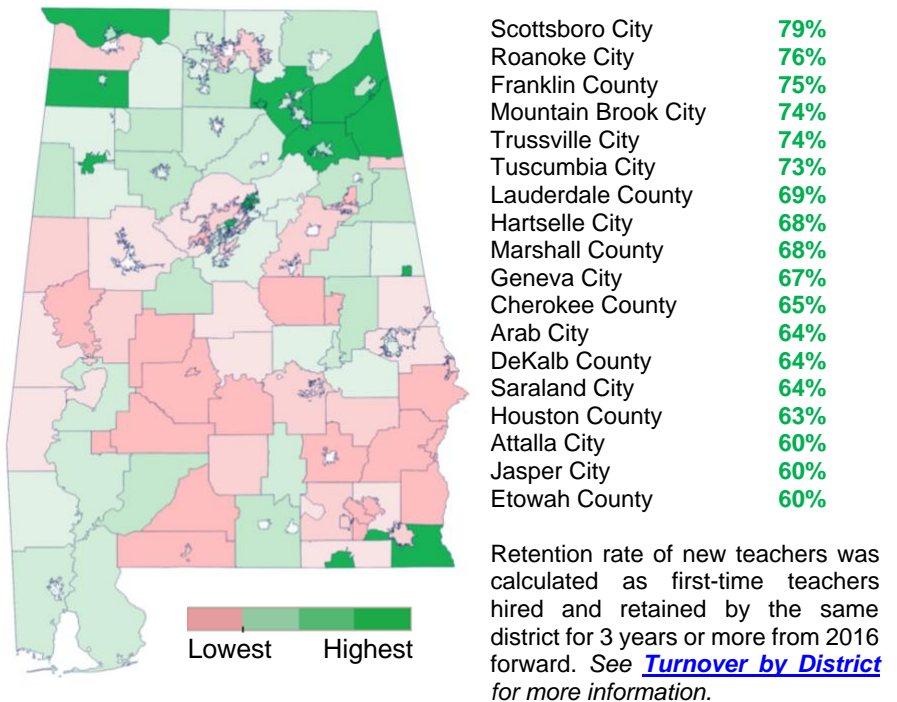
¹ See [Data and Methodologies](#) for a more detail on the data sets and analysis involved in ACES statistical analysis.
² While the concept of economic supply is complex and described through various mathematical equations, for the purposes of this report, **teacher supply** refers to **the actual number of first-time teachers that enter public P-12 education**.
³ See [Colorado](#), [Illinois](#), [Massachusetts](#), and [Nebraska](#)

The cost of replacing these first-time teachers is high, estimated between \$9,000 and \$40,000 per new hire.ⁱⁱ Replacing the **16,305 new teachers who left** over the last ten years is likely to have cost Alabama between \$146 million and \$652 million. If the rate of new teacher retention reached 60%, a rate already achieved by some Alabama school districts, Alabama public schools would have added 1,500 teachers to the current supply and saved districts \$13.5 million over ten years. Targeting efforts to the factors causing half of new teachers to leave could raise the supply of teachers, break the cycle of high turnover, save districts money, and lead to a more experienced teacher workforce.

First-time Teacher Turnover by District

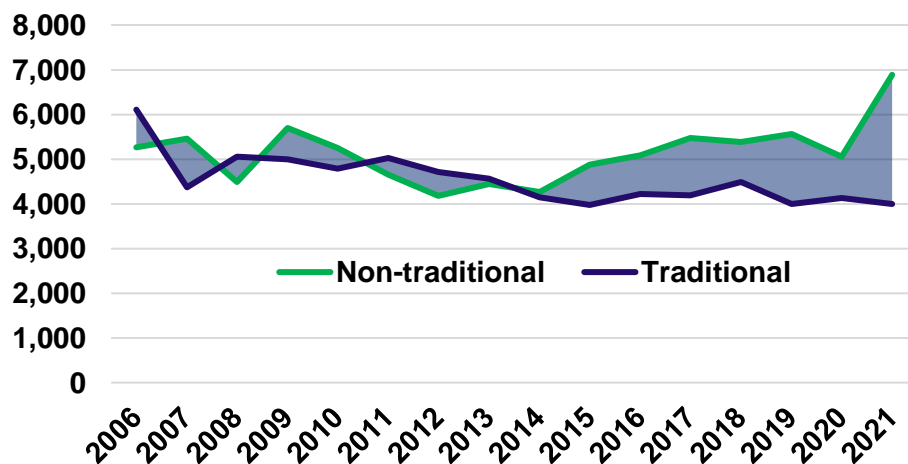
Only 18 of 143 Alabama school districts have a first-time teacher retention rate above 60% since 2016. This inability to retain first-time teachers creates a churning turnover. As districts replace the normal attrition population (from retirement and life changes) with a high attrition population of new teachers, the overall attrition rate increases at higher and higher rates. This sets up an exponential growth of attrition in some districts.⁴ The potential attrition spiral highlights the need to understand what works to retain teachers and target resources to areas in need. Unless some intervention happens to reduce the rate of attrition in new teachers, districts cannot recover.

Figure 4: Less than 20 school districts in Alabama have a first-time teacher retention rate above 60% since 2016.



Supply: Traditional & Non-Traditional Pathways

Figure 5: The state awarded 56% more non-traditional certificates than traditional certificates since 2014.



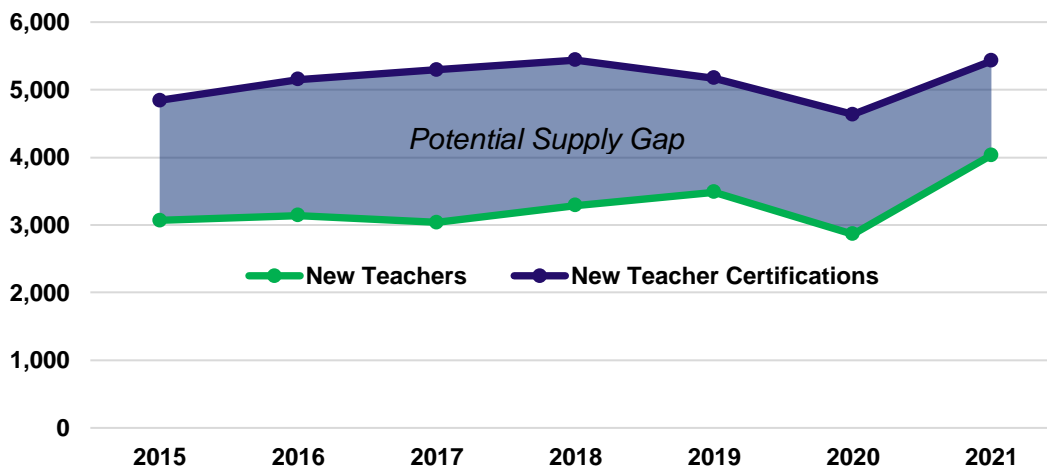
Since 2014, **non-traditional teacher certificates** far outpace **traditional certificates**. Previous [ACES analysis](#) showed the state increased its teacher workforce by 2,000 over the last five years. Traditional certificates – graduating from a bachelor’s degree program focused in varying education fields – are not growing, revealing the growth in hiring is coming from non-traditional certificates – changing careers; entering the profession through an alternative route.

⁴ $Loss_0 = (P_0 \cdot A)$ where P = Teacher Population, A = Normal Attrition (5 to 8%)
 $Loss_1 = ((P_0 - Loss_0) \cdot A) - (Loss_0 \cdot NewA)$ where $NewA$ = New Teacher Attrition (45-65%)
 $Loss_2 = ((P_0 - Loss_1) \cdot A) - (Loss_1 \cdot NewA)$
 $Loss_n = ((P_0 - Loss_{n-1}) \cdot A) - (Loss_{n-1} \cdot NewA)$

Supply Gap: First-time Certificates vs. First-time Teachers

Each year, at least 25% of teachers receiving their first teaching certificate do not enter public education.⁵ The gap between the number of people initially granted ALSDE teaching certificates and those hired each year points to a teacher supply that may be lost before it even reaches Alabama classrooms. It is unclear whether these potential teachers are going to other states, private schools, online teaching, or careers outside of education; but they do represent the potential “supply gap” that exists.

Figure 6: Teachers that enter public education consists of 75% or less of all potential teachers.



How Long Teachers are Retained

Supply by Certificate Pathway

An examination of all teachers beginning employment in public education between 2006 and 2018 show **traditionally prepared bachelor’s degree teachers** retain at better levels than any other certificate pathway. Those entering with a traditional Master’s or an Alternative Master’s certificate are a close second. The remaining **non-traditionally prepared teachers** are only retained about 50% of the time. Studies suggest this difference in retention between traditional and non-traditionally prepared teachers is not unique to Alabama.ⁱⁱⁱ However, with non-traditional certifications continuing to rise, Alabama needs to improve retention of this population or risk escalating an already high turnover rate.

Figure 7: The state’s overall poor teacher retention rate of 63% is bolstered by the large number of traditionally prepared bachelor’ level teachers.

Certificate Path	Attrited Teachers			Retained Teachers			% Retained
	Changed Jobs then Left Public Education	Left Public Education	Total Leavers	Changed Job but Stayed (Movers)	Stayed in Same Job	Total Retained	
Bachelor	2,836	4,112	6,948	9,868	5,544	15,412	69%
Master	878	1,241	2,119	2,522	1,443	3,965	65%
Emergency	1,070	1,844	2,914	1,888	650	2,538	47%
Alternative	586	906	1,492	1,182	479	1,661	53%
Other	158	331	489	274	243	517	51%
Total	5,528	8,434	13,962	15,734	8,359	24,093	63%

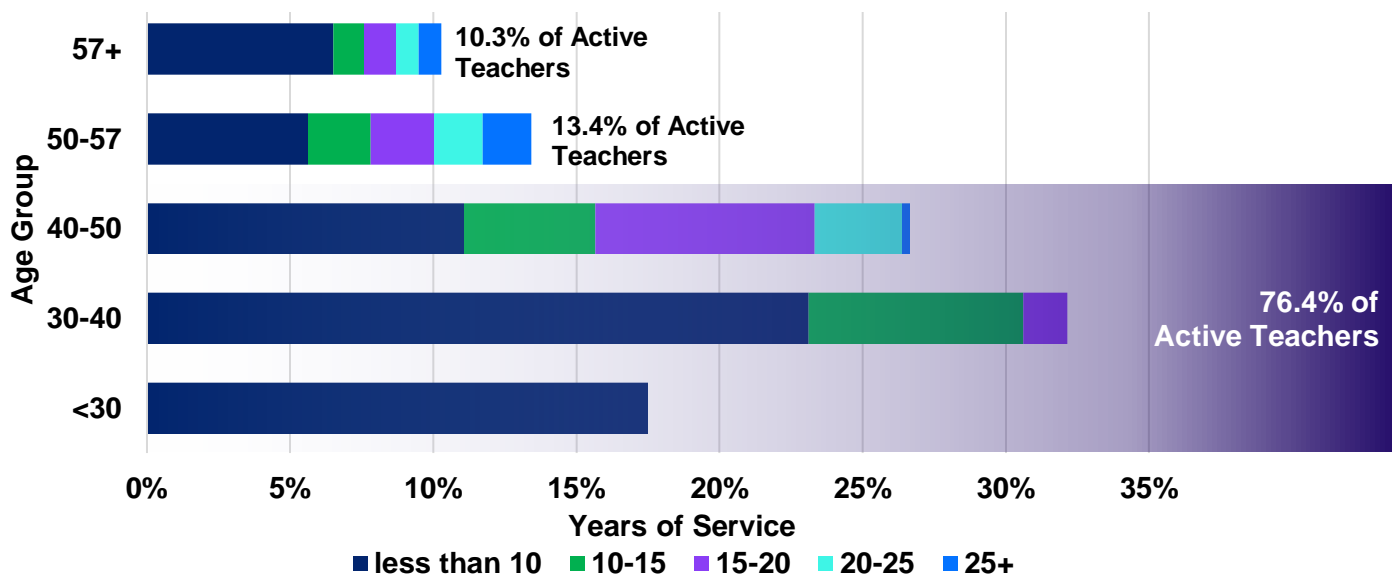
⁵ For this report, **public education** means employment in a public Alabama P-12 school.

Predictable Demand: Teacher Retirement

Alabama is not at risk of mass retirement. Alabama’s teacher retirement trends have been steady since 2006. This is an example of normal attrition and is consistent among all sub-populations that can be readily tracked and projected.

Only 10% of the current teacher workforce is within five years of the typical retirement age (60-62). Only a third of all current teachers have the 10 years of service required to be vested in the state’s retirement system.^{iv} The average age of current teachers is approximately 40 years old. This age distribution is consistent with the global US labor force.^v Steady Alabama teacher retirements indicate retirements are not contributing to an overall increase in the demand for teachers.

Figure 8: Most Alabama’s teachers are not nearing retirement despite a third of them being vested in the state’s retirement system.



Unidentified Demand: Teacher Vacancies

Alabama does not currently track teacher vacancies, a standard measurement utilized by other states to better define teacher needs. Though ALSDE maintains an online employment job board, upon initial review, it appeared to have varying degrees of utilization across the districts. In an effort to determine if the job board accurately quantifies the current needs in Alabama’s public schools, ACES surveyed all 143 school districts. Survey results showed the job board was not an accurate indicator of the needs reported by the responding districts.

Another factor contributing to the inability to quantify needs is the deficiency of information collected on recruitment variables. ALSDE collects data for out-of-field and emergency teachers; however, the information is not used to recruit or pair properly credentialed teachers to those positions. Also, Alabama does not collect state level data to determine recruitment efforts aimed at positions lacking a properly credentialed teacher. A recent report emphasized that states should know “[h]ow many vacancies relate to a new position, versus those aimed to properly staff a position currently covered by an out-of-field or not fully certified teacher, [such information] would give a fuller picture of the teacher shortage and allow districts to better define hiring strategies and teacher talent allocation.”^{vi}

Alabama’s Teacher Recruitment and Retention Efforts

What Works in Teacher Retention: Teacher Mentoring Programs

Effective evidence-based teacher mentoring programs retain teachers and increase educational attainment among students. Although there are varying degrees of features and effectiveness of mentoring programs, evidence from multiple sources is in accord that mentoring programs work to reduce teacher turnover.^{vii} These programs assign novice teachers to veteran teachers, generally for the first 2 years of employment, to provide support in areas such as classroom observation and consultation, instructional planning and preparation, and classroom instruction.^{viii}

Alabama’s Teacher Mentor Program was first established by the legislature in 2004 and received consistent funding since 2017. Current teacher mentors receive a modest \$1,000 for a minimum of 90 hours of work. Currently, 134 districts participate in the voluntary program with 4,213 mentees enrolled as of the second semester of the 2021-2022 academic year. Even with large participation in the program, ACES analysis demonstrates most districts have trouble retaining first-time teachers.

At this time, 7 districts are piloting a more intensive, New Teacher Center mentoring program. Due to Alabama’s low first-time teacher retention rate, the state should consider evaluating the effectiveness of this pilot program to determine if it should be implemented statewide. **If Alabama experiences similar results from the New Teacher Center program, ACES estimates the benefits to the state would be about \$39 per dollar spent.**

Alabama attempts to address the supply of teachers through a myriad of interventions despite the lack of information quantifying the need by district, subject, grade, or credential. Newer efforts as of January 2022 continue to increase the potential supply of non-traditional teachers into the teaching pipeline. In response to local education agencies and institutions of higher education reporting the impact of Alabama’s teacher shortage, ALSDE updated the following pathways increase the quantity of available teachers.^{ix} Notably, none of these efforts are currently being evaluated for effectiveness.

Figure 9: ALSDE updated pathways to increase the quantity of available teachers. (January of 2022)

Effort	Description
Additional Teaching Field Approaches	Two-year experience requirement eliminated
Advanced Pay	Interpretation of law now includes any approved advanced degree as eligible for advanced pay if the degree major is in any area of education (e.g., curriculum and instruction and secondary education)
Certificate Reciprocity	Subject-area testing for applicants suspended
Certificate Renewal / Reinstatement	Certificate renewal requirements are suspended for the 2022 and 2023 renewal cycle
Conditional Certificate in Teaching Field Approach	Additional P-12 and 6-12 teaching fields will be added beginning with the 2022-2023 school year
Emergency and Career and Technical Temporary Certificates	LEAs may now request a 2 nd certificate area, if only one was requested at the time the original certificate was issued
GPA Requirement	Decreased Alternative Programs and other approaches GPA from 2.75 to 2.50 for certain alternative routes and for admission completion in an approved program
Special Education	An alternate route leading to a certificate in Collaborative Special Education for grades 6-12 is being created and will be available for the 2022-2023 academic year

The state also directly funds many programs supporting pathways into teaching or [teacher workforce diversity](#). For FY 2022, Alabama appropriated over \$21,000,000 to teacher recruitment and retention efforts.

Figure 10: State-funded programs to recruit and retain teachers (including [diversity programs](#)).

Program Name	Receiving Institution	State Dollars	Projected Outcome
Teach for America	ALSDE	\$822,000	Equal academic opportunity through recruiting and retaining teachers in approved Alabama areas. Intent: employ veterans of U.S. Armed Forces where possible
National Board Certification of Teachers	ALSDE	\$13,712,908	Retain accomplished teachers in the profession
Alabama Teacher Mentor Program	ALSDE	\$4,000,000	Provide novice teachers with access to mentoring from veteran teachers as a retention effort
Future Teachers of Alabama	ALSDE	\$250,000	Promote teaching as a profession to middle and high school students
Alabama Math & Science Teacher Edu Program	ACHE	\$746,750	Recruit STEM teachers in hard to staff areas by incentivizing pay up to \$20,000 more per year
Principal Mentor Program	ALSDE	\$438,907	Provides support to new principals to maximize leadership success through prioritizing, modeling, guidance, coaching, and encouragement
Alabama Recruit & Retain Minority Teacher Pilot (Athens State University and Alabama A&M)	ACHE	\$700,000	Recruit and retain African American Male students into traditional education program
AKEEP Education Teacher & Recruitment Partnership	ACHE	\$100,000	Recruit multicultural diversified teachers from Korea to Alabama.
Blackbelt Teaching Initiative	UWA	\$450,000	Provides teacher education majors funding for their education and provide additional dollars to jump-start educational initiatives in the schools where they will teach
Total State Funds		\$21,659,472	

*This table does not reflect Alabama's teacher recruitment and retention campaign because those efforts were initially funded in 2019 via a three-year contract.

Data & Methodologies

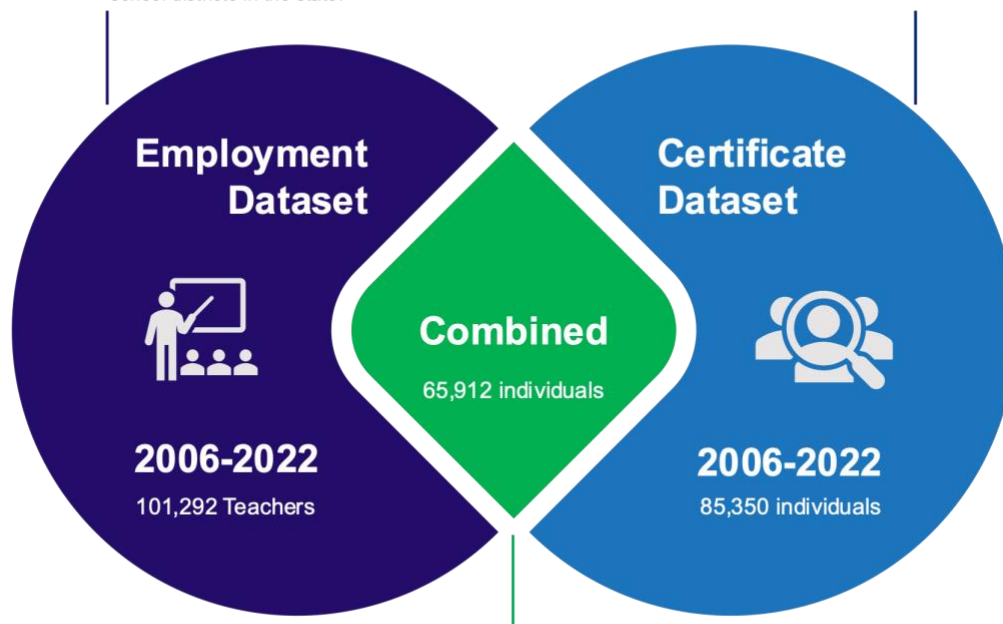
There is no single source of information in Alabama that contains information on teacher qualifications and employment. To perform the supply and demand factors analysis for this report, ACES had to use and combine multiple data sources. Although there is some commonality to the datasets, they are not relational.⁶ The limitations presented when combining and analyzing data from non-relational datasets are numerous, but specific to this analysis are two-fold:

1. Aggregates or summations from each individual dataset are not complete representations of all the datasets.
2. The available, usable data after combining datasets only captures 65% of the total records for the period of analysis.

Description of the datasets used in the supply and demand factors analysis.

Analysis of teacher turnover, first-time teachers, years-of-service, or teacher age was completed using the **Employment Dataset** from the Teachers' Retirement System of all public, P-12 education school districts in the state.

Analysis of career pathways, first-time certificates, or subject matter was completed using the **Certificate Dataset** from the Alabama State Department of Education.



Analysis of teacher turnover, first-time teachers, years-of-service, or teacher age through the lens of certificate types or subject matter was completed using the **Combined Dataset** created by merging the two, non-relational datasets.

To compensate for these limitations, ACES performed similar analysis across datasets ensuring that the results were statistically representative, thus validating the reliability of the results.

⁶ A relational database organizes data items using pre-defined relationships to link values from multiple tables. This capability enables you to retrieve an entirely new table from data in one or more tables with a single query.

Turnover by District

School System	% Retention	School System	% Retention	School System	% Retention
ALABASTER CITY	44%	ENTERPRISE CITY	31%	MUSCLE SHOALS CITY	39%
ALBERTVILLE CITY	57%	ETOWAH COUNTY	60%	ONEONTA CITY	40%
ALEXANDER CITY	22%	EUFULA CITY	27%	OPELIKA CITY	39%
ANDALUSIA CITY	59%	FAIRFIELD CITY	24%	OPP CITY	55%
ANNISTON CITY	24%	FAYETTE COUNTY	48%	OXFORD CITY	34%
ARAB CITY	64%	FLORENCE CITY	43%	OZARK CITY	24%
ATHENS CITY	44%	FORT PAYNE CITY	58%	PELHAM CITY	33%
ATTALLA CITY	60%	FRANKLIN COUNTY	75%	PELL CITY	47%
AUBURN CITY	48%	GADSDEN CITY	49%	PERRY COUNTY	16%
AUTAUGA COUNTY	39%	GENEVA CITY	67%	PHENIX CITY	34%
BALDWIN COUNTY	54%	GENEVA COUNTY	38%	PICKENS COUNTY	36%
BARBOUR COUNTY	20%	GREENE COUNTY	21%	PIEDMONT CITY	33%
BESSEMER CITY	31%	GUNTERSVILLE CITY	50%	PIKE COUNTY	18%
BIBB COUNTY	56%	HALE COUNTY	33%	PIKE ROAD CITY	38%
BIRMINGHAM CITY	35%	HALEYVILLE CITY	46%	RANDOLPH COUNTY	45%
BLOUNT COUNTY	52%	HARTSELLE CITY	68%	ROANOKE CITY	76%
BOAZ CITY	43%	HENRY COUNTY	27%	RUSSELL COUNTY	18%
BREWTON CITY	33%	HOMEWOOD CITY	58%	RUSSELLVILLE CITY	50%
BULLOCK COUNTY	32%	HOOVER CITY	52%	SAINT CLAIR COUNTY	43%
BUTLER COUNTY	36%	HOUSTON COUNTY	63%	SARALAND CITY	64%
CALHOUN COUNTY	54%	HUNTSVILLE CITY	36%	SATSUMA CITY	44%
CHAMBERS COUNTY	40%	JACKSON COUNTY	55%	SCOTTSBORO CITY	79%
CHEROKEE COUNTY	65%	JACKSONVILLE CITY	25%	SELMA CITY	17%
CHICKASAW CITY	29%	JASPER CITY	60%	SHEFFIELD CITY	7%
CHILTON COUNTY	38%	JEFFERSON COUNTY	41%	SHELBY COUNTY	47%
CHOCTAW COUNTY	38%	LAMAR COUNTY	56%	SUMTER COUNTY	37%
CLARKE COUNTY	53%	LANETT CITY	21%	SYLACAUGA CITY	44%
CLAY COUNTY	54%	LAUDERDALE COUNTY	69%	TALLADEGA CITY	26%
CLEBURNE COUNTY	55%	LAWRENCE COUNTY	45%	TALLADEGA COUNTY	36%
COFFEE COUNTY	32%	LEE COUNTY	38%	TALLAPOOSA COUNTY	55%
COLBERT COUNTY	34%	LEEDS CITY	43%	TALLASSEE CITY	50%
CONECUH COUNTY	14%	LIMESTONE COUNTY	52%	TARRANT CITY	23%
COOSA COUNTY	19%	LINDEN CITY	40%	THOMASVILLE CITY	18%
COVINGTON COUNTY	56%	LOWNDES COUNTY	29%	TROY CITY	35%
CRENSHAW COUNTY	50%	MACON COUNTY	44%	TRUSSVILLE CITY	74%
CULLMAN CITY	50%	MADISON CITY	55%	TUSCALOOSA CITY	31%
CULLMAN COUNTY	49%	MADISON COUNTY	47%	TUSCALOOSA COUNTY	40%
DALE COUNTY	37%	MARENGO COUNTY	50%	TUSCUMBIA CITY	73%
DALEVILLE CITY	24%	MARION COUNTY	46%	UNIVERSITY CHARTER SCHOOL	73%
DALLAS COUNTY	29%	MARSHALL COUNTY	68%	VESTAVIA HILLS CITY	57%
DECATUR CITY	44%	MIDFIELD CITY	26%	WALKER COUNTY	57%
DEKALB COUNTY	64%	MOBILE COUNTY	49%	WASHINGTON COUNTY	47%
DEMOPOLIS CITY	32%	MONROE COUNTY	55%	WILCOX COUNTY	10%
DOTHAN CITY	34%	MONTGOMERY COUNTY	36%	WINFIELD CITY	60%
ELBA CITY	40%	MORGAN COUNTY	57%	WINSTON COUNTY	57%
ELMORE COUNTY	48%	MOUNTAIN BROOK CITY	74%	Grand Total	42%

* School districts that began on or after 2016 are not included.

** Escambia County is not included because of uncertainty regarding its employment data.

Citations

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