Emsi

Kentucky Council on Postsecondary Education

Education Sector Analysis

Using Data to Evaluate the Needs of Kentucky's Education Workforce

JANUARY 2021

ABOUT

Kentucky Council on Postsecondary Education (KYCPE) coordinates change and improvement in Kentucky's postsecondary education system. Established as part of the education reforms set forth in the Postsecondary Education Improvement Act of 1997, KYCPE's mission is to strengthen Kentucky's workforce, economy, and quality of life by guiding the continuous improvement and efficient operation of a high-quality, diverse, innovative, accessible, and affordable system of postsecondary education.

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Emsi is a leading provider of labor market data to professionals in higher education, economic development, workforce development, talent acquisition, and site selection. Emsi data are used to solve a variety of problems: align programs with regional needs, equip students with career visions, understand regional economic and workforce activity, and find and hire the right talent. Emsi serves clients across the U.S., UK, and Canada.

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The opinions and recommendations expressed in this report are those of Emsi. These views should not be construed as representing the official policies of KYCPE. Furthermore, any errors in this report are the responsibility of Emsi and not of any of the above-mentioned parties.

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Key Takeaways

ENVIRONMENTAL SCAN

- Kentucky job growth is projected to be **slower than** the U.S. over the next decade (15% and 23%, respectively).
- The **Central WPR and Kentuckiana LWA lead the state** in terms of jobs and are projected to grow slightly over the next decade.
- The **Local Government industry subsector supported the most jobs** in Kentucky in 2019 and it is expected to remain the top regional employer.
- **Hospitals**, as an industry subsector, have an employment concentration of 1.2. This value is comparable to the U.S. average (1.0) and an indication that employment in Kentucky's Hospitals industry subsector is not overly represented in the state.
- The **Manufacturing industry sector faces the largest unemployment** in Kentucky, and at a much higher rate compared to the U.S.
- Population growth in Kentucky is projected to be **slower than** the U.S. over the next 10 years (6% and 11%, respectively). Notably, the population of the East WPR is projected to decline by 10%.
- Kentucky adults (25 years and above) hold **lower educational attainments** compared to the U.S., with 48% holding a high school diploma or less compared to 41% of U.S. adults.
- **Significantly fewer** White, non-Hispanic and **slightly fewer** Black, non-Hispanic adults in Kentucky **have a postsecondary education** compared to those groups across the U.S.
- Socioeconomic indicators vary by county across Kentucky. **McCreary County** has the **lowest median household income** in the state ($19,264), compared to the state average of $46,535 and the county with the highest median household income (Oldham County with $92,237).

OCCUPATIONAL OVERVIEW

- The state's education workforce is expected to **increase by 3%** between 2020 and 2030, **compared to a 7% increase** in the education workforce across the U.S.
- The **Central WPR** supported the state's **largest share** of the education workforce without Education Workers, followed by the **Kentuckiana LWA**.
- COVID-19 indices show **an increase or no change in new daily job postings** between the COVID Impact and Response Time Periods, **except for** middle school teachers and K-12 education administrators.
- Teachers, tutors, and education administrators are **most commonly employed by public school districts**, found in the Education (Local Government) industry.
- The Education (Local Government) industry employed **nearly 66,000** of the state's education workforce in 2020, or **73% of all education jobs**.
- Education (Local Government) jobs are projected to **increase by the greatest percentage** (3%) in the Central WPR and **decrease by the greatest percentage** (3%) in the East WPR between 2020 and 2030.

JOB POSTINGS

- Unique job postings in Kentucky for each of the education occupational groups range from **nearly 500 to about 4,200** from January 2019 to December 2019, with the largest number of postings for **Education Workers**.
- **High School Teachers** are the second largest occupation group with about **2,300 unique postings** during the same time period.
- Kentucky job posters are looking to hire **full-time teachers, as well as part-time tutors and instructors**.
- Top job posters include **Jefferson County Public Schools**, the largest public school district in the state, as well as a number of **other public school districts**.

DEMOGRAPHIC ANALYSIS

- Education program completers are typically **young, White females between 19 and 34 years old**.

- About **10% of education program completers are people of color**, with the exception of completers in the **Kentuckiana LWA (17%)**.
- **Women** typically account for **75% of all education program completers**, but women in the **West WPR** account for **80%** of all completers.
- People working in education are also typically **White females**.
- The most represented age band for most occupational groups is the **24 to 34-year age band**, except for Education Workers and Administrators & Counselors with the most workers in the 45 to 54-year age band.
- About **10% of Kentucky's education workforce are people of color**, with a smaller proportion working as High School Teachers and Middle School Teachers (8%) and a larger proportion working in the Pre-K Workforce (16%).
- **Elementary School Teachers** are increasingly people of color, particularly **Black/African American teachers**.

PROGRAM DEMAND GAP ANALYSIS

- A **gap** is projected across the state between completions and employer demand for **Elementary School Teacher, Middle School Teacher, High School Teacher, and Administrator & Counselor** occupation groups over the next 10 years.
- At the occupational level, **elementary school teachers face the largest gap** across the state – a shortfall of just over 350 job openings – whereas **secondary school teachers face the largest statewide surplus**.
- At the program level, while the **Elementary Education & Teaching program** faces the largest statewide surplus, it **should not be reconsidered** given the large gap in elementary school teachers in the state.
- **Public state universities play an important role in the Central WPR** by providing the region with a large number of bachelor's and master's degree level programs of study and subsequent completions.
- In the **East WPR**, the **Early Childhood Education & Teaching program** is an area to consider for expansion.
- The **Kentuckiana LWA** is one of the only regions where **secondary school teachers face a large gap** in the region, compared to a statewide surplus and in the other regions except for the West WPR.

- Unlike the other regions, we see a large number of programs and completions from **AIKCU institutions** in the **South WPR, particularly from University of the Cumberlands**. However, given the online nature of the university, its completers likely participate in the programs from across the state and, therefore, find employment elsewhere in the state.
- Despite small gaps and surpluses across programs in the **West WPR**, all regional education programs are generally providing an **adequate supply of completers to meet regional demand**.

MIGRATION ANALYSIS

- About **80% of undergraduate students** and nearly **half of all graduate students** complete their teaching programs **in three years**.
- Relatively **more graduate students transfer** from one teaching program into another, compared to undergraduate students.
- **Less than 9% of undergraduate and graduate students** drop out of their teaching program.
- In terms of teachers' employment outcomes, almost **60%** of program completers are employed as **public school teachers one year after program completion**.
- MAT and MAED completers together represent about **one-third of all education degrees** and nearly **90% of all master's degree** level education programs.
- A little over **60%** of the alumni from Kentucky's education programs **remain in-state**. This proportion is **higher** than a typical Kentucky alum and an education program alum from a U.S. institution, and is similar to those in other states.
- The top states where Kentucky education alumni **move to are Ohio or Tennessee**.
- **Wages** for education occupations in Kentucky have **increased** from 2010 to 2020 but have become **less competitive** than the wages in surrounding states.
- Top institutions providing education talent to Kentucky are **Indiana University, University of Cincinnati, and Xavier University**.

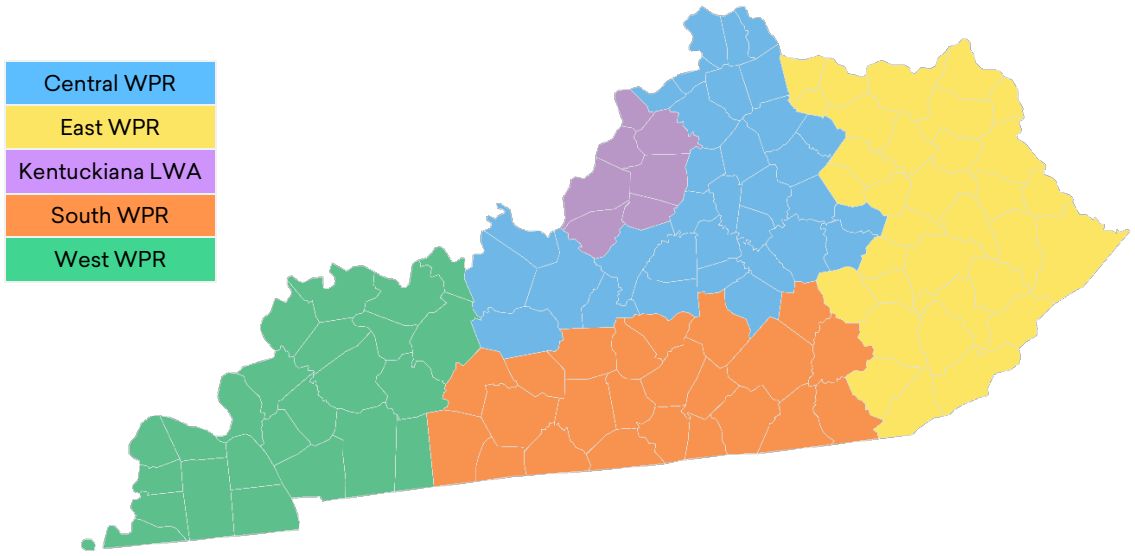
Executive Summary

INTRODUCTION

The Council on Postsecondary Education (Council) is charged with guiding the reform efforts envisioned by state policy leaders in the Kentucky Postsecondary Education Improvement Act of 1997 and is Kentucky's statewide postsecondary and adult education coordinating agency. Its mission is to strengthen the state's workforce, economy, and quality of life. The Council does this by guiding the continuous improvement and efficient operation of a high-quality, diverse, innovative, accessible, and affordable system of postsecondary education in the commonwealth of Kentucky.

To gain better insight into economic conditions and workforce trends, specifically within three targeted sectors, the Council partnered with Emsi, a labor market analytics firm serving higher education, economic and workforce development, talent acquisition, and site selection. In this report, Emsi focuses on the Education sector by providing an overview of education occupations and industries through traditional labor market information and a job postings analysis, conducting a program demand gap analysis of Kentucky institutions' education program offerings, and analyzing migration patterns and other qualitative characteristics that help explain why Kentucky education alumni stay in or migrate out of the

Figure 1: Kentucky's WPRs and the Kentuckiana LWA



Source: Regions provided by the Council.

state. Emsi also provides an environmental scan of the state's economy to provide context for the Education sector.[1]

Data around the Education sector are provided for the state and, where pertinent, by region (Figure 1). The regions are based on Kentucky's Workforce Planning Regions (WPRs).[2] In addition, data for the city of Louisville and its surrounding counties, which comprise the Kentuckiana Local Workforce Area (LWA), are shown distinct from the Central WPR.

ENVIRONMENTAL SCAN

The environmental scan provides key information on the economic and social structure of Kentucky and its WPRs. By providing data across Kentucky as a whole, the data provide context for Education within the state. For example, beyond just the Education sector, the data:

- Reveal whether there are industries that may be overlooked because of recent economic growth;
- Identify the top occupations within driving industries; and
- Provide the Council a deeper understanding of state and regional population characteristics and the socioeconomic background of current and future postsecondary students.

Total Jobs

Figure 2 displays the historical and projected job change, by percent, for the state and the U.S. between 2009 and 2029, with 2009 serving as the base year. Kentucky's job declines in the years following the 2008 Recession were similar to that of the U.S. But after 2013, the state's job growth was less than that of the U.S. Using Emsi's job projections, job growth from 2009 to 2029 in Kentucky and the U.S. is expected to be 15% and 23%, respectively.

Figure 3 refers to the number of jobs by Kentucky region. The Central WPR and Kentuckiana LWA lead the state in terms of the majority of jobs and are both projected to grow slightly over the next decade. The South WPR also has a slightly upward projection of expected growth. The East WPR and the West WPR, however, appear to be regions where growth will remain fairly flat over the next decade.

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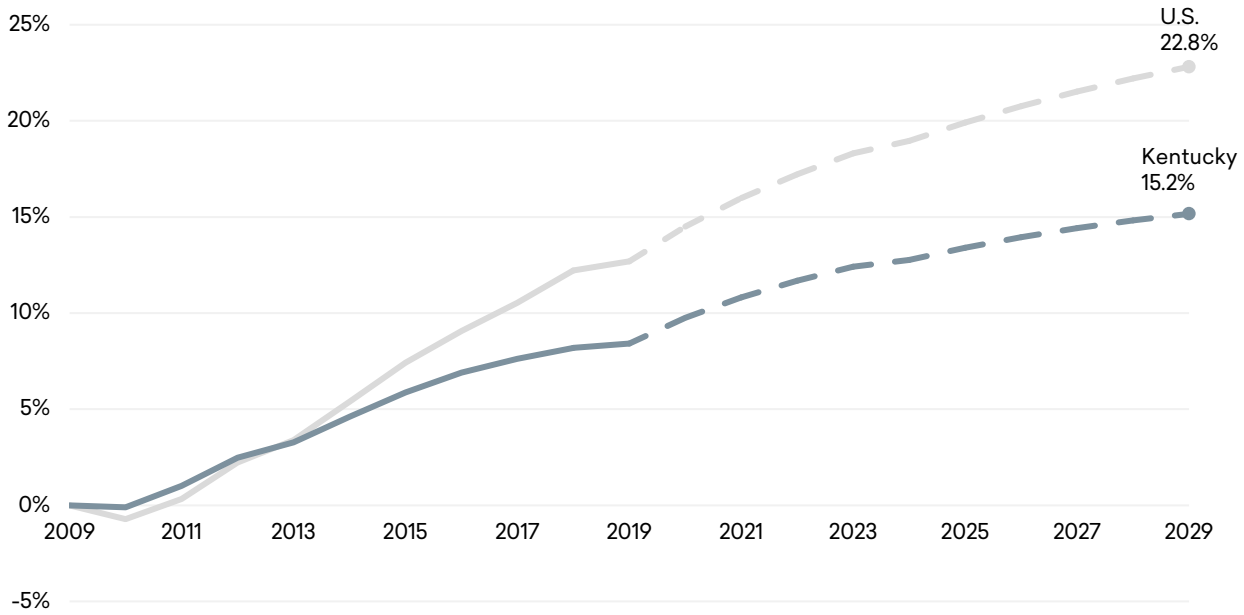
1 The environmental scan is presented first in the executive summary so as to provide context for the education sector, although it is purposefully presented last amongst the chapters in the main body of the report.

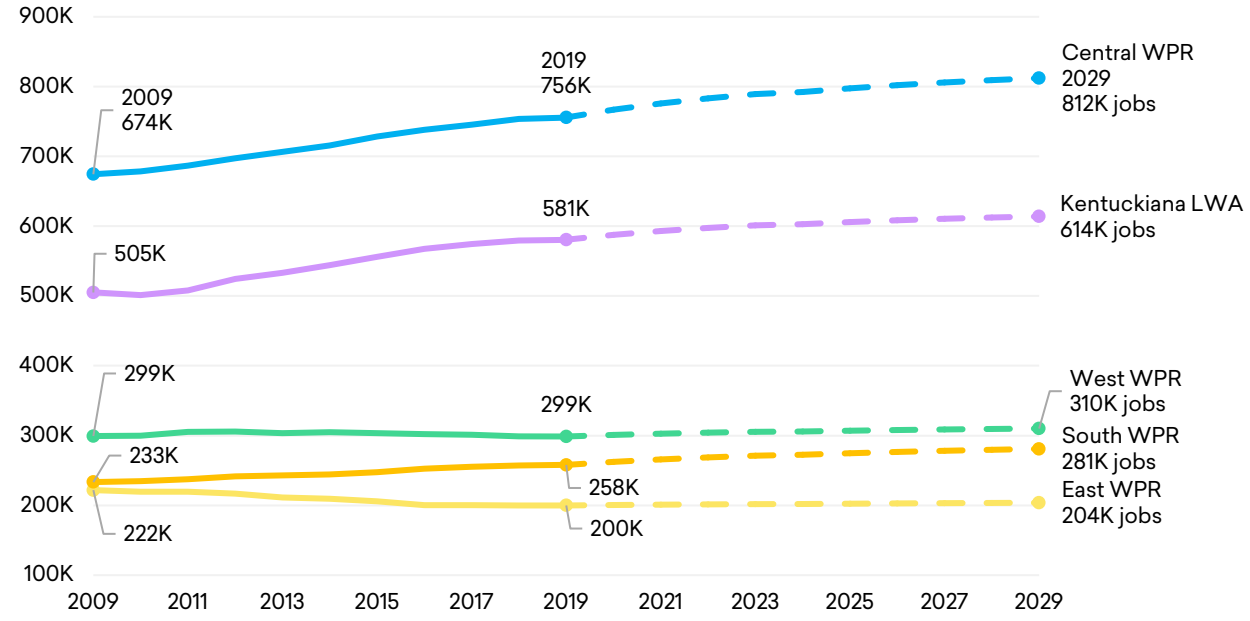
2 Source: https://kystats.ky.gov/Reports/ShowReports?ReportId=Map_LWAWIB&publishDate=20170401.

Figure 2: Percent Job Change in Kentucky and the U.S., 2009 to 2029



Source: Emsi Employees & Self-Employed 2019.4.

Figure 3: Historical and Projected Jobs in Kentucky's WPRs and the Kentuckiana LWA, 2009 to 2029



Source: Emsi Employees & Self-Employed 2019.4.

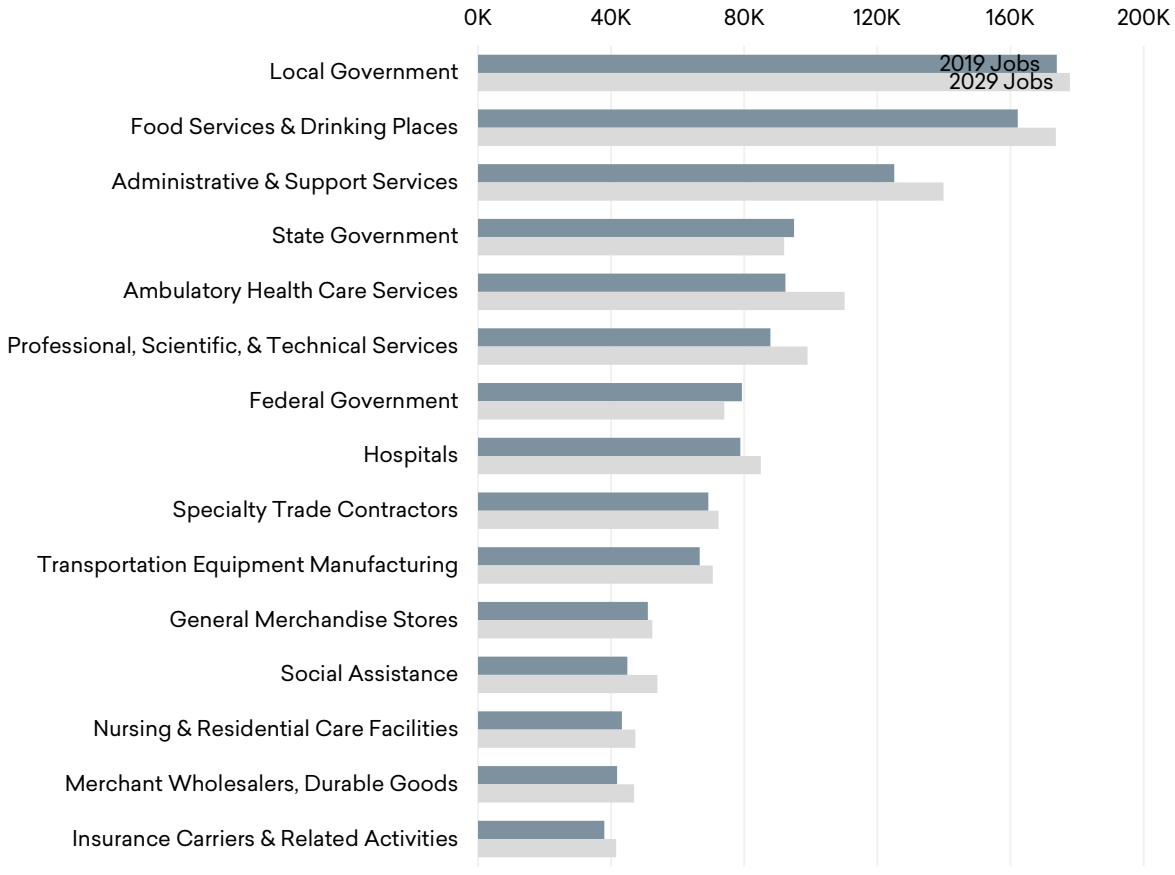
Industry Composition

Evaluating current and future employment by the industries supporting jobs in the state provides information on its economic diversity. For the analysis in this section, Emsi has aggregated jobs by industries using the North American Industry Classification System (NAICS). In Emsi data, all establishments in the main NAICS hierarchy (i.e. non-government industries) are private sector only.

Largest Employers

Kentucky supported 2.1 million jobs in 2019, and by 2029, the state is projected to add 131,960 new jobs, for a 6% job increase. The Local Government industry subsector supported the most jobs in Kentucky in 2019 (173,860 jobs), and it is expected to remain the top regional employer (Figure 4). The Local Government and State Government industry subsectors, which both include education jobs, are first and fourth in terms of state jobs, respectively.

Figure 4: Jobs in Kentucky's Top 15 Industry Subsectors, 2019 and 2029

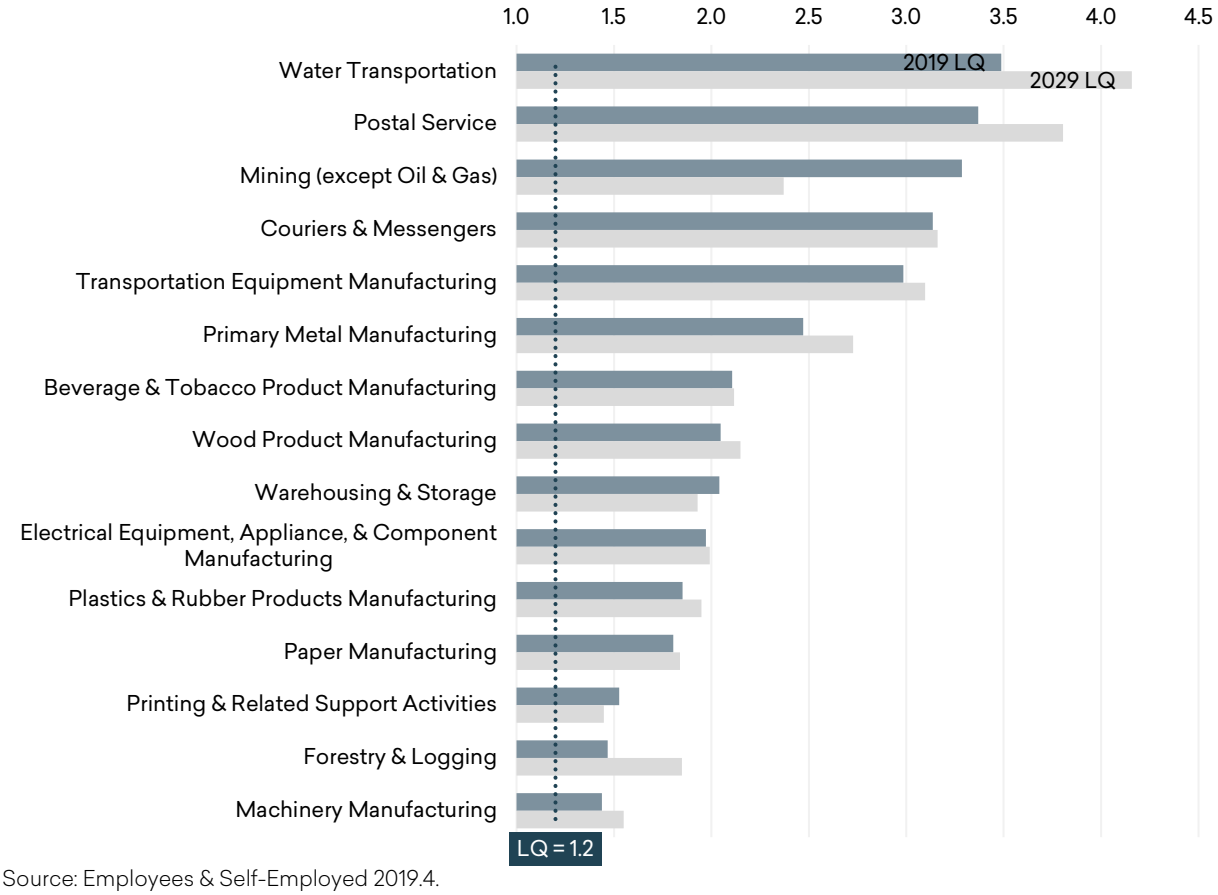


Source: Employees & Self-Employed 2019.4.

Employment Concentration

The employment concentration of the state's industry subsectors is measured by a location quotient (LQ). The top-ranked industry subsector is Water Transportation, with an LQ of 3.5 in 2019. Despite the few subsectors projected to decline, all the state's top 15 industry subsectors will remain above the 1.2 high-LQ threshold, as indicated by the dotted line in Figure 5. Industries related to education do not appear in the top 15 industry subsectors in terms of employment concentration.

Figure 5: Employment Concentrations (LQs) of Kentucky's Top 15 Industry Subsectors, 2019 and 2029

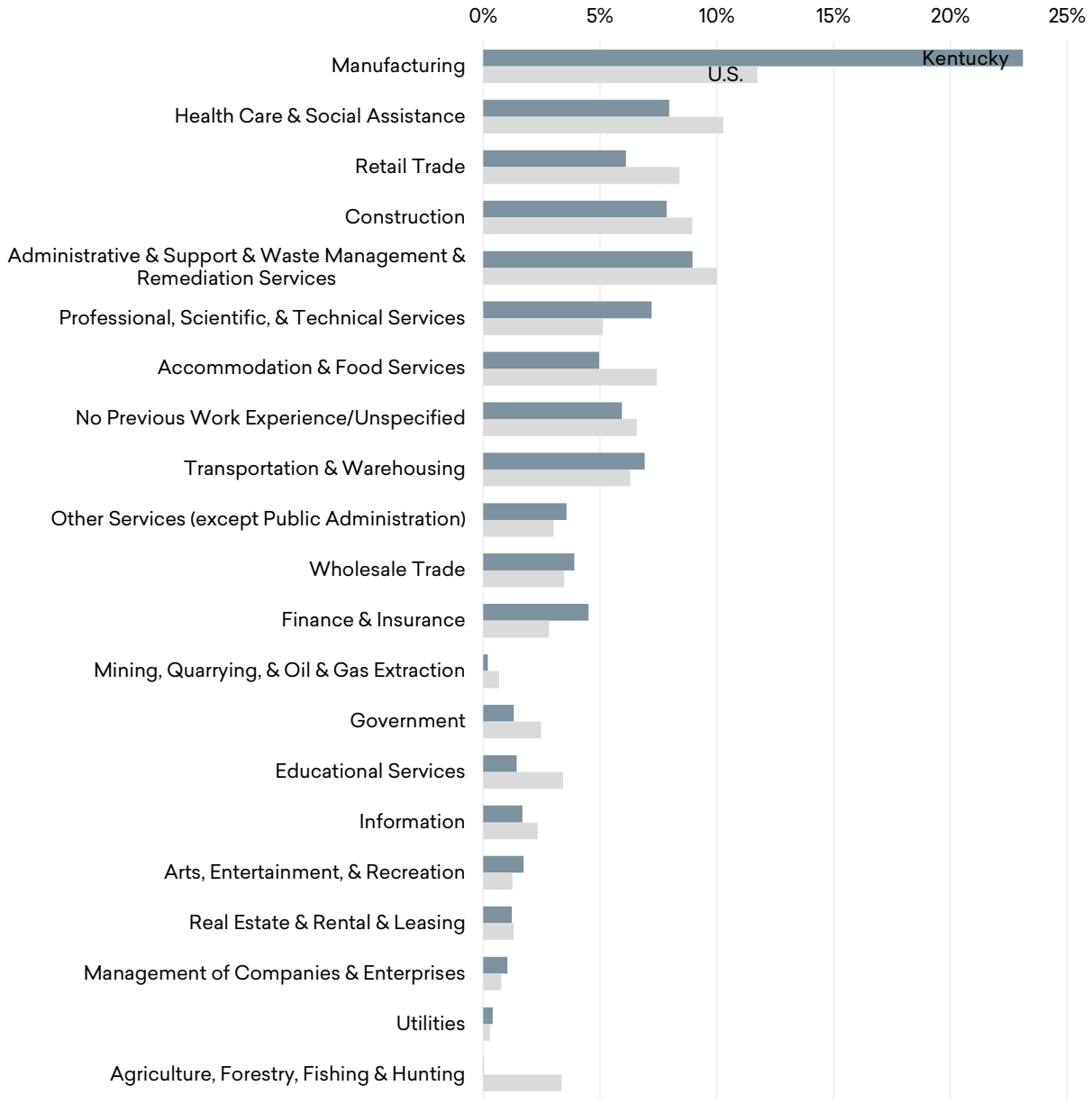


Source: Employees & Self-Employed 2019.4.

Unemployment

Emsi industry- and occupation-specific unemployment estimates are derived from several federal sources. Emsi final industry and occupation data, as well as state-specific data, are also used. Figure 6 shows the percentage of Kentucky residents unemployed in each industry sector compared to the U.S. As shown in the figure, nine out of 21 industry sectors

Figure 6: Monthly Unemployed Workers by Industry Sector in Kentucky with U.S. Comparison



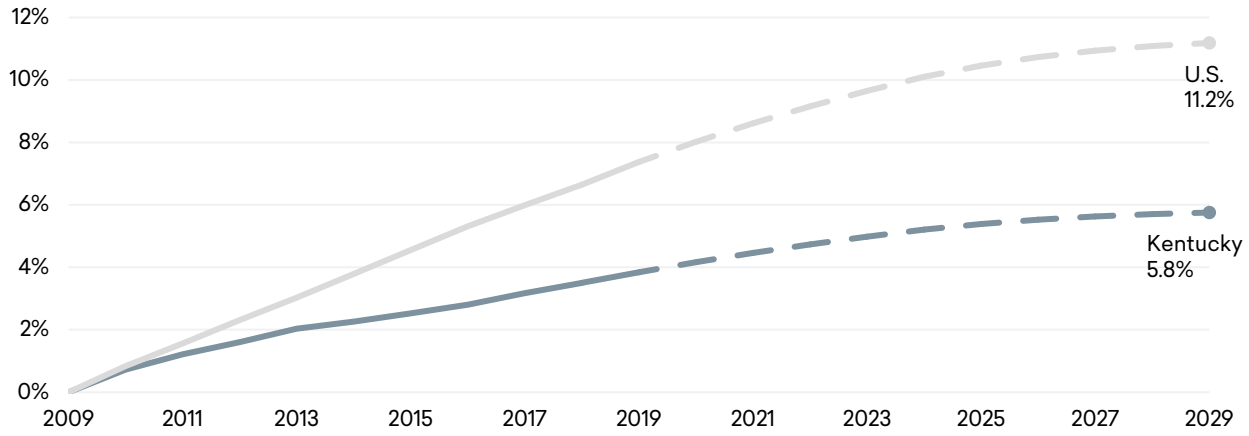
Source: Emsi Total Unemployment (July 2019).

see higher unemployment in Kentucky compared to the U.S. The Manufacturing industry sector faces the largest unemployment in Kentucky, and at a much higher rate compared to the U.S. The Health Care & Social Assistance industry sector ranks second in terms of unemployment but faces a lower percentage of unemployment compared to the U.S.

Population Demographics

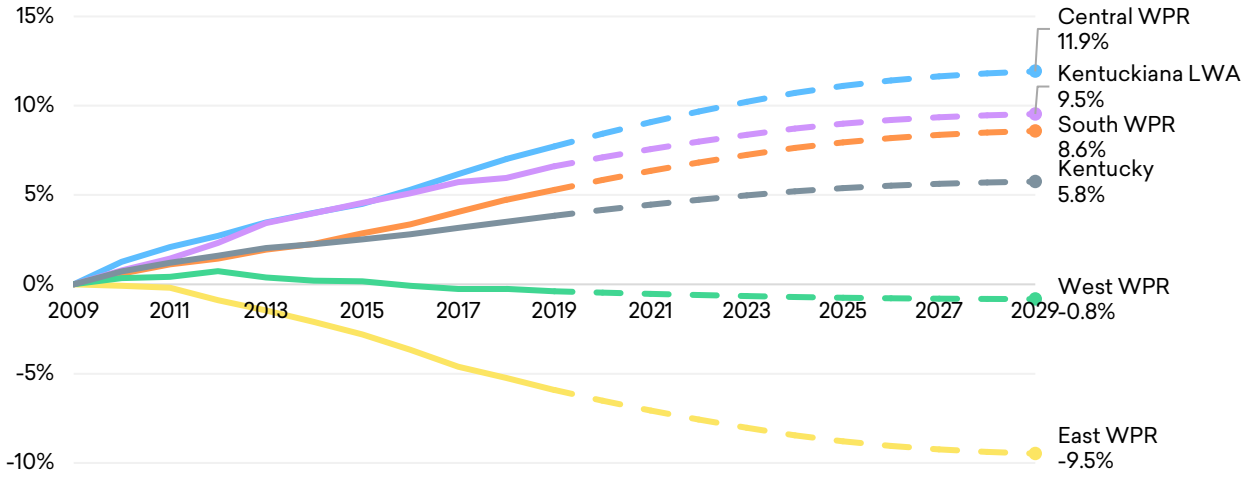
Historical and projected changes in the state population are presented in the following figures. In 2009, 4.3 million people lived in Kentucky, and 4.6 million people are projected to live in the state by 2029. Using 2009 as the base year, this reflects a 6% growth rate (Figure 7). The U.S. population is projected to increase by 11% over the same 20-year period. Figure 8 displays similar information, but for the Kentucky's WPRs and the Kentuckiana LWA. As shown, the East WPR is projected to decline quite significantly (10%) in population over the next decade. The West WPR is projected to slightly decline, while the Central and South WPRs and the Kentuckiana LWA are projected to large percentage growths.

Figure 7: Percent Population Change in Kentucky and the U.S., 2009 to 2029



Source: Emsi demographics data, U.S. Census Bureau, U.S. Health Department.

Figure 8: Percent Population Change in Kentucky's WPRs and the Kentuckiana LWA, 2009 to 2029

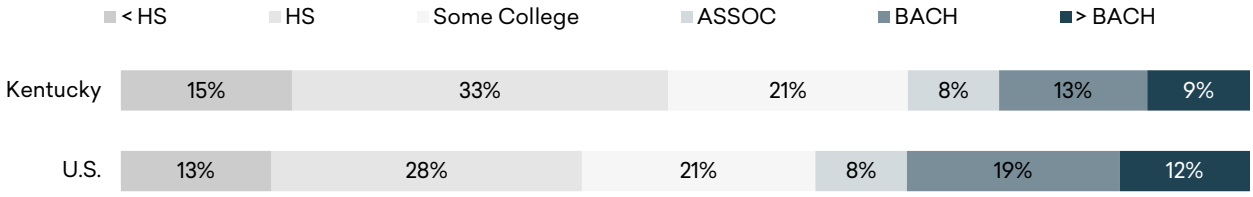


Source: Emsi demographics data, U.S. Census Bureau, U.S. Health Department.

Educational Attainment

Educational attainment data are useful for targeting specific population groups with less than or greater than average education levels. Figure 9 displays the highest educational attainments of Kentucky's adults, without reference to gender and the major race and ethnic groups. Comparative to the U.S., Kentucky has lower educational attainments. In the state, 48% of adults have a high school diploma or less, which is more than the national average (41%). While similar percentages of the Kentucky population compared to the U.S. have some college or associate degree educational attainments (21% and 8%, respectively), six percent fewer Kentucky adults hold a bachelor's degree. These results correspond with similar data available through the Lumina Foundation.[3]

Figure 9: Highest Educational Attainments of Adults in Kentucky and the U.S.



Numbers may not sum due to rounding.
Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

[3] Lumina Foundation source: https://luminafoundation.org/stronger-nation/report/2020/#state/KY

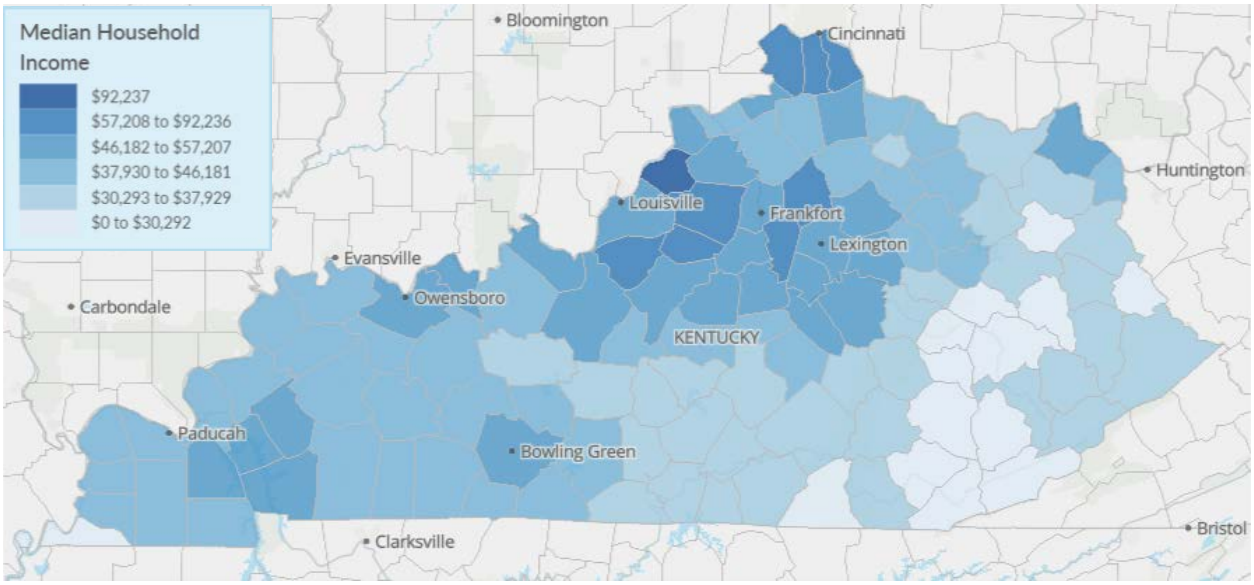
Fifty-one percent of adults in the White, non-Hispanic group, the largest population group in Kentucky, have a postsecondary education, compared to 64% of these adults across the U.S. Another 51% of adults in the Black, non-Hispanic category, the second largest population group in Kentucky, show some level of attainment, which is somewhat less than the U.S. (53%). Across all groups, these data suggest that there are many opportunities to increase the educational attainments of the state's adults.

Socioeconomic Indicators

The data in this section show several of the region's socioeconomic indicators. The percentages of per capita income represent the share of people below the federal poverty income threshold, which varies by family size and composition. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. Detailed rates on children, who are under 18 years, and seniors, who are over 65 years, are also shown.

Figure 10 visualizes the median household income across each county in Kentucky. It highlights the counties' socioeconomic differences, with the East WPR facing some of the lowest household incomes. Table 1 displays the counties with the top five highest and lowest median household incomes, along with per capita income and poverty. For perspective, Kentucky's median household income is $46,535. McCreary County, which has the lowest income at $19,264, also has considerably higher poverty rates compared to the state.

Figure 10: Median Household Incomes of Counties in Kentucky



Source: Emsi demographics data, U.S. Census Bureau.

Table 1: Income, Unemployment, and Poverty Characteristics for Kentucky Counties with the Top 5 Highest and Lowest Median Household Incomes

	TOP 5 HIGHEST MEDIAN HOUSEHOLD INCOMES			% POVERTY		
COUNTY	MEDIAN HOUSEHOLD INCOME	PERCENTILE RANK IN KY	PER CAPITA INCOME	FAMILIES	CHILDREN	SENIORS
Oldham	$92,237	100%	$38,063	4.0%	7.2%	3.7%
Boone	$72,731	99%	$33,553	6.0%	10.6%	5.2%
Spencer	$68,916	98%	$30,779	7.3%	8.3%	9.6%
Scott	$65,598	97%	$30,702	8.6%	16.1%	7.1%
Shelby	$63,171	97%	$30,240	8.4%	17.1%	7.2%
	TOP 5 LOWEST MEDIAN HOUSEHOLD INCOMES			% POVERTY		
McCreary	$19,264	0%	$11,492	36.7%	49.5%	3.7%
Wolfe	$21,999	1%	$13,533	33.0%	45.3%	19.3%
Owsley	$22,736	2%	$16,582	31.4%	34.9%	31.7%
Lee	$23,297	3%	$16,489	30.4%	43.8%	22.1%
Bell	$23,558	3%	$14,754	31.9%	49.3%	20.9%
Kentucky	**$46,535**	**--**	**$25,888**	**13.8%**	**24.7%**	**11.1%**

Source: American Community Survey five-year estimates from the U.S. Census Bureau data API.

Table 2: Education Occupations by Group

ADMINISTRATORS & COUNSELORS
Education administrators, kindergarten through secondary (K-12)
Educational, guidance, & career counselors & advisors
EDUCATION WORKERS
Adult basic education, adult secondary education, & English as a second language (ESL) instructors
Educational instruction & library workers, all other
Self-enrichment teachers
Teacher assistants, except postsecondary
Tutors & teachers & instructors, all other
ELEMENTARY SCHOOL TEACHERS
Elementary school teachers, except special education
Kindergarten teachers, except special education
HIGH SCHOOL TEACHERS
Career/technical education (CTE) teachers, secondary school
Secondary school teachers, except special & career/technical education
MIDDLE SCHOOL TEACHERS
Career/technical education teachers, middle school
Middle school teachers, except special & career/technical education
PRE-K WORKFORCE
Education & childcare administrators, preschool & daycare
Preschool teachers, except special education
Special education teachers, preschool
SPECIAL EDUCATION TEACHERS
Special education teachers, kindergarten & elementary school
Special education teachers, middle school
Special education teachers, secondary school

Source: Occupations and groups provided by the Council.

OCCUPATIONAL OVERVIEW

This chapter provides an overview of past, current, and future jobs in education, with a focus on the pre-school through secondary school workforce. Table 2 shows the occupations considered in the analysis, titled according to the Standard Occupational Classification (SOC) system. Data in this section reflect labor market information (LMI), or data collected and published by public sources such as the Bureau of Labor Statistics, U.S. Census, and Bureau of Economic Analysis. Data also include COVID-19 index values to provide perspective on how the occupations have been affected by the COVID-19 pandemic. See Chapter 2 for more details on the COVID-19 index.

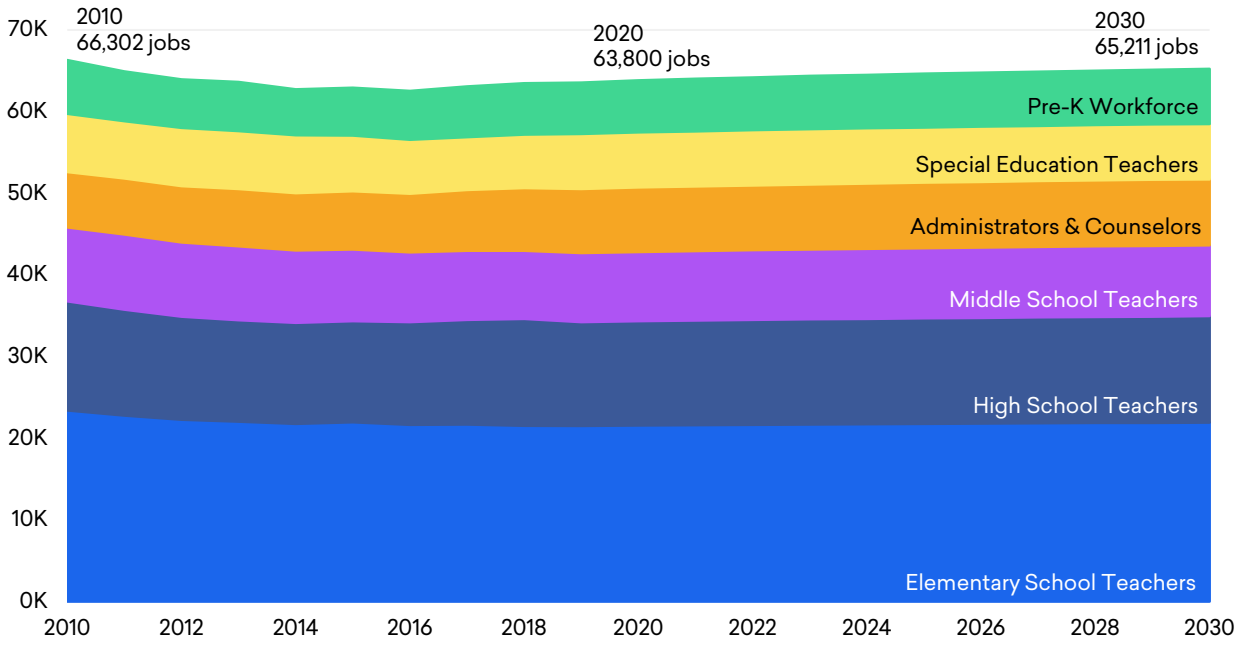
Jobs in Education

Historical job trends provide insight into Kentucky as an attractive region for people working in the education sector and for the companies, organizations, and institutions looking to hire an education workforce.

Kentucky supported around 92,000 education jobs in 2010, more than half of which were for Education Workers and Elementary School Teachers. By 2020, that number decreased slightly to around 91,000 jobs, for a 1% decline. For context, the education workforce in the U.S. grew by 7% between 2010 and 2020. According to Emsi's job projections, the state's education workforce is expected to increase by 3% between 2020 and 2030, and U.S. job projections show a 7% increase in the education workforce for those same years. Notably, Kentucky's increase in jobs for Education Workers is far out-pacing job growth in other occupational groups. On the other hand, statewide jobs for Elementary School Teachers in 2020 are projected to be 6% below 2010 job counts. Statewide job counts for select occupational groups are shown in Figure 11.

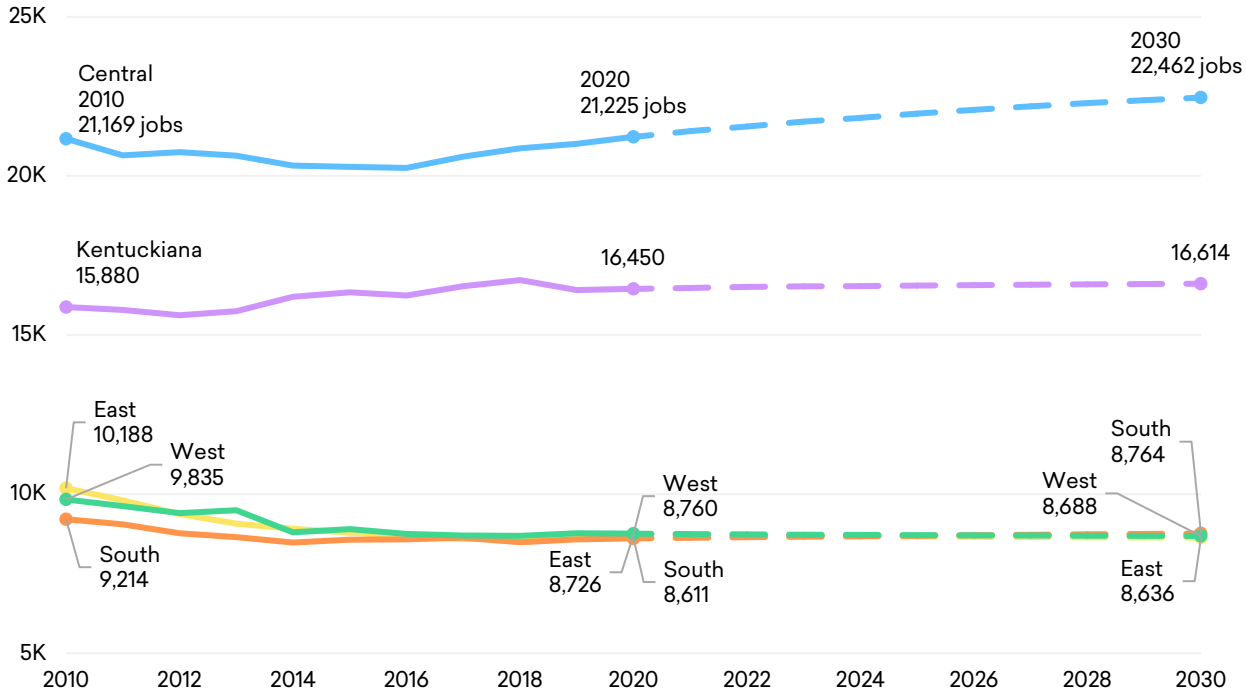
Figure 12 shows changes in education jobs at the regional level for the education workforce without Education Workers. The Central WPR supported the state's largest share of this subset of the education workforce, with the Kentuckiana LWA following as the second largest regional employer. Notably, the East, South, and West WPRs support similar numbers of education jobs, but job declines in the South WPR are not as extreme compared to the other two regions.

Figure 11: Historical and Projected Jobs in Kentucky by Select Occupational Groups, 2010 to 2030



Source: Emsi Employees & Self-Employed 2020.3.

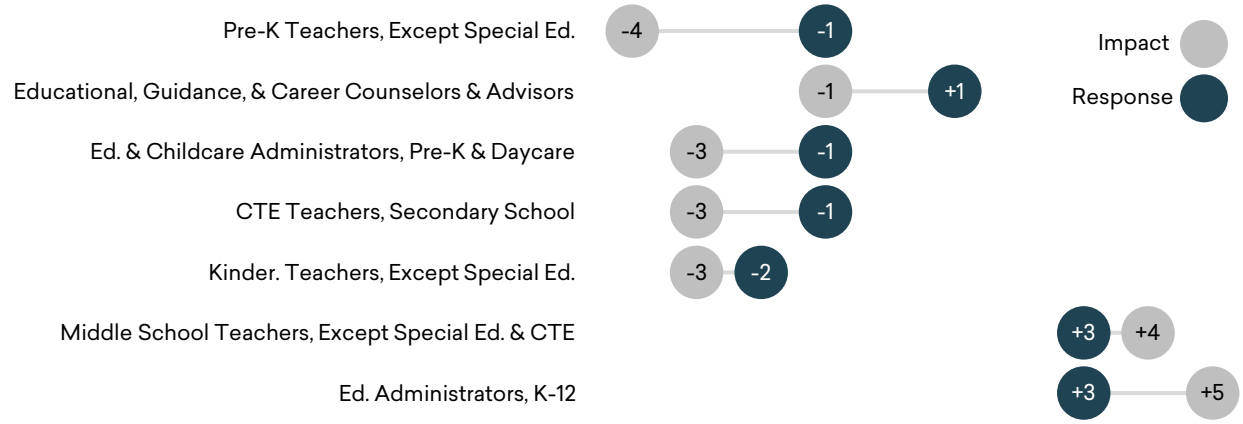
Figure 12: Historical and Projected Jobs of the Education Workforce without Education Workers in Kentucky's WPRs and the Kentuckiana LWA, 2010 to 2030



Source: Emsi Employees & Self-Employed 2020.3.

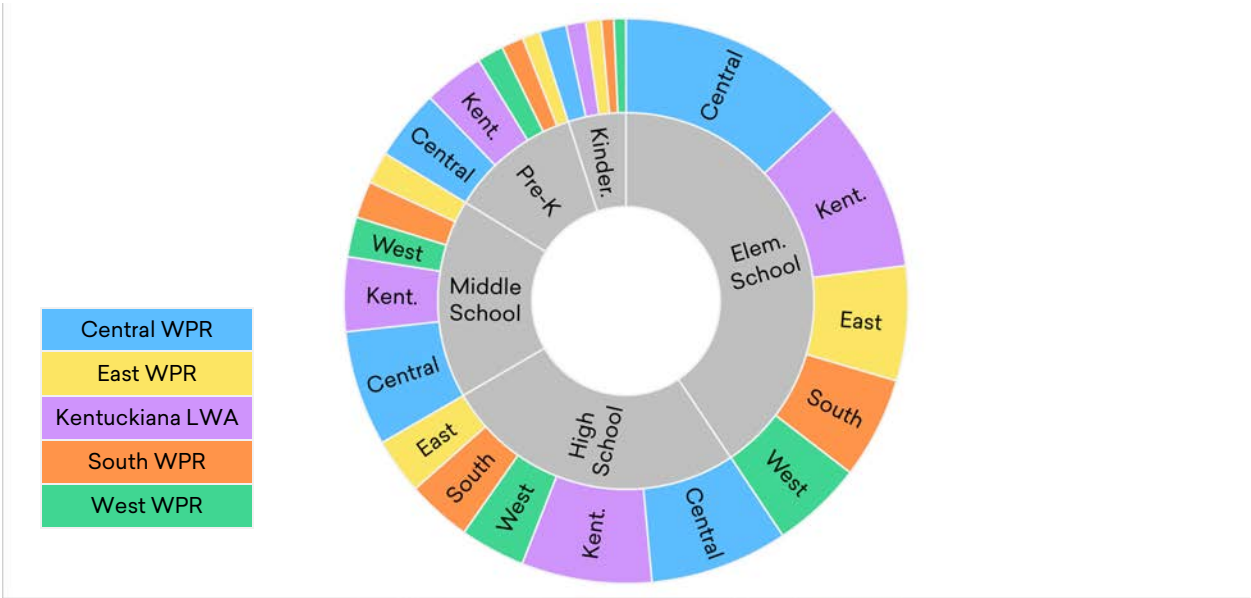
The education occupations' COVID-19 Indices are also found in Chapter 2. Among those occupations with an index change, an increase in new daily job postings between the COVID Impact and Response Time Periods is typical, as shown in Figure 13. Middle school teachers and K-12 education administrators are the exception. A regional breakdown for select teaching occupations is shown in Figure 14. Data show that the Central WPR and the Kentuckiana LWA supported the state's largest share of the education workforce. This pattern continues when broken down by select teachers.

Figure 13: COVID-19 Impact and Response Indices for Select Education Occupations Measured by Changes in New Daily Job Postings in Kentucky



Source: Emsi COVID-19 Index.

Figure 14: Breakdown of 2020 Jobs for Select Teachers by the Kentucky WPRs and the Kentuckiana LWA



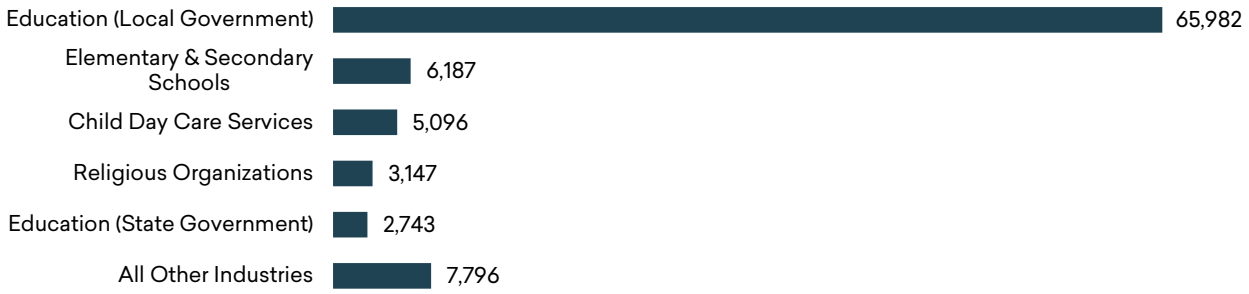
Source: Employees & Self-Employed 2020.3.

Industries Supporting Education Jobs

With education occupations in mind, we can now turn to the industries supporting the education workforce. Teachers, tutors, and education administrators appear in a variety of industries but are most commonly employed by public school districts. In the NAICS[4] hierarchy of industries, public schools are found in the Education (Local Government) industry. However, teachers, tutors, education administrators, and others in the education workforce are also employed by private schools and child day care centers.

Education (Local Government) employed nearly 66,000 of the state's education workforce in 2020 or 73% of all education jobs (Figure 15). The education workforce was also employed in private industries, particularly Elementary & Secondary Schools and Child Day Care Services with about 6,000 and 5,000 education jobs statewide in 2020. Furthermore, the education occupations accounted for 62% of the jobs in Education (Local Government) and 66% of the jobs in Elementary & Secondary Schools. In the former, the most represented occupations in the industry are elementary school teachers, except special education; teacher assistants, except postsecondary; and secondary school teachers, except special & career/technical education. The three occupations accounted for 16%, 12%, and 10% of Education (Local Government) jobs, respectively.

Figure 15: Top Industries in Kentucky by 2020 Jobs Employing the Largest Share of the Education Workforce



Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

Regional data show similar industry rankings to statewide data. Notably, Education (Local Government) jobs between 2020 and 2030 are projected to increase by the greatest percentage (3%) in the Central WPR and decrease by the greatest percentage (3%) in the East WPR. The occupations represented in the regional staffing patterns are similar in ranking to statewide data, with the exception of the Kentuckiana LWA. In this region, teacher assistants,

[4] NAICS refers to the North American Industry Classification System.

except postsecondary ranked 16th in the Education (Local Government) industry, whereas it most often appeared within the top three occupations in the other regions. Furthermore, short-term substitute teachers in the Kentuckiana LWA ranked 5th in the industry, whereas the occupation seldom appeared in the list of the 25 most represented occupations in the other regions.

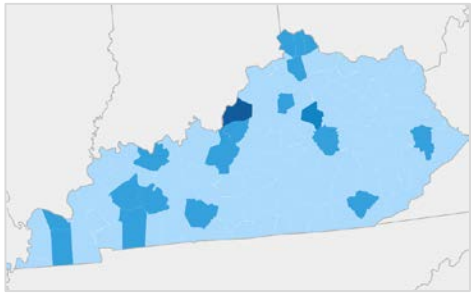
JOB POSTINGS

Job postings are online advertisements for jobs, posted by companies trying to attract applicants. Analyzing job postings for information on the labor market can yield valuable insight, such as the companies that are posting jobs, where those jobs are located, and greater specificity in job titles. In addition, job postings have virtually no lag time, as they can be collected from sites soon after being posted. The job posting analysis reflects the seven occupational areas from Table 2 and represents job postings in Kentucky from January 2019 to December 2019, as well as postings during the COVID-19 global pandemic.

Unique job postings in Kentucky for each of the education occupational groups range from nearly 500 to about 4,200, with the largest number of postings for Education Workers and High School Teachers. The most posted for occupation in the former, all other tutors & teachers & instructors, has about 2,700 statewide unique postings, and postings typically require a bachelor's degree level of education or a high school diploma when specified. High School Teachers are the second largest occupation group with about 2,300 unique postings (Figure 16). Across all occupational groups, unique job postings for secondary school teachers, except special education & CTE (2,250 unique job postings) rank second behind all other tutors & teachers & instructors. In other words, Kentucky job posters are looking to hire full-time teachers, as well as part-time tutors and instructors. Top job posters include Jefferson County Public Schools, the largest public school district in the state, as well as a number of other public school districts.

Figure 16: Kentucky Job Postings for High School Teachers

2,274	3 : 1	22 days
Unique Postings (Jan 2019 – Dec 2019) 6,623 Total Postings	Posting Intensity State Average: 4 : 1	Median Posting Duration State Average: 29 days



Region	Unique Postings
Kentuckiana LWA	**661**
Central WPR	**643**
West WPR	**372**
East WPR	**303**
South WPR	**224**

Source: Emsi Job Posting Analytics January 2019 to December 2019.

DEMOGRAPHIC ANALYSIS

Emsi's occupation demographics data are based on a combination of Quarterly Workforce Indicators (QWI) industry demographics, American Community Survey (ACS) occupation data, and standard staffing patterns. Chapter 4 provides demographics for the education occupational groups, current and historical, by age group, gender, and race/ethnicity for the state, preceded by demographic data on education program completers.

Education program completers are typically young, White females and do not receive Federal Pell Grants. In each region, they are most likely to be between 19 and 34 years, but education program completers in the Central WPR tend to fall into the 19 to 24-year age band. About 10% are people of color, with the exception of completers in the Kentuckiana LWA (17%). Women typically account for 75% of all completers, but women in the West WPR account for 80% of all completers. About 30% receive Federal Pell Grants, ranging from 21% of all completers in the Kentuckiana WPR to 35% in the West WPR.

Emsi's occupational demographics show that people working in education are also typically White females, and commuting data show they are drawn to work in urban areas. When age data are compared across the occupational groups, the most represented age band for Education Workers and Administrators & Counselors is 45 to 54 years, as opposed to the 24 to 34-year age band for the other groups. Nonetheless, a major sector disruption with regards to a large number of upcoming retirements does not appear to be a concern at this time.

About 10% of Kentucky's education sector are people of color, with a smaller proportion working as High School Teachers and Middle School Teachers (8%) and a larger proportion working in the Pre-K Workforce (16%). Note that these percentages reflect occupational data and not people employed as certified teachers. Statewide, male High School Teachers account for about a third of the occupational group, and males account for 5% of the Pre-K Workforce. Males typically account for 20% of the sector in the state. Finally, urban areas in Kentucky, particularly Frankfurt (Franklin County) and Lexington (Fayette County), are large employers, drawing residents from neighboring counties. Furthermore, Kentucky residents near Cincinnati, Ohio; Evansville, Indiana; and Portsmouth, Ohio appear to work outside the state.

PROGRAM DEMAND GAP ANALYSIS

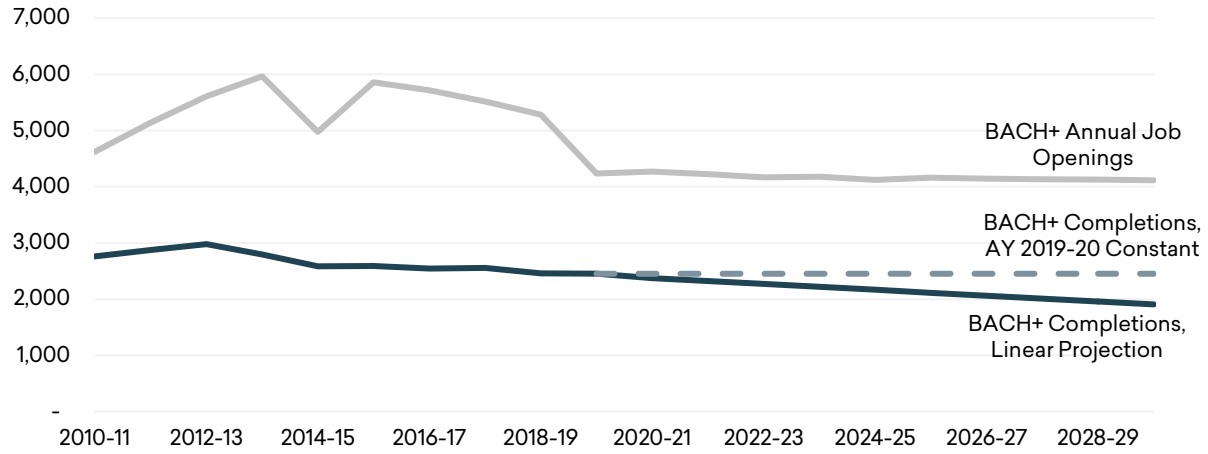
Knowing now how the education workforce is employed in the state and its regions, the program demand gap analysis offers a better understanding of the connection between jobs in the education sector and educational institutions, answering the following question:

> *Where are there misalignments between the workforce demand and the supply of college and university completers?*

Before the detailed analysis is presented, Figure 17 provides an overview of a selection of Kentucky's education bachelor's degree and above (BACH+) historical and projected unduplicated degrees and annual job openings. The figure focuses on degrees and annual openings related to the Elementary School Teacher, Middle School Teacher, High School Teacher, and Administrator & Counselors occupation groups. Future education BACH+ unduplicated degrees were projected using two different methods. Regardless of how they are projected, there will be a gap between completions and employer demand for these education occupation groups over the next 10 years.

This section outlines the deficit of Kentucky's program completions to the workforce (gap), as well as the oversupply of completions to the workforce (surplus). Results are provided for the state and each region by combined award level and for each award level.

Figure 17: Overview of Kentucky's Education BACH+ Select Historical and Projected Degrees and Annual Job Openings



The figure focuses on degrees and annual openings related to the Elementary School Teacher, Middle School Teacher, High School Teacher, and Administrator & Counselors occupation groups.
Source: Emsi's Employees & Self-Employed 2020.3 and KY CPE data portal.

Kentucky

Table 3 provides statewide results at the occupational scale. In other words, we have looked at all programs training for these occupations and measured the demand, in terms of unduplicated average annual job openings, against the supply, measured in terms of average annual program completers. It is particularly helpful to see the gap at the occupational scale given there are several programs training for a limited number of occupations, so gaps and surpluses at the program level may not tell the full picture. In other words, at the program level, while our model attempts to attribute appropriate occupational demand to the programs, there may be cases where the occupational demand tied to the program is over- or understated. By looking at the occupational scale, however, we can see a more aggregated view of where training gaps or surpluses may exist within the education workforce. Table 3 focuses on job openings and completers at the BACH+ level, which encompasses bachelor's and master's degrees.

As seen in the table, elementary school teachers face the largest gap – a shortfall of just over 350 job openings. Secondary school teachers face the largest statewide surplus. The surplus for secondary teachers stems from being mapped to several programs, some with large numbers of completers, such as Physical Education Teaching & Coaching.

Table 3: BACH+ Gaps and Surpluses for Select Education Occupations in Kentucky

OCCUPATION TITLE	DEMAND	SUPPLY	GAP OR SURPLUS	MEDIAN HOURLY WAGE
ELEMENTARY SCHOOL TEACHERS				
Elementary school teachers, except special education	1,405	1,052	353	$25.55
Kindergarten teachers, except special education	88	16	72	$26.18
MIDDLE SCHOOL TEACHERS				
Middle school teachers, except special ed. & CTE	595	488	108	$25.76
Career/technical education teachers, middle school	28	87	(59)	$26.55
HIGH SCHOOL TEACHERS				
Career/technical education teachers, secondary school	32	101	(69)	$27.84
Secondary school teachers, except special ed. & CTE	854	1,023	(169)	$26.43

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Table 4: Kentucky BACH+ Program Recommendations

HIGH DEMAND, LOW SUPPLY

How can we expand these program opportunities?

Early Childhood Education & Teaching (13.1210)
Teacher Education, Multiple Levels (13.1206)

HIGH DEMAND, HIGH SUPPLY

How can we maintain focus on program quality & student success?

Music Teacher Education (13.1312)
Special Education & Teaching, General (13.1001)
Secondary Education & Teaching (13.1205)

LOW DEMAND, LOW SUPPLY

Should we discontinue these programs?

Drama & Dramatics/Theatre Arts (50.0501)
Earth Science Teacher Education (13.1337)
Foreign Languages, Literatures, & Linguistics (16.9999)
Geology/Earth Science (40.0601)
Economics (45.0601)

LOW DEMAND, HIGH SUPPLY

Can we consolidate or reduce enrollment in these programs?

Agriculture, Ag. Operations, & Related Sciences (01.9999)
Business Teacher Education (13.1303)
Trade & Industrial Teacher Education (13.1320)

Source: Emsi program demand gap model.

Table 4 provides program recommendations based on Kentucky's BACH+ education programs. In the table, a subset of the programs appears in four quadrants based on specific action items. Note that this categorization of the programs into the quadrants is designed to initiate conversations around the programs.

Overall, the Early Childhood Education & Teaching and Teacher Education, Multiple Levels programs look to be areas of expansion. A number of programs, such as the Music Teacher Education and Special Education & Teaching, General programs, appear to be performing well in terms of high levels of demand and supply. The institutions should maintain focus on the success of these programs. Additionally, programs such as Agriculture, Agriculture Operations, & Related Sciences, Other and Business Teacher Education should be reconsidered for consolidation from the labor market perspective based on a large surplus of program completers without a comparable amount of occupational demand. It is also important to note that Elementary Education & Teaching, the program with the largest surplus, should not be reconsidered given the large gap in elementary school teachers in the state that we see in Table 3. It is an example of an occupation being mapped to several programs, which can make demand at the detailed program scale conservative.

Central Workforce Planning Region

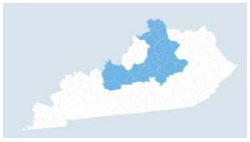


Table 5 provides program recommendations based on Central WPR's BACH+ education programs. In the table, a subset of the programs appears in four quadrants based on specific action items. Note that this categorization of the programs into the quadrants is designed to initiate conversations around the programs.

Teacher Education, Multiple Levels and Teacher Education & Professional Development, Specific Subject Areas, Other are areas to consider for expansion, whereas the Special Education & Teaching, General program should maintain its success in terms of high completions with high demand. Several programs, such as the Business Teacher Education and Physics Teacher Education programs, should be carefully considered for continuation and/or for consolidation given low numbers of completions.

Table 5: Central WPR BACH+ Program Recommendations

HIGH DEMAND, LOW SUPPLY	HIGH DEMAND, HIGH SUPPLY
How can we expand these program opportunities?	*How can we maintain focus on program quality & student success?*
Teacher Education, Multiple Levels (13.1206) Teacher Ed. & Prof. Dev., Specific Subject Areas (13.1399)	Special Education & Teaching (13.1001) Secondary Education & Teaching (13.1205) Middle School Education & Teaching (13.1203)
LOW DEMAND, LOW SUPPLY	**LOW DEMAND, HIGH SUPPLY**
Should we discontinue these programs?	*Can we consolidate or reduce enrollment in these programs?*
Business Teacher Education (13.1303) Physics Teacher Education (13.1329)	Social Sciences (45.0101)

Source: Emsi program demand gap model.

East Workforce Planning Region

Table 6 provides program recommendations based on East WPR's BACH+ education programs. In the table, a subset of the programs appears in four quadrants based on specific action items. Note that this categorization of the programs into the quadrants is designed to initiate conversations around the programs.

Early Childhood Education & Teaching is an area to consider for expansion, whereas the Education, General and Elementary Education & Teaching programs should maintain their success in terms of high completions with high demand. Several programs, such as the Mathematics Teacher Education and English/Language Arts Teacher Education programs, should be carefully considered for continuation and/or for consolidation given low numbers of completions.

Table 6: East WPR BACH+ Program Recommendations

HIGH DEMAND, LOW SUPPLY	HIGH DEMAND, HIGH SUPPLY
How can we expand these program opportunities?	*How can we maintain focus on program quality & student success?*
Early Childhood Education & Teaching (13.1210)	Education (13.0101) Elementary Education & Teaching (13.1202) Special Education & Teaching (13.1001)
LOW DEMAND, LOW SUPPLY	**LOW DEMAND, HIGH SUPPLY**
Should we discontinue these programs?	*Can we consolidate or reduce enrollment in these programs?*
Mathematics Teacher Education (13.1311) English/Language Arts Teacher Education (13.1305) Manufacturing Engineering Technician (15.0613)	

Source: Emsi program demand gap model.

Kentuckiana Local Workforce Area

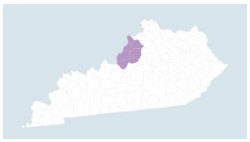


Table 7 provides program recommendations based on Kentuckiana LWA's BACH+ education programs. In the table, a subset of the programs appears in four quadrants based on specific action items. Note that this categorization of the programs into the quadrants is designed to initiate conversations around the programs.

Teacher Education, Multiple Levels and Elementary Education & Teaching are areas to consider for expansion, whereas the Special Education & Teaching, General and Secondary Education & Teaching programs should maintain their success in terms of high completions with high demand. A few programs, such as the Earth Science Teacher Education and Physics Teacher Education programs, should be carefully considered for continuation and/or for consolidation given low numbers of completions.

Table 7: Kentuckiana LWA BACH+ Program Recommendations

HIGH DEMAND, LOW SUPPLY *How can we expand these program opportunities?* Teacher Education, Multiple Levels (13.1206) Elementary Education & Teaching (13.1202)	**HIGH DEMAND, HIGH SUPPLY** *How can we maintain focus on program quality & student success?* Special Education & Teaching (13.1001) Secondary Education & Teaching (13.1205)
LOW DEMAND, LOW SUPPLY *Should we discontinue these programs?* Earth Science Teacher Education (13.1337) Physics Teacher Education (13.1329)	**LOW DEMAND, HIGH SUPPLY** *Can we consolidate or reduce enrollment in these programs?* Trade & Industrial Teacher Education (13.1320)

Source: Emsi program demand gap model.

South Workforce Planning Region

Table 8 provides program recommendations based on South WPR's BACH+ education programs. In the table, a subset of the programs appears in four quadrants based on specific action items. Note that this categorization of the programs into the quadrants is designed to initiate conversations around the programs.

Early Childhood Education & Teaching is an area to consider for expansion, whereas the Physical Education Teaching & Coaching program should maintain its success in terms of high completions with high demand. A few programs, such as the Spanish Language Teacher Education and English/Language Arts Teacher Education programs, should be carefully considered for continuation and/or for consolidation given low numbers of completions.

Table 8: South WPR BACH+ Program Recommendations

HIGH DEMAND, LOW SUPPLY	HIGH DEMAND, HIGH SUPPLY
How can we expand these program opportunities?	*How can we maintain focus on program quality & student success?*
Early Childhood Education & Teaching (13.1210)	Physical Education Teaching & Coaching (13.1314) Middle School Education & Teaching (13.1203)
LOW DEMAND, LOW SUPPLY	**LOW DEMAND, HIGH SUPPLY**
Should we discontinue these programs?	*Can we consolidate or reduce enrollment in these programs?*
Spanish Language Teacher Education (13.1330) English/Language Arts Teacher Education (13.1305) Chemistry (40.0501) Mathematics Teacher Education (13.1311)	

Source: Emsi program demand gap model.

West Workforce Planning Region

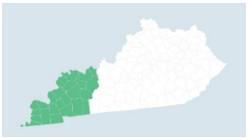


Table 9 provides program recommendations based on West WPR's BACH+ education programs. In the table, a subset of the programs appears in four quadrants based on specific action items. Note that this categorization of the programs into the quadrants is designed to initiate conversations around the programs.

Early Childhood Education & Teaching is an area to consider for expansion, whereas the Junior High/Intermediate/Middle School Education & Teaching program should maintain its success in terms of high completions with high demand. Several non-education specific programs, such as the Economics, General and Geology/Earth Science, General programs, should be carefully considered for continuation of providing teacher education given low numbers of completions.

Table 9: West WPR BACH+ Program Recommendations

HIGH DEMAND, LOW SUPPLY	HIGH DEMAND, HIGH SUPPLY
How can we expand these program opportunities?	*How can we maintain focus on program quality & student success?*
Early Childhood Education & Teaching (13.1210)	Middle School Education & Teaching (13.1203) Elementary Education & Teaching (13.1202)
LOW DEMAND, LOW SUPPLY	**LOW DEMAND, HIGH SUPPLY**
Should we discontinue these programs?	*Can we consolidate or reduce enrollment in these programs?*
Economics, General (45.0601) Geology/Earth Science (40.0601) Foreign Languages, Literatures, & Linguistics (16.9999) Japanese Language & Literature (16.0302)	

Source: Emsi program demand gap model.

MIGRATION ANALYSIS

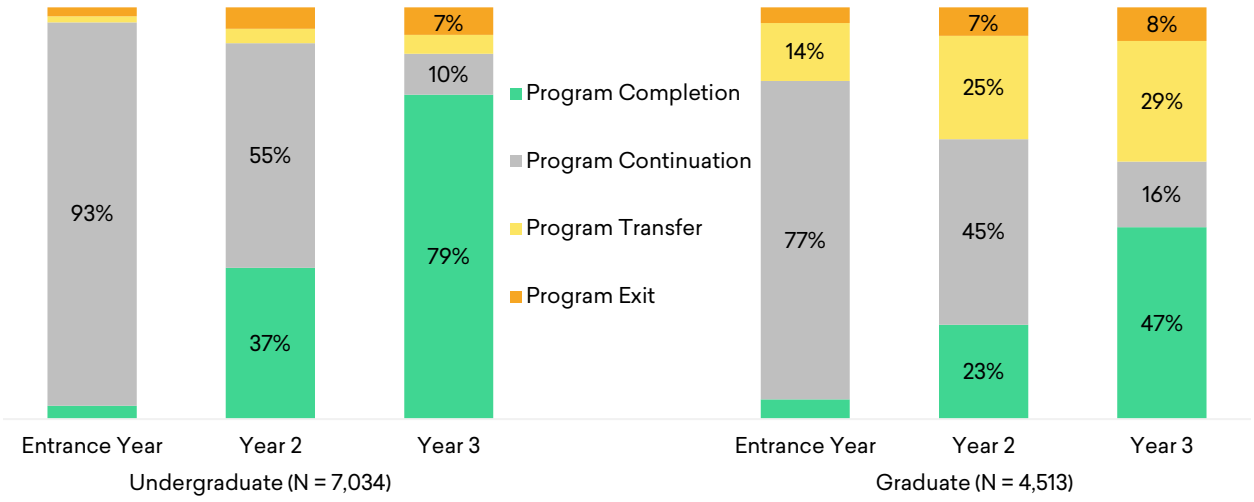
This section, compiled from various data sources, provides information on the education workforce from Kentucky students' beginnings in teaching programs to their most current job history.

Program Progression

The Kentucky Center for Statistics (KYSTATS) produces an annual Teacher Preparation Feedback Report for all Kentucky's four-year public and independent colleges and universities, utilizing data from the Education Professional Standards Board (EPSB) and the Kentucky Department of Education. The report shows detailed information on students' progression through teaching programs, provides a breakdown of students' education specialties, and documents teacher employment one year after program completion.

Figure 18 shows students' progression from their entrance year in a teaching program to their third year. As shown, about 80% of undergraduate students and nearly half of all graduate students complete their teaching programs in three years. Relatively more graduate students are transferring programs after their entrance (14%), second (25%), third (29%) years, compared to undergraduate students (1%, 4%, and 5%, respectively). Few explanations are offered as to why students completely exit their teaching program. However, graduate students are less likely to drop out compared to undergraduate students.

Figure 18: Education Students' Progression from Entrance Year to Third Year at the Undergraduate and Graduate Degree Levels



Data represent entrance years 2015 to 2017.
Source: Teacher Preparation Feedback Report, Kentucky Center for Statistics.

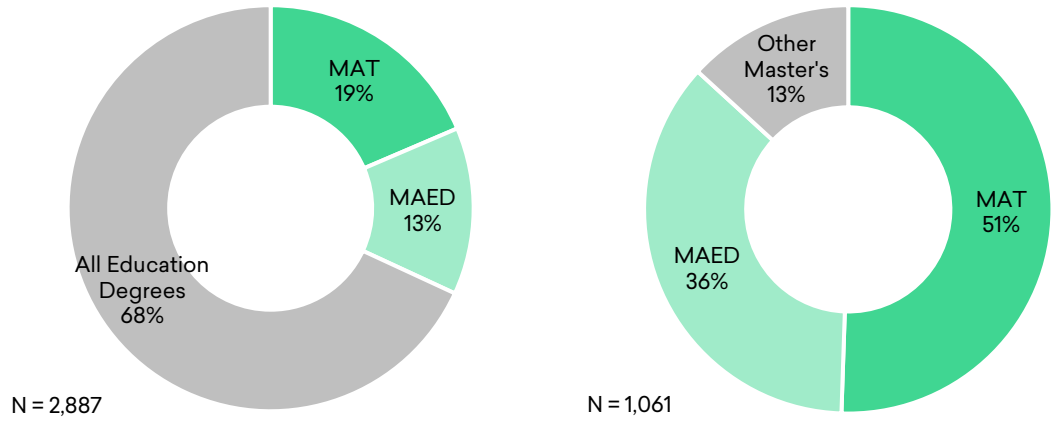
The two largest program majors are Elementary Education and Exceptional Children. For these two program major categories, more than 80% of program completers obtain teaching certificates. In terms of teachers' employment outcomes, almost 60% of program completers are employed as public school teachers one year after program completion. About half find employment within one year of eligibility as certified public K-12 employees in Kentucky. Of these individuals, 90% maintain continuous employment into the next year, and three out of four are still working as certified public K-12 employees after five years.

MAT and MAED Certification

This section uses data provided by the Council and focuses on individuals receiving a Master of Arts in Teaching (MAT) or a Master of Arts in Education (MAED) from a Kentucky institution. MAT completers typically hold a bachelor's degree in a non-education major and complete their programs while working full-time in a public school as a K-12 teacher. MAED completers are certified teachers interested in pursuing additional education.

Data show overall program completions and completions by age and gender. As shown in Figure 19, MAT and MAED completers together represent about one-third of all education degrees and nearly 90% of all master's degree level programs in education. There is a little variability between the ages of MAT and MAED completers: a larger portion of MAT completers are 35 to 39 years and a larger portion of MAED completers are 19 to 24 years. Finally, a larger portion of MAT completers are male (32%) compared to MAED completers (11%), an indication that the University-Based option is invaluable for increasing gender diversity in the Education workforce.

Figure 19: Annual MAT and MAED Completions among All Education Degrees and All Master's Education Degrees



Data represent average completions from FY 2017-18 to FY 2019-20 for programs identified by the ESPB as in-state teacher preparation programs. All education degrees includes all undergraduate and master's education degrees.
Source: The Council.

Profile Analytics

Kentucky supports tens of thousands of education jobs, for those with a certificate level of education to those with a doctoral degree. Traditional labor market information (LMI) shows us, for example, how many elementary school teachers are employed in Kentucky and its regions (Chapter 2). However, using LMI, it is a challenge to understand more about the people who successfully find jobs as, for example, elementary school teachers. Emsi's Profile Analytics database provides access to more than 100 million professional profiles, filterable by education history, specific employers, job titles, industries, skills, and more. See Chapter 5 or Appendix 2 for more information around the database.

As shown in Table 10, a little over 60% of the alumni from Kentucky's education programs remain in-state. This proportion is higher than a typical Kentucky alum (56% reside in-state) and an education program alum from a U.S. institution (57% reside in-state). Furthermore, the proportion of Kentucky education alumni residing in-state (61%) is similar to those of surrounding states. Ohio is an exception, with 65% of education alumni residing in-state, and education alumni from West Virginia more frequently reside out-of-state, with only 32% of alumni residing in-state.

Table 10: In-State and Out-of-State Migration of Kentucky's Education Alumni* by Institutional Sector, with State and National Profile Comparisons

	EDUCATION ALUMNI			ALL ALUMNI		
SECTOR	**PROFILES**	**% IN-STATE**	**% OUT-OF-STATE**	**PROFILES**	**% IN-STATE**	**% OUT-OF-STATE**
State University	18,374	60%	40%	477,491	56%	44%
AIKCU	4,895	64%	36%	57,111	65%	35%
KCTCS	754	66%	34%	67,634	68%	32%
Total	24,023	61%	39%	748,030†	56%	44%
U.S.	**49,812,413**	**57%**	**43%**	**94,180,933**	**44%**	**56%**

* Based on students completing an education program (CIP code 13) from an educational institution in Kentucky.
† Value represents all education alumni in Kentucky.
Source: Emsi Profile Analytics.

The top states where the Kentucky education alumni move to are Ohio or Tennessee. Wages tend to be higher in Ohio for the most represented education occupations among alumni from the State University and AIKCU institutional sectors. Wages for education occupations in Kentucky have increased from 2010 to 2020 but have become less competitive than the wages in surrounding states. For example, median annual wages for elementary school teachers were $48,545 in 2010 and $53,139 in 2020, for an increase of

almost $5,000 over the decade. The median annual wages for elementary school teachers in Ohio, however, increased by almost $10,000 from $54,592 to $64,351.

A few of the out-of-state employers of Kentucky education alumni are Cincinnati Public Schools, Metropolitan Nashville Public Schools, and North Carolina A&T State University. Of course, not all education workers in Kentucky attended a Kentucky institution. Top institutions providing education talent to Kentucky are Indiana University, University of Cincinnati, and Xavier University.

CHAPTER 1:

Introduction

The Council on Postsecondary Education (Council) is charged with guiding the reform efforts envisioned by state policy leaders in the Kentucky Postsecondary Education Improvement Act of 1997 and is Kentucky's statewide postsecondary and adult education coordinating agency. Its mission is to strengthen the state's workforce, economy, and quality of life. The Council does this by guiding the continuous improvement and efficient operation of a high-quality, diverse, innovative, accessible, and affordable system of postsecondary education in the commonwealth of Kentucky. Among its many responsibilities, the Council:

- Develops and implements a strategic agenda and accountability system for postsecondary education that includes measures of educational attainment, effectiveness, and efficiency;
- Defines and approves all academic programs at public institutions; and
- Coordinates statewide efforts to improve college readiness, access to postsecondary education, and student success, including statewide transfer agreements, adult learner initiatives, and postsecondary work related to college and career readiness.

An efficient labor market requires a seamless flow of skilled workers, the postsecondary educational institutions that educate and train them, and the employers that hire them. One factor behind workforce misalignment stems from when the needs of the employers evolve differently than the programs that train their workers. These misalignments may happen at different times and for different reasons:

- Employer training becomes more tailored and comprehensive;
- Businesses come and go, and certain educational programs become more or less pertinent to a specific region;
- Rapid advances in technology and business create curriculum needs that few educational institutions possess; and
- As economic conditions shift, businesses have different hiring requirements of their employees.

In light of these dynamics, an up-to-date understanding of the Kentucky economy and the demand for skilled labor is vital to the planning efforts of statewide colleges and universities seeking to adapt their program offerings to the requirements of an ever-changing workforce.

To gain better insight into economic conditions and workforce trends, specifically within three industry sectors, the Council partnered with Emsi, a labor market analytics firm serving higher education, economic and workforce development, talent acquisition, and site selection. In this report, Emsi focuses on the Education sector by:

- Providing an overview of its occupations and industries through traditional labor market information (Chapter 2) and job postings (Chapter 3);
- Analyzing demographic characteristics of the education workforce (Chapter 4);
- Conducting a program demand gap analysis of Kentucky institutions' education program offerings (Chapter 5);
- Showing migration patterns and employment outcomes of education alumni from professional profiles and resumes, as well as state government data (Chapter 6); and
- Including an environmental scan of the state's economy so as to provide a frame of reference (Chapter 7).

TEACHING CERTIFICATION IN KENTUCKY

The Education Professional Standards Board (EPSB) is charged with administering Kentucky's National Board for Professional Teaching Standards certification and issuing Kentucky certificates for education professionals. There are various types of teaching certificates in the state, depending upon the students' grade level and a teacher's specialization. The "base" teaching certificates include:

- Interdisciplinary Early Childhood Education (Birth to Primary);
- Elementary School (Primary through Grade 5);
- Middle School (Grades 5 through 9);
- Secondary School (Grades 8 through 12); and
- Elementary/Middle/Secondary School (Primary through Grade 12) with a specialization (art, instrumental music, foreign language, etc.).[5]

A bachelor's degree level of education is required for certification in Kentucky. Typically, candidates complete an undergraduate Educator Preparation Program approved by the EPSB, participate in a full-time classroom teaching experience, and pass the appropriate standardized assessments. In the past, The Exceptional Work Experience option allowed working professionals (without classroom teaching experience) to gain certification more quickly by participating in the Kentucky Teacher Internship Program (KTIP). Currently, the

5 Source: http://www.epsb.ky.gov/.

most commonly used alternative route for pursuing teacher certification is the University-Based option, allowing candidates with non-teaching degrees to pursue certification through an EPSB-approved teacher preparation program while employed by a school district. Completion and employment data for the option are presented in Chapter 6.

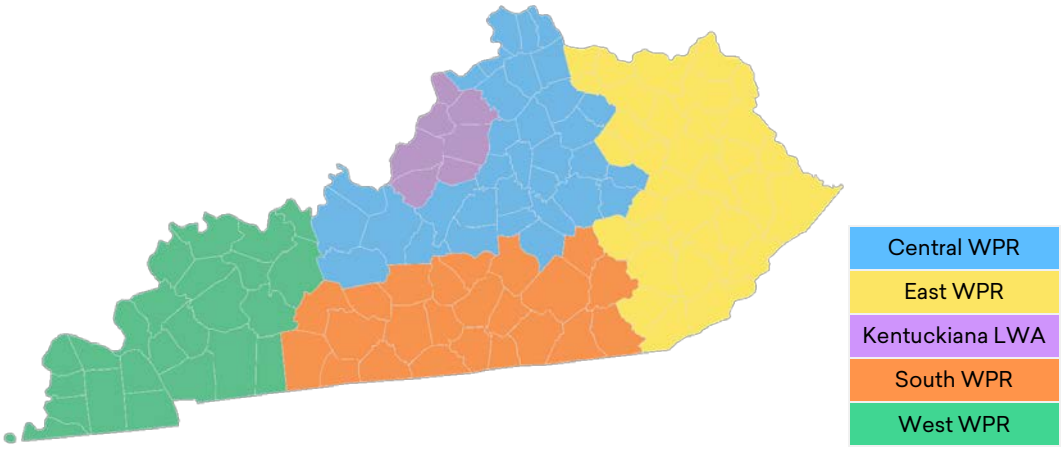
CHAPTER 2:

Occupational Overview

The occupational overview provides key information on employment opportunities for the education workforce in Kentucky and its Workforce Planning Regions (WPRs). The counties included in the Central, East, South, and West WPRs are determined by the Kentucky Center for Education & Workforce Statistics and provided by the Council (Figure 2.1).[6] In addition, data for the city of Louisville and its surrounding counties, which comprise the Kentuckiana Local Workforce Area (LWA), are shown distinct from the Central WPR. Identifying the areas of employment for the education workforce in Kentucky and its five workforce regions is an important task for several reasons. The data:

- Identify where Kentucky's education workforce is employed, with regards to geography;
- Give the Council a deeper understanding of state and regional job trends for those working in education; and
- Help the Council understand where the state's colleges and universities should logically target their efforts considering education program development.

Figure 2.1: Kentucky's WPRs and the Kentuckiana LWA



Source: Regions provided by the Council.

6 Source: https://kystats.ky.gov/Reports/ShowReports?ReportId=Map_LWAWIB&publishDate=20170401.

Table 2.1: Education Occupations by Group

ADMINISTRATORS & COUNSELORS
Education administrators, K-12
Educational, guidance, & career counselors & advisors
EDUCATION WORKERS
Adult basic education, adult secondary education, & ESL instructors
Educational instruction & library workers, all other
Self-enrichment teachers
Teacher assistants, except postsecondary
Tutors & teachers & instructors, all other
ELEMENTARY SCHOOL TEACHERS
Elementary school teachers, except special education
Kindergarten teachers, except special education
HIGH SCHOOL TEACHERS
CTE teachers, secondary school
Secondary school teachers, except special education & CTE
MIDDLE SCHOOL TEACHERS
CTE teachers, middle school
Middle school teachers, except special education & CTE
PRE-K WORKFORCE
Education & childcare administrators, preschool & daycare
Preschool teachers, except special education
Special education teachers, preschool
SPECIAL EDUCATION TEACHERS
Special education teachers, kindergarten & elementary school
Special education teachers, middle school
Special education teachers, secondary school

Source: Occupations and groups provided by the Council.

METHODOLOGY

Labor Market Information

This chapter provides an overview of past, current, and future jobs in education, with a focus on the pre-school through secondary school workforce. Table 2.1 shows the occupations considered in the analysis, titled according to the Standard Occupational Classification (SOC) system. SOCs are used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating labor market information (LMI). All workers are classified into one of about 775 detailed occupations, and teachers in the education workforce are primarily determined by grade level, not by subject area or certification status.

In the next section, tables and figures show job counts, job openings, and wage data for the education occupation, and the last section of the chapter focuses on the industries employing the education workforce. Data are presented at state and regional levels. LMI are collected and published by public sources, such as the Bureau of Labor Statistics (BLS), the U.S. Census, and the Bureau of Economic Analysis (BEA). Furthermore, Emsi LMI updates data quarterly from more than 30 different sources and uses proprietary modeling to unsuppress suppressed data points. See Appendix 2 for more details with regards to Emsi LMI.

COVID-19 Index Values

Further explanation is required for Emsi's COVID-19[7] Index, which appears in tables next to occupational LMI. The index is based on the change in daily new job postings in Kentucky advertised over the course of the pandemic. Furthermore, three indices are shown, which correspond to three time periods in 2020 (Figure 2.2). The Pre-COVID Period includes the month of February (1-29) and establishes the hiring conditions prior to any shutdowns in the U.S. The COVID Impact Period

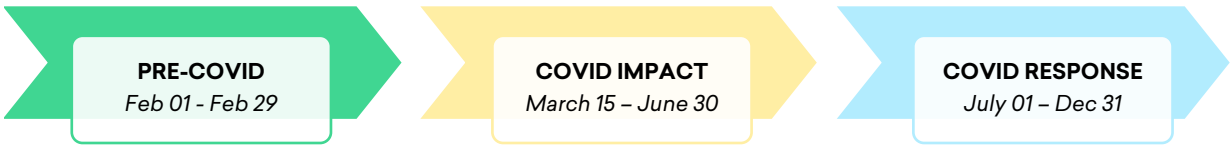
Table 2.2: COVID-19 Index Values and Corresponding Change in New Daily Job Postings

COVID INDEX	INDEX MEANING	% CHANGE IN JOB POSTINGS
+5	Very High Growth	≥100%
+4	High Growth	76% to 100%
+3	Medium Growth	51% to 75%
+2	Moderate Growth	26% to 50%
+1	Low Growth	<25%
0	No Change	0%
-1	Low Decline	>(25%)
-2	Moderate Decline	(26%) to (50%)
-3	Medium Decline	(51%) to (75%)
-4	High Decline	(76%) to (100%)
-5	Very High Decline	≤(100%)

Source: Emsi COVID-19 Index.

[7] COVID-19 refers to the 2019 novel coronavirus disease.

Figure 2.2: Time Periods in Emsi's COVID-19 Index



Source: Emsi COVID Index.

encompasses the first period of significant disruptions, from March 15 to June 30, and establishes the hiring conditions during the most acute period of disruption. The COVID Response Period begins on July 1, when social distancing rules were first lifted, and continues to the present (December 31). It establishes hiring conditions in the initial period of recovery from disruptions in Kentucky's job postings.

Two scores are presented, ranging from -5 to +5. The COVID Impact Index is based on the change in average daily new job postings during the COVID Impact Period compared to Pre-COVID. The COVID Response Index is based on the same change in postings but between the Response Period and the Pre-COVID Period. As shown in Table 2.2, scores range from -5 to +5, with higher values indicating a more extreme decrease or increase in postings from the previous period, respectively.

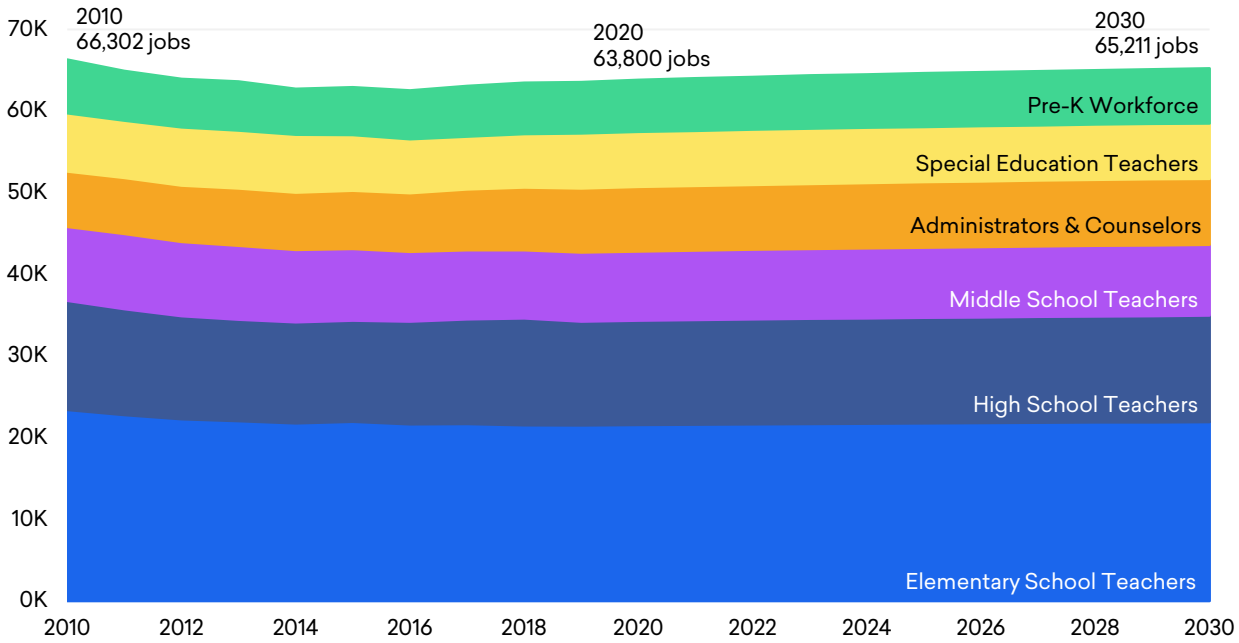
JOBS IN EDUCATION

Historical job trends provide insight into Kentucky as an attractive region for people working in the education sector and for the companies, organizations, and institutions looking to hire an education workforce. The information presented in this section shows job counts from as early as 2010 and projected job counts to 2030. Statewide data are shown, highlighting job changes in the education sector by occupation and occupational group, followed by region-specific data. Furthermore, the occupations' Emsi COVID-19 Indices are identified along with Emsi LMI data.

Kentucky supported around 92,000 education jobs in 2010, more than half of which were for Education Workers and Elementary School Teachers. By 2020, that number decreased slightly to around 91,000 jobs, for a 1% decline. For context, the education workforce in the U.S. grew by 7% between 2010 and 2020. According to Emsi's job projections, the state's education workforce is expected to increase by 3% between 2020 and 2030, and U.S. job projections show a 7% increase in the education workforce for those same years. Notably, Kentucky's increase in jobs for Education Workers is far out-pacing job growth in other occupational groups. On the other hand, statewide jobs for Elementary School Teachers in 2020 are projected to be 6% below 2010 job counts. Statewide job counts for select

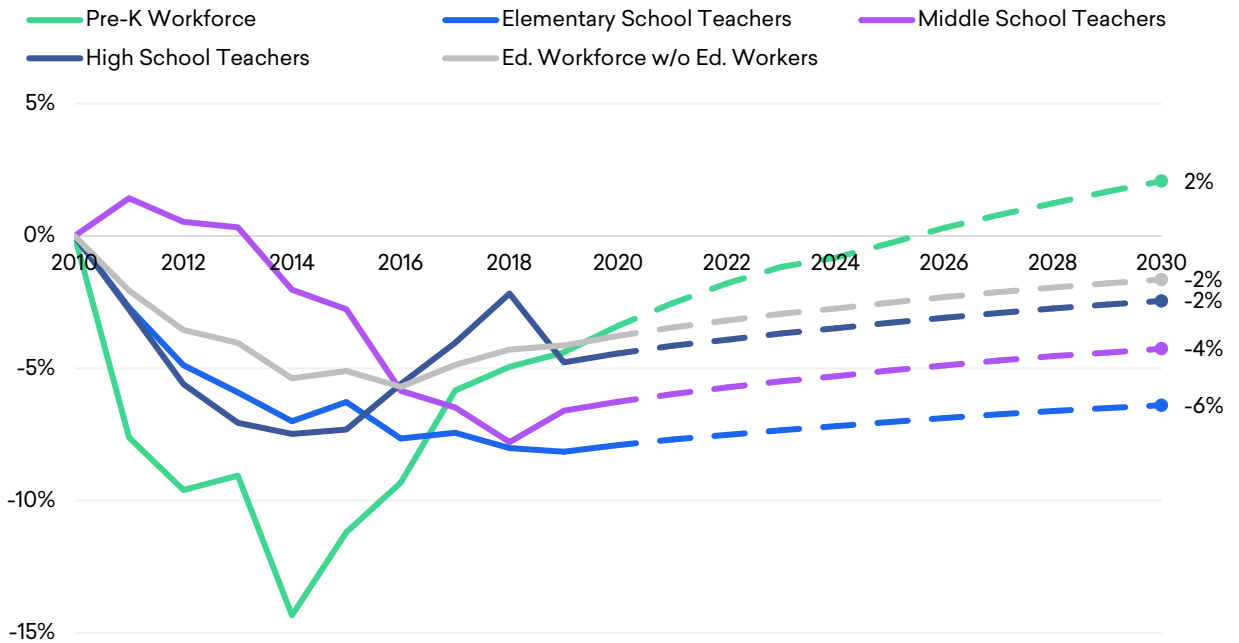
occupational groups are shown in Figure 2.3, and Figure 2.4 presents the same data, using 2010 as a base year for jobs.

Figure 2.3: Historical and Projected Jobs in Kentucky by Select Occupational Groups, 2010 to 2030



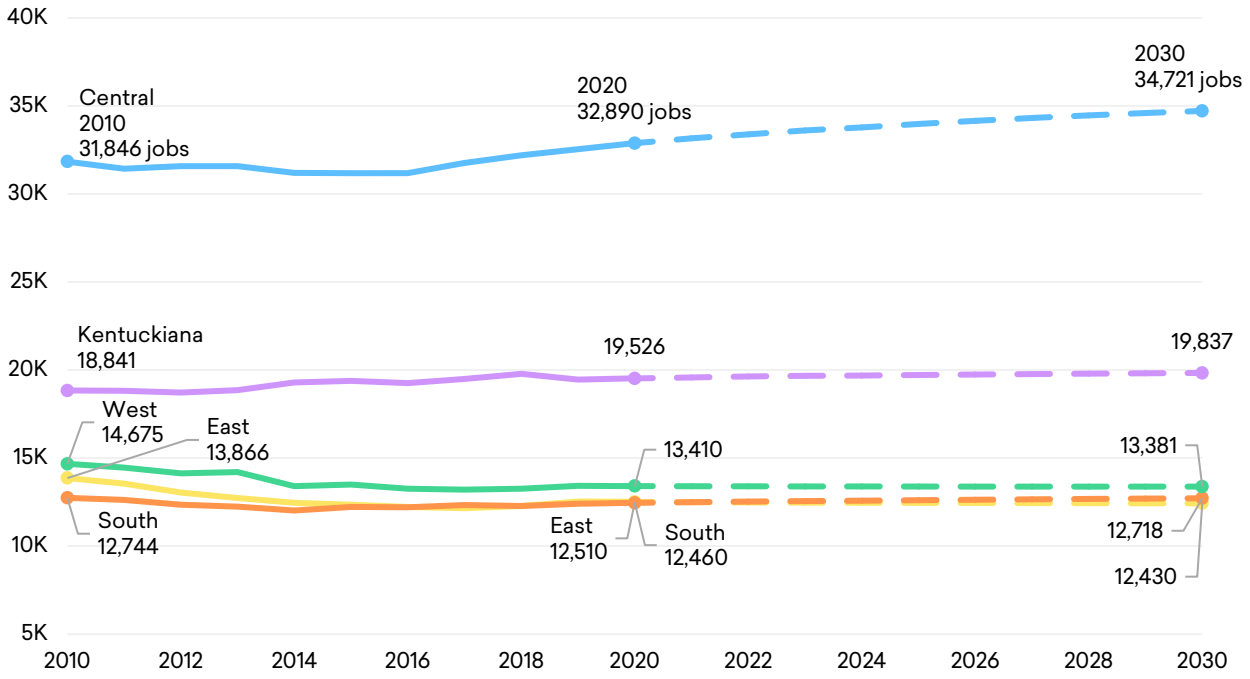
Source: Emsi Employees & Self-Employed 2020.3.

Figure 2.4: Percent Job Change of Select Occupation Groups in Kentucky from 2010 to 2030



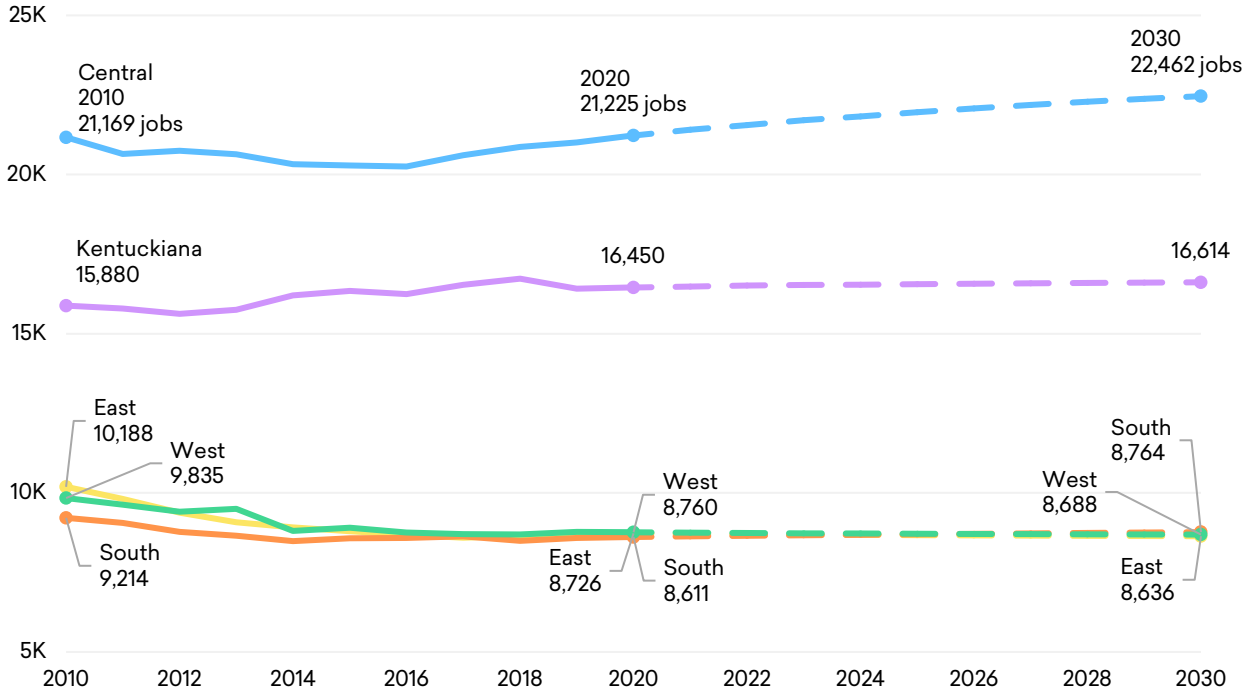
Source: Emsi Employees & Self-Employed 2020.3.

Figure 2.5: Historical and Projected Jobs of the Education Workforce in Kentucky's WPRs and the Kentuckiana LWA, 2010 to 2030



Source: Emsi Employees & Self-Employed 2020.3.

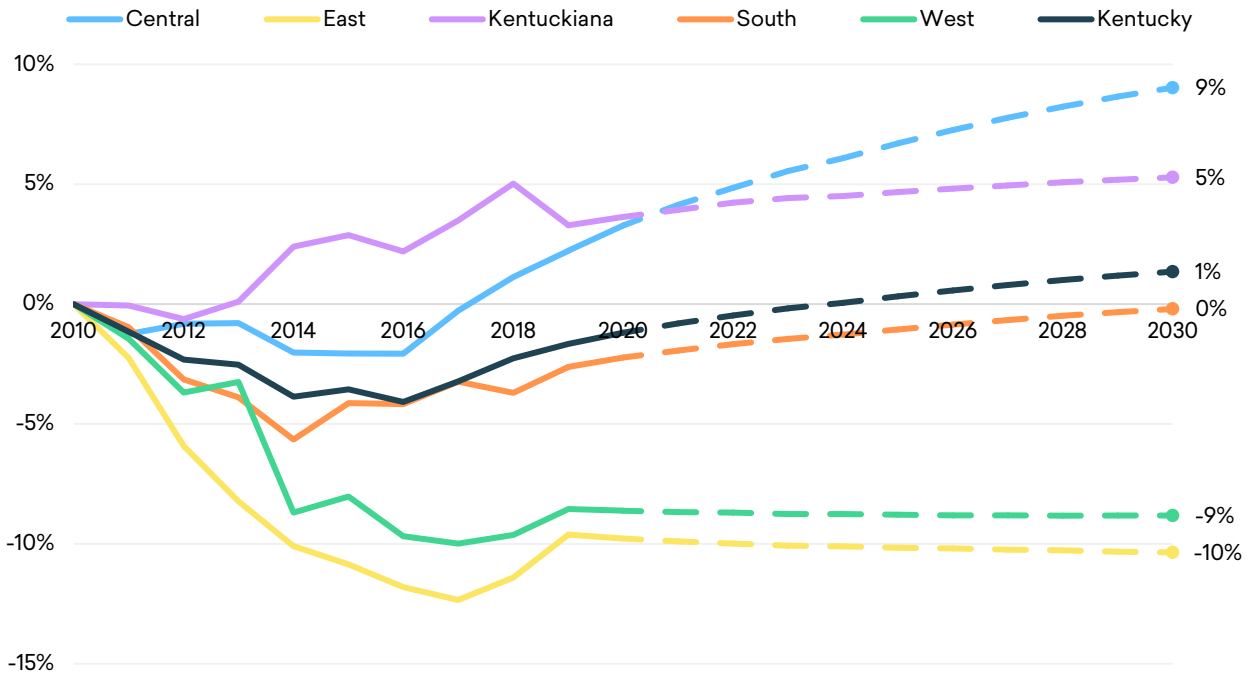
Figure 2.6: Historical and Projected Jobs of the Education Workforce without Education Workers in Kentucky's WPRs and the Kentuckiana LWA, 2010 to 2030



Source: Emsi Employees & Self-Employed 2020.3.

Figures 2.5 and 2.6 show changes in education jobs at the regional level. The former includes all the education occupations, and the latter excludes regional jobs for Education Workers. The Central WPR supported the state's largest share of the education workforce, with the Kentuckiana LWA following as the second largest regional employer. In addition, the two regions are projected to add the most education jobs between 2010 and 2030 (9% and 5%, respectively) among all Kentucky regions and all education jobs (Figure 2.7). The state, as a whole, is projected to increase its education workforce by 1%. Notably, the East, South, and West WPRs support similar numbers of education jobs (Figure 2.5), but job declines in the South WPR are not as extreme compared to the other two regions (Figure 2.7).

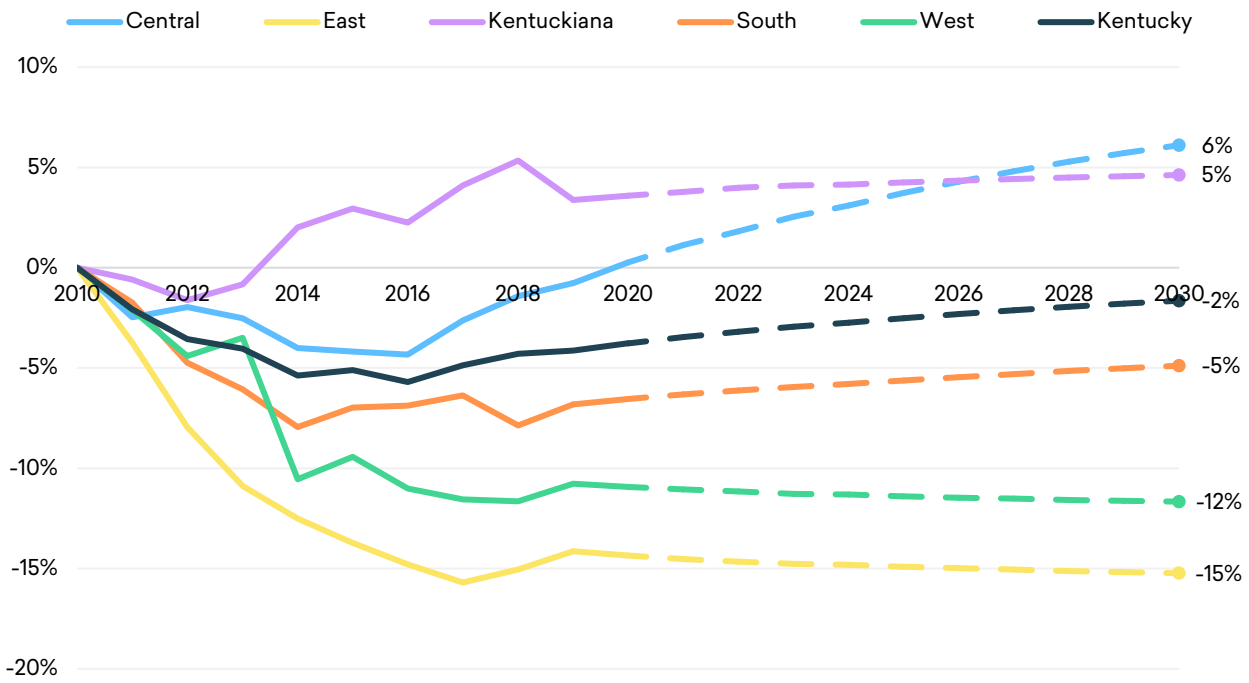
Figure 2.7: Percent Job Change of the Education Workforce in Kentucky, Kentucky's WPRs, and the Kentuckiana LWA from 2010 to 2030



Source: Emsi Employees & Self-Employed 2020.3.

When Education Workers are excluded from state and regional education jobs, results are similar (Figure 2.8). Job growth between 2010 and 2030 is highest in the Central WPR and the Kentuckiana LWA with a 6% and 5% increase, respectively. The state, as a whole, is projected to decrease its education workforce (excluding Education Workers) by 2%. Notably, 2010 to 2030 education job declines in the East, South, and West WPRs are more extreme when Education Workers are excluded.

Figure 2.8: Percent Job Change of the Education Workforce without Education Workers in Kentucky, Kentucky's WPRs, and the Kentuckiana LWA from 2010 to 2030



Source: Emsi Employees & Self-Employed 2020.3.

As stated previously, the two largest occupation groups, with respect to job counts, are Education Workers and Elementary School Teachers, primarily a result of the number of jobs for elementary school teachers, except special education in the latter and teacher assistants, except postsecondary in the former. Both occupations are projected to increase by 2% between 2020 and 2030 (Table 2.3). In addition, all the 10 most represented education occupations are projected to add jobs, led by the job increase of self-enrichment teachers (13%). Among the education occupations shown in Figure 2.9, which focus on occupations that typically require certification, preschool teachers, except special education are projected to have the greatest percent increase (6%), elementary school teachers, except special education are projected to have the greatest number of job openings (about 1,500), and kindergarten through secondary (K-12) education administrators have the largest median annual wage (about $83,500).

The education occupations' COVID-19 Indices are also found in Table 2.3. Among those occupations with an index change, an increase in new daily job postings between the COVID Impact and Response Time Periods is typical, as shown in Figure 2.10. Middle school teachers and K-12 education administrators are the exception.

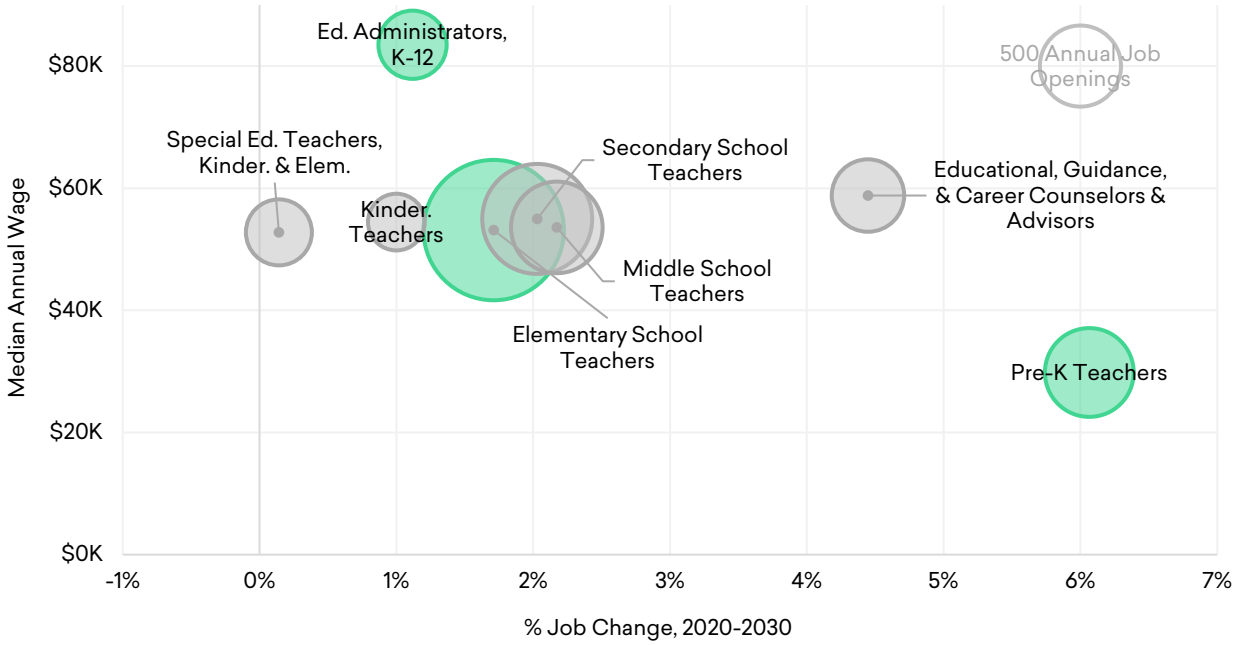
A regional breakdown for select teaching occupations is shown in Figure 2.11, and data for all the education occupations, by region, follow in Tables 2.4 to 2.8 and Figures 2.12 to 2.21.

Table 2.3: Labor Market Information and Emsi COVID-19 Indices of the Education Workforce in Kentucky

SOC TITLE	2020 JOBS	% JOB CHANGE, 2020-2030	% JOBS IN ED. (LOCAL GOV'T)	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE	COVID INDEX	
						IMP.	RESP.
PRE-K WORKFORCE							
Pre-K Teachers, Except Special Ed.	5,359	6%	11%	600	$14.34	-3	-1
Ed. & Childcare Administrators, Pre-K & Daycare	760	3%	4%	66	$16.84	-3	-1
Special Ed. Teachers, Pre-K	233	5%	34%	20	$27.46	0	0
ELEMENTARY SCHOOL TEACHERS							
Elementary School Teachers, Except Special Ed.	19,225	2%	90%	1,508	$25.55	+3	+2
Kinder. Teachers, Except Special Ed.	2,345	1%	89%	243	$26.18	-3	-2
MIDDLE SCHOOL TEACHERS							
Middle School Teachers, Except Special Ed. & CTE	8,100	2%	91%	639	$25.76	+4	+1
CTE Teachers, Middle School	386	1%	90%	30	$26.55	-3	-3
HIGH SCHOOL TEACHERS							
Secondary School Teachers, Except Special Ed. & CTE	12,318	2%	89%	923	$26.43	-2	-2
CTE Teachers, Secondary School	447	3%	39%	34	$27.84	-3	-2
SPECIAL EDUCATION TEACHERS							
Special Ed. Teachers, Kinder. & Elementary School	4,240	<1%	96%	330	$25.37	+4	+3
Special Ed. Teachers, Secondary School	1,581	2%	92%	126	$26.23	+1	+3
Special Ed. Teachers, Middle School	918	2%	97%	73	$25.57	+1	+1
ADMINISTRATORS & COUNSELORS							
Ed. Administrators, K-12	4,292	1%	87%	353	$40.14	+5	+1
Educational, Guidance, & Career Counselors & Advisors	3,598	4%	44%	398	$28.27	-1	-1
EDUCATION WORKERS							
Teaching Assistants, Except Postsecondary	16,900	2%	76%	1,862	$12.54	-2	+1
Tutors & Teachers & Instructors, All Other	4,132	5%	26%	514	$18.94	-3	-2
Self-Enrichment Teachers	3,335	13%	4%	456	$14.06	-2	-1
Educational Instruction & Library Workers, All Other	2,144	(1%)	42%	205	$18.65	0	0
Adult Basic & Secondary Ed. & ESL Instructors	639	(13%)	38%	69	$18.59	-3	-2
Total	**90,952**	**3%**	**--**	**8,449**	**--**	**--**	**--**

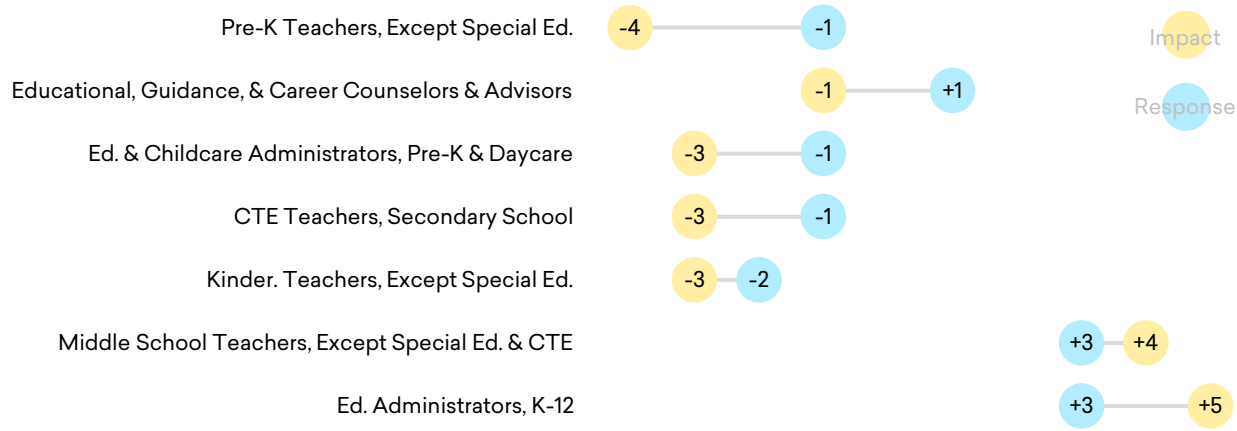
CTE refers to career/technical education. ESL refers to English as a second language. Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

Figure 2.9: Job Change and Median Annual Wages in Kentucky of Select Education Occupations with Projected Average Annual Job Openings, 2020 to 2030



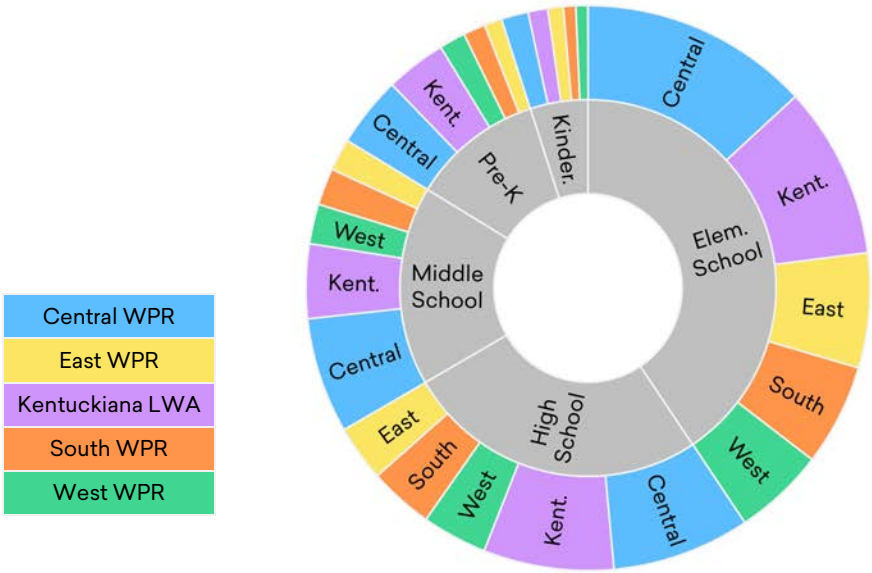
Annual wages consider 2,080 working hours in a year.
Source: Employees & Self-Employed 2020.3.

Figure 2.10: COVID-19 Impact and Response Indices for Select Education Occupations Measured by Changes in New Daily Job Postings in Kentucky



The figure reflects occupations with an index change between the COVID Impact and Response Time Periods.
Source: Emsi COVID-19 Index.

Figure 2.11: Breakdown of 2020 Jobs for Select Teachers by the Kentucky WPRs and the Kentuckiana LWA



Source: Employees & Self-Employed 2020.3.

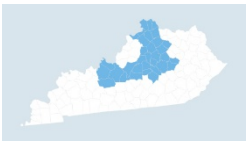
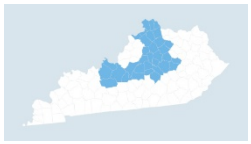


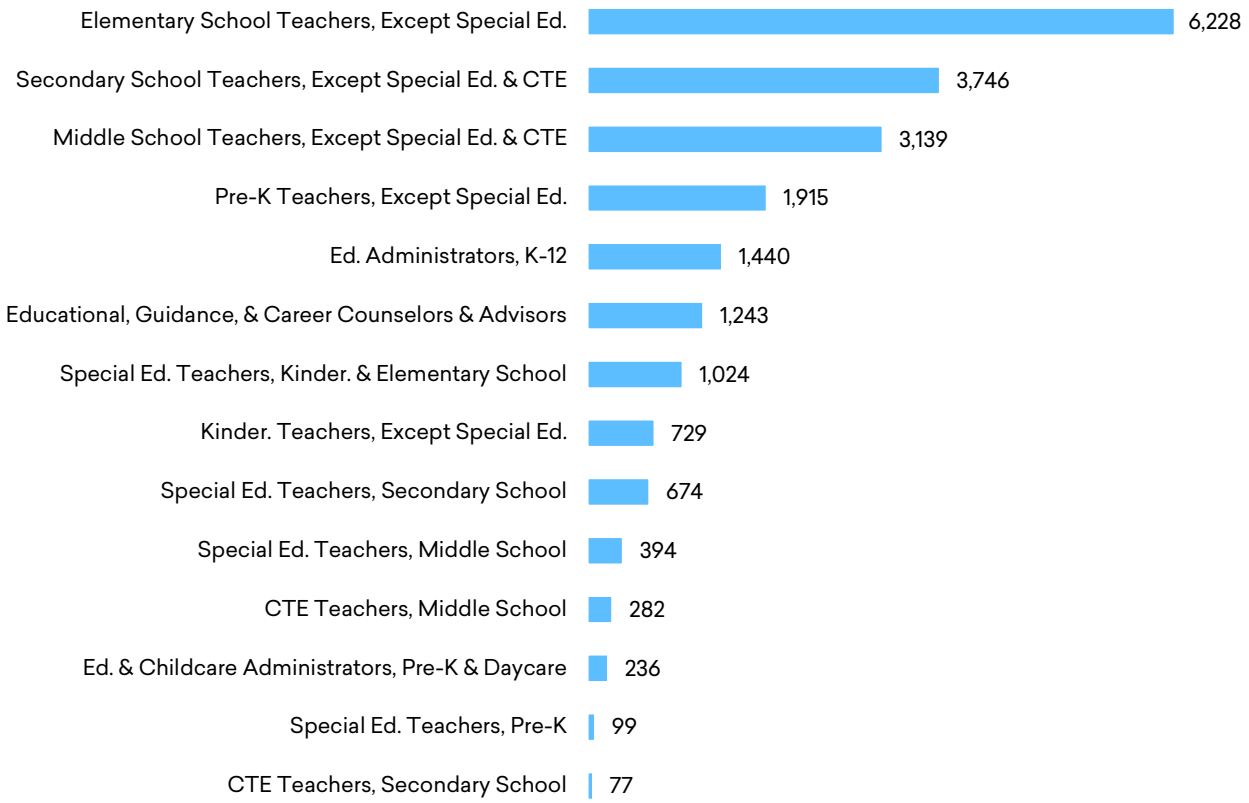
Table 2.4: Labor Market Information and Emsi COVID-19 Indices of the Education Workforce in the Central WPR

SOC TITLE	2020 JOBS	% JOB CHANGE, 2020-2030	% JOBS IN ED. (LOCAL GOV'T)	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE	COVID INDEX	
						IMP.	RESP.
PRE-K WORKFORCE							
Pre-K Teachers, Except Special Ed.	1,915	5%	9%	212	$14.57	-3	-1
Ed. & Childcare Administrators, Pre-K & Daycare	236	(1%)	4%	20	$15.99	-3	-1
Special Ed. Teachers, Pre-K	99	6%	46%	8	$28.35	0	0
ELEMENTARY SCHOOL TEACHERS							
Elementary School Teachers, Except Special Ed.	6,228	6%	87%	523	$26.50	+5	+5
Kinder. Teachers, Except Special Ed.	729	5%	86%	80	$27.04	-5	-3
MIDDLE SCHOOL TEACHERS							
Middle School Teachers, Except Special Ed. & CTE	3,139	6%	89%	261	$26.72	+5	+5
CTE Teachers, Middle School	282	2%	96%	22	$26.70	0	0
HIGH SCHOOL TEACHERS							
Secondary School Teachers, Except Special Ed. & CTE	3,746	7%	84%	305	$27.09	-1	-1
CTE Teachers, Secondary School	77	14%	40%	7	$27.76	-4	-3
SPECIAL EDUCATION TEACHERS							
Special Ed. Teachers, Kinder. & Elementary School	1,024	4%	93%	85	$26.04	+1	+2
Special Ed. Teachers, Secondary School	674	5%	88%	56	$26.43	-1	-1
Special Ed. Teachers, Middle School	394	5%	96%	33	$26.58	+2	-1
ADMINISTRATORS & COUNSELORS							
Ed. Administrators, K-12	1,440	6%	84%	127	$41.76	+5	+1
Educational, Guidance, & Career Counselors & Advisors	1,243	7%	42%	141	$27.09	+1	+1
EDUCATION WORKERS							
Teaching Assistants, Except Postsecondary	7,652	4%	74%	864	$13.79	-2	-1
Tutors & Teachers & Instructors, All Other	1,523	7%	20%	194	$20.90	-2	-1
Self-Enrichment Teachers	1,254	15%	2%	174	$14.88	-2	-2
Educational Instruction & Library Workers, All Other	1,052	(2%)	34%	100	$19.74	0	0
Adult Basic Ed., Adult Secondary Ed., & ESL Instructors	184	(10%)	36%	20	$19.88	-2	+4
Total	**32,891**	**6%**	**--**	**3,232**	**--**	**--**	**--**

CTE refers to career/technical education. ESL refers to English as a second language. Numbers may not sum due to rounding.
Source: Emsi COVID-19 Index. Employees & Self-Employed 2020.3.

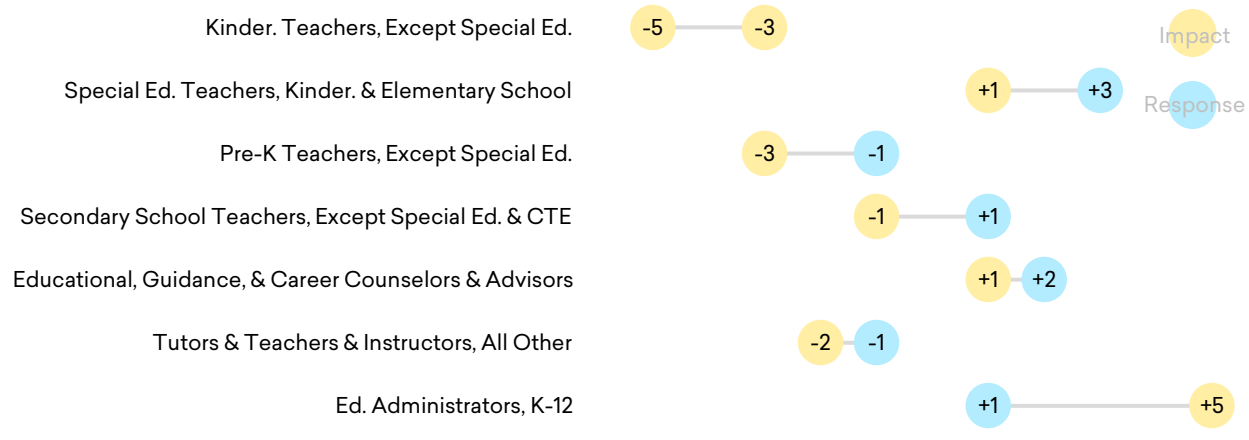
Figure 2.12: 2020 Jobs of Select Education Occupations in the Central WPR





CTE refers to career/technical education. ESL refers to English as a second language. Numbers may not sum due to rounding.
Source: Emsi COVID-19 Index. Employees & Self-Employed 2020.3.

Figure 2.13: COVID-19 Impact and Response Indices for Select Education Occupations Measured by Changes in New Daily Job Postings in the Central WPR



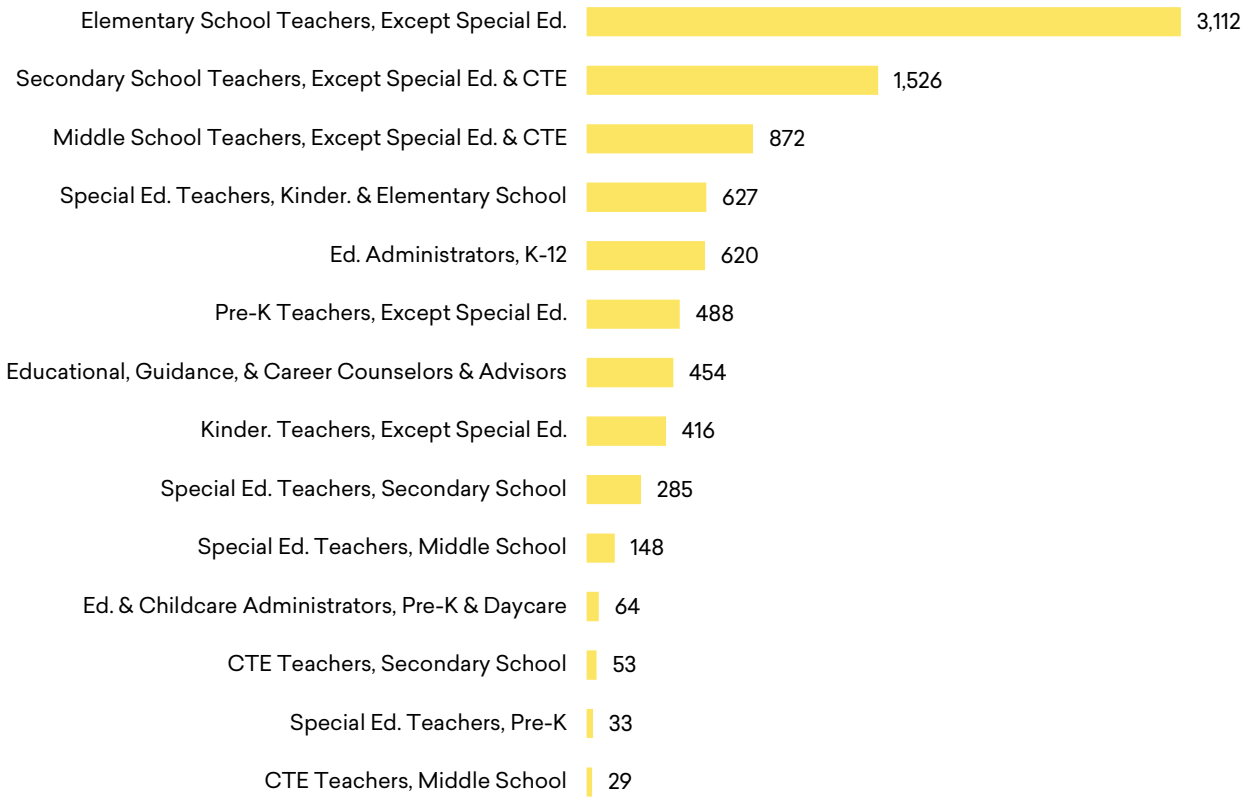
Source: Emsi COVID-19 Index.

Table 2.5: Labor Market Information and Emsi COVID-19 Indices of Education Occupations in the East WPR

SOC TITLE	2020 JOBS	% JOB CHANGE, 2020-2030	% JOBS IN ED. (LOCAL GOV'T)	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE	COVID INDEX	
						IMP.	RESP.
PRE-K WORKFORCE							
Pre-K Teachers, Except Special Ed.	488	21%	21%	66	$14.07	0	0
Ed. & Childcare Administrators, Pre-K & Daycare	64	20%	9%	7	$13.96	0	0
Special Ed. Teachers, Pre-K	33	3%	10%	3	$25.35	0	0
ELEMENTARY SCHOOL TEACHERS							
Elementary School Teachers, Except Special Ed.	3,112	(3%)	97%	230	$25.81	+5	+5
Kinder. Teachers, Except Special Ed.	416	(3%)	97%	41	$24.61	0	0
MIDDLE SCHOOL TEACHERS							
Middle School Teachers, Except Special Ed. & CTE	872	(1%)	94%	66	$24.96	0	0
CTE Teachers, Middle School	29	<1%	100%	2	$24.04	0	0
HIGH SCHOOL TEACHERS							
Secondary School Teachers, Except Special Ed. & CTE	1,526	(2%)	95%	108	$25.56	-3	-3
CTE Teachers, Secondary School	53	2%	97%	4	$26.47	0	0
SPECIAL EDUCATION TEACHERS							
Special Ed. Teachers, Kinder. & Elementary School	627	(5%)	96%	46	$25.14	0	0
Special Ed. Teachers, Secondary School	285	(3%)	96%	21	$26.56	0	0
Special Ed. Teachers, Middle School	148	(3%)	98%	11	$25.69	0	0
ADMINISTRATORS & COUNSELORS							
Ed. Administrators, K-12	620	(4%)	95%	48	$37.12	+5	+2
Educational, Guidance, & Career Counselors & Advisors	454	1%	58%	49	$25.52	-1	-1
EDUCATION WORKERS							
Teaching Assistants, Except Postsecondary	2,669	(1%)	90%	285	$10.57	+5	+5
Self-Enrichment Teachers	412	10%	12%	55	$12.32	-4	-4
Tutors & Teachers & Instructors, All Other	359	3%	51%	44	$22.42	0	0
Educational Instruction & Library Workers, All Other	267	(3%)	62%	25	$16.01	0	0
Adult Basic Ed., Adult Secondary Ed., & ESL Instructors	76	(20%)	42%	8	$17.63	0	0
Total	**12,510**	**(1%)**	**--**	**1,119**	**--**	**--**	**--**

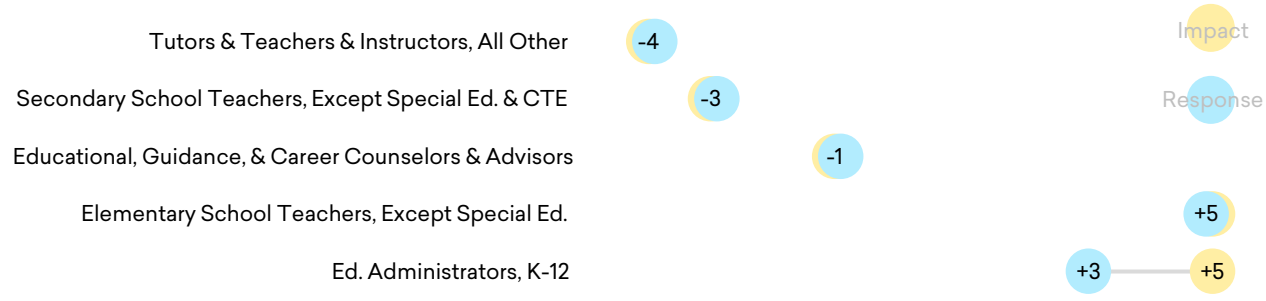
CTE refers to career/technical education. ESL refers to English as a second language. Numbers may not sum due to rounding.
Source: Emsi COVID-19 Index. Employees & Self-Employed 2020.3.

Figure 2.14: 2020 Jobs of Select Education Occupations in the East WPR



CTE refers to career/technical education. ESL refers to English as a second language. Numbers may not sum due to rounding.
Source: Emsi COVID-19 Index. Employees & Self-Employed 2020.3.

Figure 2.15: COVID-19 Impact and Response Indices for Select Education Occupations Measured by Changes in New Daily Job Postings in the East WPR



Source: Emsi COVID-19 Index.

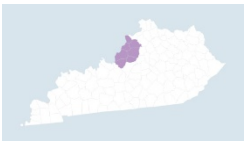


Table 2.6: Labor Market Information and Emsi COVID-19 Indices of Education Occupations in the Kentuckiana LWA

SOC TITLE	2020 JOBS	% JOB CHANGE, 2020-2030	% JOBS IN ED. (LOCAL GOV'T)	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE	COVID INDEX	
						IMP.	RESP.
PRE-K WORKFORCE							
Pre-K Teachers, Except Special Ed.	1,638	2%	7%	170	$11.44	-4	-2
Ed. & Childcare Administrators, Pre-K & Daycare	279	(1%)	4%	22	$19.99	-1	-1
Special Ed. Teachers, Pre-K	58	3%	52%	5	$29.70	0	0
ELEMENTARY SCHOOL TEACHERS							
Elementary School Teachers, Except Special Ed.	4,660	1%	85%	356	$25.20	+1	-2
Kinder. Teachers, Except Special Ed.	534	1%	84%	55	$27.14	-5	-2
MIDDLE SCHOOL TEACHERS							
Middle School Teachers, Except Special Ed. & CTE	2,008	1%	86%	153	$26.85	-1	-2
CTE Teachers, Middle School	31	<1%	92%	2	$28.58	-4	-5
HIGH SCHOOL TEACHERS							
Secondary School Teachers, Except Special Ed. & CTE	3,536	1%	86%	256	$26.46	-1	-2
CTE Teachers, Secondary School	180	1%	<1%	13	$29.91	-4	-3
SPECIAL EDUCATION TEACHERS							
Special Ed. Teachers, Kinder. & Elementary School	1,411	1%	93%	109	$25.98	+1	+2
Special Ed. Teachers, Secondary School	164	(1%)	92%	13	$25.70	-3	+2
Special Ed. Teachers, Middle School	86	1%	87%	7	$25.79	-2	-3
ADMINISTRATORS & COUNSELORS							
Ed. Administrators, K-12	986	1%	83%	79	$41.80	+2	-2
Educational, Guidance, & Career Counselors & Advisors	878	3%	41%	94	$32.11	-2	-2
EDUCATION WORKERS							
Tutors & Teachers & Instructors, All Other	1,020	5%	25%	124	$22.23	-3	-2
Teaching Assistants, Except Postsecondary	817	2%	37%	90	$12.29	-2	+2
Self-Enrichment Teachers	797	13%	2%	107	$13.59	-2	-3
Educational Instruction & Library Workers, All Other	303	<1%	43%	29	$19.82	0	0
Adult Basic Ed., Adult Secondary Ed., & ESL Instructors	138	(14%)	32%	15	$17.52	-3	-5
Total	**19,524**	**2%**	**--**	**1,699**	**--**	**--**	**--**

CTE refers to career/technical education. ESL refers to English as a second language. Numbers may not sum due to rounding.
Source: Emsi COVID-19 Index. Employees & Self-Employed 2020.3.

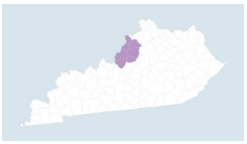
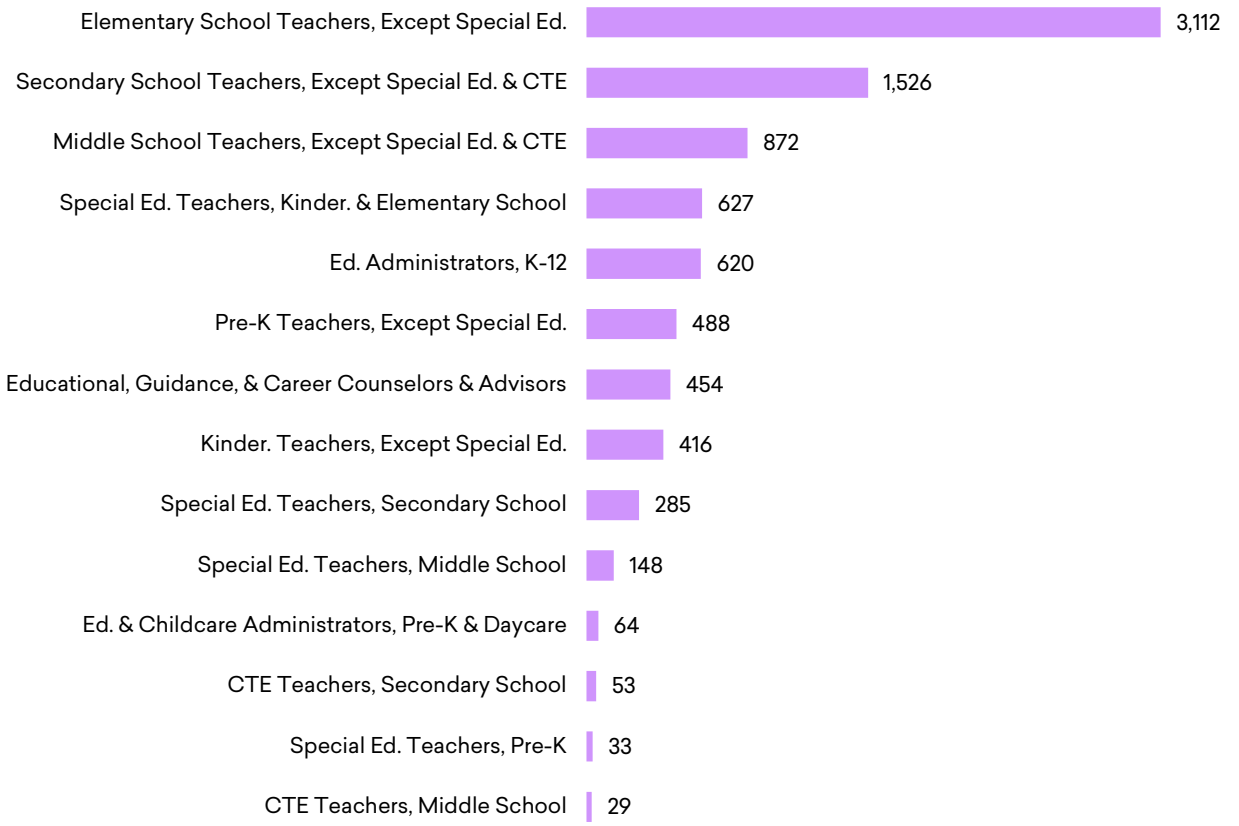
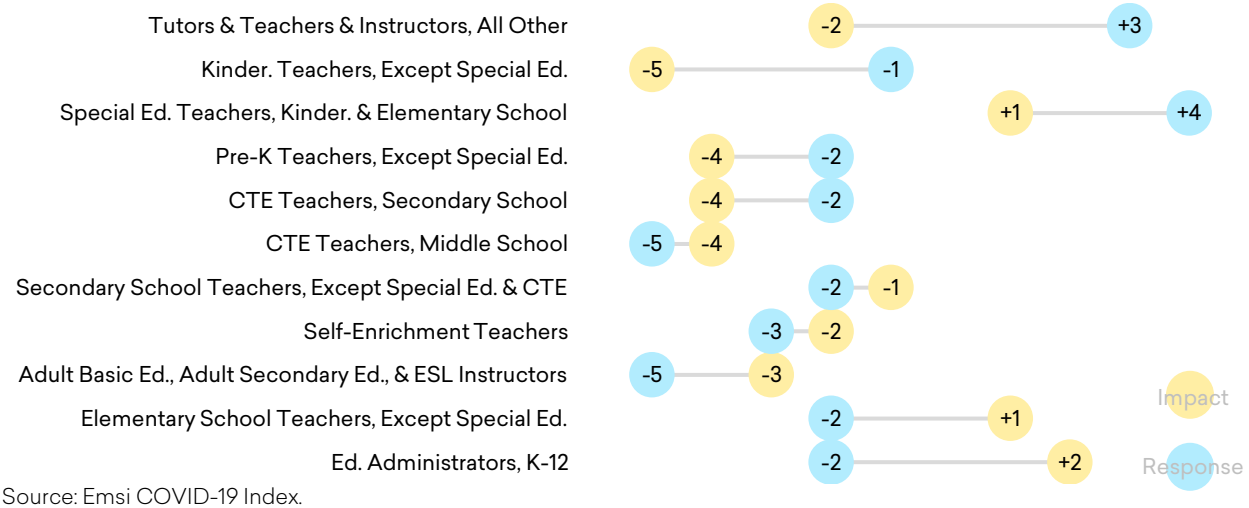


Figure 2.16: 2020 Jobs of Select Education Occupations in the Kentuckiana LWA



CTE refers to career/technical education. ESL refers to English as a second language. Numbers may not sum due to rounding.
Source: Emsi COVID-19 Index. Employees & Self-Employed 2020.3.

Figure 2.17: COVID-19 Impact and Response Indices for Select Education Occupations Measured by Changes in New Daily Job Postings in the Kentuckiana LWA



Source: Emsi COVID-19 Index.

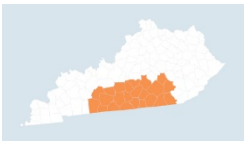
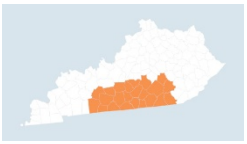


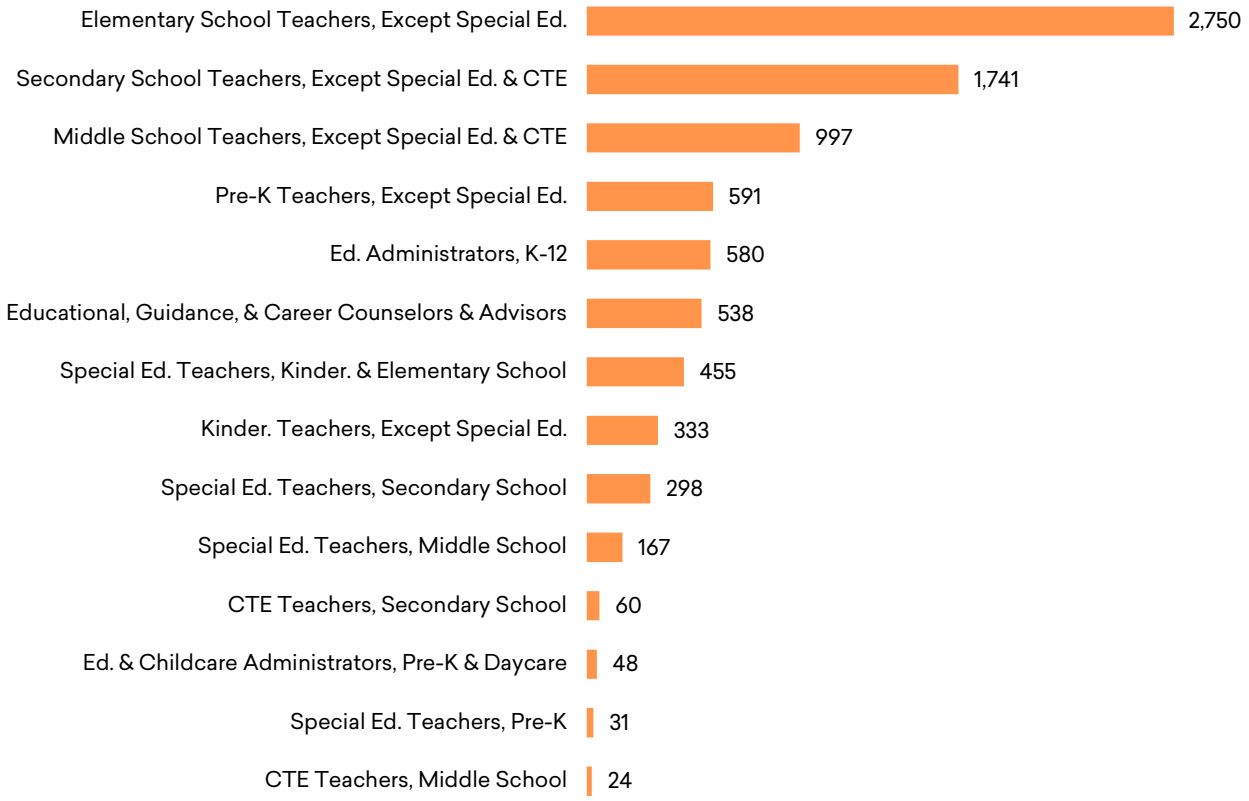
Table 2.7: Labor Market Information and Emsi COVID-19 Indices of Education Occupations in the South WPR

SOC TITLE	2020 JOBS	% JOB CHANGE, 2020-2030	% JOBS IN ED. (LOCAL GOV'T)	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE	COVID INDEX	
						IMP.	RESP.
PRE-K WORKFORCE							
Pre-K Teachers, Except Special Ed.	591	9%	16%	69	$16.09	+3	+5
Ed. & Childcare Administrators, Pre-K & Daycare	48	13%	9%	5	$14.60	-2	-2
Special Ed. Teachers, Pre-K	31	6%	<1%	3	$25.38	0	0
ELEMENTARY SCHOOL TEACHERS							
Elementary School Teachers, Except Special Ed.	2,750	1%	97%	213	$24.72	0	0
Kinder. Teachers, Except Special Ed.	333	<1%	96%	34	$25.51	0	0
MIDDLE SCHOOL TEACHERS							
Middle School Teachers, Except Special Ed. & CTE	997	1%	96%	78	$24.62	0	0
CTE Teachers, Middle School	24	<1%	78%	2	$24.37	0	0
HIGH SCHOOL TEACHERS							
Secondary School Teachers, Except Special Ed. & CTE	1,741	1%	96%	128	$25.46	-3	-3
CTE Teachers, Secondary School	60	3%	34%	5	$25.61	0	0
SPECIAL EDUCATION TEACHERS							
Special Ed. Teachers, Kinder. & Elementary School	455	<1%	99%	35	$25.12	0	0
Special Ed. Teachers, Secondary School	298	1%	97%	24	$25.40	0	0
Special Ed. Teachers, Middle School	167	<1%	100%	13	$24.69	0	0
ADMINISTRATORS & COUNSELORS							
Ed. Administrators, K-12	580	<1%	96%	47	$38.72	0	0
Educational, Guidance, & Career Counselors & Advisors	538	7%	47%	61	$26.65	+1	+2
EDUCATION WORKERS							
Teaching Assistants, Except Postsecondary	2,597	2%	86%	285	$11.11	-4	-1
Tutors & Teachers & Instructors, All Other	417	7%	37%	53	$14.93	-4	-3
Self-Enrichment Teachers	410	12%	4%	55	$13.27	0	0
Educational Instruction & Library Workers, All Other	288	<1%	49%	28	$14.73	0	0
Adult Basic Ed., Adult Secondary Ed., & ESL Instructors	137	(15%)	49%	15	$20.09	-5	-3
Total	**12,462**	**2%**	**--**	**1,153**	**--**	**--**	**--**

CTE refers to career/technical education. ESL refers to English as a second language. Numbers may not sum due to rounding.
Source: Emsi COVID-19 Index. Employees & Self-Employed 2020.3.

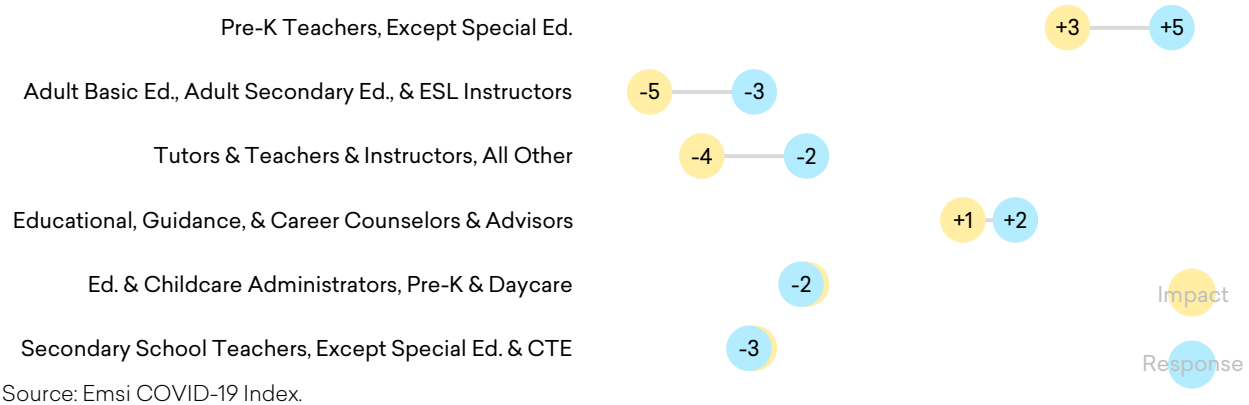
Figure 2.18: 2020 Jobs of Select Education Occupations in the South WPR





CTE refers to career/technical education. ESL refers to English as a second language. Numbers may not sum due to rounding.
Source: Emsi COVID-19 Index. Employees & Self-Employed 2020.3.

Figure 2.19: COVID-19 Impact and Response Indices for Select Education Occupations Measured by Changes in New Daily Job Postings in the South WPR



Source: Emsi COVID-19 Index.

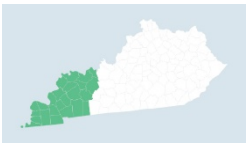
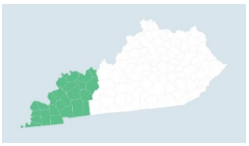


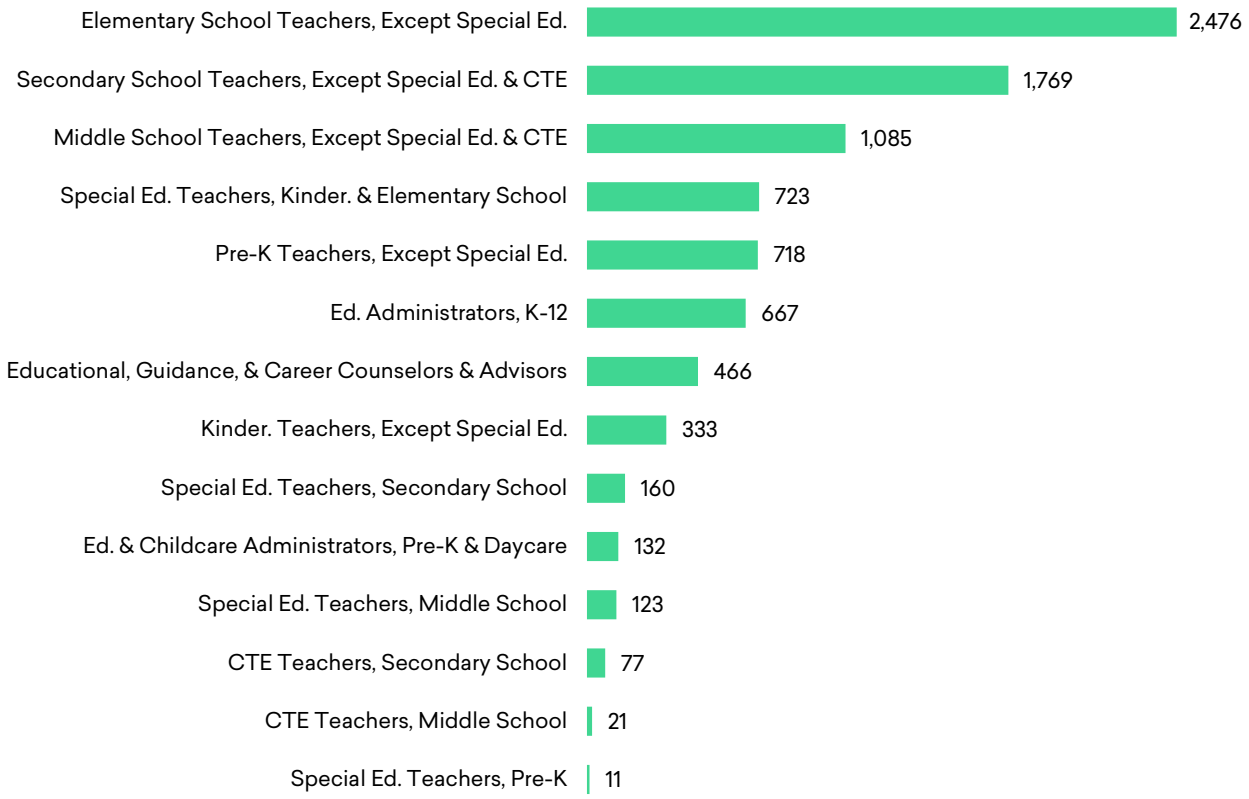
Table 2.8: Labor Market Information and Emsi COVID-19 Indices of Education Occupations in the West WPR

SOC TITLE	2020 JOBS	% JOB CHANGE, 2020-2030	% JOBS IN ED. (LOCAL GOV'T)	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE	COVID INDEX	
						IMP.	RESP.
PRE-K WORKFORCE							
Pre-K Teachers, Except Special Ed.	718	7%	15%	82	$15.05	-4	-1
Ed. & Childcare Administrators, Pre-K & Daycare	132	7%	3%	12	$11.86	-3	+1
Special Ed. Teachers, Pre-K	11	9%	<1%	1	$25.77	0	0
ELEMENTARY SCHOOL TEACHERS							
Elementary School Teachers, Except Special Ed.	2,476	(1%)	91%	187	$24.92	+1	-2
Kinder. Teachers, Except Special Ed.	333	(2%)	90%	34	$25.13	0	0
MIDDLE SCHOOL TEACHERS							
Middle School Teachers, Except Special Ed. & CTE	1,085	(1%)	96%	82	$25.38	+5	+1
CTE Teachers, Middle School	21	<1%	<1%	2	$24.78	0	0
HIGH SCHOOL TEACHERS							
Secondary School Teachers, Except Special Ed. & CTE	1,769	(2%)	90%	126	$26.33	-1	-3
CTE Teachers, Secondary School	77	<1%	94%	6	$21.79	0	0
SPECIAL EDUCATION TEACHERS							
Special Ed. Teachers, Kinder. & Elementary School	723	(3%)	100%	54	$25.41	+5	+4
Special Ed. Teachers, Secondary School	160	(1%)	92%	12	$24.64	0	0
Special Ed. Teachers, Middle School	123	(1%)	100%	10	$24.57	0	0
ADMINISTRATORS & COUNSELORS							
Ed. Administrators, K-12	667	(3%)	86%	52	$41.43	+5	+2
Educational, Guidance, & Career Counselors & Advisors	466	<1%	44%	49	$28.64	+1	-1
EDUCATION WORKERS							
Teaching Assistants, Except Postsecondary	3,138	(1%)	72%	333	$13.00	+3	+5
Tutors & Teachers & Instructors, All Other	766	3%	23%	92	$17.94	-3	-3
Self-Enrichment Teachers	431	16%	4%	60	$11.83	0	0
Educational Instruction & Library Workers, All Other	211	(2%)	56%	20	$16.30	0	0
Adult Basic Ed., Adult Secondary Ed., & ESL Instructors	104	(10%)	34%	11	$19.64	0	0
Total	**13,411**	**(<1%)**	**--**	**1,225**	**--**	**--**	**--**

CTE refers to career/technical education. ESL refers to English as a second language. Numbers may not sum due to rounding.
Source: Emsi COVID-19 Index. Employees & Self-Employed 2020.3.

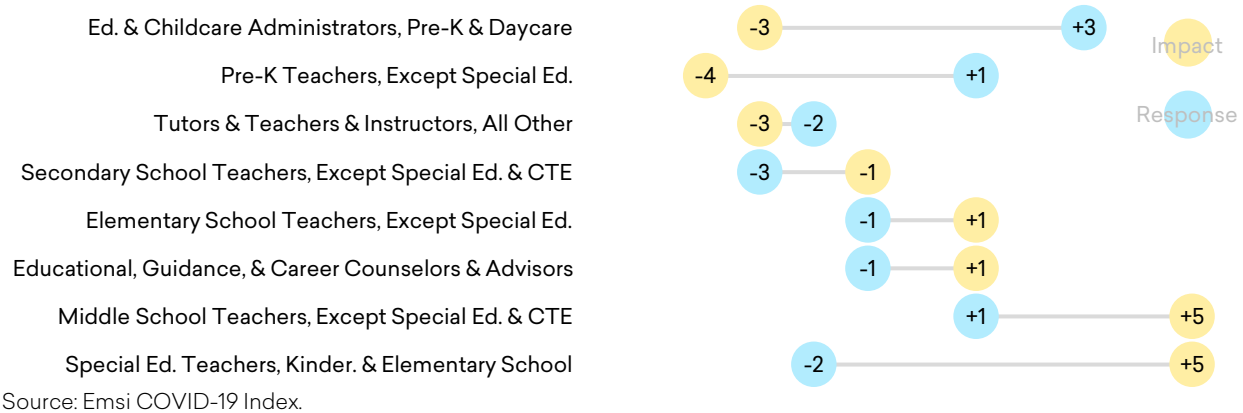
Figure 2.20: 2020 Jobs of Select Education Occupations in the West WPR





CTE refers to career/technical education. ESL refers to English as a second language. Numbers may not sum due to rounding.
Source: Emsi COVID-19 Index. Employees & Self-Employed 2020.3.

Figure 2.21: COVID-19 Impact and Response Indices for Select Education Occupations Measured by Changes in New Daily Job Postings in the West WPR



Source: Emsi COVID-19 Index.

INDUSTRIES SUPPORTING EDUCATION JOBS

With education occupations in mind, we can now turn to the industries supporting the education workforce. Teachers, tutors, and education administrators appear in a variety of industries but are most commonly employed by public school districts. In the NAICS[8] hierarchy of industries, public schools are found in the Education (Local Government) industry. However, teachers, tutors, education administrators, and others in the education workforce are also employed by private schools and child day care centers. The data in this section highlight all the industries employing the education workforce and show what other occupations are employed in the Education (Local Government) industry. Results are provided using the formal NAICS nomenclature at the five-digit industry levels. In all Emsi data, establishments in the main hierarchy are private sector only. For example, jobs in Child Day Care Services are not associated with local, state, or federal governments.

Inverse staffing patterns are used to identify the Kentucky industries employing the education workforce. They are a table of percentages that show how the education occupations are divided among state and regional industries. For example, a simplified inverse staffing pattern for kindergarten teachers may show that 80% are employed by local government (i.e., public schools), 10% by private elementary schools, 5% by child day care services, and 5% by religious organizations. Inverse staffing patterns highlight those industries likely to be hiring due to growth or worker displacement due to contraction, affecting the demand for new teachers coming from Kentucky's postsecondary institutions.

Staffing patterns, on the other hand, show the occupational makeup of an industry by percentages. For example, a simplified staffing pattern for the Elementary & Secondary Schools (Local Government) industry might show that 20% of the jobs in schools are occupied by elementary school teachers, 15% by teacher assistants, 10% by high school teachers, 5% by middle school teachers, 5% by special education teachers, 2% by bus drivers, and so on. Staffing patterns show which occupations are needed to support an entire industry, beyond those included in the education workforce.

Education (Local Government) employed nearly 66,000 of the state's education workforce in 2020 or 73% of all education jobs (Table 2.9). The education workforce was also employed in private industries, particularly Elementary & Secondary Schools and Child Day Care Services with about 6,000 and 5,000 education jobs statewide in 2020 (Figure 2.22). Furthermore, the education occupations accounted for 62% of the jobs in Education (Local Government) and 66% of the jobs in Elementary & Secondary Schools. In the former, the most represented occupations in the industry are elementary school teachers, except special education;

[8] NAICS refers to the North American Industry Classification System.

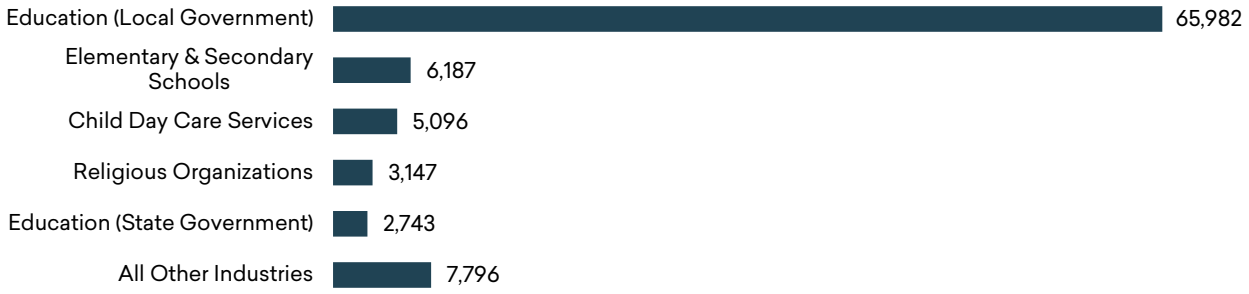
teacher assistants, except postsecondary; and secondary school teachers, except special & career/technical education (Table 2.10). The three occupations accounted for 16%, 12%, and 10% of Education (Local Government) jobs, respectively.

Regional data are shown in Tables 2.11 to 2.20 and Figures 2.23 to 2.27. The inverse staffing patterns show similar industry rankings to statewide data. Notably, Education (Local Government) jobs between 2020 and 2030 are projected to increase by the greatest percentage (3%) in the Central WPR and decrease by the greatest percentage (3%) in the East WPR. The occupations represented in the regional staffing patterns are similar in ranking to statewide data, with the exception of the Kentuckiana LWA. In this region, teacher assistants, except postsecondary ranked 16th in the Education (Local Government) industry, whereas it most often appeared within the top three occupations in the other regions. Furthermore, short-term substitute teachers in the Kentuckiana LWA ranked 5th in the industry, whereas the occupation seldom appeared in the list of the 25 most represented occupations in the other regions.

Table 2.9: Industries in Kentucky Employing the Largest Share of the Education Workforce

NAICS CODE	NAICS TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	% JOB CHANGE	% OCCS IN INDUSTRY	% OF TOTAL JOBS IN INDUSTRY
90361	Education (Local Government)	65,982	66,422	440	1%	73%	62%
61111	Elementary & Secondary Schools	6,187	6,799	612	10%	7%	66%
62441	Child Day Care Services	5,096	5,269	173	3%	6%	33%
81311	Religious Organizations	3,147	3,581	434	14%	3%	12%
90261	Education (State Government)	2,743	2,462	(281)	(10%)	3%	6%
61162	Sports & Recreation Instruction	843	994	151	18%	1%	53%
61131	Colleges, Universities, & Professional Schools	768	936	168	22%	1%	5%
61169	All Other Schools & Instruction	752	899	147	20%	1%	54%
90120	Federal Government, Military	619	597	(22)	(4%)	1%	1%
61171	Educational Support Services	655	786	131	20%	1%	41%
61161	Fine Arts Schools	548	612	64	12%	1%	56%
90399	Local Government, Excluding Education & Hospitals	416	428	12	3%	<1%	1%
62419	Other Individual & Family Services	371	408	37	10%	<1%	6%
90119	Federal Government, Civilian, Excluding Postal Service	324	282	(42)	(13%)	<1%	1%
90299	State Government, Excluding Education & Hospitals	256	238	(18)	(7%)	<1%	1%
All Other Industries		2,243	2,580	337	15%	2%	--
Total		**90,951**	**93,294**	**2,343**	**3%**	**100%**	**--**

Figure 2.22: Top Industries in Kentucky by 2020 Jobs Employing the Largest Share of the Education Workforce



Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

Table 2.10: Most Represented Occupations in the Education (Local Government) Industry in Kentucky

SOC TITLE	2020 JOBS	2030 JOBS	% JOB CHANGE	% OF TOTAL JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	TYPICAL EDUCATION
Elementary School Teachers, Except Special Ed.	17,234	17,363	1%	16%	$25.55	BACH
Teaching Assistants, Except Postsecondary	12,807	12,857	<1%	12%	$12.54	CERT
Secondary School Teachers, Except Special Ed. & CTE	10,882	10,989	1%	10%	$26.43	BACH
Middle School Teachers, Except Special Ed. & CTE	7,324	7,424	1%	7%	$25.76	BACH
Passenger Vehicle Drivers, Except Bus Drivers, Transit & Intercity	5,058	4,875	(4%)	5%	$15.94	HS/GED
Special Ed. Teachers, Kindergarten & Elementary School	4,038	4,032	(<1%)	4%	$25.37	BACH
Janitors & Cleaners, Except Maids & Housekeeping Cleaners	3,922	3,932	<1%	4%	$11.98	None
Education Administrators, K-12	3,737	3,739	<1%	4%	$40.14	MAST
Cooks, Institution & Cafeteria	3,512	3,345	(5%)	3%	$11.94	None
Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	2,989	2,659	(11%)	3%	$16.13	HS/GED
Childcare Workers	2,465	2,475	<1%	2%	$9.59	HS/GED
Fast Food & Counter Workers	2,400	2,390	(<1%)	2%	$9.22	None
Kinder. Teachers, Except Special Ed.	2,089	2,091	<1%	2%	$26.18	BACH
Educational, Guidance, & Career Counselors & Advisors	1,600	1,617	1%	2%	$28.27	MAST
Substitute Teachers, Short-Term	1,618	1,734	7%	2%	$10.03	BACH
Office Clerks, General	1,583	1,474	(7%)	2%	$13.50	HS/GED
Special Ed. Teachers, Secondary School	1,450	1,463	1%	1%	$26.23	BACH
Child, Family, & School Social Workers	1,070	1,067	(<1%)	1%	$19.63	BACH
Tutors & Teachers & Instructors, All Other	1,063	1,078	1%	1%	$18.94	BACH
Maintenance & Repair Workers, General	1,058	1,059	<1%	1%	$18.26	HS/GED
Instructional Coordinators	1,035	1,049	1%	1%	$29.15	MAST
Educational Instruction & Library Workers, All Other	911	916	1%	1%	$18.65	BACH
Special Ed. Teachers, Middle School	887	899	1%	1%	$25.57	BACH
Speech-Language Pathologists	841	913	9%	1%	$33.01	MAST
Librarians & Media Collections Specialists	809	813	<1%	1%	$28.43	BACH

CTE refers to career/technical education. Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

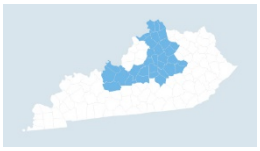
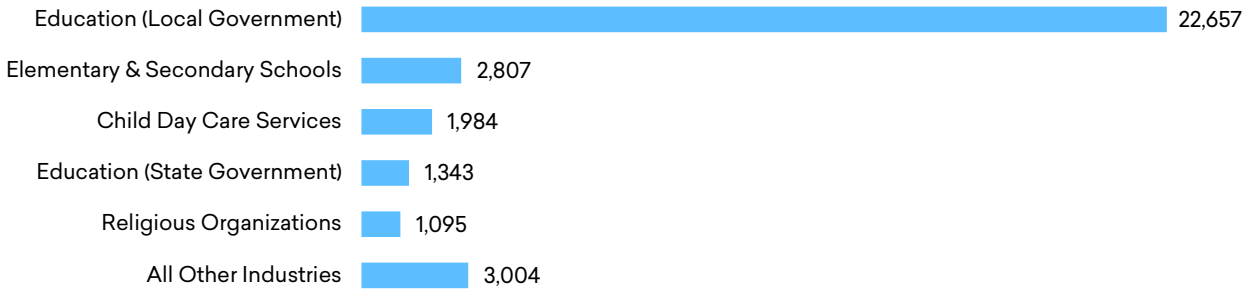


Table 2.11: Industries in the Central WPR Employing the Largest Share of the Education Workforce

NAICS CODE	NAICS TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	% JOB CHANGE	% OCCS IN INDUSTRY	% OF TOTAL JOBS IN INDUSTRY
90361	Education (Local Government)	22,657	23,421	764	3%	69%	63%
61111	Elementary & Secondary Schools	2,807	3,474	667	24%	8%	66%
62441	Child Day Care Services	1,984	1,953	(31)	(2%)	6%	32%
90261	Education (State Government)	1,343	1,251	(92)	(7%)	4%	5%
81311	Religious Organizations	1,095	1,254	159	15%	3%	12%
61171	Educational Support Services	361	448	87	24%	1%	37%
61162	Sports & Recreation Instruction	349	406	57	16%	1%	51%
61131	Colleges, Universities, & Professional Schools	274	331	57	21%	1%	4%
61161	Fine Arts Schools	276	323	47	17%	1%	53%
61169	All Other Schools & Instruction	252	282	30	12%	1%	54%
90119	Federal Government, Civilian, Excluding Postal Service	192	165	(27)	(14%)	1%	1%
62419	Other Individual & Family Services	159	182	23	14%	<1%	7%
90399	Local Government, Excluding Education & Hospitals	143	149	6	4%	<1%	1%
90299	State Government, Excluding Education & Hospitals	124	127	3	2%	<1%	1%
90120	Federal Government, Military	108	75	(33)	(31%)	<1%	1%
All Other Industries		766	880	114	15%	2%	--
Total		**32,890**	**34,721**	**1,831**	**6%**	**100%**	**--**

Figure 2.23: Top Industries in the Central WPR by 2020 Jobs Employing the Largest Share of the Education Workforce



Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

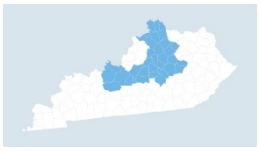


Table 2.12: Most Represented Occupations in the Education (Local Government) Industry in the Central WPR

SOC TITLE	2020 JOBS	2030 JOBS	% JOB CHANGE	% OF TOTAL JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	TYPICAL EDUCATION
Teaching Assistants, Except Postsecondary	5,707	5,883	3%	16%	$13.79	CERT
Elementary School Teachers, Except Special Ed.	5,382	5,574	4%	15%	$26.50	BACH
Secondary School Teachers, Except Special Ed. & CTE	3,131	3,255	4%	9%	$27.09	BACH
Middle School Teachers, Except Special Ed. & CTE	2,792	2,885	3%	8%	$26.72	BACH
Passenger Vehicle Drivers, Except Bus Drivers, Transit & Intercity	1,727	1,709	(1%)	5%	$16.20	HS/GED
Janitors & Cleaners, Except Maids & Housekeeping Cleaners	1,242	1,282	3%	3%	$12.34	None
Education Administrators, K-12	1,215	1,251	3%	3%	$41.76	MAST
Cooks, Institution & Cafeteria	1,074	1,054	(2%)	3%	$13.08	None
Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	980	894	(9%)	3%	$16.40	HS/GED
Special Ed. Teachers, Kindergarten & Elementary School	959	987	3%	3%	$26.04	BACH
Childcare Workers	944	963	2%	3%	$10.12	HS/GED
Fast Food & Counter Workers	785	803	2%	2%	$8.99	None
Kinder. Teachers, Except Special Ed.	630	648	3%	2%	$27.04	BACH
Special Ed. Teachers, Secondary School	603	624	3%	2%	$26.43	BACH
Instructional Coordinators	569	585	3%	2%	$30.13	MAST
Office Clerks, General	511	488	(5%)	1%	$13.47	HS/GED
Educational, Guidance, & Career Counselors & Advisors	515	532	3%	1%	$27.09	MAST
Special Ed. Teachers, Middle School	377	390	3%	1%	$26.58	BACH
Maintenance & Repair Workers, General	355	366	3%	1%	$17.26	HS/GED
Educational Instruction & Library Workers, All Other	351	363	3%	1%	$19.74	BACH
Speech-Language Pathologists	326	362	11%	1%	$31.79	MAST
Child, Family, & School Social Workers	315	325	3%	1%	$19.88	BACH
Tutors & Teachers & Instructors, All Other	305	320	5%	1%	$20.90	BACH
Librarians & Media Collections Specialists	298	306	3%	1%	$30.03	BACH
CTE Teachers, Middle School	275	282	3%	1%	$26.70	BACH

CTE refers to career/technical education. Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

Table 2.13: Industries in the East WPR Employing the Largest Share of the Education Workforce

NAICS CODE	NAICS TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	% JOB CHANGE	% OCCS IN INDUSTRY	% OF TOTAL JOBS IN INDUSTRY
90361	Education (Local Government)	10,558	10,201	(357)	(3%)	85%	59%
62441	Child Day Care Services	480	637	157	33%	4%	34%
61111	Elementary & Secondary Schools	308	344	36	12%	2%	66%
90261	Education (State Government)	287	246	(41)	(14%)	2%	7%
81311	Religious Organizations	182	194	12	7%	1%	12%
61131	Colleges, Universities, & Professional Schools	107	135	28	26%	1%	5%
90399	Local Government, Excluding Education & Hospitals	67	67	<1	0%	1%	1%
61162	Sports & Recreation Instruction	56	54	(2)	(4%)	<1%	75%
62419	Other Individual & Family Services	45	46	1	2%	<1%	6%
61169	All Other Schools & Instruction	49	74	25	51%	<1%	69%
90299	State Government, Excluding Education & Hospitals	36	35	(1)	(3%)	<1%	1%
61161	Fine Arts Schools	34	44	10	29%	<1%	62%
81331	Social Advocacy Organizations	32	35	3	9%	<1%	5%
62412	Services for the Elderly & Persons with Disabilities	31	41	10	32%	<1%	1%
62431	Vocational Rehabilitation Services	30	31	1	3%	<1%	4%
All Other Industries		210	246	36	17%	2%	--
Total		**12,510**	**12,430**	**(80)**	**(1%)**	**100%**	**--**

Figure 2.24: Top Industries in the East WPR by 2020 Jobs Employing the Largest Share of the Education Workforce

Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

Table 2.14: Most Represented Occupations in the Education (Local Government) Industry in the East WPR

SOC TITLE	2020 JOBS	2030 JOBS	% JOB CHANGE	% OF TOTAL JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	TYPICAL EDUCATION
Elementary School Teachers, Except Special Ed.	3,005	2,904	(3%)	17%	$25.81	BACH
Teaching Assistants, Except Postsecondary	2,325	2,243	(4%)	13%	$10.57	CERT
Secondary School Teachers, Except Special Ed. & CTE	1,463	1,421	(3%)	8%	$25.56	BACH
Passenger Vehicle Drivers, Except Bus Drivers, Transit & Intercity	1,089	1,008	(7%)	6%	$15.63	HS/GED
Janitors & Cleaners, Except Maids & Housekeeping Cleaners	843	812	(4%)	5%	$10.87	None
Middle School Teachers, Except Special Ed. & CTE	837	819	(2%)	5%	$24.96	BACH
Cooks, Institution & Cafeteria	811	741	(9%)	5%	$11.05	None
Special Ed. Teachers, Kindergarten & Elementary School	619	589	(5%)	3%	$25.14	BACH
Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	587	502	(14%)	3%	$14.43	HS/GED
Education Administrators, K-12	592	566	(4%)	3%	$37.12	MAST
Kinder. Teachers, Except Special Ed.	402	386	(4%)	2%	$24.61	BACH
Childcare Workers	350	340	(3%)	2%	$8.84	HS/GED
Fast Food & Counter Workers	298	286	(4%)	2%	$8.71	None
Office Clerks, General	290	261	(10%)	2%	$12.76	HS/GED
Special Ed. Teachers, Secondary School	276	266	(4%)	2%	$26.56	BACH
Educational, Guidance, & Career Counselors & Advisors	250	244	(2%)	1%	$25.52	MAST
Child, Family, & School Social Workers	245	232	(5%)	1%	$18.67	BACH
Substitute Teachers, Short-Term	237	245	3%	1%	$9.96	BACH
Maintenance & Repair Workers, General	213	204	(4%)	1%	$15.38	HS/GED
Instructional Coordinators	188	183	(3%)	1%	$31.59	MAST
Tutors & Teachers & Instructors, All Other	182	177	(3%)	1%	$22.42	BACH
Educational Instruction & Library Workers, All Other	159	154	(3%)	1%	$16.01	BACH
Special Ed. Teachers, Middle School	147	143	(3%)	1%	$25.69	BACH
Speech-Language Pathologists	126	132	5%	1%	$28.81	MAST
Librarians & Media Collections Specialists	123	118	(4%)	1%	$27.29	BACH

CTE refers to career/technical education. Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

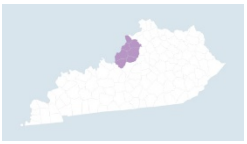
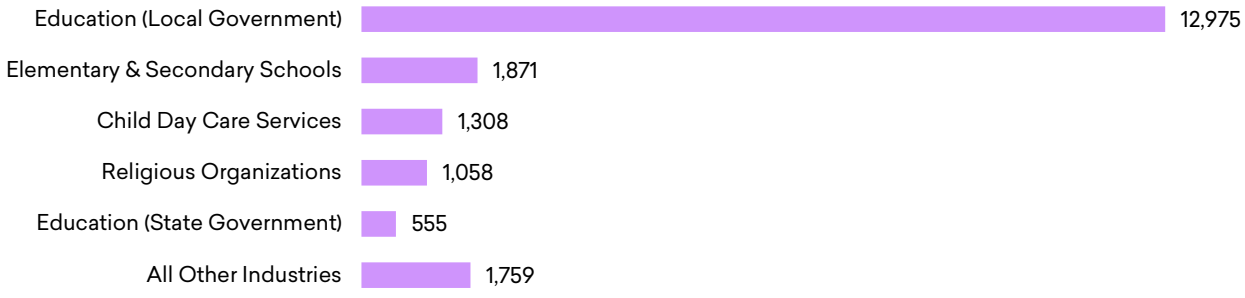


Table 2.15: Industries in the Kentuckiana LWA Employing the Largest Share of the Education Workforce

NAICS CODE	NAICS TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	% JOB CHANGE	% OCCS IN INDUSTRY	% OF TOTAL JOBS IN INDUSTRY
90361	Education (Local Government)	12,975	13,217	242	2%	66%	62%
61111	Elementary & Secondary Schools	1,871	1,733	(138)	(7%)	10%	64%
62441	Child Day Care Services	1,308	1,270	(38)	(3%)	7%	31%
81311	Religious Organizations	1,058	1,204	146	14%	5%	12%
90261	Education (State Government)	555	495	(60)	(11%)	3%	5%
61162	Sports & Recreation Instruction	279	334	55	20%	1%	47%
61169	All Other Schools & Instruction	221	250	29	13%	1%	50%
61131	Colleges, Universities, & Professional Schools	153	167	14	9%	1%	5%
61161	Fine Arts Schools	131	127	(4)	(3%)	1%	52%
61171	Educational Support Services	132	141	9	7%	1%	44%
62419	Other Individual & Family Services	71	71	<1	0%	<1%	5%
90399	Local Government, Excluding Education & Hospitals	67	70	3	4%	<1%	0%
61151	Technical & Trade Schools	62	72	10	16%	<1%	8%
90120	Federal Government, Military	47	50	3	6%	<1%	1%
56132	Temporary Help Services	44	45	1	2%	<1%	0%
All Other Industries		552	589	37	7%	3%	--
Total		**19,526**	**19,837**	**311**	**2%**	**100%**	**--**

Figure 2.25: Top Industries in the Kentuckiana LWA by 2020 Jobs Employing the Largest Share of the Education Workforce



Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

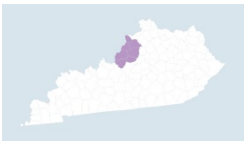


Table 2.16: Most Represented Occupations in the Education (Local Government) Industry in the Kentuckiana LWA

SOC TITLE	2020 JOBS	2030 JOBS	% JOB CHANGE	% OF TOTAL JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	TYPICAL EDUCATION
Elementary School Teachers, Except Special Ed.	4,012	4,085	2%	19%	$25.20	BACH
Secondary School Teachers, Except Special Ed. & CTE	3,061	3,116	2%	15%	$26.46	BACH
Middle School Teachers, Except Special Ed. & CTE	1,757	1,789	2%	8%	$26.85	BACH
Special Ed. Teachers, Kindergarten & Elementary School	1,322	1,342	2%	6%	$25.98	BACH
Substitute Teachers, Short-Term	1,214	1,238	2%	6%	$10.79	BACH
Education Administrators, K-12	805	819	2%	4%	$41.80	MAST
Passenger Vehicle Drivers, Except Bus Drivers, Transit & Intercity	594	587	(1%)	3%	$18.47	HS/GED
Janitors & Cleaners, Except Maids & Housekeeping Cleaners	589	601	2%	3%	$13.05	None
Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	547	493	(10%)	3%	$16.95	HS/GED
Fast Food & Counter Workers	473	476	1%	2%	$10.03	None
Cooks, Institution & Cafeteria	454	444	(2%)	2%	$14.38	None
Childcare Workers	451	459	2%	2%	$9.87	HS/GED
Kinder. Teachers, Except Special Ed.	444	452	2%	2%	$27.14	BACH
Office Clerks, General	336	315	(6%)	2%	$15.32	HS/GED
Educational, Guidance, & Career Counselors & Advisors	332	339	2%	2%	$32.11	MAST
Teaching Assistants, Except Postsecondary	276	293	6%	1%	$12.29	CERT
Tutors & Teachers & Instructors, All Other	236	240	2%	1%	$22.23	BACH
School Bus Monitors & Protective Service Workers, All Other	230	233	1%	1%	$19.44	HS/GED
Child, Family, & School Social Workers	190	194	2%	1%	$20.74	BACH
CTE Teachers, Secondary School	175	178	2%	1%	$29.91	BACH
Maintenance & Repair Workers, General	172	175	2%	1%	$19.04	HS/GED
Registered Nurses	166	169	2%	1%	$32.30	BACH
Computer User Support Specialists	136	138	1%	1%	$22.09	CERT
Librarians & Media Collections Specialists	135	137	1%	1%	$27.46	BACH
Special Ed. Teachers, Secondary School	134	138	3%	1%	$25.70	BACH

CTE refers to career/technical education. Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

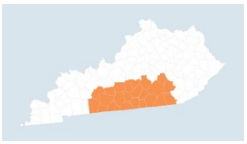
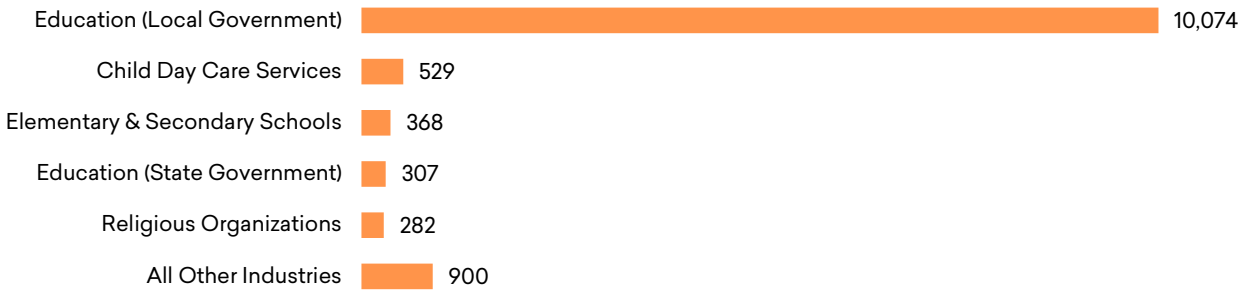


Table 2.17: Industries in the South WPR Employing the Largest Share of the Education Workforce

NAICS CODE	NAICS TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	% JOB CHANGE	% OCCS IN INDUSTRY	% OF TOTAL JOBS IN INDUSTRY
90361	Education (Local Government)	10,074	10,078	4	<1%	81%	62%
62441	Child Day Care Services	529	580	51	10%	4%	29%
61111	Elementary & Secondary Schools	368	414	46	13%	3%	66%
90261	Education (State Government)	307	261	(46)	(15%)	3%	6%
81311	Religious Organizations	282	319	37	13%	2%	12%
61131	Colleges, Universities, & Professional Schools	190	251	61	32%	1%	5%
61169	All Other Schools & Instruction	83	99	16	19%	1%	65%
61162	Sports & Recreation Instruction	67	72	5	7%	1%	59%
90399	Local Government, Excluding Education & Hospitals	64	68	4	6%	<1%	1%
62419	Other Individual & Family Services	57	63	6	11%	<1%	6%
61171	Educational Support Services	50	51	1	2%	<1%	64%
61161	Fine Arts Schools	44	52	8	18%	<1%	66%
90299	State Government, Excluding Education & Hospitals	31	28	(3)	(10%)	<1%	1%
62412	Services for the Elderly & Persons with Disabilities	34	44	10	29%	<1%	1%
90120	Federal Government, Military	27	28	1	4%	<1%	1%
All Other Industries		256	309	54	21%	2%	--
Total		**12,460**	**12,718**	**258**	**2%**	**100%**	**--**

Figure 2.26: Top Industries in the South WPR by 2020 Jobs Employing the Largest Share of the Education Workforce



Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

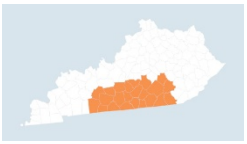


Table 2.18: Most Represented Occupations in the Education (Local Government) Industry in the South WPR

SOC TITLE	2020 JOBS	2030 JOBS	% JOB CHANGE	% OF TOTAL JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	TYPICAL EDUCATION
Elementary School Teachers, Except Special Ed.	2,626	2,630	<1%	16%	$24.72	BACH
Teaching Assistants, Except Postsecondary	2,196	2,193	(<1%)	14%	$11.11	CERT
Secondary School Teachers, Except Special Ed. & CTE	1,659	1,665	<1%	10%	$25.46	BACH
Middle School Teachers, Except Special Ed. & CTE	952	955	<1%	6%	$24.62	BACH
Passenger Vehicle Drivers, Except Bus Drivers, Transit & Intercity	930	899	(3%)	6%	$15.26	HS/GED
Janitors & Cleaners, Except Maids & Housekeeping Cleaners	689	688	(<1%)	4%	$11.39	None
Cooks, Institution & Cafeteria	646	615	(5%)	4%	$11.12	None
Education Administrators, K-12	548	546	(<1%)	3%	$38.72	MAST
Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	449	400	(11%)	3%	$14.65	HS/GED
Special Ed. Teachers, Kindergarten & Elementary School	448	447	(<1%)	3%	$25.12	BACH
Childcare Workers	419	417	(<1%)	3%	$9.34	HS/GED
Fast Food & Counter Workers	365	363	(1%)	2%	$9.07	None
Kinder. Teachers, Except Special Ed.	316	315	(<1%)	2%	$25.51	BACH
Special Ed. Teachers, Secondary School	288	288	<1%	2%	$25.40	BACH
Educational, Guidance, & Career Counselors & Advisors	267	270	1%	2%	$26.65	MAST
Office Clerks, General	248	231	(7%)	2%	$13.64	HS/GED
Child, Family, & School Social Workers	190	189	(1%)	1%	$19.25	BACH
Tutors & Teachers & Instructors, All Other	170	172	1%	1%	$14.93	BACH
Maintenance & Repair Workers, General	167	167	<1%	1%	$16.98	HS/GED
Special Ed. Teachers, Middle School	165	165	<1%	1%	$24.69	BACH
Instructional Coordinators	164	164	<1%	1%	$31.45	MAST
Librarians & Media Collections Specialists	146	147	1%	1%	$27.31	BACH
Educational Instruction & Library Workers, All Other	142	142	<1%	1%	$14.73	BACH
Speech-Language Pathologists	125	135	8%	1%	$29.36	MAST
Registered Nurses	118	118	<1%	1%	$28.68	BACH

CTE refers to career/technical education. Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

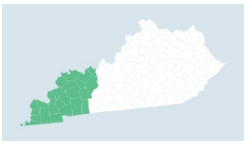
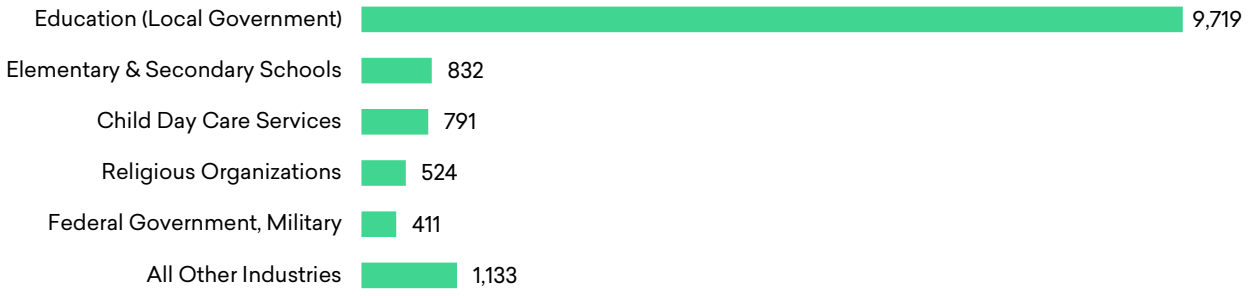


Table 2.19: Industries in the West WPR Employing the Largest Share of the Education Workforce

NAICS CODE	NAICS TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	% JOB CHANGE	% OCCS IN INDUSTRY	% OF TOTAL JOBS IN INDUSTRY
90361	Education (Local Government)	9,719	9,504	(215)	(2%)	73%	63%
61111	Elementary & Secondary Schools	832	835	3	<1%	6%	69%
62441	Child Day Care Services	791	822	31	4%	6%	41%
81311	Religious Organizations	524	600	76	15%	4%	12%
90120	Federal Government, Military	411	418	7	2%	3%	1%
90261	Education (State Government)	247	204	(43)	(17%)	2%	5%
61169	All Other Schools & Instruction	143	198	55	38%	1%	61%
90399	Local Government, Excluding Education & Hospitals	76	74	(2)	(3%)	1%	1%
61162	Sports & Recreation Instruction	74	95	21	28%	1%	60%
90119	Federal Government, Civilian, Excluding Postal Service	62	45	(17)	(27%)	<1%	1%
56132	Temporary Help Services	60	64	4	7%	<1%	1%
61161	Fine Arts Schools	53	59	6	11%	<1%	61%
62431	Vocational Rehabilitation Services	47	57	10	21%	<1%	4%
62419	Other Individual & Family Services	44	49	5	11%	<1%	7%
90299	State Government, Excluding Education & Hospitals	36	26	(10)	(28%)	<1%	1%
All Other Industries		292	333	41	14%	2%	--
Total		**13,410**	**13,381**	**(29)**	**<1%**	**100%**	**--**

Figure 2.27: Top Industries in the West WPR by 2020 Jobs Employing the Largest Share of the Education Workforce



Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

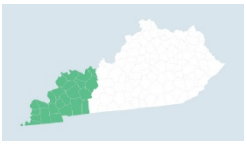


Table 2.20: Most Represented Occupations in the Education (Local Government) Industry in the West WPR

SOC TITLE	2020 JOBS	2030 JOBS	% JOB CHANGE	% OF TOTAL JOBS IN INDUSTRY	MEDIAN HOURLY WAGE	TYPICAL EDUCATION
Teaching Assistants, Except Postsecondary	2,303	2,245	(3%)	15%	$13.00	CERT
Elementary School Teachers, Except Special Ed.	2,210	2,170	(2%)	14%	$24.92	BACH
Secondary School Teachers, Except Special Ed. & CTE	1,568	1,533	(2%)	10%	$26.33	BACH
Middle School Teachers, Except Special Ed. & CTE	986	975	(1%)	6%	$25.38	BACH
Passenger Vehicle Drivers, Except Bus Drivers, Transit & Intercity	718	671	(7%)	5%	$15.13	HS/GED
Special Ed. Teachers, Kindergarten & Elementary School	691	667	(3%)	4%	$25.41	BACH
Education Administrators, K-12	578	556	(4%)	4%	$41.43	MAST
Janitors & Cleaners, Except Maids & Housekeeping Cleaners	558	549	(2%)	4%	$11.29	None
Cooks, Institution & Cafeteria	526	491	(7%)	3%	$11.46	None
Fast Food & Counter Workers	479	462	(4%)	3%	$9.13	None
Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	426	371	(13%)	3%	$14.49	HS/GED
Childcare Workers	301	297	(1%)	2%	$9.18	HS/GED
Kinder. Teachers, Except Special Ed.	297	290	(2%)	2%	$25.13	BACH
Educational, Guidance, & Career Counselors & Advisors	235	232	(1%)	2%	$28.64	MAST
Office Clerks, General	198	179	(10%)	1%	$13.33	HS/GED
Tutors & Teachers & Instructors, All Other	171	169	(1%)	1%	$17.94	BACH
Maintenance & Repair Workers, General	152	148	(3%)	1%	$17.58	HS/GED
Educational Instruction & Library Workers, All Other	151	147	(3%)	1%	$16.30	BACH
Special Ed. Teachers, Secondary School	147	147	<1%	1%	$24.64	BACH
Education Administrators, All Other	140	134	(4%)	1%	$37.79	BACH
Speech-Language Pathologists	137	144	5%	1%	$31.47	MAST
Child, Family, & School Social Workers	130	127	(2%)	1%	$19.81	BACH
Registered Nurses	121	119	(2%)	1%	$29.34	BACH
Special Ed. Teachers, Middle School	120	119	(1%)	1%	$24.57	BACH
Preschool Teachers, Except Special Ed.	113	108	(4%)	1%	$15.05	ASSOC

CTE refers to career/technical education. Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

CHAPTER 3:

Job Postings

Job postings are online advertisements for jobs, posted by companies trying to attract applicants. Analyzing job postings for information on the labor market can yield valuable insight, such as skills that employers are requesting, the companies that are posting jobs, where those jobs are located, and greater specificity in job titles. In addition, job postings also have virtually no lag time, as they can be collected from sites soon after being posted. However, not all jobs are posted online, and in some cases, companies post far more positions than they intend to hire in an effort to cast a broad net for talent. Many factors can influence the number of postings that appear on the web for a particular job or company, including:

- Fluctuating prices of job postings;
- Building waiting lists of potential hires should positions become vacant;
- The hiring of new employees immediately or in six months;
- Postings left online after positions have been filled; and
- Duplicate postings for a given position.

It can be helpful to think of the job postings analysis as a measure of the intentions of those who post jobs. For Kentucky's educational institutions, job postings indicate what is currently in demand across statewide or regional employers, including emerging needs. As such, job postings information can be used to help tailor program curricula so that graduates will be competitive in the job market. The sources collect more than 100 million job postings per month from more than 90,000 companies. Emsi de-duplicates these postings down to approximately 8 million unique job postings per month. In the process, geographies are assigned to the postings as well as company names, job locations, skills, and so on.

INTRODUCTION

The following tables and figures show statewide job postings of the seven occupational areas in education. Data on unique job postings and posting intensity are presented. Unique job postings are the number of posts for the job title, city, or company for the posting duration, and the posting intensity is the ratio between total and unique job postings. The posting intensity can be seen as an indication of the effort by posters to advertise and fill

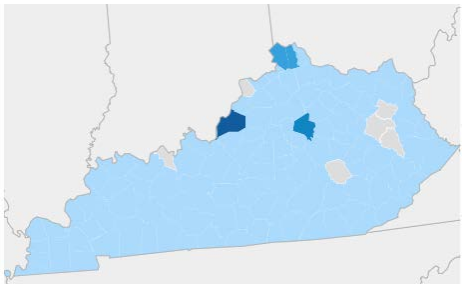
positions. Job postings include advertisements from January 2019 to December 2019, as well as postings during the COVID-19 global pandemic.

SUMMARY

Unique job postings in Kentucky for each of the education occupational groups range from nearly 500 to about 4,200, with the largest number of postings for Education Workers and High School Teachers. The most posted for occupation in the former, all other tutors & teachers & instructors, has about 2,700 statewide unique postings, and postings typically require a bachelor's degree level of education or a high school diploma when specified. High School Teachers are the second largest occupation group with about 2,300 unique postings. Across all occupational groups, unique job postings for secondary school teachers, except special education & CTE (2,250 unique job postings) rank second behind all other tutors & teachers & instructors. In other words, Kentucky job posters are looking to hire full-time teachers, as well as part-time tutors and instructors. Top job posters include Jefferson County Public Schools, the largest public school district in the state, as well as a number of other public school districts.

PRE-K WORKFORCE

1,630	4 : 1	28 days
Unique Postings (Jan 2019 – Dec 2019) 6,075 Total Postings	Posting Intensity State Average: 4 : 1	Median Posting Duration State Average: 29 days

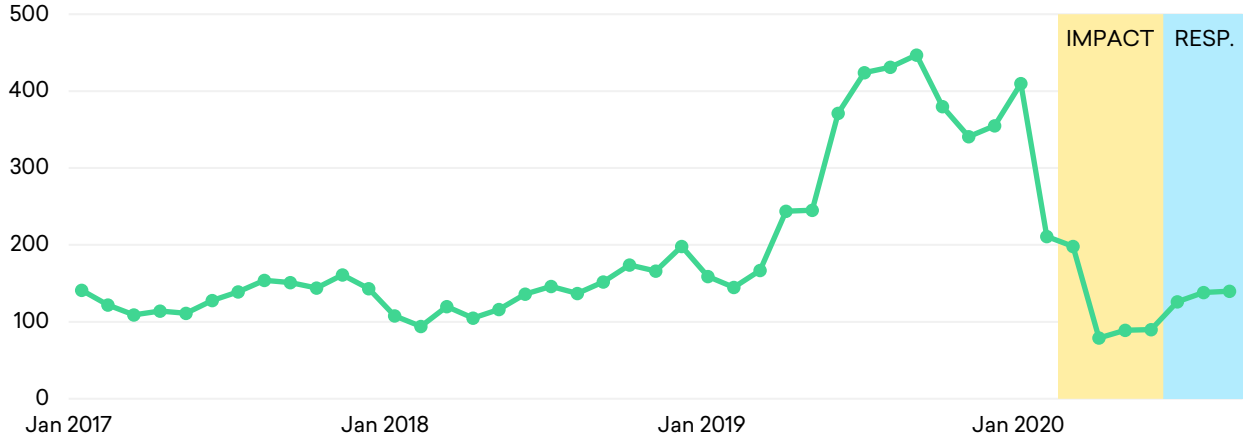


Region	Unique Postings
Central WPR	**597**
Kentuckiana LWA	**571**
East WPR	**167**
West WPR	**135**
South WPR	**104**

Table 3.1: Kentucky Job Postings by Occupation for the Pre-K Workforce

OCCUPATION TITLE	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION	COVID RESPONSE INDEX
Preschool Teachers, Except Special Ed.	1,439	88.3%	4 : 1	29 days	-1
Education & Childcare Admin., Preschool & Daycare	170	10.4%	3 : 1	20 days	-1
Special Ed. Teachers, Preschool	21	1.3%	2 : 1	48 days	0
Total	**1,630**	**100.0%**	**4 : 1**	**28 days**	**--**

Figure 3.1: Unique Job Postings for the Pre-K Workforce in Kentucky, January 2017 to September 2020, with COVID-19 Impact and Response Periods Highlighted



Source: Emsi Job Posting Analytics January 2019 to December 2019.

Figure 3.2: Required Levels of Education in Kentucky Job Postings for the Pre-K Workforce

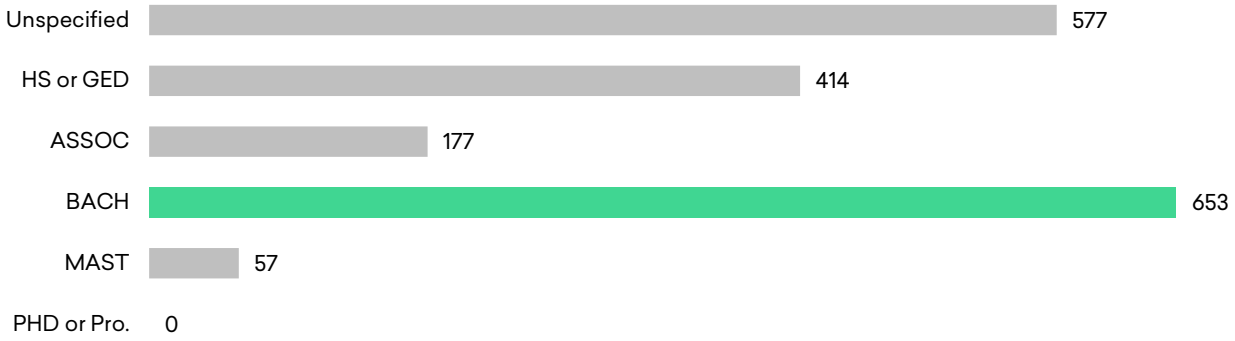


Table 3.2: Top Job Titles in Kentucky Job Postings for the Pre-K Workforce

JOB TITLE	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Online English Teachers	323	19.8%	1 : 1	35 days
Preschool Teachers	178	10.9%	2 : 1	43 days
Lead Teachers	145	8.9%	8 : 1	37 days
Teachers	142	8.7%	5 : 1	23 days
Teacher Assistants	71	4.4%	6 : 1	22 days
Early Childhood Teachers	69	4.2%	4 : 1	50 days
Child Care Teachers	67	4.1%	4 : 1	14 days
Daycare Teachers	30	1.8%	2 : 1	16 days
Toddler Teachers	29	1.8%	6 : 1	26 days
Preschool Teacher Assistants	25	1.5%	6 : 1	16 days
Preschool Lead Teachers	24	1.5%	4 : 1	22 days
Special Agents	20	1.2%	2 : 1	48 days
Infant Teachers	19	1.2%	2 : 1	12 days
Preschool Instructors	18	1.1%	1 : 1	9 days
Center Directors	14	0.9%	3 : 1	11 days
ECE Teachers	14	0.9%	12 : 1	15 days
Associate Teachers	14	0.9%	4 : 1	14 days
Child Care Professionals	14	0.9%	5 : 1	19 days
Lead Infant Teachers	12	0.7%	14 : 1	24 days
Child Care Administrators	11	0.7%	2 : 1	13 days

Source: Emsi Job Posting Analytics January 2019 to December 2019.

Table 3.3: Top Cities in Kentucky Job Postings for the Pre-K Workforce

CITY	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Louisville, KY	485	29.8%	5 : 1	18 days
Lexington, KY	212	13.0%	5 : 1	24 days
Florence, KY	29	1.8%	6 : 1	18 days
Georgetown, KY	25	1.5%	3 : 1	19 days
Independence, KY	24	1.5%	12 : 1	56 days
Alexandria, KY	19	1.2%	5 : 1	28 days
Bowling Green, KY	19	1.2%	4 : 1	24 days
Covington, KY	19	1.2%	3 : 1	18 days
Crestwood, KY	17	1.0%	5 : 1	41 days
Owensboro, KY	17	1.0%	2 : 1	18 days

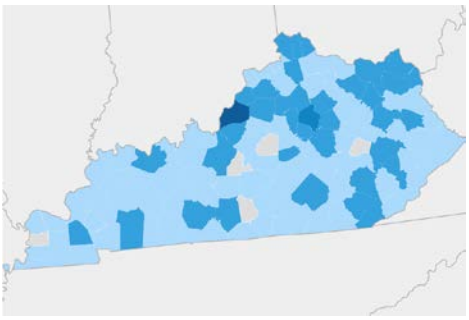
Table 3.4: Top Companies Posting for the Pre-K Workforce in Kentucky Job Postings

COMPANY	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
VIPKid	274	16.8%	1 : 1	64 days
KinderCare Learning Centers	231	14.2%	11 : 1	35 days
Jefferson County Public Schools	70	4.3%	5 : 1	24 days
University of Kentucky	53	3.3%	5 : 1	35 days
FDJ.com	44	2.7%	1 : 1	28 days
Bright Horizons Family Solutions, Inc.	36	2.2%	7 : 1	25 days
Cadence Design Systems, Inc.	23	1.4%	6 : 1	52 days
Jefferson County	23	1.4%	1 : 1	96 days
Kids R Kids, Inc.	21	1.3%	3 : 1	22 days
Federal Bureau of Investigation	20	1.2%	2 : 1	48 days
Learning Care Group, Inc.	20	1.2%	7 : 1	54 days
Bright Horizons Children's Centers LLC	18	1.1%	5 : 1	21 days
Baptist Healthcare System, Inc.	14	0.9%	2 : 1	23 days
Creation Kingdom	13	0.8%	2 : 1	12 days
Love & Learning Child Care, Inc.	11	0.7%	2 : 1	15 days

Source: Emsi Job Posting Analytics January 2019 to December 2019.

ELEMENTARY SCHOOL TEACHERS

1,557	3 : 1	26 days
Unique Postings (Jan 2019 – Dec 2019) 4,980 Total Postings	Posting Intensity State Average: 4 : 1	Median Posting Duration State Average: 29 days

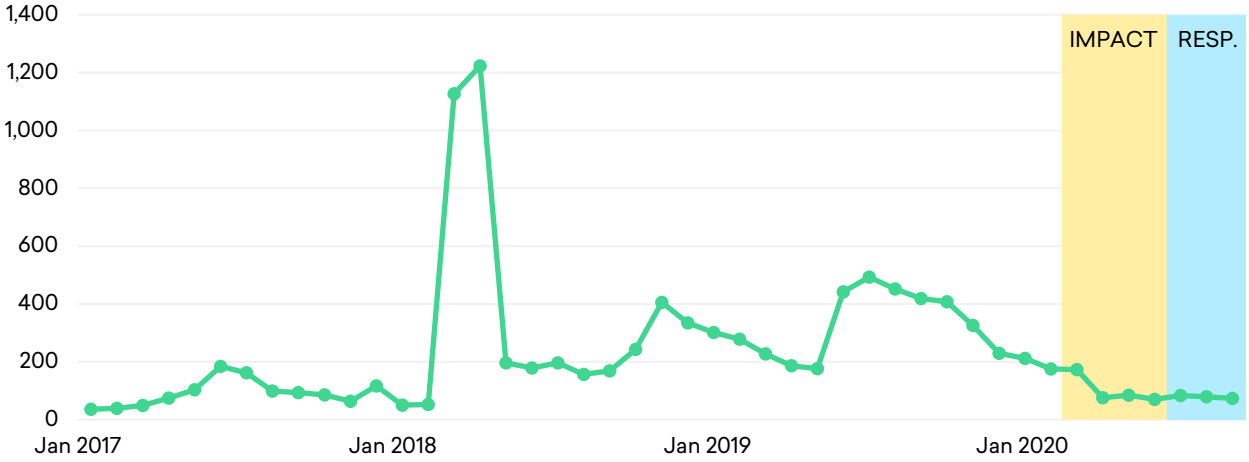


Region	Unique Postings
Central WPR	**471**
Kentuckiana LWA	**455**
East WPR	**307**
West WPR	**151**
South WPR	**122**

Table 3.5: Kentucky Job Postings by Occupation for Elementary School Teachers

OCCUPATION TITLE	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION	COVID RESPONSE INDEX
Elementary School Teachers, Except Special Ed.	1,494	94.7%	3 : 1	26 days	+2
Kindergarten Teachers, Except Special Ed.	83	5.3%	2 : 1	44 days	-2
Total	**1,577**	**100.0%**	**3 : 1**	**26 days**	**--**

Figure 3.3: Unique Job Postings for Elementary School Teachers in Kentucky, January 2017 to September 2020, with COVID-19 Impact and Response Periods Highlighted



Source: Emsi Job Posting Analytics January 2019 to December 2019.

Figure 3.4: Required Levels of Education in Kentucky Job Postings for Elementary School Teachers

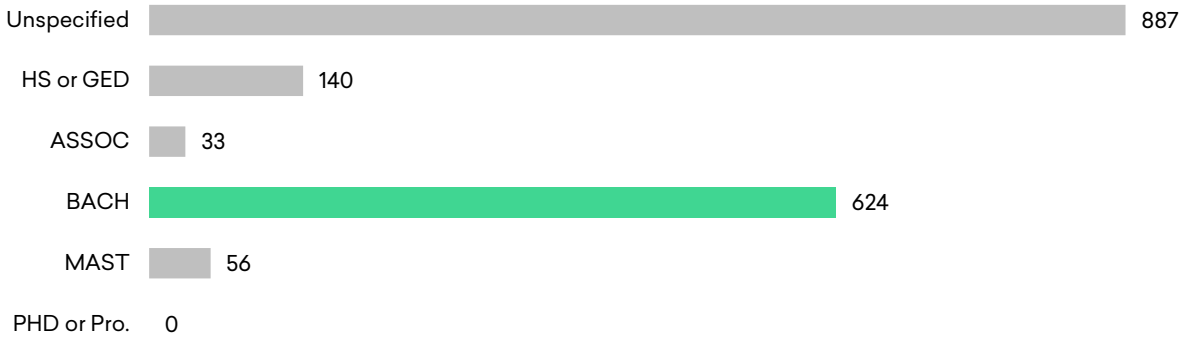


Table 3.6: Top Job Titles in Kentucky Job Postings for Elementary School Teachers

JOB TITLE	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Elementary Teachers	252	16.0%	2 : 1	54 days
English Instructors	189	12.0%	3 : 1	24 days
Online Children's English Teachers	188	11.9%	3 : 1	21 days
Teachers	114	7.2%	3 : 1	26 days
Elementary Classroom Instructors	66	4.2%	5 : 1	11 days
Kindergarten Teachers	53	3.4%	2 : 1	33 days
Primary Teachers	50	3.2%	1 : 1	31 days
5th Grade Teachers	43	2.7%	2 : 1	26 days
Elementary School Teachers	33	2.1%	5 : 1	52 days
3rd Grade Teachers	32	2.0%	7 : 1	29 days
ESL Teachers	28	1.8%	6 : 1	19 days
Online ESL Teachers	23	1.5%	5 : 1	44 days
1st Grade Teachers	22	1.4%	1 : 1	35 days
2nd Grade Teachers	20	1.3%	2 : 1	51 days
Art Teachers	18	1.1%	2 : 1	55 days
Resource Teachers	18	1.1%	4 : 1	15 days
ECE Teachers	18	1.1%	10 : 1	12 days
4th Grade Teachers	18	1.1%	1 : 1	17 days
Elementary Classroom Teachers	17	1.1%	1 : 1	21 days
English Teachers	16	1.0%	1 : 1	11 days

Source: Emsi Job Posting Analytics January 2019 to December 2019.

Table 3.7: Top Cities in Kentucky Job Postings for Elementary School Teachers

CITY	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Louisville, KY	356	22.6%	5 : 1	17 days
Lexington, KY	112	7.1%	6 : 1	28 days
Williamstown, KY	28	1.8%	1 : 1	37 days
Shepherdsville, KY	24	1.5%	2 : 1	40 days
Georgetown, KY	22	1.4%	2 : 1	41 days
Owensboro, KY	22	1.4%	3 : 1	46 days
Crestwood, KY	20	1.3%	1 : 1	16 days
Frankfort, KY	17	1.1%	2 : 1	46 days
Florence, KY	16	1.0%	7 : 1	57 days
Covington, KY	15	1.0%	5 : 1	53 days

Table 3.8: Top Public Organizations* Posting for Elementary School Teachers in Kentucky Job Postings

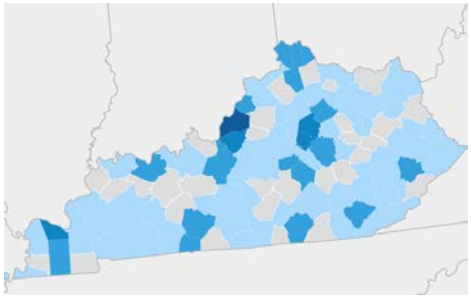
COMPANY	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Jefferson County Public Schools	207	13.1%	8 : 1	17 days
Jefferson County	83	5.3%	1 : 1	19 days
Fayette County Public Schools	59	3.7%	8 : 1	26 days
Grand County School District	23	1.5%	1 : 1	37 days
Oldham County Board of Education	18	1.1%	1 : 1	35 days
Bullitt County Public Schools	18	1.1%	2 : 1	25 days
Auburn University	12	0.8%	1 : 1	57 days
Covington Independent School District	10	0.6%	7 : 1	36 days
Owensboro Independent School District	10	0.63%	1 : 1	72 days
Scott County	10	0.63%	1 : 1	70 days
Alachua County Public Schools	10	0.63%	2 : 1	38 days
University of Kentucky	10	0.63%	7 : 1	41 days
Jessamine County Schools	9	0.57%	1 : 1	134 days
Dayton Independent School District	8	0.51%	2 : 1	10 days
Marshall County	8	0.51%	1 : 1	150 days

* Includes public schools, local governments, and postsecondary institutions.

Source: Emsi Job Posting Analytics January 2019 to December 2019.

MIDDLE SCHOOL TEACHERS

757	3 : 1	42 days
Unique Postings (Jan 2019 – Dec 2019) 2,572 Total Postings	Posting Intensity State Average: 4 : 1	Median Posting Duration State Average: 29 days



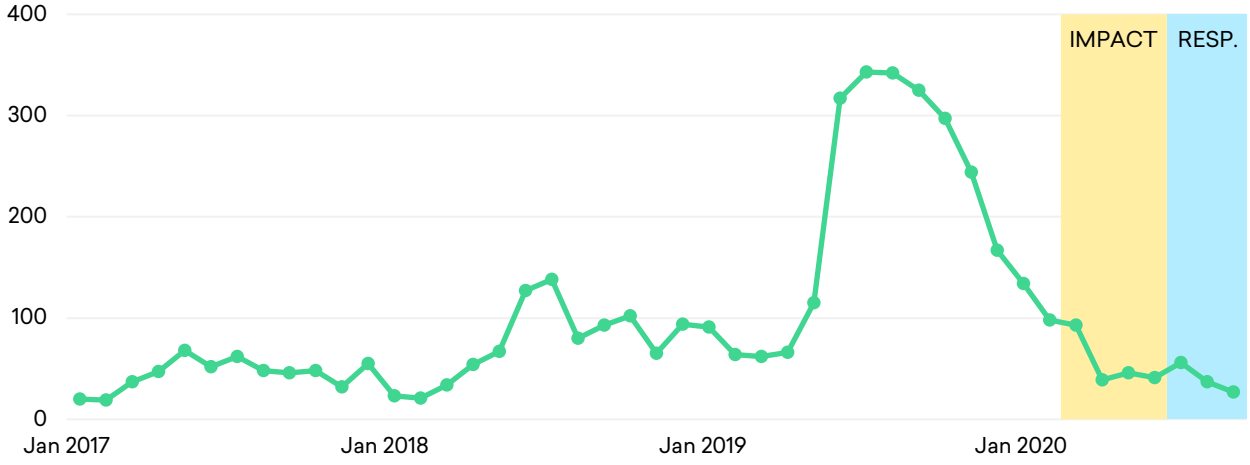
Region	Unique Postings
Kentuckiana LWA	**297**
Central WPR	**216**
East WPR	**80**
West WPR	**80**
South WPR	**59**

Table 3.9: Kentucky Job Postings by Occupation for Middle School Teachers

OCCUPATION TITLE	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION	COVID RESPONSE INDEX
Middle School Teachers, Except Special Ed. & CTE	698	92.2%	3 : 1	44 days	+1
CTE Teachers, Middle School	59	7.8%	3 : 1	25 days	-3
Total	**757**	**100.0%**	**3 : 1**	**42 days**	**--**

CTE refers to career/technical education.

Figure 3.5: Unique Job Postings for Middle School Teachers in Kentucky, January 2017 to September 2020, with COVID-19 Impact and Response Periods Highlighted



Source: Emsi Job Posting Analytics January 2019 to December 2019.

Figure 3.6: Required Levels of Education in Kentucky Job Postings for Middle School Teachers

Table 3.10: Top Job Titles in Kentucky Job Postings for Middle School Teachers

JOB TITLE	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Middle School Teachers	64	8.5%	5 : 1	45 days
Instructors	51	6.7%	3 : 1	29 days
Middle School Math Teachers	50	6.6%	1 : 1	104 days
Teachers	41	5.4%	2 : 1	19 days
Mathematics Teachers	37	4.9%	1 : 1	25 days
Middle School Science Teachers	37	4.9%	1 : 1	76 days
Social Studies Teachers	34	4.5%	5 : 1	78 days
Middle School Social Studies Teachers	30	4.0%	1 : 1	72 days
English Language Arts Teachers	22	2.9%	9 : 1	25 days
Science Teachers	21	2.8%	6 : 1	59 days
Middle School Language Arts Teachers	20	2.6%	1 : 1	27 days
ECE Teachers	16	2.1%	3 : 1	17 days
Middle School English Language Arts Teachers	10	1.3%	1 : 1	134 days
8th Grade Science Teachers	9	1.2%	1 : 1	65 days
Art Teachers	9	1.2%	1 : 1	14 days
English Teachers	9	1.2%	2 : 1	24 days
Middle School English Teachers	9	1.2%	1 : 1	132 days
Tutors	8	1.1%	17 : 1	44 days
Classroom Teachers	7	0.9%	1 : 1	17 days
Head Coaches	7	0.9%	1 : 1	18 days

Source: Emsi Job Posting Analytics January 2019 to December 2019.

Table 3.11: Top Cities in Kentucky Job Postings for Middle School Teachers

CITY	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Louisville, KY	235	31.0%	6 : 1	25 days
Lexington, KY	33	4.4%	11 : 1	33 days
Shepherdsville, KY	20	2.6%	2 : 1	30 days
Paducah, KY	19	2.5%	2 : 1	16 days
Barbourville, KY	15	2.0%	1 : 1	19 days
Crestwood, KY	15	2.0%	1 : 1	134 days
Florence, KY	15	2.0%	3 : 1	128 days
Stanford, KY	14	1.8%	1 : 1	23 days
Hindman, KY	12	1.6%	1 : 1	159 days
Owensboro, KY	12	1.6%	5 : 1	41 days

Table 3.12: Top Public Organizations* Posting for Middle School Teachers in Kentucky Job Postings

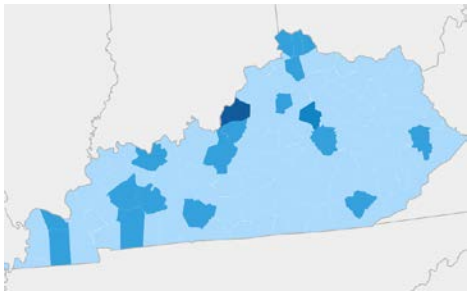
COMPANY	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Jefferson County Public Schools	178	23.5%	7 : 1	20 days
Jefferson County	38	5.0%	1 : 1	70 days
Bullitt County Public Schools	18	2.4%	2 : 1	22 days
Fayette County Public Schools	16	2.1%	17 : 1	47 days
Oldham County Board of Education	15	2.0%	1 : 1	134 days
McCracken County Public Schools	13	1.7%	2 : 1	11 days
Knott County School District	12	1.6%	1 : 1	159 days
Madison County	10	1.3%	1 : 1	156 days
Auburn University	10	1.3%	1 : 1	53 days
Knox County Schools	10	1.3%	2 : 1	19 days
Jessamine County Schools	9	1.2%	1 : 1	25 days
Grand County School District	9	1.2%	1 : 1	42 days
Simpson County	8	1.1%	1 : 1	72 days
Owensboro Independent School District	7	0.9%	1 : 1	1 day
Boyle County School District	6	0.8%	1 : 1	20 days

* Includes public schools, local governments, and postsecondary institutions.

Source: Emsi Job Posting Analytics January 2019 to December 2019.

HIGH SCHOOL TEACHERS

2,274	3 : 1	22 days
Unique Postings (Jan 2019 – Dec 2019) 6,623 Total Postings	Posting Intensity State Average: 4 : 1	Median Posting Duration State Average: 29 days



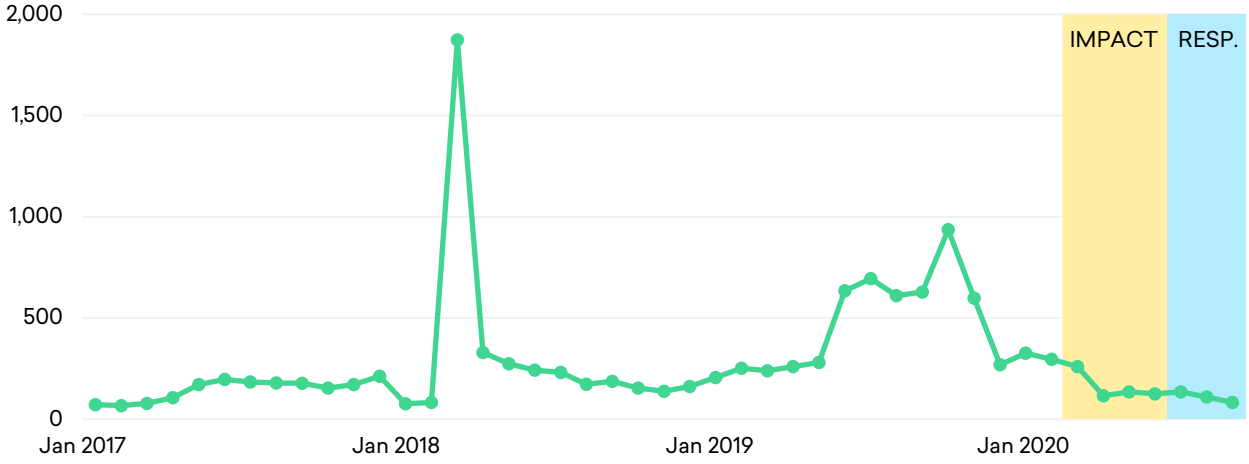
Region	Unique Postings
Kentuckiana LWA	**661**
Central WPR	**643**
West WPR	**372**
East WPR	**303**
South WPR	**224**

Table 3.13: Kentucky Job Postings by Occupation for High School Teachers

OCCUPATION TITLE	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION	COVID RESPONSE INDEX
Secondary School Teachers, Except Special Ed. & CTE	2,246	98.8%	3 : 1	22 days	-2
CTE Teachers, Secondary School	28	1.2%	2 : 1	23 days	-2
Total	**2,274**	**100.0%**	**3 : 1**	**22 days**	**--**

CTE refers to career/technical education.

Figure 3.7: Unique Job Postings for High School Teachers in Kentucky, January 2017 to September 2020, with COVID-19 Impact and Response Periods Highlighted



Source: Emsi Job Posting Analytics January 2019 to December 2019.

Figure 3.8: Required Levels of Education in Kentucky Job Postings for High School Teachers

Table 3.14: Top Job Titles in Kentucky Job Postings for High School Teachers

JOB TITLE	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Teachers	672	29.6%	4 : 1	15 days
Mathematics Teachers	144	6.3%	2 : 1	45 days
Social Studies Teachers	110	4.8%	2 : 1	79 days
Tutors	103	4.5%	2 : 1	34 days
Classroom Instructors	78	3.4%	1 : 1	15 days
High School Mathematics Teachers	77	3.4%	3 : 1	83 days
TEFL Teachers	68	3.0%	1 : 1	9 days
Spanish Teachers	66	2.9%	1 : 1	43 days
English Teachers	64	2.8%	2 : 1	22 days
Science Teachers	64	2.8%	3 : 1	43 days
High School Teachers	39	1.7%	5 : 1	21 days
ECE Teachers	29	1.3%	6 : 1	17 days
High School English Teachers	28	1.2%	1 : 1	143 days
Online English Teachers	26	1.1%	4 : 1	5 days
Instructors	24	1.1%	2 : 1	49 days
Physical Education Teachers	19	0.8%	1 : 1	17 days
Mathematics and Science Teachers	19	0.8%	2 : 1	23 days
Substitute Teachers	18	0.8%	1 : 1	46 days
Physical Education/Health Teachers	18	0.8%	4 : 1	31 days
Special Education Teachers	15	0.7%	2 : 1	22 days

Source: Emsi Job Posting Analytics January 2019 to December 2019.

Table 3.15: Top Cities in Kentucky Job Postings for High School Teachers

CITY	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Louisville, KY	521	22.9%	5 : 1	20 days
Lexington, KY	126	5.5%	4 : 1	23 days
Shepherdsville, KY	45	2.0%	2 : 1	35 days
Madisonville, KY	41	1.8%	3 : 1	43 days
Williamstown, KY	35	1.5%	1 : 1	31 days
Owensboro, KY	33	1.5%	3 : 1	22 days
Frankfort, KY	32	1.4%	2 : 1	39 days
Paducah, KY	32	1.4%	4 : 1	28 days
Bowling Green, KY	30	1.3%	2 : 1	18 days
Covington, KY	28	1.2%	4 : 1	19 days

Table 3.16: Top Public Organizations* Posting for High School Teachers in Kentucky Job Postings

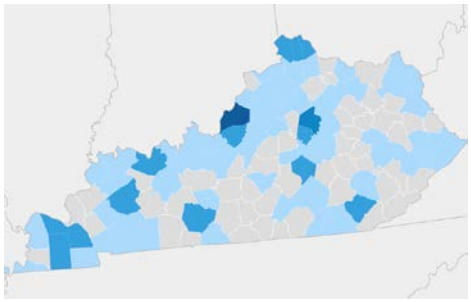
COMPANY	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Jefferson County Public Schools	327	14.4%	5 : 1	20 days
Jefferson County	55	2.4%	2 : 1	45 days
Bullitt County Public Schools	30	1.3%	1 : 1	20 days
Grand County School District	25	1.1%	1 : 1	33 days
McCracken County Public Schools	21	0.9%	5 : 1	18 days
Hopkins County School District	20	0.9%	5 : 1	43 days
Fayette County Public Schools	18	0.8%	10 : 1	30 days
County of Fayette	14	0.6%	2 : 1	86 days
Boone County Schools	12	0.5%	5 : 1	34 days
Knox County Schools	12	0.5%	1 : 1	16 days
County of Franklin	11	0.5%	1 : 1	53 days
Bullitt County Board of Education	10	0.4%	2 : 1	76 days
Garrard County Schools	10	0.4%	2 : 1	104 days
Lincoln County Board of Education	10	0.4%	1 : 1	32 days
Carroll County Schools	9	0.4%	4 : 1	44 days

* Includes public schools, local governments, and postsecondary institutions.

Source: Emsi Job Posting Analytics January 2019 to December 2019.

SPECIAL EDUCATION TEACHERS

489	3 : 1	33 days
Unique Postings (Jan 2019 – Dec 2019) 1,581 Total Postings	Posting Intensity State Average: 4 : 1	Median Posting Duration State Average: 29 days

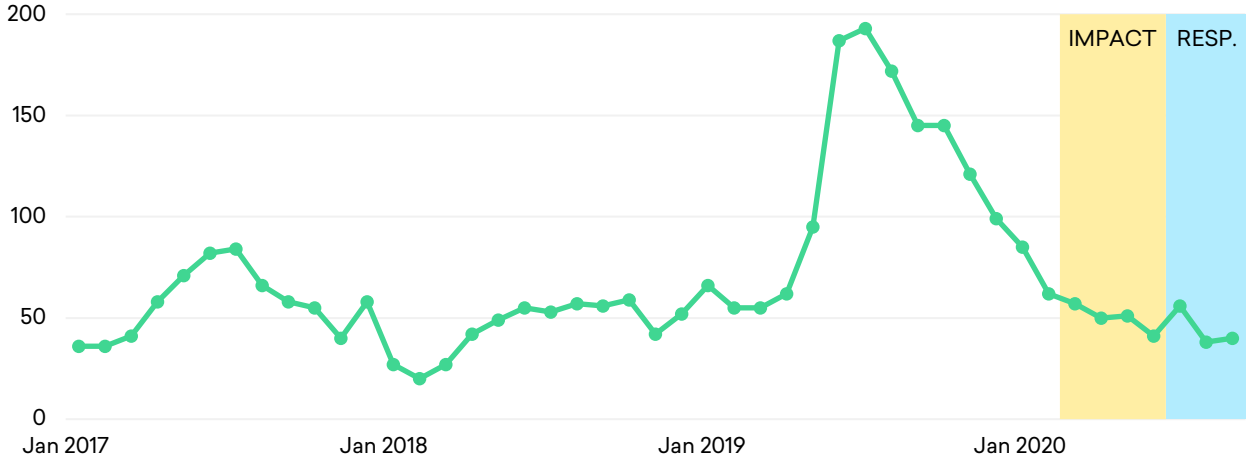


Region	Unique Postings
Central WPR	**175**
Kentuckiana LWA	**124**
West WPR	**80**
East WPR	**35**
South WPR	**30**

Table 3.17: Kentucky Job Postings by Occupation for Special Education Teachers

OCCUPATION TITLE	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION	COVID RESPONSE INDEX
Special Ed. Teachers, Kindergarten & Elementary School	378	77.3%	4 : 1	31 days	+3
Special Ed. Teachers, Secondary School	77	15.7%	2 : 1	33 days	+3
Special Ed. Teachers, Middle School	34	7.0%	2 : 1	71 days	+1
Total	**489**	**100.0%**	**3 : 1**	**33 days**	**--**

Figure 3.9: Unique Job Postings for Special Education Teachers in Kentucky, January 2017 to September 2020, with COVID-19 Impact and Response Periods Highlighted



Source: Emsi Job Posting Analytics January 2019 to December 2019.

Figure 3.10: Required Levels of Education in Kentucky Job Postings for Special Education Teachers

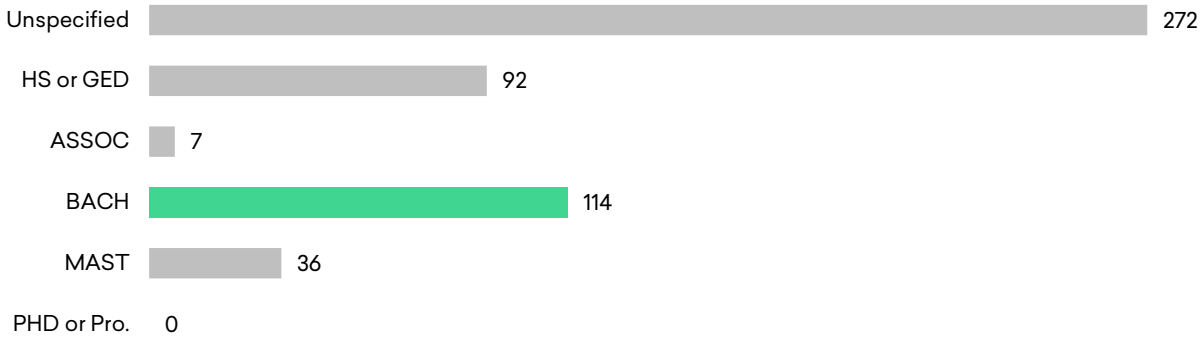


Table 3.18: Top Job Titles in Kentucky Job Postings for Special Education Teachers

JOB TITLE	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Special Education Teachers	123	25.2%	4 : 1	55 days
Teachers	68	13.9%	3 : 1	40 days
Elementary Special Education Teachers	17	3.5%	3 : 1	26 days
Early Childhood Teachers	17	3.5%	7 : 1	13 days
Intervention Teachers	14	2.9%	2 : 1	15 days
Research Associates	10	2.0%	6 : 1	109 days
Instructors	10	2.0%	1 : 1	11 days
Kindergarten Teachers	9	1.8%	3 : 1	33 days
Tutors	8	1.6%	2 : 1	11 days
ECE Teachers	8	1.6%	5 : 1	17 days
Special Education Instructors	8	1.6%	5 : 1	41 days
English Teachers	7	1.4%	1 : 1	22 days
Kindergarten/Elementary Teachers	6	1.2%	2 : 1	52 days
Elementary Classroom Instructors	6	1.2%	18 : 1	26 days
Exceptional Children Teachers	6	1.2%	2 : 1	18 days
Hearing Impaired Teachers	6	1.2%	2 : 1	18 days
Instructional Assistants	5	1.0%	1 : 1	11 days
Resource Teachers	5	1.0%	12 : 1	52 days
Special Education Interns	4	0.8%	1 : 1	15 days
Instructional Coaches	4	0.8%	2 : 1	42 days

Source: Emsi Job Posting Analytics January 2019 to December 2019.

Table 3.19: Top Cities in Kentucky Job Postings for Special Education Teachers

CITY	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Louisville, KY	91	18.6%	4 : 1	18 days
Lexington, KY	53	10.8%	7 : 1	41 days
Covington, KY	20	4.1%	2 : 1	14 days
Bowling Green, KY	16	3.3%	1 : 1	28 days
Shepherdsville, KY	15	3.1%	2 : 1	29 days
Owensboro, KY	14	2.9%	6 : 1	58 days
Florence, KY	13	2.7%	7 : 1	89 days
Paducah, KY	13	2.7%	3 : 1	15 days
Mayfield, KY	10	2.0%	1 : 1	44 days
Madisonville, KY	9	1.8%	2 : 1	18 days

Table 3.20: Top Public Organizations* Posting for Special Education Teachers in Kentucky Job Postings

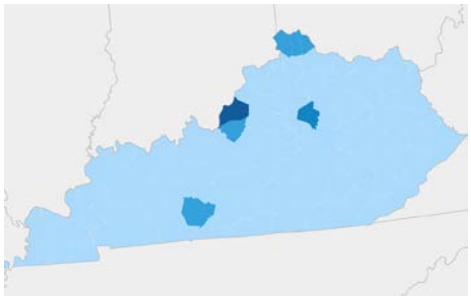
COMPANY	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Jefferson County Public Schools	67	13.7%	5 : 1	24 days
Fayette County Public Schools	29	5.9%	9 : 1	36 days
Bullitt County Public Schools	15	3.1%	2 : 1	29 days
McCracken County Public Schools	11	2.2%	3 : 1	13 days
Boone County Schools	10	2.0%	14 : 1	35 days
University of Kentucky	10	2.0%	6 : 1	109 days
Hopkins County School District	9	1.8%	2 : 1	18 days
Daviess County School District	9	1.8%	7 : 1	58 days
Beacon Charter High School for the Arts	8	1.6%	1 : 1	44 days
Covington Independent School District	8	1.6%	2 : 1	15 days
Knox County Schools	8	1.6%	2 : 1	20 days
Jefferson County	7	1.4%	1 : 1	18 days
Jessamine County Schools	6	1.2%	1 : 1	120 days
Carroll County Schools	6	1.2%	3 : 1	50 days
Lincoln County School District	6	1.2%	2 : 1	24 days

* Includes public schools, local governments, and postsecondary institutions.

Source: Emsi Job Posting Analytics January 2019 to December 2019.

EDUCATION WORKERS

4,205	4 : 1	19 days
Unique Postings (Jan 2019 – Dec 2019) 14,808 Total Postings	Posting Intensity State Average: 4 : 1	Median Posting Duration State Average: 29 days



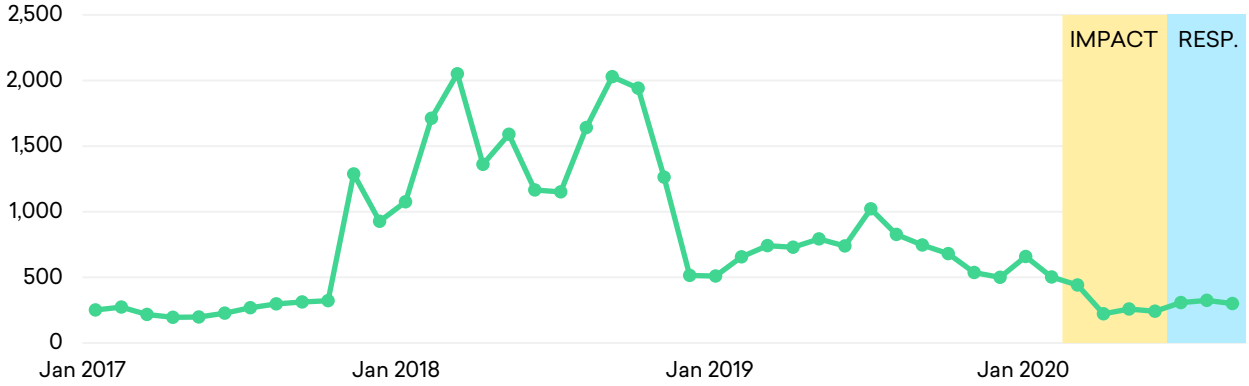
Region	Unique Postings
Central WPR	**1,545**
Kentuckiana LWA	**934**
East WPR	**684**
West WPR	**487**
South WPR	**350**

Table 3.21: Kentucky Job Postings by Occupation for Education Workers*

OCCUPATION TITLE	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION	COVID RESPONSE INDEX
Tutors & Teachers & Instructors, All Other	2,695	64.1%	3 : 1	15 days	-2
Teaching Assistants, Except Postsecondary	1,312	31.2%	4 : 1	23 days	+1
Self-Enrichment Teachers	153	3.6%	3 : 1	22 days	-1
Adult Basic Ed., Adult Secondary Ed., & ESL Instructors	45	1.1%	2 : 1	32 days	-2
Total	**4,205**	**100.0%**	**4 : 1**	**19 days**	**--**

ESL refers to English as a second language.
* No job postings are found for all other educational instruction & library workers.

Figure 3.11: Unique Job Postings for Education Workers in Kentucky, January 2017 to September 2020, with COVID-19 Impact and Response Periods Highlighted



Source: Emsi Job Posting Analytics January 2019 to December 2019.

Figure 3.12: Required Levels of Education in Kentucky Job Postings for Education Workers

Table 3.22: Top Job Titles in Kentucky Job Postings for Education Workers

JOB TITLE	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Tutors	2,027	48.2%	3 : 1	16 days
Instructional Assistants	291	6.9%	4 : 1	18 days
Teacher Assistants	218	5.2%	7 : 1	38 days
Babysitters	203	4.8%	7 : 1	33 days
Instructors	126	3.0%	1 : 1	4 days
Online English Teachers	119	2.8%	3 : 1	3 days
English Teachers	108	2.6%	1 : 1	33 days
Substitute Teachers	70	1.7%	2 : 1	45 days
Instructional Aides	49	1.2%	2 : 1	15 days
Paraeducators	45	1.1%	7 : 1	16 days
Substitute Instructional Assistants	31	0.7%	2 : 1	26 days
Special Education Instructional Assistants	29	0.7%	2 : 1	16 days
Teaching Assistants	28	0.7%	3 : 1	17 days
Teachers	24	0.6%	3 : 1	14 days
Instructional Assistants-Teacher Aide	24	0.6%	8 : 1	47 days
Preschool Instructional Assistants	23	0.5%	1 : 1	15 days
Online ESL Teachers	23	0.5%	2 : 1	9 days
Paraprofessionals	22	0.5%	2 : 1	34 days
Swim Instructors	21	0.5%	3 : 1	30 days
Instructional Paraeducators	20	0.5%	12 : 1	15 days

Source: Emsi Job Posting Analytics January 2019 to December 2019.

Table 3.23: Top Cities in Kentucky Job Postings for Education Workers

CITY	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Louisville, KY	605	14.4%	8 : 1	18 days
Lexington, KY	413	9.8%	6 : 1	32 days
Frankfort, KY	74	1.8%	2 : 1	19 days
Shepherdsville, KY	74	1.8%	1 : 1	15 days
Owensboro, KY	73	1.7%	3 : 1	25 days
Bowling Green, KY	67	1.6%	3 : 1	30 days
Covington, KY	67	1.6%	2 : 1	27 days
Florence, KY	53	1.3%	6 : 1	18 days
Paducah, KY	49	1.2%	2 : 1	12 days
Ashland, KY	39	0.9%	3 : 1	30 days

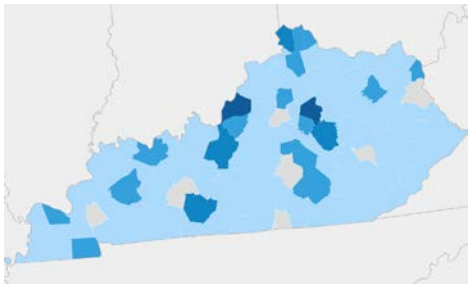
Table 3.24: Top Companies Posting for Education Workers in Kentucky Job Postings

COMPANY	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
EF Education First, Inc.	908	21.6%	2 : 1	6 days
VIPKid	491	11.7%	4 : 1	33 days
Varsity Tutors LLC	313	7.4%	6 : 1	23 days
University of Kentucky	183	4.4%	5 : 1	38 days
Super Pro	174	4.1%	3 : 1	23 days
Jefferson County Public Schools	145	3.4%	11 : 1	20 days
Qt Kids, Inc.	112	2.7%	2 : 1	11 days
KinderCare Learning Centers	99	2.4%	12 : 1	62 days
Teacher	92	2.2%	2 : 1	0 days
Kids & Company Ltd	74	1.8%	2 : 1	11 days
Bullitt County Public Schools	58	1.4%	1 : 1	15 days
Fayette County Public Schools	43	1.0%	13 : 1	52 days
Northern Kentucky University	42	1.0%	1 : 1	12 days
Vipride International, LLC	37	0.9%	2 : 1	26 days
Hawk Corporation	36	0.9%	2 : 1	49 days

Source: Emsi Job Posting Analytics January 2019 to December 2019.

ADMINISTRATORS & COUNSELORS

1,547	3 : 1	29 days
Unique Postings (Jan 2019 – Dec 2019) 3,946 Total Postings	Posting Intensity State Average: 4 : 1	Median Posting Duration State Average: 29 days

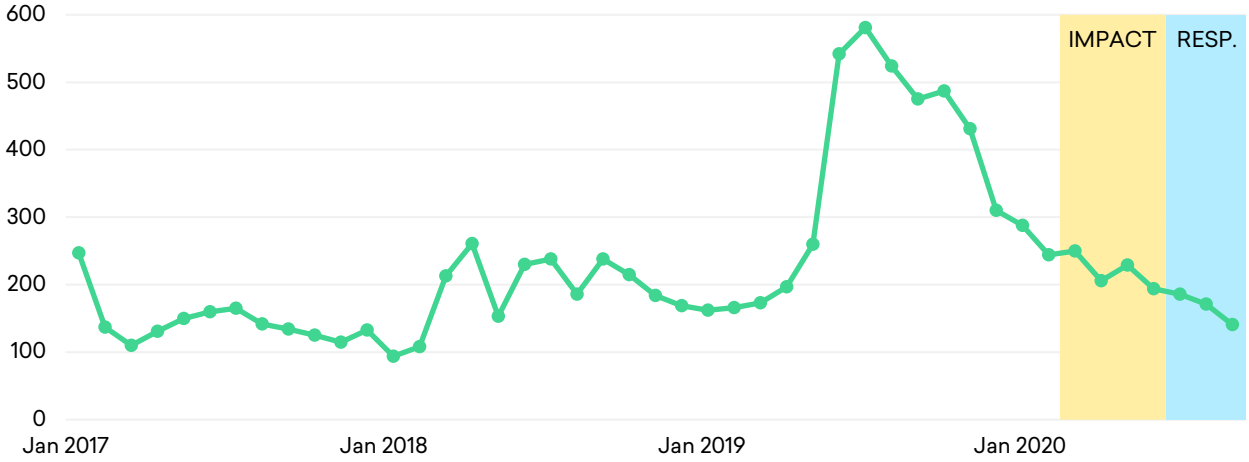


Region	Unique Postings
Central WPR	**618**
Kentuckiana LWA	**287**
West WPR	**221**
East WPR	**194**
South WPR	**167**

Table 3.25: Kentucky Job Postings by Occupation for Administrators & Counselors

OCCUPATION TITLE	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION	COVID RESPONSE INDEX
Educational, Guidance, & Career Counselors & Advisors	972	62.8%	3 : 1	23 days	-1
Ed. Administrators, K. through 12	575	37.2%	2 : 1	44 days	+1
Total	**1,547**	**100.0%**	**3 : 1**	**29 days**	**--**

Figure 3.13: Unique Job Postings for Administrators & Counselors in Kentucky, January 2017 to September 2020, with COVID-19 Impact and Response Periods Highlighted



Source: Emsi Job Posting Analytics January 2019 to December 2019.

Figure 3.14: Required Levels of Education in Kentucky Job Postings for Administrators & Counselors

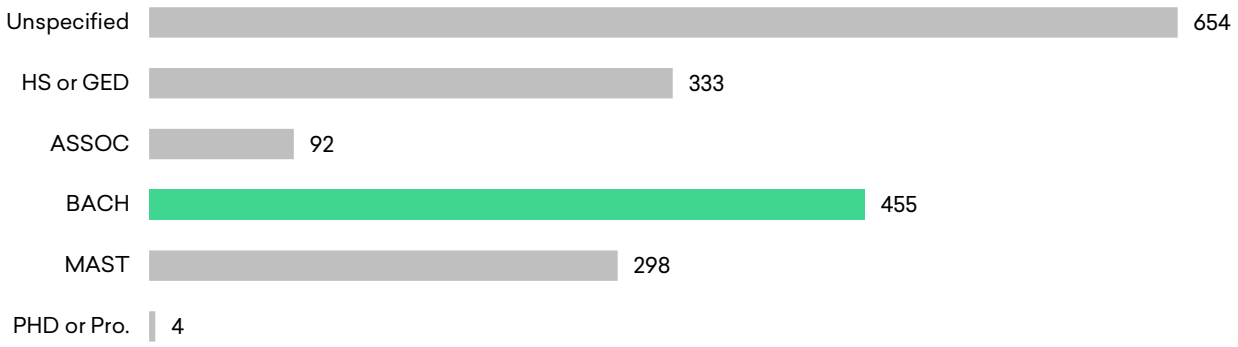


Table 3.26: Top Job Titles in Kentucky Job Postings for Administrators & Counselors

JOB TITLE	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Assistant Principals	111	7.2%	1 : 1	49 days
Principals	103	6.7%	1 : 1	53 days
Guidance Counselors	93	6.0%	2 : 1	53 days
Academic Advisors	60	3.9%	4 : 1	24 days
Admissions Counselors	53	3.4%	4 : 1	35 days
Counselors	41	2.7%	3 : 1	37 days
High School Assistant Principals	26	1.7%	2 : 1	39 days
School Principals	24	1.6%	1 : 1	21 days
Academic Coordinators	24	1.6%	6 : 1	36 days
Elementary School Principals	22	1.4%	2 : 1	44 days
General Managers	22	1.4%	2 : 1	6 days
School Counselors	21	1.4%	2 : 1	56 days
High School Principals	21	1.4%	1 : 1	54 days
Coordinators	20	1.3%	2 : 1	22 days
Career Counselors	19	1.2%	3 : 1	14 days
Elementary Principals	17	1.1%	1 : 1	158 days
Elementary Assistant Principals	17	1.1%	2 : 1	56 days
Career Coaches	15	1.0%	3 : 1	19 days
Deans of Students	14	0.9%	2 : 1	45 days
Elementary Guidance Counselors	14	0.9%	2 : 1	104 days

Source: Emsi Job Posting Analytics January 2019 to December 2019.

Table 3.27: Top Cities in Kentucky Job Postings for Administrators & Counselors

CITY	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
Louisville, KY	230	14.9%	4 : 1	21 days
Lexington, KY	205	13.3%	4 : 1	30 days
Bowling Green, KY	56	3.6%	2 : 1	34 days
Madisonville, KY	32	2.1%	2 : 1	16 days
Owensboro, KY	31	2.0%	2 : 1	23 days
Florence, KY	30	1.9%	2 : 1	83 days
Morehead, KY	30	1.9%	5 : 1	22 days
Danville, KY	28	1.8%	2 : 1	40 days
Paducah, KY	28	1.8%	2 : 1	19 days
Richmond, KY	27	1.7%	1 : 1	18 days

Table 3.28: Top Public Organizations* Posting for Administrators & Counselors in Kentucky Job Postings**

COMPANY	UNIQUE POSTINGS	% UNIQUE POSTINGS	POSTING INTENSITY	MEDIAN POSTING DURATION
University of Kentucky	74	4.8%	7 : 1	35 days
Jefferson County Public Schools	64	4.1%	7 : 1	30 days
Fayette County Public Schools	51	3.3%	4 : 1	40 days
Kentucky Community & Technical College System	45	2.9%	2 : 1	15 days
Western Kentucky University	23	1.5%	4 : 1	55 days
Berea College	20	1.3%	2 : 1	19 days
Murray State University	18	1.2%	3 : 1	24 days
University of Louisville	16	1.0%	6 : 1	22 days
Grand County School District	15	1.0%	1 : 1	33 days
Commonwealth of Kentucky	15	1.0%	2 : 1	17 days
Eastern Kentucky University	15	1.0%	1 : 1	15 days
Hopkins County School District	14	0.9%	2 : 1	16 days
Morehead State University	14	0.9%	4 : 1	14 days
County of Fayette	14	0.9%	2 : 1	86 days
Jefferson County	14	0.9%	3 : 1	21 days

* Includes public schools, local governments, and postsecondary institutions.

** Postings for educational, guidance, & career counselors & advisors, which account for about 60% of the occupational group, include K-12 and postsecondary jobs.

Source: Emsi Job Posting Analytics January 2019 to December 2019.

CHAPTER 4:

Demographic Analysis

Emsi's occupation demographics data are based on a combination of Quarterly Workforce Indicators (QWI) industry demographics, American Community Survey (ACS) occupation data, and standard staffing patterns. Emsi uses suppressed QWI data at the four-digit industry level for state and regional job counts by age, gender, or race/ethnicity. ACS microdata are used to create specialized age, gender, and race/ethnicity staffing patterns, affectively unsuppressing the QWI data. The four-digit industry breakouts are applied to all the six-digit industries in that four-digit industry, resulting in industry demographics. From the industry data, Emsi applies another staffing pattern using ACS data to add demographic detail, resulting in occupational demographics.

INTRODUCTION

Demographics for the education occupational groups, current and historical, are shown by age group, gender, and race/ethnicity for the state, preceded by demographic data on education program completers. Statewide completion data are shown, as well as regional data, and have been provided by the Council. Completions are a three-year average from academic year 2017-18 to 2019-20 for programs identified by state or regional institutions as teacher preparation programs. In addition, education program completions are shown by Federal Pell Grant status.[9]

A map of net commuters is also included with Emsi's occupation demographics. Net commuters are the difference between the occupational group's county residents and the occupational group's county employment. Net positive numbers are in blue, and net negative numbers are in red. For a county in which more workers live than there are county jobs, net commuting is negative (i.e., the net result is that workers commute out of the county for work). For a county in which there are more jobs than there are resident workers, net commuting is positive (i.e., the net result is that workers commute into the county for work).

9 Federal Pell Grants are usually awarded only to undergraduate students who display exceptional financial need and have not earned a bachelor's, graduate, or professional degree. In some cases, however, a student enrolled in a postbaccalaureate teacher certification program might receive a Federal Pell Grant. Source: U.S. Department of Education.

These data come from Census Longitudinal Employer-Household Dynamics (LEHD) Origin-Destination Employment Statistics (LODES), specifically from Origin and Destination (OD) data, Regional Area Characteristics (RAC), and Workforce Area Characteristics (WAC) data, which Emsi applies to occupation jobs figures.

SUMMARY

Education program completers are typically young, White females and do not receive Federal Pell Grants. In each region, they are most likely to be between 19 and 34 years, but education program completers in the Central WPR tend to fall into the 19 to 24-year age band. About 10% are people of color, with the exception of completers in the Kentuckiana LWA (17%). Women typically account for 75% of all completers, but women in the West WPR account for 80% of all completers. About 30% receive Federal Pell Grants, ranging from 21% of all completers in the Kentuckiana WPR to 35% in the West WPR.

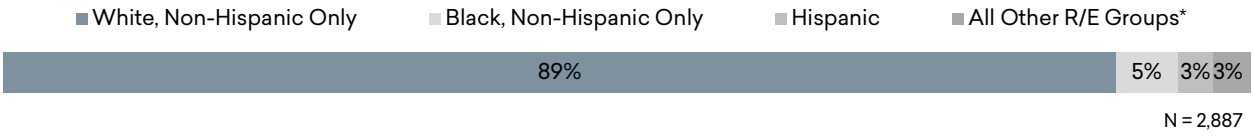
Emsi's occupational demographics show that people working in education are also typically White females, and commuting data show they are drawn to work in urban areas. When age data are compared across the occupational groups, the most represented age band for Education Workers and Administrators & Counselors is 45 to 54 years, as opposed to the 24 to 34-year age band for the other groups. Nonetheless, a major sector disruption with regards to a large number of upcoming retirements does not appear to be a concern at this time.

About 10% of Kentucky's education sector are people of color, with a smaller proportion working as High School Teachers and Middle School Teachers (8%) and a larger proportion working in the Pre-K Workforce (16%). Note that these percentages reflect occupational data and not people employed as certified teachers. Statewide, male High School Teachers account for about a third of the occupational group, and males account for 5% of the Pre-K Workforce. Males typically account for 20% of the sector in the state. Finally, urban areas in Kentucky, particularly Frankfurt (Franklin County) and Lexington (Fayette County), are large employers, drawing residents from neighboring counties. Furthermore, Kentucky residents near Cincinnati, Ohio; Evansville, Indiana; and Portsmouth, Ohio appear to work outside the state.

EDUCATION PROGRAM COMPLETERS

Kentucky

Figure 4.1: Average Annual Completions in Kentucky by Race/Ethnicity Group



* Asian or Pacific Islander, American Indian or Alaska Native, and two or more races.

Figure 4.2: Average Annual Completions in Kentucky by Gender

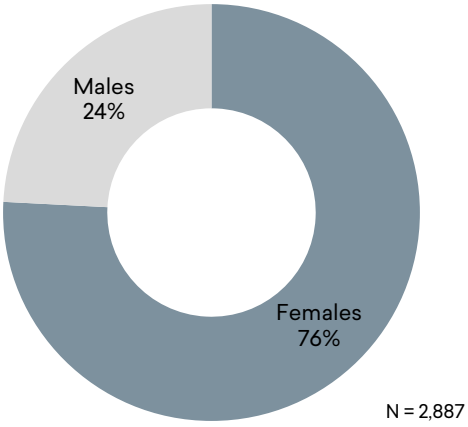


Figure 4.3: Average Annual Completions in Kentucky by Federal Pell Grant Status

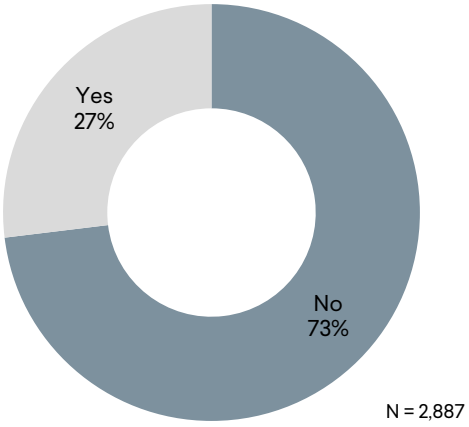
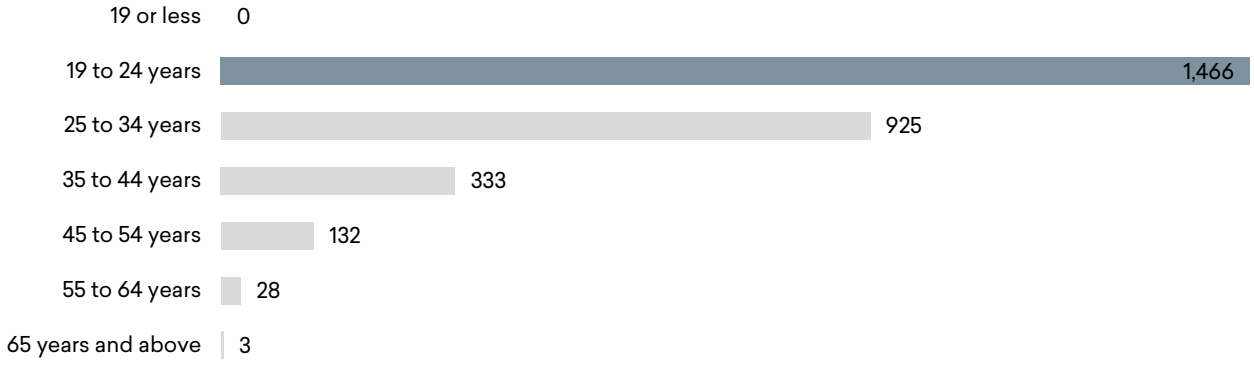


Figure 4.4: Average Annual Completions in Kentucky by Age Group



Data reflect average annual completions from academic year 2017-18 to 2019-20 for programs identified by state institutions as teacher preparation programs.
Source: Data provided by the Council.

Central Workforce Planning Region

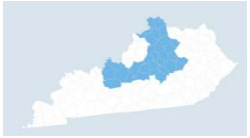
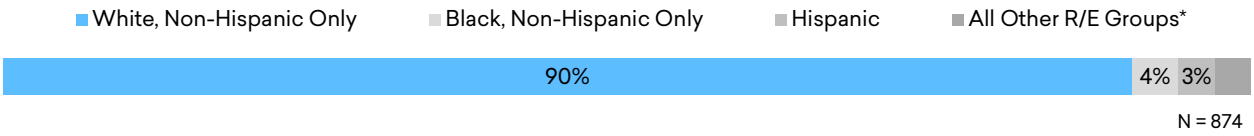


Figure 4.5: Average Annual Completions in the Central WPR by Race/Ethnicity Group



* Asian or Pacific Islander, American Indian or Alaska Native, and two or more races.

Figure 4.6: Average Annual Completions in the Central WPR by Gender

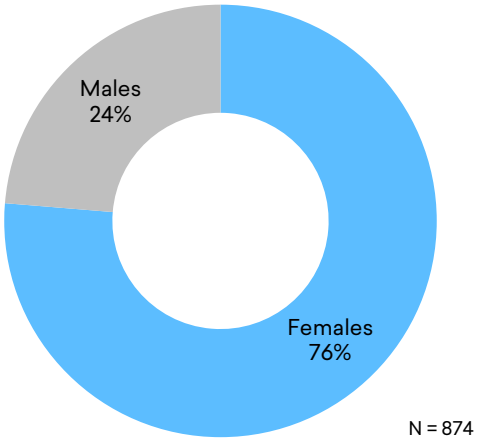


Figure 4.7: Average Annual Completions in the Central WPR by Federal Pell Grant Status

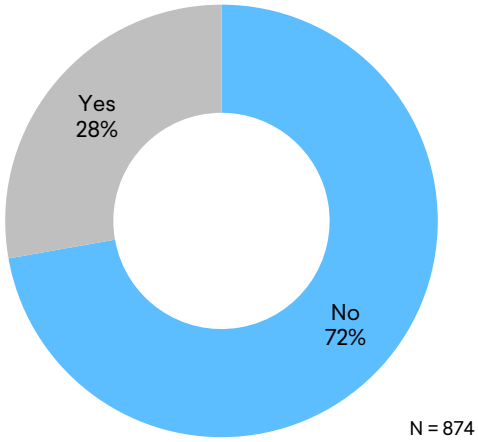
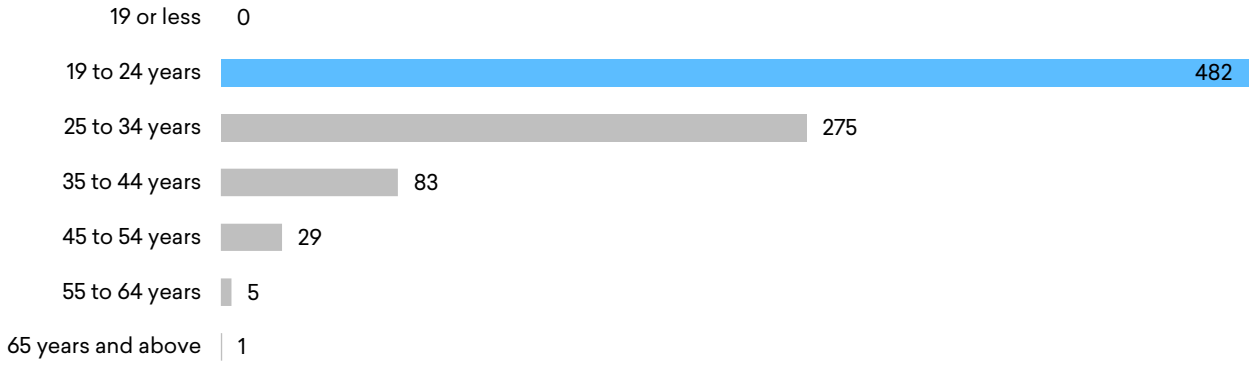


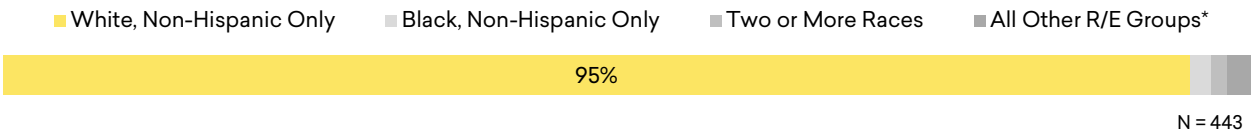
Figure 4.8: Average Annual Completions in the Central WPR by Age Group



Data reflect average annual completions from academic year 2017-18 to 2019-20 for programs identified by state institutions as teacher preparation programs.
Source: Data provided by the Council.

East Workforce Planning Region

Figure 4.9: Average Annual Completions in the East WPR by Race/Ethnicity Group



* Asian or Pacific Islander, American Indian or Alaska Native, and two or more races.

Figure 4.10: Average Annual Completions in the East WPR by Gender

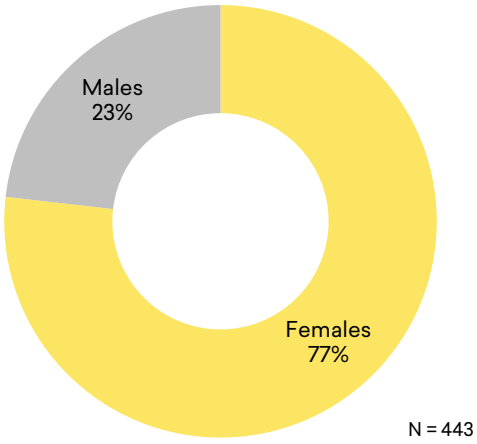


Figure 4.11: Average Annual Completions in the East WPR by Federal Pell Grant Status

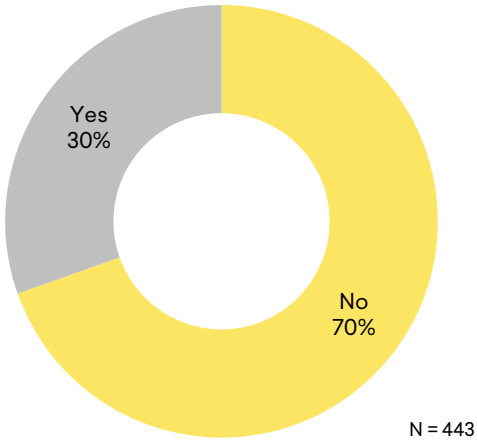
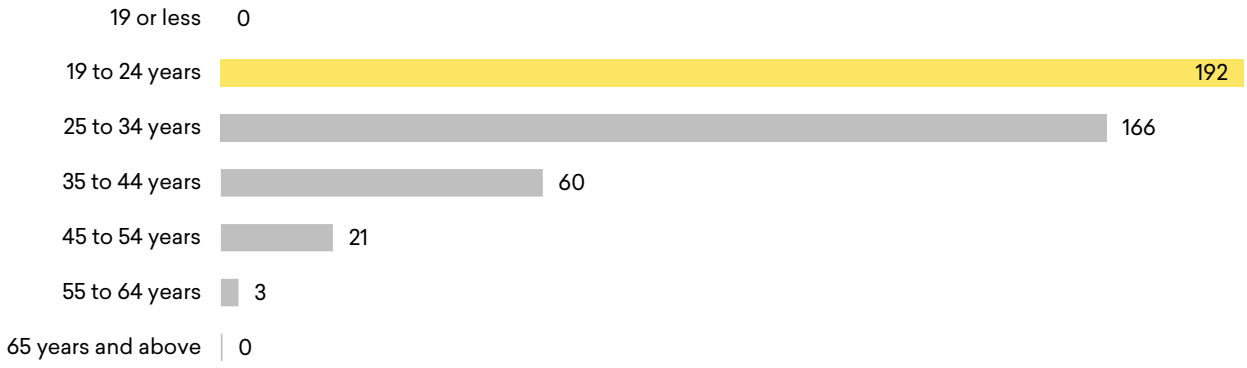


Figure 4.12: Average Annual Completions in the East WPR by Age Group



Data reflect average annual completions from academic year 2017-18 to 2019-20 for programs identified by state institutions as teacher preparation programs.
Source: Data provided by the Council.

Kentuckiana Local Workforce Area

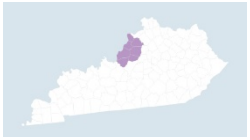
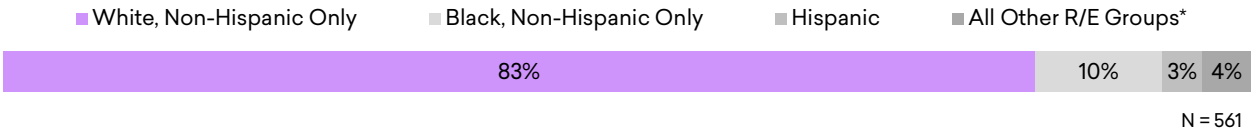


Figure 4.13: Average Annual Completions in the Kentuckiana LWA by Race/Ethnicity Group



* Asian or Pacific Islander, American Indian or Alaska Native, and two or more races.

Figure 4.14: Average Annual Completions in the Kentuckiana LWA by Gender

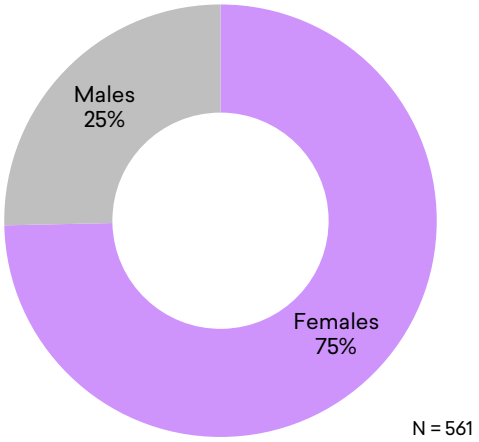


Figure 4.15: Average Annual Completions in the Kentuckiana LWA by Federal Pell Grant Status

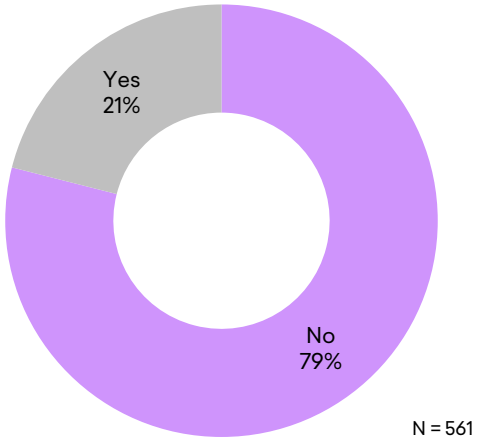
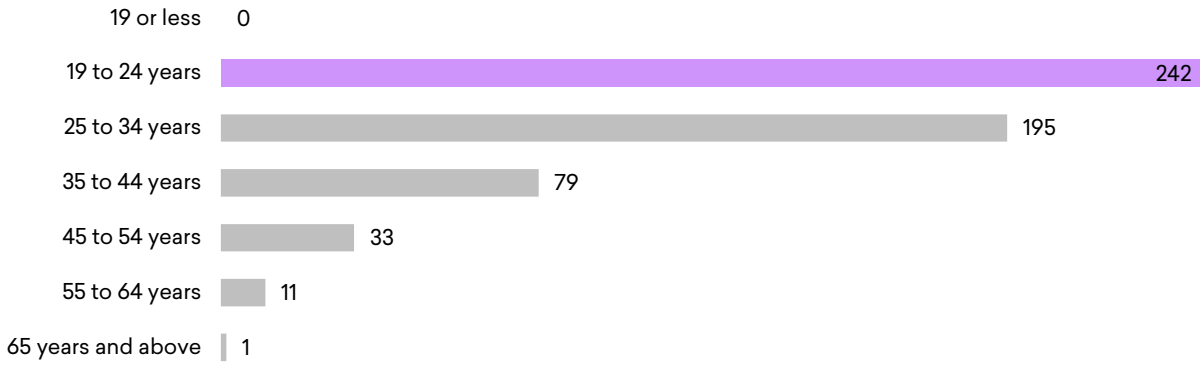


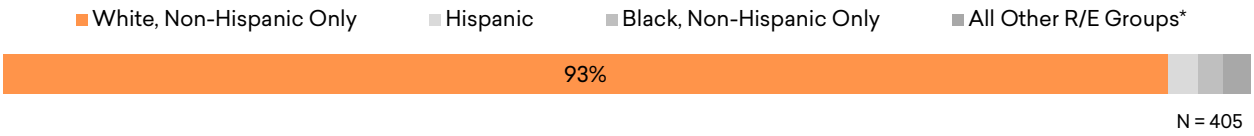
Figure 4.16: Average Annual Completions in the Kentuckiana LWA by Age Group



Data reflect average annual completions from academic year 2017-18 to 2019-20 for programs identified by state institutions as teacher preparation programs.
Source: Data provided by the Council.

South Workforce Planning Region

Figure 4.17: Average Annual Completions in the South WPR by Race/Ethnicity Group



* Asian or Pacific Islander, American Indian or Alaska Native, and two or more races.

Figure 4.18: Average Annual Completions in the South WPR by Gender

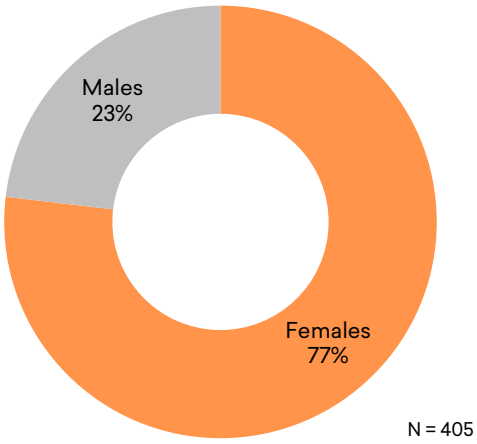


Figure 4.19: Average Annual Completions in the South WPR by Federal Pell Grant Status

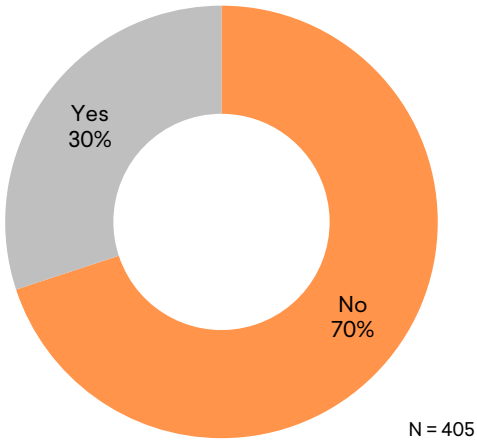
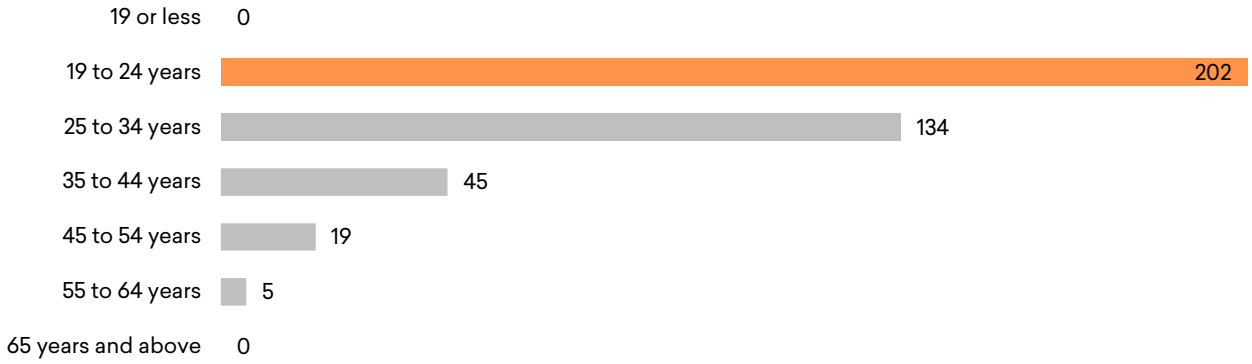


Figure 4.20: Average Annual Completions in the South WPR by Age Group



Data reflect average annual completions from academic year 2017-18 to 2019-20 for programs identified by state institutions as teacher preparation programs.
Source: Data provided by the Council.

West Workforce Planning Region

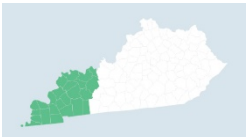
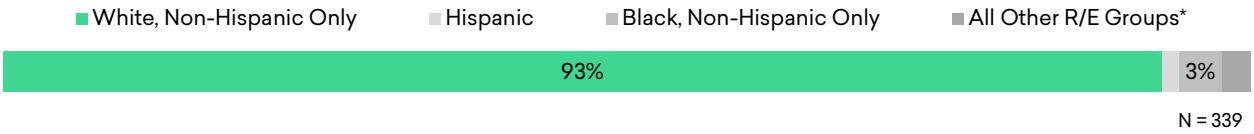


Figure 4.21: Average Annual Completions in the West WPR by Race/Ethnicity Group



* Asian or Pacific Islander, American Indian or Alaska Native, and two or more races.

Figure 4.22: Average Annual Completions in the East WPR by Gender

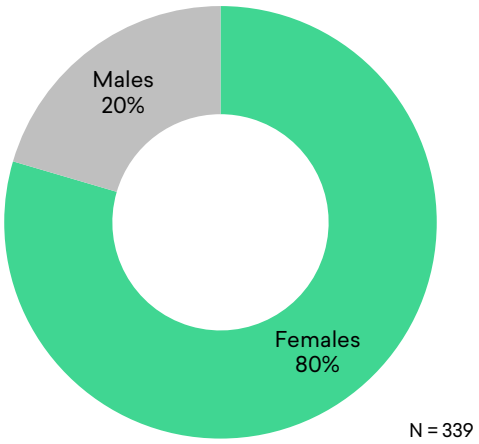


Figure 4.23: Average Annual Completions in the East WPR by Federal Pell Grant Status

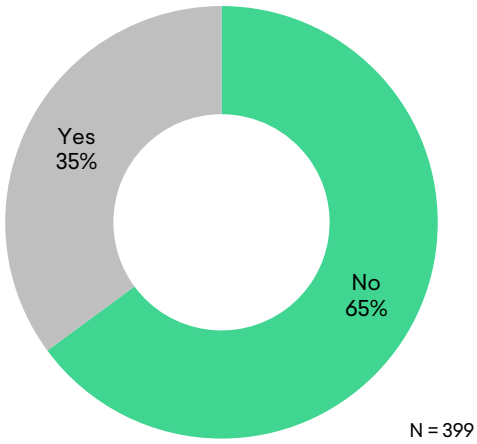
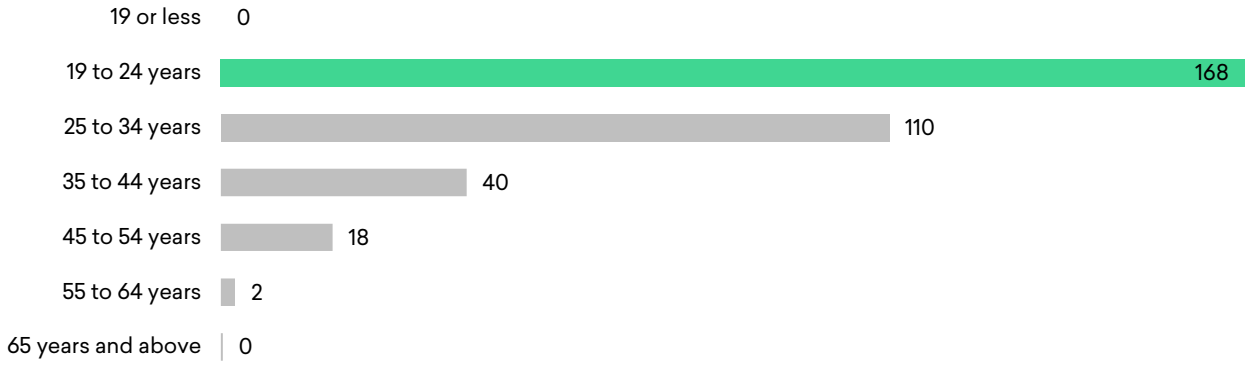


Figure 4.24: Average Annual Completions in the West WPR by Age Group



Data reflect average annual completions from academic year 2017-18 to 2019-20 for programs identified by state institutions as teacher preparation programs.
Source: Data provided by the Council.

PRE-K WORKFORCE

Figure 4.25: Net Commuters for the Pre-K Workforce in Kentucky, Measured by Place of Work and Place of Residence

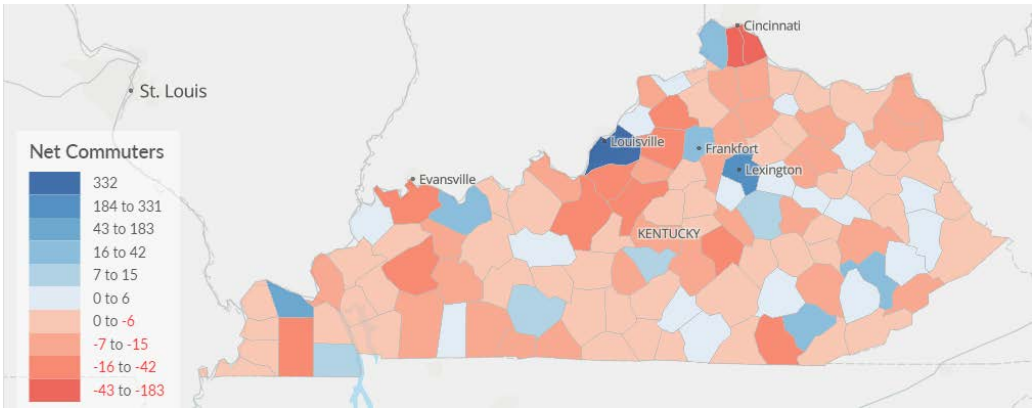


Figure 4.26: Age Groups of the Pre-K Workforce in Kentucky

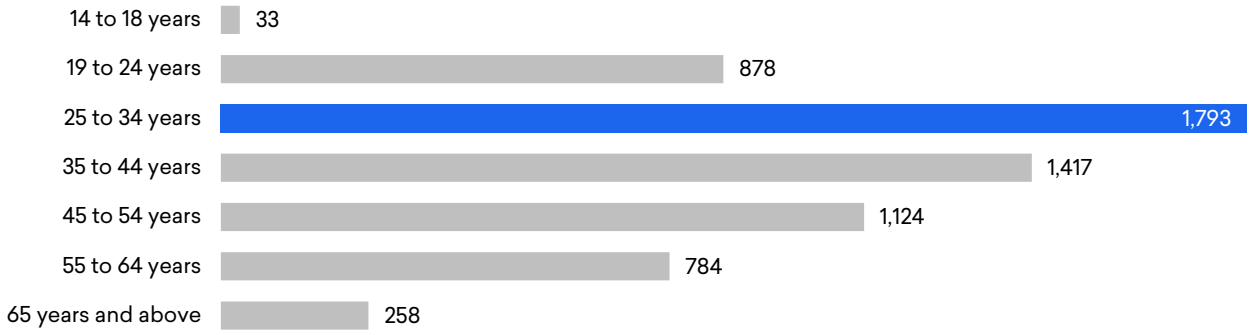
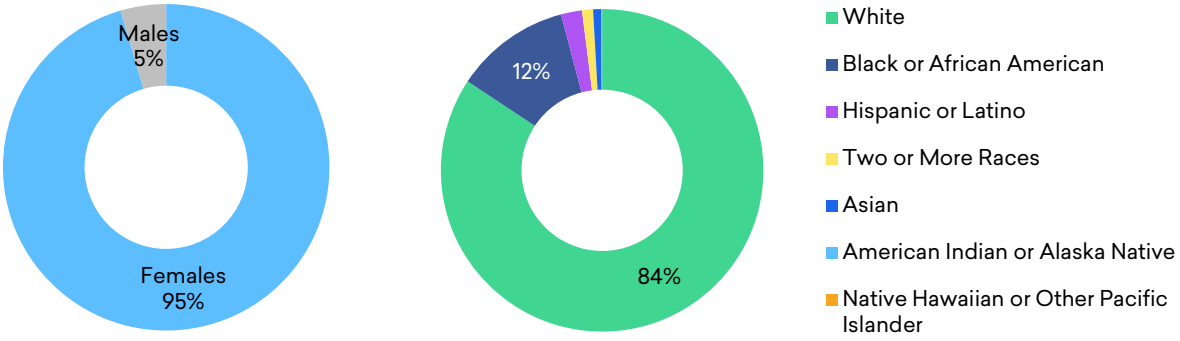


Figure 4.27: Genders and Race/Ethnicity Groups of the Pre-K Workforce in Kentucky*



* Demographic data are occupation-specific and do not reflect certified teachers.

Source: Emsi Employees & Self-Employed 2020.3 Data Run with Census LODES data. Emsi Occupation Diversity Dataset based on industry data from QWI and ACS occupation data.

Figure 4.28: Historical Age Groups of the Pre-K Workforce in Kentucky, 2001 to 2020

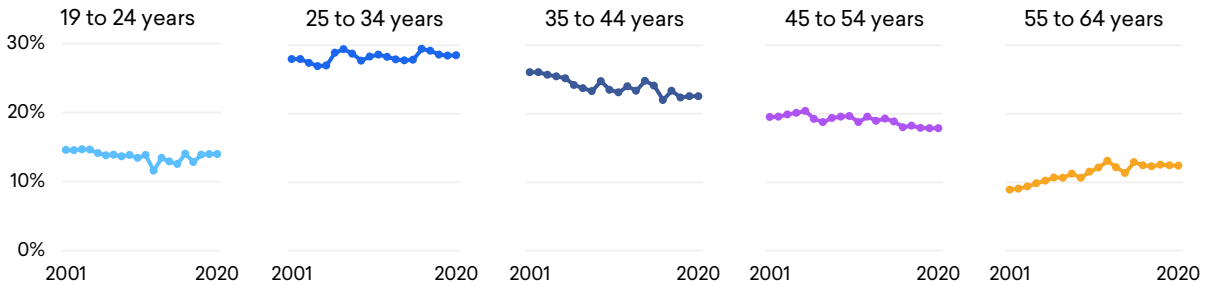


Figure 4.29: Historical Genders of the Pre-K Workforce in Kentucky, 2001 to 2020

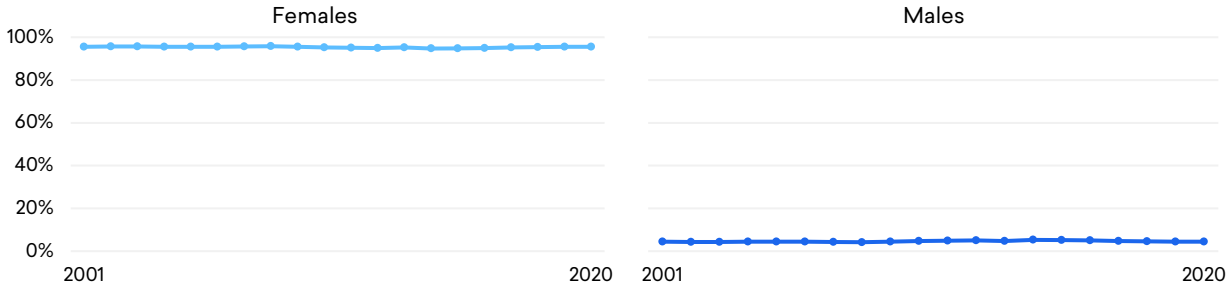
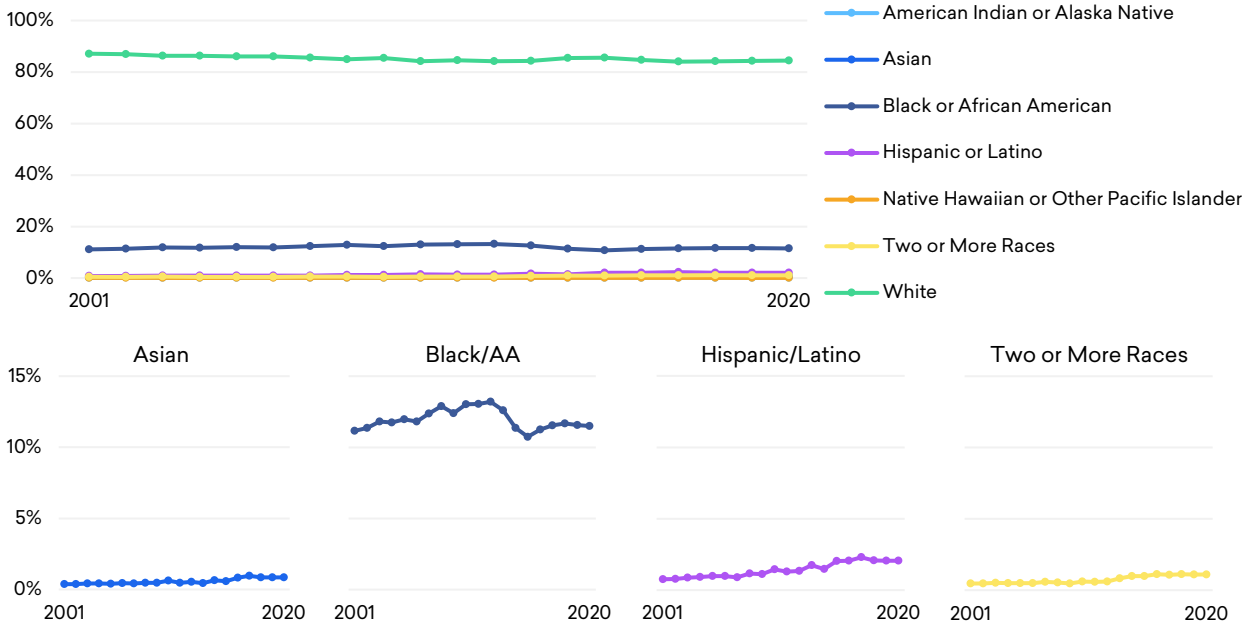


Figure 4.30: Historical Race/Ethnicity Groups of the Pre-K Workforce in Kentucky, 2001 to 2020, with a Comparison of the Four Largest Non-White Groups



Source: Emsi Occupation Diversity Dataset based on industry data from QWI and ACS occupation data.

ELEMENTARY SCHOOL TEACHERS

Figure 4.31: Net Commuters for Elementary School Teachers in Kentucky, Measured by Place of Work and Place of Residence

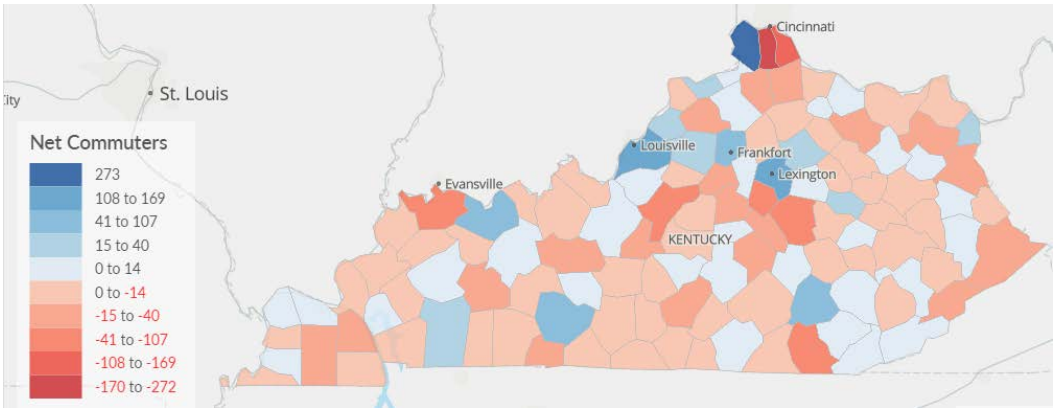


Figure 4.32: Age Groups of Elementary School Teachers in Kentucky

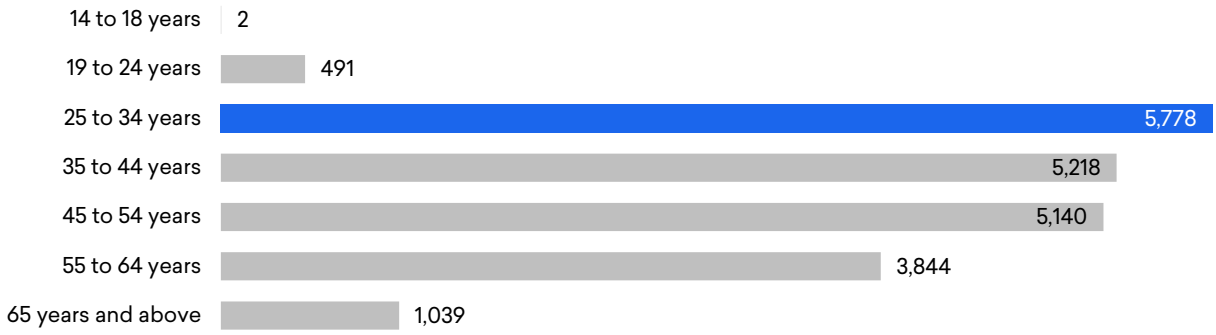
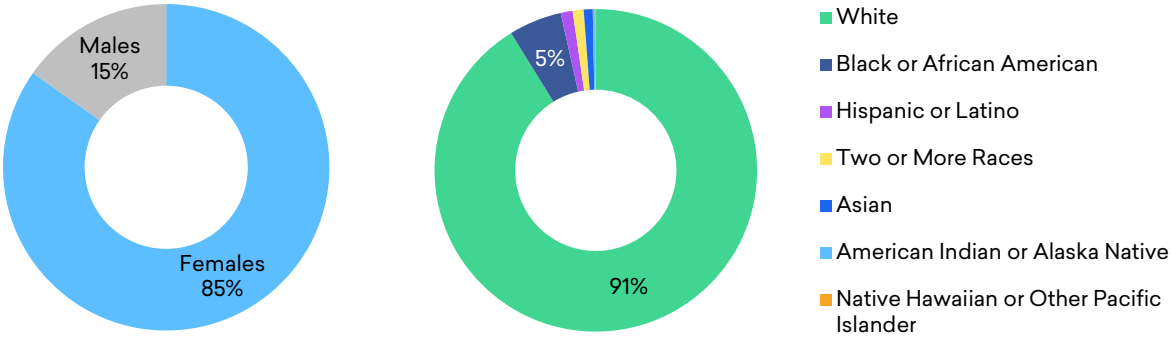


Figure 4.33: Genders and Race/Ethnicity Groups of Elementary School Teachers in Kentucky*



* Demographic data are occupation-specific and do not reflect certified teachers.

Source: Emsi Employees & Self-Employed 2020.3 Data Run with Census LODES data. Emsi Occupation Diversity Dataset based on industry data from QWI and ACS occupation data.

Figure 4.34: Historical Age Groups of Elementary School Teachers in Kentucky, 2001 to 2019

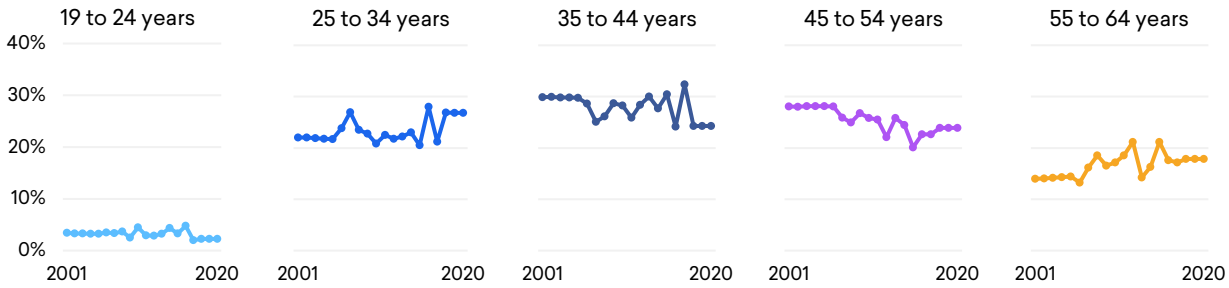


Figure 4.35: Historical Genders of Elementary School Teachers in Kentucky, 2001 to 2019

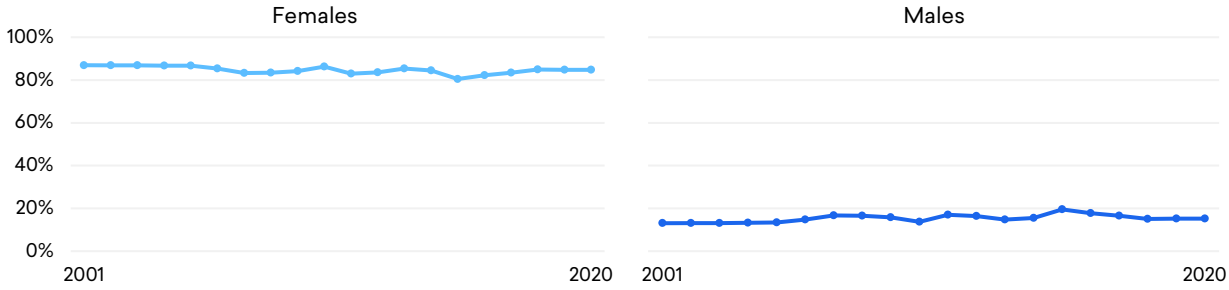
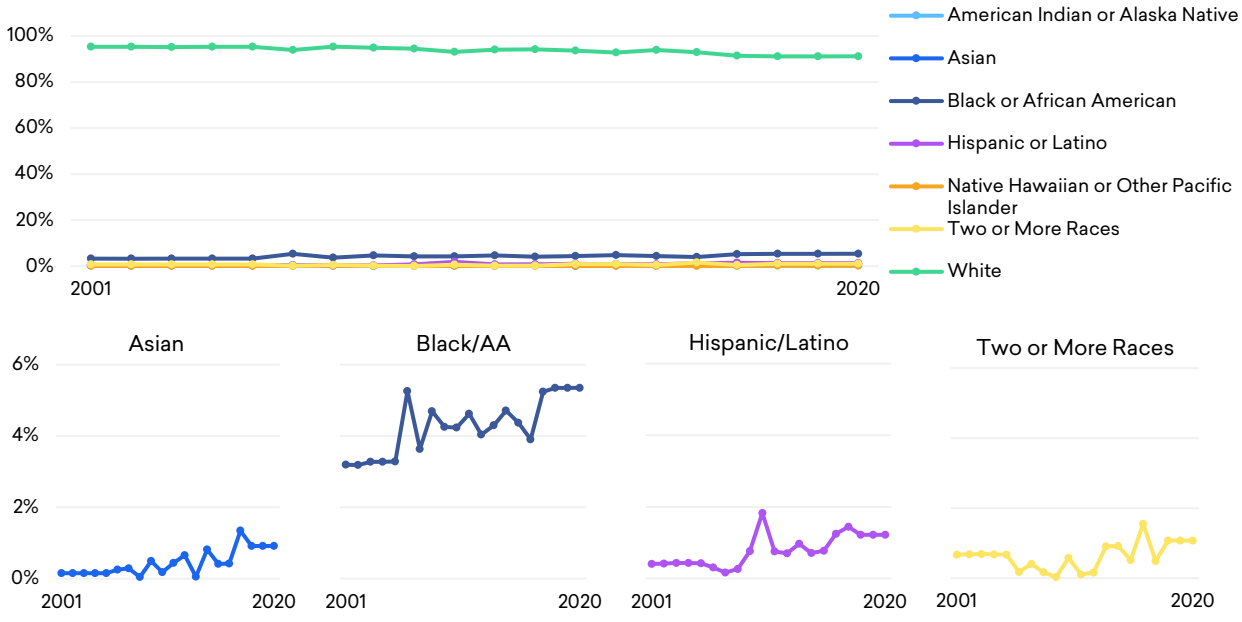


Figure 4.36: Historical Race/Ethnicity Groups of the Elementary School Teachers in Kentucky, 2001 to 2020, with a Comparison of the Four Largest Non-White Groups



Source: Emsi Occupation Diversity Dataset based on industry data from QWI and ACS occupation data.

MIDDLE SCHOOL TEACHERS

Figure 4.37: Net Commuters for Middle School Teachers in Kentucky, Measured by Place of Work and Place of Residence

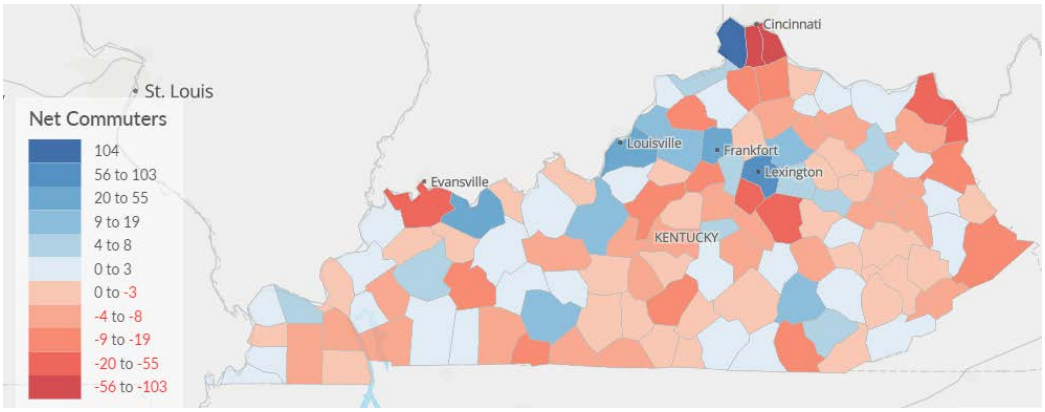


Figure 4.38: Age Groups of Middle School Teachers in Kentucky

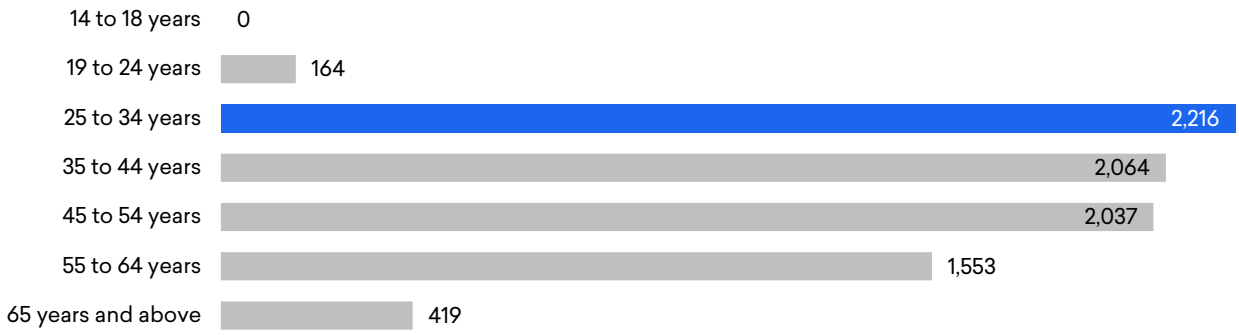
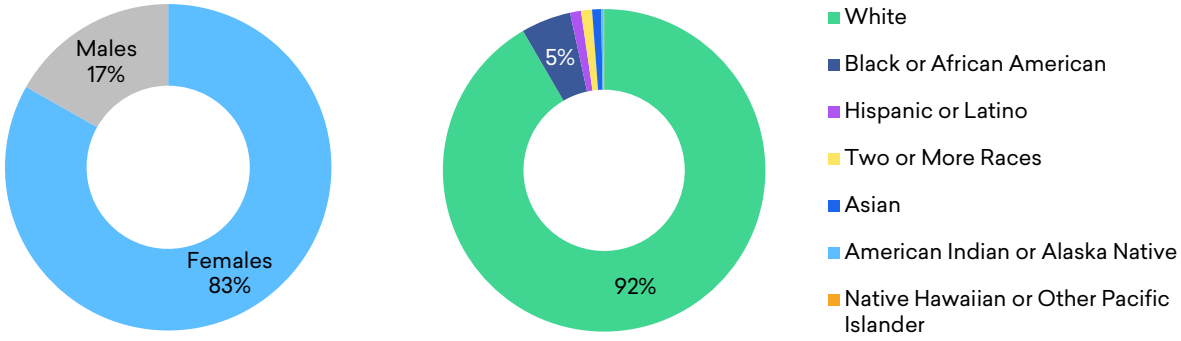


Figure 4.39: Genders and Race/Ethnicity Groups of Middle School Teachers in Kentucky*



* Demographic data are occupation-specific and do not reflect certified teachers.

Source: Emsi Employees & Self-Employed 2020.3 Data Run with Census LODES data. Emsi Occupation Diversity Dataset based on industry data from QWI and ACS occupation data.

Figure 4.40: Historical Age Groups of Middle School Teachers in Kentucky, 2001 to 2019

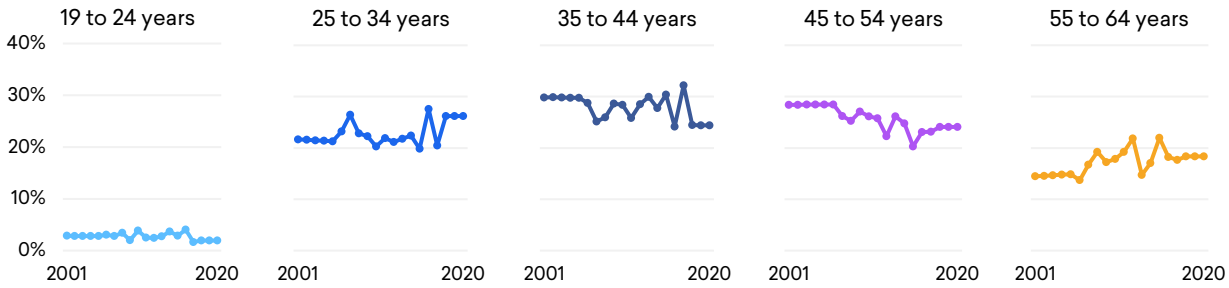


Figure 4.41: Historical Genders of Middle School Teachers in Kentucky, 2001 to 2019

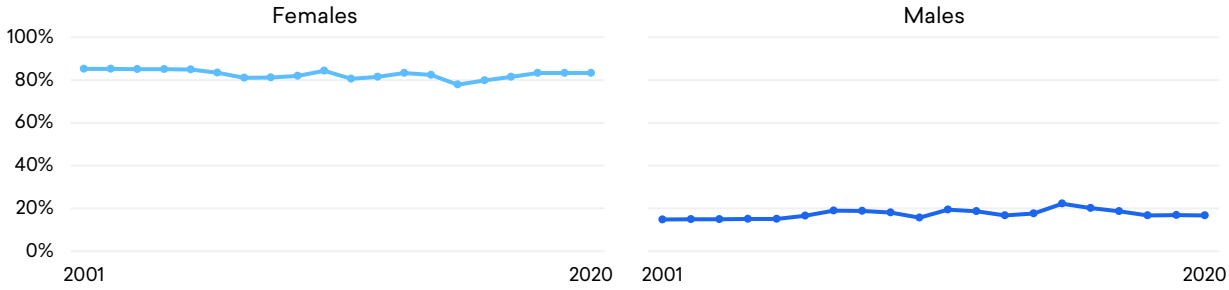
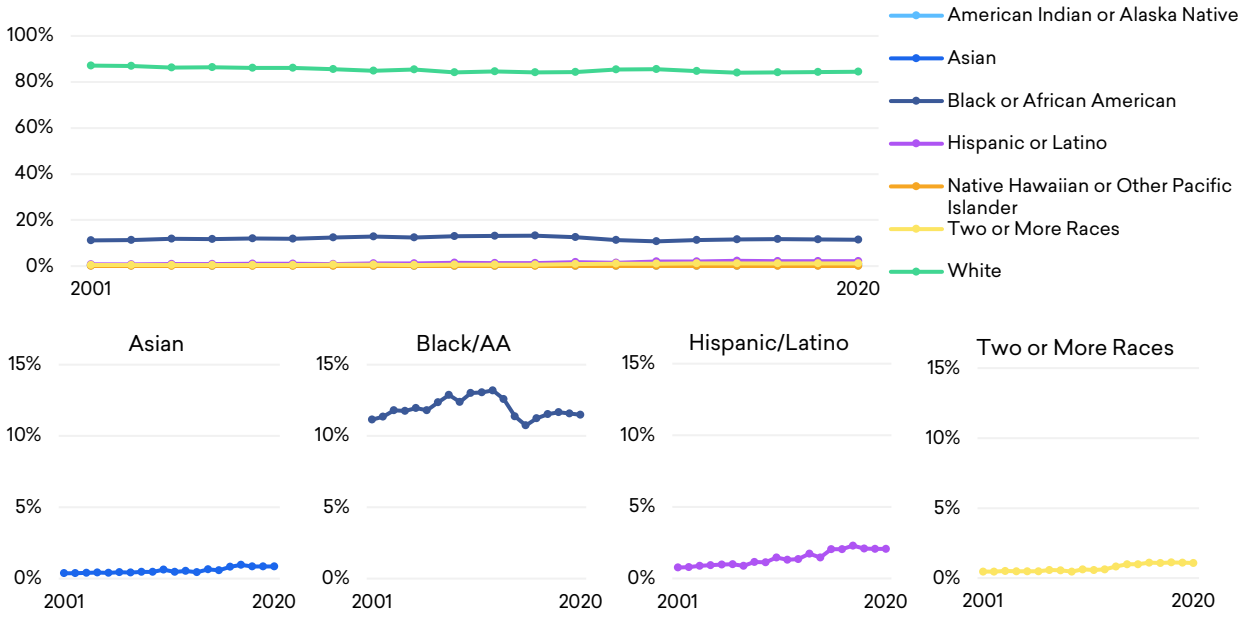


Figure 4.42: Historical Race/Ethnicity Groups of the Middle School Teachers in Kentucky, 2001 to 2020, with a Comparison of the Four Largest Non-White Groups



Source: Emsi Occupation Diversity Dataset based on industry data from QWI and ACS occupation data.

HIGH SCHOOL TEACHERS

Figure 4.43: Net Commuters for High School Teachers in Kentucky, Measured by Place of Work and Place of Residence

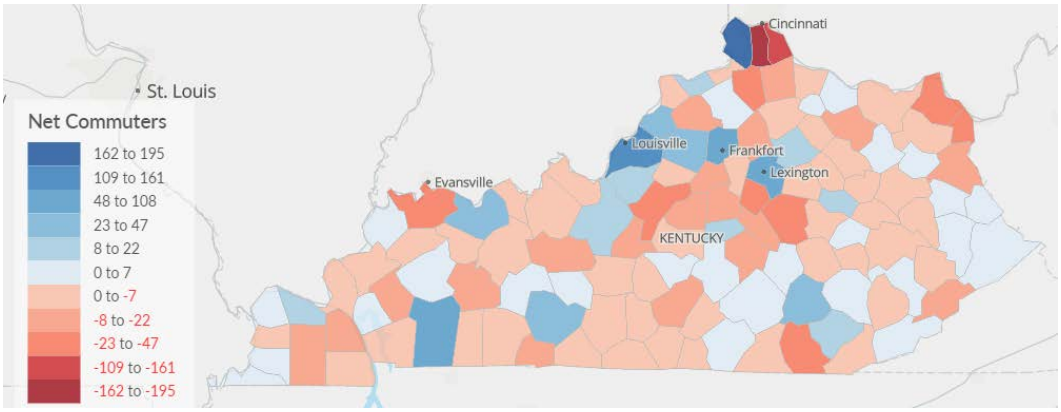


Figure 4.44: Age Groups of High School Teachers in Kentucky

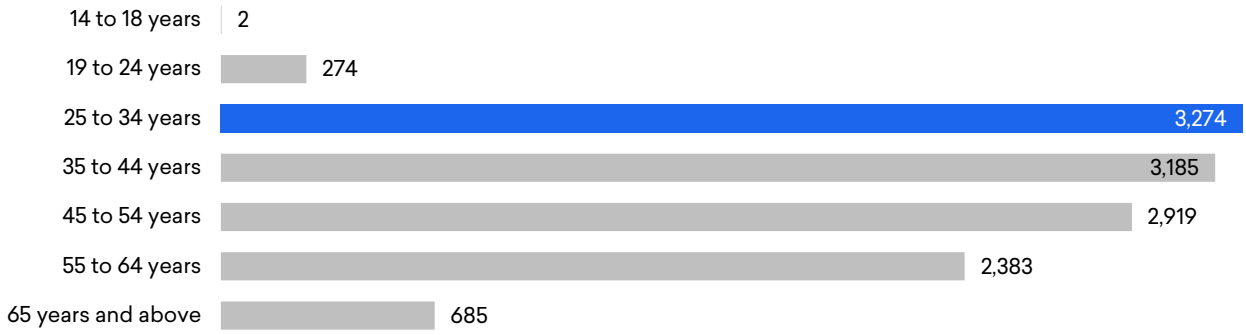
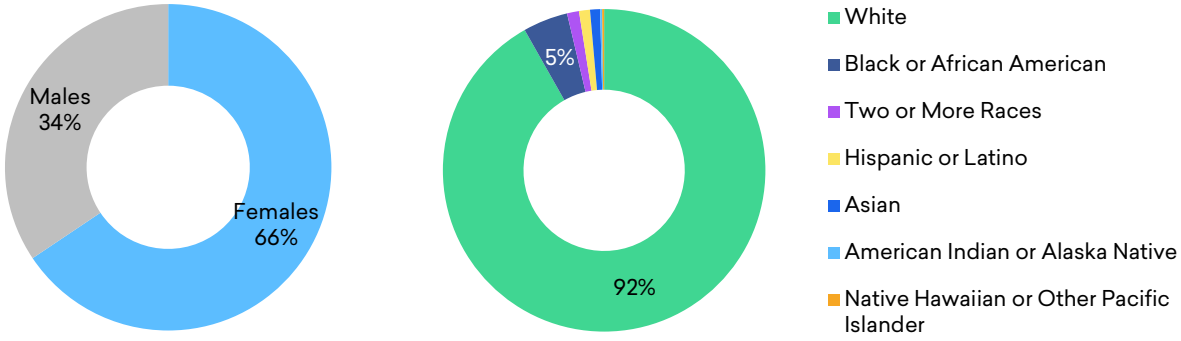


Figure 4.45: Genders and Race/Ethnicity Groups of High School Teachers in Kentucky*



* Demographic data are occupation-specific and do not reflect certified teachers.

Source: Emsi Employees & Self-Employed 2020.3 Data Run with Census LODES data. Emsi Occupation Diversity Dataset based on industry data from QWI and ACS occupation data.

Figure 4.46: Historical Age Groups of High School Teachers in Kentucky, 2001 to 2019

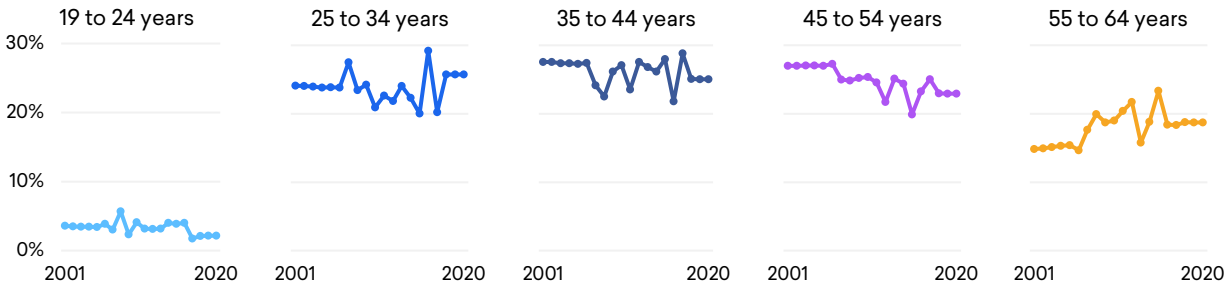


Figure 4.47: Historical Genders of High School Teachers in Kentucky, 2001 to 2019

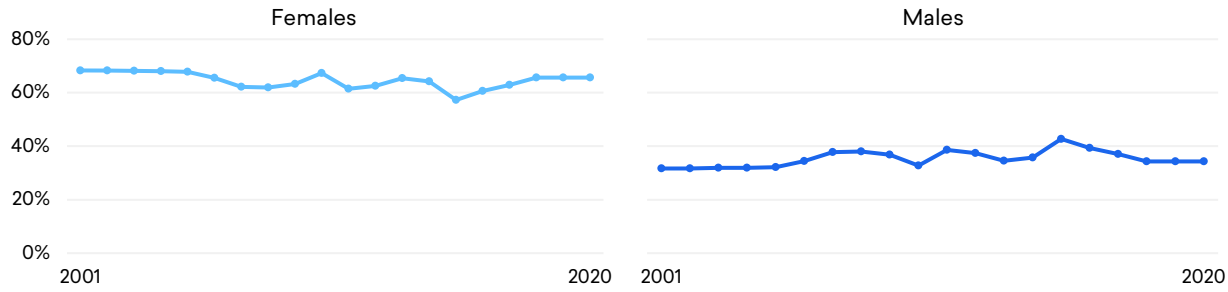
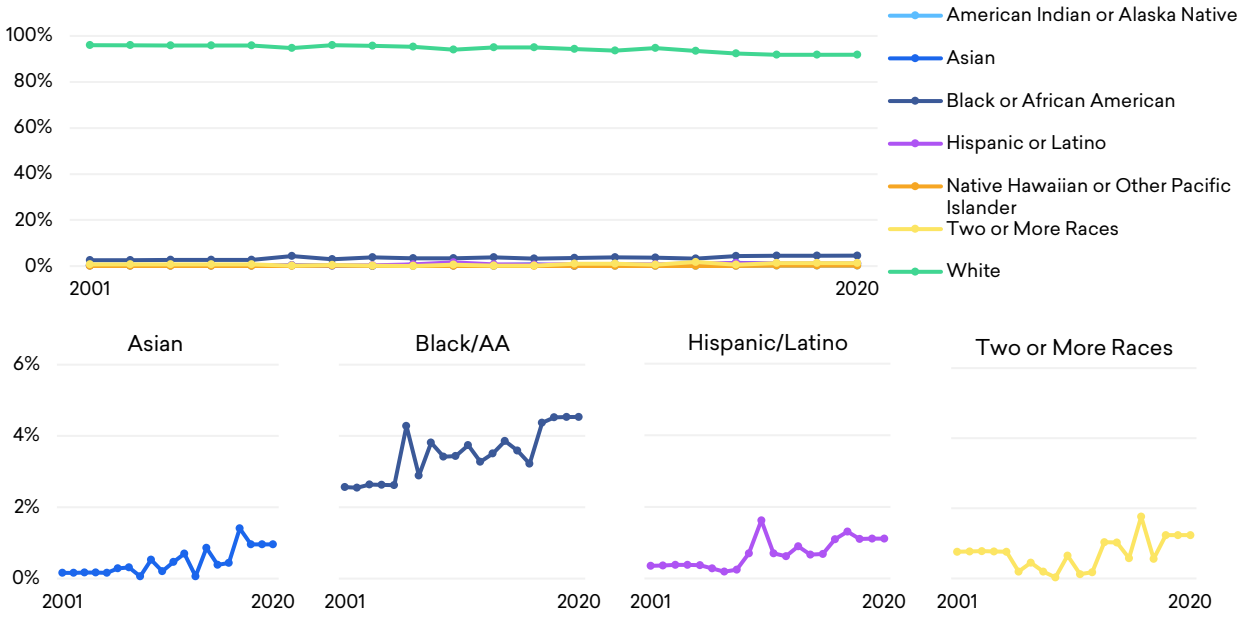


Figure 4.48: Historical Race/Ethnicity Groups of the High School Teachers in Kentucky, 2001 to 2020, with a Comparison of the Four Largest Non-White Groups



Source: Emsi Occupation Diversity Dataset based on industry data from QWI and ACS occupation data.

SPECIAL EDUCATION TEACHERS

Figure 4.49: Net Commuters for Special Education Teachers in Kentucky, Measured by Place of Work and Place of Residence

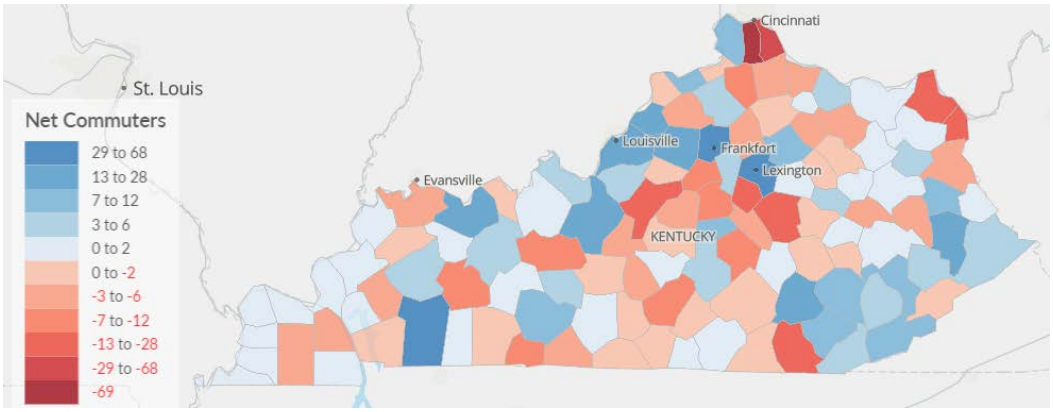
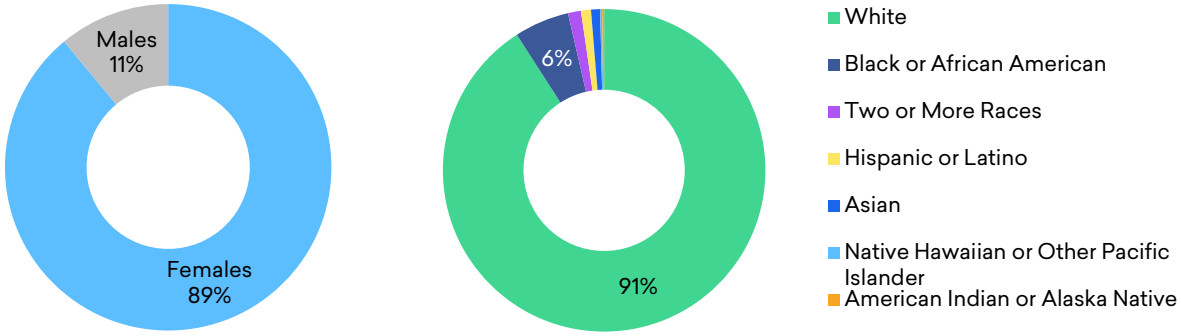


Figure 4.50: Age Groups of Special Education Teachers in Kentucky

Figure 4.51: Genders and Race/Ethnicity Groups of Special Education Teachers in Kentucky*



* Demographic data are occupation-specific and do not reflect certified teachers.

Source: Emsi Employees & Self-Employed 2020.3 Data Run with Census LODES data. Emsi Occupation Diversity Dataset based on industry data from QWI and ACS occupation data.

Figure 4.52: Historical Age Groups of Special Education Teachers in Kentucky, 2001 to 2019

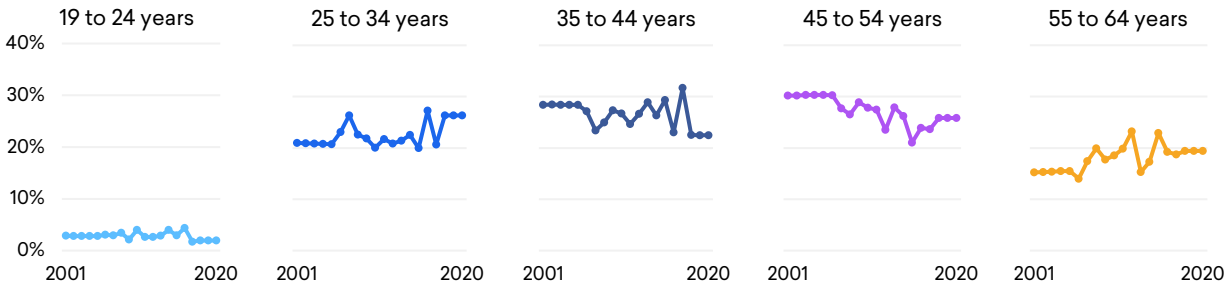


Figure 4.53: Historical Genders of Special Education Teachers in Kentucky, 2001 to 2019

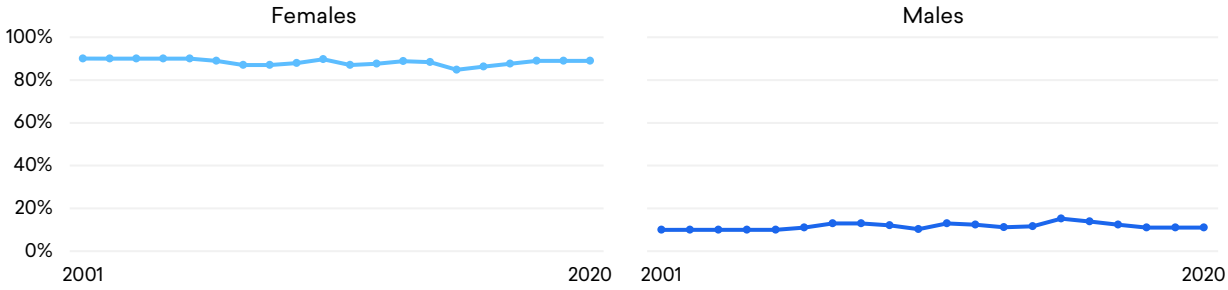
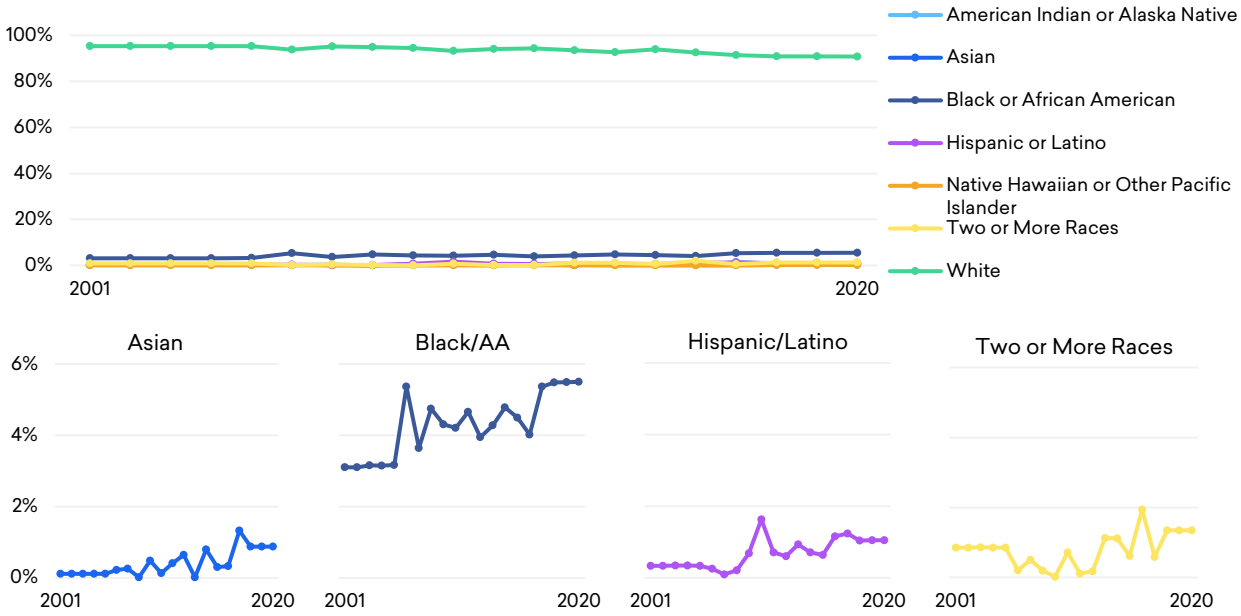


Figure 4.54: Historical Race/Ethnicity Groups of the Special Education Teachers in Kentucky, 2001 to 2020, with a Comparison of the Four Largest Non-White Groups



Source: Emsi Occupation Diversity Dataset based on industry data from QWI and ACS occupation data.

EDUCATION WORKERS

Figure 4.55: Net Commuters for Education Workers in Kentucky, Measured by Place of Work and Place of Residence

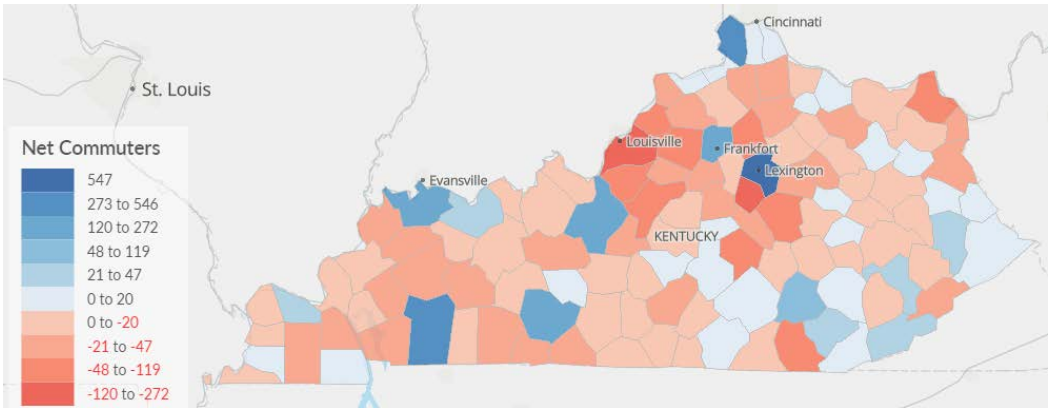


Figure 4.56: Age Groups of Education Workers in Kentucky

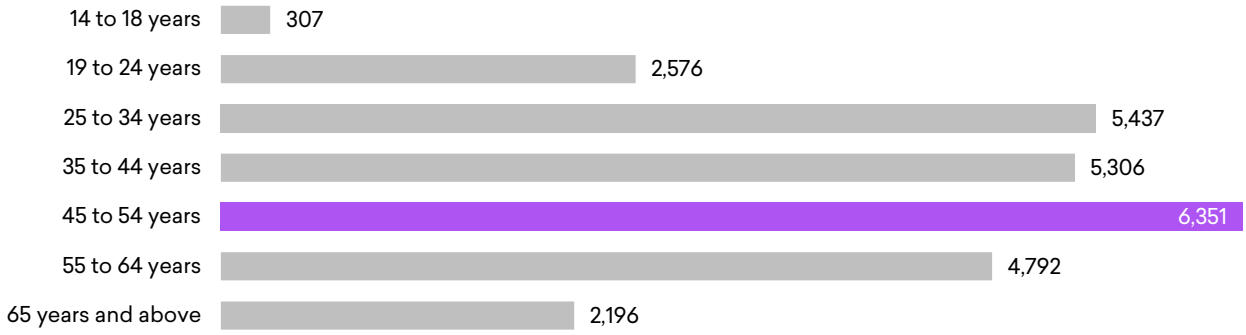
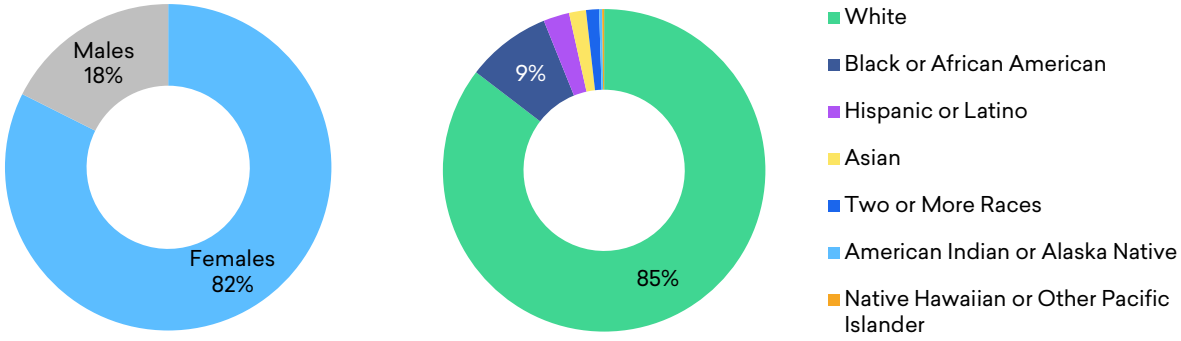


Figure 4.57: Genders and Race/Ethnicity Groups of Education Workers in Kentucky*



* Demographic data are occupation-specific and do not reflect certified teachers.

Source: Emsi Employees & Self-Employed 2020.3 Data Run with Census LODES data. Emsi Occupation Diversity Dataset based on industry data from QWI and ACS occupation data.

Figure 4.58: Historical Age Groups of Education Workers in Kentucky, 2001 to 2019

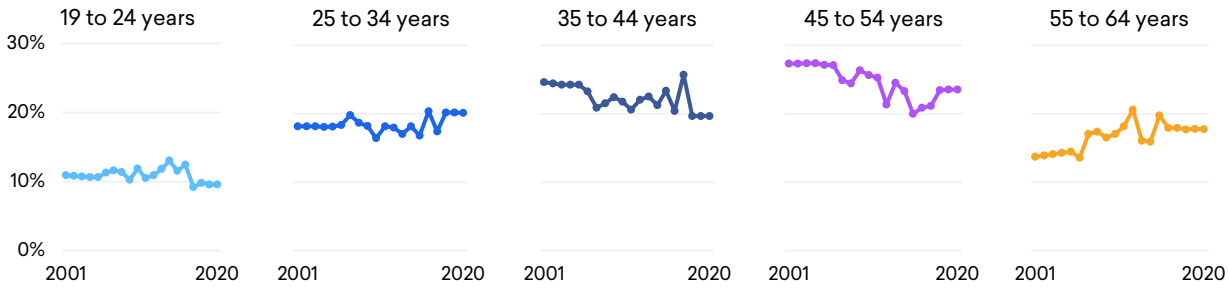


Figure 4.59: Historical Genders of Education Workers in Kentucky, 2001 to 2019

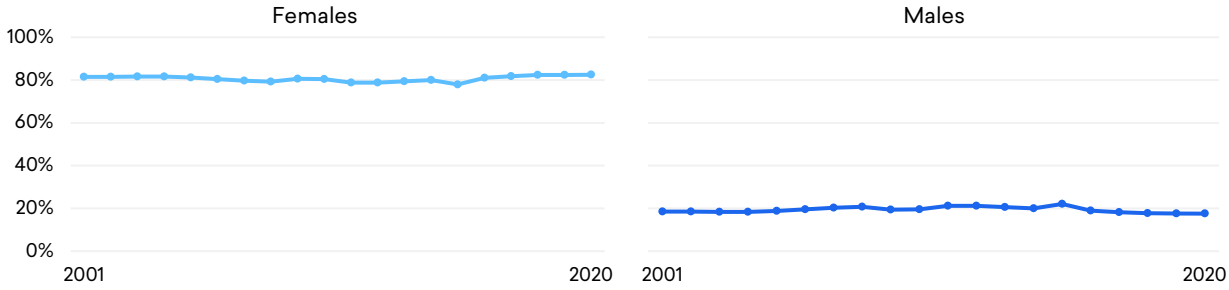
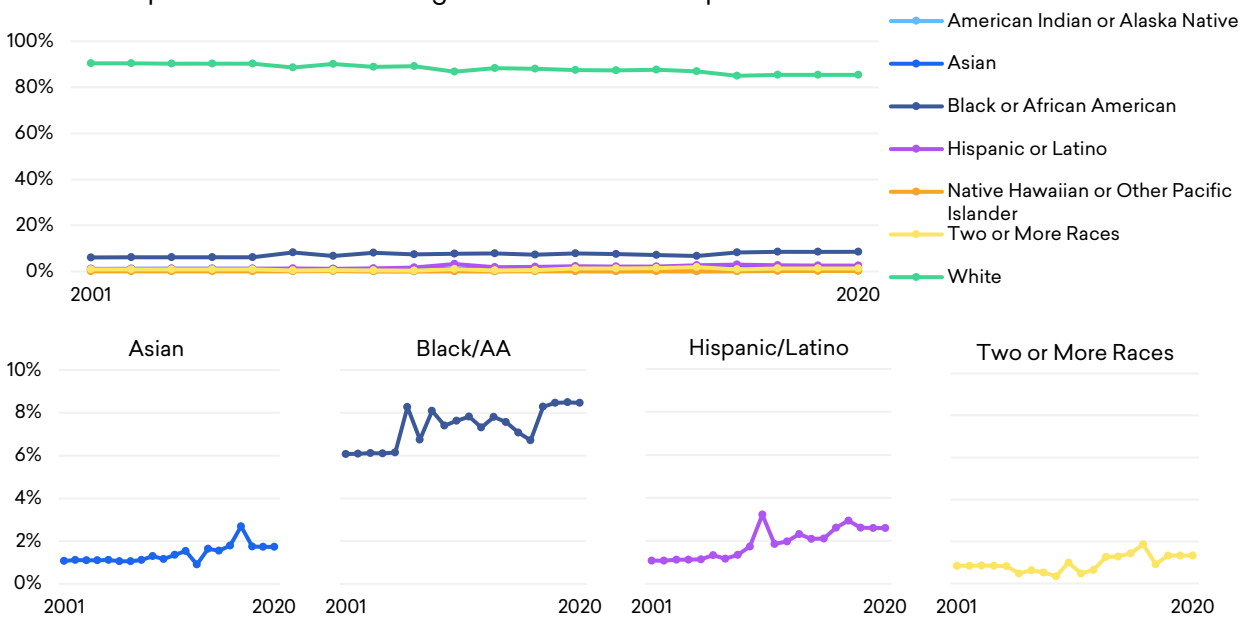


Figure 4.60: Historical Race/Ethnicity Groups of the Education Workers in Kentucky, 2001 to 2020, with a Comparison of the Four Largest Non-White Groups



Source: Emsi Occupation Diversity Dataset based on industry data from QWI and ACS occupation data.

ADMINISTRATORS AND COUNSELORS

Figure 4.61: Net Commuters for Administrators & Counselors in Kentucky, Measured by Place of Work and Place of Residence

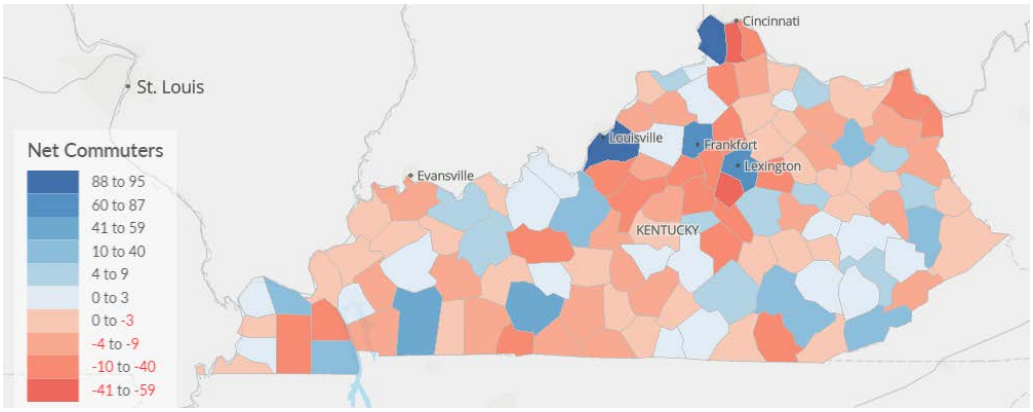


Figure 4.62: Age Groups of Administrators & Counselors in Kentucky

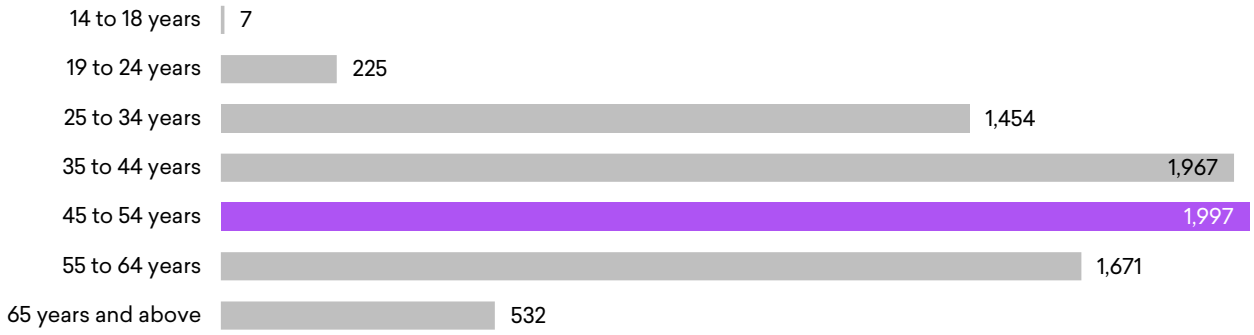
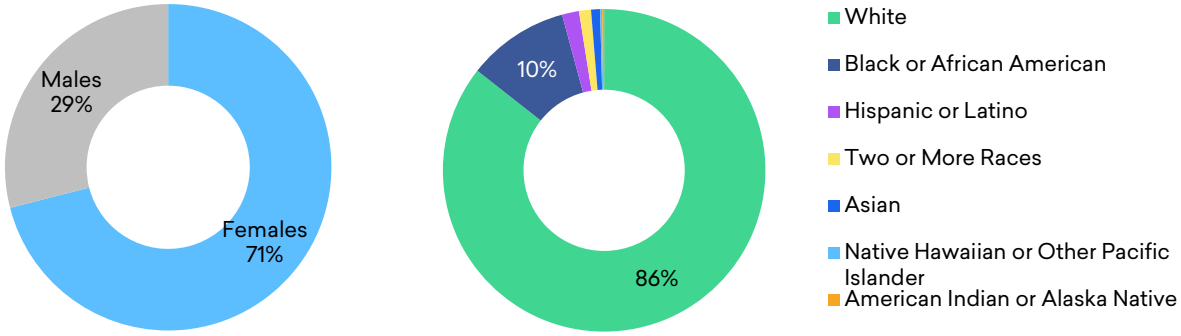


Figure 4.63: Genders and Race/Ethnicity Groups of Administrators & Counselors in Kentucky*



* Demographic data are occupation-specific and do not reflect certified teachers.

Source: Emsi Employees & Self-Employed 2020.3 Data Run with Census LODES data. Emsi Occupation Diversity Dataset based on industry data from QWI and ACS occupation data.

Figure 4.64: Historical Age Groups of Administrators & Counselors in Kentucky, 2001 to 2019

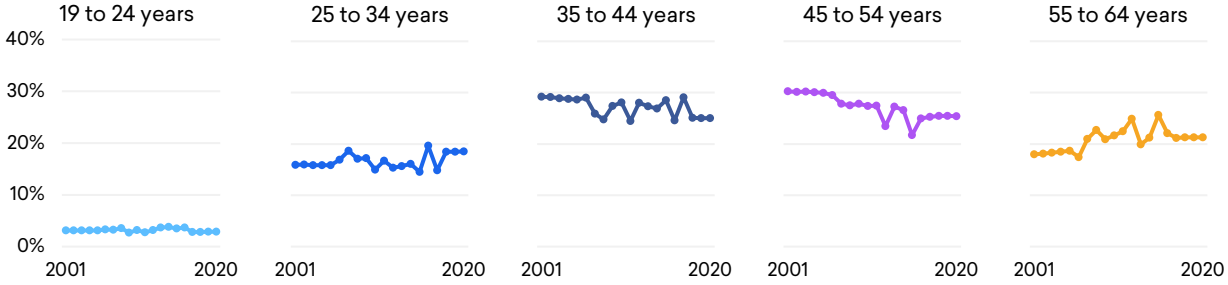


Figure 4.65: Historical Genders of Administrators & Counselors in Kentucky, 2001 to 2019

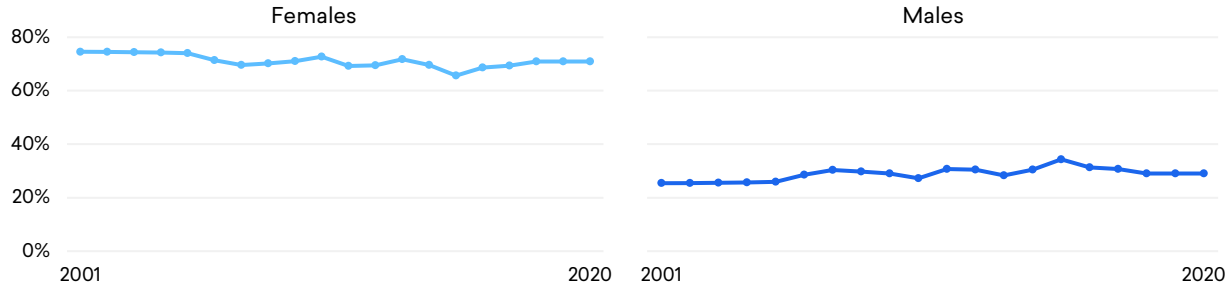
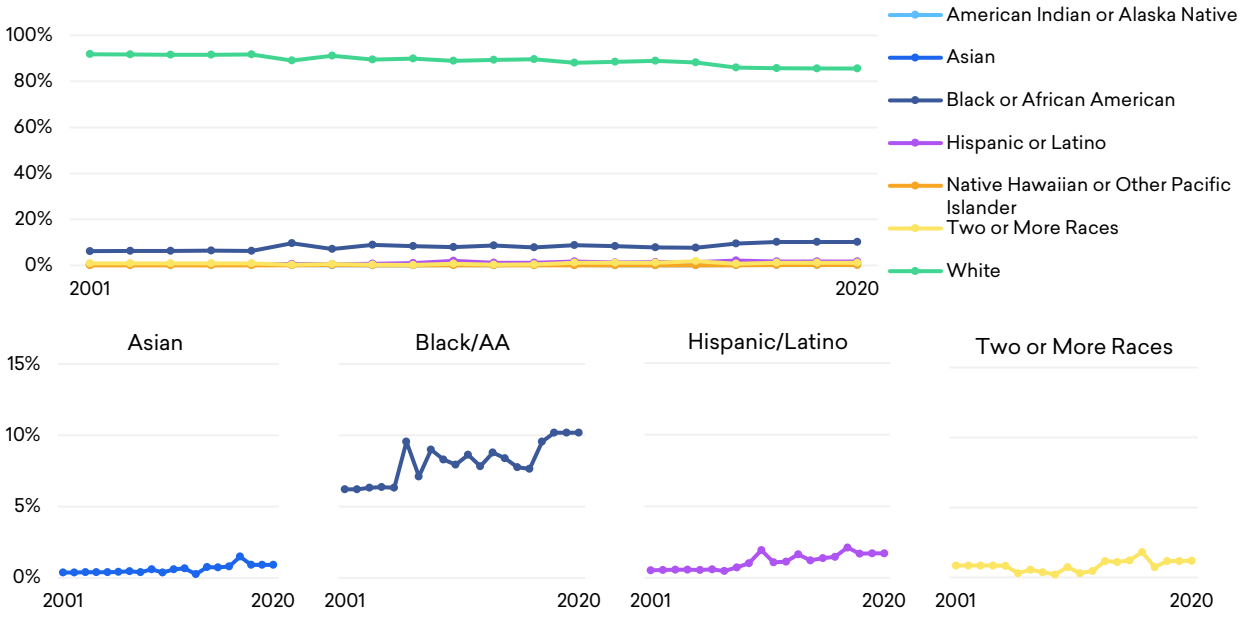


Figure 4.66: Historical Race/Ethnicity Groups of the Administrators & Counselors in Kentucky, 2001 to 2020, with a Comparison of the Four Largest Non-White Groups



Source: Emsi Occupation Diversity Dataset based on industry data from QWI and ACS occupation data.

CHAPTER 5:

Program Demand Gap Analysis

Knowing how the education workforce is employed in the state and its regions, the program demand gap analysis offers a better understanding of the connection between education jobs and educational institutions, answering the following question:

> *Where are there misalignments between the workforce demand and the supply of college and university completers?*

This chapter outlines the deficit of Kentucky's program completions to the workforce (gap), as well as the oversupply of completions to the workforce (surplus). The specific education occupations directly related or mapped to the programs with a large gap and surplus are also displayed. Results are provided for the state and each region by award level. Before providing and discussing the results, we will go over the interpretation of the results.

INTERPRETATION

The terms used in the analysis are as follows:

Gap Represents a deficit, or when there are more job openings in an occupation than there are completions. If left unaddressed, a gap may lead to missed opportunities for economic growth and put stress on local businesses to find the necessary talent elsewhere. Significant gaps translate into higher human resources costs and decreased efficiencies in the economic system. They also provide an opportunity for postsecondary educational institutions to develop new programs and/or strengthen their current programs.

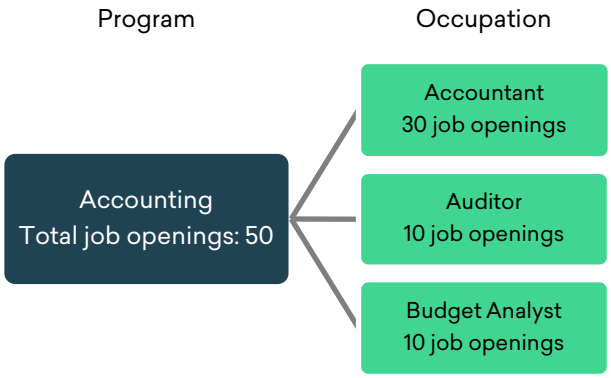
Surplus Represents an oversupply, or when there are more completions than there are job openings in an occupation. If left unaddressed, significant surpluses may lead to higher unemployment rates or higher attrition rates—the college or university could be educating a workforce that is leaving the state or region after program completion because of a lack of job opportunities.

When reviewing the results of the analysis, consider that not all gaps or surpluses indicate necessary program adjustments. Due to labor market inefficiencies, it is common for most programs to face a certain level of gap or surplus. This means only the largest gaps or

surpluses should be reviewed or further developed. In the following sections, the program gaps and surpluses are discussed by award level and presented as figures and tables.

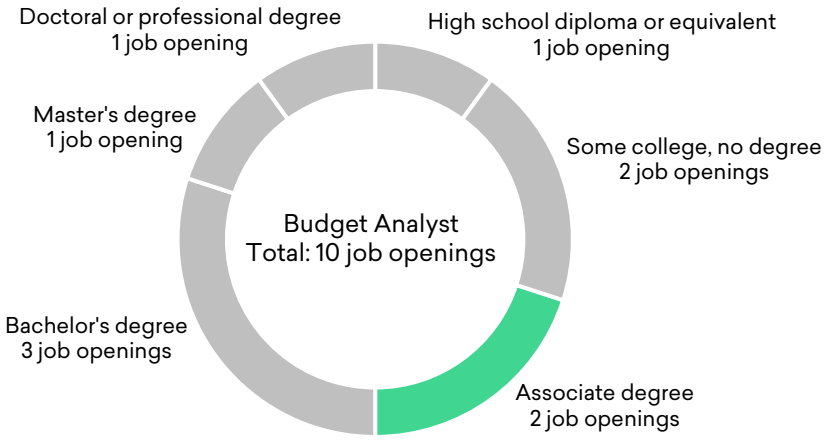
The figures show the gap between job demand and the supply of program completions. An explanation of job demand is warranted here, and a more detailed description can be found in Appendix 5. A program's job demand is measured as its total number of annual job openings, on average, from 2020 to 2030. The total is calculated as the sum of state or regional job openings for each occupation mapped to the program, as illustrated in Figure 5.1.

Figure 5.1: Example of One Program Mapped to Three Occupations



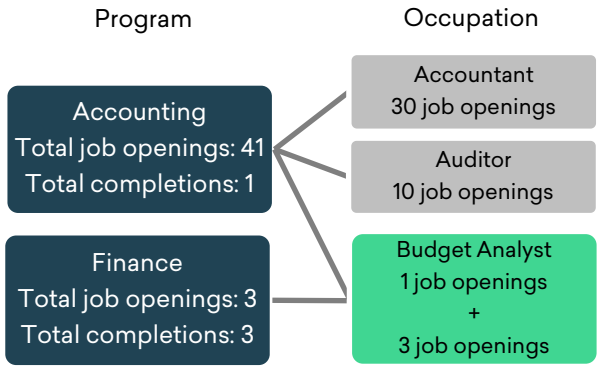
Furthermore, an occupation's job openings are not a gross measure of job openings available in the state or region. For every occupation, job openings have been weighted by the program's award level and account for the highest educational attainments of those employed in the position. The educational attainments in this chapter are for adults less than 34 years, which better reflect the institutions' student populations. Figure 5.2 illustrates how this methodology applies to an occupation's total job openings. For example, two job openings or 20% of total job openings are available to budget analysts at the associate degree level, seeing that there are a total of 10 job openings, and 20% of those working in the occupation have an associate degree level of education.

Figure 5.2: Example of an Occupation's Weighted Job Openings by Award Level



Finally, job openings are de-duplicated and scaled across programs when an occupation is mapped to more than one program. As illustrated in Figure 5.3, budget analysts, which have four total job openings, are mapped to two programs. However, the Finance program is three-times the size of the Accounting program, measured in terms of completions. Thus, one job opening is portioned to the Accounting program and three job openings to the Finance program.

Figure 5.3: Example of Two Programs with One Shared Occupation



Supply is shown as the average number of program completions statewide and in the region by award level. The analysis considers bachelor's and master's degrees. Completion data are sourced from the Council data portal and reported as a three-year average of fiscal years (FYs) 2017-18 to 2019-20. Emphasis has been placed on specific education programs, although several programs, such as General Chemistry and General Music, are included that are not education-specific but a student on an education track completed the program.

Completions cover students who are receiving their first degree, as well as those who are already employed but are going back to school for their first or additional teaching certifications.[10] Bachelor's degrees are reported as such, and master's degrees include post-baccalaureate certificates and institutionally defined graduate students. The gap, then, is the difference between job openings and program completions.

A great amount of data is presented in the tables appearing in this chapter. The first set shows the gaps and surpluses across all the education programs offered by Kentucky's institutions. The tables include the Classification of Instructional Program (CIP) code and title, as well as the programs' institutional sector:[11]

- Association of Independent Kentucky Colleges & Universities (AIKCU); and
- Public State Universities (State).

The tables also include the average annual number of projected job openings associated with the program (which have been de-duplicated using the process outlined in Appendix 5), the average annual number of program completions from the state or region, and the gap or surplus. The programs' median hourly wage rates are specific to Kentucky or to the region under analysis.

The second set of tables identify the occupations mapped to the programs with a large gap or surplus, by award level, and show detailed occupational data. The tables include the CIP code, CIP title, and occupations mapped to the education program, by their Standard Occupational Classification (SOC) codes and titles. The state and regional job counts, by occupation, are shown for 2020 and 2030, with the change in jobs and average annual job openings for those years. The occupations' median hourly wage rates are specific to the state or region.

Important Note

This analysis is intended to serve as a starting point for the Council as it discusses statewide workforce needs. A deficit (gap) or oversupply (surplus) of workers in a particular occupation category represents a potential problem for Kentucky, making it important for each program and occupation group to be evaluated on a case-by-case basis. The purpose of this analysis is, therefore, to initiate the conversation on evaluating program effectiveness. Once

[10] Emsi acknowledges this is not perfect for fully understanding the supply and demand for the education workforce, but is the best option given data limitations. Chapter 6 further discusses students who take traditional versus non-traditional education paths.

[11] See Appendix 7 for a list of institutions by sector included in the analysis.

evaluated internally within the member institutions, specific implications may be considered for programs with substantial gaps or surpluses.

It must be noted that our analysis does have its limitations in that only the education supply pipeline is considered. This is due to data availability at the regional and institutional levels. However, other sources—unemployed workers, industry trained pipelines, workers migrating to the state, and job changers from other occupational categories—can also be a source of skilled workers. These types of considerations are useful when evaluating specific types of occupations. Publicly available data sources are limited in accounting for this, and consequently these labor sources are unavailable for Emsi analysis. Primary data collection methods (i.e., interviews and surveys) are among the only ways to obtain information on the other sources for skilled workers.

KENTUCKY

Education Occupation Analysis

Table 5.1 provides statewide results at the occupational scale. In other words, we have looked at all programs training for these occupations and measured the demand, in terms of unduplicated average annual job openings, against the supply, measured in terms of average annual program completers. It is particularly helpful to see the gap at the occupational scale given there are several programs training for a limited number of occupations, so gaps and surpluses at the program level may not tell the full picture. In other words, at the program level, while our model attempts to attribute appropriate occupational demand to the programs, there may be cases where the occupational demand tied to the program is over- or understated. By looking at the occupational scale, however, we can see a more aggregated view of where training gaps or surpluses may exist within the education workforce. Table 5.1 focuses on job openings and completers at the BACH+ level, or encompassing bachelor's and master's degrees.

As seen in the table, elementary school teachers face the largest gap – a shortfall of just over 350 job openings. It is followed by teacher assistants and tutors & teachers & instructors, although those two occupations are not considered certified teaching occupations. Four occupations face a surplus – or where there is more supply than demand. Career/technical education teachers comprise two of them. These teachers already face fairly low demand. While the two occupations are mapped to a number of programs, the program driving the number of completions is the bachelor's degree level Trade & Industrial Teacher Education program, offered by the University of Louisville. However, it is noted that demand for career/technical education teachers may be conservative given the alternative routes to teach career and technical education in middle and secondary schools. Secondary school

teachers face the largest statewide surplus. The surplus for secondary teachers stems from being mapped to several programs, some with large numbers of completers, such as Physical Education Teaching & Coaching.

Table 5.1: BACH+ Gaps and Surpluses for Education Occupations in Kentucky

OCCUPATION TITLE	DEMAND	SUPPLY	GAP OR SURPLUS	MEDIAN HOURLY WAGE
PRE-K WORKFORCE				
Preschool teachers, except special education	218	38	179	$14.34
Education & childcare administrators, preschool & daycare	46	22	24	$16.84
Special education teachers, preschool	16	13	3	$27.46
ELEMENTARY SCHOOL TEACHERS				
Elementary school teachers, except special education	1,405	1,052	353	$25.55
Kindergarten teachers, except special education	88	16	72	$26.18
MIDDLE SCHOOL TEACHERS				
Middle school teachers, except special ed. & CTE	595	488	108	$25.76
Career/technical education teachers, middle school	28	87	(59)	$26.55
HIGH SCHOOL TEACHERS				
Career/technical education teachers, secondary school	32	101	(69)	$27.84
Secondary school teachers, except special ed. & CTE	854	1,023	(169)	$26.43
SPECIAL EDUCATION TEACHERS				
Special education teachers, kindergarten & elementary school	275	221	53	$25.37
Special education teachers, secondary school	105	82	23	$26.23
Special education teachers, middle school	61	47	13	$25.57
EDUCATION WORKERS				
Teacher assistants, except postsecondary	479	156	324	$12.54
Tutors & teachers & instructors, all other	186	3	183	$18.94
Educational instruction & library workers, all other	130	1	130	$18.65
Self-enrichment teachers	173	60	113	$14.06
Adult basic education, adult secondary education, & ESL instructors	26	5	21	$18.59
ADMINISTRATORS & COUNSELORS				

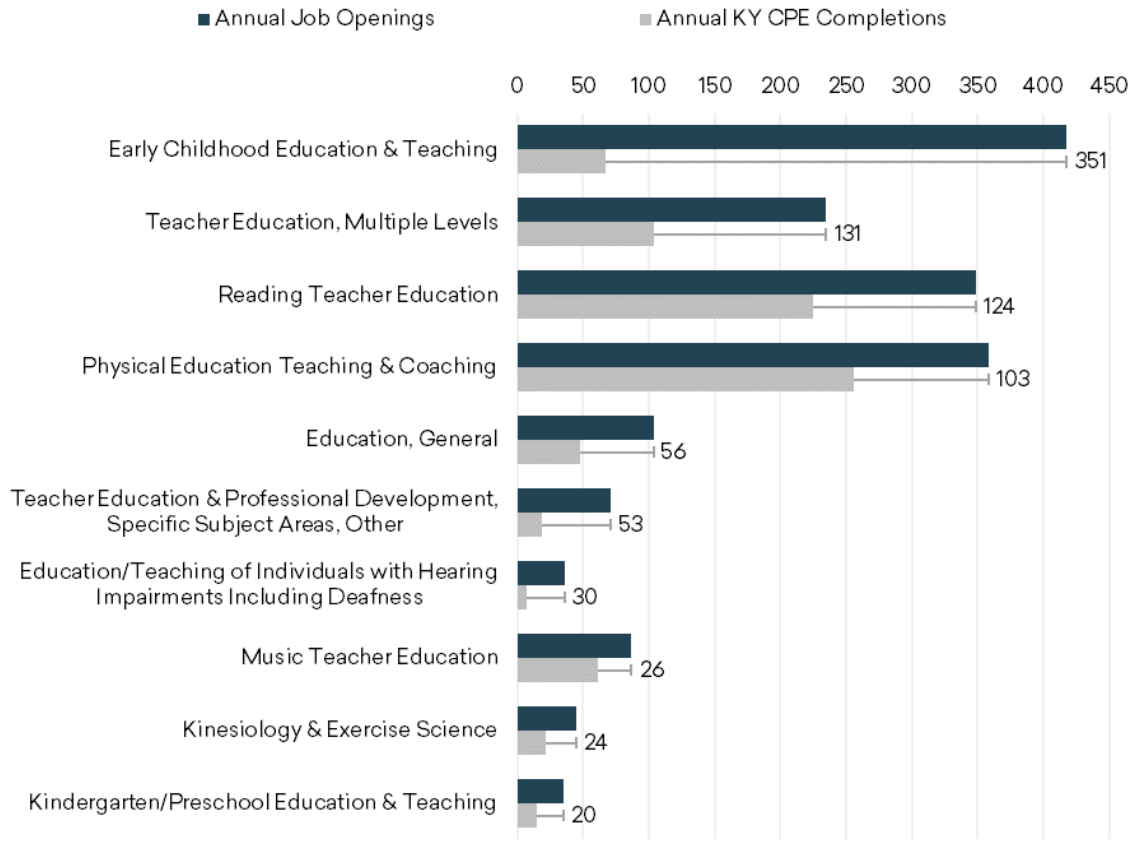
OCCUPATION TITLE	DEMAND	SUPPLY	GAP OR SURPLUS	MEDIAN HOURLY WAGE
Educational, guidance, & career counselors & advisors	284	202	82	$28.27
Education administrators, kindergarten through secondary	248	338	(90)	$40.14

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Combined Level Analysis

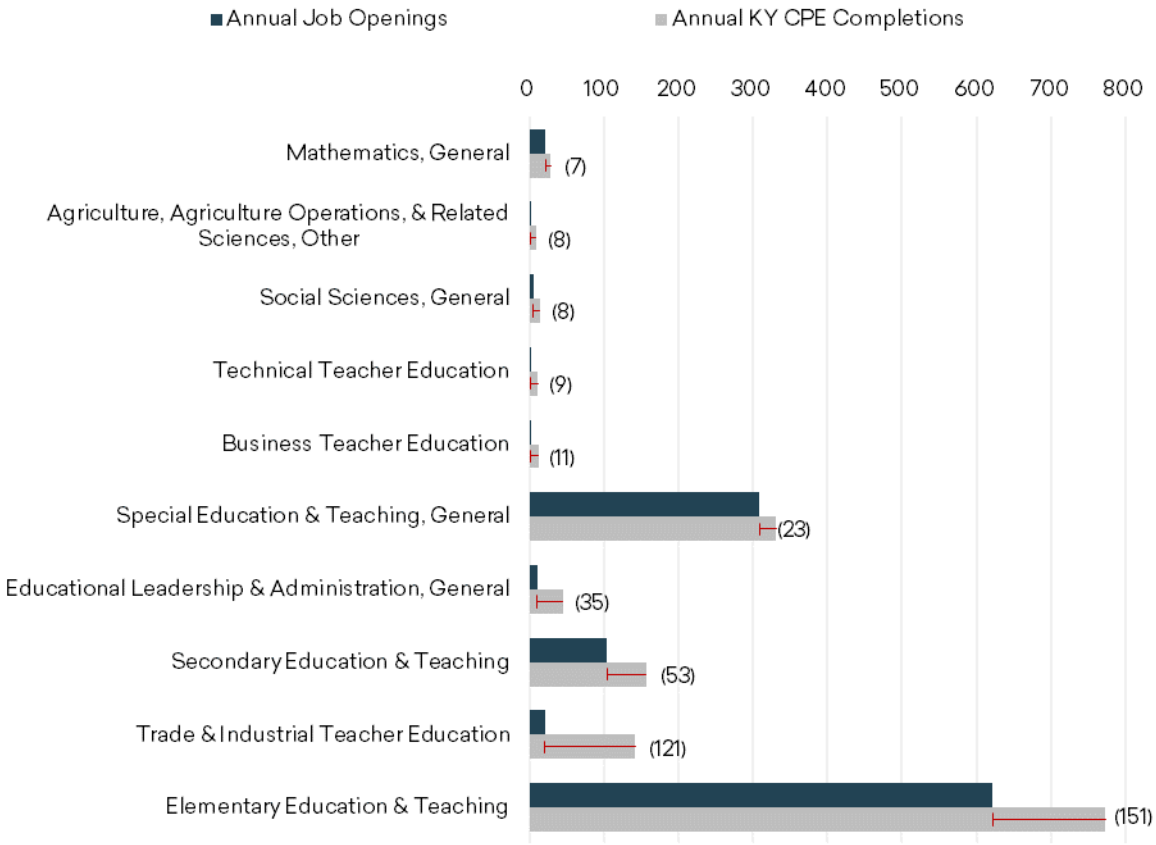
Figures 5.4 through 5.5 display program demand gap analysis results based on combining Kentucky's education programs into one category – bachelor's and master's degrees combined (BACH+). As seen in the figures, the Early Childhood Education & Teaching and Teacher Education, Multiple Levels programs look to be areas of expansion. A number of programs, such as the Music Teacher Education and Special Education & Teaching, General programs, appear to be performing well in terms of high levels of demand and supply. The institutions should maintain focus on the success of these programs. A number of programs – such as Agriculture, Agriculture Operations, & Related Sciences, Other and Business Teacher Education should be reconsidered for consolidation from the labor market perspective based on a large surplus of program completers with not a comparable amount of occupational demand. Note that the program with the largest surplus – Elementary Education & Teaching – should not be reconsidered given the gap in elementary school teachers we saw in Table 5.1. It is an example of an occupation being mapped to several programs, which can make demand at the detailed program scale conservative.

Figure 5.4: Kentucky's Top 10 BACH+ Education Programs with a Gap



Source: Emsi program demand gap model.

Figure 5.5: Kentucky's Top 10 BACH+ Education Programs with a Surplus



Source: Emsi program demand gap model.

Table 5.2: Gaps and Surpluses for Kentucky's BACH+ Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1210	Early Childhood Education & Teaching	AIKCU	105	15	90	--
		State	313	51	261	--
		Total	***418***	***67***	***351***	***$20.26***
13.1206	Teacher Education, Multiple Levels	AIKCU	31	17	14	--
		State	204	87	117	--
		Total	***234***	***104***	***131***	***$23.39***
13.1315	Reading Teacher Education	AIKCU	326	211	116	--
		State	22	14	8	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***348***	***225***	***124***	***$25.83***
13.1314	Physical Education Teaching & Coaching	AIKCU	19	13	6	--
		State	340	243	97	--
		Total	***358***	***255***	***103***	***$25.85***
13.0101	Education, General	AIKCU	34	9	25	--
		State	69	38	31	--
		Total	***103***	***47***	***56***	***$22.75***
13.1399	Teacher Education & Professional Development, Specific Subject Areas, Other	State	71	18	53	--
		Total	***71***	***18***	***53***	***$22.60***
13.1003	Education/Teaching of Individuals with Hearing Impairments Including Deafness	State	36	7	30	--
		Total	***36***	***7***	***30***	***$15.49***
13.1312	Music Teacher Education	AIKCU	15	11	5	--
		State	71	50	21	--
		Total	***87***	***61***	***26***	***$25.85***
31.0505	Kinesiology & Exercise Science	State	45	21	24	--
		Total	***45***	***21***	***24***	***$18.38***
13.1209	Kindergarten/Preschool Education & Teaching	State	35	14	20	--
		Total	***35***	***14***	***20***	***$17.91***
13.1101	Counselor Education/School Counseling & Guidance Services	AIKCU	19	10	9	--
		State	16	8	7	--
		Total	***35***	***18***	***16***	***$28.27***
50.0901	Music, General	State	44	31	12	--
		Total	***44***	***31***	***12***	***$25.86***
13.1318	Social Studies Teacher Education	AIKCU	29	19	10	--
		Total	***29***	***19***	***10***	***$25.85***

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1311	Mathematics Teacher Education	AIKCU	6	4	2	--
		State	25	17	8	--
		Total	***31***	***21***	***10***	***$25.85***
23.0101	English Language & Literature, General	State	30	22	9	--
		Total	***30***	***22***	***9***	***$25.85***
13.1401	Teaching English as a Second or Foreign Language/ESL Language Instructor	State	22	13	9	--
		Total	***22***	***13***	***9***	***$25.64***
50.0702	Fine/Studio Arts, General	State	14	5	9	--
		Total	***14***	***5***	***9***	***$20.03***
13.1307	Health Teacher Education	AIKCU	9	6	3	--
		State	15	11	4	--
		Total	***24***	***17***	***7***	***$25.85***
50.0903	Music Performance, General	State	23	17	6	--
		Total	***23***	***17***	***6***	***$14.06***
50.0701	Art/Art Studies, General	State	9	3	6	--
		Total	***9***	***3***	***6***	***$20.03***
13.1305	English/Language Arts Teacher Education	AIKCU	8	6	2	--
		State	11	8	3	--
		Total	***19***	***14***	***5***	***$25.86***
13.1302	Art Teacher Education	AIKCU	11	7	4	--
		State	4	3	1	--
		Total	***15***	***10***	***5***	***$25.84***
16.0905	Spanish Language & Literature	State	15	11	4	--
		Total	***15***	***11***	***4***	***$25.86***
13.1015	Education/Teaching of Individuals in Early Childhood Special Education Programs	State	5	1	4	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***5***	***1***	***4***	***$14.41***
16.0101	Foreign Languages & Literatures, General	State	6	4	2	--
		Total	***6***	***4***	***2***	***$25.83***
13.1330	Spanish Language Teacher Education	AIKCU	3	2	1	--
		State	4	3	1	--
		Total	***7***	***5***	***2***	***$25.86***
13.1306	Foreign Language Teacher Education	AIKCU	3	2	1	--
		Total	***3***	***2***	***1***	***$25.83***
50.0501	Drama & Dramatics/Theatre Arts, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$14.06***
15.0613	Manufacturing Engineering Technology/Technician	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.32***
13.1337	Earth Science Teacher Education	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.12***
16.0302	Japanese Language & Literature	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.12***
16.9999	Foreign Languages, Literatures, & Linguistics, Other	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.12***
40.0601	Geology/Earth Science, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.12***
45.0601	Economics, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.12***
16.0501	German Language & Literature	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.12***
45.1001	Political Science & Government, General	State	2	2	0	--
		Total	***2***	***2***	***0***	***$26.12***

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1323	Chemistry Teacher Education	State	2	2	(1)	--
		Total	***2***	***2***	***(1)***	***$26.12***
40.0801	Physics, General	State	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$26.43***
40.0501	Chemistry, General	State	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$26.43***
13.1317	Social Science Teacher Education	AIKCU	3	4	(1)	--
		Total	***3***	***4***	***(1)***	***$26.12***
13.1316	Science Teacher Education/General Science Teacher Education	State	4	5	(1)	--
		Total	***4***	***5***	***(1)***	***$26.12***
13.1328	History Teacher Education	State	4	5	(1)	--
		Total	***4***	***5***	***(1)***	***$26.12***
13.1012	Education/Teaching of Individuals with Speech or Language Impairments	State	28	29	(2)	--
		Total	***28***	***29***	***(2)***	***$22.02***
54.0101	History, General	State	5	7	(2)	--
		Total	***5***	***7***	***(2)***	***$26.12***
13.1329	Physics Teacher Education	State	1	3	(2)	--
		Total	***1***	***3***	***(2)***	***$26.43***
13.1322	Biology Teacher Education	AIKCU	2	2	0	--
		State	5	7	(2)	--
		Total	***7***	***9***	***(2)***	***$26.12***
23.9999	English Language and Literature/Letters, Other	State	7	9	(2)	--
		Total	***7***	***9***	***(2)***	***$26.12***
40.0101	Physical Sciences	State	1	4	(2)	--
		Total	***1***	***4***	***(2)***	***$26.43***

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
26.0101	Biology/Biological Sciences, General	State	2	4	(2)	--
		Total	***2***	***4***	***(2)***	***$26.43***
31.0501	Health & Physical Education/Fitness, General	State	8	10	(2)	--
		Total	***8***	***10***	***(2)***	***$26.12***
13.0301	Curriculum & Instruction	State	10	13	(3)	--
		Total	***10***	***13***	***(3)***	***$31.95***
13.1308	Family & Consumer Sciences/Home Economics Teacher Education	State	27	30	(3)	--
		Total	***27***	***30***	***(3)***	***$26.32***
51.0000	Health Services/Allied Health/Health Sciences, General	State	1	4	(3)	--
		Total	***1***	***4***	***(3)***	***$27.39***
13.1213	Science, Technology, Engineering, and Mathematics (STEM) Educational Methods	State	12	16	(4)	--
		Total	***12***	***16***	***(4)***	***$26.12***
01.0000	Agriculture, General	State	1	5	(4)	--
		Total	***1***	***5***	***(4)***	***$27.39***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	AIKCU	79	79	(0)	--
		State	110	115	(5)	--
		Total	***189***	***194***	***(5)***	***$28.52***
27.0101	Mathematics, General	State	22	28	(7)	--
		Total	***22***	***28***	***(7)***	***$26.12***
01.9999	Agriculture, Agriculture Operations, & Related Sciences, Other	State	1	9	(8)	--
		Total	***1***	***9***	***(8)***	***$27.09***
45.0101	Social Sciences, General	State	6	14	(8)	--
		Total	***6***	***14***	***(8)***	***$26.43***
13.1319	Technical Teacher Education	State	2	11	(9)	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***2***	***11***	***(9)***	***$27.24***
13.1303	Business Teacher Education	AIKCU	1	11	(10)	--
		State	0	2	(1)	--
		Total	***1***	***13***	***(11)***	***$27.29***
13.1001	Special Education & Teaching, General	AIKCU	96	136	(40)	--
		State	213	195	18	--
		Total	***308***	***331***	***(23)***	***$25.70***
13.1205	Secondary Education & Teaching	AIKCU	54	82	(28)	--
		State	50	75	(25)	--
		Total	***104***	***157***	***(53)***	***$30.33***
13.1320	Trade & Industrial Teacher Education	State	20	142	(121)	--
		Total	***20***	***142***	***(121)***	***$27.39***
13.1202	Elementary Education & Teaching	AIKCU	204	234	(30)	--
		State	418	539	(122)	--
		Total	***622***	***773***	***(151)***	***$28.35***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

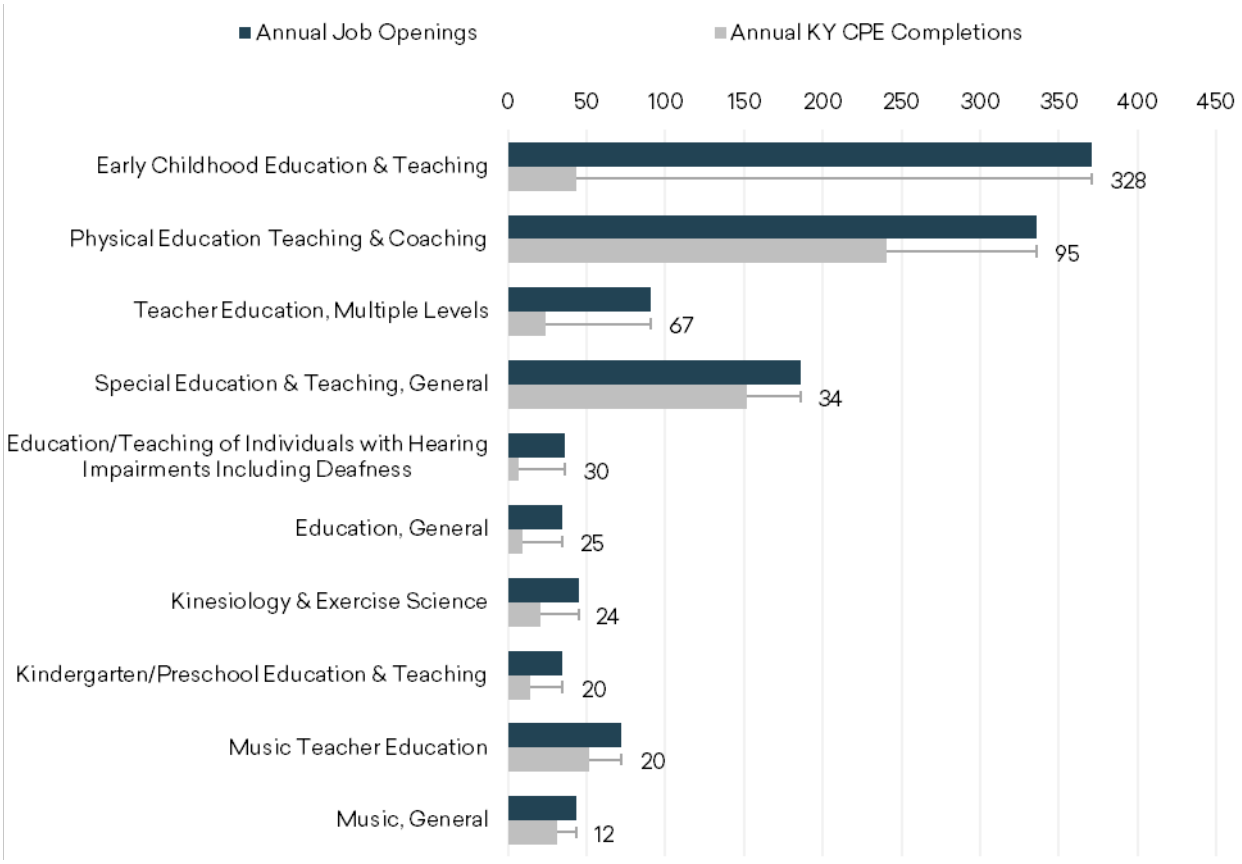
Bachelor's Degree Level Analysis

The largest bachelor's degree level gap, at 328 job openings, is in the Early Childhood Education & Teaching program (Figure 5.6). Within the program, Kentucky's institutions, on average, annually award 43 degrees, and the program's occupations have 371 statewide job openings, which accounts for the large program gap. All the award level's program gaps and surpluses are shown in Table 5.3. Programs with a large gap or surplus are indicated by the highlighted rows in the table.

We can use Table 5.4 to further explore the occupations driving programs with a large gap. Using the Early Childhood Education & Teaching program, the program with the largest gap, as an example, we see it is mapped to several teaching occupations. However, the occupation driving the gap is teacher assistants, with half of the job openings and a median hourly wage of $12.54. Depending on the extent to which Kentucky wants to focus Early

Childhood Education & Teaching on training teacher assistants, this program gap should be further considered. Excluding teacher assistants from the program mapping, we see 188 job openings for the other occupations, which creates a gap of 145, still making Early Childhood Education & Teaching the largest gap program.[12]

Figure 5.6: Kentucky's Top 10 Bachelor's Degree Level Education Programs with a Gap



Source: Emsi program demand gap model.

Table 5.3: Gaps and Surpluses for Kentucky's Bachelor's Degree Level Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1210	Early Childhood Education & Teaching	AIKCU	97	11	86	--
		State	274	32	242	--

12 Further research must be conducted before making a final determination. Emsi is available to conduct this research; see your Emsi contact for details.

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***371***	***43***	***328***	***$16.75***
13.1314	Physical Education Teaching & Coaching	AIKCU	7	5	2	--
		State	329	236	93	--
		Total	***336***	***241***	***95***	***$25.86***
13.1206	Teacher Education, Multiple Levels	State	90	24	67	--
		Total	***90***	***24***	***67***	***$20.81***
13.1001	Special Education & Teaching, General	AIKCU	7	6	1	--
		State	179	146	33	--
		Total	***186***	***152***	***34***	***$25.70***
13.1003	Education/Teaching of Individuals with Hearing Impairments Including Deafness	State	36	7	30	--
		Total	***36***	***7***	***30***	***$15.49***
13.0101	Education, General	AIKCU	34	9	25	--
		Total	***34***	***9***	***25***	***$20.81***
31.0505	Kinesiology & Exercise Science	State	45	21	24	--
		Total	***45***	***21***	***24***	***$18.38***
13.1209	Kindergarten/Preschool Education & Teaching	State	35	14	20	--
		Total	***35***	***14***	***20***	***$17.91***
13.1312	Music Teacher Education	AIKCU	10	7	3	--
		State	62	45	18	--
		Total	***72***	***52***	***20***	***$25.86***
50.0901	Music, General	State	44	31	12	--
		Total	***44***	***31***	***12***	***$25.86***
50.0702	Fine/Studio Arts, General	State	14	5	9	--
		Total	***14***	***5***	***9***	***$20.03***
23.0101	English Language & Literature, General	State	27	19	8	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***27***	***19***	***8***	***$25.86***
50.0903	Music Performance, General	State	23	17	6	--
		Total	***23***	***17***	***6***	***$14.06***
13.1307	Health Teacher Education	AIKCU	6	4	2	--
		State	15	11	4	--
		Total	***21***	***15***	***6***	***$25.86***
50.0701	Art/Art Studies, General	State	9	3	6	--
		Total	***9***	***3***	***6***	***$20.03***
13.1305	English/Language Arts Teacher Education	AIKCU	8	6	2	--
		State	11	8	3	--
		Total	***19***	***14***	***5***	***$25.86***
13.1311	Mathematics Teacher Education	AIKCU	4	3	1	--
		State	13	10	4	--
		Total	***18***	***13***	***5***	***$25.86***
16.0905	Spanish Language & Literature	State	15	11	4	--
		Total	***15***	***11***	***4***	***$25.86***
13.1015	Education/Teaching of Individuals in Early Childhood Special Education Programs	State	5	1	4	--
		Total	***5***	***1***	***4***	***$14.41***
13.1330	Spanish Language Teacher Education	AIKCU	3	2	1	--
		State	4	3	1	--
		Total	***7***	***5***	***2***	***$25.86***
13.1318	Social Studies Teacher Education	AIKCU	6	4	2	--
		Total	***6***	***4***	***2***	***$25.86***
13.1302	Art Teacher Education	AIKCU	1	1	0	--
		Total	***1***	***1***	***0***	***$25.86***

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
50.0501	Drama & Dramatics/Theatre Arts, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$14.06***
15.0613	Manufacturing Engineering Technology/Technician	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.32***
16.0302	Japanese Language & Literature	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.12***
45.0601	Economics, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.12***
16.9999	Foreign Languages, Literatures, & Linguistics, Other	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.12***
40.0601	Geology/Earth Science, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.12***
16.0501	German Language & Literature	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.12***
45.1001	Political Science & Government, General	State	2	2	0	--
		Total	***2***	***2***	***0***	***$26.12***
40.0501	Chemistry, General	State	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$26.43***
40.0801	Physics, General	State	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$26.43***
13.1213	Science, Technology, Engineering, and Mathematics (STEM) Educational Methods	State	3	4	(1)	--
		Total	***3***	***4***	***(1)***	***$26.12***
13.1317	Social Science Teacher Education	AIKCU	3	4	(1)	--
		Total	***3***	***4***	***(1)***	***$26.12***
13.1322	Biology Teacher Education	AIKCU	1	1	0	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		State	3	4	(1)	--
		Total	***4***	***5***	***(1)***	***$26.12***
13.1329	Physics Teacher Education	State	1	2	(1)	--
		Total	***1***	***2***	***(1)***	***$26.43***
13.1328	History Teacher Education	State	4	5	(1)	--
		Total	***4***	***5***	***(1)***	***$26.12***
54.0101	History, General	State	5	7	(2)	--
		Total	***5***	***7***	***(2)***	***$26.12***
23.9999	English Language and Literature/Letters, Other	State	7	9	(2)	--
		Total	***7***	***9***	***(2)***	***$26.12***
40.0101	Physical Sciences	State	1	4	(2)	--
		Total	***1***	***4***	***(2)***	***$26.43***
13.1303	Business Teacher Education	AIKCU	0	1	(1)	--
		State	0	2	(2)	--
		Total	***0***	***3***	***(2)***	***$27.39***
26.0101	Biology/Biological Sciences, General	State	2	4	(2)	--
		Total	***2***	***4***	***(2)***	***$26.43***
31.0501	Health & Physical Education/Fitness, General	State	8	10	(2)	--
		Total	***8***	***10***	***(2)***	***$26.12***
13.1308	Family & Consumer Sciences/Home Economics Teacher Education	State	27	30	(3)	--
		Total	***27***	***30***	***(3)***	***$26.32***
51.0000	Health Services/Allied Health/Health Sciences, General	State	1	4	(3)	--
		Total	***1***	***4***	***(3)***	***$27.39***
13.1205	Secondary Education & Teaching	AIKCU	6	9	(3)	--
		Total	***6***	***9***	***(3)***	***$29.57***

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
01.0000	Agriculture, General	State	1	5	(4)	--
		Total	***1***	***5***	***(4)***	***$27.39***
27.0101	Mathematics, General	State	22	28	(7)	--
		Total	***22***	***28***	***(7)***	***$26.12***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	AIKCU	33	35	(2)	--
		State	102	107	(6)	--
		Total	***135***	***142***	***(7)***	***$28.15***
13.1319	Technical Teacher Education	State	1	9	(8)	--
		Total	***1***	***9***	***(8)***	***$27.39***
45.0101	Social Sciences, General	State	6	14	(8)	--
		Total	***6***	***14***	***(8)***	***$26.43***
13.1320	Trade & Industrial Teacher Education	State	20	142	(121)	--
		Total	***20***	***142***	***(121)***	***$27.39***
13.1202	Elementary Education & Teaching	AIKCU	91	119	(27)	--
		State	405	526	(121)	--
		Total	***496***	***645***	***(149)***	***$28.13***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Table 5.4: Occupations Mapped to Kentucky's Bachelor's Degree Level Education Programs with a Large Gap

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
EARLY CHILDHOOD EDUCATION & TEACHING (CIP CODE 13.1210)						
25-9045	Teacher assistants, except postsecondary	33,800	34,532	732	184	$12.54
25-2011	Preschool teachers, except special education	10,717	11,368	651	73	$14.34
25-2052	Special education teachers, kindergarten & elementary school	8,480	8,492	12	29	$25.37
25-2012	Kindergarten teachers, except special education	4,691	4,739	48	32	$26.18

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
25-2021	Elementary school teachers, except special education	38,451	39,108	657	27	$25.55
11-9031	Education & childcare administrators, preschool & daycare	1,520	1,563	43	18	$16.84
11-9032	Education administrators, kindergarten through secondary	8,584	8,679	96	6	$40.14
25-2051	Special education teachers, preschool	465	490	25	2	$27.46
PHYSICAL EDUCATION TEACHING & COACHING (CIP CODE 13.1314)						
25-2021	Elementary school teachers, except special education	38,451	39,108	657	152	$25.55
25-2031	Secondary school teachers, except special ed. & CTE	24,636	25,136	500	98	$26.43
25-2022	Middle school teachers, except special ed. & CTE	16,200	16,552	352	85	$25.76
TEACHER EDUCATION, MULTIPLE LEVELS (CIP CODE 13.1206)						
25-2011	Preschool teachers, except special education	5,359	5,684	325	40	$14.34
25-2012	Kindergarten teachers, except special education	2,345	2,369	24	17	$26.18
25-2021	Elementary school teachers, except special education	19,225	19,554	328	15	$25.55
25-2031	Secondary school teachers, except special ed. & CTE	12,318	12,568	250	10	$26.43
25-2022	Middle school teachers, except special ed. & CTE	8,100	8,276	176	8	$25.76
SPECIAL EDUCATION & TEACHING, GENERAL (CIP CODE 13.1001)						
25-2052	Special education teachers, kindergarten & elementary school	8,480	8,492	12	103	$25.37
25-2058	Special education teachers, secondary school	3,161	3,210	49	49	$26.23
25-2057	Special education teachers, middle school	1,836	1,866	30	28	$25.57
25-2051	Special education teachers, preschool	465	490	25	6	$27.46

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Table 5.5: Occupations Mapped to Kentucky's Bachelor's Degree Level Education Programs with a Large Surplus

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
ELEMENTARY EDUCATION & TEACHING (CIP CODE 13.1202)						
25-2021	Elementary school teachers, except special education	38,451	39,108	657	408	$25.55
11-9032	Education administrators, kindergarten through secondary	8,584	8,679	96	88	$40.14
TRADE & INDUSTRIAL TEACHER EDUCATION (CIP CODE 13.1320)						
25-2032	Career/technical education teachers, secondary school	447	462	15	13	$27.84
25-2023	Career/technical education teachers, middle school	386	391	5	7	$26.55

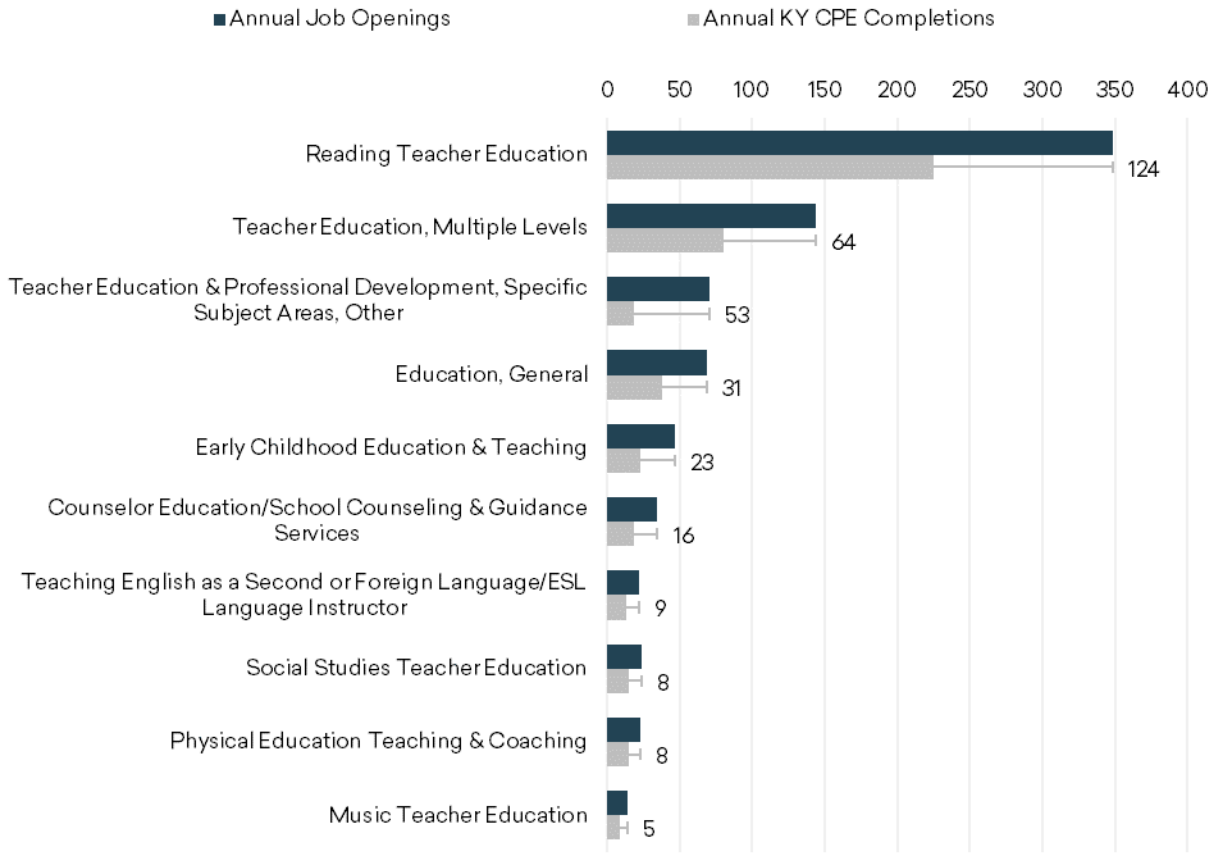
Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Master's Degree Level Analysis

This section looks at master's degree programs currently offered by Kentucky institutions. Note that, given a change in state requirements, it is no longer required for teachers to attain a master's degree. Therefore, Kentucky may see not only a decreased demand for master's degree level teachers over time but will also see fewer programs and therefore master's degree level completions. This change in state requirements should be kept in mind when interpreting master's degree level results.

Five programs at the master's degree level have a large gap. The largest master's degree level gap, by far with 124 job openings, is the Reading Teacher Education program (Figure 5.7). The program has a high supply with 225 average annual master's degree completers, but demand still far outweighs the supply. The program maps to three different occupations, as shown in Table 5.7, with job openings for elementary school teachers accounting for half of the program's total job openings. Two programs at this award level have a large surplus of program completions (Table 5.6).

Figure 5.7: Kentucky's Top 10 Master's Degree Level Education Programs with a Gap



Source: Emsi program demand gap model.

Table 5.6: Gaps and Surpluses for Kentucky's Master's Degree Level Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1315	Reading Teacher Education	State	22	14	8	--
		AIKCU	326	211	116	--
		Total	***348***	***225***	***124***	***$25.83***
13.1206	Teacher Education, Multiple Levels	State	113	63	50	--
		AIKCU	31	17	14	--
		Total	***144***	***80***	***64***	***$24.68***
13.1399	Teacher Education & Professional Development, Specific Subject Areas, Other	State	71	18	53	--
		Total	***71***	***18***	***53***	***$22.60***

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.0101	Education, General	State	69	38	31	--
		Total	***69***	***38***	***31***	***$24.68***
13.1210	Early Childhood Education & Teaching	State	39	19	19	--
		AIKCU	8	4	4	--
		Total	***47***	***23***	***23***	***$23.77***
13.1101	Counselor Education/School Counseling & Guidance Services	State	16	8	7	--
		AIKCU	19	10	9	--
		Total	***35***	***18***	***16***	***$28.27***
13.1401	Teaching English as a Second or Foreign Language/ESL Language Instructor	State	22	13	9	--
		Total	***22***	***13***	***9***	***$25.64***
13.1318	Social Studies Teacher Education	AIKCU	24	15	8	--
		Total	***24***	***15***	***8***	***$25.83***
13.1314	Physical Education Teaching & Coaching	State	10	7	4	--
		AIKCU	12	8	4	--
		Total	***23***	***15***	***8***	***$25.83***
13.1312	Music Teacher Education	State	9	6	3	--
		AIKCU	6	4	2	--
		Total	***14***	***9***	***5***	***$25.83***
13.1311	Mathematics Teacher Education	State	12	8	4	--
		AIKCU	2	1	1	--
		Total	***13***	***9***	***5***	***$25.83***
13.1302	Art Teacher Education	State	4	3	1	--
		AIKCU	9	6	3	--
		Total	***13***	***9***	***5***	***$25.83***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	State	8	8	0	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		AIKCU	46	44	2	--
		Total	***54***	***52***	***2***	***$28.88***
16.0101	Foreign Languages & Literatures, General	State	6	4	2	--
		Total	***6***	***4***	***2***	***$25.83***
23.0101	English Language & Literature, General	State	4	3	1	--
		Total	***4***	***3***	***1***	***$25.83***
13.1307	Health Teacher Education	AIKCU	3	2	1	--
		Total	***3***	***2***	***1***	***$25.83***
13.1306	Foreign Language Teacher Education	AIKCU	3	2	1	--
		Total	***3***	***2***	***1***	***$25.83***
13.1337	Earth Science Teacher Education	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.12***
13.1323	Chemistry Teacher Education	State	2	2	(1)	--
		Total	***2***	***2***	***0***	***$26.12***
13.1329	Physics Teacher Education	State	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$26.43***
13.1322	Biology Teacher Education	State	2	3	(1)	--
		AIKCU	1	1	0	--
		Total	***3***	***4***	***(1)***	***$26.12***
13.1316	Science Teacher Education/General Science Teacher Education	State	4	5	(1)	--
		Total	***4***	***5***	***(1)***	***$26.12***
13.1012	Education/Teaching of Individuals with Speech or Language Impairments	State	28	29	(2)	$22.02
		Total	***28***	***29***	***(2)***	***$22.02***
13.1319	Technical Teacher Education	State	0	2	(2)	--
		Total	***0***	***2***	***(2)***	***$27.09***

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1202	Elementary Education & Teaching	State	13	13	0	--
		AIKCU	113	115	(2)	--
		Total	***126***	***128***	***(3)***	***$28.57***
13.0301	Curriculum & Instruction	State	10	13	(3)	--
		Total	***10***	***13***	***(3)***	***$31.95***
13.1213	Science, Technology, Engineering, and Mathematics (STEM) Educational Methods	State	9	12	(3)	--
		Total	***9***	***12***	***(3)***	***$26.12***
01.9999	Agriculture, Agriculture Operations, & Related Sciences, Other	State	1	9	(8)	--
		Total	***1***	***9***	***(8)***	***$27.09***
13.1303	Business Teacher Education	AIKCU	1	10	(9)	--
		Total	***1***	***10***	***(9)***	***$27.09***
13.1205	Secondary Education & Teaching	State	50	75	(25)	--
		AIKCU	48	72	(24)	--
		Total	***98***	***148***	***(50)***	***$30.72***
13.1001	Special Education & Teaching, General	State	33	49	(16)	--
		AIKCU	89	131	(42)	--
		Total	***122***	***180***	***(57)***	***$25.71***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Table 5.7: Occupations Mapped to Kentucky's Master's Degree Level Education Programs with a Large Gap

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
READING TEACHER EDUCATION (CIP CODE 13.1315)						
25-2021	Elementary school teachers, except special education	38,451	39,108	657	175	$25.55
25-2031	Secondary school teachers, except special ed. & CTE	24,636	25,136	500	93	$26.43

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
25-2022	Middle school teachers, except special ed. & CTE	16,200	16,552	352	80	$25.76
TEACHER EDUCATION, MULTIPLE LEVELS (CIP CODE 13.1206)						
25-2021	Elementary school teachers, except special education	38,451	39,108	657	62	$25.55
25-2031	Secondary school teachers, except special ed. & CTE	24,636	25,136	500	33	$26.43
25-2022	Middle school teachers, except special ed. & CTE	16,200	16,552	352	29	$25.76
25-2011	Preschool teachers, except special education	10,717	11,368	651	15	$14.34
25-2012	Kindergarten teachers, except special education	4,691	4,739	48	5	$26.18
TEACHER EDUCATION & PROFESSIONAL DEVELOPMENT, SPECIFIC SUBJECT AREAS, OTHER (CIP CODE 13.1399)						
25-2021	Elementary school teachers, except special education	19,225	19,554	328	14	$25.55
25-3097	Tutors & teachers & instructors, all other	4,132	4,357	225	10	$18.94
25-2031	Secondary school teachers, except special ed. & CTE	12,318	12,568	250	8	$26.43
25-2022	Middle school teachers, except special ed. & CTE	8,100	8,276	176	7	$25.76
25-3021	Self-enrichment teachers	3,335	3,785	449	7	$14.06
25-2052	Special education teachers, kindergarten & elementary school	4,240	4,246	6	7	$25.37
11-9032	Education administrators, kindergarten through secondary	4,292	4,340	48	4	$40.14
25-2011	Preschool teachers, except special education	5,359	5,684	325	3	$14.34
25-9045	Teacher assistants, except postsecondary	16,900	17,266	366	3	$12.54
11-9031	Education & childcare administrators, preschool & daycare	760	781	22	2	$16.84
25-2012	Kindergarten teachers, except special education	2,345	2,369	24	1	$26.18
25-2023	Career/technical education teachers, middle school	386	391	5	1	$26.55
25-3011	Adult basic education, adult secondary education, & ESL instructors	639	555	(84)	1	$18.59
25-2032	Career/technical education teachers, secondary school	447	462	15	1	$27.84
25-2051	Special education teachers, preschool	233	245	12	0	$27.46
EDUCATION, GENERAL (CIP CODE 13.0101)						
25-2021	Elementary school teachers, except special education	19,225	19,554	328	30	$25.55
25-2031	Secondary school teachers, except special ed. & CTE	12,318	12,568	250	16	$26.43

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
25-2022	Middle school teachers, except special ed. & CTE	8,100	8,276	176	14	$25.76
25-2011	Preschool teachers, except special education	5,359	5,684	325	7	$14.34
25-2012	Kindergarten teachers, except special education	2,345	2,369	24	3	$26.18
EARLY CHILDHOOD EDUCATION & TEACHING (CIP CODE 13.1210)						
25-2021	Elementary school teachers, except special education	38,451	39,108	657	18	$25.55
25-2052	Special education teachers, kindergarten & elementary school	8,480	8,492	12	8	$25.37
25-9045	Teacher assistants, except postsecondary	33,800	34,532	732	6	$12.54
11-9032	Education administrators, kindergarten through secondary	8,584	8,679	96	5	$40.14
25-2011	Preschool teachers, except special education	10,717	11,368	651	4	$14.34
11-9031	Education & childcare administrators, preschool & daycare	1,520	1,563	43	3	$16.84
25-2012	Kindergarten teachers, except special education	4,691	4,739	48	2	$26.18
25-2051	Special education teachers, preschool	465	490	25	0	$27.46

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Table 5.8: Occupations Mapped to Kentucky's Master's Degree Level Education Programs with a Large Surplus

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
SPECIAL EDUCATION & TEACHING, GENERAL (CIP CODE 13.1001)						
25-2052	Special education teachers, kindergarten & elementary school	8,480	8,492	12	65	$25.37
25-2058	Special education teachers, secondary school	3,161	3,210	49	34	$26.23
25-2057	Special education teachers, middle school	1,836	1,866	30	20	$25.57
25-2051	Special education teachers, preschool	465	490	25	4	$27.46
SECONDARY EDUCATION & TEACHING (CIP CODE 13.1205)						
25-2031	Secondary school teachers, except special ed. & CTE	24,636	25,136	500	61	$26.43
11-9032	Education administrators, kindergarten through secondary	8,584	8,679	96	30	$40.14
25-2032	Career/technical education teachers, secondary school	893	923	30	7	$27.84

Numbers may not sum due to rounding. Source: Emsi program demand gap model.

CENTRAL WORKFORCE PLANNING REGION

Table 5.9 displays the gaps and surpluses for the Central WPR at the occupational level. As can be seen, teacher assistants face the largest gap, although the gap for elementary school teachers is likely of more interest to Kentucky educators. Secondary school teachers face the largest surplus in the region.

Figures 5.8 through 5.9 and Table 5.10 display the BACH+ gaps and surpluses. Teacher Education, Multiple Levels and Teacher Education & Professional Development, Specific Subject Areas, Other are areas to consider for expansion, whereas the Special Education & Teaching, General program should maintain its success in terms of high completions with high demand. Several programs, such as the Business Teacher Education and Physics Teacher Education programs, should be carefully considered for continuation and/or for consolidation given low numbers of completions.

At the individual award levels, public state universities play an important role in the Central WPR by providing the region with a large number of bachelor's and master's degree level programs of study and subsequent completions. Across both award levels, the largest programs, in terms of completions, are from two programs, both at the bachelor's degree level: Elementary Education & Teaching and Physical Education Teaching & Coaching. Both of these programs face a large surplus. However, as discussed above, elementary school teachers face a large gap in the region; results at the program level are conservative given the variety of programs to which the occupation is mapped.

At the master's degree level, we again see large gaps in the Teacher Education, Multiple Levels and Teacher Education & Professional Development, Specific Subject Areas, Other programs. The former program is mapped to several licensed teacher occupations, with elementary school teachers driving the gap with 57% of job openings. Given the broad nature of the latter program, it is mapped to 15 occupations. Elementary school teachers again comprise the largest number (36, or 37%) of job openings for the program.

Education Occupation Analysis

Table 5.9: BACH+ Gaps and Surpluses for Education Occupations in the Central WPR

OCCUPATION TITLE	DEMAND	SUPPLY	GAP OR SURPLUS	MEDIAN HOURLY WAGE
PRE-K WORKFORCE				
Preschool teachers, except special education	77	17	60	$14.57
Special education teachers, preschool	7	2	5	$28.35

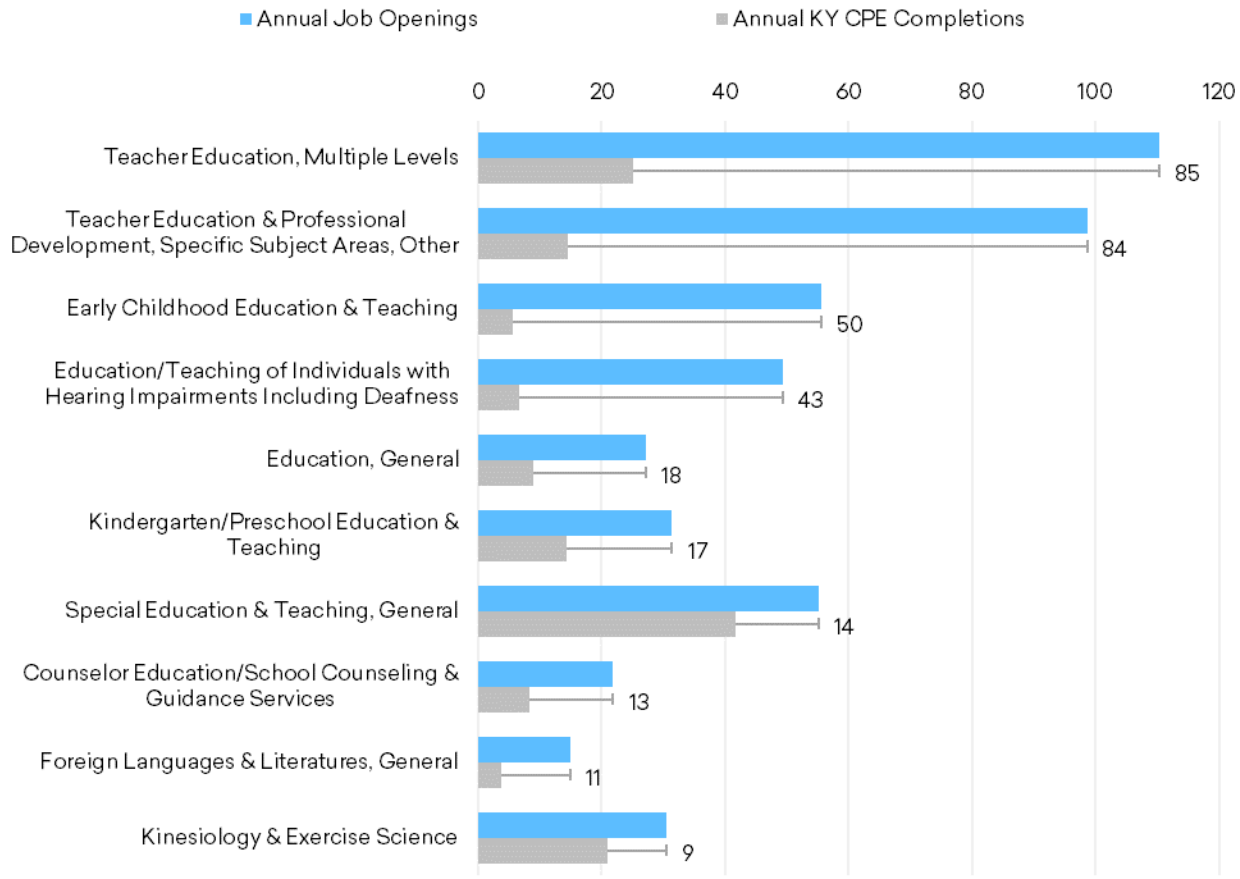
OCCUPATION TITLE	DEMAND	SUPPLY	GAP OR SURPLUS	MEDIAN HOURLY WAGE
Education & childcare administrators, preschool & daycare	14	14	0	$15.99
ELEMENTARY SCHOOL TEACHERS				
Elementary school teachers, except special education	487	411	76	$26.50
Kindergarten teachers, except special education	29	7	22	$27.04
MIDDLE SCHOOL TEACHERS				
Middle school teachers, except special ed. & CTE	243	224	18	$26.72
Career/technical education teachers, middle school	20	7	13	$26.70
HIGH SCHOOL TEACHERS				
Career/technical education teachers, secondary school	7	8	(2)	$27.76
Secondary school teachers, except special ed. & CTE	283	481	(198)	$27.09
SPECIAL EDUCATION TEACHERS				
Special education teachers, secondary school	47	14	33	$26.43
Special education teachers, kindergarten & elementary school	71	39	32	$26.04
Special education teachers, middle school	27	8	19	$26.58
EDUCATION WORKERS				
Teacher assistants, except postsecondary	222	95	127	$13.79
Tutors & teachers & instructors, all other	70	1	69	$20.90
Educational instruction & library workers, all other	64	0	64	$19.74
Self-enrichment teachers	66	7	60	$14.88
Adult basic education, adult secondary education, & ESL instructors	8	1	7	$19.88
ADMINISTRATORS & COUNSELORS				
Educational, guidance, & career counselors & advisors	100	91	9	$27.09
Education administrators, kindergarten through secondary	89	148	(59)	$41.76

Numbers may not sum due to rounding.

Source: Emsi program demand gap model.

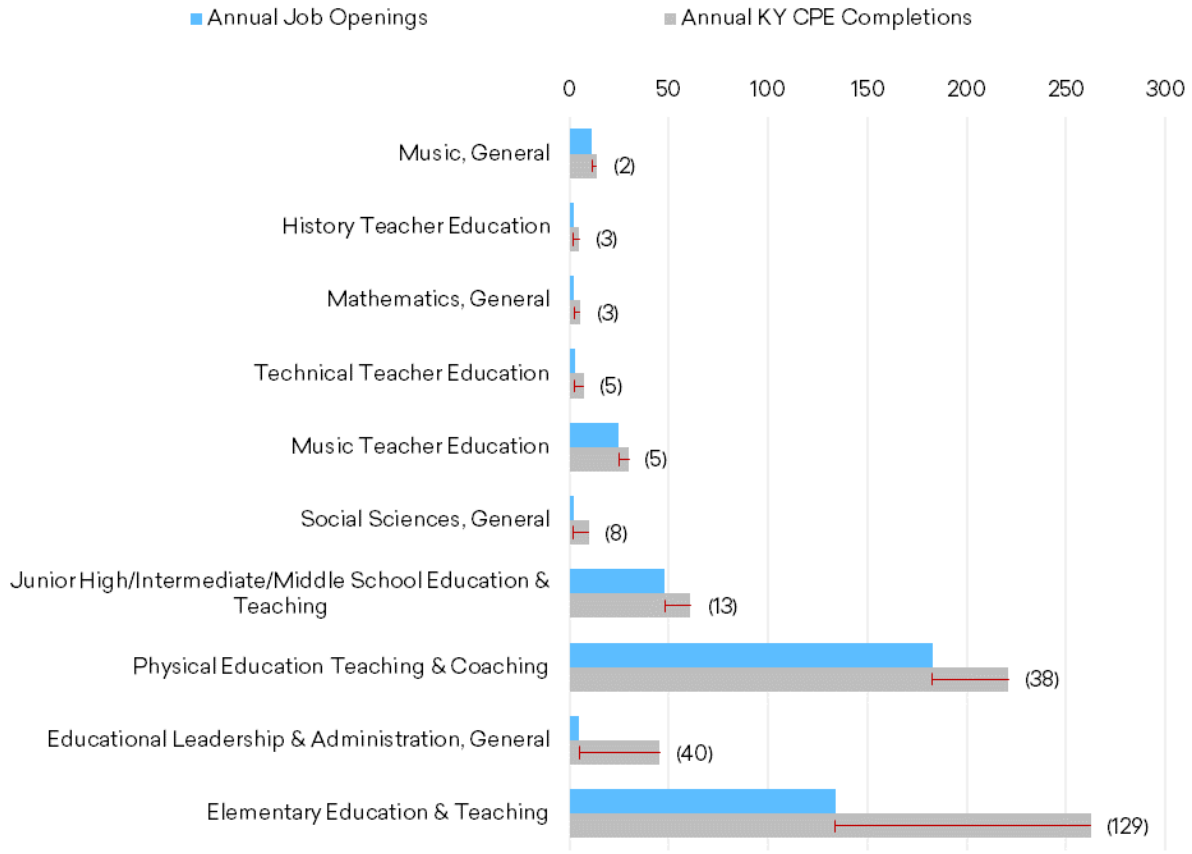
Combined Level Analysis

Figure 5.8: Central WPR's Top 10 BACH+ Education Programs with a Gap



Source: Emsi program demand gap model.

Figure 5.9: Central WPR's Top 10 BACH+ Education Programs with a Surplus



Source: Emsi program demand gap model.

Table 5.10: Gaps and Surpluses for Central WPR's BACH+ Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1206	Teacher Education, Multiple Levels	State	110	25	85	--
		Total	***110***	***25***	***85***	***$25.97***
13.1399	Teacher Education & Professional Development, Specific Subject Areas, Other	State	99	15	84	--
		Total	***99***	***15***	***84***	***$25.06***
13.1210	Early Childhood Education & Teaching	State	56	6	50	--
		Total	***56***	***6***	***50***	***$16.56***
13.1003	Education/Teaching of Individuals with Hearing Impairments Including Deafness	State	49	7	43	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***49***	***7***	***43***	***$16.04***
13.0101	Education, General	AIKCU	27	9	18	--
		Total	***27***	***9***	***18***	***$20.66***
13.1209	Kindergarten/Preschool Education & Teaching	State	31	14	17	--
		Total	***31***	***14***	***17***	***$18.38***
13.1001	Special Education & Teaching, General	State	55	42	14	--
		Total	***55***	***42***	***14***	***$26.37***
13.1101	Counselor Education/School Counseling & Guidance Services	State	22	8	13	--
		Total	***22***	***8***	***13***	***$27.09***
16.0101	Foreign Languages & Literatures, General	State	15	4	11	--
		Total	***15***	***4***	***11***	***$26.65***
31.0505	Kinesiology & Exercise Science	State	30	21	9	--
		Total	***30***	***21***	***9***	***$18.49***
13.1012	Education/Teaching of Individuals with Speech or Language Impairments	State	37	29	8	--
		Total	***37***	***29***	***8***	***$24.34***
13.1015	Education/Teaching of Individuals in Early Childhood Special Education Programs	State	7	1	6	--
		Total	***7***	***1***	***6***	***$14.98***
13.1213	Science, Technology, Engineering, and Mathematics (STEM) Educational Methods	State	21	16	5	--
		Total	***21***	***16***	***5***	***$53.80***
13.1205	Secondary Education & Teaching	AIKCU	6	6	(1)	--
		State	37	32	4	--
		Total	***42***	***39***	***4***	***$94.27***
13.0301	Curriculum & Instruction	State	16	13	4	--
		Total	***16***	***13***	***4***	***$33.42***

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
50.0701	Art/Art Studies, General	State	6	3	3	--
		Total	***6***	***3***	***3***	***$20.19***
23.0101	English Language & Literature, General	State	19	17	2	--
		Total	***19***	***17***	***2***	***$53.37***
13.1308	Family & Consumer Sciences/Home Economics Teacher Education	State	2	3	(1)	--
		Total	***2***	***3***	***(1)***	***$27.08***
16.0501	German Language & Literature	State	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$26.90***
16.0905	Spanish Language & Literature	State	3	3	0	--
		Total	***3***	***3***	***0***	***$26.71***
13.1330	Spanish Language Teacher Education	AIKCU	1	1	0	--
		State	2	3	(1)	--
		Total	***3***	***4***	***(1)***	***$53.42***
26.0101	Biology/Biological Sciences, General	State	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$27.09***
40.0801	Physics, General	State	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$27.09***
13.1307	Health Teacher Education	State	4	5	(1)	--
		Total	***4***	***5***	***(1)***	***$26.71***
13.1311	Mathematics Teacher Education	AIKCU	2	3	(1)	--
		State	2	3	(1)	--
		Total	***5***	***6***	***(1)***	***$53.42***
13.1303	Business Teacher Education	AIKCU	0	1	(1)	--
		State	1	2	(1)	--
		Total	***1***	***3***	***(2)***	***$54.59***
13.1329	Physics Teacher Education	State	0	2	(2)	--

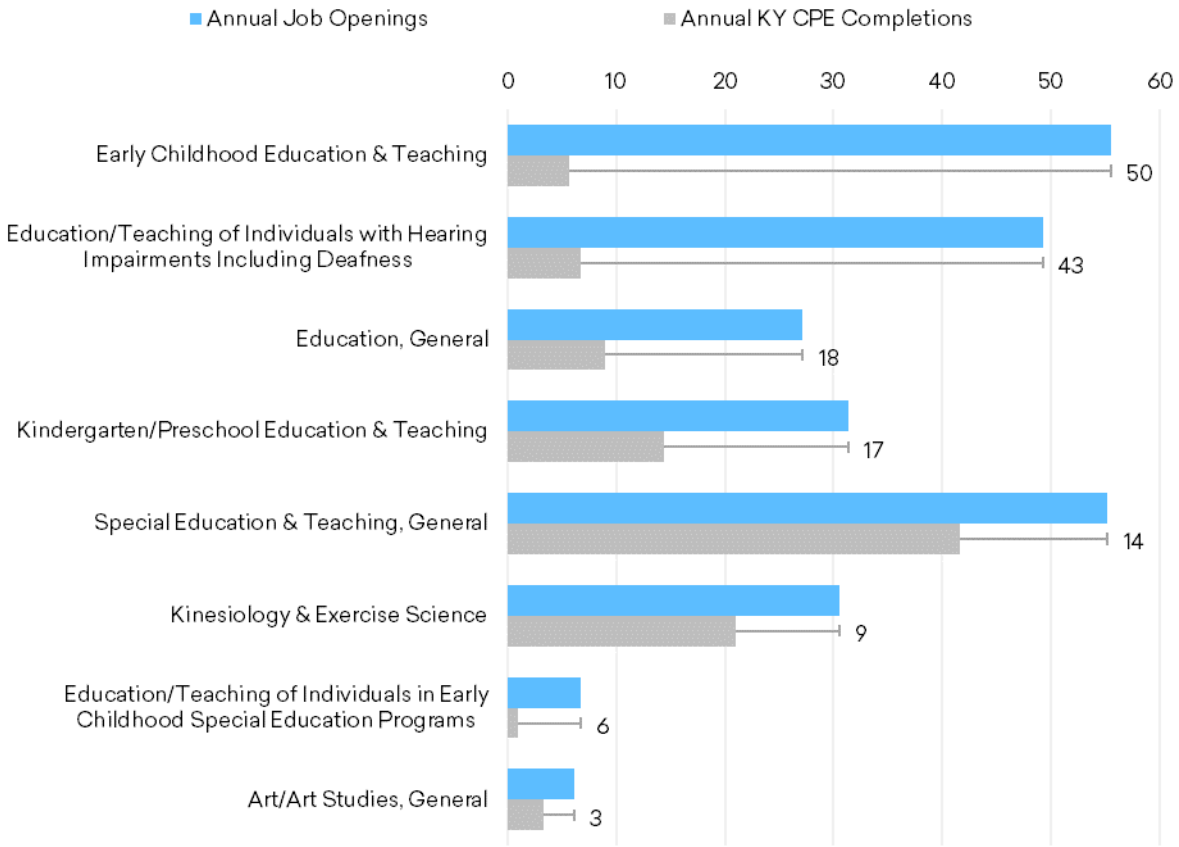
CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***0***	***2***	***(2)***	***$27.09***
13.1322	Biology Teacher Education	State	2	4	(2)	--
		Total	***2***	***4***	***(2)***	***$26.90***
13.1305	English/Language Arts Teacher Education	AIKCU	3	4	(1)	--
		State	7	8	(1)	--
		Total	***10***	***12***	***(2)***	***$53.42***
51.0000	Health Services/Allied Health/Health Sciences, General	State	1	4	(2)	--
		Total	***1***	***4***	***(2)***	***$27.30***
50.0901	Music, General	State	11	14	(2)	--
		Total	***11***	***14***	***(2)***	***$26.71***
13.1328	History Teacher Education	State	2	5	(3)	--
		Total	***2***	***5***	***(3)***	***$26.90***
27.0101	Mathematics, General	State	2	5	(3)	--
		Total	***2***	***5***	***(3)***	***$26.90***
13.1319	Technical Teacher Education	State	3	7	(5)	--
		Total	***3***	***7***	***(5)***	***$27.30***
13.1312	Music Teacher Education	State	25	30	(5)	--
		Total	***25***	***30***	***(5)***	***$26.71***
45.0101	Social Sciences, General	State	2	10	(8)	--
		Total	***2***	***10***	***(8)***	***$27.09***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	AIKCU	14	13	0	--
		State	34	48	(13)	--
		Total	***48***	***61***	***(13)***	***$88.06***
13.1314	Physical Education Teaching & Coaching	State	183	221	(38)	--
		Total	***183***	***221***	***(38)***	***$26.71***

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1202	Elementary Education & Teaching	AIKCU	10	20	(10)	--
		State	123	242	(119)	--
		Total	***134***	***262***	***(129)***	***$60.10***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Bachelor's Degree Level Analysis

Figure 5.10: Central WPR's Bachelor's Degree Level Education Programs with a Gap



Source: Emsi program demand gap model.

Table 5.11: Gaps and Surpluses for the Central WPR's Bachelor's Degree Level Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1210	Early Childhood Education & Teaching	State	56	6	50	--
		Total	***56***	***6***	***50***	***$16.56***
13.1003	Education/Teaching of Individuals with Hearing Impairments Including Deafness	State	49	7	43	--
		Total	***49***	***7***	***43***	***$16.04***
13.0101	Education, General	AIKCU	27	9	18	--
		Total	***27***	***9***	***18***	***$20.66***
13.1209	Kindergarten/Preschool Education & Teaching	State	31	14	17	--
		Total	***31***	***14***	***17***	***$18.38***
13.1001	Special Education & Teaching, General	State	55	42	14	--
		Total	***55***	***42***	***14***	***$26.37***
31.0505	Kinesiology & Exercise Science	State	30	21	9	--
		Total	***30***	***21***	***9***	***$18.49***
13.1015	Education/Teaching of Individuals in Early Childhood Special Education Programs	State	7	1	6	--
		Total	***7***	***1***	***6***	***$14.98***
50.0701	Art/Art Studies, General	State	6	3	3	--
		Total	***6***	***3***	***3***	***$20.19***
13.1308	Family & Consumer Sciences/Home Economics Teacher Education	State	2	3	(1)	--
		Total	***2***	***3***	***(1)***	***$27.08***
16.0501	German Language & Literature	State	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$26.90***
16.0905	Spanish Language & Literature	State	3	3	(1)	--
		Total	***3***	***3***	***(1)***	***$26.71***
13.1330	Spanish Language Teacher Education	AIKCU	1	1	0	--
		State	2	3	(1)	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***3***	***4***	***(1)***	***$26.71***
40.0801	Physics, General	State	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$27.09***
26.0101	Biology/Biological Sciences, General	State	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$27.09***
13.1307	Health Teacher Education	State	4	5	(1)	--
		Total	***4***	***5***	***(1)***	***$26.71***
13.1311	Mathematics Teacher Education	AIKCU	2	3	0	--
		State	2	3	(1)	--
		Total	***5***	***6***	***(1)***	***$26.71***
13.1205	Secondary Education & Teaching	AIKCU	1	2	(1)	--
		Total	***1***	***2***	***(1)***	***$30.58***
13.1303	Business Teacher Education	AIKCU	0	1	(1)	--
		State	1	2	(1)	--
		Total	***1***	***3***	***(2)***	***$27.30***
13.1329	Physics Teacher Education	State	0	2	(2)	--
		Total	***0***	***2***	***(2)***	***$27.09***
13.1322	Biology Teacher Education	State	2	4	(2)	--
		Total	***2***	***4***	***(2)***	***$26.90***
13.1305	English/Language Arts Teacher Education	AIKCU	3	4	(1)	--
		State	7	8	(1)	--
		Total	***10***	***12***	***(2)***	***$26.71***
13.1213	Science, Technology, Engineering, and Mathematics (STEM) Educational Methods	State	2	4	(2)	--
		Total	***2***	***4***	***(2)***	***$26.90***
51.0000	Health Services/Allied Health/Health Sciences, General	State	1	4	(2)	--
		Total	***1***	***4***	***(2)***	***$27.30***

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
50.0901	Music, General	State	11	14	(2)	--
		Total	***11***	***14***	***(2)***	***$26.71***
23.0101	English Language & Literature, General	State	13	16	(3)	--
		Total	***13***	***16***	***(3)***	***$26.71***
13.1328	History Teacher Education	State	2	5	(3)	--
		Total	***2***	***5***	***(3)***	***$26.90***
27.0101	Mathematics, General	State	2	5	(3)	--
		Total	***2***	***5***	***(3)***	***$26.90***
13.1319	Technical Teacher Education	State	3	7	(5)	--
		Total	***3***	***7***	***(5)***	***$27.30***
13.1312	Music Teacher Education	State	25	30	(5)	--
		Total	***25***	***30***	***(5)***	***$26.71***
45.0101	Social Sciences, General	State	2	10	(8)	--
		Total	***2***	***10***	***(8)***	***$27.09***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	AIKCU	7	10	(3)	--
		State	34	48	(13)	--
		Total	***42***	***58***	***(16)***	***$29.30***
13.1314	Physical Education Teaching & Coaching	State	183	221	(38)	--
		Total	***183***	***221***	***(38)***	***$26.71***
13.1202	Elementary Education & Teaching	AIKCU	10	20	(10)	--
		State	123	242	(119)	--
		Total	***134***	***262***	***(129)***	***$30.05***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Table 5.12: Occupations Mapped to the Central WPR's Bachelor's Degree Level Education Program with a Large Gap

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
EARLY CHILDHOOD EDUCATION & TEACHING (CIP CODE 13.1210)						
25-9045	Teacher assistants, except postsecondary	7,652	7,990	339	34	$13.79
25-2011	Preschool teachers, except special education	1,915	2,006	91	9	$14.57
25-2012	Kindergarten teachers, except special education	729	765	36	4	$27.04
25-2052	Special education teachers, kindergarten & elementary school	1,024	1,066	42	3	$26.04
25-2021	Elementary school teachers, except special education	6,228	6,610	382	2	$26.50
11-9031	Education & childcare administrators, preschool & daycare	236	234	(2)	2	$15.99
11-9032	Education administrators, kindergarten through secondary	1,440	1,526	86	1	$41.76
25-2051	Special education teachers, preschool	99	105	6	0	$28.35

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

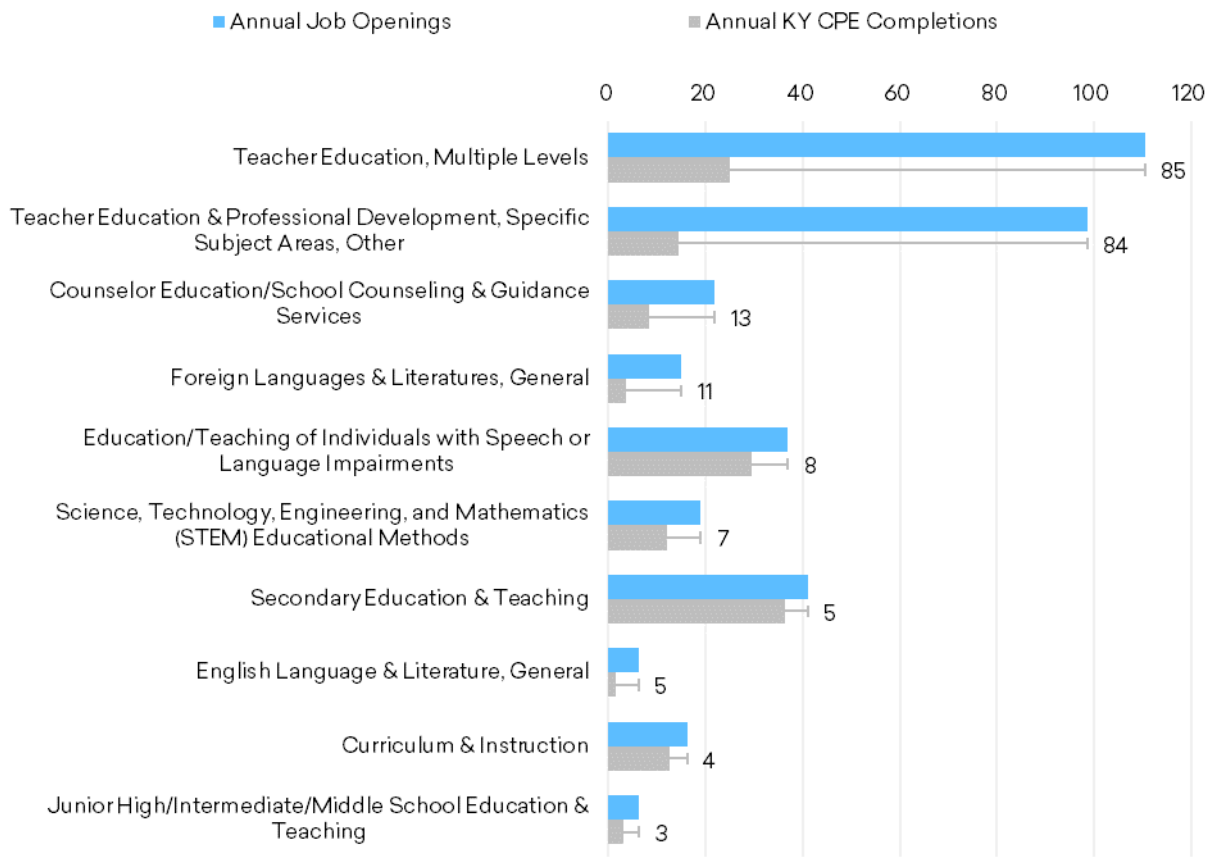
Table 5.13: Occupations Mapped to the Central WPR's Bachelor's Degree Level Education Programs with a Large Surplus

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
ELEMENTARY EDUCATION & TEACHING (CIP CODE 13.1202)						
25-2021	Elementary school teachers, except special education	12,456	13,220	764	103	$26.50
11-9032	Education administrators, kindergarten through secondary	2,880	3,051	171	31	$41.76
PHYSICAL EDUCATION TEACHING & COACHING (CIP CODE 13.1314)						
25-2021	Elementary school teachers, except special education	6,228	6,610	382	87	$26.50
25-2022	Middle school teachers, except special ed. & CTE	3,139	3,312	173	50	$26.72
25-2031	Secondary school teachers, except special ed. & CTE	3,746	4,020	275	46	$27.09

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Master's Degree Level Analysis

Figure 5.11: All Central WPR's Master's Degree Level Education Programs



Source: Emsi program demand gap model.

Table 5.14: Gaps for the Central WPR's Master's Degree Level Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1206	Teacher Education, Multiple Levels	State	110	25	85	--
		Total	***110***	***25***	***85***	***$25.97***
13.1399	Teacher Education & Professional Development, Specific Subject Areas, Other	State	99	15	84	--
		Total	***99***	***15***	***84***	***$25.06***
13.1101	Counselor Education/School Counseling & Guidance Services	State	22	8	13	--
		Total	***22***	***8***	***13***	***$27.09***

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
16.0101	Foreign Languages & Literatures, General	State	15	4	11	--
		Total	***15***	***4***	***11***	***$26.65***
13.1012	Education/Teaching of Individuals with Speech or Language Impairments	State	37	29	8	--
		Total	***37***	***29***	***8***	***$24.34***
13.1213	Science, Technology, Engineering, and Mathematics (STEM) Educational Methods	State	19	12	7	--
		Total	***19***	***12***	***7***	***$26.90***
13.1205	Secondary Education & Teaching	State	37	32	4	--
		AIKCU	5	4	1	--
		Total	***41***	***36***	***5***	***$31.84***
23.0101	English Language & Literature, General	State	6	2	5	--
		Total	***6***	***2***	***5***	***$26.65***
13.0301	Curriculum & Instruction	State	16	13	4	--
		Total	***16***	***13***	***4***	***$33.42***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	AIKCU	6	3	3	--
		Total	***6***	***3***	***3***	***$29.46***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Table 5.15: Occupations Mapped to the Central WPR's Master's Degree Level Education Programs with a Large Gap

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
TEACHER EDUCATION, MULTIPLE LEVELS (CIP CODE 13.1206)						
25-2021	Elementary school teachers, except special education	6,228	6,610	382	63	$26.50
25-2022	Middle school teachers, except special ed. & CTE	3,139	3,312	173	21	$26.72
25-2031	Secondary school teachers, except special ed. & CTE	3,746	4,020	275	18	$27.09
25-2011	Preschool teachers, except special education	1,915	2,006	91	6	$14.57

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
25-2012	Kindergarten teachers, except special education	729	765	36	2	$27.04
TEACHER EDUCATION & PROFESSIONAL DEVELOPMENT, SPECIFIC SUBJECT AREAS, OTHER (CIP CODE 13.1399)						
25-2021	Elementary school teachers, except special education	6,228	6,610	382	36	$26.50
25-2022	Middle school teachers, except special ed. & CTE	3,139	3,312	173	12	$26.72
25-2031	Secondary school teachers, except special ed. & CTE	3,746	4,020	275	11	$27.09
25-3097	Tutors & teachers & instructors, all other	1,523	1,625	102	8	$20.90
25-3021	Self-enrichment teachers	1,254	1,443	189	7	$14.88
25-2052	Special education teachers, kindergarten & elementary school	1,024	1,066	42	6	$26.04
11-9032	Education administrators, kindergarten through secondary	1,440	1,526	86	5	$41.76
25-2011	Preschool teachers, except special education	1,915	2,006	91	4	$14.57
25-9045	Teacher assistants, except postsecondary	7,652	7,990	339	3	$13.79
11-9031	Education & childcare administrators, preschool & daycare	236	234	(2)	2	$15.99
25-2023	Career/technical education teachers, middle school	282	287	6	2	$26.70
25-2012	Kindergarten teachers, except special education	729	765	36	1	$27.04
25-3011	Adult basic education, adult secondary education, & ESL instructors	184	165	(18)	1	$19.88
25-2051	Special education teachers, preschool	99	105	6	1	$28.35
25-2032	Career/technical education teachers, secondary school	77	88	11	0	$27.76

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

EAST WORKFORCE PLANNING REGION

Table 5.16 displays the gaps and surpluses for the East WPR at the occupational level. As can be seen, elementary school teachers face the largest gap, with a gap of 146. Teaching assistants follow with a gap of 70, although this occupation is likely not of primary interest to Kentucky postsecondary educators. Secondary school teachers and education administrators, kindergarten through secondary face the largest surpluses in the region, although the surpluses are not significant.

Figures 5.12 through 5.13 and Table 5.17 display the BACH+ gaps and surpluses. Early Childhood Education & Teaching is an area to consider for expansion, whereas the Education, General and Elementary Education & Teaching programs should maintain their success in terms of high completions with high demand. Several programs, such as the Mathematics Teacher Education and English/Language Arts Teacher Education programs, should be carefully considered for continuation and/or for consolidation given low numbers of completions.

At the individual award levels, public state universities play an important role in the East WPR by providing the region with a large number of bachelor's and master's degree level programs of study and subsequent completions. Across both award levels, the largest programs, in terms of completions, are from two programs: Special Education & Teaching, General (bachelor's degree) and Education, General (master's degree). The former program faces a small surplus, although completers of the program could be finding employment in other parts of the state. The Education, General program faces a high gap for the region, with a gap of 38. The program is mapped to several licensed teacher occupations, with elementary school teachers driving the gap with 58% of job openings.

Education Occupation Analysis

Table 5.16: BACH+ Gaps and Surpluses for Education Occupations in the East WPR

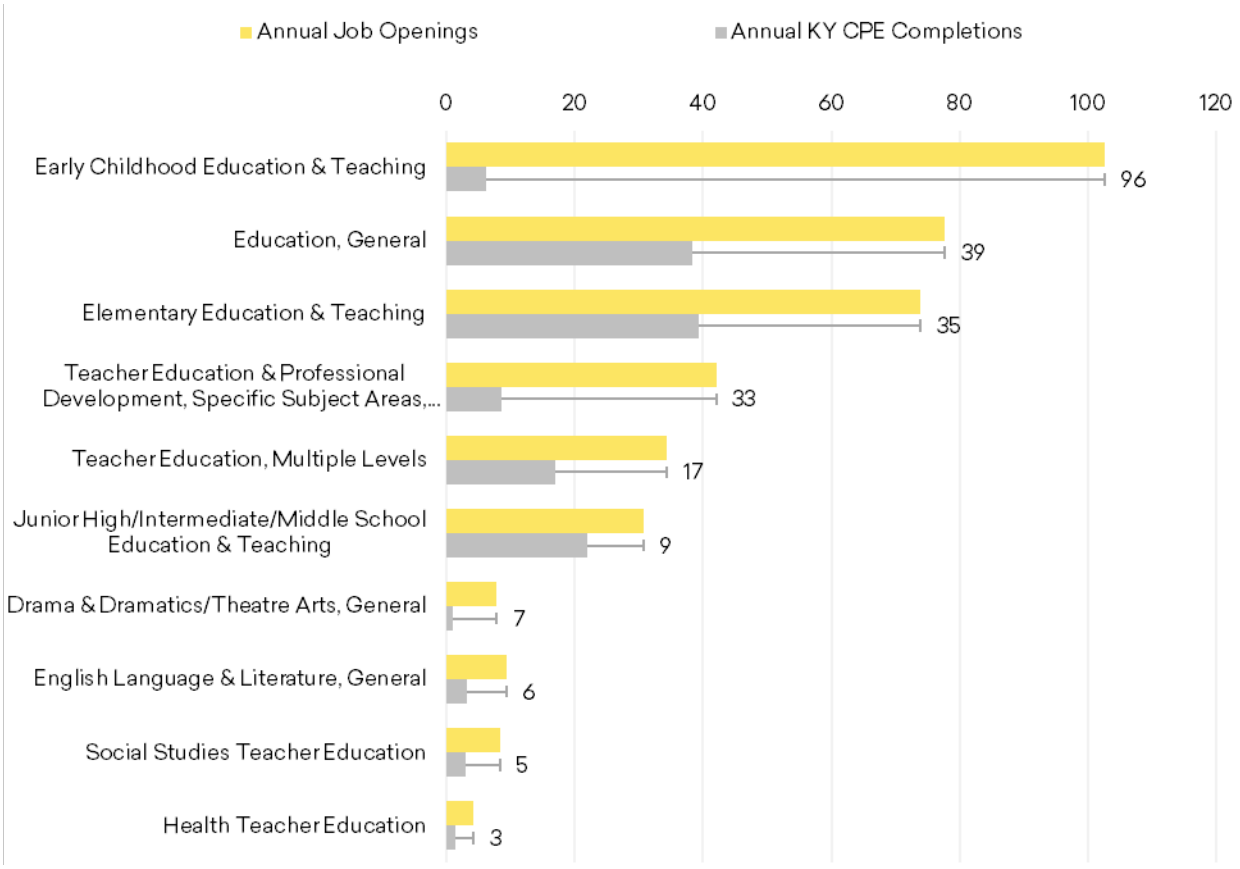
OCCUPATION TITLE	DEMAND	SUPPLY	GAP OR SURPLUS	MEDIAN HOURLY WAGE
PRE-K WORKFORCE				
Preschool teachers, except special education	24	7	17	$14.07
Special education teachers, preschool	2	2	0	$25.35
Education & childcare administrators, preschool & daycare	5	6	(1)	$13.96
ELEMENTARY SCHOOL TEACHERS				

OCCUPATION TITLE	DEMAND	SUPPLY	GAP OR SURPLUS	MEDIAN HOURLY WAGE
Elementary school teachers, except special education	214	68	146	$25.81
Kindergarten teachers, except special education	15	3	12	$24.61
MIDDLE SCHOOL TEACHERS				
Middle school teachers, except special ed. & CTE	61	36	25	$24.96
Career/technical education teachers, middle school	2	0	2	$24.04
HIGH SCHOOL TEACHERS				
Career/technical education teachers, secondary school	4	0	3	$26.47
Secondary school teachers, except special ed. & CTE	100	111	(11)	$25.56
SPECIAL EDUCATION TEACHERS				
Special education teachers, kindergarten & elementary school	39	33	6	$25.14
Special education teachers, secondary school	18	12	6	$26.56
Special education teachers, middle school	9	7	2	$25.69
EDUCATION WORKERS				
Teacher assistants, except postsecondary	73	3	70	$10.57
Educational instruction & library workers, all other	16	0	16	$16.01
Tutors & teachers & instructors, all other	16	1	15	$22.42
Self-enrichment teachers	21	16	5	$12.32
Adult basic education, adult secondary education, & ESL instructors	3	2	1	$17.63
ADMINISTRATORS & COUNSELORS				
Educational, guidance, & career counselors & advisors	35	9	26	$25.52
Education administrators, kindergarten through secondary	34	46	(12)	$37.12

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

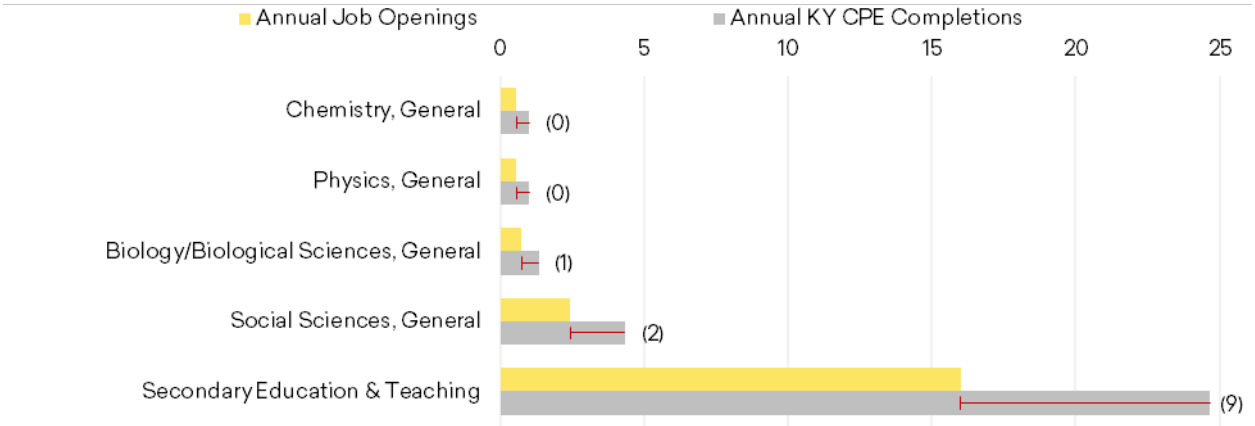
Combined Level Analysis

Figure 5.12: East WPR's Top 10 BACH+ Education Programs with a Gap



Source: Emsi program demand gap model.

Figure 5.13: East WPR's BACH+ Education Programs with a Surplus



Source: Emsi program demand gap model.

Table 5.17: Gaps and Surpluses for East WPR's BACH+ Education Programs

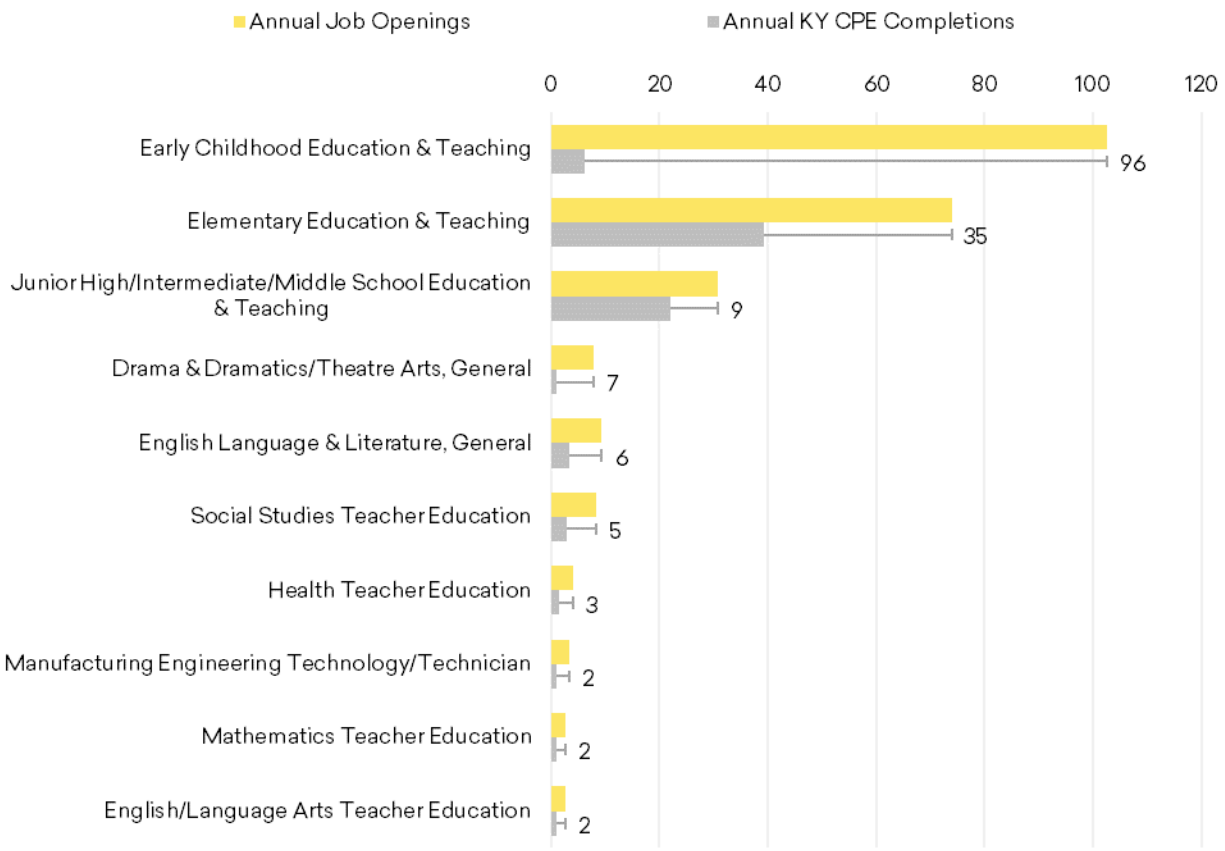
CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1210	Early Childhood Education & Teaching	State	103	6	96	--
		Total	***103***	***6***	***96***	***$14.72***
13.0101	Education, General	State	78	38	39	--
		Total	***78***	***38***	***39***	***$25.22***
13.1202	Elementary Education & Teaching	AIKCU	21	11	10	--
		State	53	28	25	--
		Total	***74***	***39***	***35***	***$27.06***
13.1399	Teacher Education & Professional Development, Specific Subject Areas, Other	State	42	9	33	--
		Total	***42***	***9***	***33***	***$21.99***
13.1206	Teacher Education, Multiple Levels	AIKCU	34	17	17	--
		Total	***34***	***17***	***17***	***$25.22***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	AIKCU	9	7	3	--
		State	21	15	6	--
		Total	***31***	***22***	***9***	***$26.98***
50.0501	Drama & Dramatics/Theatre Arts, General	State	8	1	7	$12.32
		Total	***8***	***1***	***7***	***$12.32***
23.0101	English Language & Literature, General	State	9	3	6	--
		Total	***9***	***3***	***6***	***$25.58***
13.1318	Social Studies Teacher Education	AIKCU	8	3	5	--
		Total	***8***	***3***	***5***	***$25.58***
13.1307	Health Teacher Education	AIKCU	4	2	3	--
		Total	***4***	***2***	***3***	***$25.58***
15.0613	Manufacturing Engineering Technology/Technician	State	3	1	2	--
		Total	***3***	***1***	***2***	***$26.03***

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1311	Mathematics Teacher Education	AIKCU	3	1	2	--
		Total	***3***	***1***	***2***	***$25.58***
13.1305	English/Language Arts Teacher Education	AIKCU	3	1	2	--
		Total	***3***	***1***	***2***	***$25.58***
27.0101	Mathematics, General	State	4	4	0	--
		Total	***4***	***4***	***0***	***$25.25***
13.1001	Special Education & Teaching, General	AIKCU	19	7	12	--
		State	35	46	(12)	--
		Total	***53***	***53***	***0***	***$25.74***
40.0501	Chemistry, General	State	1	1	0	--
		Total	1	1	0	--
40.0801	Physics, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$25.56***
26.0101	Biology/Biological Sciences, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$25.56***
45.0101	Social Sciences, General	State	2	4	(2)	--
		Total	***2***	***4***	***(2)***	***$25.56***
13.1205	Secondary Education & Teaching	State	16	25	(9)	--
		Total	***16***	***25***	***(9)***	***$29.29***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Bachelor's Degree Level Analysis

Figure 5.14: East WPR's Top 10 Bachelor's Degree Level Education Programs with a Gap



Source: Emsi program demand gap model.

Table 5.18: Gaps and Surpluses for the East WPR's Bachelor's Degree Level Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1210	Early Childhood Education & Teaching	State	103	6	96	--
		Total	***103***	***6***	***96***	***$14.72***
13.1202	Elementary Education & Teaching	AIKCU	21	11	10	--
		State	53	28	25	--
		Total	***74***	***39***	***35***	***$27.06***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	AIKCU	9	7	3	--
		State	21	15	6	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***31***	***22***	***9***	***$26.98***
50.0501	Drama & Dramatics/Theatre Arts, General	State	8	1	7	--
		Total	***8***	***1***	***7***	***$12.32***
23.0101	English Language & Literature, General	State	9	3	6	--
		Total	***9***	***3***	***6***	***$25.58***
13.1318	Social Studies Teacher Education	AIKCU	8	3	5	--
		Total	***8***	***3***	***5***	***$25.58***
13.1307	Health Teacher Education	AIKCU	4	2	3	--
		Total	***4***	***2***	***3***	***$25.58***
15.0613	Manufacturing Engineering Technology/Technician	State	3	1	2	--
		Total	***3***	***1***	***2***	***$26.03***
13.1311	Mathematics Teacher Education	AIKCU	3	1	2	--
		Total	***3***	***1***	***2***	***$25.58***
13.1305	English/Language Arts Teacher Education	AIKCU	3	1	2	--
		Total	***3***	***1***	***2***	***$25.58***
27.0101	Mathematics, General	State	4	4	0	--
		Total	***4***	***4***	***0***	***$25.25***
40.0801	Physics, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$25.56***
40.0501	Chemistry, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$25.56***
26.0101	Biology/Biological Sciences, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$25.56***
45.0101	Social Sciences, General	State	2	4	(2)	--
		Total	***2***	***4***	***(2)***	***$25.56***
13.1001	Special Education & Teaching, General	State	35	46	(12)	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***35***	***46***	***(12)***	***$25.63***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

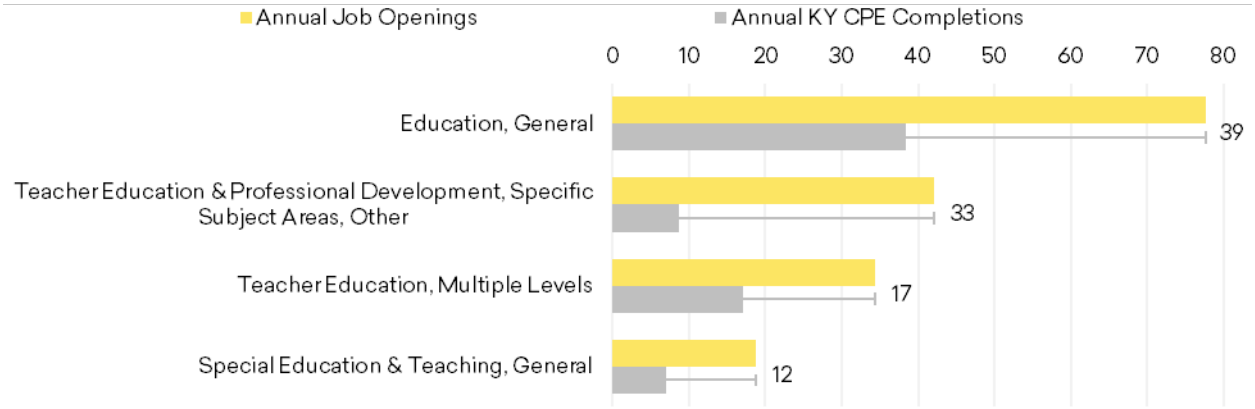
Table 5.19: Occupations Mapped to the East WPR's Bachelor's Degree Level Education Programs with a Large Gap

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
EARLY CHILDHOOD EDUCATION & TEACHING (CIP CODE 13.1210)						
25-9045	Teacher assistants, except postsecondary	2,669	2,652	(18)	61	$10.57
25-2011	Preschool teachers, except special education	488	589	102	15	$14.07
25-2021	Elementary school teachers, except special education	3,112	3,027	(85)	11	$25.81
25-2012	Kindergarten teachers, except special education	416	402	(14)	9	$24.61
25-2052	Special education teachers, kindergarten & elementary school	627	598	(28)	3	$25.14
11-9031	Education & childcare administrators, preschool & daycare	64	77	13	3	$13.96
11-9032	Education administrators, kindergarten through secondary	620	597	(23)	1	$37.12
25-2051	Special education teachers, preschool	33	34	1	0	$25.35
ELEMENTARY EDUCATION & TEACHING (CIP CODE 13.1202)						
25-2021	Elementary school teachers, except special education	6,224	6,054	(171)	66	$25.81
11-9032	Education administrators, kindergarten through secondary	1,239	1,194	(45)	8	$37.12

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Master's Degree Level Analysis

Figure 5.15: East WPR's Master's Degree Level Education Programs with a Gap



Source: Emsi program demand gap model.

Table 5.20: Gaps and Surpluses for the East WPR's Master's Degree Level Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.0101	Education, General	State	78	38	39	--
		Total	***78***	***38***	***39***	***$25.22***
13.1399	Teacher Education & Professional Development, Specific Subject Areas, Other	State	42	9	33	--
		Total	***42***	***9***	***33***	***$21.99***
13.1206	Teacher Education, Multiple Levels	AIKCU	34	17	17	--
		Total	***34***	***17***	***17***	***$25.22***
13.1001	Special Education & Teaching, General	AIKCU	19	7	12	--
		Total	***19***	***7***	***12***	***$25.85***
13.1205	Secondary Education & Teaching	State	16	25	(9)	--
		Total	***16***	***25***	***(9)***	***$29.29***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Table 5.21: Occupations Mapped to the East WPR's Master's Degree Level Education Programs with a Large Gap

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
EDUCATION, GENERAL (CIP CODE 13.0101)						
25-2021	Elementary school teachers, except special education	3,112	3,027	(85)	45	$25.81
25-2031	Secondary school teachers, except special ed. & CTE	1,526	1,491	(35)	16	$25.56
25-2022	Middle school teachers, except special ed. & CTE	872	859	(13)	13	$24.96
25-2011	Preschool teachers, except special education	488	589	102	2	$14.07
25-2012	Kindergarten teachers, except special education	416	402	(14)	2	$24.61
TEACHER EDUCATION & PROFESSIONAL DEVELOPMENT, SPECIFIC SUBJECT AREAS, OTHER (CIP CODE 13.1399)						
25-2021	Elementary school teachers, except special education	3,112	3,027	(85)	10	$25.81
25-2052	Special education teachers, kindergarten & elementary school	627	598	(28)	8	$25.14
25-9045	Teacher assistants, except postsecondary	2,669	2,652	(18)	8	$10.57
25-2031	Secondary school teachers, except special ed. & CTE	1,526	1,491	(35)	4	$25.56
25-2022	Middle school teachers, except special ed. & CTE	872	859	(13)	3	$24.96
25-3097	Tutors & teachers & instructors, all other	359	371	12	3	$22.42
11-9032	Education administrators, kindergarten through secondary	620	597	(23)	2	$37.12
25-3021	Self-enrichment teachers	412	452	39	1	$12.32
25-2011	Preschool teachers, except special education	488	589	102	1	$14.07
25-2023	Career/technical education teachers, middle school	29	29	0	1	$24.04
11-9031	Education & childcare administrators, preschool & daycare	64	77	13	0	$13.96
25-2012	Kindergarten teachers, except special education	416	402	(14)	0	$24.61
25-3011	Adult basic education, adult secondary education, & ESL instructors	76	61	(16)	0	$17.63
25-2032	Career/technical education teachers, secondary school	53	54	0	0	$26.47
25-2051	Special education teachers, preschool	33	34	1	0	$25.35

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

KENTUCKIANA LOCAL WORKFORCE AREA

Table 5.22 displays the gaps and surpluses for the Kentuckiana LWA at the occupational level. As can be seen, elementary school teachers and secondary school teachers face the largest gaps in the region. The latter is particularly interesting given the statewide surplus for the occupation. Career/Technical education teachers (both middle and secondary school) face the largest surpluses in the region, with a combined surplus of 129 in the region. These teachers may be trained in the Kentuckiana LWA but could be employed elsewhere in the state.

Figures 5.16 through 5.17 and Table 5.23 display the BACH+ gaps and surpluses. Teacher Education, Multiple Levels and Elementary Education & Teaching are areas to consider for expansion, whereas the Special Education & Teaching, General and Secondary Education & Teaching programs should maintain their success in terms of high completions with high demand. A few programs, such as the Earth Science Teacher Education and Physics Teacher Education programs, should be carefully considered for continuation and/or for consolidation given low numbers of completions.

At the individual award levels, public state universities play an important role in the Kentuckiana LWA by providing the region with a large number of bachelor's and master's degree level programs of study and subsequent completions. Across both award levels, the largest programs, in terms of completions, are from two programs, both at the bachelor's degree level: Elementary Education & Teaching and Trade & Industrial Teacher Education. The former program faces a gap, and as seen in Table 5.24 there is overall excess regional demand for elementary school teachers. The latter program faces a large surplus of 133, or 142 average annual completions from the University of Louisville compared to eight average annual openings. This is largely contributing to the surplus of completers for the career/technical education teachers discussed around Table 5.24. At the master's degree level, we again see a large gap in the Teacher Education, Multiple Levels program. The program is mapped to several licensed teacher occupations, with elementary school teachers driving the gap with 42% of job openings.

Education Occupation Analysis

Table 5.22: BACH+ Gaps for Education Occupations in the Kentuckiana LWA

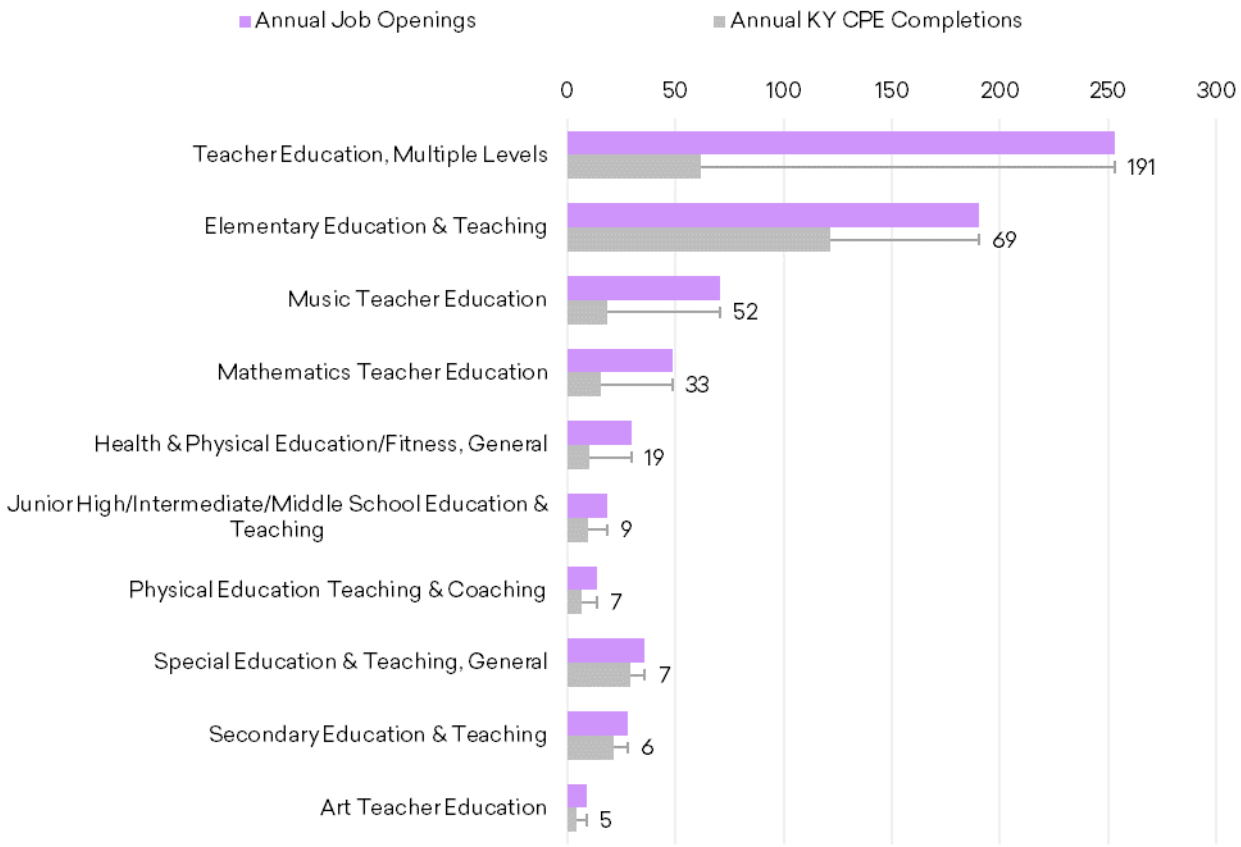
OCCUPATION TITLE	DEMAND	SUPPLY	GAP OR SURPLUS	MEDIAN HOURLY WAGE
PRE-K WORKFORCE				
Preschool teachers, except special education	62	9	53	$11.44

OCCUPATION TITLE	DEMAND	SUPPLY	GAP OR SURPLUS	MEDIAN HOURLY WAGE
Education & childcare administrators, preschool & daycare	16	0	15	$19.99
Special education teachers, preschool	4	1	3	$29.70
ELEMENTARY SCHOOL TEACHERS				
Elementary school teachers, except special education	331	146	186	$25.20
Kindergarten teachers, except special education	20	4	16	$27.14
MIDDLE SCHOOL TEACHERS				
Middle school teachers, except special ed. & CTE	143	54	89	$26.85
Career/technical education teachers, middle school	2	67	(64)	$28.58
HIGH SCHOOL TEACHERS				
Secondary school teachers, except special ed. & CTE	237	101	136	$26.46
Career/technical education teachers, secondary school	12	77	(65)	$29.91
SPECIAL EDUCATION TEACHERS				
Special education teachers, kindergarten & elementary school	91	21	70	$25.98
Special education teachers, secondary school	10	7	3	$25.70
Special education teachers, middle school	6	4	1	$25.79
EDUCATION WORKERS				
Tutors & teachers & instructors, all other	45	1	44	$22.23
Self-enrichment teachers	41	3	38	$13.59
Educational instruction & library workers, all other	18	0	18	$19.82
Teacher assistants, except postsecondary	23	17	6	$12.29
Adult basic education, adult secondary education, & ESL instructors	6	1	5	$17.52
ADMINISTRATORS & COUNSELORS				
Educational, guidance, & career counselors & advisors	67	33	34	$32.11
Education administrators, kindergarten through secondary	56	46	10	$41.80

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

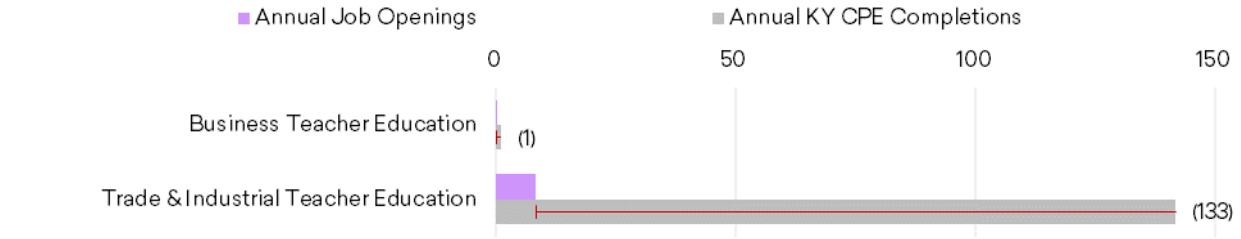
Combined Level Analysis

Figure 5.16: Kentuckiana LWA's Top 10 BACH+ Education Programs with a Gap



Source: Emsi program demand gap model.

Figure 5.17: Kentuckiana LWA's BACH+ Education Programs with a Surplus



Source: Emsi program demand gap model.

Table 5.23: Gaps and Surpluses for Kentuckiana LWA's Education Programs

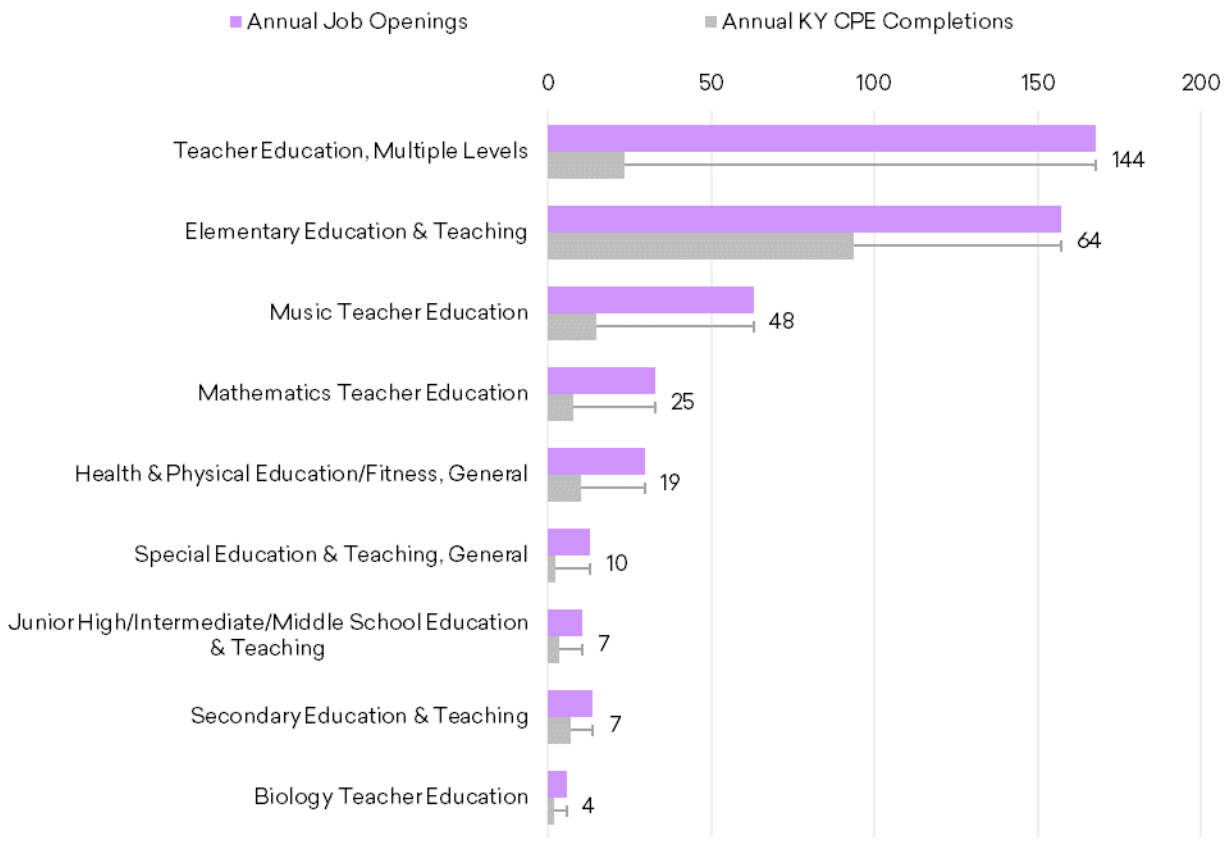
CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1206	Teacher Education, Multiple Levels	State	253	62	191	--
		Total	***253***	***62***	***191***	***$23.45***
13.1202	Elementary Education & Teaching	State	138	86	52	--
		AIKCU	52	35	17	--
		Total	***190***	***121***	***69***	***$28.12***
13.1312	Music Teacher Education	State	71	18	52	--
		Total	***71***	***18***	***52***	***$26.06***
13.1311	Mathematics Teacher Education	State	49	15	33	--
		Total	***49***	***15***	***33***	***$26.06***
31.0501	Health & Physical Education/Fitness, General	State	30	10	19	--
		Total	***30***	***10***	***19***	***$26.63***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	AIKCU	19	9	9	--
		Total	***19***	***9***	***9***	***$28.58***
13.1314	Physical Education Teaching & Coaching	State	14	7	7	--
		Total	***14***	***7***	***7***	***$25.96***
13.1001	Special Education & Teaching, General	State	17	20	(3)	--
		AIKCU	19	10	9	--
		Total	***36***	***29***	***7***	***$26.04***
13.1205	Secondary Education & Teaching	AIKCU	28	21	6	--
		Total	***28***	***21***	***6***	***$29.52***
13.1302	Art Teacher Education	State	5	3	3	--
		AIKCU	4	2	2	--
		Total	***9***	***5***	***5***	***$25.96***
13.1322	Biology Teacher Education	State	9	5	4	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***9***	***5***	***4***	***$26.62***
13.1210	Early Childhood Education & Teaching	State	5	2	3	--
		Total	***5***	***2***	***3***	***$25.44***
13.1306	Foreign Language Teacher Education	AIKCU	4	2	2	--
		Total	***4***	***2***	***2***	***$25.96***
13.1316	Science Teacher Education/General Science Teacher Education	State	5	5	0	--
		Total	***5***	***5***	***0***	***$26.62***
13.1323	Chemistry Teacher Education	State	3	2	0	--
		Total	***3***	***2***	***0***	***$26.62***
13.1337	Earth Science Teacher Education	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.62***
13.1329	Physics Teacher Education	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.46***
13.1303	Business Teacher Education	AIKCU	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$29.67***
13.1320	Trade & Industrial Teacher Education	State	8	142	(133)	--
		Total	***8***	***142***	***(133)***	***$29.70***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Bachelor's Degree Level Analysis

Figure 5.18: Kentuckiana LWA's Bachelor's Degree Level Education Programs with a Gap



Source: Emsi program demand gap model.

Table 5.24: Gaps and Surpluses for the Kentuckiana LWA's Bachelor's Degree Level Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1206	Teacher Education, Multiple Levels	State	168	24	144	--
		Total	***168***	***24***	***144***	***$21.86***
13.1202	Elementary Education & Teaching	AIKCU	35	21	14	--
		State	123	73	50	--
		Total	***157***	***94***	***64***	***$27.74***
13.1312	Music Teacher Education	State	63	15	48	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***63***	***15***	***48***	***$26.15***
13.1311	Mathematics Teacher Education	State	33	8	25	--
		Total	***33***	***8***	***25***	***$26.15***
31.0501	Health & Physical Education/Fitness, General	State	30	10	19	--
		Total	***30***	***10***	***19***	***$26.63***
13.1001	Special Education & Teaching, General	AIKCU	13	3	10	--
		Total	***13***	***3***	***10***	***$26.07***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	AIKCU	10	3	7	--
		Total	***10***	***3***	***7***	***$27.88***
13.1205	Secondary Education & Teaching	AIKCU	14	7	7	--
		Total	***14***	***7***	***7***	***$28.57***
13.1322	Biology Teacher Education	State	6	2	4	--
		Total	***6***	***2***	***4***	***$26.63***
13.1320	Trade & Industrial Teacher Education	State	8	142	(133)	--
		Total	***8***	***142***	***(133)***	***$29.70***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Table 5.25: Occupations Mapped to the Kentuckiana LWA's Bachelor's Degree Level Education Programs with a Large Gap

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
TEACHER EDUCATION, MULTIPLE LEVELS (CIP CODE 13.1206)						
25-2011	Preschool teachers, except special education	1,638	1,664	26	50	$11.44
25-2031	Secondary school teachers, except special ed. & CTE	3,536	3,562	25	39	$26.46
25-2021	Elementary school teachers, except special education	4,660	4,705	45	34	$25.20
25-2022	Middle school teachers, except special ed. & CTE	2,008	2,025	17	29	$26.85
25-2012	Kindergarten teachers, except special education	534	540	6	16	$27.14

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
ELEMENTARY EDUCATION & TEACHING (CIP CODE 13.1202)						
25-2021	Elementary school teachers, except special education	9,320	9,410	90	133	$25.20
11-9032	Education administrators, kindergarten through secondary	1,972	1,981	9	24	$41.80
MUSIC TEACHER EDUCATION (CIP CODE 13.1312)						
25-2031	Secondary school teachers, except special ed. & CTE	3,536	3,562	25	24	$26.46
25-2021	Elementary school teachers, except special education	4,660	4,705	45	21	$25.20
25-2022	Middle school teachers, except special ed. & CTE	2,008	2,025	17	18	$26.85
MATHEMATICS TEACHER EDUCATION (CIP CODE 13.1311)						
25-2031	Secondary school teachers, except special ed. & CTE	3,536	3,562	25	13	$26.46
25-2021	Elementary school teachers, except special education	4,660	4,705	45	11	$25.20
25-2022	Middle school teachers, except special ed. & CTE	2,008	2,025	17	9	$26.85

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

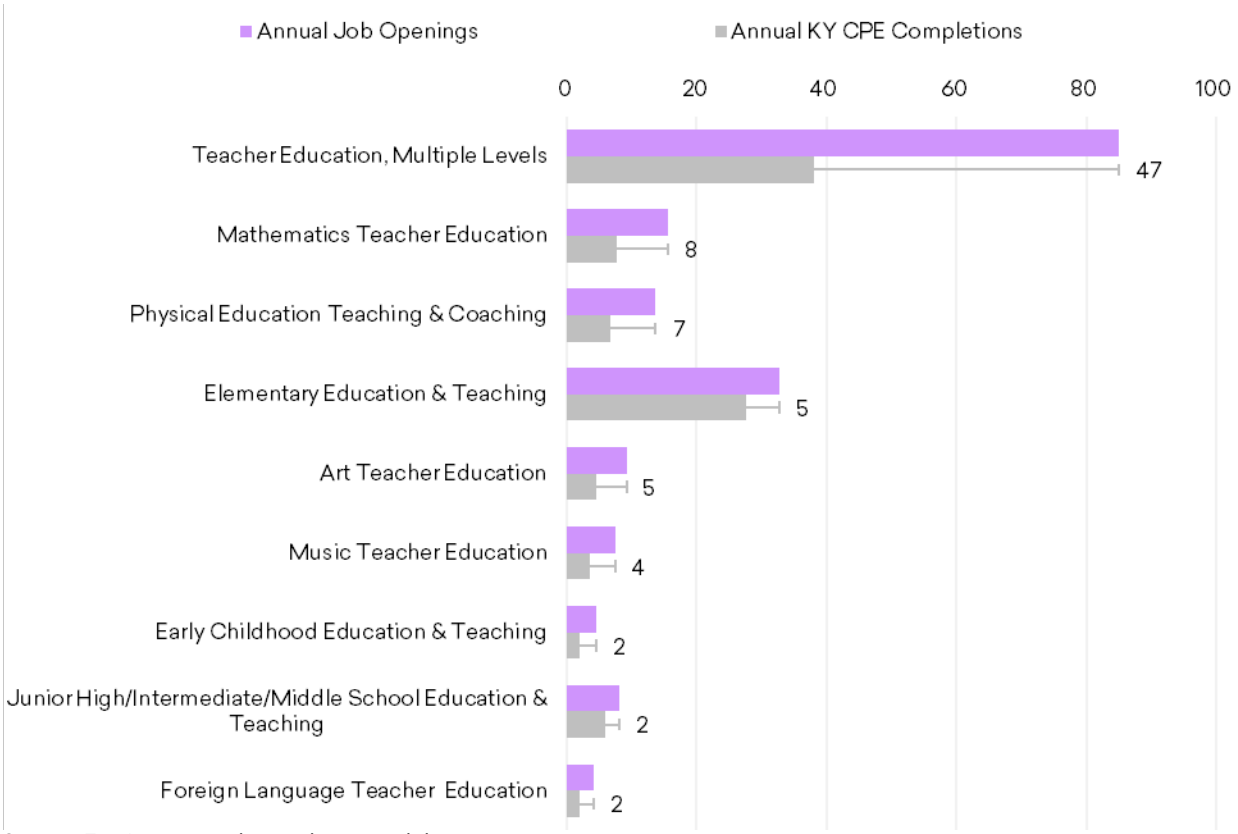
Table 5.26: Occupations Mapped to the Kentuckiana LWA's Bachelor's Degree Level Education Program with a Large Surplus

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
TRADE & INDUSTRIAL TEACHER EDUCATION (CIP CODE 13.1320)						
25-2032	Career/technical education teachers, secondary school	180	181	1	7	$29.91
25-2023	Career/technical education teachers, middle school	31	31	0	1	$28.58

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Master's Degree Level Analysis

Figure 5.19: Kentuckiana LWA's Master's Degree Level Education Programs with a Gap



Source: Emsi program demand gap model.

Table 5.27: Gaps and Surpluses for the Kentuckiana LWA's Master's Degree Level Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1206	Teacher Education, Multiple Levels	State	85	38	47	--
		Total	***85***	***38***	***47***	***$25.04***
13.1311	Mathematics Teacher Education	State	16	8	8	--
		Total	***16***	***8***	***8***	***$25.96***
13.1314	Physical Education Teaching & Coaching	State	14	7	7	--
		Total	***14***	***7***	***7***	***$25.96***
13.1202	Elementary Education & Teaching	State	16	13	2	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		AIKCU	17	14	3	--
		Total	***33***	***28***	***5***	***$28.50***
13.1302	Art Teacher Education	State	5	3	3	--
		AIKCU	4	2	2	--
		Total	***9***	***5***	***5***	***$25.96***
13.1312	Music Teacher Education	State	8	4	4	--
		Total	***8***	***4***	***4***	***$25.96***
13.1210	Early Childhood Education & Teaching	State	5	2	3	--
		Total	***5***	***2***	***3***	***$25.44***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	AIKCU	8	6	2	--
		Total	***8***	***6***	***2***	***$29.29***
13.1306	Foreign Language Teacher Education	AIKCU	4	2	2	--
		Total	***4***	***2***	***2***	***$25.96***
13.1316	Science Teacher Education/General Science Teacher Education	State	5	5	0	--
		Total	***5***	***5***	***0***	***$26.62***
13.1322	Biology Teacher Education	State	3	3	0	--
		Total	***3***	***3***	***0***	***$26.62***
13.1323	Chemistry Teacher Education	State	3	2	0	--
		Total	***3***	***2***	***0***	***$26.62***
13.1337	Earth Science Teacher Education	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.62***
13.1205	Secondary Education & Teaching	AIKCU	14	14	0	--
		Total	***14***	***14***	***0***	***$30.46***
13.1329	Physics Teacher Education	State	1	1	0	--
		Total	***1***	***1***	***0***	***$26.46***
13.1303	Business Teacher Education	AIKCU	0	1	(1)	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***0***	***1***	***(1)***	***$29.67***
13.1001	Special Education & Teaching, General	State	17	20	(3)	--
		AIKCU	6	7	(1)	--
		Total	***23***	***27***	***(4)***	***$26.02***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Table 5.28: Occupations Mapped to the Kentuckiana LWA's Master's Degree Level Education Program with a Large Gap

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
TEACHER EDUCATION, MULTIPLE LEVELS (CIP CODE 13.1206)						
25-2021	Elementary school teachers, except special education	4,660	4,705	45	36	$25.20
25-2031	Secondary school teachers, except special ed. & CTE	3,536	3,562	25	25	$26.46
25-2022	Middle school teachers, except special ed. & CTE	2,008	2,025	17	17	$26.85
25-2011	Preschool teachers, except special education	1,638	1,664	26	6	$11.44
25-2012	Kindergarten teachers, except special education	534	540	6	2	$27.14

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

SOUTH WORKFORCE PLANNING REGION

Table 5.29 displays the gaps and surplus for the South WPR at the occupational level. As can be seen, teacher assistants and preschool teachers face the largest gap, although these gaps may not be of as much interest to Kentucky educators since they are not licensed teaching occupations. Secondary school teachers and elementary school teachers by far face the largest surpluses in the region. Given the statewide gap for elementary school teachers, completers of elementary education programs in the South WPR are likely finding employment elsewhere in the state.

Figures 5.20 through 5.21 and Table 5.30 display the BACH+ gaps and surpluses. Early Childhood Education & Teaching is an area to consider for expansion, whereas the Physical Education Teaching & Coaching program should maintain its success in terms of high completions with high demand. A few programs, such as the Spanish Language Teacher Education and English/Language Arts Teacher Education programs, should be carefully considered for continuation and/or for consolidation given low numbers of completions.

Unlike the other regions, while public state universities still play an important role in the South WPR by providing the region with a large number of bachelor's and master's degree level programs of study and subsequent completions, we see a large number of programs and completions from AIKCU institutions, particularly from University of the Cumberlands. Across both award levels, the largest AIKCU programs, in terms of completions, are from two programs, both at the master's degree level: Special Education & Teaching, General and Reading Teacher Education. Both of these programs face a large surplus. Given the online nature of University of the Cumberlands' programs, completers of the programs are likely participating in the programs from across the state and, therefore, finding employment elsewhere in the state.

At the bachelor's degree level, we again see a large gap in the Early Childhood Education & Teaching program. It is mapped to a variety of occupations, some requiring licensure. Teaching assistants drive the gap, with 40% of job openings. Depending on the extent to which Kentucky wants to focus Early Childhood Education & Teaching on training teacher assistants, this program gap should be further considered. Excluding teacher assistants from the program mapping, we see 49 job openings for the other occupations, which creates a gap of 30, still making Early Childhood Education & Teaching the largest gap program at the bachelor's degree level.

Education Occupation Analysis

Table 5.29: BACH+ Gaps and Surpluses for Education Occupations in the South WPR

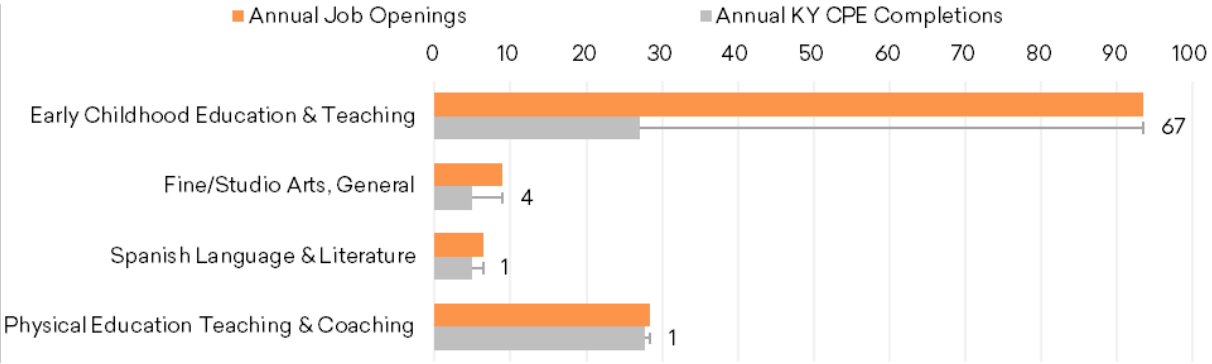
OCCUPATION TITLE	DEMAND	SUPPLY	GAP OR SURPLUS	MEDIAN HOURLY WAGE
PRE-K WORKFORCE				
Preschool teachers, except special education	25	3	22	$16.09
Education & childcare administrators, preschool & daycare	3	2	1	$14.60
Special education teachers, preschool	2	6	(4)	$25.38
ELEMENTARY SCHOOL TEACHERS				
Kindergarten teachers, except special education	12	1	11	$25.51
Elementary school teachers, except special education	198	338	(139)	$24.72
MIDDLE SCHOOL TEACHERS				
Career/technical education teachers, middle school	2	8	(7)	$24.37
Middle school teachers, except special ed. & CTE	72	134	(61)	$24.62
HIGH SCHOOL TEACHERS				
Career/technical education teachers, secondary school	4	10	(6)	$25.61
Secondary school teachers, except special ed. & CTE	119	261	(143)	$25.46
SPECIAL EDUCATION TEACHERS				
Special education teachers, middle school	11	22	(11)	$24.69
Special education teachers, secondary school	20	38	(18)	$25.40
Special education teachers, kindergarten & elementary school	29	101	(71)	$25.12
EDUCATION WORKERS				
Teacher assistants, except postsecondary	73	33	41	$11.11
Tutors & teachers & instructors, all other	19	0	19	$14.93
Educational instruction & library workers, all other	18	1	17	$14.73
Adult basic education, adult secondary education, & ESL instructors	6	1	4	$20.09
Self-enrichment teachers	21	33	(12)	$13.27
ADMINISTRATORS & COUNSELORS				
Educational, guidance, & career counselors & advisors	44	65	(21)	$26.65

OCCUPATION TITLE	DEMAND	SUPPLY	GAP OR SURPLUS	MEDIAN HOURLY WAGE
Education administrators, kindergarten through secondary	33	80	(47)	$38.72

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

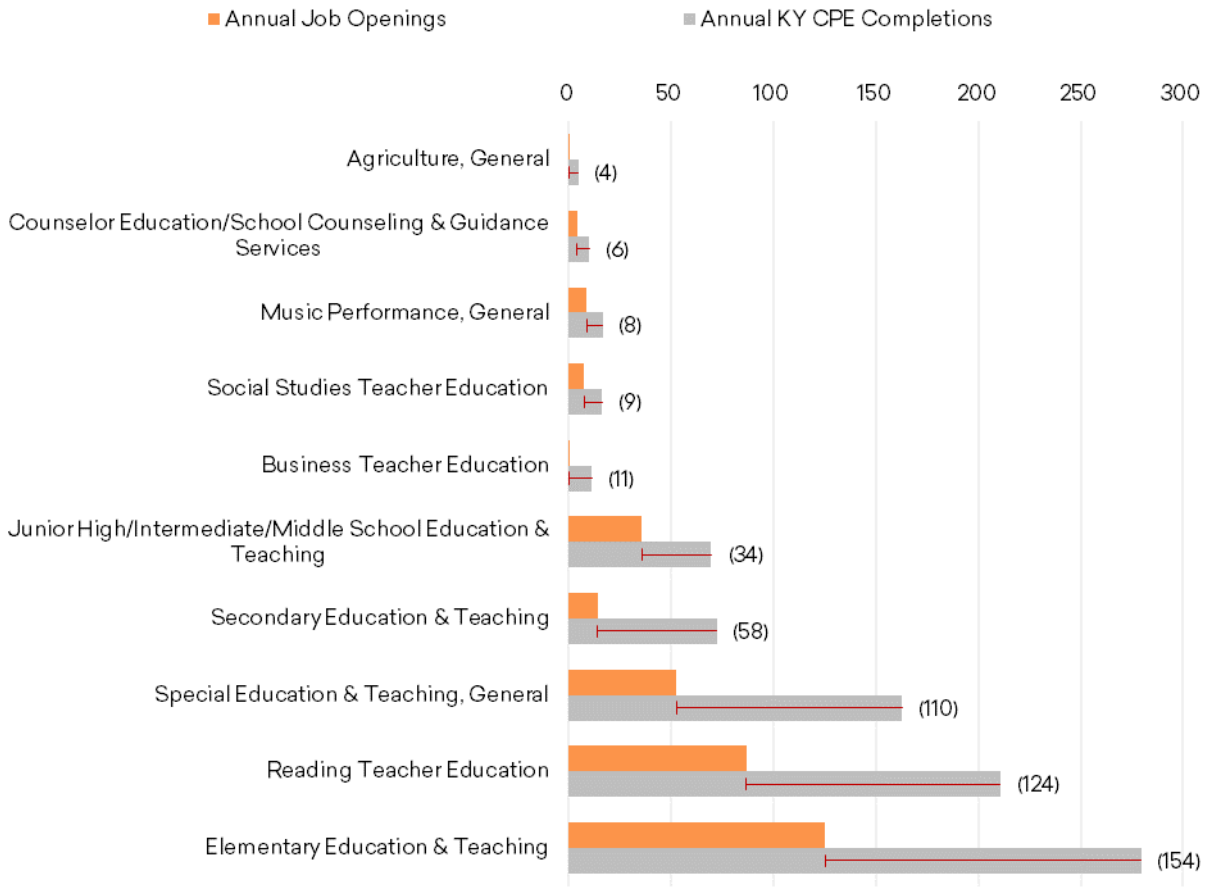
Combined Level Analysis

Figure 5.20: South WPR's BACH+ Education Programs with a Gap



Source: Emsi program demand gap model.

Figure 5.21: South WPR's Top 10 BACH+ Education Programs with a Surplus



Source: Emsi program demand gap model.

Table 5.30: Gaps and Surpluses for South WPR's BACH+ Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1210	Early Childhood Education & Teaching	AIKCU	55	15	39	--
		State	39	12	27	--
		Total	***94***	***27***	***67***	***$18.49***
50.0702	Fine/Studio Arts, General	State	9	5	4	--
		Total	***9***	***5***	***4***	***$21.56***
16.0905	Spanish Language & Literature	State	6	5	1	--
		Total	***6***	***5***	***1***	***$24.98***
13.1314	Physical Education Teaching & Coaching	AIKCU	9	13	(3)	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		State	19	15	4	--
		Total	***28***	***28***	***1***	***$24.96***
13.1330	Spanish Language Teacher Education	AIKCU	2	2	0	--
		Total	***2***	***2***	***0***	***$24.98***
13.1305	English/Language Arts Teacher Education	AIKCU	2	1	0	--
		Total	***2***	***1***	***0***	***$24.98***
13.1312	Music Teacher Education	AIKCU	10	11	0	--
		Total	***10***	***11***	***0***	***$24.95***
13.1307	Health Teacher Education	AIKCU	5	5	0	--
		Total	***5***	***5***	***0***	***$24.95***
40.0501	Chemistry, General	State	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$25.46***
13.1311	Mathematics Teacher Education	AIKCU	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$24.91***
13.1317	Social Science Teacher Education	AIKCU	3	4	(1)	--
		Total	***3***	***4***	***(1)***	***$25.13***
13.1322	Biology Teacher Education	AIKCU	1	2	(1)	--
		Total	***1***	***2***	***(1)***	***$25.11***
26.0101	Biology/Biological Sciences, General	State	1	2	(1)	--
		Total	***1***	***2***	***(1)***	***$25.46***
23.9999	English Language and Literature/Letters, Other	State	7	9	(2)	--
		Total	***7***	***9***	***(2)***	***$25.13***
40.0101	Physical Sciences	State	2	4	(2)	--
		Total	***2***	***4***	***(2)***	***$25.46***
13.1302	Art Teacher Education	AIKCU	3	6	(3)	--
		Total	***3***	***6***	***(3)***	***$24.95***

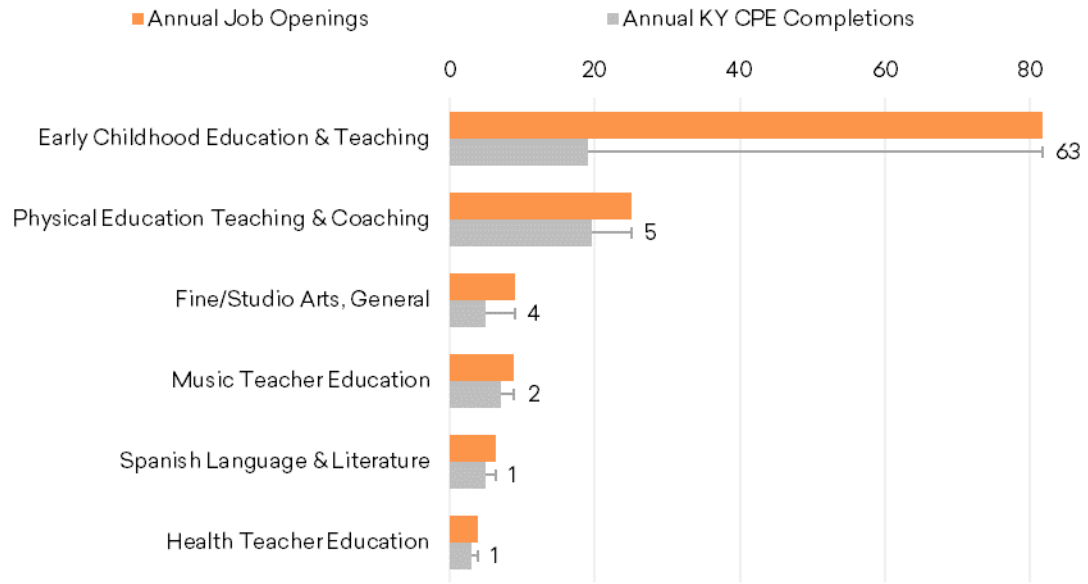
CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
27.0101	Mathematics, General	State	11	14	(3)	--
		Total	***11***	***14***	***(3)***	***$25.13***
13.1308	Family & Consumer Sciences/Home Economics Teacher Education	State	24	27	(3)	--
		Total	***24***	***27***	***(3)***	***$25.16***
01.0000	Agriculture, General	State	0	5	(4)	--
		Total	***0***	***5***	***(4)***	***$25.39***
13.1101	Counselor Education/School Counseling & Guidance Services	AIKCU	4	10	(6)	--
		Total	***4***	***10***	***(6)***	***$26.65***
50.0903	Music Performance, General	State	9	17	(8)	--
		Total	***9***	***17***	***(8)***	***$13.27***
13.1318	Social Studies Teacher Education	AIKCU	8	16	(9)	--
		Total	***8***	***16***	***(9)***	***$24.95***
13.1303	Business Teacher Education	AIKCU	0	9	(9)	--
		State	0	2	(2)	--
		Total	***0***	***11***	***(11)***	***$25.26***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	AIKCU	22	49	(27)	--
		State	14	21	(7)	--
		Total	***36***	***70***	***(34)***	***$27.09***
13.1205	Secondary Education & Teaching	AIKCU	11	54	(43)	--
		State	4	18	(15)	--
		Total	***14***	***72***	***(58)***	***$29.44***
13.1001	Special Education & Teaching, General	AIKCU	24	119	(95)	--
		State	29	44	(15)	--
		Total	***53***	***163***	***(110)***	***$25.14***
13.1315	Reading Teacher Education	AIKCU	87	211	(124)	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***87***	***211***	***(124)***	***$24.91***
13.1202	Elementary Education & Teaching	AIKCU	61	164	(103)	--
		State	64	116	(52)	--
		Total	***125***	***280***	***(154)***	***$27.01***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Bachelor's Degree Level Analysis

Figure 5.22: South WPR's Bachelor's Degree Level Education Programs with a Gap



Source: Emsi program demand gap model.

Table 5.31: Gaps and Surpluses for the South WPR's Bachelor's Degree Level Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1210	Early Childhood Education & Teaching	AIKCU	49	11	37	--
		State	33	8	25	--
		Total	***82***	***19***	***63***	***$17.34***

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1314	Physical Education Teaching & Coaching	AIKCU	6	5	1	--
		State	19	15	4	--
		Total	***25***	***20***	***5***	***$24.98***
50.0702	Fine/Studio Arts, General	State	9	5	4	--
		Total	***9***	***5***	***4***	***$21.56***
13.1312	Music Teacher Education	AIKCU	9	7	2	--
		Total	***9***	***7***	***2***	***$24.98***
16.0905	Spanish Language & Literature	State	6	5	1	--
		Total	***6***	***5***	***1***	***$24.98***
13.1307	Health Teacher Education	AIKCU	4	3	1	--
		Total	***4***	***3***	***1***	***$24.98***
13.1330	Spanish Language Teacher Education	AIKCU	2	2	0	--
		Total	***2***	***2***	***0***	***$24.98***
13.1305	English/Language Arts Teacher Education	AIKCU	2	1	0	--
		Total	***2***	***1***	***0***	***$24.98***
13.1318	Social Studies Teacher Education	AIKCU	1	1	0	--
		Total	***1***	***1***	***0***	***$24.98***
13.1302	Art Teacher Education	AIKCU	1	1	0	--
		Total	***1***	***1***	***0***	***$24.98***
13.1322	Biology Teacher Education	AIKCU	1	1	0	--
		Total	***1***	***1***	***0***	***$25.13***
40.0501	Chemistry, General	State	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$25.46***
13.1317	Social Science Teacher Education	AIKCU	3	4	(1)	--
		Total	***3***	***4***	***(1)***	***$25.13***
26.0101	Biology/Biological Sciences, General	State	1	2	(1)	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***1***	***2***	***(1)***	***$25.46***
13.1303	Business Teacher Education	State	0	2	(2)	--
		Total	***0***	***2***	***(2)***	***$25.39***
23.9999	English Language and Literature/Letters, Other	State	7	9	(2)	--
		Total	***7***	***9***	***(2)***	***$25.13***
40.0101	Physical Sciences	State	2	4	(2)	--
		Total	***2***	***4***	***(2)***	***$25.46***
13.1001	Special Education & Teaching, General	AIKCU	2	2	0	--
		State	26	28	(3)	--
		Total	***27***	***30***	***(3)***	***$25.14***
27.0101	Mathematics, General	State	11	14	(3)	--
		Total	***11***	***14***	***(3)***	***$25.13***
13.1308	Family & Consumer Sciences/Home Economics Teacher Education	State	24	27	(3)	--
		Total	***24***	***27***	***(3)***	***$25.16***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	AIKCU	12	14	(2)	--
		State	12	13	(1)	--
		Total	***24***	***27***	***(3)***	***$26.24***
01.0000	Agriculture, General	State	0	5	(4)	--
		Total	***0***	***5***	***(4)***	***$25.39***
50.0903	Music Performance, General	State	9	17	(8)	--
		Total	***9***	***17***	***(8)***	***$13.27***
13.1202	Elementary Education & Teaching	AIKCU	35	63	(28)	--
		State	64	116	(52)	--
		Total	***99***	***179***	***(80)***	***$26.58***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Table 5.32: Occupations Mapped to the South WPR's Bachelor's Degree Level Education Programs with a Large Gap

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
EARLY CHILDHOOD EDUCATION & TEACHING (CIP CODE 13.1210)						
25-9045	Teacher assistants, except postsecondary	5,195	5,292	97	32	$11.11
25-2011	Preschool teachers, except special education	1,182	1,285	103	20	$16.09
25-2012	Kindergarten teachers, except special education	667	668	1	10	$25.51
25-2021	Elementary school teachers, except special education	5,500	5,543	44	9	$24.72
25-2052	Special education teachers, kindergarten & elementary school	910	909	(1)	6	$25.12
11-9031	Education & childcare administrators, preschool & daycare	96	108	12	2	$14.60
11-9032	Education administrators, kindergarten through secondary	1,159	1,161	2	1	$38.72
25-2051	Special education teachers, preschool	62	66	4	0	$25.38

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

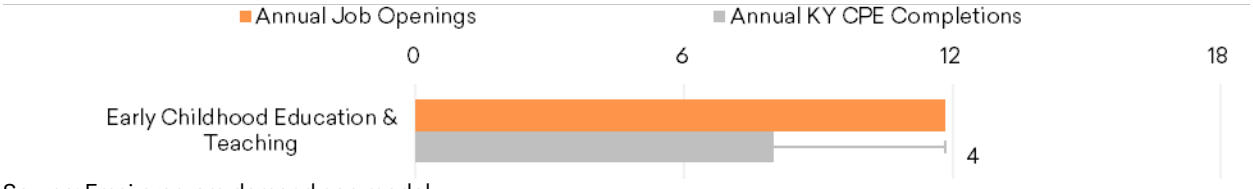
Table 5.33: Occupations Mapped to the South WPR's Bachelor's Degree Level Education Program with a Large Surplus

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
ELEMENTARY EDUCATION & TEACHING (CIP CODE 13.1202)						
25-2021	Elementary school teachers, except special education	5,500	5,543	44	86	$24.72
11-9032	Education administrators, kindergarten through secondary	1,159	1,161	2	13	$38.72

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Master's Degree Level Analysis

Figure 5.23: South WPR's Master's Degree Level Education Program with a Gap



Source: Emsi program demand gap model.

Table 5.34: Gaps and Surpluses for the South WPR's Master's Degree Level Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1210	Early Childhood Education & Teaching	State	6	4	2	--
		AIKCU	6	4	2	--
		Total	***12***	***8***	***4***	***$19.63***
13.1311	Mathematics Teacher Education	AIKCU	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$24.91***
13.1322	Biology Teacher Education	AIKCU	0	1	(1)	--
		Total	***0***	***1***	***(1)***	***$25.10***
13.1307	Health Teacher Education	AIKCU	1	2	(1)	--
		Total	***1***	***2***	***(1)***	***$24.91***
13.1312	Music Teacher Education	AIKCU	2	4	(2)	--
		Total	***2***	***4***	***(2)***	***$24.91***
13.1302	Art Teacher Education	AIKCU	2	5	(3)	--
		Total	***2***	***5***	***(3)***	***$24.91***
13.1314	Physical Education Teaching & Coaching	AIKCU	3	8	(5)	--
		Total	***3***	***8***	***(5)***	***$24.91***
13.1101	Counselor Education/School Counseling & Guidance Services	AIKCU	4	10	(6)	--
		Total	***4***	***10***	***(6)***	***$26.65***
13.1318	Social Studies Teacher Education	AIKCU	6	15	(9)	--
		Total	***6***	***15***	***(9)***	***$24.91***
13.1303	Business Teacher Education	AIKCU	0	9	(9)	--
		Total	***0***	***9***	***(9)***	***$25.14***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	State	2	8	(6)	--
		AIKCU	10	35	(25)	--
		Total	***12***	***43***	***(31)***	***$27.94***
13.1205	Secondary Education & Teaching	State	4	18	(15)	--

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		AIKCU	11	54	(43)	--
		Total	***14***	***72***	***(58)***	***$29.44***
13.1202	Elementary Education & Teaching	AIKCU	26	101	(74)	--
		Total	***26***	***101***	***(74)***	***$27.88***
13.1001	Special Education & Teaching, General	State	3	16	(13)	--
		AIKCU	22	117	(95)	--
		Total	***25***	***132***	***(107)***	***$25.14***
13.1315	Reading Teacher Education	AIKCU	87	211	(124)	--
		Total	***87***	***211***	***(124)***	***$24.91***

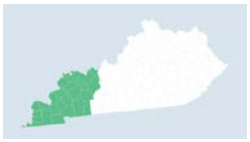
Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Table 5.35: Occupations Mapped to the South WPR's Master's Degree Level Education Programs with a Large Surplus

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
READING TEACHER EDUCATION (CIP CODE 13.1315)						
25-2021	Elementary school teachers, except special education	2,750	2,772	22	43	$24.72
25-2031	Secondary school teachers, except special ed. & CTE	1,741	1,759	18	25	$25.46
25-2022	Middle school teachers, except special ed. & CTE	997	1,007	10	19	$24.62
SPECIAL EDUCATION & TEACHING, GENERAL (CIP CODE 13.1001)						
25-2052	Special education teachers, kindergarten & elementary school	910	909	(1)	12	$25.12
25-2058	Special education teachers, secondary school	596	604	8	8	$25.40
25-2057	Special education teachers, middle school	333	334	0	4	$24.69
25-2051	Special education teachers, preschool	62	66	4	1	$25.38
ELEMENTARY EDUCATION & TEACHING (CIP CODE 13.1202)						
25-2021	Elementary school teachers, except special education	2,750	2,772	22	20	$24.72
11-9032	Education administrators, kindergarten through secondary	580	581	1	6	$38.72
SECONDARY EDUCATION & TEACHING (CIP CODE 13.1205)						
25-2031	Secondary school teachers, except special ed. & CTE	3,482	3,518	35	9	$25.46

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
11-9032	Education administrators, kindergarten through secondary	1,159	1,161	2	4	$38.72
25-2032	Career/technical education teachers, secondary school	119	124	5	1	$25.61
JUNIOR HIGH/INTERMEDIATE/MIDDLE SCHOOL EDUCATION & TEACHING (CIP CODE 13.1203)						
25-2031	Secondary school teachers, except special ed. & CTE	3,482	3,518	35	5	$25.46
25-2022	Middle school teachers, except special ed. & CTE	1,993	2,014	20	4	$24.62
11-9032	Education administrators, kindergarten through secondary	1,159	1,161	2	3	$38.72
25-2023	Career/technical education teachers, middle school	47	47	0	1	$24.37

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.



WEST WORKFORCE PLANNING REGION

Education Occupation Analysis

Table 5.36 displays the gaps and surpluses for the West WPR at the occupational level. As can be seen, elementary school teachers and teacher assistants face the largest gap. Also interesting to note is secondary school teachers face the third largest gap in the region, despite the large surplus at the state-level. This indicates that completers from elsewhere in the state can find employment opportunities in the West WPR. Three occupations face a surplus, although none of them are significant.

Figures 5.24 through 5.25 and Table 5.37 display the BACH+ gaps and surpluses. Early Childhood Education & Teaching is an area to consider for expansion, whereas the Junior High/Intermediate/Middle School Education & Teaching program should maintain its success in terms of high completions with high demand. Several non-education specific programs, such as the Economics, General and Geology/Earth Science, General programs, should be carefully considered for continuation of providing teacher education given low numbers of completions.

At the individual award levels, public state universities play an important role in the West WPR by providing the region with a large number of bachelor's and master's degree level programs of study and subsequent completions. Across both award levels, the largest programs, in terms of completions, are from three programs, all at the bachelor's degree level: Elementary Education & Teaching; Junior High/Intermediate/Middle School Education & Teaching; and Special Education & Teaching, General. Despite small gaps and surpluses

for each of these programs, all are providing an adequate supply of completers for regional demand.

The Early Childhood Education & Teaching program faces a large gap at both the bachelor's and master's degree levels. At the bachelor's degree level, the gap is largely driven by teacher assistants, with 56% of the job openings. Excluding teacher assistants from the program mapping, we see 57 job openings for the other occupations, which creates a gap of 45, still making Early Childhood Education & Teaching the largest gap program at the bachelor's degree level. At the master's degree level, we see the program's gap being driven by elementary school teachers, with 32% of the job openings.

Table 5.36: BACH+ Gaps and Surpluses for Education Occupations in the West WPR

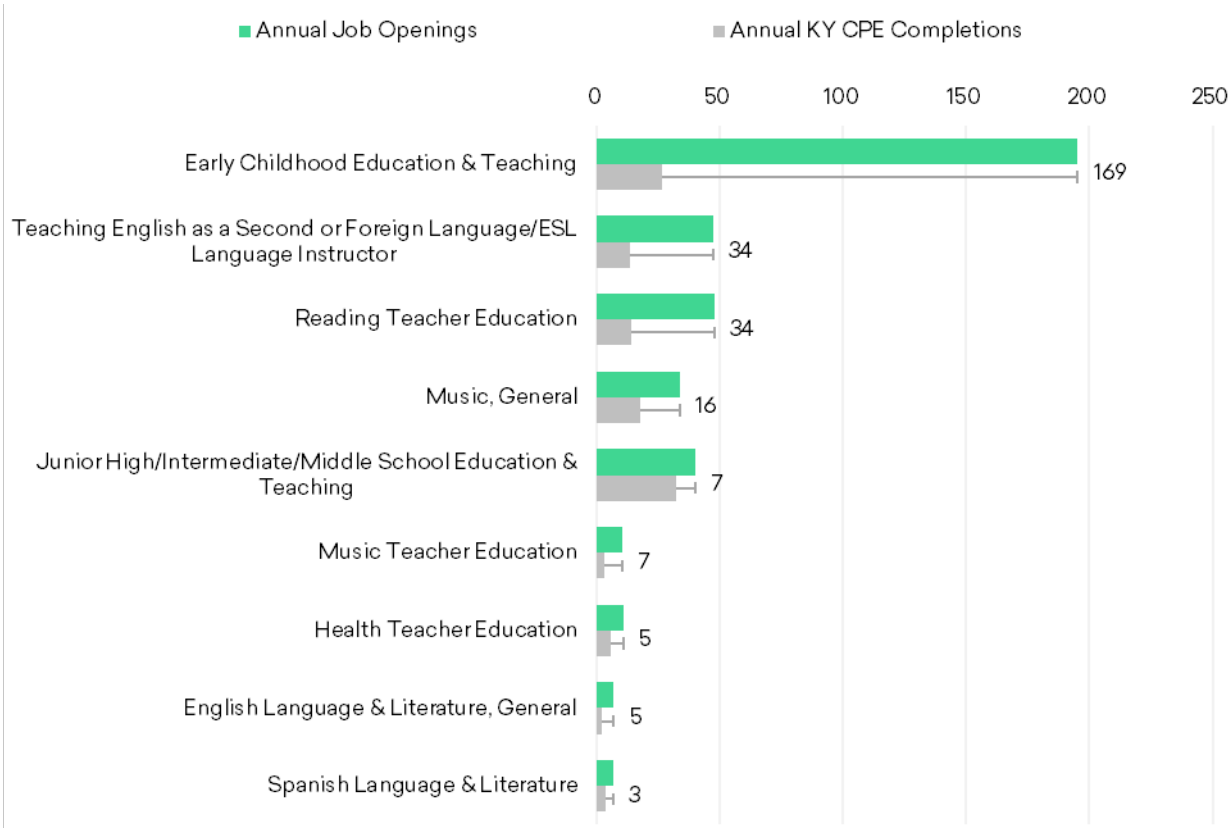
OCCUPATION TITLE	DEMAND	SUPPLY	GAP OR SURPLUS	MEDIAN HOURLY WAGE
PRE-K WORKFORCE				
Preschool teachers, except special education	30	3	27	$15.05
Education & childcare administrators, preschool & daycare	8	0	8	$11.86
Special education teachers, preschool	1	2	(1)	$25.77
ELEMENTARY SCHOOL TEACHERS				
Elementary school teachers, except special education	174	93	81	$24.92
Kindergarten teachers, except special education	12	2	10	$25.13
MIDDLE SCHOOL TEACHERS				
Middle school teachers, except special ed. & CTE	76	43	33	$25.38
Career/technical education teachers, middle school	1	8	(6)	$24.78
HIGH SCHOOL TEACHERS				
Secondary school teachers, except special ed. & CTE	117	77	40	$26.33
Career/technical education teachers, secondary school	5	8	(3)	$21.79
SPECIAL EDUCATION TEACHERS				
Special education teachers, kindergarten & elementary school	45	30	15	$25.41
Special education teachers, middle school	8	6	2	$24.57
Special education teachers, secondary school	10	11	0	$24.64
EDUCATION WORKERS				
Teacher assistants, except postsecondary	86	8	78	$13.00

OCCUPATION TITLE	DEMAND	SUPPLY	GAP OR SURPLUS	MEDIAN HOURLY WAGE
Tutors & teachers & instructors, all other	33	0	33	$17.94
Self-enrichment teachers	23	3	20	$11.83
Educational instruction & library workers, all other	13	0	13	$16.30
Adult basic education, adult secondary education, & ESL instructors	4	0	4	$19.64
ADMINISTRATORS & COUNSELORS				
Educational, guidance, & career counselors & advisors	35	3	32	$28.64
Education administrators, kindergarten through secondary	37	19	18	$41.43

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

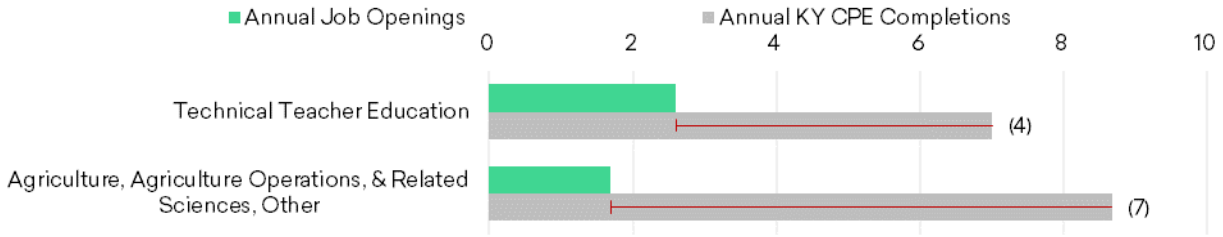
Combined Level Analysis

Figure 5.24: West WPR's BACH+ Education Programs with a Gap



Source: Emsi program demand gap model.

Figure 5.25: West WPR's BACH+ Education Programs with a Surplus



Source: Emsi program demand gap model.

Table 5.37: Gaps and Surpluses for West WPR's Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1210	Early Childhood Education & Teaching	State	195	26	169	--
		Total	***195***	***26***	***169***	***$20.77***
13.1401	Teaching English as a Second or Foreign Language/ESL Language Instructor	State	47	13	34	--
		Total	***47***	***13***	***34***	***$25.42***
13.1315	Reading Teacher Education	State	48	14	34	--
		Total	***48***	***14***	***34***	***$25.54***
50.0901	Music, General	State	34	18	16	--
		Total	***34***	***18***	***16***	***$25.47***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	AIKCU	1	1	0	--
		State	39	31	7	--
		Total	***40***	***32***	***7***	***$27.76***
13.1312	Music Teacher Education	State	10	3	7	--
		Total	***10***	***3***	***7***	***$25.54***
13.1307	Health Teacher Education	State	11	6	5	--
		Total	***11***	***6***	***5***	***$25.47***
23.0101	English Language & Literature, General	State	7	2	5	--
		Total	***7***	***2***	***5***	***$25.54***
16.0905	Spanish Language & Literature	State	7	4	3	--

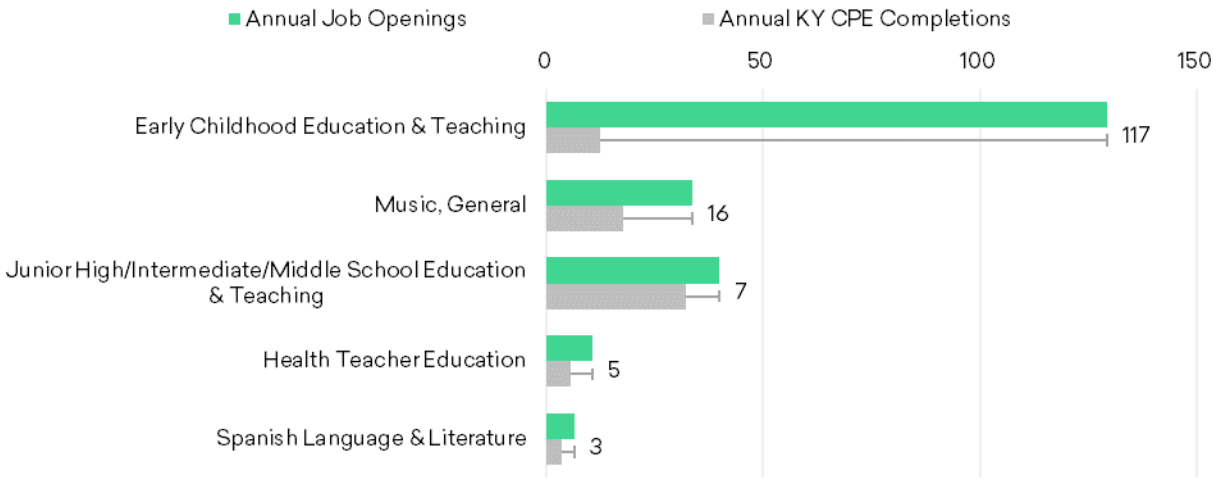
CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
		Total	***7***	***4***	***3***	***$25.47***
54.0101	History, General	State	7	7	0	--
		Total	***7***	***7***	***0***	***$25.91***
27.0101	Mathematics, General	State	6	5	0	--
		Total	***6***	***5***	***0***	***$25.91***
45.1001	Political Science & Government, General	State	2	2	0	--
		Total	***2***	***2***	***0***	***$25.91***
16.9999	Foreign Languages, Literatures, & Linguistics, Other	State	1	1	0	--
		Total	***1***	***1***	***0***	***$25.91***
45.0601	Economics, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$25.91***
40.0601	Geology/Earth Science, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$25.91***
16.0302	Japanese Language & Literature	State	1	1	0	--
		Total	***1***	***1***	***0***	***$25.91***
13.1001	Special Education & Teaching, General	AIKCU	3	3	0	--
		State	43	43	0	--
		Total	***46***	***46***	***0***	***$25.10***
13.1202	Elementary Education & Teaching	AIKCU	3	3	0	--
		State	67	67	(1)	--
		Total	***70***	***70***	***(1)***	***$27.39***
13.1319	Technical Teacher Education	State	3	7	(4)	--
		Total	***3***	***7***	***(4)***	***$22.19***
01.9999	Agriculture, Agriculture Operations, & Related Sciences, Other	State	2	9	(7)	--
		Total	***2***	***9***	***(7)***	***$22.44***

Numbers may not sum due to rounding.

Source: Emsi program demand gap model.

Bachelor's Degree Level Analysis

Figure 5.26: West WPR's Bachelor's Degree Level Education Programs with a Gap



Source: Emsi program demand gap model.

Table 5.38: Gaps and Surpluses for the West WPR's Bachelor's Degree Level Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1210	Early Childhood Education & Teaching	State	129	12	117	--
		Total	***129***	***12***	***117***	***$16.31***
50.0901	Music, General	State	34	18	16	--
		Total	***34***	***18***	***16***	***$25.47***
13.1203	Junior High/Intermediate/Middle School Education & Teaching	AIKCU	1	1	0	--
		State	39	31	7	--
		Total	***40***	***32***	***7***	***$27.76***
13.1307	Health Teacher Education	State	11	6	5	--
		Total	***11***	***6***	***5***	***$25.47***
16.0905	Spanish Language & Literature	State	7	4	3	--
		Total	***7***	***4***	***3***	***$25.47***

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
54.0101	History, General	State	7	7	0	--
		Total	***7***	***7***	***0***	***$25.91***
27.0101	Mathematics, General	State	6	5	0	--
		Total	***6***	***5***	***0***	***$25.91***
45.1001	Political Science & Government, General	State	2	2	0	--
		Total	***2***	***2***	***0***	***$25.91***
45.0601	Economics, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$25.91***
16.0302	Japanese Language & Literature	State	1	1	0	--
		Total	***1***	***1***	***0***	***$25.91***
16.9999	Foreign Languages, Literatures, & Linguistics, Other	State	1	1	0	--
		Total	***1***	***1***	***0***	***$25.91***
40.0601	Geology/Earth Science, General	State	1	1	0	--
		Total	***1***	***1***	***0***	***$25.91***
13.1202	Elementary Education & Teaching	AIKCU	3	3	0	--
		State	67	67	(1)	--
		Total	***70***	***70***	***(1)***	***$27.39***
13.1319	Technical Teacher Education	State	2	5	(3)	--
		Total	***2***	***5***	***(3)***	***$21.95***
13.1001	Special Education & Teaching, General	AIKCU	3	3	0	--
		State	26	30	(4)	--
		Total	***28***	***33***	***(4)***	***$25.13***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

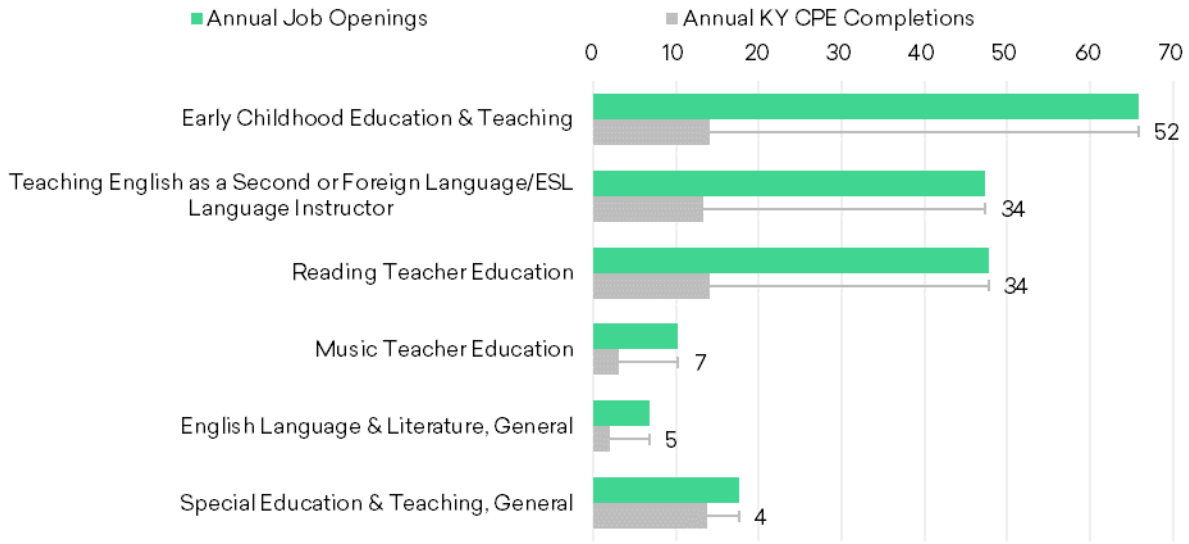
Table 5.39: Occupations Mapped to West WPR's Bachelor's Degree Level Education Program with a Large Gap

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
EARLY CHILDHOOD EDUCATION & TEACHING (CIP CODE 13.1210)						
25-9045	Teacher assistants, except postsecondary	3,138	3,106	(32)	72	$13.00
25-2011	Preschool teachers, except special education	718	769	51	24	$15.05
25-2012	Kindergarten teachers, except special education	333	328	(5)	10	$25.13
25-2021	Elementary school teachers, except special education	2,476	2,439	(36)	10	$24.92
25-2052	Special education teachers, kindergarten & elementary school	723	699	(24)	7	$25.41
11-9031	Education & childcare administrators, preschool & daycare	132	141	9	4	$11.86
11-9032	Education administrators, kindergarten through secondary	667	646	(21)	2	$41.43
25-2051	Special education teachers, preschool	11	12	0	0	$25.77

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Master's Degree Level Analysis

Figure 5.27: West WPR's Master's Degree Level Education Programs with a Gap



Source: Emsi program demand gap model.

Table 5.40: Gaps and Surpluses for West WPR's Master's Degree Level Education Programs

CIP CODE	CIP TITLE	SECTOR	ANNUAL JOB OPENINGS	ANNUAL COMPLETIONS	GAP OR SURPLUS	MEDIAN HOURLY WAGE
13.1210	Early Childhood Education & Teaching	State	66	14	52	--
		Total	***66***	***14***	***52***	***$25.23***
13.1401	Teaching English as a Second or Foreign Language/ESL Language Instructor	State	47	13	34	--
		Total	***47***	***13***	***34***	***$25.42***
13.1315	Reading Teacher Education	State	48	14	34	--
		Total	***48***	***14***	***34***	***$25.54***
13.1312	Music Teacher Education	State	10	3	7	--
		Total	***10***	***3***	***7***	***$25.54***
23.0101	English Language & Literature, General	State	7	2	5	--
		Total	***7***	***2***	***5***	***$25.54***
13.1001	Special Education & Teaching, General	State	18	14	4	--
		Total	***18***	***14***	***4***	***$25.05***
13.1319	Technical Teacher Education	State	0	2	(2)	--
		Total	***0***	***2***	***(2)***	***$22.44***
01.9999	Agriculture, Agriculture Operations, & Related Sciences, Other	State	2	9	(7)	--
		Total	***2***	***9***	***(7)***	***$22.44***

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

Table 5.41: Occupations Mapped to the West WPR's Master's Degree Level Education Programs with a Large Gap

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
EARLY CHILDHOOD EDUCATION & TEACHING (CIP CODE 13.1210)						
25-2021	Elementary school teachers, except special education	2,476	2,439	(36)	19	$24.92
11-9032	Education administrators, kindergarten through secondary	667	646	(21)	15	$41.43

SOC CODE	SOC TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
25-2052	Special education teachers, kindergarten & elementary school	723	699	(24)	10	$25.41
25-9045	Teacher assistants, except postsecondary	3,138	3,106	(32)	6	$13.00
25-2011	Preschool teachers, except special education	718	769	51	5	$15.05
11-9031	Education & childcare administrators, preschool & daycare	132	141	9	4	$11.86
25-2012	Kindergarten teachers, except special education	333	328	(5)	1	$25.13
TEACHING ENGLISH AS A SECOND OR FOREIGN LANGUAGE/ESL LANGUAGE INSTRUCTOR (CIP CODE 13.1401)						
25-2021	Elementary school teachers, except special education	2,476	2,439	(36)	18	$24.92
25-2031	Secondary school teachers, except special ed. & CTE	1,769	1,735	(34)	17	$26.33
25-2022	Middle school teachers, except special ed. & CTE	1,085	1,073	(12)	11	$25.38
25-2012	Kindergarten teachers, except special education	333	328	(5)	1	$25.13
25-3011	Adult basic education, adult secondary education, & ESL instructors	104	94	(10)	1	$19.64
READING TEACHER EDUCATION (CIP CODE 13.1315)						
25-2021	Elementary school teachers, except special education	2,476	2,439	(36)	19	$24.92
25-2031	Secondary school teachers, except special ed. & CTE	1,769	1,735	(34)	17	$26.33
25-2022	Middle school teachers, except special ed. & CTE	1,085	1,073	(12)	11	$25.38

Numbers may not sum due to rounding.
Source: Emsi program demand gap model.

CHAPTER 6:

Migration Analysis

Kentucky support tens of thousands of education jobs, for those with a certificate level of education to those with a doctoral degree. Traditional labor market information (LMI) shows us, for example, how many elementary school teachers are employed in Kentucky and its regions (Chapter 2).

However, using LMI, it is a challenge to understand more about the people who successfully find jobs as, in this example, elementary school teachers. Where did these people receive their degrees? Did they start working as elementary school teachers immediately after graduation? Are they still working as teachers? Furthermore, it would also be valuable to know how many Kentucky alumni who studied education found in-state jobs, or if they left the state, where are those alumni currently working?

This chapter, compiled from various data sources, provides information on the education workforce from Kentucky students' beginnings in teaching programs to their most current job history.

PROGRAM PROGRESSION

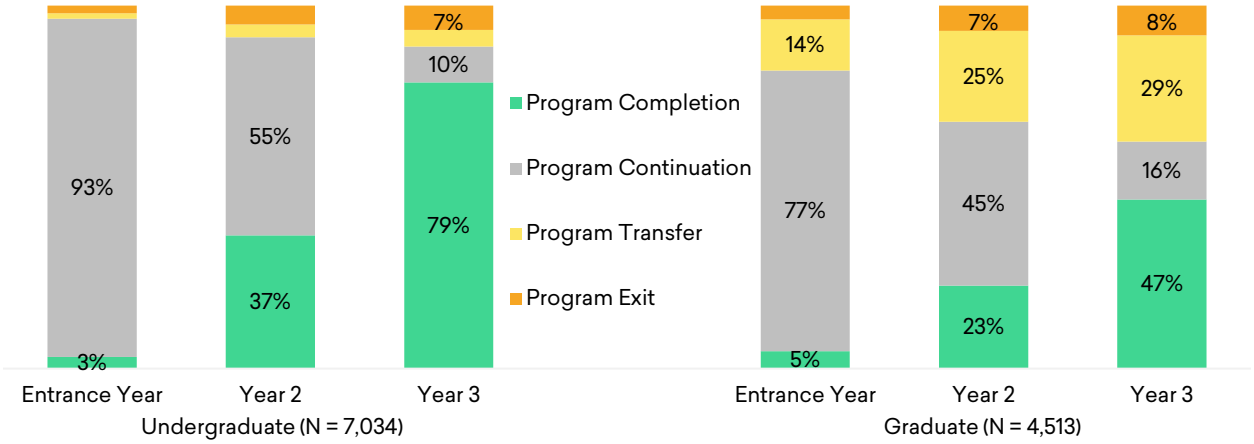
The Kentucky Center for Statistics (KYSTATS) produces an annual Teacher Preparation Feedback Report for all Kentucky's four-year public and independent colleges and universities, utilizing data from the Education Professional Standards Board (EPSB) and the Kentucky Department of Education. The report shows detailed information on students' progression through teaching programs, provides a breakdown of students' education specialties, and documents teacher employment one year after program completion.

Figure 6.1 shows students' progression from their entrance year in a teaching program to their third year. As stated in the report, program completion denotes the successful exit from a program, program continuation means that students are still progressing through a program, and program exit refers to students who have left a program prior to successful completion within the first three years after program admittance. Figure data are separated by undergraduate and graduate degree level and represent three entrance years, 2015 to 2017. As shown, about 80% of undergraduate students and nearly half of all graduate students

complete their teaching programs in three years. In addition, relatively more graduate students are transferring programs after the entrance (14%), second (25%), third (29%) years, compared to undergraduate students (1%, 4%, and 5%, respectively).

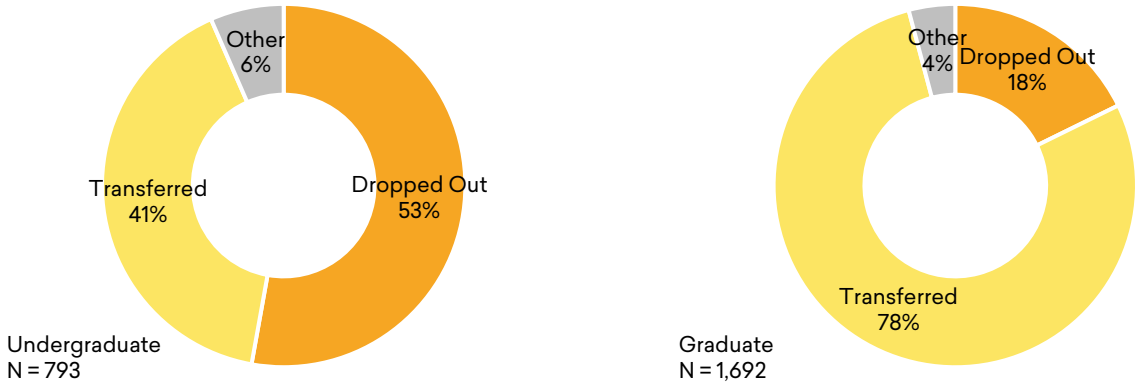
Figure 6.2 provides an explanation as to why students are not continuing or completing their teaching program. As stated in the Teacher Preparation Feedback Report, students may drop out, transfer, have inadequate grades or standardized test scores, be unsuccessful in their student teaching experiences, etc. Results show that most graduate students (78%) transfer from teaching programs into another rather than drop out (18%). On the other hand, most undergraduate students (53%) drop out when exiting a teaching program, but a large portion also end up transferring to another teaching program (41%).

Figure 6.1: Education Students' Progression from Entrance Year to Third Year at the Undergraduate and Graduate Degree Levels



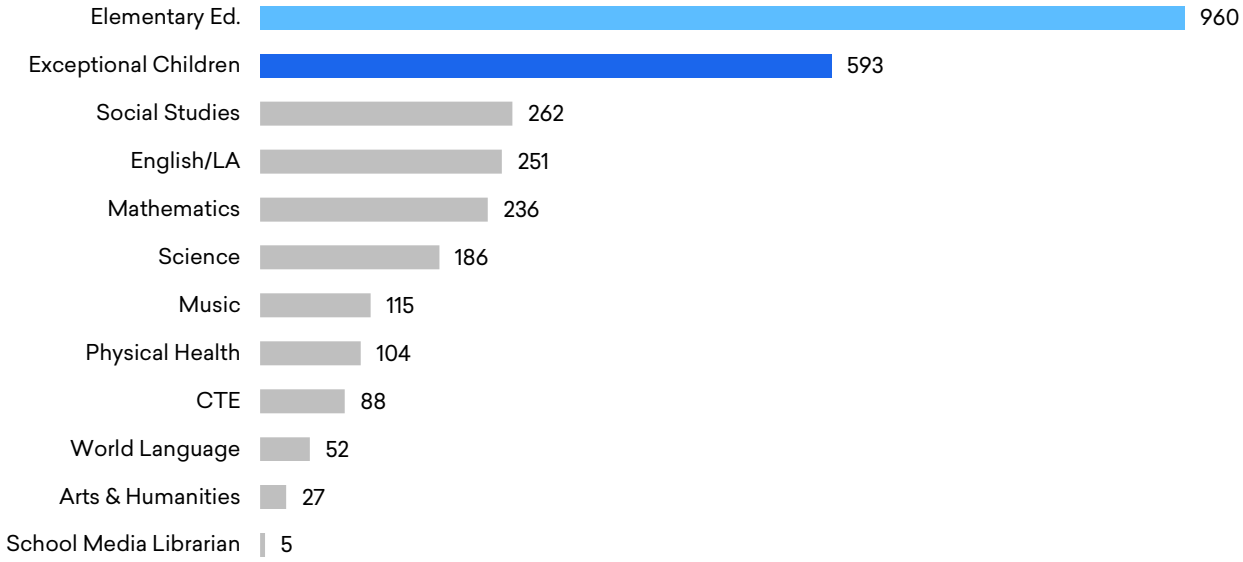
Data represent entrance years 2015 to 2017.
Source: Teacher Preparation Feedback Report, Kentucky Center for Statistics.

Figure 6.2: Reason for Education Program Exits* at the Undergraduate and Graduate Degree Levels



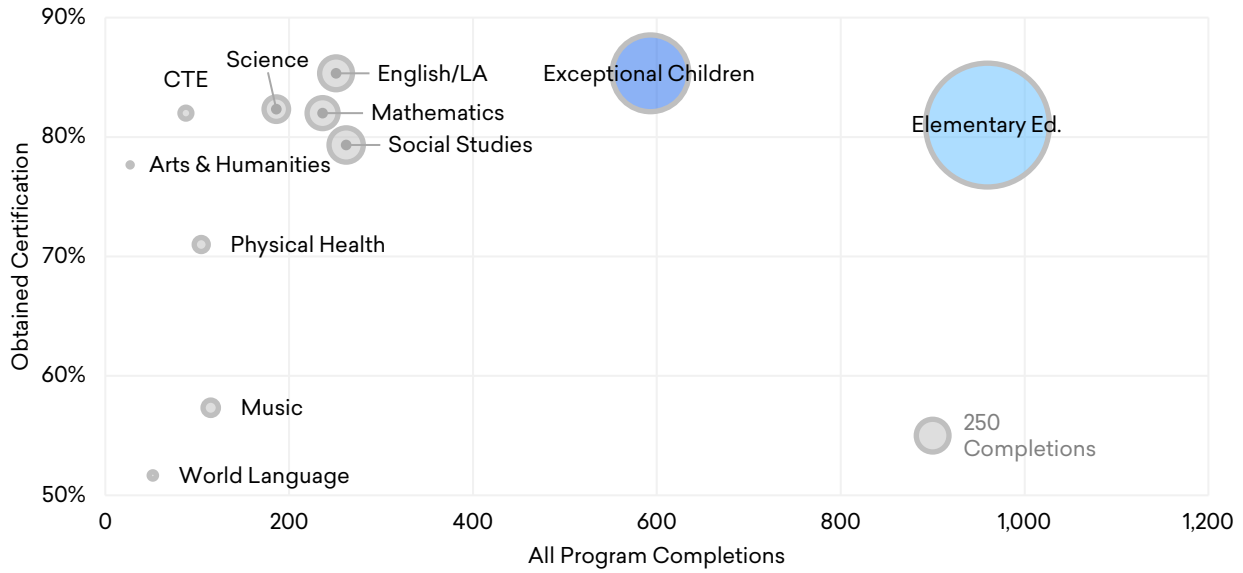
* Program exits account for students who left a program within the first three years of entrance.
Data represent entrance years 2015 to 2017.
Source: Teacher Preparation Feedback Report, Kentucky Center for Statistics.

Figure 6.3: Annual Completions by Program Major Category



Data represent academic years 2016 to 2018.
Source: Teacher Preparation Feedback Report, Kentucky Center for Statistics.

Figure 6.4: Annual Completions by Program Major Category with Percentage of Undergraduates Obtaining a Teaching Certificate



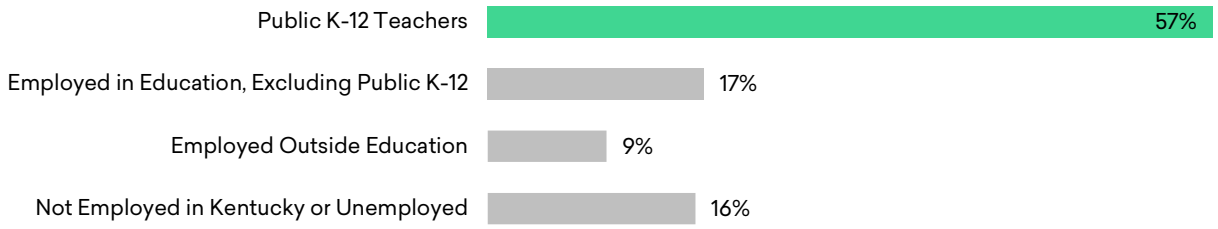
Certification data for School Media Librarian specialization are not reported. Data represent academic years 2016 to 2018.
Source: Teacher Preparation Feedback Report, Kentucky Center for Statistics.

The two largest program majors are Elementary Education and Exceptional Children, as shown in Figure 6.3. The data represent academic years 2016 to 2018, and annual completions refer to undergraduate and graduate programs following either a traditional or

University-Based option. Data in Figure 6.4 also include annual completions by program major (along the x-axis and bubble size), as well as the portion of those who obtained a teaching certification from a traditional undergraduate program (y-axis). As stated in the Teacher Preparation Feedback Report, the teaching certification percentage is often an indicator that an individual has found employment as a Kentucky public school teacher. For the two largest program major categories, more than 80% of program completers obtain teaching certificates.

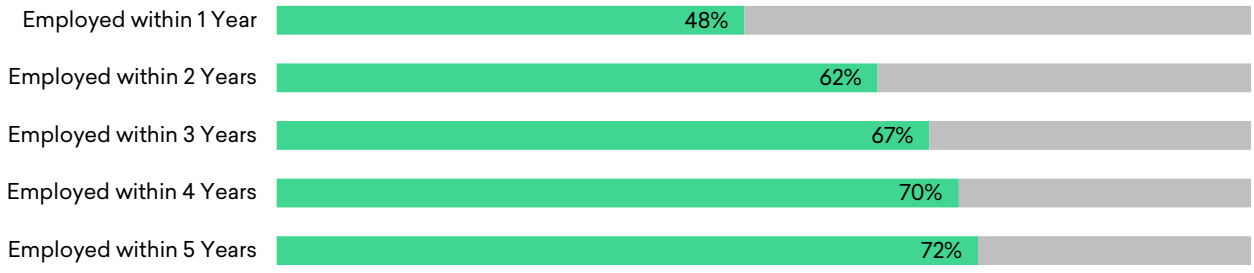
The final data set in the Teacher Preparation Feedback Report focuses on teachers' employment outcomes. About 60% of program completers are employed as public school teachers one year after program completion (Figure 6.5). Data in Figures 6.6 and 6.7 are limited to those who have completed all their teaching certification requirements and received a Statement of Eligibility (SOE) from the EPSB. As shown in the former, about half find employment within one year of eligibility as certified public K-12 employees in Kentucky. Of these individuals, 90% maintain continuous employment into the next year, and three out of four are still working as certified public K-12 employees after five years (Figure 6.7).

Figure 6.5: Employment Outcomes of Program Completers One Year after Completion



Data represent academic years 2016 to 2018.
Source: Teacher Preparation Feedback Report, Kentucky Center for Statistics.

Figure 6.6: Public K-12 Teacher Employment



Data represent academic years 2012 to 2014 and are cumulative.
Source: Teacher Preparation Feedback Report, Kentucky Center for Statistics.

Figure 6.7: Public K-12 Teacher Retention after Statement of Eligibility

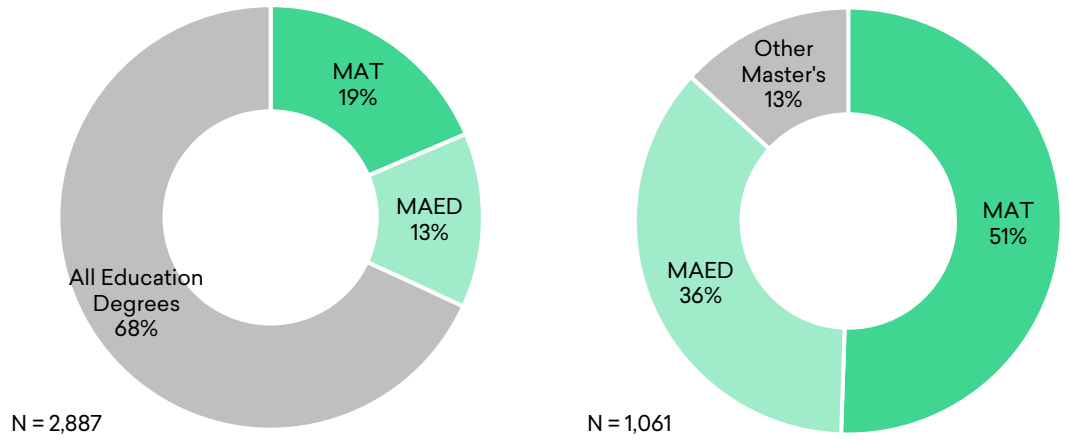
Data represent academic years 2012 to 2014.
Source: Teacher Preparation Feedback Report, Kentucky Center for Statistics.

MAT AND MAED CERTIFICATION

This section uses data provided by the Council and focuses on individuals receiving a Master of Arts in Teaching (MAT) or a Master of Arts in Education (MAED) from a Kentucky institution. MAT completers typically hold a bachelor's degree in a non-education major and complete their programs while working full-time in a public school as a K-12 teacher. This route to certification is the University-Based option, discussed previously, and referred to as Option 6 by the EPSB. MAED completers are certified teachers interested in pursuing additional education.

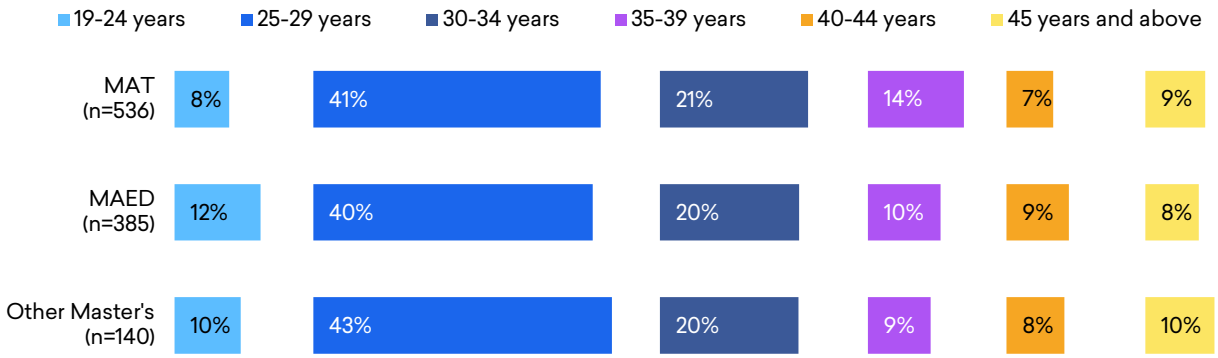
Data show overall program completions and completions by age and gender. As shown in Figure 6.8, MAT and MAED completers together represent about one-third of all education degrees and nearly 90% of all master's degree level programs in education. There is a little variability between the ages of MAT and MAED completers: a larger portion of MAT completers are 35 to 39 years and a larger portion of MAED completers are 19 to 24 years (Figure 6.9). A larger portion of MAT completers are male (32%) compared to MAED completers (11%), an indication that the University-Based option is invaluable for increasing gender diversity in the Education workforce (Figure 6.10).

Figure 6.8: Annual MAT and MAED Completions among All Education Degrees and All Master's Education Degrees



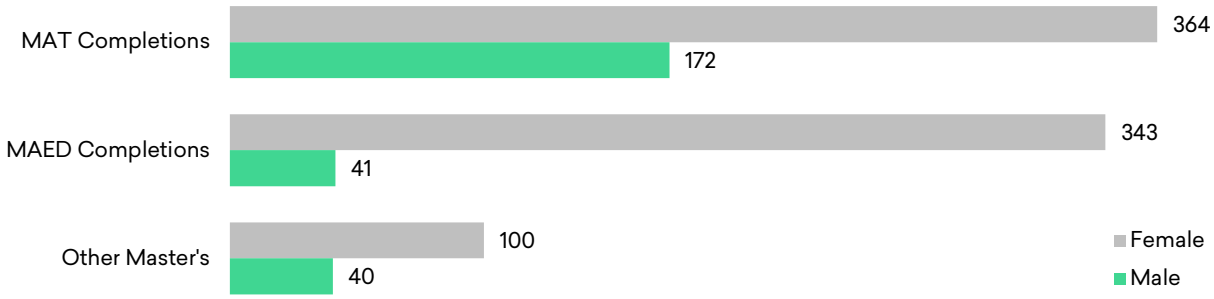
Data represent average completions from FY 2017-18 to FY 2019-20 for programs identified by the ESPB as in-state teacher preparation programs. All education degrees includes all undergraduate and master's degrees.
Source: The Council.

Figure 6.9: Annual MAT, MAED, and Other Master's Degree Level Program Completions by Age



Data represent average completions from FY 2017-18 to FY 2019-20.
Source: The Council.

Figure 6.10: Annual MAT, MAED, and Other Master's Degree Level Program Completions by Gender



Data represent average completions from FY 2017-18 to FY 2019-20.
Source: The Council.

PROFILE ANALYTICS

Emsi's Profile Analytics database provides access to more than 120 million professional worker profiles, filterable by education history, specific employers, job titles, industries, skills, and more. The database contains an aggregate set of profiles from the open web, including all the major professional profile sites. The following tables and figures provide more information on Kentucky's education alumni, including the states they are moving to and the companies attracting them.

Around 60% of the alumni from Kentucky's education programs remain in-state (Table 6.1). This proportion is higher than a typical Kentucky alum (56% reside in-state) and an education program alum from a U.S. institution (57% reside in-state). Furthermore, the proportion of Kentucky education alumni residing in-state (59%) is similar to those of surrounding states. As shown in Table 6.2, the proportion of in-state to out-of-state education alumni is about 60% to 40%, respectively. Ohio is an exception, with a 65% to 35% in-state to out-of-state proportion, and education alumni from West Virginia more frequently reside out-of-state, with about a 30% to 70% in-state to out-of-state proportion.

Education alumni graduating from a Kentucky institution are more likely to move to Ohio or Tennessee (Table 6.3). Wages tend to be higher in Ohio, as shown in Table 6.4, for the most represented education occupations among alumni from the State University and AIKCU institutional sectors. For education alumni from KCTCS institutions, the two most represented occupations are pre-K teachers and teacher assistants, with relatively high wages in Kentucky among the six states in the table. 2020 wages for education occupations in Kentucky have increased since 2010 (Table 6.5) but have become less competitive than the wages in surrounding states. For example, from 2010 to 2020, median annual wages for

secondary school teachers increased by about $5,000 in Kentucky, $8,000 in Tennessee, and $9,000 in Ohio. Similarly, median annual wages for elementary school teachers were $48,545 in 2010 and $53,139 in 2020, for an increase of almost $5,000 over the decade. The median annual wages for elementary school teachers in Ohio, however, increased by almost $10,000 from $54,592 to $64,351.

A few of the out-of-state employers of Kentucky education alumni are Cincinnati Public Schools, Metropolitan Nashville Public Schools, and North Carolina A&T State University (Table 6.6). Of course, not all education workers in Kentucky attended a Kentucky institution. As shown in Table 6.7, top institutions providing education talent to Kentucky are Indiana University, University of Cincinnati, and Xavier University.

Table 6.1: In-State and Out-of-State Migration of Kentucky's Education Alumni* by Institutional Sector, with State and National Profile Comparisons

	EDUCATION ALUMNI			ALL ALUMNI		
SECTOR	**PROFILES**	**% IN-STATE**	**% OUT-OF-STATE**	**PROFILES**	**% IN-STATE**	**% OUT-OF-STATE**
State University	18,374	60%	40%	477,491	56%	44%
AIKCU	4,895	64%	36%	57,111	65%	35%
KCTCS	754	66%	34%	67,634	68%	32%
Total	24,023†	61%	39%	748,030	56%	44%
U.S.	**49,812,413**	**57%**	**43%**	**94,180,933**	**44%**	**56%**

* Based on students completing an education program (CIP code 13) from an educational institution in Kentucky.
† Value represents all education alumni in Kentucky.
Source: Emsi Profile Analytics.

Table 6.2: In-State and Out-of-State Migration of Education Alumni* in Kentucky and Surrounding States, with State and National Profile Comparisons

	EDUCATION ALUMNI			ALL ALUMNI		
STATE	**PROFILES**	**% IN-STATE**	**% OUT-OF-STATE**	**PROFILES**	**% IN-STATE**	**% OUT-OF-STATE**
Ohio	92,762	65%	35%	3,058,242	56%	44%
Missouri	53,127	64%	36%	1,613,788	52%	48%
Illinois	125,377	62%	38%	4,092,255	56%	44%
Kentucky	24,023	61%	39%	748,030	56%	44%
Tennessee	41,834	61%	39%	1,224,767	56%	44%
Indiana	46,596	53%	47%	1,629,367	49%	51%
Virginia	53,546	46%	54%	1,875,767	40%	60%

West Virginia	13,446	32%	68%	457,568	22%	78%
U.S.	**49,812,413**	**57%**	**43%**	**94,180,933**	**44%**	**56%**

* Based on students completing an education program (CIP code 13) from an educational institution in the state.
Source: Emsi Profile Analytics.

Table 6.3: States Attracting the Most Kentucky Education Alumni* by Institutional Sector

STATE	PROFILES	% PROFILES
STATE UNIVERSITY		
Ohio	1,128	6%
Tennessee	1,041	6%
Florida	626	3%
Indiana	569	3%
Texas	424	2%
AIKCU		
Ohio	274	6%
Tennessee	209	4%
Indiana	194	4%
Florida	150	3%
North Carolina	107	2%

STATE	PROFILES	% PROFILES
KCTCS		
Tennessee	64	8%
Indiana	25	3%
Texas	22	3%
Florida	17	2%
Ohio	15	2%
TOTAL		
Ohio	1,417	6%
Tennessee	1,314	5%
Florida	793	3%
Indiana	788	3%
Texas	527	2%

* Based on students completing an education program (CIP code 13) from an educational institution in the state.
Source: Emsi Profile Analytics.

Table 6.4: Most Represented Occupations of Kentucky Education Alumni* by Institutional Sector with 2020 Median Annual Wages of Select States

		2020 MEDIAN ANNUAL WAGE					
OCCUPATION		**KY****	**IN**	**FL**	**OH**	**TN**	**TX**
STATE UNIVERSITY							
Ed. Administrators, K-12 (n=710)†	○	$83,492	$87,704	$84,149	$89,802	$84,348	$83,316
Secondary School Teachers, Except Special Ed. & CTE (n=536)	◔	$54,978	$50,236	$55,558	$64,326	$53,689	$57,803
Elementary School Teachers, Except Special Ed. (n=484)	◔	$53,139	$49,329	$53,403	$64,351	$51,917	$56,507
Educational, Guidance, & Career Counselors & Advisors (n=397)	●	$58,795	$49,188	$48,028	$53,648	$50,053	$60,856
Special Ed. Teachers, Kinder. & Elementary School (n=327)	◔	$52,779	$49,550	$64,026	$56,666	$52,627	$57,388
KCTCS							
Pre-K Teachers, Except Special Ed. (n=17)	●	$29,836	$26,656	$25,086	$27,105	$27,869	$29,904
Teacher assistants, except postsecondary (n=15)	●	$26,076	$23,883	$24,290	$27,067	$23,952	$21,948
Educational, Guidance, & Career Counselors & Advisors (n=9)	●	$58,795	$49,188	$48,028	$53,648	$50,053	$60,856
Special Ed. Teachers, Kinder. & Elementary School (n=7)	◔	$52,779	$49,550	$64,026	$56,666	$52,627	$57,388
Secondary School Teachers, Except Special Ed. & CTE (n=7)	◔	$54,978	$50,236	$55,558	$64,326	$53,689	$57,803
AIKCU							
Secondary School Teachers, Except Special Ed. & CTE (n=224)	◔	$54,978	$50,236	$55,558	$64,326	$53,689	$57,803
Elementary School Teachers, Except Special Ed. (n=192)	◔	$53,139	$49,329	$53,403	$64,351	$51,917	$56,507
Ed. Administrators, K-12 (n=185)	○	$83,492	$87,704	$84,149	$89,802	$84,348	$83,316
Special Ed. Teachers, Kinder. & Elementary School (n=121)	◔	$52,779	$49,550	$64,026	$56,666	$52,627	$57,388
Educational, Guidance, & Career Counselors & Advisors (n=90)	●	$58,795	$49,188	$48,028	$53,648	$50,053	$60,856

* Based on students completing an education program (CIP code 13) from an educational institution in Kentucky.
† The number represents education alumni from Kentucky institutions residing in the U.S.
** The scale consists of six state wages on a five-point Likert scale ranging from ○ (low wage) to ● (high wage).
Source: Emsi Profile Analytics and Employees & Self-Employed 2020.3.

Table 6.5: Most Represented Occupations of Kentucky Education Alumni* with 2020 and 2010 Median Annual Wages of Select States

		2020 MEDIAN ANNUAL WAGE					
OCCUPATION	**KY****	**IN**	**FL**	**OH**	**TN**	**TX**
Ed. Administrators, K-12 (n=896)†	○	$83,492	$87,704	$84,149	$89,802	$84,348	$83,316
Secondary School Teachers, Except Special Ed. & CTE (n=767)	◔	$54,978	$50,236	$55,558	$64,326	$53,689	$57,803
Elementary School Teachers, Except Special Ed. (n=682)	◔	$53,139	$49,329	$53,403	$64,351	$51,917	$56,507
Educational, Guidance, & Career Counselors & Advisors (n=496)	●	$58,795	$49,188	$48,028	$53,648	$50,053	$60,856
Special Ed. Teachers, Kinder. & Elementary School (n=455)	◔	$52,779	$49,550	$64,026	$56,666	$52,627	$57,388
Middle School Teachers, Except Special Ed. & CTE (n=307)	◔	$53,574	$49,697	$54,628	$63,380	$51,975	$56,458
Pre-K Teachers, Except Special Ed. (n=219)	●	$29,836	$26,656	$25,086	$27,105	$27,869	$29,904
Teacher Assistants, Except Postsecondary (n=182)	●	$26,076	$23,883	$24,290	$27,067	$23,952	$21,948
Ed. & Childcare Administrators, Pre-K & Daycare (n=117)	○	$35,057	$39,306	$41,943	$41,927	$46,962	$44,113
Kinder. Teachers, Except Special Ed. (n=101)	◕	$54,462	$48,559	$55,984	$57,417	$48,881	$56,162

		2010 MEDIAN ANNUAL WAGE					
Ed. Administrators, K-12	◑	$79,849	$80,727	$87,056	$86,449	$70,547	$74,593
Secondary School Teachers, Except Special Ed. & CTE	◑	$50,044	$46,472	$48,853	$55,482	$45,727	$52,237
Elementary School Teachers, Except Special Ed.	◔	$48,545	$48,488	$45,789	$54,592	$45,085	$50,694
Educational, Guidance, & Career Counselors & Advisors	●	$57,040	$48,479	$51,246	$57,576	$44,194	$56,459
Special Ed. Teachers, Kinder. & Elementary School	◕	$49,431	$46,449	$48,333	$51,447	$45,452	$50,277
Middle School Teachers, Except Special Ed. & CTE	◑	$49,056	$47,771	$46,740	$52,327	$44,356	$50,707
Pre-K Teachers, Except Special Ed.	●	$23,370	$23,138	$23,073	$21,624	$20,961	$22,543
Teacher Assistants, Except Postsecondary	◕	$22,828	$21,372	$21,060	$25,445	$17,397	$19,939
Ed. & Childcare Administrators, Pre-K & Daycare	◔	$36,909	$37,366	$53,826	$38,037	$31,166	$32,363
Kinder. Teachers, Except Special Ed.	●	$49,862	$45,489	$45,700	$49,329	$43,791	$48,106

* Based on students completing an education program (CIP code 13) from an educational institution in Kentucky.
† The number in parentheses represents the number of education alumni from Kentucky institutions in the U.S.
** The scale consists of six state wages on a five-point Likert scale ranging from ○ (low wage) to ● (high wage).
Source: Emsi Profile Analytics and Employees & Self-Employed 2020.3.

Table 6.6: Out-of-State Employers Attracting the Most Kentucky Education Alumni* by Institutional Sector

COMPANY	STATE
STATE UNIVERSITY	KCTCS
Metropolitan Nashville Public Schools	Santander Holdings USA, Inc.
Cincinnati Public Schools	Nissan North America, Inc.
Sumner County Schools	Union College
Henderson County Schools	U.S. Department of Defense
University of Cincinnati	Yusa Corporation
AIKCU	TOTAL
The Salvation Army	Cincinnati Public Schools
North Carolina A&T State University	Metropolitan Nashville Public Schools
Miami-Dade County Public Schools	Sumner County Schools
Cincinnati Public Schools	Henderson County Schools
Cummins, Inc.	Miami-Dade County Public Schools

* Based on students completing an education program (CIP code 13) from an educational institution in Kentucky.
Source: Emsi Profile Analytics.

Table 6.7: Top 10 Out-of-State Institutions Providing Education Talent to Kentucky*

INSTITUTION	PROFILES
Indiana University *Ed. Administrators, K-12 (n=77)* *Educational, Guidance, & Career Counselors & Advisors (n=55)* *Secondary School Teachers, Except Special Ed. & CTE (n=53)*	320
University of Cincinnati *Secondary School Teachers, Except Special Ed. & CTE (n=44)* *Educational, Guidance, & Career Counselors & Advisors (n=25)* *Ed. Administrators, K-12 (n=25)*	177
Xavier University *Ed. Administrators, K-12 (n=36)* *Educational, Guidance, & Career Counselors & Advisors (n=22)* *Secondary School Teachers, Except Special Ed. & CTE (n=18)*	115
Purdue University *Secondary School Teachers, Except Special Ed. & CTE (n=30)* *Ed. Administrators, K-12 (n=16)* *Educational, Guidance, & Career Counselors & Advisors (n=15)*	105
Indiana Wesleyan University *Secondary School Teachers, Except Special Ed. & CTE (n=30)* *Educational, Guidance, & Career Counselors & Advisors (n=15)* *Special Ed. Teachers, Kinder. & Elementary School (n=11)*	96
Ball State University *Ed. Administrators, K-12 (n=34)* *Secondary School Teachers, Except Special Ed. & CTE (n=11)* *Elementary School Teachers, Except Special Ed. (n=9)* *Educational, Guidance, & Career Counselors & Advisors (n=9)*	83
Marshall University *Ed. Administrators, K-12 (n=14)* *Educational, Guidance, & Career Counselors & Advisors (n=13)* *Teacher assistants, except postsecondary (n=11)*	63
Miami University *Educational, Guidance, & Career Counselors & Advisors (n=18)* *Secondary School Teachers, Except Special Ed. & CTE (n=12)* *Ed. Administrators, K-12 (n=6)* *Pre-K Teachers, Except Special Ed. (n=6)* *Teacher assistants, except postsecondary (n=6)*	63
Ohio State University *Ed. Administrators, K-12 (n=12)* *Secondary School Teachers, Except Special Ed. & CTE (n=9)* *Educational, Guidance, & Career Counselors & Advisors (n=7)*	59
Ohio University *Educational, Guidance, & Career Counselors & Advisors (n=16)* *Ed. Administrators, K-12 (n=9)* *Secondary School Teachers, Except Special Ed. & CTE (n=9)*	55

* Based on workers employed in the education workforce in Kentucky having completed an education program (CIP code 13) from an educational institution outside Kentucky.
Source: Emsi Profile Analytics.

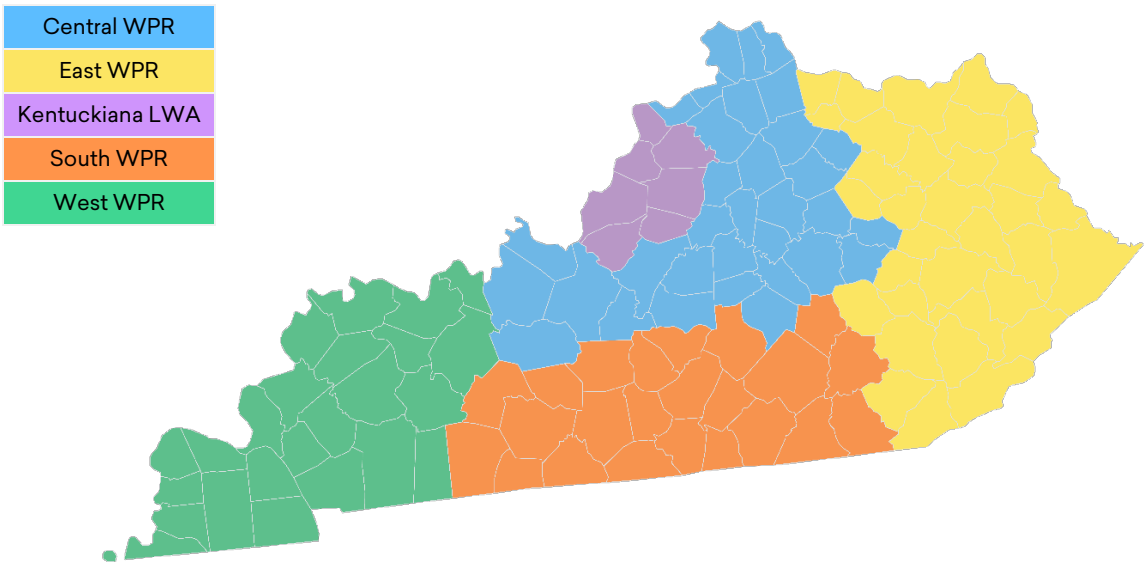
CHAPTER 7:

Environmental Scan

The environmental scan provides key information on the economic and social structure of Kentucky and its Workforce Planning Regions (WPRs). The counties included in the Central, East, South, and West WPRs are determined by the Kentucky Center for Education & Workforce Statistics and provided by the Council (Figure 7.1).[13] In addition, data for the city of Louisville and its surrounding counties, which comprise the Kentuckiana Local Workforce Area (LWA), are shown separate from the Central WPR. Identifying the economic conditions of Kentucky and its five workforce regions is an important task for several reasons. The data:

- Help the Council understand where the state's colleges and universities should logically target their efforts with regards to program development;
- Reveal whether there are industries that may be overlooked as a result of recent economic growth;
- Identify the top occupations within driving industries; and

Figure 7.1: Kentucky's WPRs and the Kentuckiana LWA



13 Source: https://kystats.ky.gov/Reports/ShowReports?ReportId=Map_LWAWIB&publishDate=20170401.

- Give the Council a deeper understanding of state and regional population characteristics and the socioeconomic background of current and future postsecondary students.

To these ends, this chapter provides an overview of total jobs and jobs within state and regional industries, unemployed workers in Kentucky, statewide and regional commuting patterns, population demographics and socioeconomic indicators of the state, and the highest educational attainments of state and regional adult residents. Tables and figures present data at the state level and, in some cases, for the county, regional, and national levels.

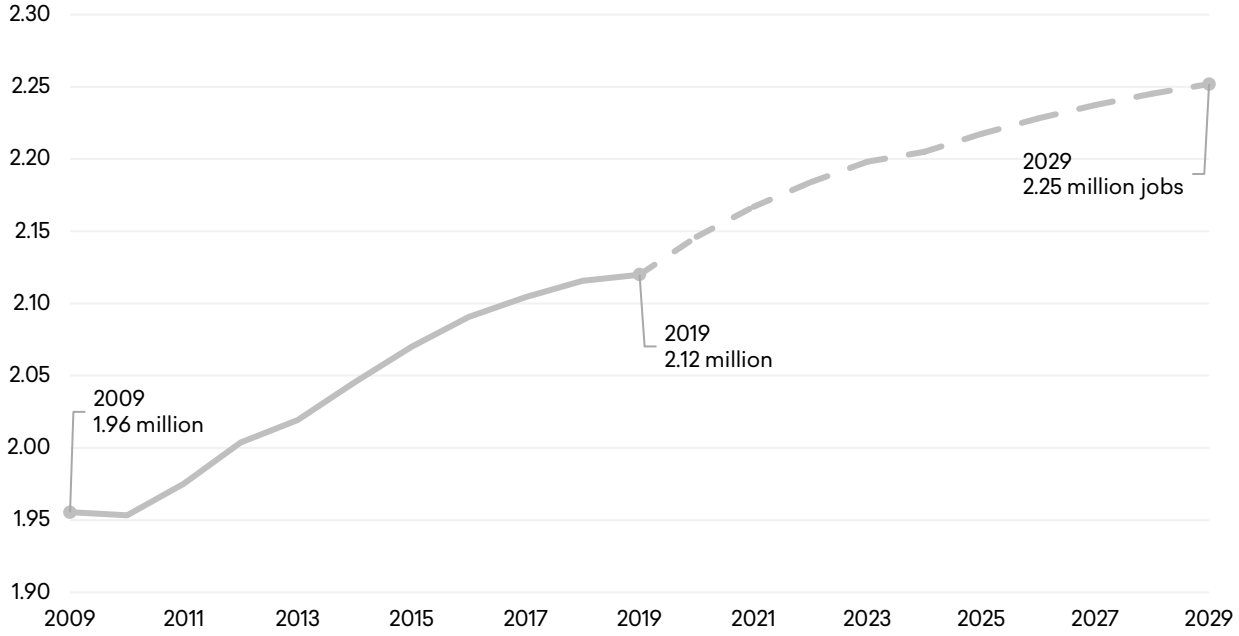
TOTAL JOBS

Job counts and the changes in jobs over time provide insight into Kentucky as an attractive region for job seekers, employers, and economic developers. Figure 7.2 shows statewide jobs from 2009 to 2029. In addition, Figures 7.3 and 7.4 present data on jobs in Kentucky for the same time period but highlight the state's job change, using 2009 as a base year and showing year-over-year job change, respectively. As shown in Figure 7.2, Kentucky supported 2.0 million jobs in 2009. By 2019, that number increased to 2.1 million jobs, for an 8.4% job growth. Kentucky is projected to add another 131,960 jobs by 2029, for a 6.2% job growth.

Figure 7.3 displays the historical and projected job change, by percent, for the state and the U.S. between 2009 and 2029, with 2009 serving as the base year. Kentucky's job declines in the years following the 2008 Recession were similar to that of the U.S. But after 2013, the state's job growth was less than that of the U.S. Using Emsi's job projections, job growth from 2009 to 2029 in Kentucky and the U.S. is expected to be 15.2% and 22.8%, respectively.

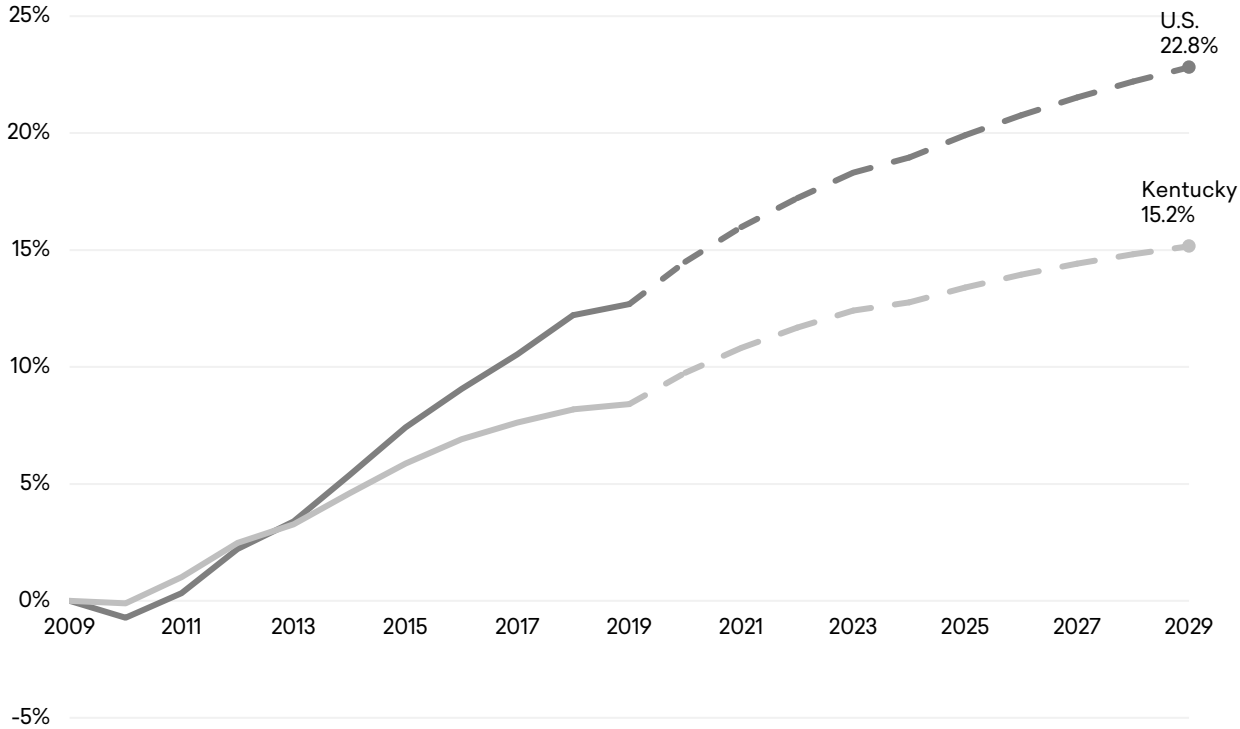
The regions' year-over-year job changes follow similar patterns (Figure 7.4). With the 2008 Recession, jobs decreased by about four percent, but year-over-year job change has remained positive since 2010 in Kentucky and the U.S. Jobs in the state are projected to increase by 1.2% between 2019 and 2020, and jobs in the U.S. are projected to increase by 1.6%. Figures 7.5, 7.6, and 7.7 show job changes for the Central, East, South, and West WPRs, as well as the Kentuckiana LWA.

Figure 7.2: Historical and Projected Jobs (in millions) in Kentucky, 2009 to 2029



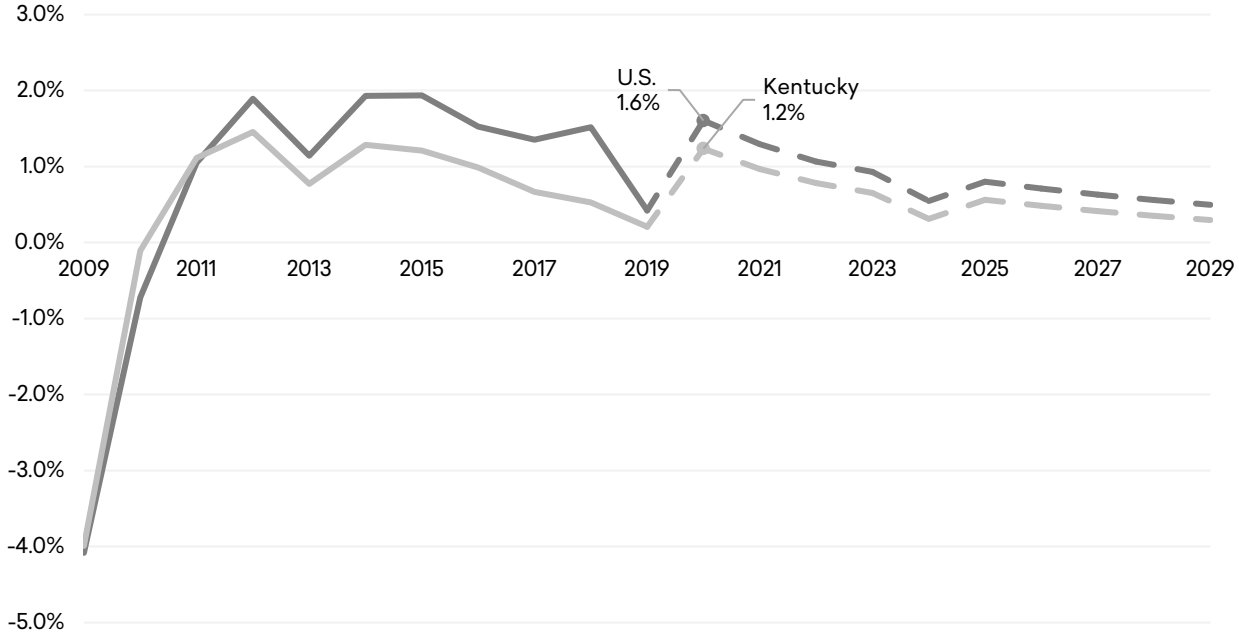
Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.3: Percent Job Change in Kentucky and the U.S., 2009 to 2029



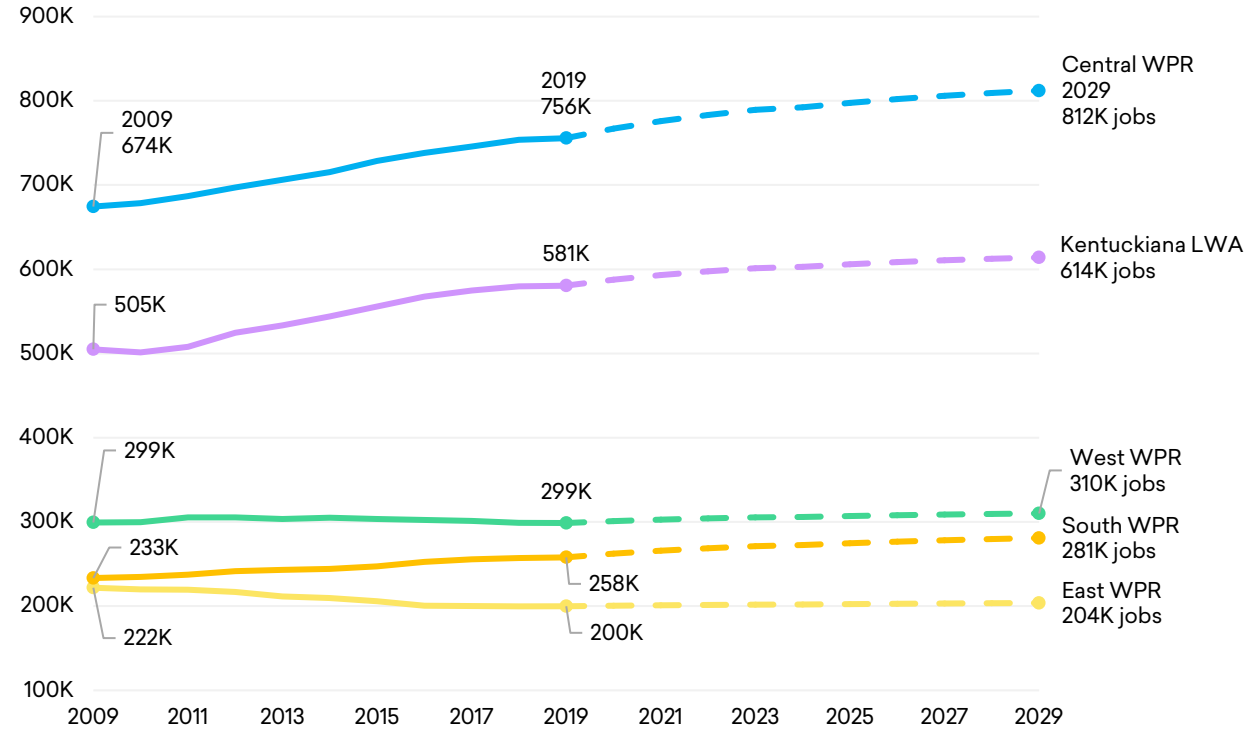
Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.4: Annual Percent Job Change in Kentucky and the U.S., 2009 to 2029



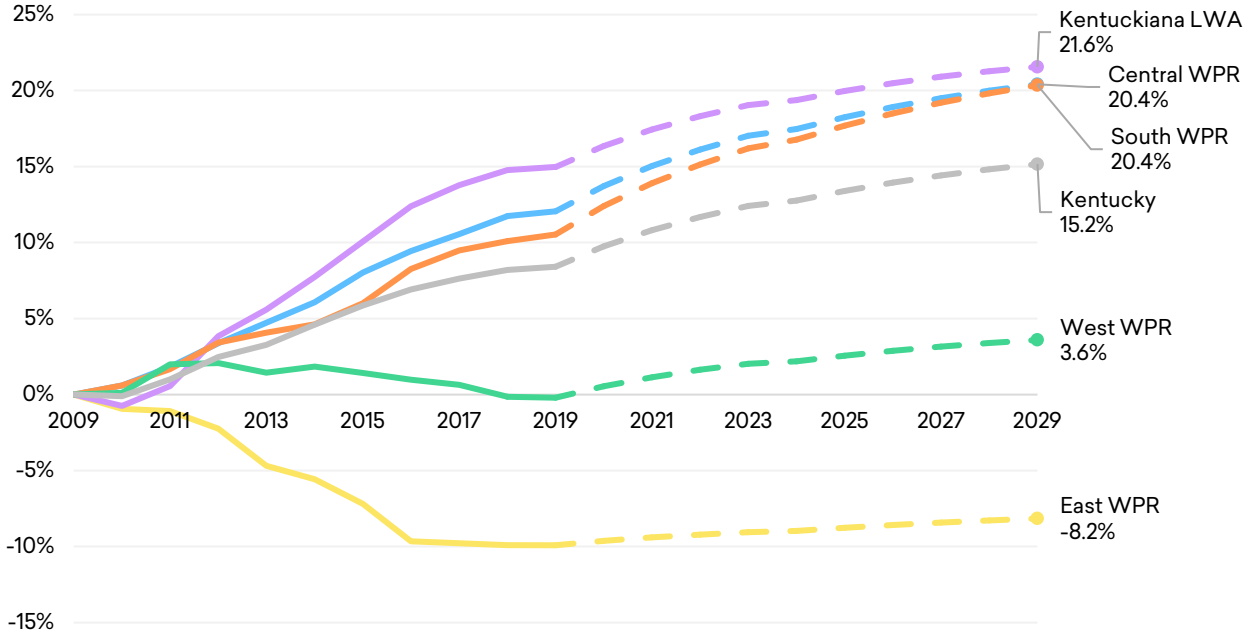
Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.5: Historical and Projected Jobs in Kentucky's WPRs and the Kentuckiana LWA, 2009 to 2029



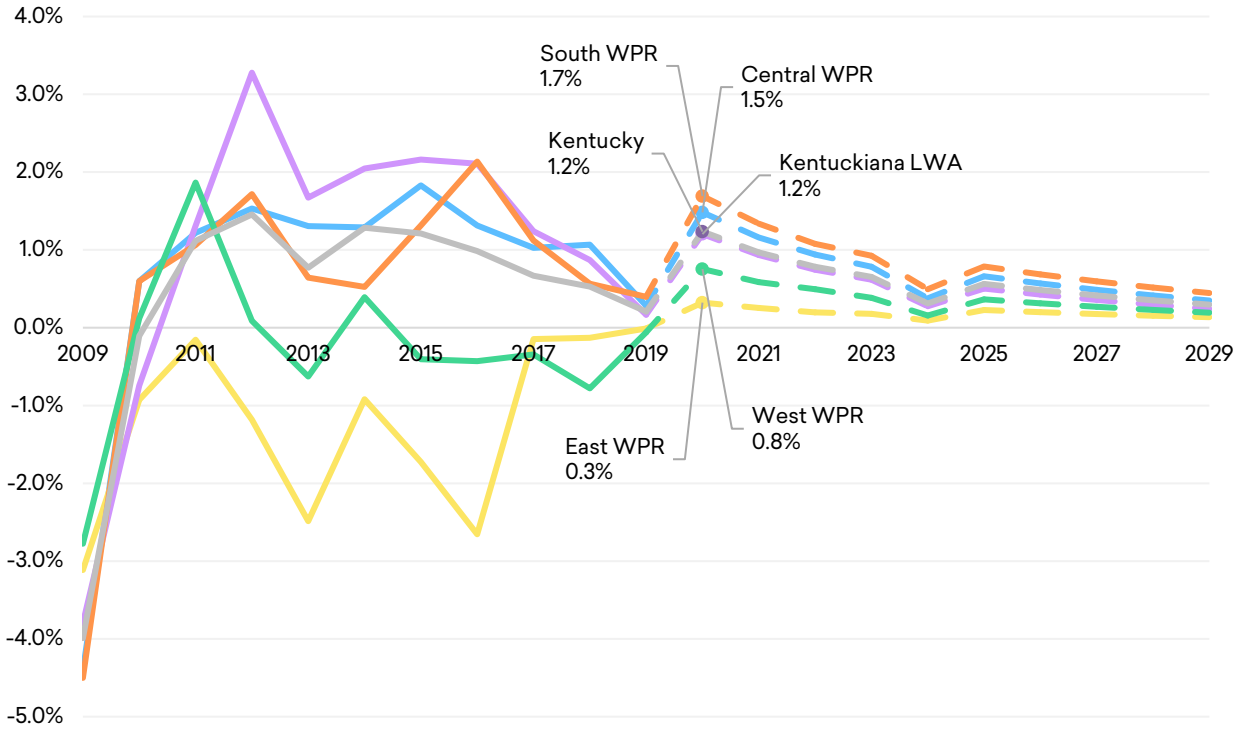
Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.6: Percent Job Change in Kentucky's WPRs and the Kentuckiana LWA, 2009 to 2029



Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.7: Annual Percent Job Change in Kentucky's WPRs and the Kentuckiana LWA, 2009 to 2029



Source: Emsi Employees & Self-Employed 2019.4.

INDUSTRY COMPOSITION

Evaluating current and future employment by the industries supporting jobs in the state provides information on its economic diversity. Understanding the mix of industries present in Kentucky is also important for drawing connections to the occupations and companies that are in-demand. By extension, students are likely to find employment in the largest industries.

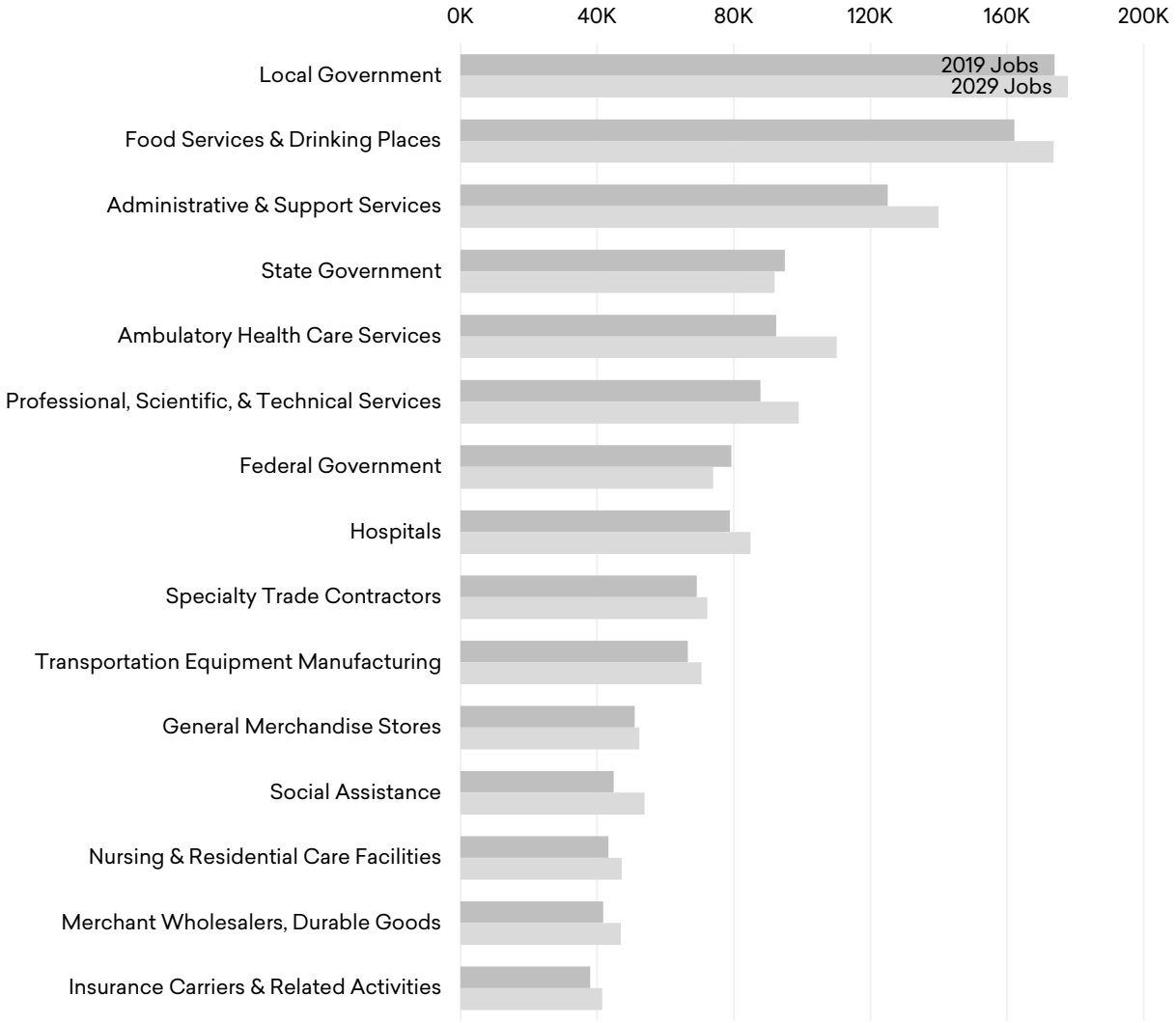
For the analysis in this section, Emsi has aggregated jobs by industries using the North American Industry Classification System (NAICS), and the industries are reported at the three-digit NAICS code level, referred to as industry subsectors. In Emsi data, all establishments in the main NAICS hierarchy (i.e. non-government industries) are private sector only. For example, jobs in Educational Services are not associated with the local, state, or federal governments. Public sector jobs, such as public-school teachers and city firefighters, are in Local Government, whereas college professors and forest firefighters are commonly employed by State Government. Finally, jobs for mail carriers and transportation security screeners are almost exclusively employed by Federal Government.

Largest Employers

As stated in the previous section, Kentucky supported 2.1 million jobs in 2019, and by 2029, the state is projected to add 131,960 new jobs, for a 6.2% job increase. Figure 7.8 presents the 15 largest industry subsectors in the state, by their 2019 job counts, and also shows the industry subsectors' projected change over the next decade.

As shown, the Local Government industry subsector supported the most jobs in Kentucky in 2019 (173,860 jobs), and it is expected to remain the top regional employer. Food Services & Drinking Places and Administrative & Support Services were the next largest in terms of jobs, supporting 162,150 and 125,070 jobs in 2019, respectively. As for growth, Ambulatory Health Care Services is projected to add the most jobs of the top 15 industry subsectors, with a 10-year increase of 19.3% or 17,810 new jobs.

Figure 7.8: Jobs in Kentucky's Top 15 Industry Subsectors, 2019 and 2029

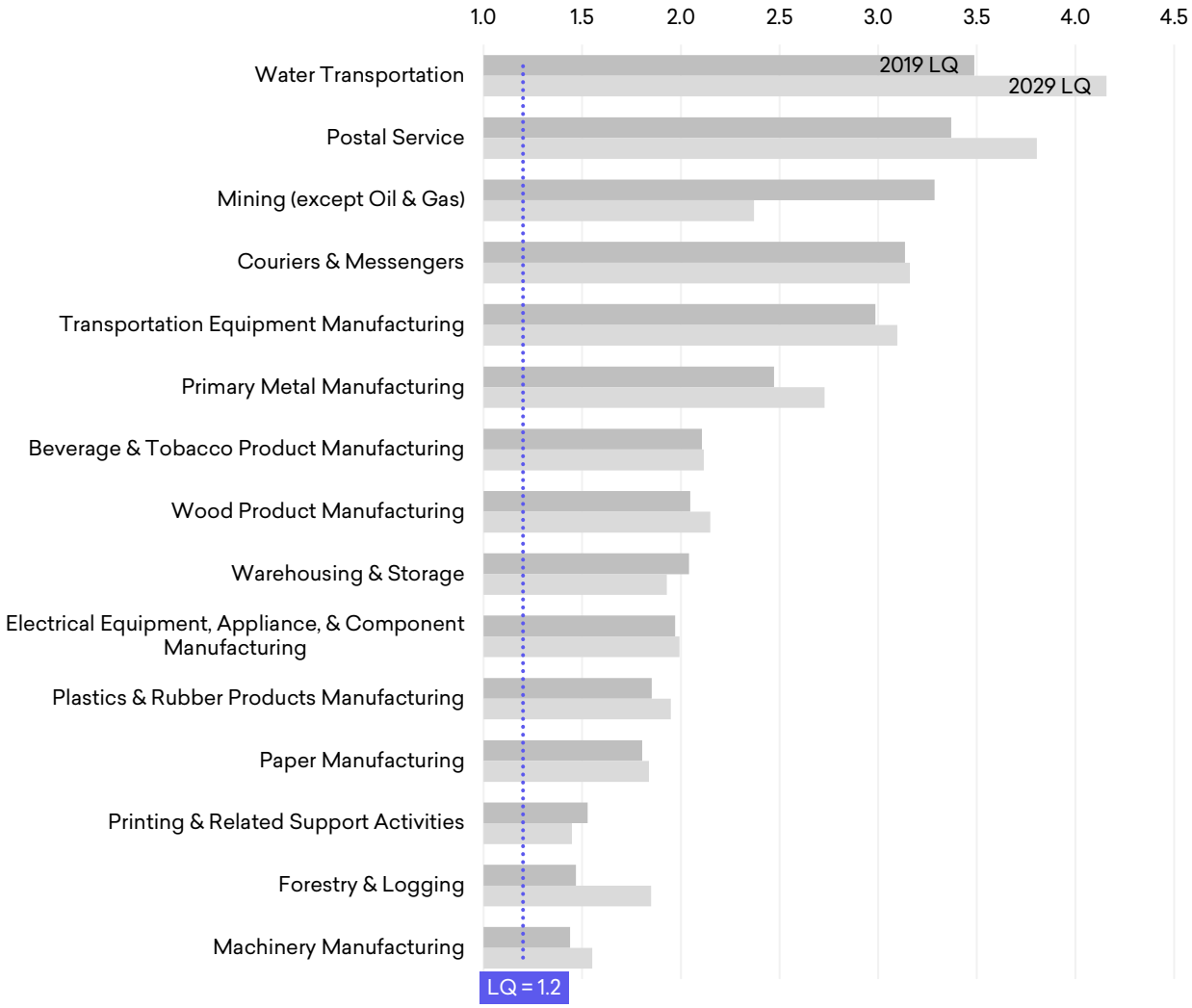


Source: Employees & Self-Employed 2019.4.

Employment Concentration

The employment concentration of the state's industry subsectors is measured by a location quotient (LQ). LQs are used to assess competitiveness by comparing the concentration of employment in an industry in Kentucky against the employment concentration for that same industry in the U.S. An LQ equal to 1.0 means that the percentage of total employment comprised by an industry in the state matches the percentage of total employment of that industry in the nation. An LQ greater than 1.0 means that the industry has a greater employment share relative to that of the U.S. High LQs, which are typically greater than 1.2, are an indication that Kentucky has a comparative advantage or specialization in an industry.

Figure 7.9: Employment Concentrations (LQs) of Kentucky's Top 15 Industry Subsectors, 2019 and 2029



Source: Employees & Self-Employed 2019.4.

Figure 7.9 shows the industry subsectors in Kentucky with the 15 highest LQs. The top-ranked industry subsectors are Water Transportation, with an LQ of 3.5 in 2019, followed by Postal Service, with an LQ of 3.4 in 2019. The two industry subsectors are expected to increase in employment concentration between 2019 and 2029 and will maintain their high employment concentrations in the state, with 2029 LQs about four times the U.S. share of jobs in those industry subsectors. As for 10-year growth, Forestry & Logging is projected to have the largest percent increase in LQ among the top 15 industry subsectors in the figure (25.9%) and will have a statewide LQ of 1.8. On the other hand, three industry subsectors are expected to drop in LQ between 2019 and 2029. The industry subsector with the largest percent decline is Mining (except Oil & Gas), with a 27.9% decrease from an LQ of 3.3 to an

LQ of 2.4. Despite the declines, all the state's top 15 industry subsectors will remain above the 1.2 high-LQ threshold, as indicated by the dotted line in the figure.

Highest Earners

Industry earnings are defined as total wages, salaries, supplements (such as additional employee benefits), and proprietor income. Workers in various industry subsectors see different average wages, so identifying Kentucky's top industries by their earnings is another method of evaluating an industry's strength. Table 7.1 shows the state's top 15 industry subsectors in descending order of 2018 earnings, as well as additional jobs data.

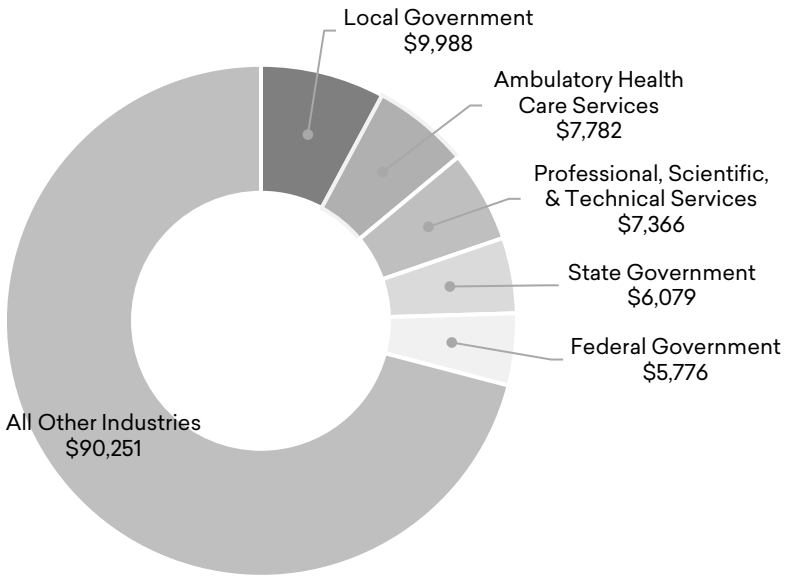
Local Government had the highest earnings in Kentucky ($10.0 billion), which accounted for eight percent of the state's total earnings ($127.2 billion). The next largest industry subsectors were Ambulatory Health Care Services, bringing in six percent of Kentucky's total earnings, followed by Professional, Scientific, & Technical Services, also with six percent of the state's total earnings. It could be argued that no one industry subsector accounted for a relatively large share of statewide earnings, as illustrated in Figure 7.10, an indication of Kentucky's economic diversity.

Table 7.1: Industry Subsector Earnings in Kentucky

NAICS TITLE	2018 EARNINGS (MILLIONS)	% EARNINGS	2019 JOBS	2029 JOBS	JOB CHANGE	% JOB CHANGE
Local Government	$9,988	7.8%	173,860	177,817	3,957	2.3%
Ambulatory Health Care Services	$7,782	6.1%	92,379	110,188	17,809	19.3%
Professional, Scientific, & Technical Services	$7,366	5.8%	87,830	98,981	11,151	12.7%
State Government	$6,079	4.8%	94,986	91,941	(3,045)	(3.2%)
Federal Government	$5,776	4.5%	79,291	73,976	(5,315)	(6.7%)
Hospitals	$5,239	4.1%	78,811	84,936	6,125	7.8%
Transportation Equipment Manufacturing	$5,221	4.1%	66,566	70,543	3,977	6.0%
Administrative & Support Services	$4,906	3.9%	125,066	139,854	14,788	11.8%
Specialty Trade Contractors	$4,246	3.3%	69,206	72,249	3,043	4.4%
Insurance Carriers & Related Activities	$3,677	2.9%	37,937	41,548	3,611	9.5%
Merchant Wholesalers, Durable Goods	$3,334	2.6%	41,775	46,890	5,115	12.2%
Food Services & Drinking Places	$3,242	2.5%	162,154	173,635	11,481	7.1%
Real Estate	$2,749	2.2%	17,753	18,808	1,055	5.9%
Management of Companies & Enterprises	$2,620	2.1%	19,997	19,762	(235)	(1.2%)
Credit Intermediation & Related Activities	$2,442	1.9%	33,971	35,050	1,079	3.2%
Couriers & Messengers	$2,291	1.5%	31,799	35,223	3,424	10.8%
Merchant Wholesalers, Nondurable Goods	$2,163	3.3%	29,967	30,790	823	2.7%
Truck Transportation	$2,038	1.2%	27,217	28,725	1,508	5.5%
Food Manufacturing	$1,733	1.6%	28,538	29,831	1,293	4.5%
Securities, Commodity Contracts, & Other Financial Investments & Related Activities	$1,684	0.9%	7,773	9,477	1,704	21.9%
Nursing & Residential Care Facilities	$1,666	0.9%	43,288	47,246	3,958	9.1%
Machinery Manufacturing	$1,537	1.2%	21,019	22,464	1,445	6.9%
Fabricated Metal Product Manufacturing	$1,518	1.2%	22,361	24,330	1,969	8.8%
Motor Vehicle & Parts Dealers	$1,515	1.2%	28,566	30,695	2,129	7.5%
Warehousing & Storage	$1,510	0.9%	30,793	35,859	5,066	16.5%
All Other Industries	$34,992	27.4%	667,043	701,083	34,039	5.1%
Total	**$127,241**	**100.0%**	**2,119,945**	**2,251,900**	**131,954**	**6.2%**

Source: Employees & Self-Employed 2019.4.

Figure 7.10: Kentucky's Top Five Industry Subsectors by Earnings (millions)



Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2019.4.

Figure 7.11: Regional Earnings of Kentucky's Top Five Industry Subsectors

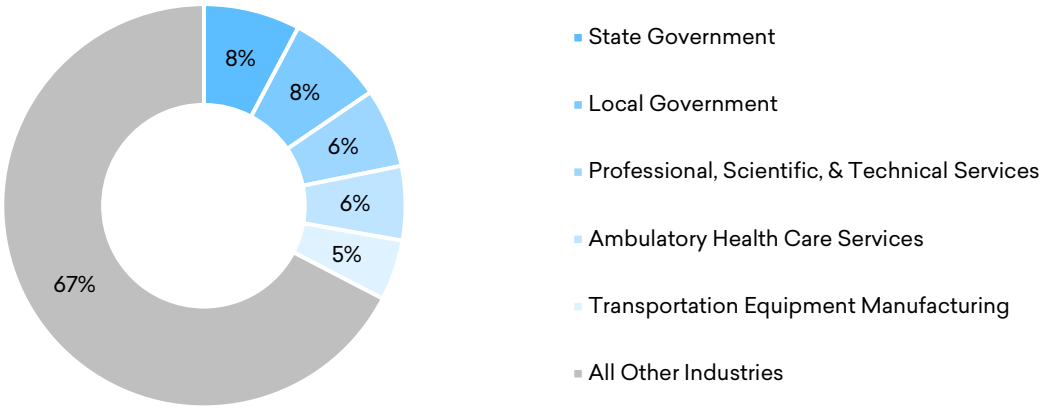
Source: Employees & Self-Employed 2019.4.

Table 7.2: Industry Subsector Earnings in the Central WPR

NAICS TITLE	2018 EARNINGS (MILLIONS)	% 2018 EARNINGS	2019 JOBS	2029 JOBS	JOB CHANGE	% JOB CHANGE
State Government	$3,585	7.8%	51,307	51,484	177	0.3%
Local Government	$3,574	7.7%	60,515	63,550	3,035	5.0%
Professional, Scientific, & Technical Services	$2,936	6.3%	33,035	38,036	5,001	15.1%
Ambulatory Health Care Services	$2,755	6.0%	30,230	37,237	7,007	23.2%
Transportation Equipment Manufacturing	$2,244	4.9%	27,528	28,167	639	2.3%
Federal Government	$2,085	4.5%	25,131	20,910	(4,221)	-16.8%
Administrative & Support Services	$1,876	4.1%	44,764	48,231	3,467	7.7%
Specialty Trade Contractors	$1,526	3.3%	24,529	26,350	1,821	7.4%
Food Services & Drinking Places	$1,252	2.7%	62,513	68,337	5,824	9.3%
Hospitals	$1,248	2.7%	20,531	22,199	1,668	8.1%
Merchant Wholesalers, Durable Goods	$1,235	2.7%	14,952	17,693	2,741	18.3%
Management of Companies & Enterprises	$1,087	2.4%	7,783	6,959	(824)	-10.6%
Real Estate	$1,070	2.3%	6,700	7,277	577	8.6%
Credit Intermediation & Related Activities	$859	1.9%	11,581	12,039	458	4.0%
Machinery Manufacturing	$814	1.8%	10,009	10,323	314	3.1%
All Other Industries	$18,106	39.1%	324,668	353,337	28,670	8.8%
Total	**$46,254**	**100.0%**	**755,776**	**812,131**	**56,354**	**7.5%**

Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2019.4.

Figure 7.12: Top Five Industry Subsectors by Percent Earnings in the Central WPR



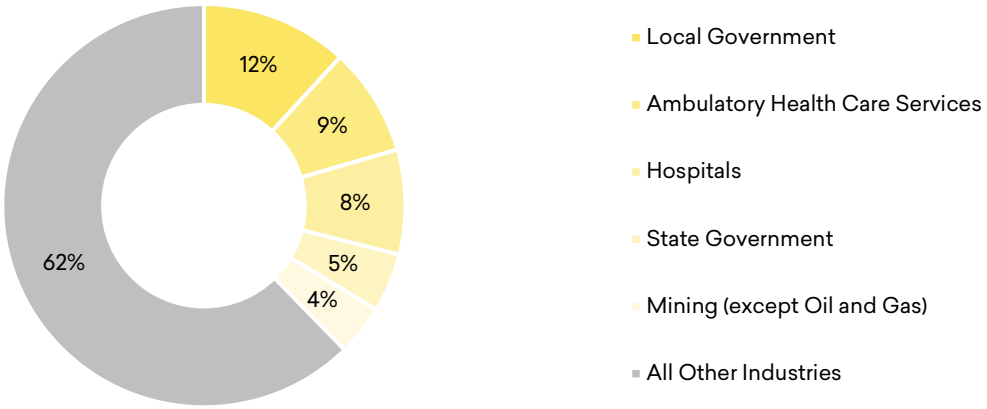
Source: Employees & Self-Employed 2019.4.

Table 7.3: Industry Subsector Earnings in the East WPR

NAICS TITLE	2018 EARNINGS ($ MILLIONS)	% 2018 EARNINGS	2019 JOBS	2029 JOBS	JOB CHANGE	% JOB CHANGE
Local Government	$1,234	11.8%	26,182	25,447	(735)	(2.8%)
Ambulatory Health Care Services	$908	8.7%	12,590	14,650	2,060	16.4%
Hospitals	$878	8.4%	12,742	13,435	693	5.4%
State Government	$494	4.7%	10,206	9,553	(653)	(6.4%)
Mining (except Oil & Gas)	$423	4.0%	4,323	2,427	(1,896)	(43.9%)
Professional, Scientific, & Technical Services	$390	3.7%	5,360	5,387	27	0.5%
Administrative & Support Services	$289	2.8%	6,897	7,804	907	13.2%
Federal Government	$288	2.8%	4,514	4,060	(454)	(10.1%)
Specialty Trade Contractors	$286	2.7%	5,510	5,513	3	0.1%
Food Services & Drinking Places	$266	2.5%	15,188	15,830	642	4.2%
Nursing & Residential Care Facilities	$227	2.2%	6,409	6,907	498	7.8%
Credit Intermediation & Related Activities	$211	2.0%	3,723	3,404	(319)	(8.6%)
General Merchandise Stores	$207	2.0%	7,234	7,087	(147)	(2.0%)
Petroleum & Coal Products Manufacturing	$185	1.8%	904	1,084	180	19.9%
Food Manufacturing	$165	1.6%	2,947	2,825	(122)	(4.1%)
All Other Industries	$3,995	38.2%	75,124	78,338	3,218	4.3%
Total	**$10,445**	**100.0%**	**199,855**	**203,753**	**3,902**	**2.0%**

Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2019.4.

Figure 7.13: Top Five Industry Subsectors by Percent Earnings in the East WPR



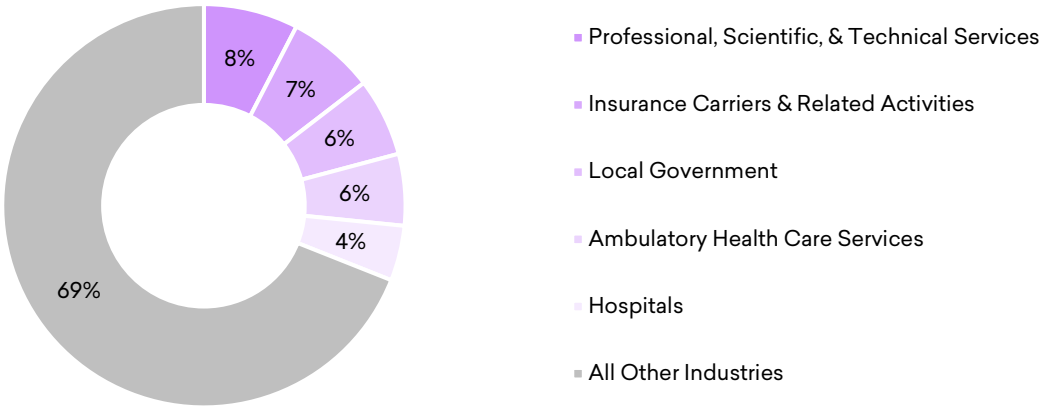
Source: Employees & Self-Employed 2019.4.

Table 7.4: Industry Subsector Earnings in the Kentuckiana LWA

NAICS TITLE	2018 EARNINGS ($ MILLIONS)	% 2018 EARNINGS	2019 JOBS	2029 JOBS	JOB CHANGE	% JOB CHANGE
Professional, Scientific, & Technical Services	$3,059	7.6%	31,540	34,866	3,326	10.5%
Insurance Carriers & Related Activities	$2,817	7.0%	25,585	28,462	2,877	11.2%
Local Government	$2,531	6.3%	35,563	37,423	1,860	5.2%
Ambulatory Health Care Services	$2,317	5.7%	25,478	28,644	3,166	12.4%
Hospitals	$1,785	4.4%	23,896	26,293	2,397	10.0%
Couriers & Messengers	$1,737	4.3%	20,304	20,756	452	2.2%
Transportation Equipment Manufacturing	$1,709	4.2%	19,335	21,058	1,723	8.9%
Administrative & Support Services	$1,690	4.2%	39,461	42,445	2,984	7.6%
Specialty Trade Contractors	$1,439	3.6%	20,284	21,324	1,040	5.1%
Merchant Wholesalers, Durable Goods	$1,430	3.5%	15,186	16,117	931	6.1%
Management of Companies & Enterprises	$1,187	2.9%	7,991	8,642	651	8.1%
State Government	$1,102	2.7%	15,431	14,198	(1,233)	-8.0%
Real Estate	$1,045	2.6%	6,238	6,224	(14)	-0.2%
Food Services & Drinking Places	$1,004	2.5%	43,681	46,093	2,412	5.5%
Federal Government	$822	2.0%	10,469	10,769	300	2.9%
All Other Industries	$14,651	36.3%	240,195	250,631	10,437	4.3%
Total	**$40,325**	**100.0%**	**580,636**	**613,946**	**33,309**	**5.7%**

Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2019.4.

Figure 7.14: Top Five Industry Subsectors by Percent Earnings in the Kentuckiana LWA



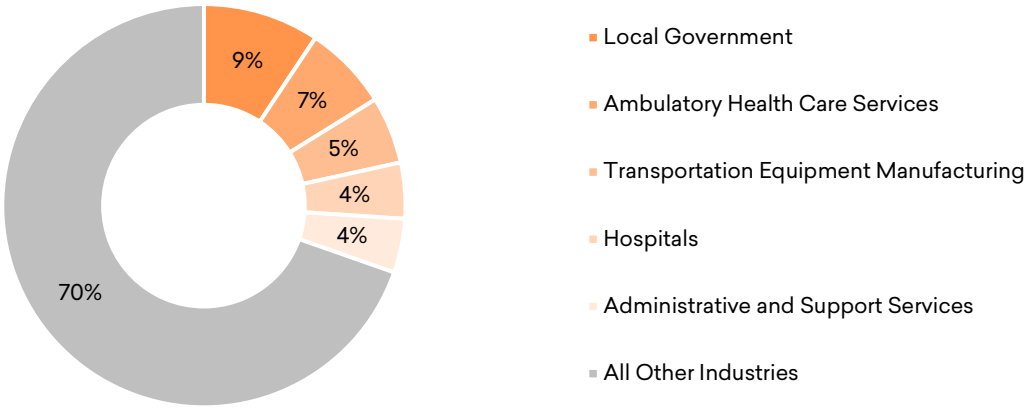
Source: Employees & Self-Employed 2019.4.

Table 7.5: Industry Subsector Earnings in the South WPR

NAICS TITLE	2018 EARNINGS ($ MILLIONS)	% 2018 EARNINGS	2019 JOBS	2029 JOBS	JOB CHANGE	% JOB CHANGE
Local Government	$1,243	9.3%	25,063	25,389	326	1.3%
Ambulatory Health Care Services	$909	6.8%	11,801	14,530	2,729	23.1%
Transportation Equipment Manufacturing	$717	5.4%	10,921	11,892	971	8.9%
Hospitals	$598	4.5%	10,681	11,847	1,166	10.9%
Administrative & Support Services	$577	4.3%	15,590	19,858	4,268	27.4%
Specialty Trade Contractors	$449	3.4%	8,327	8,822	495	5.9%
State Government	$442	3.3%	8,574	8,010	(564)	-6.6%
Professional, Scientific, & Technical Services	$392	2.9%	6,142	7,020	878	14.3%
Food Services & Drinking Places	$361	2.7%	20,107	22,122	2,015	10.0%
Truck Transportation	$351	2.6%	4,107	4,428	321	7.8%
Food Manufacturing	$292	2.2%	5,170	5,447	277	5.4%
Fabricated Metal Product Manufacturing	$282	2.1%	4,581	5,730	1,149	25.1%
Animal Production & Aquaculture	$250	1.9%	580	565	(15)	-2.6%
Plastics & Rubber Products Manufacturing	$250	1.9%	4,285	4,633	348	8.1%
Real Estate	$245	1.8%	1,615	1,728	113	7.0%
All Other Industries	$5,958	44.7%	120,424	128,866	8,438	7.0%
Total	**$13,315**	**100.0%**	**257,968**	**280,887**	**22,915**	**8.9%**

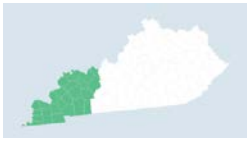
Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2019.4.

Figure 7.15: Top Five Industry Subsectors by Percent Earnings in the South WPR



Numbers may not sum due to rounding. Source: Employees & Self-Employed 2019.4.

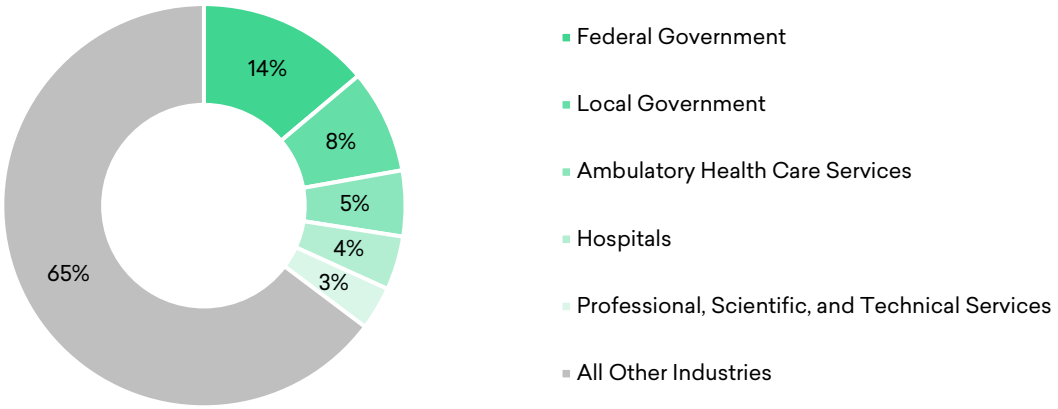
Table 7.6: Industry Subsector Earnings in the West WPR



NAICS TITLE	2018 EARNINGS ($ MILLIONS)	% 2018 EARNINGS	2019 JOBS	2029 JOBS	JOB CHANGE	% JOB CHANGE
Federal Government	$2,343	13.9%	34,431	33,321	(1,110)	(3.2%)
Local Government	$1,406	8.3%	26,418	25,757	(661)	(2.5%)
Ambulatory Health Care Services	$892	5.3%	11,228	13,537	2,309	20.6%
Hospitals	$730	4.3%	10,943	11,140	197	1.8%
Professional, Scientific, & Technical Services	$589	3.5%	7,661	8,756	1,095	14.3%
Specialty Trade Contractors	$546	3.2%	9,090	9,063	(27)	(0.3%)
Food Manufacturing	$488	2.9%	8,732	9,418	686	7.9%
Administrative & Support Services	$475	2.8%	12,907	15,125	2,218	17.2%
Primary Metal Manufacturing	$461	2.7%	4,745	4,541	(204)	(4.3%)
State Government	$455	2.7%	9,444	8,676	(768)	(8.1%)
Transportation Equipment Manufacturing	$434	2.6%	6,483	6,683	200	3.1%
Credit Intermediation & Related Activities	$385	2.3%	5,853	6,712	859	14.7%
Food Services & Drinking Places	$359	2.1%	20,312	20,964	652	3.2%
Chemical Manufacturing	$339	2.0%	3,074	3,074	0	0.0%
Merchant Wholesalers, Durable Goods	$298	1.8%	4,205	4,474	269	6.4%
All Other Industries	$6,702	39.7%	123,175	128,827	5,652	4.6%
Total	**$16,902**	**100.0%**	**298,700**	**310,067**	**11,367**	**3.8%**

Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2019.4.

Figure 7.16: Top Five Industry Subsectors by Percent Earnings in the West WPR



Numbers may not sum due to rounding. Source: Employees & Self-Employed 2019.4.

Industry Diversity

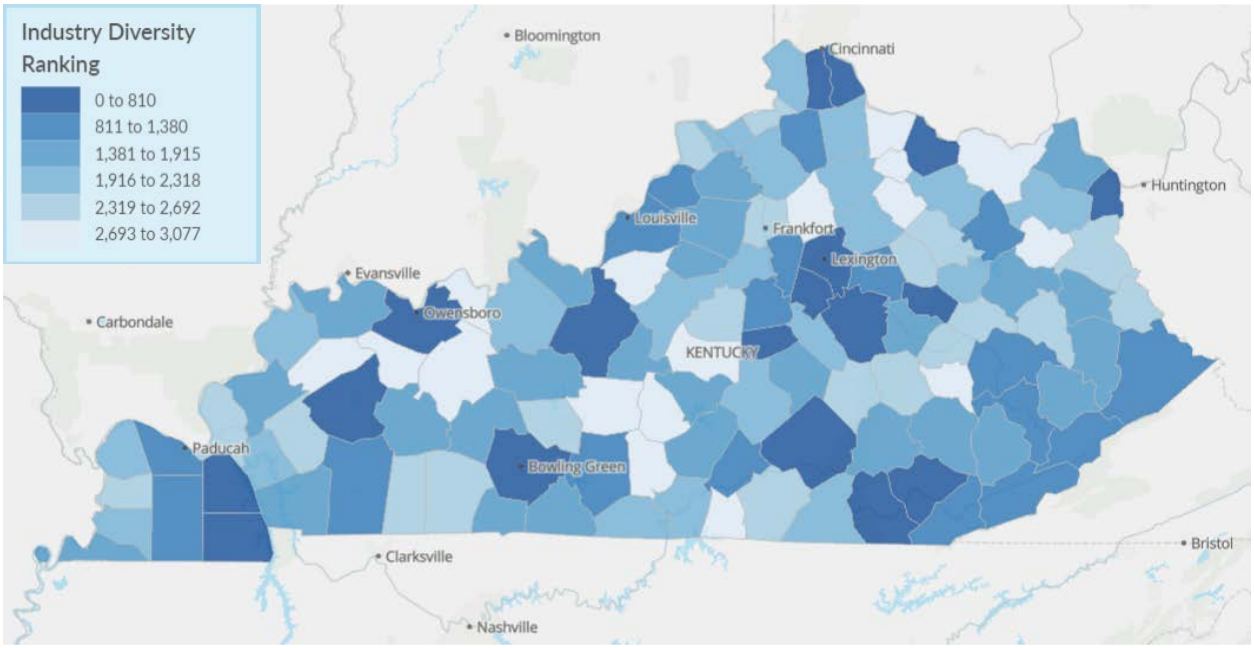
Emsi's definition of economic diversity and its ranking methodology come from C2ER.[14] These measures help quantify how jobs are distributed across groups of industries in Kentucky, compared to a typical region in the U.S. A region with high diversity can signal economic stability and more easily withstand economic pressures, whereas a region with low diversity can signal economic instability. Unlike the previous sections, in which industries are classified by their NAICS codes, industries in this section are grouped into clusters that are broadly similar on factors such as business inputs, outputs, and the technological or skill requirements necessary to perform the work customary to the industries. Grouping industries according to function can help to:

- Broadly characterize the economic roles an industry plays in its region;
- Provide insight into the economic relationships and similarities a place has with other regions;
- Identify factors that make regions comparatively better fits for certain economic activities; and
- Speak to the broader economic and demographic forces that are likely to impact a region's economic prospects.

As shown in Table 7.7, Kentucky has an industry diversity ranking of 35, which is in the 33rd percentile among the 50 states and the District of Columbia. Several counties in the state have high percentile ranks, as indicated by the choropleth map in Figure 7.17. Hancock County is among the least diverse counties in the U.S. (Table 7.8). Industry diversity means that regional employment is distributed more evenly between the 12 industry clusters compared to a typical MSA in the U.S. The table also identifies the largest industry cluster in each county and the state. In Kentucky, the Distributive Services industry cluster accounts for the greatest share of total employment. The cluster is comprised of Utilities (NAICS 22); Wholesale Trade (NAICS 42); Transportation & Warehousing (NAICS 48-49); Wired Telecommunication Carriers (NAICS 517110); Satellite Telecommunications (NAICS 517410); and Data Processing, Hosting, & Related Services (NAICS 518).

14 C2ER refers to the Council for Community & Economic Research.

Figure 7.17: Kentucky Counties by Industry Diversity Rankings



Source: Employees & Self-Employed 2019.4.

Table 7.7: Industry Diversity Rankings of the 10 Most Diverse Counties in Kentucky

COUNTY	INDUSTRY DIVERSITY RANK	INDUSTRY DIVERSITY PERCENTILE	LARGEST INDUSTRY CLUSTER	% JOBS IN INDUSTRY CLUSTER	TYPICAL % JOBS IN INDUSTRY CLUSTER
Fayette County	76	97.6%	Healthcare	8.4%	5.0%
Warren County	102	96.8%	Capital-Intensive Manufacturing	13.0%	5.3%
Boyle County	145	95.4%	Capital-Intensive Manufacturing	9.6%	5.3%
Knox County	190	94.0%	Capital-Intensive Manufacturing	10.5%	5.3%
Kenton County	212	93.3%	Healthcare	8.1%	5.0%
Madison County	237	92.5%	Higher Education	11.4%	3.3%
Hardin County	291	90.8%	Government	10.7%	3.2%
Mason County	295	90.6%	Capital-Intensive Manufacturing	8.9%	5.3%
Boyd County	312	90.1%	Healthcare	10.8%	5.0%
Campbell County	378	88.0%	Higher Education	7.2%	3.3%
Kentucky	**35**	**33.3%**	**Distributive Services**	**10.0%**	**8.3%**

Source: Employees & Self-Employed 2019.4.

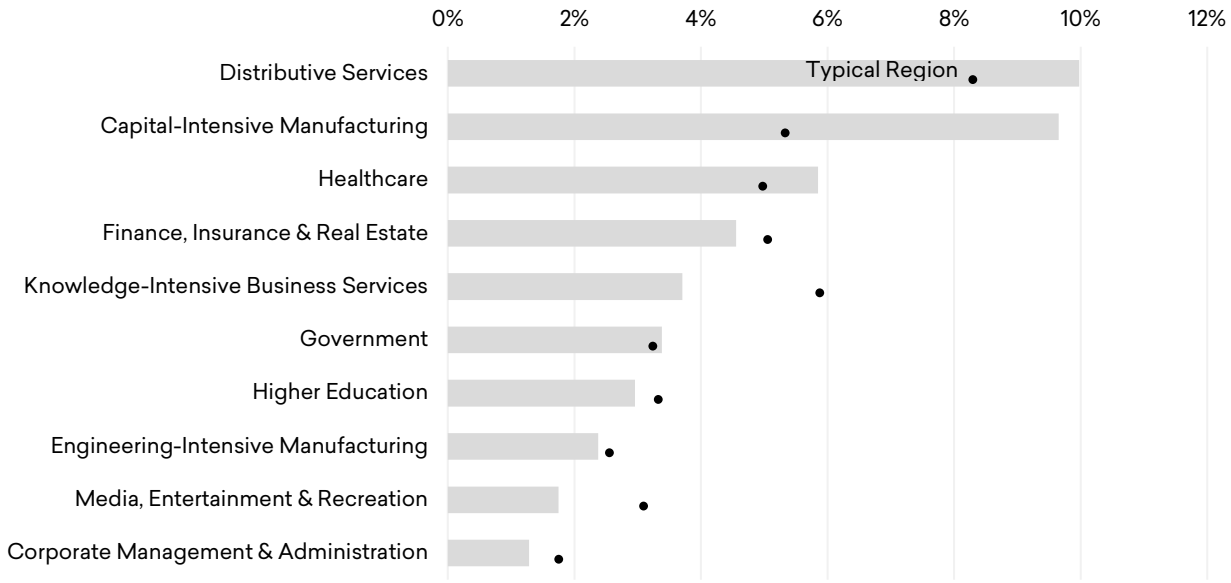
Table 7.8: Industry Diversity Rankings of the 10 Least Diverse Counties in Kentucky

COUNTY	INDUSTRY DIVERSITY RANK	INDUSTRY DIVERSITY PERCENTILE	LARGEST INDUSTRY CLUSTER	% JOBS IN INDUSTRY CLUSTER	TYPICAL % JOBS IN INDUSTRY CLUSTER
Hancock County	3,077	2.1%	Capital-Intensive Manufacturing	61.8%	5.3%
Robertson County	2,980	5.2%	Healthcare	19.3%	5.0%
Elliott County	2,965	5.6%	Government	29.5%	3.2%
Hart County	2,905	7.5%	Capital-Intensive Manufacturing	43.8%	5.3%
McLean County	2,887	8.1%	Agriculture & Natural Resource Extraction	28.8%	1.6%
Bullitt County	2,860	9.0%	Distributive Services	32.8%	8.3%
Nicholas County	2,832	9.9%	Healthcare	7.9%	5.0%
Scott County	2,821	10.2%	Capital-Intensive Manufacturing	37.3%	5.3%
Green County	2,816	10.4%	Healthcare	14.8%	5.0%
Marion County	2,755	12.3%	Capital-Intensive Manufacturing	41.1%	5.3%
Kentucky	**35**	**33.3%**	**Distributive Services**	**10.0%**	**8.3%**

Source: Employees & Self-Employed 2019.4.

Furthermore, Figure 7.18 shows the employment shares of the 11 functional industry clusters in Kentucky, with a dot representing the industry cluster's typical share of employment in the U.S. In an effort to focus on the economic base of the region, non-functional industries or industries that often serve local populations, such as retail, trade, personal services, doctor's offices, local government, and construction, are excluded from the diversity analysis. Distributive Services employs the largest share of people in the region (10.0%), followed by jobs in Capital-Intensive Manufacturing (9.7%). A typical region in the U.S. employs 8.2% and 5.3% of its people in the two industry clusters, respectively.

Figure 7.18: Industry Diversity of Kentucky by Industry Cluster with Comparison to a Typical Region



Source: Employees & Self-Employed 2019.4.

OCCUPATIONS OF REGIONAL RESIDENTS

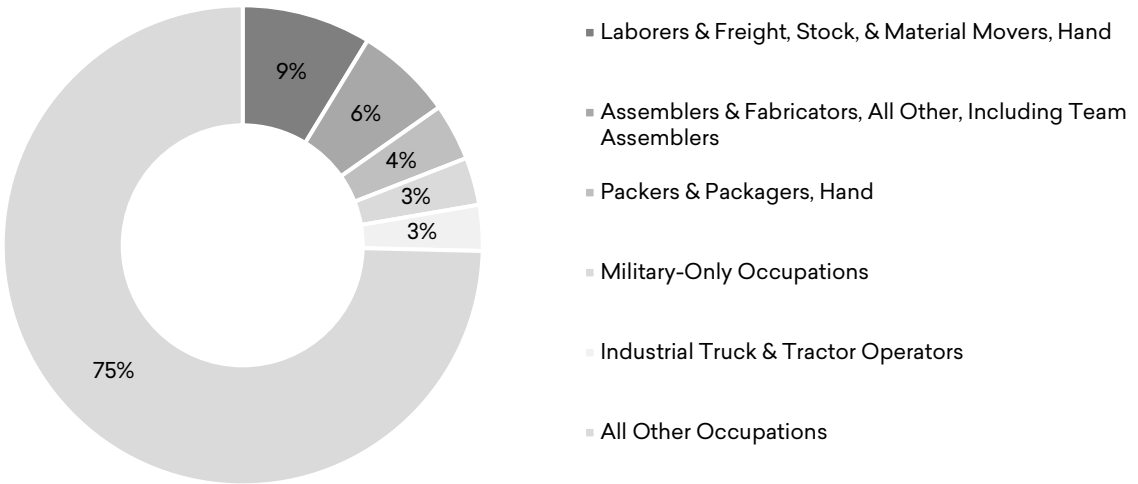
This section combines occupational data with employment information on Kentucky residents. Essentially, the data identify the occupational groups that the state's programs should be targeting based upon the jobs of its residents. The final results, which appear in Tables 7.9 and 7.10, show which occupational groups are undersupplied or oversupplied by the state's residents, respectively. As for the source of the data, the number of jobs within an occupation is based on Emsi's industry data and staffing patterns, and Emsi uses data from LEHD Origin-Destination Employment Statistics (LODES) to determine how many Kentucky residents are employed in the state's occupations. Specifically, the LODES originate from Origin and Destination (OD) data, Regional Area Characteristics (RAC), and Workforce Area Characteristics (WAC).

Table 7.9: Top 15 Occupations by Net In-Commuters for Jobs in Kentucky

SOC CODE	SOC TITLE	2019 NET IN-COMMUTERS	2019 RESIDENT WORKERS	2019 JOBS	2029 JOBS	JOB CHANGE
53-7062	Laborers & Freight, Stock, & Material Movers, Hand	2,753	57,955	60,708	65,859	5,151
51-2098	Assemblers & Fabricators, All Other, Including Team Assemblers	2,064	57,485	59,549	56,635	(2,914)
53-7064	Packers & Packagers, Hand	1,210	13,638	14,848	15,897	1,049
55-9999	Military-Only Occupations	1,015	21,363	22,378	21,371	(1,007)
53-7051	Industrial Truck & Tractor Operators	974	13,024	13,998	15,309	1,311
53-3033	Light Truck or Delivery Services Drivers	761	16,145	16,906	19,044	2,138
51-9111	Packaging & Filling Machine Operators & Tenders	572	9,591	10,163	10,580	417
35-2014	Cooks, Restaurant	448	19,767	20,215	21,700	1,485
49-3011	Aircraft Mechanics & Service Technicians	436	3,782	4,218	4,403	185
43-5081	Stock Clerks & Order Fillers	364	30,079	30,443	32,030	1,587
53-1048	First-line Supervisors of Transportation & Material Moving Workers, Except Aircraft Cargo Handling Supervisors	320	7,349	7,669	8,404	735
53-2011	Airline Pilots, Copilots, & Flight Engineers	301	3,126	3,427	2,758	(669)
43-4171	Receptionists & Information Clerks	272	17,091	17,363	18,523	1,160
43-5011	Cargo & Freight Agents	269	2,798	3,067	3,450	383
45-2092	Farmworkers & Laborers, Crop, Nursery, & Greenhouse	260	5,513	5,773	6,354	581

Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.19: Top Five Occupations by Net In-Commuters for Jobs in Kentucky



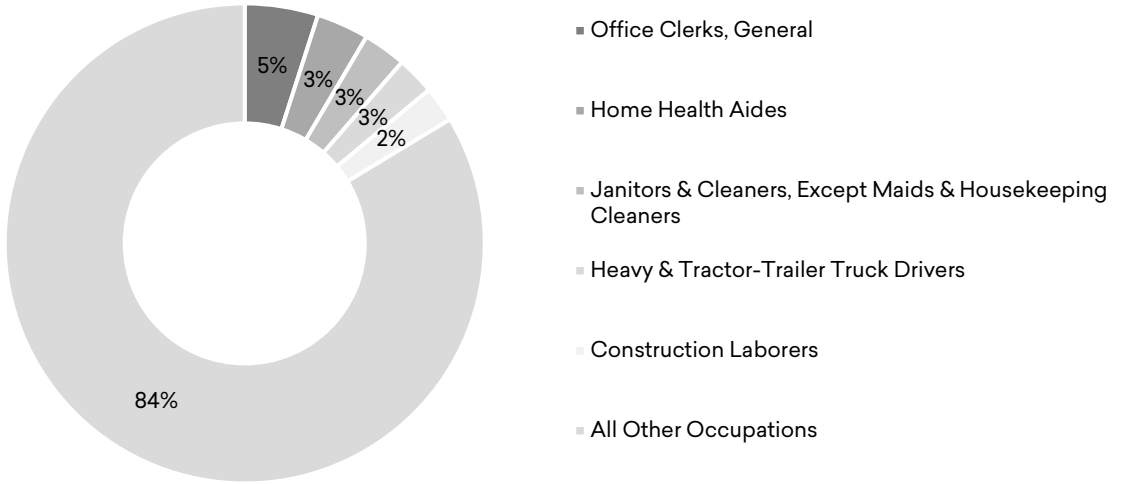
Source: Emsi Employees & Self-Employed 2019.4.

Table 7.10: Top 15 Occupations by Net Out-Commuters for Jobs in Kentucky

SOC CODE	SOC TITLE	2019 NET OUT-COMMUTERS	2019 RESIDENT WORKERS	2019 JOBS	2029 JOBS	JOB CHANGE
43-9061	Office Clerks, General	(763)	42,291	41,528	41,732	204
31-1011	Home Health Aides	(545)	4,145	3,600	5,104	1,504
37-2011	Janitors & Cleaners, Except Maids & Housekeeping Cleaners	(447)	31,527	31,080	34,445	3,365
53-3032	Heavy & Tractor-Trailer Truck Drivers	(396)	29,849	29,453	32,057	2,604
47-2061	Construction Laborers	(372)	16,998	16,626	17,968	1,342
29-2061	Licensed Practical & Licensed Vocational Nurses	(365)	10,445	10,080	10,632	552
47-2073	Operating Engineers & Other Construction Equipment Operators	(335)	5,755	5,420	5,663	243
43-6014	Secretaries & Administrative Assistants, Except Legal, Medical, & Executive	(334)	30,383	30,049	29,049	(1,000)
35-3022	Counter Attendants, Cafeteria, Food Concession, & Coffee Shop	(287)	2,918	2,631	2,938	307
15-1121	Computer Systems Analysts	(280)	4,917	4,637	5,066	429
41-3021	Insurance Sales Agents	(278)	10,462	10,184	10,956	772
25-9041	Teacher Assistants	(271)	17,392	17,121	17,950	829
51-4072	Molding, Coremaking, & Casting Machine Setters, Operators, & Tenders, Metal & Plastic	(265)	3,431	3,166	3,109	(57)
13-1199	Business Operations Specialists, All Other	(261)	10,316	10,055	10,935	880
13-1161	Market Research Analysts & Marketing Specialists	(246)	5,325	5,079	6,335	1,256

Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.20: Top Five Occupations by Net Out-Commuters for Jobs in Kentucky



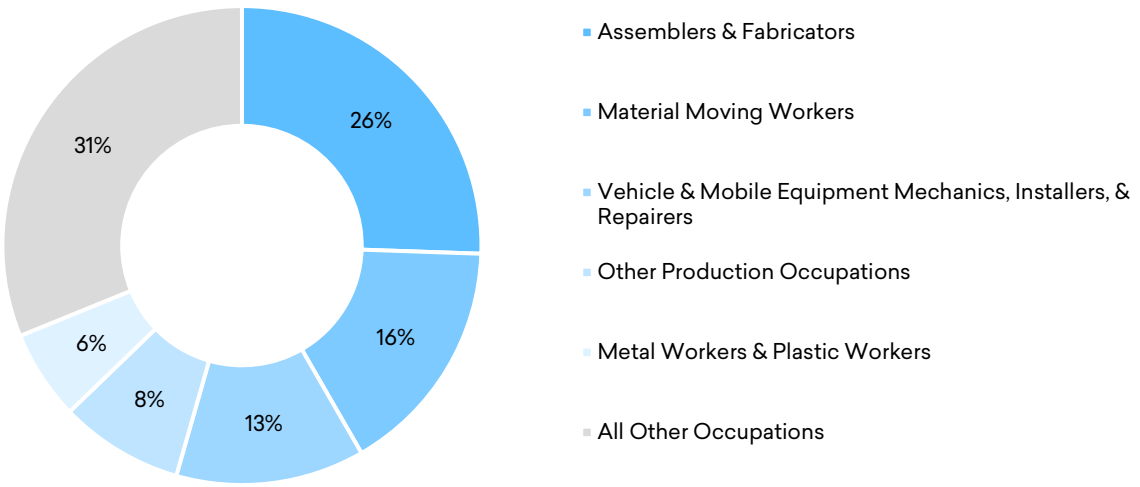
Source: Emsi Employees & Self-Employed 2019.4.

Table 7.11: Top 15 Occupational Groups by Net In-Commuters for Jobs in the Central WPR

SOC CODE	SOC TITLE	2019 NET IN-COMMUTERS	2019 RESIDENT WORKERS	2019 JOBS	2029 JOBS	JOB CHANGE
51-2000	Assemblers & Fabricators	1,325	27,245	28,570	26,017	(2,553)
53-7000	Material Moving Workers	837	34,752	35,589	40,417	4,828
49-3000	Vehicle & Mobile Equipment Mechanics, Installers, & Repairers	661	10,204	10,865	11,814	949
51-9000	Other Production Occupations	434	17,848	18,282	19,119	837
51-4000	Metal Workers & Plastic Workers	314	14,683	14,997	15,695	698
45-2000	Agricultural Workers	265	4,804	5,069	5,221	152
47-5000	Extraction Workers	165	620	785	821	36
25-9000	Other Education, Training, & Library Occupations	155	9,295	9,450	9,860	410
53-2000	Air Transportation Workers	125	1,835	1,960	1,048	(912)
11-9000	Other Management Occupations	117	17,866	17,983	18,491	508
51-6000	Textile, Apparel, & Furnishings Workers	85	3,061	3,146	3,195	49
47-3000	Helpers, Construction Trades	85	1,024	1,109	1,245	136
25-4000	Librarians, Curators, & Archivists	83	1,666	1,749	1,854	105
39-7000	Tour & Travel Guides	63	371	434	551	117
53-6000	Other Transportation Workers	61	1,933	1,994	2,191	197

Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.21: Top Five Occupational Groups by Net In-Commuters for Jobs in the Central WPR



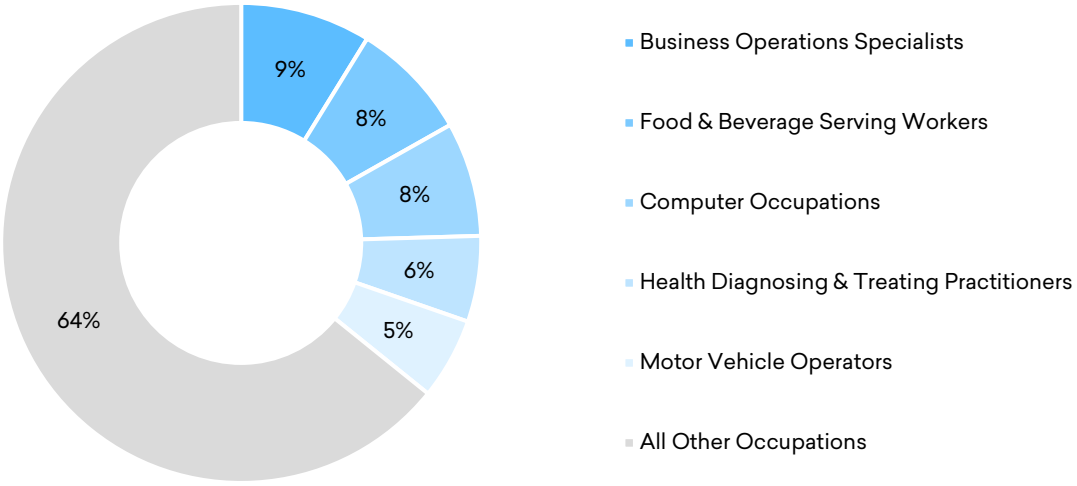
Source: Emsi Employees & Self-Employed 2019.4.

Table 7.12: Top 15 Occupational Groups by Net Out-Commuters for Jobs in the Central WPR

SOC CODE	SOC TITLE	2019 NET OUT-COMMUTERS	2019 RESIDENT WORKERS	2019 JOBS	2029 JOBS	JOB CHANGE
13-1000	Business Operations Specialists	(1,998)	20,621	18,623	20,386	1,763
35-3000	Food & Beverage Serving Workers	(1,823)	41,413	39,590	43,836	4,246
15-1100	Computer Occupations	(1,751)	13,533	11,782	12,821	1,039
29-1000	Health Diagnosing & Treating Practitioners	(1,315)	26,976	25,661	29,548	3,887
53-3000	Motor Vehicle Operators	(1,246)	21,878	20,632	23,416	2,784
43-9000	Other Office & Administrative Support Workers	(1,005)	20,095	19,090	19,309	219
43-3000	Financial Clerks	(894)	14,697	13,803	14,479	676
33-9000	Other Protective Service Workers	(775)	6,100	5,325	5,814	489
41-3000	Sales Representatives, Services	(676)	9,207	8,531	9,379	848
13-2000	Financial Specialists	(666)	12,997	12,331	13,121	790
35-9000	Other Food Preparation & Serving Related Workers	(663)	4,735	4,072	4,439	367
11-3000	Operations Specialties Managers	(642)	8,643	8,001	8,813	812
37-2000	Building Cleaning & Pest Control Workers	(540)	17,991	17,451	19,483	2,032
43-5000	Material Recording, Scheduling, Dispatching, & Distributing Workers	(503)	22,230	21,727	23,640	1,913

Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.22: Top Five Occupational Groups by Net Out-Commuters for Jobs in the Central WPR



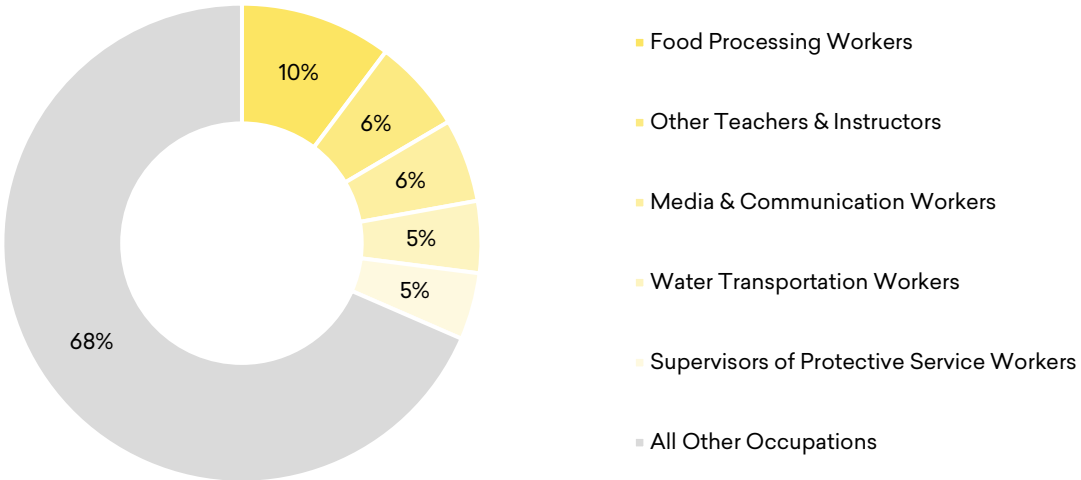
Source: Emsi Employees & Self-Employed 2019.4.

Table 7.13: Top 15 Occupational Groups by Net In-Commuters for Jobs in the East WPR

SOC CODE	SOC TITLE	2019 NET IN-COMMUTERS	2019 RESIDENT WORKERS	2019 JOBS	2029 JOBS	JOB CHANGE
51-3000	Food Processing Workers	186	1,289	1,475	1,482	7
25-3000	Other Teachers & Instructors	114	1,088	1,202	1,209	7
27-3000	Media & Communication Workers	102	359	461	488	27
53-5000	Water Transportation Workers	88	109	197	243	46
33-1000	Supervisors of Protective Service Workers	82	367	449	435	(14)
19-1000	Life Scientists	75	173	248	244	(4)
23-2000	Legal Support Workers	70	352	422	416	(6)
39-3000	Entertainment Attendants & Related Workers	67	265	332	373	41
27-4000	Media & Communication Equipment Workers	66	122	188	188	0
17-3000	Drafters, Engineering Technicians, & Mapping Technicians	66	702	768	736	(32)
39-4000	Funeral Service Workers	64	267	331	333	2
19-4000	Life, Physical, & Social Science Technicians	64	137	201	200	(1)
23-1000	Lawyers, Judges, & Related Workers	58	874	932	924	(8)
41-9000	Other Sales & Related Workers	54	704	758	770	12
53-6000	Other Transportation Workers	54	254	308	312	4

Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.23: Top Five Occupational Groups by Net In-Commuters for Jobs in the East WPR



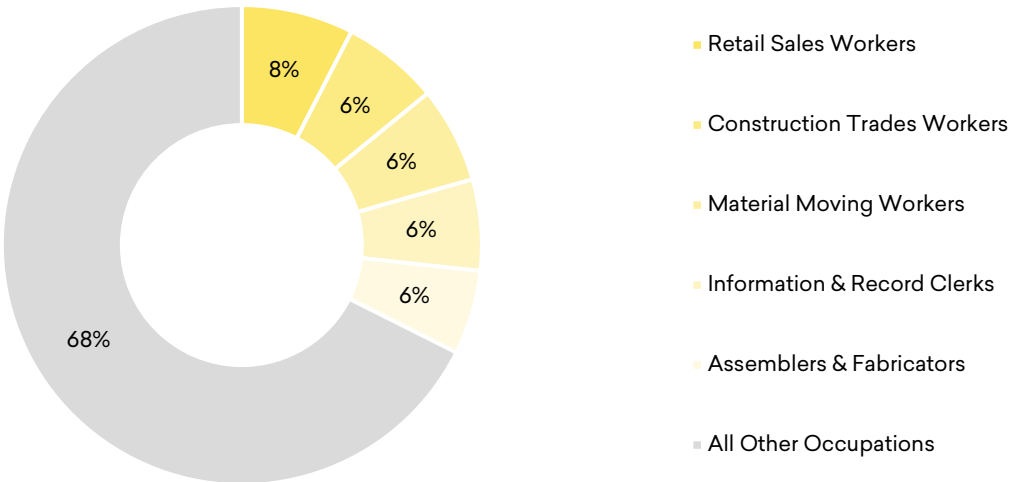
Source: Emsi Employees & Self-Employed 2019.4.

Table 7.14: Top 15 Occupational Groups by Net Out-Commuters for Jobs in the East WPR

SOC CODE	SOC TITLE	2019 NET OUT-COMMUTERS	2019 RESIDENT WORKERS	2019 JOBS	2029 JOBS	JOB CHANGE
41-2000	Retail Sales Workers	(1,788)	15,676	13,888	13,604	(284)
47-2000	Construction Trades Workers	(1,550)	9,636	8,086	8,052	(34)
53-7000	Material Moving Workers	(1,533)	7,617	6,084	6,082	(2)
43-4000	Information & Record Clerks	(1,455)	7,379	5,924	6,025	101
51-2000	Assemblers & Fabricators	(1,341)	3,949	2,608	2,531	(77)
43-9000	Other Office & Administrative Support Workers	(1,003)	5,269	4,266	4,135	(131)
53-3000	Motor Vehicle Operators	(979)	7,713	6,734	6,504	(230)
35-3000	Food & Beverage Serving Workers	(906)	11,455	10,549	11,118	569
43-5000	Material Recording, Scheduling, Dispatching, & Distributing Workers	(848)	5,756	4,908	4,726	(182)
55-9000	Military-only occupations	(819)	1,771	952	939	(13)
43-6000	Secretaries & Administrative Assistants	(730)	5,355	4,625	4,399	(226)
39-9000	Other Personal Care & Service Workers	(694)	6,349	5,655	6,827	1,172
29-1000	Health Diagnosing & Treating Practitioners	(666)	10,624	9,958	10,963	1,005
51-9000	Other Production Occupations	(650)	3,610	2,960	3,096	136
49-9000	Other Installation, Maintenance, & Repair Occupations	(645)	5,622	4,977	4,924	(53)

Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.24: Top Five Occupational Groups by Net Out-Commuters for Jobs in the East WPR



Source: Emsi Employees & Self-Employed 2019.4.

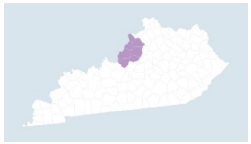
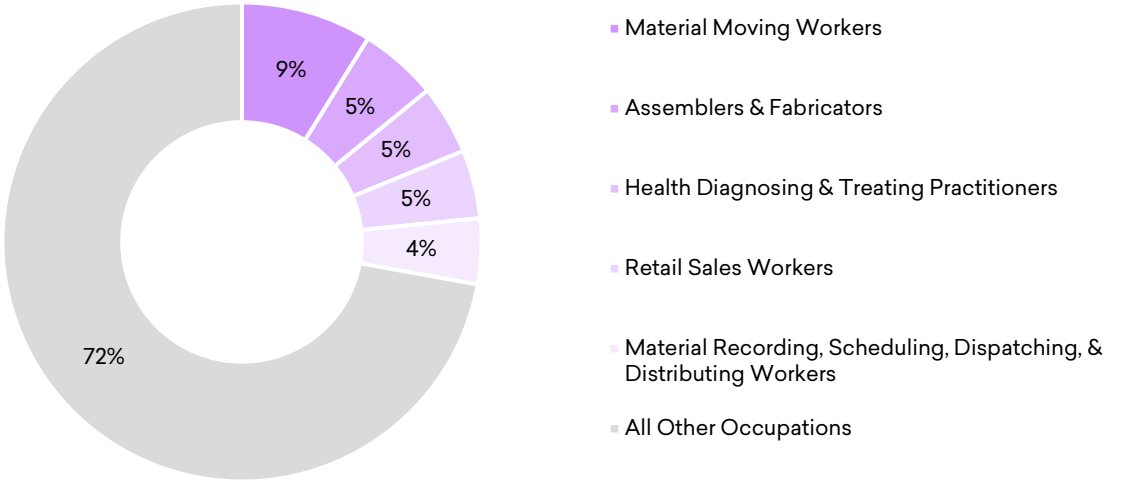


Table 7.15: Top 15 Occupational Groups by Net In-Commuters for Jobs in the Kentuckiana LWA

SOC CODE	SOC TITLE	2019 NET IN-COMMUTERS	2019 RESIDENT WORKERS	2019 JOBS	2029 JOBS	JOB CHANGE
53-7000	Material Moving Workers	5,611	27,601	33,212	35,418	2,206
51-2000	Assemblers & Fabricators	3,343	14,964	18,307	18,462	155
29-1000	Health Diagnosing & Treating Practitioners	2,978	19,988	22,966	25,575	2,609
41-2000	Retail Sales Workers	2,940	26,146	29,086	29,458	372
43-5000	Material Recording, Scheduling, Dispatching, & Distributing Workers	2,813	15,607	18,420	19,039	619
35-3000	Food & Beverage Serving Workers	2,789	24,697	27,486	29,481	1,995
43-4000	Information & Record Clerks	2,772	23,227	25,999	26,945	946
13-1000	Business Operations Specialists	2,493	16,325	18,818	20,504	1,686
47-2000	Construction Trades Workers	2,118	15,354	17,472	18,191	719
15-1100	Computer Occupations	1,997	12,679	14,676	16,692	2,016
53-3000	Motor Vehicle Operators	1,901	17,572	19,473	20,795	1,322
49-9000	Other Installation, Maintenance, & Repair Occupations	1,578	11,584	13,162	13,986	824
43-9000	Other Office & Administrative Support Workers	1,509	14,639	16,148	16,312	164
11-1000	Top Executives	1,493	9,630	11,123	11,753	630
51-9000	Other Production Occupations	1,443	10,883	12,326	12,141	(185)

Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.25: Top Five Occupational Groups by Net In-Commuters for Jobs in the Kentuckiana LWA



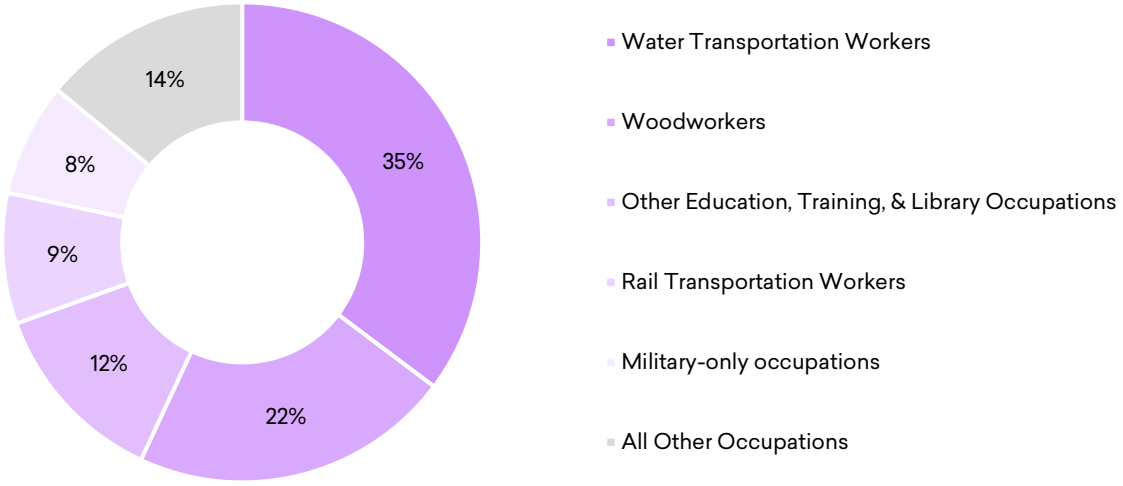
Source: Emsi Employees & Self-Employed 2019.4.

Table 7.16: Top 15 Occupational Groups by Net Out-Commuters for Jobs in the Kentuckiana LWA

SOC CODE	SOC TITLE	2019 NET OUT-COMMUTERS	2019 RESIDENT WORKERS	2019 JOBS	2029 JOBS	JOB CHANGE
53-5000	Water Transportation Workers	(244)	619	375	369	(6)
51-7000	Woodworkers	(150)	529	379	412	33
25-9000	Other Education, Training, & Library Occupations	(87)	3,858	3,771	4,020	249
53-4000	Rail Transportation Workers	(61)	361	300	292	(8)
55-9000	Military-only occupations	(53)	1,745	1,692	1,822	130
39-4000	Funeral Service Workers	(30)	201	171	196	25
39-7000	Tour & Travel Guides	(22)	99	77	93	16
29-9000	Other Healthcare Practitioners & Technical Occupations	(21)	459	438	496	58
25-4000	Librarians, Curators, & Archivists	(20)	463	443	478	35
43-2000	Communications Equipment Operators	(4)	302	298	270	(28)

Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.26: Top Five Occupational Groups by Net Out-Commuters for Jobs in the Kentuckiana LWA



Source: Emsi Employees & Self-Employed 2019.4.

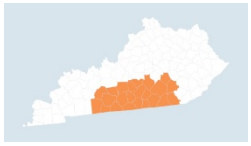
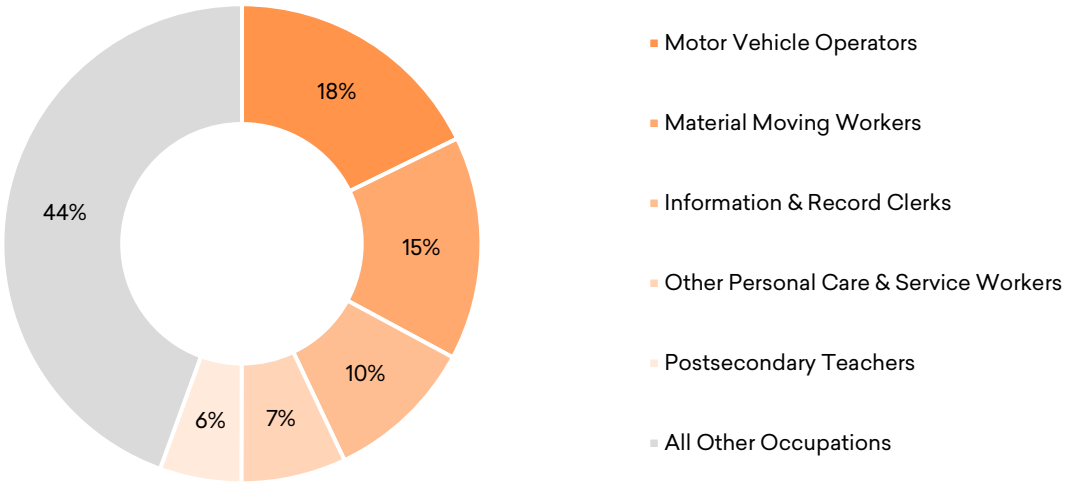


Table 7.17: Top 15 Occupational Groups by Net In-Commuters for Jobs in the South WPR

SOC CODE	SOC TITLE	2019 NET IN-COMMUTERS	2019 RESIDENT WORKERS	2019 JOBS	2029 JOBS	JOB CHANGE
53-3000	Motor Vehicle Operators	454	9,666	10,120	10,863	743
53-7000	Material Moving Workers	386	12,550	12,936	13,363	427
43-4000	Information & Record Clerks	258	10,052	10,310	12,176	1,866
39-9000	Other Personal Care & Service Workers	181	7,653	7,834	9,568	1,734
25-1000	Postsecondary Teachers	141	2,266	2,407	2,494	87
53-1000	Supervisors of Transportation & Material Moving Workers	139	1,109	1,248	1,271	23
53-6000	Other Transportation Workers	105	545	650	739	89
45-2000	Agricultural Workers	93	1,604	1,697	1,880	183
49-3000	Vehicle & Mobile Equipment Mechanics, Installers, & Repairers	85	3,614	3,699	4,111	412
27-3000	Media & Communication Workers	62	633	695	737	42
43-3000	Financial Clerks	59	5,148	5,207	5,599	392
27-4000	Media & Communication Equipment Workers	47	221	268	289	21
43-2000	Communications Equipment Operators	43	241	284	292	8
47-5000	Extraction Workers	38	202	240	231	(9)
23-2000	Legal Support Workers	38	321	359	403	44

Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.27: Top Five Occupational Groups by Net In-Commuters for Jobs in the South WPR



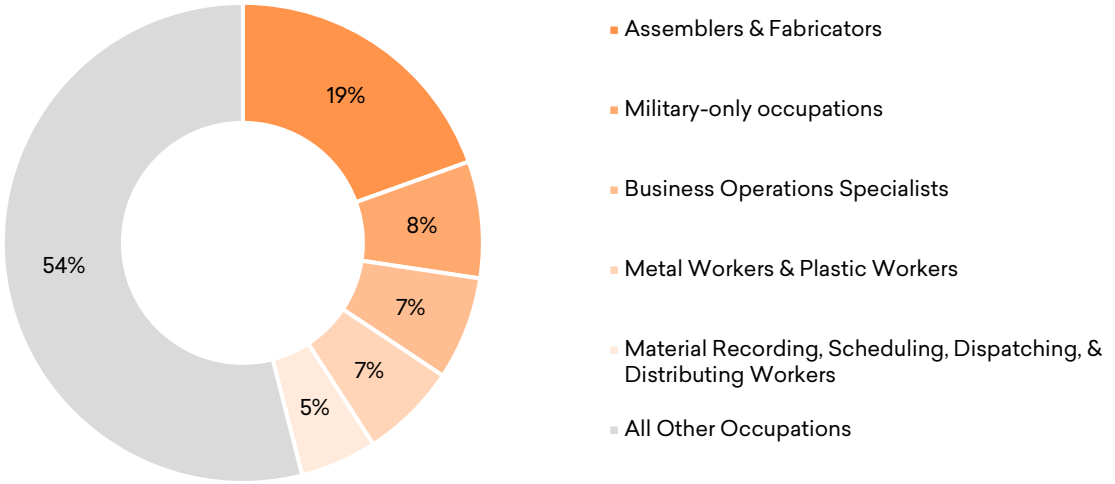
Source: Emsi Employees & Self-Employed 2019.4.

Table 7.18: Top 15 Occupational Groups by Net Out-Commuters for Jobs in the South WPR

SOC CODE	SOC TITLE	2019 NET OUT-COMMUTERS	2019 RESIDENT WORKERS	2019 JOBS	2029 JOBS	JOB CHANGE
51-2000	Assemblers & Fabricators	(1,227)	8,537	7,310	7,106	(204)
55-9000	Military-only occupations	(495)	1,460	965	1,029	64
13-1000	Business Operations Specialists	(438)	4,247	3,809	4,480	671
51-4000	Metal Workers & Plastic Workers	(410)	7,727	7,317	8,138	821
43-5000	Material Recording, Scheduling, Dispatching, & Distributing Workers	(325)	7,226	6,901	7,202	301
35-3000	Food & Beverage Serving Workers	(266)	12,989	12,723	14,196	1,473
41-4000	Sales Representatives, Wholesale & Manufacturing	(206)	1,973	1,767	2,062	295
43-6000	Secretaries & Administrative Assistants	(189)	5,001	4,812	4,864	52
11-1000	Top Executives	(183)	3,888	3,705	4,152	447
11-3000	Operations Specialties Managers	(164)	2,079	1,915	2,211	296
25-2000	Preschool, Primary, Secondary, & Special Education School Teachers	(154)	7,869	7,715	7,917	202
15-1100	Computer Occupations	(154)	2,413	2,259	2,661	402
51-1000	Supervisors of Production Workers	(136)	2,050	1,914	2,112	198
33-3000	Law Enforcement Workers	(135)	2,149	2,014	2,005	(9)
17-2000	Engineers	(125)	1,805	1,680	1,969	289

Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.28: Top Five Occupational Groups by Net Out-Commuters for Jobs in the South WPR



Source: Emsi Employees & Self-Employed 2019.4.

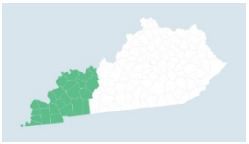
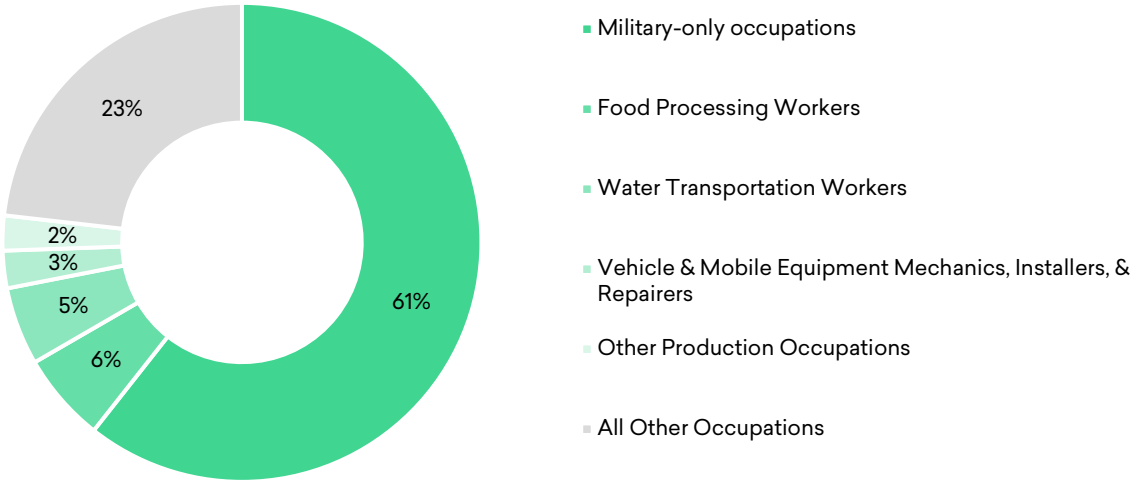


Table 7.19: Top 15 Occupational Groups by Net In-Commuters for Jobs in the West WPR

SOC CODE	SOC TITLE	2019 NET IN-COMMUTERS	2019 RESIDENT WORKERS	2019 JOBS	2029 JOBS	JOB CHANGE
55-9000	Military-only occupations	2,543	12,109	14,652	14,773	121
51-3000	Food Processing Workers	253	3,218	3,471	3,700	229
53-5000	Water Transportation Workers	221	2,067	2,288	2,915	627
49-3000	Vehicle & Mobile Equipment Mechanics, Installers, & Repairers	106	5,289	5,395	5,452	57
51-9000	Other Production Occupations	99	8,296	8,395	8,599	204
53-2000	Air Transportation Workers	95	1,171	1,266	1,254	(12)
33-3000	Law Enforcement Workers	91	3,343	3,434	3,233	(201)
53-3000	Motor Vehicle Operators	89	9,213	9,302	9,776	474
41-9000	Other Sales & Related Workers	87	999	1,086	1,136	50
43-3000	Financial Clerks	84	6,044	6,128	6,275	147
25-3000	Other Teachers & Instructors	44	1,693	1,737	1,817	80
47-3000	Helpers, Construction Trades	44	290	334	339	5
51-7000	Woodworkers	44	831	875	889	14
45-2000	Agricultural Workers	43	2,528	2,571	2,905	334
19-1000	Life Scientists	41	246	287	307	20

Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.29: Top Five Occupational Groups by Net In-Commuters for Jobs in the West WPR



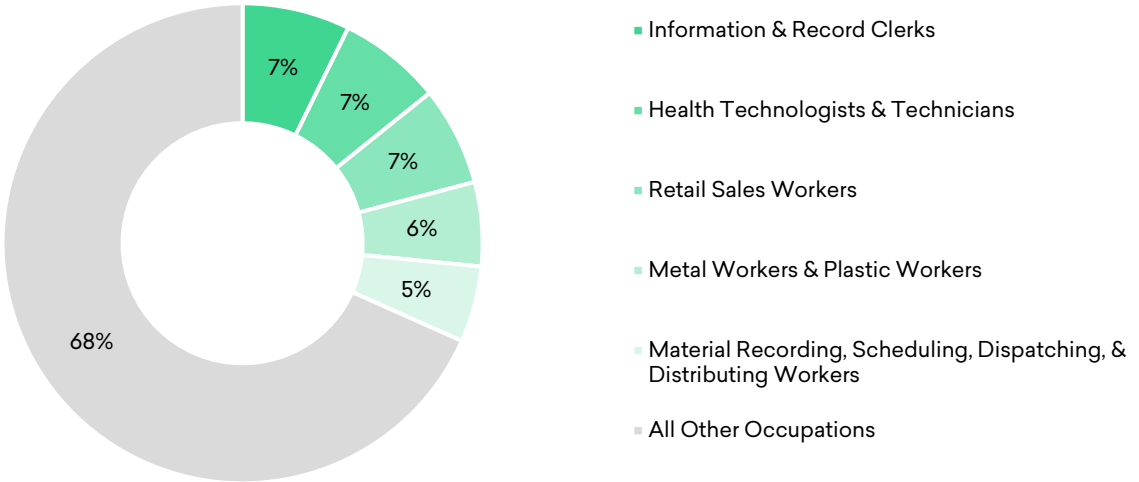
Source: Emsi Employees & Self-Employed 2019.4.

Table 7.20: Top 15 Occupational Groups by Net Out-Commuters for Jobs in Kentucky's West WPR

SOC CODE	SOC TITLE	2019 NET OUT-COMMUTERS	2019 RESIDENT WORKERS	2019 JOBS	2029 JOBS	JOB CHANGE
43-4000	Information & Record Clerks	(556)	8,897	8,341	8,877	536
29-2000	Health Technologists & Technicians	(534)	6,175	5,641	6,008	367
41-2000	Retail Sales Workers	(510)	16,887	16,377	16,705	328
51-4000	Metal Workers & Plastic Workers	(434)	6,527	6,093	6,367	274
43-5000	Material Recording, Scheduling, Dispatching, & Distributing Workers	(392)	7,454	7,062	7,245	183
29-1000	Health Diagnosing & Treating Practitioners	(343)	11,476	11,133	11,755	622
35-3000	Food & Beverage Serving Workers	(331)	14,854	14,523	15,114	591
51-2000	Assemblers & Fabricators	(310)	6,802	6,492	6,193	(299)
41-3000	Sales Representatives, Services	(309)	2,290	1,981	2,273	292
11-1000	Top Executives	(261)	4,541	4,280	4,606	326
35-2000	Cooks & Food Preparation Workers	(248)	6,085	5,837	5,840	3
43-6000	Secretaries & Administrative Assistants	(231)	5,496	5,265	5,079	(186)
31-1000	Nursing, Psychiatric, & Home Health Aides	(225)	4,331	4,106	4,128	22
15-1100	Computer Occupations	(207)	2,754	2,547	3,007	460
13-1000	Business Operations Specialists	(206)	5,731	5,525	5,997	472

Source: Emsi Employees & Self-Employed 2019.4.

Figure 7.30: Top Five Occupational Groups by Net Out-Commuters for Jobs in Kentucky's West WPR



Source: Emsi Employees & Self-Employed 2019.4.

UNEMPLOYMENT

Unemployment data identify areas in which skills may not match with the state's current employment opportunities or where colleges and universities could provide appropriate training programs best suited to transitioning unemployed workers into in-demand occupations. The tables and figures in this section present total monthly unemployment in Kentucky as the number of people unemployed by two-digit industry sectors and by two-digit occupational groups.[15]

Emsi industry- and occupation-specific unemployment estimates are derived from several federal sources. They are Characteristics of the Insured Unemployed (CIU) at the Department of Labor, Employment, & Training Administration; Local Area Unemployment Statistics (LAUS) from the Bureau of Labor Statistics (BLS); and the Current Population Survey (CPS) at the Census. Emsi final industry and occupation data, as well as state-specific data, are also used. The numbers and percentages reflect monthly estimates (July 2019) and follow the same methodology as federal statistical agencies. The unemployment rate is not provided because it is difficult to accurately determine the size of the labor force in an industry or occupation every month. In this section, rather than the unemployment rate, the percent of all unemployed workers in Kentucky and U.S. are provided.

Table 7.21: Monthly Unemployed Workers by Industry Sector in Kentucky with National Comparison

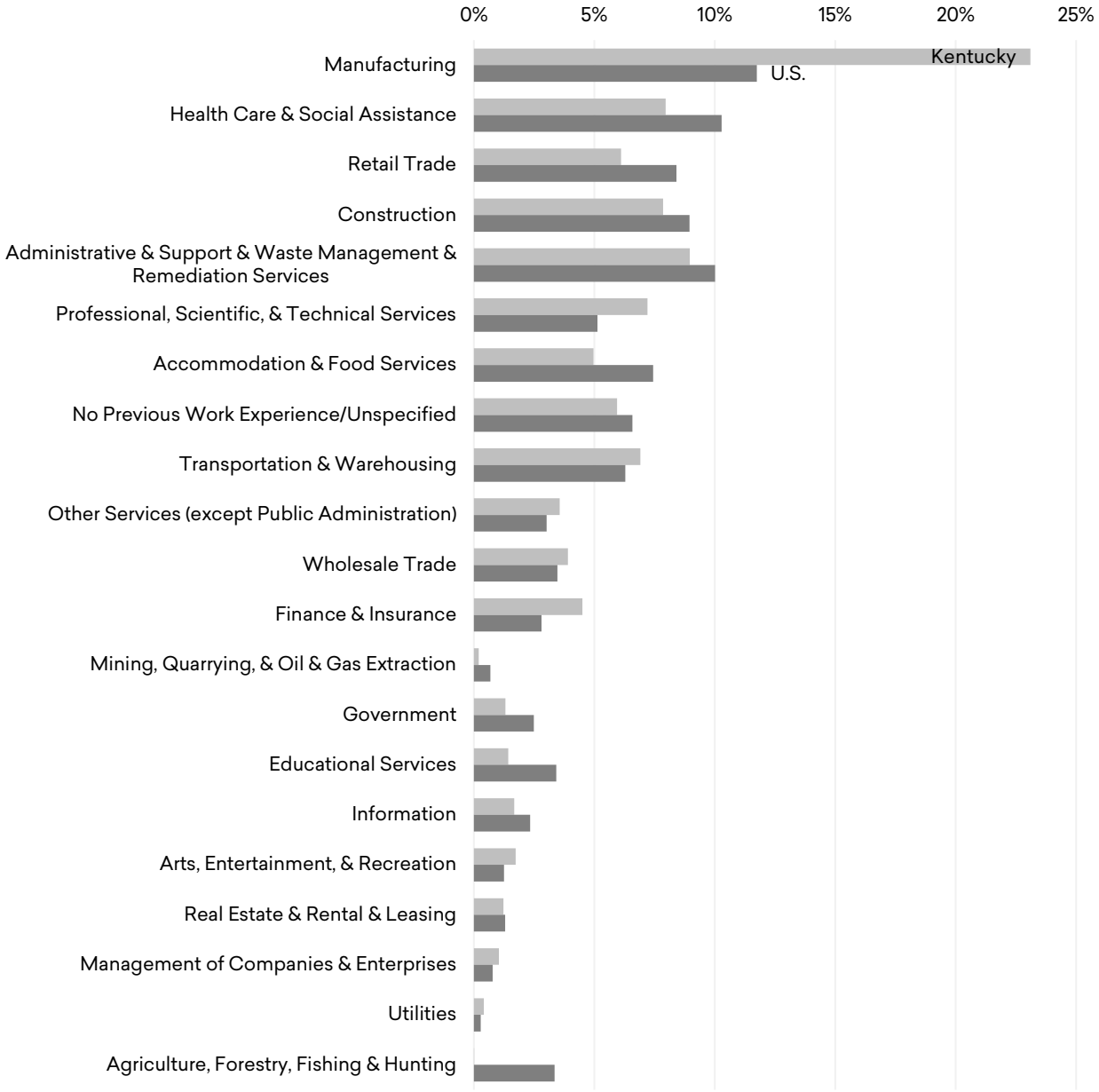
NAICS CODE	NAICS TITLE	KY UNEMPLOYED	KY % UNEMPLOYED	U.S. % UNEMPLOYED
31	Manufacturing	28,997	23.1%	11.7%
62	Health Care & Social Assistance	10,131	8.0%	10.3%
44	Retail Trade	8,376	6.1%	8.4%
23	Construction	8,055	7.9%	9.0%
56	Administrative & Support & Waste Management & Remediation Services	7,702	9.0%	10.0%
54	Professional, Scientific, & Technical Services	5,821	7.2%	5.1%
72	Accommodation & Food Services	5,797	5.0%	7.4%
99	No Previous Work Experience/Unspecified	5,231	5.9%	6.6%
48	Transportation & Warehousing	4,404	6.9%	6.3%

15 Industry data reported elsewhere in the analysis are at the three-digit NAICS code level, referred to as industry subsectors. Occupation data reported elsewhere are also at a more detailed level, simply referred to as occupations at the six-digit SOC code level.

NAICS CODE	NAICS TITLE	KY UNEMPLOYED	KY % UNEMPLOYED	U.S. % UNEMPLOYED
81	Other Services (except Public Administration)	3,385	3.6%	3.0%
42	Wholesale Trade	3,358	3.9%	3.5%
52	Finance & Insurance	2,978	4.5%	2.8%
21	Mining, Quarrying, & Oil & Gas Extraction	2,618	0.2%	0.7%
90	Government	2,413	1.3%	2.5%
61	Educational Services	1,880	1.4%	3.4%
51	Information	1,494	1.7%	2.3%
71	Arts, Entertainment, & Recreation	1,422	1.7%	1.3%
53	Real Estate & Rental & Leasing	1,090	1.2%	1.3%
55	Management of Companies & Enterprises	746	1.0%	0.8%
22	Utilities	545	0.4%	0.3%
11	Agriculture, Forestry, Fishing & Hunting	61	<0.1%	3.4%

Source: Emsi Total Unemployment (July 2019).

Figure 7.31: Monthly Unemployed Workers by Industry Sector in Kentucky with National Comparison



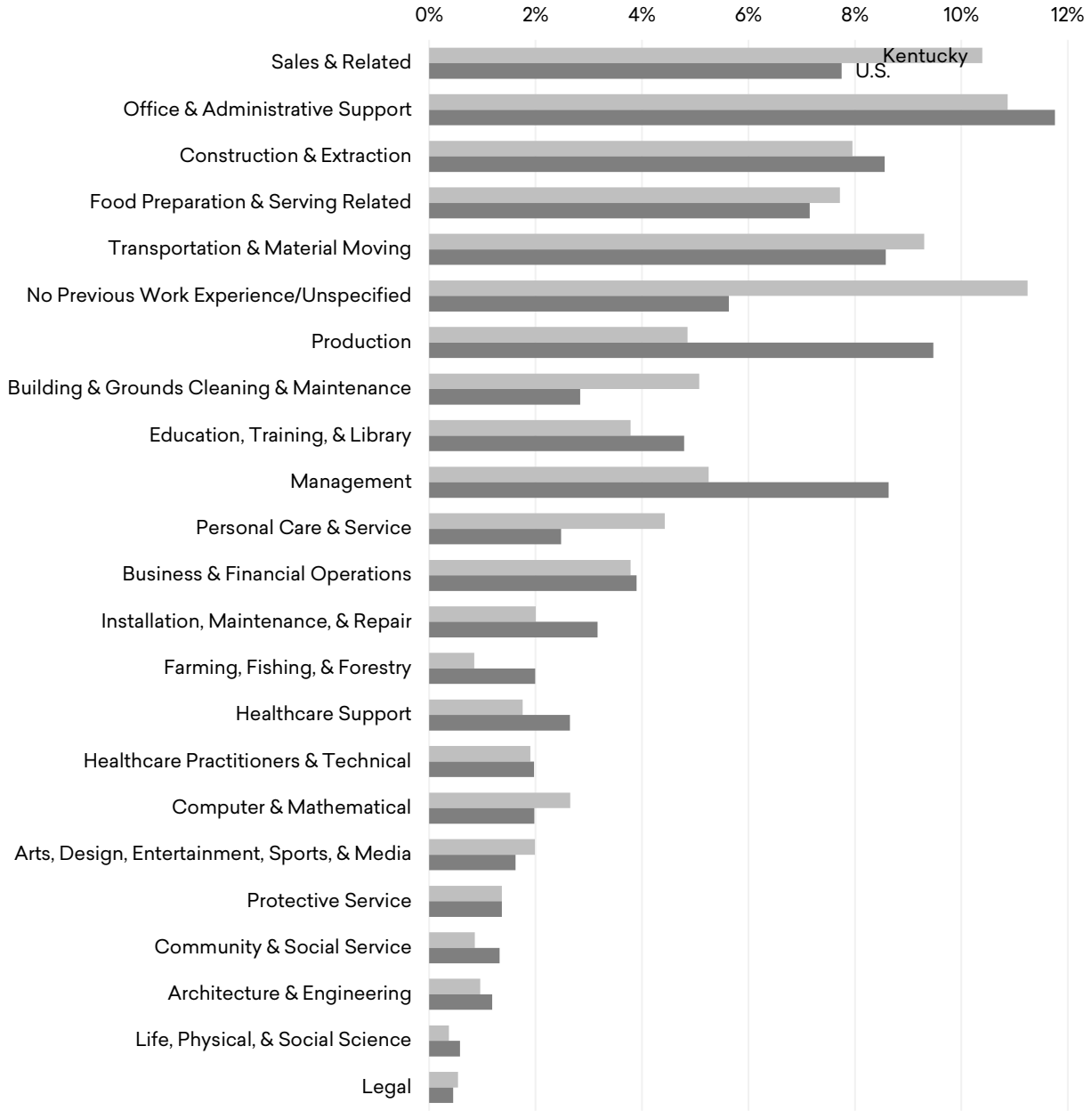
Source: Emsi Total Unemployment (July 2019).

Table 7.22: Monthly Unemployed Workers by Occupational Group in Kentucky with National Comparison

SOC CODE	SOC TITLE	KY UNEMPLOYED	KY % UNEMPLOYED	U.S. % UNEMPLOYED
41-0000	Sales & Related	11,360	10.4%	7.7%
43-0000	Office & Administrative Support	11,134	10.9%	11.8%
47-0000	Construction & Extraction	9,608	8.0%	8.6%
35-0000	Food Preparation & Serving Related	9,076	7.7%	7.1%
53-0000	Transportation & Material Moving	8,574	9.3%	8.6%
99-0000	No Previous Work Experience/Unspecified	8,412	11.2%	5.6%
51-0000	Production	6,244	4.9%	9.5%
37-0000	Building & Grounds Cleaning & Maintenance	5,901	5.1%	2.8%
25-0000	Education, Training, & Library	5,580	3.8%	4.8%
11-0000	Management	5,458	5.3%	8.6%
39-0000	Personal Care & Service	4,591	4.4%	2.5%
13-0000	Business & Financial Operations	3,075	3.8%	3.9%
49-0000	Installation, Maintenance, & Repair	2,349	2.0%	3.2%
45-0000	Farming, Fishing, & Forestry	2,336	0.9%	2.0%
31-0000	Healthcare Support	2,266	1.8%	2.6%
29-0000	Healthcare Practitioners & Technical	2,263	1.9%	2.0%
15-0000	Computer & Mathematical	1,690	2.7%	2.0%
27-0000	Arts, Design, Entertainment, Sports, & Media	1,683	2.0%	1.6%
33-0000	Protective Service	1,573	1.4%	1.4%
21-0000	Community & Social Service	1,129	0.9%	1.3%
17-0000	Architecture & Engineering	934	1.0%	1.2%
19-0000	Life, Physical, & Social Science	516	0.4%	0.6%
23-0000	Legal	515	0.5%	0.5%

Source: Emsi Total Unemployment (July 2019).

Figure 7.32: Unemployed Workers by Occupational Group in Kentucky with National Comparison



Source: Emsi Total Unemployment (July 2019).

POPULATION DEMOGRAPHICS

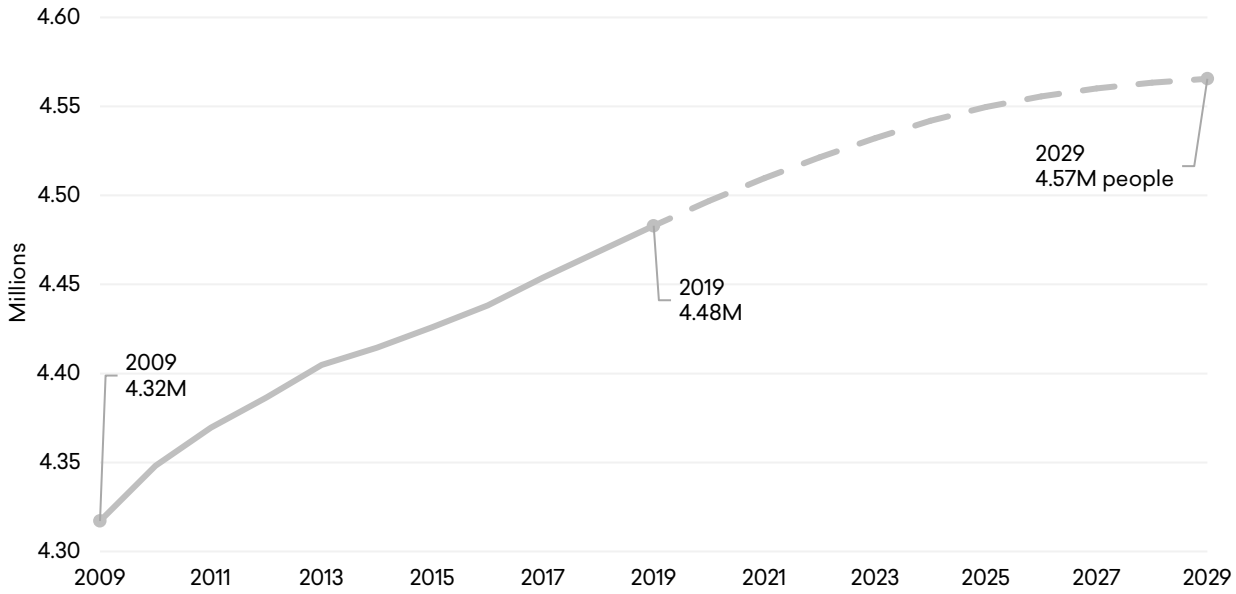
Population demographics can also be used to anticipate the future demands of a regional labor market. For example, it is important to know if employers are adding new jobs because they need more workers or if there is a significant need for workers to fill vacancies left by

retirees and those changing careers. Emsi's job openings reflect both job growth and replacement needs.

In this section, population data for the regions, state, and U.S. are shown, as well as race/ethnicity data for people 25 years and above living in Kentucky. The data are based on Emsi's demographic data and publicly available sources from state and federal agencies, including annual population estimates and population projections from the U.S. Census Bureau and birth and mortality rates from the U.S. Health Department. Demographic information relies on the annual results of the American Community Survey.

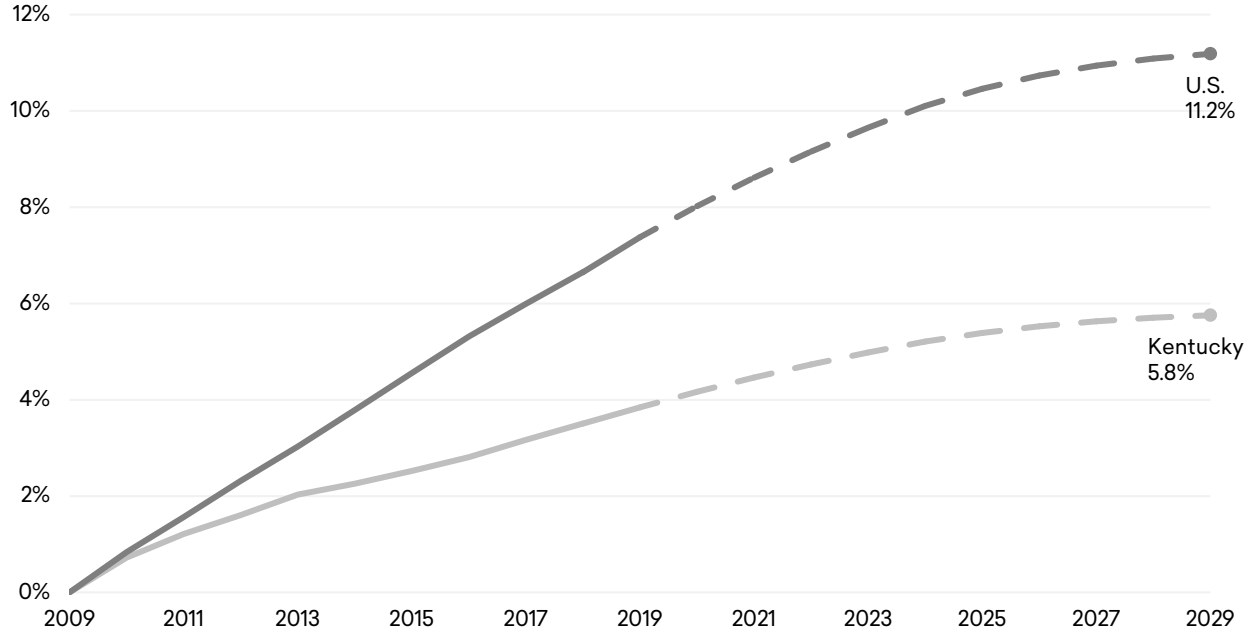
Historical and projected changes in the state population are presented in the following figures. In 2009, 4.3 million people lived in Kentucky, and 4.6 million people are projected to live in the state by 2029 (Figure 7.33). Using 2009 as the base year, this reflects a 5.8% growth rate (Figure 7.34). The U.S. population is projected to increase by 11.2% over the same 20-year period. Figure 7.35 shows the year-over-year changes in population, by percent, for the state and U.S., with projected growth rates for each of 0.3% and 0.6% from 2019 to 2020, respectively. Figures 7.36 through 7.38 display similar information, but for the Kentucky's WPRs and the Kentuckiana LWA.

Figure 7.33: Historical and Projected Population (millions) in Kentucky, 2009 to 2029



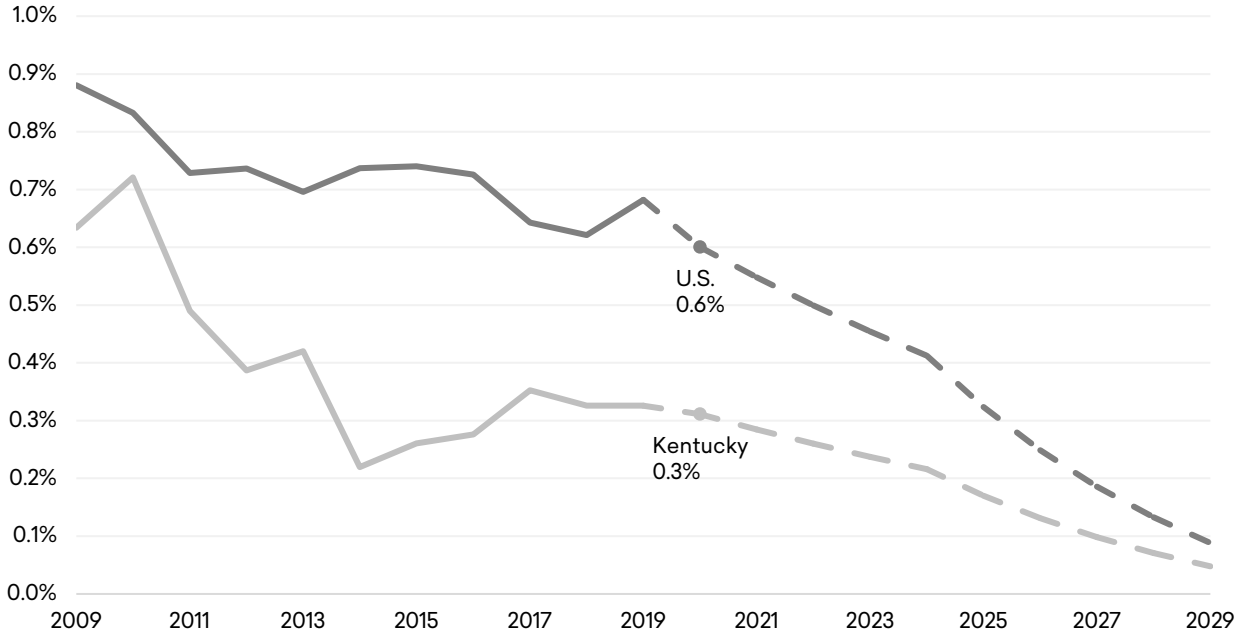
Source: Emsi demographics data, U.S. Census Bureau, U.S. Health Department.

Figure 7.34: Percent Population Change in Kentucky and the U.S., 2009 to 2029



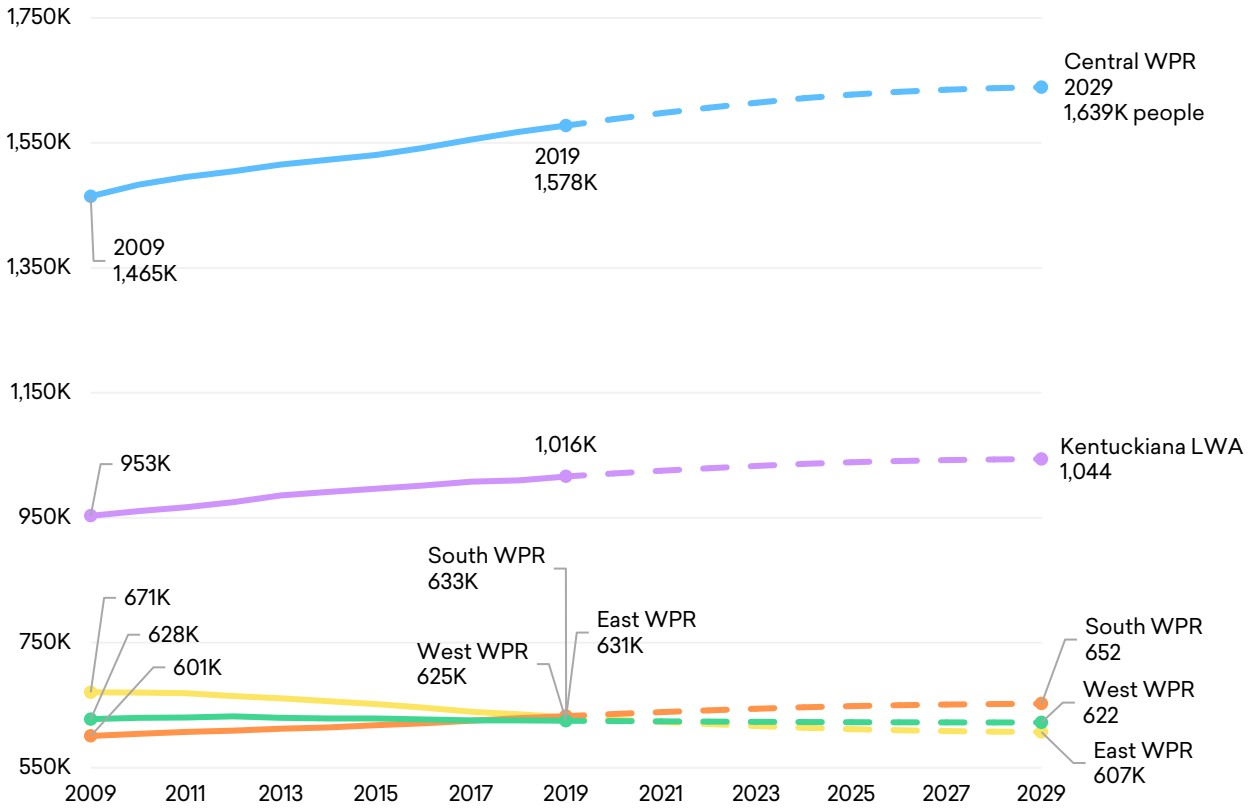
Source: Emsi demographics data, U.S. Census Bureau, U.S. Health Department.

Figure 7.35: Annual Percent Population Change in Kentucky and the U.S., 2009 to 2029



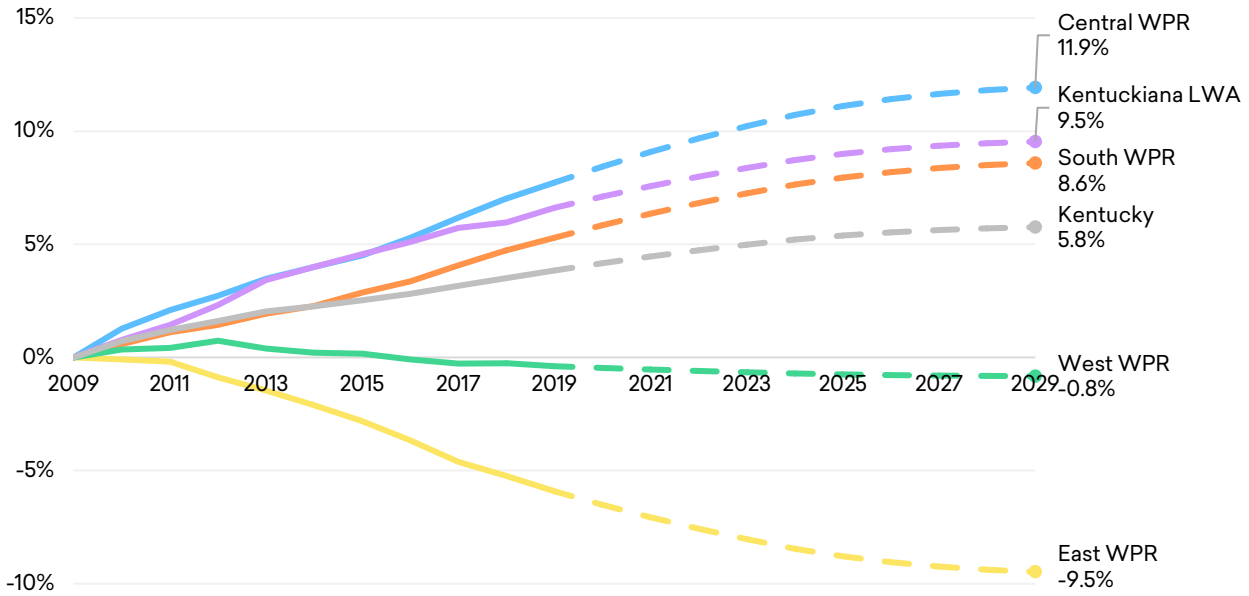
Source: Emsi demographics data, U.S. Census Bureau, U.S. Health Department.

Figure 7.36: Historical and Projected Population (millions) in Kentucky's WPRs and the Kentuckiana LWA, 2009 to 2029



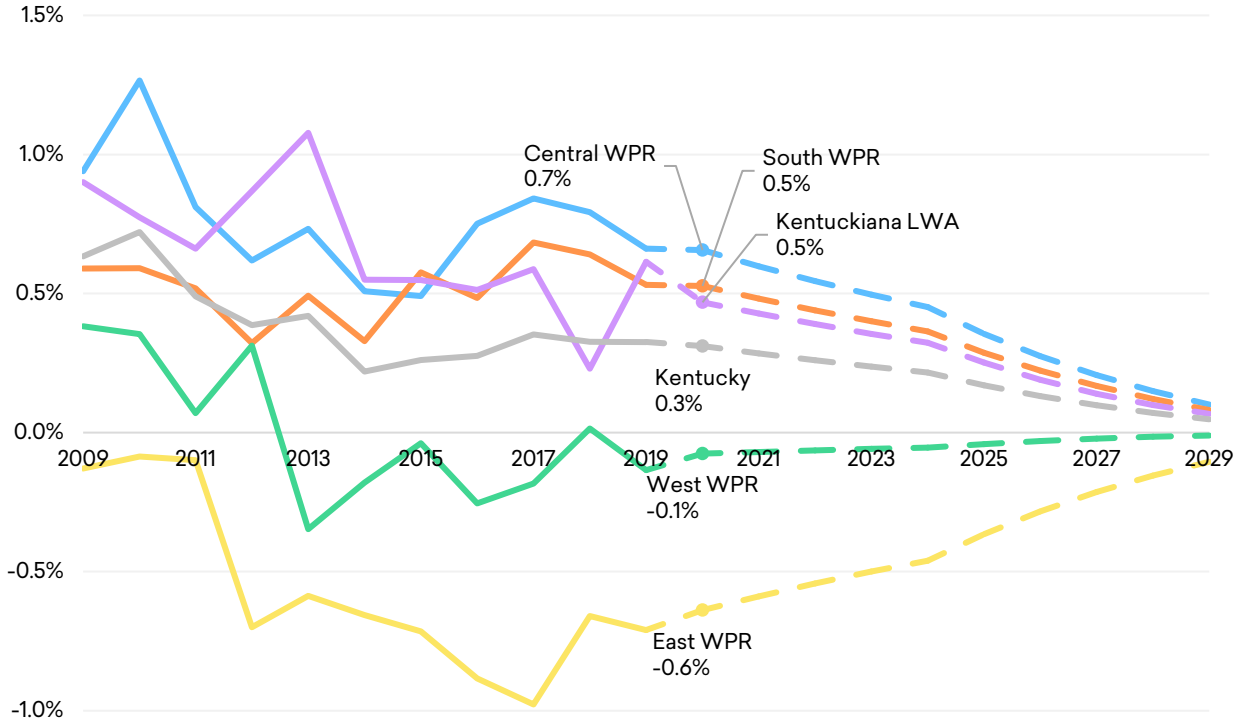
Source: Emsi demographics data, U.S. Census Bureau, U.S. Health Department.

Figure 7.37: Percent Population Change in Kentucky's WPRs and the Kentuckiana LWA, 2009 to 2029



Source: Emsi demographics data, U.S. Census Bureau, U.S. Health Department.

Figure 7.38: Annual Percent Population Change in Kentucky's WPRs and the Kentuckiana LWA, 2009 to 2029



Source: Emsi demographics data, U.S. Census Bureau, U.S. Health Department.

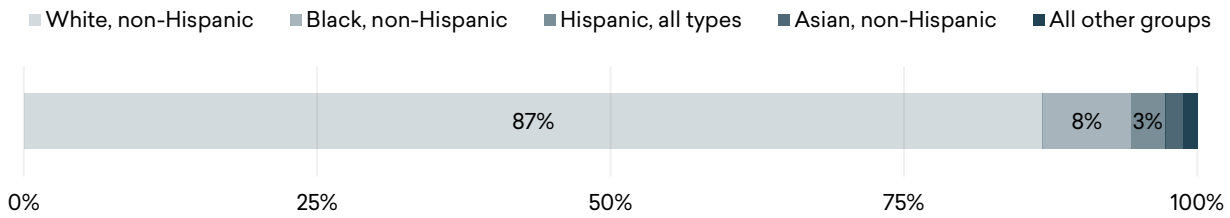
Table 7.23 and Figure 7.39 present additional data on the state's population, emphasizing people 25 years and above, referred to as adults, by the Census' seven major race and ethnic groups. As shown in the table, 3.1 million adults lived in Kentucky in 2019. About 87% of the region's adults were White, non-Hispanic. Eight percent were Black, non-Hispanic; three percent were Hispanic, all types; and two percent of the region's adults were Asian, non-Hispanic, the next largest groups.

Table 7.23: Adults in Kentucky by Major Race and Ethnic Group

GROUP	ADULTS	% ADULTS
White, non-Hispanic	2,653,667	86.8%
Black, non-Hispanic	230,592	7.5%
Hispanic, all types	88,456	2.9%
Asian, non-Hispanic	46,854	1.5%
Two or more races, non-Hispanic	28,691	0.9%
American Indian or Alaskan Native, non-Hispanic	7,053	0.2%
Native Hawaiian or Pacific Islander, non-Hispanic	1,718	0.1%
Total	**3,057,032**	**100.0%**

Source: Emsi demographics data, U.S. Census Bureau, American Community Survey.

Figure 7.39: Adults in Kentucky by Major Race and Ethnic Group



Source: Emsi demographics data, U.S. Census Bureau, American Community Survey.

EDUCATIONAL ATTAINMENT

Educational attainment data are useful for targeting specific population groups with less than or greater than average education levels. The population and educational attainment numbers in this section are based on Emsi's demographic data and publicly available sources from state and federal agencies. Sources include annual population estimates and population projections from the U.S. Census Bureau and birth and mortality rates from the U.S. Health Department. In addition, demographic information relies on the annual results of the American Community Survey. Educational attainment data cover the population in

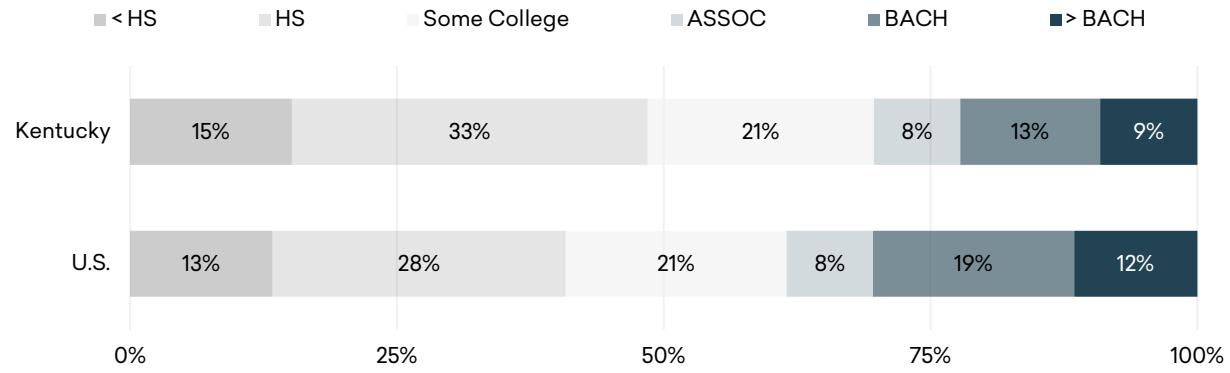
Kentucky 25 years and above, referred to as adults, and indicate the highest award level achieved.

Demographic information is presented by gender and the major race and ethnic groups, and educational attainment data are broken out according to the following award categories:

- Less than a high school diploma (<HS);
- High school diploma or equivalent (HS);
- Some college;[16]
- Associate degree (Assoc);
- Bachelor's degree (Bach);
- Greater than a bachelor's degree (>Bach).

Figure 7.40 displays the highest educational attainments of Kentucky's adults, without reference to gender and the major race and ethnic groups. National data is also presented for context. In the state, 48% of adults have a high school diploma or less, which is more than the national average (41%). Out of all the award categories in the figure, the people who are most likely to seek education and training from postsecondary institutions are those in the "Less than High School Diploma," "High School Diploma," and "Some College" categories. Together, these categories total 69% of the state's adults.

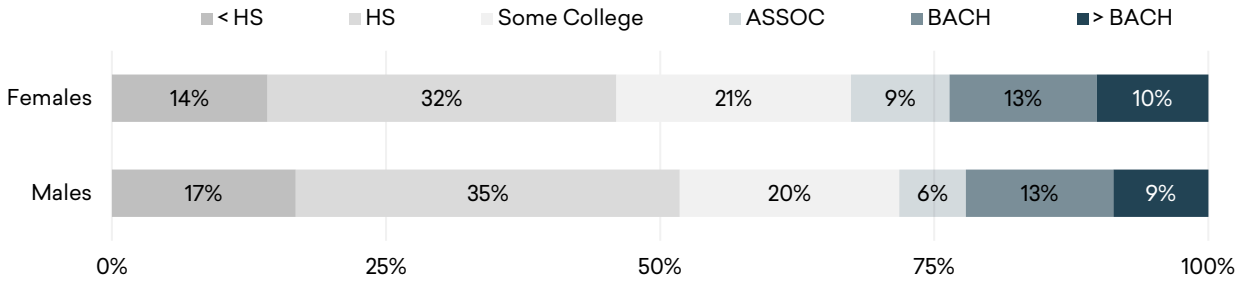
Figure 7.40: Highest Educational Attainments of Adults in Kentucky and the U.S.



Numbers may not sum due to rounding.
Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

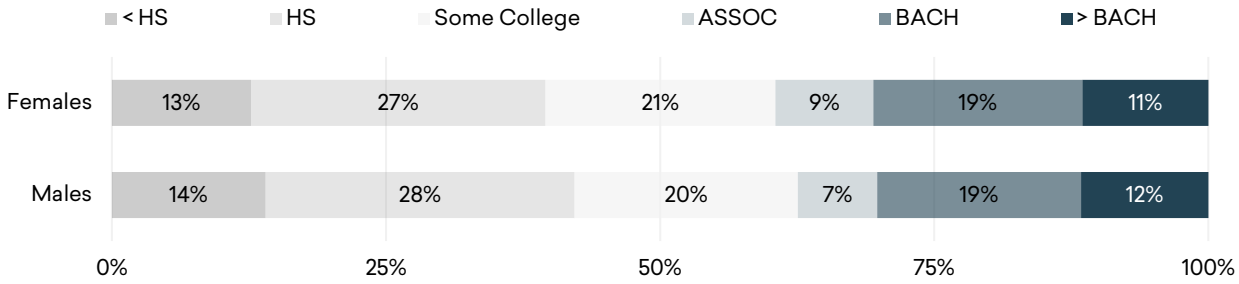
16 The "Some College" category includes individuals who attended college but did not successfully obtain a degree and individuals who have received a postsecondary vocational award or professional certification but did not receive an associate or bachelor's degree. Based on data limitations, it can be considered a proxy for those who have achieved a certificate. While some entities do estimate certificate attainment, such as the Lumina Foundation, we have not included it separately so as to be consistent amongst Emsi data sources.

Figure 7.41: Highest Educational Attainments of Adults in Kentucky by Gender



Numbers may not sum due to rounding.
Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

Figure 7.42: Highest Educational Attainments of Adults in the U.S. by Gender

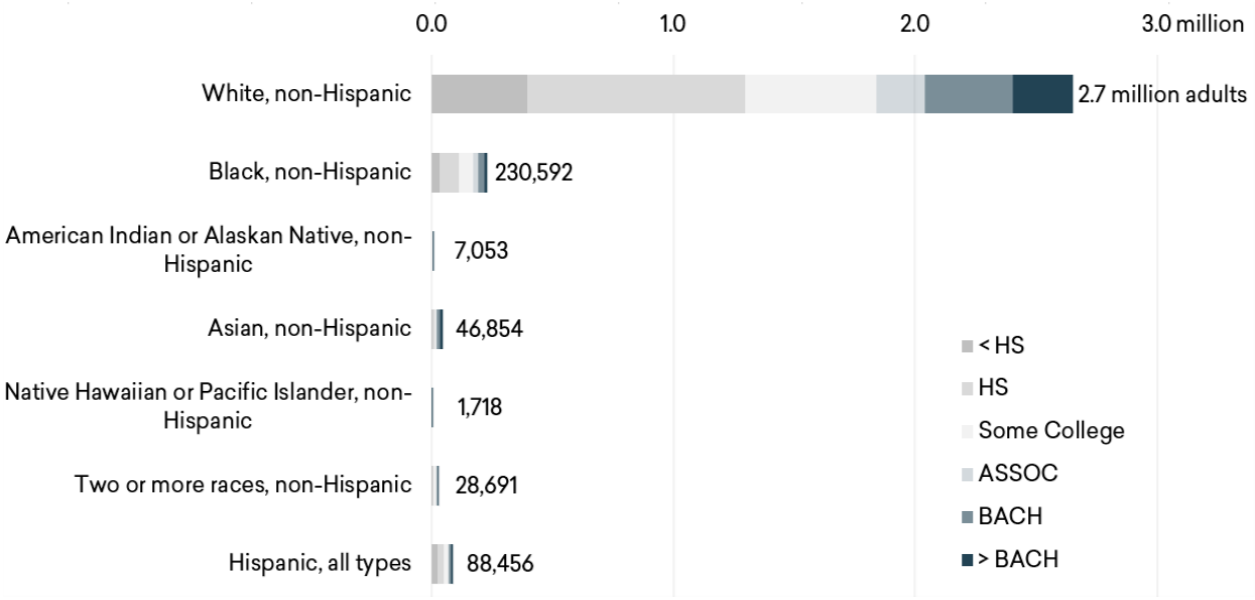


Numbers may not sum due to rounding.
Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

Between female and male adults in Kentucky, there is little variation in the distribution of their award categories. Twenty-one percent of the state's female adults and 20% of the state's male adults have some college education but no degree. Thirteen percent of both female and male adults in the state have a bachelor's degree as their highest award level. This information appears in Figure 7.41. Figure 7.42 also shows educational attainment by gender, but for the U.S., where both males and females hold higher levels of education than Kentucky.

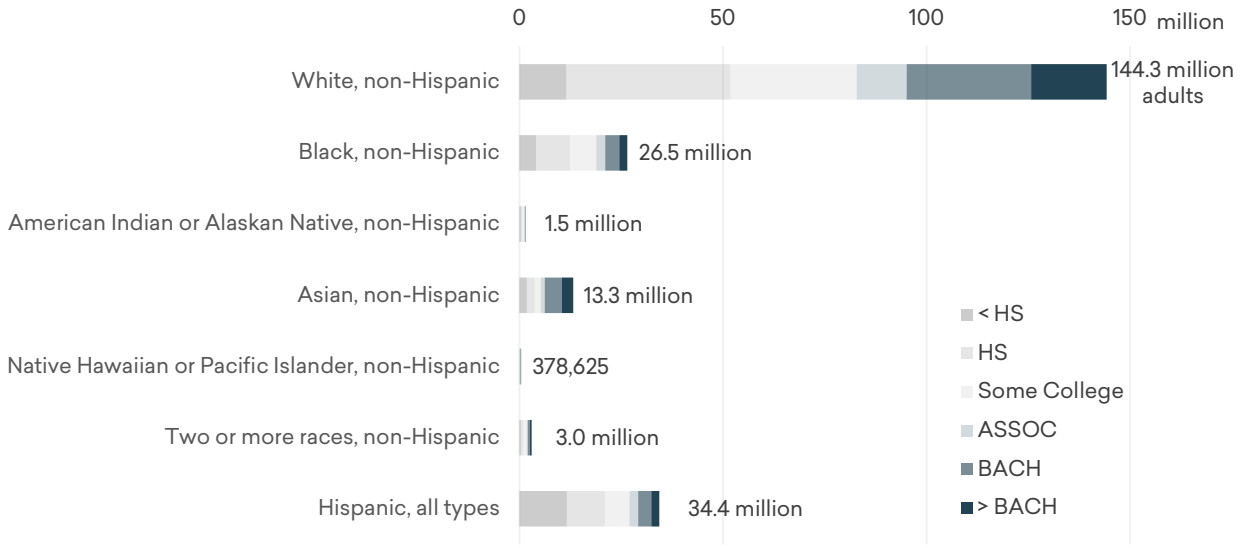
Figures 7.43 through 7.46 display the highest educational attainments of Kentucky's adults and U.S. adults by their major race and ethnic groups, in absolute and relative values, respectively. As shown in Figure 7.45, Asian, non-Hispanic adults have the highest percentage of adults with a postsecondary education (68%) among all the groups. However, the group accounts for a relatively small portion of the state's adults, as shown in Figure 7.43. Fifty-one percent of adults in the White, non-Hispanic group, the largest of the groups, have a postsecondary education. Across all groups, these data suggest that there are many opportunities to increase the educational attainments of the state's adults, whether such actions involve outreach to local high schools or supporting community college students who plan to transfer into a bachelor's degree level program.

Figure 7.43: Highest Educational Attainments of Adults in Kentucky by Major Race and Ethnic Group



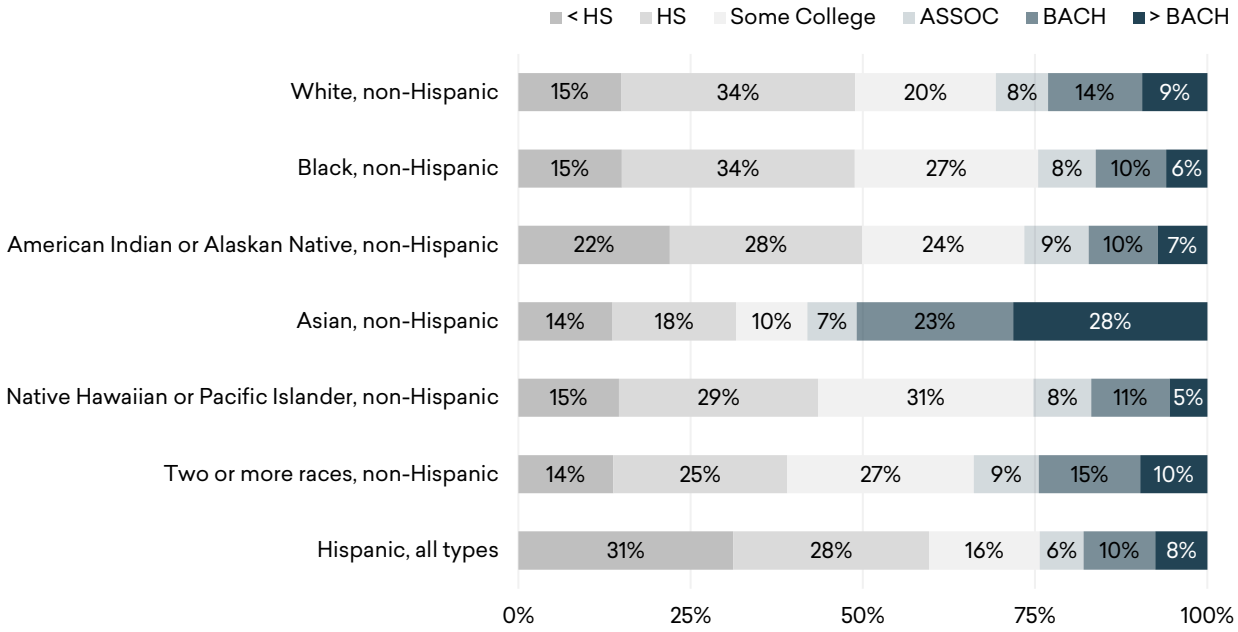
Numbers may not sum due to rounding.
Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

Figure 7.44: Highest Educational Attainments of Adults in the U.S. by Major Race and Ethnic Group



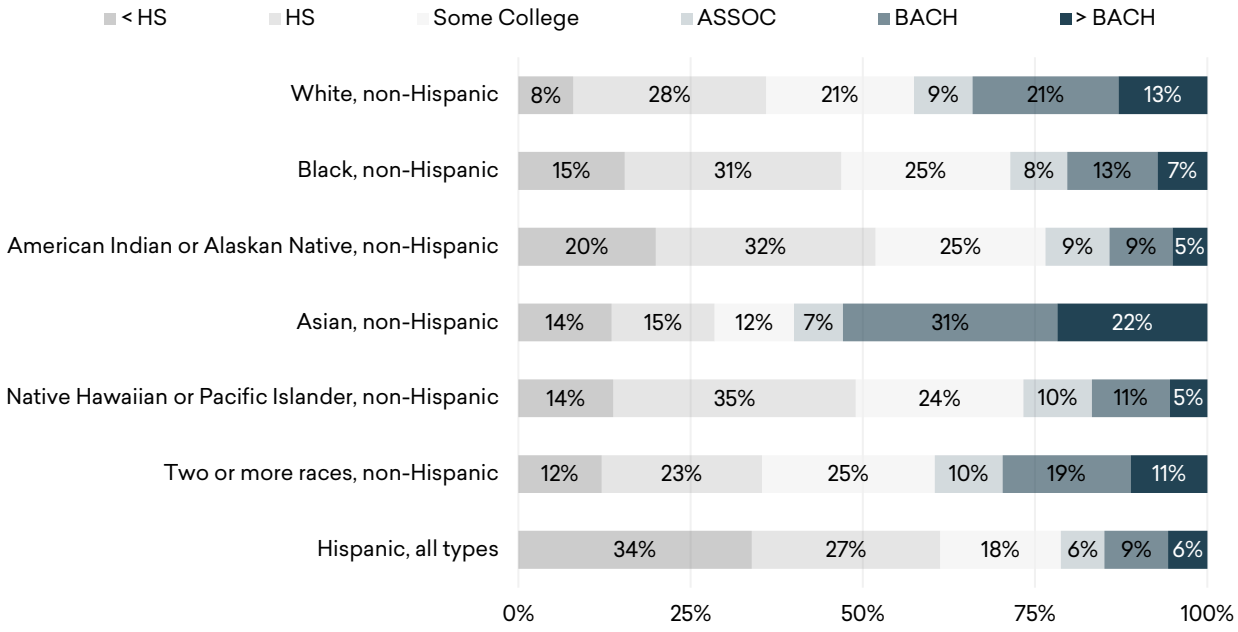
Numbers may not sum due to rounding.
Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

Figure 7.45: Highest Educational Attainments of Adults in Kentucky by Major Race and Ethnic Group



Numbers may not sum due to rounding.
Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

Figure 7.46: Highest Educational Attainments of Adults in the U.S. by Major Race and Ethnic Group

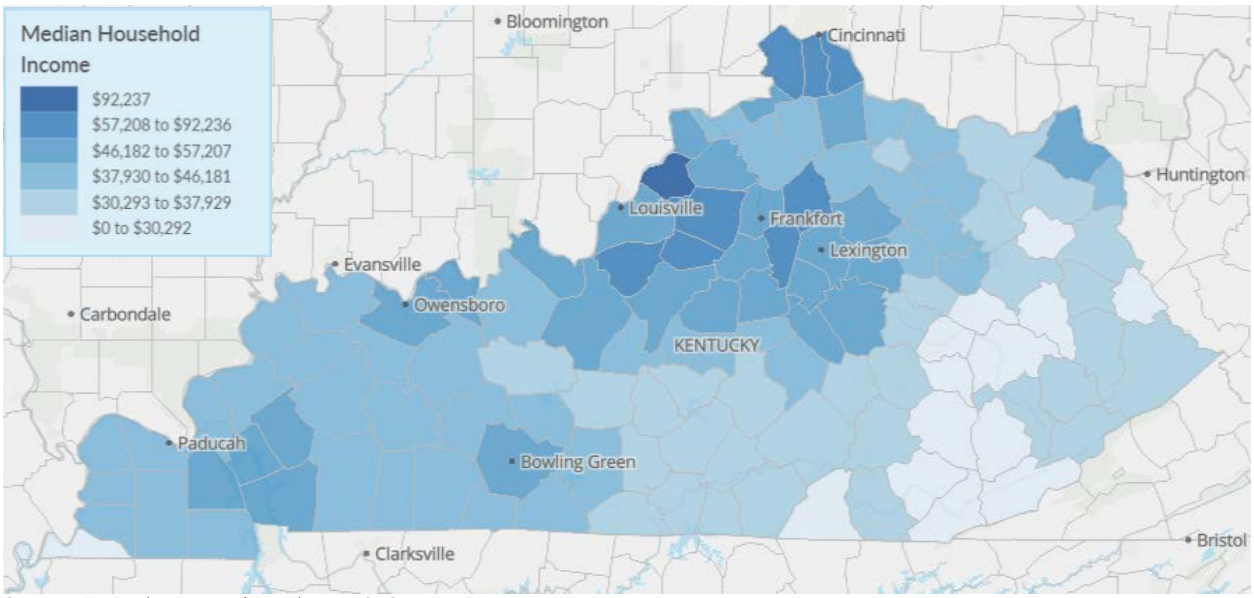


Numbers may not sum due to rounding.
Source: Emsi demographics data and U.S. Census Bureau, American Community Survey.

SOCIOECONOMIC INDICATORS

The data in this section show several of the region's socioeconomic indicators. Household income, reported as a median annual value, includes the income of all individuals in a household, 15 years and over, whether they are related to the householder or not. Per capita income is calculated as the mean income for every person in the county divided by the aggregate income of the total population. Finally, data on poverty are also presented in this section. The percentages represent the share of people below the federal poverty income threshold, which varies by family size and composition. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. Detailed rates on children, who are under 18 years, and seniors, who are over 65 years, are also shown. The data come directly from American Community Survey five-year estimates.

Figure 7.47: Median Household Incomes of Counties in Kentucky



Source: Emsi demographics data, U.S. Census Bureau.

The counties comprising Kentucky are shown in Figure 7.47, and Tables 7.24 and 7.25 highlights their socioeconomic differences, with the former table displaying the counties with highest median household incomes and the latter table displaying the counties with the lowest. Median household income, per capita income, and poverty levels are shown in the table, in descending order of the counties' median household incomes. Oldham County has the highest median household income ($92,237), and McCreary County the lowest ($19,264). For perspective, the median household income of Kentucky is $46,535. McCreary County also has a considerably higher poverty rate in comparison to the state.

Table 7.24: Income, Unemployment, and Poverty Characteristics for Kentucky Counties with the 15 Highest Median Household Incomes

FIPS CODE	COUNTY	MEDIAN HOUSEHOLD INCOME	PERCENTILE RANK IN KY	PER CAPITA INCOME	% POVERTY*		
					FAMILIES	CHILDREN	SENIORS
21185	Oldham	$92,237	100%	$38,063	4.0%	7.2%	3.7%
21015	Boone	$72,731	99%	$33,553	6.0%	10.6%	5.2%
21215	Spencer	$68,916	98%	$30,779	7.3%	8.3%	9.6%
21209	Scott	$65,598	97%	$30,702	8.6%	16.1%	7.1%
21211	Shelby	$63,171	97%	$30,240	8.4%	17.1%	7.2%
21239	Woodford	$60,604	96%	$31,208	10.3%	28.1%	5.2%
21029	Bullitt	$59,917	95%	$26,643	7.5%	12.7%	9.3%
21117	Kenton	$58,674	94%	$30,195	9.9%	19.5%	8.0%
21037	Campbell	$57,208	93%	$31,065	9.5%	19.2%	12.2%
21113	Jessamine	$55,450	92%	$28,195	14.9%	26.5%	6.6%
21179	Nelson	$55,182	92%	$28,156	8.0%	14.2%	9.7%
21163	Meade	$53,732	91%	$25,119	9.7%	16.7%	10.1%
21073	Franklin	$53,539	90%	$28,001	9.6%	19.4%	5.0%
21067	Fayette	$53,013	89%	$31,653	12.1%	22.9%	8.0%
21111	Jefferson	$52,237	88%	$31,039	10.5%	22.0%	8.2%
Kentucky		**$46,535**	**--**	**$25,888**	**13.8%**	**24.7%**	**11.1%**

* Children are under 18 years and seniors are over 65 years. Poverty rate reflects the percentage of people whose income was below the poverty level within the 12 months preceding the data collection period.

Source: American Community Survey five-year estimates from the U.S. Census Bureau data API.

Table 7.25: Income, Unemployment, and Poverty Characteristics for Kentucky Counties with the 15 Lowest Median Household Incomes

FIPS CODE	COUNTY	MEDIAN HOUSEHOLD INCOME	PERCENTILE RANK IN KY	PER CAPITA INCOME	% POVERTY*		
					FAMILIES	CHILDREN	SENIORS
21147	McCreary	$19,264	0%	$11,492	36.7%	49.5%	19.8%
21237	Wolfe	$21,999	1%	$13,533	33.0%	45.3%	19.3%
21189	Owsley	$22,736	2%	$16,582	31.4%	34.9%	31.7%
21129	Lee	$23,297	3%	$16,489	30.4%	43.8%	22.1%
21013	Bell	$23,558	3%	$14,754	31.9%	49.3%	20.9%
21095	Harlan	$24,451	4%	$15,457	32.3%	44.5%	21.5%
21051	Clay	$24,596	5%	$15,388	34.5%	52.2%	29.4%
21025	Breathitt	$25,861	6%	$16,875	28.5%	48.3%	16.3%
21121	Knox	$26,061	7%	$15,869	29.5%	45.1%	22.1%
21131	Leslie	$27,861	8%	$15,112	26.7%	37.2%	28.5%
21075	Fulton	$28,274	8%	$18,111	20.8%	37.0%	14.1%
21063	Elliott	$29,043	9%	$13,436	28.6%	45.5%	29.6%
21159	Martin	$29,239	10%	$14,914	27.0%	33.7%	14.8%
21153	Magoffin	$29,578	11%	$17,279	25.3%	37.4%	22.9%
21133	Letcher	$30,293	12%	$18,085	26.3%	42.6%	13.8%
Kentucky		**$46,535**	**--**	**$25,888**	**13.8%**	**24.7%**	**11.1%**

* Children are under 18 years and seniors are over 65 years. Poverty rate reflects the percentage of people whose income was below the poverty level within the 12 months preceding the data collection period.

Source: American Community Survey five-year estimates from the U.S. Census Bureau data API.

APPENDIX 1: Glossary of Terms

Gap represents a deficit, or when there are more job openings in a particular occupation than there are completions from higher education institutions in the county, region, state, etc. If left unaddressed, a gap may lead to missed opportunities for economic growth and put stress on local businesses to find the necessary talent elsewhere. Significant gaps translate into higher human resources costs and decreased efficiencies in the economic system. They also provide an opportunity for educational institutions to develop new programs and/or strengthen their current programs.

Industry Jobs Emsi industry data have various sources depending on the class of worker. Emsi primarily uses the QCEW (Quarterly Census of Employment and Wages), with supplemental estimates from County Business Patterns. Non-QCEW employee data are based on a number of sources including QCEW, Current Employment Statistics, County Business Patterns, Bureau of Economic Analysis (BEA) State and Local Personal Income reports, the National Industry-Occupation Employment Matrix (NIOEM), the American Community Survey (ACS), and Railroad Retirement Board statistics. Self-Employed class of worker data are primarily based on the ACS, Nonemployer Statistics, and BEA State and Local Personal Income Reports. The Extended Proprietor class of worker is not included in the analysis. Projections for QCEW and non-QCEW Employees are informed by NIOEM and long-term industry projections published by individual states.

IPEDS The Integrated Postsecondary Education Data System (IPEDS) aggregates interrelated surveys conducted annually by the U.S. Department of Education's National Center for Education Statistics (NCES). IPEDS gathers information from every educational institution in the U.S. that participates in the federal student financial aid programs authorized by Title IV of the Higher Education Act of 1965. These educational institutions include research universities, state colleges and universities, private religious and liberal arts colleges, for-profit institutions, community and technical colleges, non-degree-granting institutions such as beauty colleges, and others.

Job Openings Job openings are a combination of job growth, which occurs when an employer experiences greater demand for its products and hires new employees to increase production, and replacement needs, which occurs when employees leave the workforce or change occupations. Throughout the program demand gap analysis, they represent the average number of projected openings between 2019 and 2029. Job openings are calculated for each occupation mapped to a program and are de-duplicated across programs mapped to the same occupation using Emsi's weighting methodology. For each award level, the number of openings is reported for that educational level and one education level below it.

Location Quotient (LQ) A comparative statistic used to calculate the relative employment concentration of an industry or occupation against the employment of the industry in a larger geographic region (i.e. a region's LQ relative to the U.S.). Industries with a higher location quotient (usually greater than 1.2) indicate that the smaller geographic region has a comparative advantage or specialization in the production of that good or service or has a high degree of specialization within its workforce.

NAICS The North American Industry Classification System (NAICS) organizes North American business establishments to better collect, analyze, and publish statistical data related to the business economy. NAICS is intended to classify an establishment's activity regardless of its ownership (public or private sector) or legal form of organization (proprietorship, partnership, corporation, for-profit, nonprofit, etc.). However, due to the realities of available data, Emsi treats establishments with public and private sector ownership differently. In Emsi data, all establishments in the main NAICS hierarchy are private sector only. Jobs in Educational Services, for example, are not associated with local, state, or federal government jobs. Jobs for public school teachers and city firefighters are in Local Government, whereas college professors and forest firefighters are commonly employed by State Government. Mail carriers and transportation security screeners are examples of jobs in Federal Government. Thus, Emsi does not use the standard NAICS classification, which is similar to Current Employment Statistics (CES), Occupational Employment Statistics (OES), and BEA data sources.

Program Completions For the program demand gap analysis, program completions are the average number of students, over a three-year period, who receive an award or degree for a program of study, as reported to the Council data portal. An average over three years is used to control for upward or downward spikes in completions in any one year.

SOC The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. All workers are classified into one of about 775 detailed occupations according to their occupational definition. To facilitate classification, detailed occupations are combined to form about 450 broad occupations, about 95 minor groups, and 23 major groups. Detailed occupations in the SOC with similar job duties, and in some cases skills, education, and/or training, are grouped together. There are a few minor differences between Emsi and standard SOC codes. Primarily, Emsi does not use detailed SOC codes for military occupations due to lack of good data and aggregates the occupations into one code, 55-9999. And, Emsi uses a single aggregate code (25-1099) for all postsecondary teachers due to lack of solid data and to remain consistent with the NIOEM, which uses a similar code. Emsi currently uses the OES's SOC 2017.

Surplus Represents an oversupply, or when there are more completers from regional educational institutions than there are job openings in a particular occupation. If left unaddressed, significant surpluses may lead to higher unemployment rates or higher attrition rates—the institution could be educating a workforce that is leaving the region after program completion because of a lack of job opportunities. In the tables, values in parentheses represent a surplus.

APPENDIX 2: Emsi Data

LABOR MARKET INFORMATION

Traditional labor market information (LMI) helps us to identify those occupations with good jobs and projected growth in the coming decade. This provides a robust, market-driven foundation upon which to build out programmatic recommendations. Emsi's data then allows us to map these occupations back to programs that train for them, and to extrapolate other occupational outcomes for potential graduates. Emsi data are used to calculate the projected number of annual job openings from 2019 to 2029. These projections account for openings due to job growth and openings due to replacement needs, such as when an employee retires or leaves the position. To capture a complete picture of industry employment, Emsi gathers and integrates economic, labor market, demographic, and educational data from over 40 government and private-sector sources. In doing so, Emsi creates a comprehensive and current database that includes both published data and detailed estimates, with full coverage of the U.S.

More specifically, Emsi combines covered employment data from the Quarterly Census of Employment and Wages (QCEW-produced by the Department of Labor) with total employment data in Regional Economic Information System (REIS-published by the BEA). The data are augmented with County Business Patterns (CBP) and Non-Employer Statistics (NES) published by the Census Bureau. Job projections are based on the latest-available Emsi industry data, 15-year past local trends in each industry, growth rates in statewide and, where available, sub-state area industry projections published by individual state agencies and, in part, growth rates in national projections from the Bureau of Labor Statistics (BLS).

Through this combination of data sources, Emsi is able to fill gaps in individual sources (such as suppressions), yielding a composite database that leverages the strengths of all its sources. Finally, Emsi's database is updated quarterly, providing the most up-to-date integrated information possible.

JOB POSTING ANALYTICS

Job postings are online advertisements for jobs, posted by companies trying to attract applicants. Analyzing job postings for information on the labor market can yield valuable insight, such as skills that employers are requesting, the companies that are posting jobs,

where those jobs are located, and greater specificity in job titles. In addition, job postings have virtually no lag time, as they can be collected from sites soon after being posted. However, not all jobs are posted online, and in some cases, companies post far more positions than they intend to hire in an effort to cast a broad net for talent. Many factors can influence the number of postings that appear on the web for a particular job or company, including:

- Fluctuating prices of job postings;
- Building waiting lists of potential hires should positions become vacant;
- The hiring of new employees immediately or in six months;
- Postings left online after positions have been filled; and
- Duplicate postings for a given position.

It can be helpful to think of LMI as measuring the actions of all employers, whereas job posting analyses measure the intentions of those who post jobs. For postsecondary educational institutions, job postings indicate what is currently in demand across state or regional employers, including emerging needs. As such, job postings information can be used to help tailor program curricula so that graduates will be competitive in the job market. The sources collect about 100 million job postings per month from more than 90,000 companies. Emsi de-duplicates these postings down to approximately 8 million unique job postings per month. In the process, geographies are assigned to the postings as well as company names, job locations, skills, and so on.

PROFILE ANALYTICS

LMI shows us, for example, how many elementary school teachers are employed in Kentucky. However, using LMI, it is a challenge to understand more about the people who successfully find jobs as, in this example, elementary school teachers. Where do they receive their degrees? Are elementary school teachers employed by certain schools? What kinds of skills do elementary school teachers have? For the Council and the educational institutions the Council supports, it is important to understand the education workforce beyond their job counts.

To assist in answering these questions, Emsi turns to Profile Analytics. The dataset contains more than 100 million profiles of distinct individuals in the U.S. workforce. Each profile contains information unique to each individual, such as job title, company, skills, and education information. Emsi's Profile Analytics dataset is gathered from publicly available information on the web, third-party resume databases and job boards, the recruiting industry, opt-in data from employers and applicant tracking systems, sales and marketing databases,

and various consumer/identity databases. Machine learning algorithms are used to deduplicate profiles and enrich the raw data contained in each profile – job titles and company names are standardized, skills are extracted, and education information is standardized. The final result is a set of profiles that includes individual-level data, filterable in a variety of ways, in much more detail.

APPENDIX 3: Occupational Data

Table A3.1: Jobs, Annual Job Openings, and Median Hourly Wages of Education Occupations in Kentucky, 2020 to 2030

OCCUPATION TITLE	2020 JOBS	2030 JOBS	JOB CHANGE	% JOB CHANGE	ANNUAL JOB OPENINGS	MEDIAN HOURLY WAGE
Elementary school teachers, except special education	19,225	19,554	328	1.7%	1,508	$25.55
Teacher assistants, except postsecondary	16,900	17,266	366	2.2%	1,862	$12.54
Career/technical education teachers, middle school	12,318	12,568	250	2.0%	923	$26.43
Preschool teachers, except special education	8,100	8,276	176	2.2%	639	$25.76
Tutors & teachers & instructors, all other	5,359	5,684	325	6.1%	599	$14.34
Career/technical education teachers, secondary school	4,292	4,340	48	1.1%	353	$40.14
Special education teachers, kindergarten & elementary school	4,240	4,246	6	0.1%	330	$25.37
Secondary school teachers, except special ed. & CTE	4,132	4,357	225	5.4%	514	$18.94
Self-enrichment teachers	3,598	3,758	160	4.4%	398	$28.27
Educational, guidance, & career counselors & advisors	3,335	3,785	449	13.5%	455	$14.06
Education administrators, kindergarten through secondary	2,345	2,369	24	1.0%	243	$26.18
Middle school teachers, except special ed. & CTE	2,144	2,120	(24)	-1.1%	205	$18.65
Kindergarten teachers, except special education	1,581	1,605	24	1.5%	126	$26.23
Adult basic education, adult secondary education, & ESL instructors	918	933	15	1.6%	73	$25.57
Educational instruction & library workers, all other	760	781	22	2.8%	66	$16.84
Education & childcare administrators, preschool & daycare	639	555	(84)	-13.1%	69	$18.59
Special education teachers, preschool	447	462	15	3.4%	34	$27.84
Special education teachers, secondary school	386	391	5	1.3%	30	$26.55
Special education teachers, middle school	233	245	12	5.3%	20	$27.46
TOTAL	**90,952**	**93,295**	**2,343**	**2.6%**	**8,447**	**N/A**

Numbers may not sum due to rounding.
Source: Employees & Self-Employed 2020.3.

APPENDIX 4: Program to Occupation Map

Table A4.1 displays the crosswalk between education programs (by CIP codes) and education occupations (by SOC codes) that Emsi used to complete the program demand gap analysis. Also listed are the adjustment factors which are applied to the annual job openings for each occupation in each program, described in Appendix 5, for the statewide analysis.

Table A4.1: Education Program to Occupation Map with Employment Adjustment Factors

CIP TITLE & CODE	SOC CODE	SOC TITLE	BACH	MAST	PHD
Agriculture, General (CIP 01.0000)	25-2032	Career/technical education teachers, secondary school	57	34	2
	25-2023	Career/technical education teachers, middle school	57	34	2
Agriculture, Agriculture Operations, & Related Sciences, Other (CIP 01.9999)	25-2032	Career/technical education teachers, secondary school	57	34	2
	25-2023	Career/technical education teachers, middle school	57	34	2
Education, General (CIP 13.0101)	25-2011	Preschool teachers, except special education	29	6	0
	25-2012	Kindergarten teachers, except special education	29	6	0
	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Curriculum & Instruction (CIP 13.0301)	25-9031	Instructional coordinators	38	23	3
	11-9032	Education administrators, kindergarten through secondary	35	30	5
Special Education & Teaching, General (CIP 13.1001)	25-2051	Special education teachers, preschool	46	36	2
	25-2052	Special education teachers, kindergarten & elementary school	46	36	2
	25-2057	Special education teachers, middle school	46	36	2
	25-2058	Special education teachers, secondary school	46	36	2
Education/Teaching of Individuals with Hearing Impairments Including Deafness (CIP 13.1003)	25-2051	Special education teachers, preschool	46	36	2
	25-2052	Special education teachers, kindergarten & elementary school	46	36	2
	25-2057	Special education teachers, middle	46	36	2

CIP TITLE & CODE	SOC CODE	SOC TITLE	BACH	MAST	PHD
		school			
	25-2058	Special education teachers, secondary school	46	36	2
	25-9045	Teacher assistants, except postsecondary	22	4	1
Education/Teaching of Individuals with Speech or Language Impairments (CIP 13.1012)	25-2051	Special education teachers, preschool	46	36	2
	25-2052	Special education teachers, kindergarten & elementary school	46	36	2
	25-2057	Special education teachers, middle school	46	36	2
	25-2058	Special education teachers, secondary school	46	36	2
	25-9045	Teacher assistants, except postsecondary	22	4	1
Education/Teaching of Individuals in Early Childhood Special Education Programs (CIP 13.1015)	25-2051	Special education teachers, preschool	46	36	2
	25-2052	Special education teachers, kindergarten & elementary school	46	36	2
	25-9045	Teacher assistants, except postsecondary	22	4	1
Counselor Education/School Counseling & Guidance Services (CIP 13.1101)	21-1012	Educational, guidance, & career counselors & advisors	33	37	2
Elementary Education & Teaching (CIP 13.1202)	11-9032	Education administrators, kindergarten through secondary	35	30	5
	25-2021	Elementary school teachers, except special education	57	34	2
Junior High/Intermediate/Middle School Education & Teaching (CIP 13.1203)	11-9032	Education administrators, kindergarten through secondary	35	30	5
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2023	Career/technical education teachers, middle school	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Secondary Education & Teaching (CIP 13.1205)	11-9032	Education administrators, kindergarten through secondary	35	30	5
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
	25-2032	Career/technical education teachers, secondary school	57	34	2
Teacher Education, Multiple Levels (CIP 13.1206)	25-2011	Preschool teachers, except special education	29	6	0
	25-2012	Kindergarten teachers, except special education	29	6	0
	25-2021	Elementary school teachers, except special education	57	34	2

CIP TITLE & CODE	SOC CODE	SOC TITLE	BACH	MAST	PHD
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Kindergarten/Preschool Education & Teaching (CIP 13.1209)	25-2011	Preschool teachers, except special education	29	6	0
	25-2012	Kindergarten teachers, except special education	29	6	0
Early Childhood Education & Teaching (CIP 13.1210)	11-9031	Education & childcare administrators, preschool & daycare	35	30	5
	11-9032	Education administrators, kindergarten through secondary	35	30	5
	25-2011	Preschool teachers, except special education	29	6	0
	25-2012	Kindergarten teachers, except special education	29	6	0
	25-2021	Elementary school teachers, except special education	57	34	2
	25-2051	Special education teachers, preschool	46	36	2
	25-2052	Special education teachers, kindergarten & elementary school	46	36	2
	25-9045	Teacher assistants, except postsecondary	22	4	1
Science, Technology, Engineering, and Mathematics (STEM) Educational Methods (CIP 13.1213)	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Art Teacher Education (CIP 13.1302)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Business Teacher Education (CIP 13.1303)	25-2023	Career/technical education teachers, middle school	57	34	2
	25-2032	Career/technical education teachers, secondary school	57	34	2
English/Language Arts Teacher Education (CIP 13.1305)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Foreign Language Teacher Education (CIP 13.1306)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2

CIP TITLE & CODE	SOC CODE	SOC TITLE	BACH	MAST	PHD
Health Teacher Education (CIP 13.1307)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Family & Consumer Sciences/Home Economics Teacher Education (CIP 13.1308)	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2023	Career/technical education teachers, middle school	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
	25-2032	Career/technical education teachers, secondary school	57	34	2
Mathematics Teacher Education (CIP 13.1311)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Music Teacher Education (CIP 13.1312)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Physical Education Teaching & Coaching (CIP 13.1314)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Reading Teacher Education (CIP 13.1315)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Science Teacher Education/General Science Teacher Education (CIP 13.1316)	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Social Science Teacher Education (CIP 13.1317)	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Social Studies Teacher Education (CIP 13.1318)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except	57	34	2

CIP TITLE & CODE	SOC CODE	SOC TITLE	BACH	MAST	PHD
		special ed. & CTE			
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Technical Teacher Education (CIP 13.1319)	25-2023	Career/technical education teachers, middle school	57	34	2
	25-2032	Career/technical education teachers, secondary school	57	34	2
Trade & Industrial Teacher Education (CIP 13.1320)	25-2023	Career/technical education teachers, middle school	57	34	2
	25-2032	Career/technical education teachers, secondary school	57	34	2
Biology Teacher Education (CIP 13.1322)	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Chemistry Teacher Education (CIP 13.1323)	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
History Teacher Education (CIP 13.1328)	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Physics Teacher Education (CIP 13.1329)	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Spanish Language Teacher Education (CIP 13.1330)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Earth Science Teacher Education (CIP 13.1337)	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Teacher Education & Professional Development, Specific Subject Areas, Other (CIP 13.1399)	11-9031	Education & childcare administrators, preschool & daycare	35	30	5
	11-9032	Education administrators, kindergarten through secondary	35	30	5
	25-2011	Preschool teachers, except special education	29	6	0
	25-2012	Kindergarten teachers, except special education	29	6	0
	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2023	Career/technical education teachers, middle school	57	34	2

CIP TITLE & CODE	SOC CODE	SOC TITLE	BACH	MAST	PHD
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
	25-2032	Career/technical education teachers, secondary school	57	34	2
	25-2051	Special education teachers, preschool	46	36	2
	25-2052	Special education teachers, kindergarten & elementary school	46	36	2
	25-3011	Adult basic education, adult secondary education, & ESL instructors	29	8	1
	25-3021	Self-enrichment teachers	29	8	1
	25-3097	Tutors & teachers & instructors, all other	28	7	1
	25-9045	Teacher assistants, except postsecondary	22	4	1
Teaching English as a Second or Foreign Language/ESL Language Instructor (CIP 13.1401)	25-2012	Kindergarten teachers, except special education	29	6	0
	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
	25-3011	Adult basic education, adult secondary education, & ESL instructors	29	8	1
Manufacturing Engineering Technology/Technician (CIP 15.0613)	25-2032	Career/technical education teachers, secondary school	57	34	2
	25-2023	Career/technical education teachers, middle school	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
Foreign Languages & Literatures, General (CIP 16.0101)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Japanese Language & Literature (CIP 16.0302)	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
German Language & Literature (CIP 16.0501)	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2

CIP TITLE & CODE	SOC CODE	SOC TITLE	BACH	MAST	PHD
Spanish Language & Literature (CIP 16.0905)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Foreign Languages, Literatures, & Linguistics, Other (CIP 16.9999)	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
English Language & Literature, General (CIP 23.0101)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
English Language and Literature/Letters, Other (CIP 23.9999)	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Biology/Biological Sciences, General (CIP 26.0101)	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Mathematics, General (CIP 27.0101)	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Health & Physical Education/Fitness, General (CIP 31.0501)	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Kinesiology & Exercise Science (CIP 31.0505)	25-3021	Self-enrichment teachers	29	8	1
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
Physical Sciences (CIP 40.0101)	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Chemistry, General (CIP 40.0501)	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Geology/Earth Science, General (CIP 40.0601)	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
Physics, General (CIP 40.0801)	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Social Sciences, General (CIP 45.0101)	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Economics, General (CIP 45.0601)	25-2031	Secondary school teachers, except	57	34	2

CIP TITLE & CODE	SOC CODE	SOC TITLE	BACH	MAST	PHD
		special ed. & CTE			
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
Political Science & Government, General (CIP 45.1001)	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
Drama & Dramatics/Theatre Arts, General (CIP 50.0501)	25-3021	Self-enrichment teachers	29	8	1
Art/Art Studies, General (CIP 50.0701)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
	25-3021	Self-enrichment teachers	29	8	1
Fine/Studio Arts, General (CIP 50.0702)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
	25-3021	Self-enrichment teachers	29	8	1
Music, General (CIP 50.0901)	25-2021	Elementary school teachers, except special education	57	34	2
	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2
Music Performance, General (CIP 50.0903)	25-3021	Self-enrichment teachers	29	8	1
Health Services/Allied Health/Health Sciences, General (CIP 51.0000)	25-2032	Career/technical education teachers, secondary school	57	34	2
	25-2023	Career/technical education teachers, middle school	57	34	2
History, General (CIP 54.0101)	25-2022	Middle school teachers, except special ed. & CTE	57	34	2
	25-2031	Secondary school teachers, except special ed. & CTE	57	34	2

Source: Emsi program demand gap model.

APPENDIX 5: Methodology

This appendix focuses on describing and understanding the methodology used in the program demand gap analysis. This requires data on both occupation demand (e.g., annual job openings) and education supply (e.g., number of postsecondary degree completions). These are then compared through an education "gap" analysis to determine whether an education program is potentially producing a surplus or shortage of workforce talent relative to the number of job openings. In this way, it is possible to see how the institution's current programs are satisfying the region's workforce needs.

SUPPLY AND DEMAND MODEL

Emsi builds a model using demand-side data (average annual projected job openings) and supply-side data (postsecondary education output) to compare workforce demand with education supply. The purpose of this analysis is to find the difference or "gap" between the annual job openings for an occupation and the number of people completing postsecondary degrees for that occupation, making it possible to identify talent shortages or surpluses.

The first step involves the link between annual job openings for a SOC code and the number of completions for an education program, defined by its CIP code. The BLS provides information on the occupations that completers of specific CIP codes are more likely to enter. Specific connections have been refined through previous engagements with postsecondary institutions and state departments of labor. Some programs have direct occupational ties. For example, a physical therapist assistant is a specific occupation that requires specialized postsecondary training. In this case, one CIP code (Physical Therapy Technician/Assistant) maps to only one SOC code (physical therapist assistants). This provides an easy comparison of annual job openings for physical therapist assistants to the number of people completing the relevant program to see whether a talent shortage or surplus exists.

Unfortunately, this one-to-one mapping of a CIP code to a SOC code is not always the case. More often than not, an educational program maps to multiple occupations and an occupation maps to multiple educational programs at multiple award levels. For this reason, Emsi has pioneered a method of de-duplicating job openings, such that the potential sources of demand are not double represented for any occupation. The details of this process are outlined in this chapter, under "De-duplication of Annual Openings."

OCCUPATION DEMAND

Educational Level Adjustments

To capture occupation demand, Emsi uses a proprietary employment dataset that reflects total employment. Emsi uses the QCEW data source, which measures employment covered by unemployment insurance (UI). According to the BLS, "employment covered by these UI programs represents about 97% of all wage and salary civilian employment in the country." Through a proprietary process, Emsi removes BLS local area employment suppressions to yield the best employment data available at local levels, using Emsi's Employees & Self-Employed 2020.3 datarun.

In the datarun, Emsi calculates the number of regional job openings for the occupations that require different levels of education for entry-level positions.[17] The BLS also provides educational attainment data of current workers, ages 16 years to 34 years, for each SOC code, broken out by their highest level of education attained. The data are presented as the percentage of workers in the SOC code with educational attainment ranging from less than a high school diploma to a doctoral degree level of education. Using these data, Emsi adjusts the annual job opening estimates for each SOC code to only incorporate the percentage of workers that correspond with the education program offerings.

For example, as shown in Table A5.1, three occupations are mapped to Accounting: accountants, auditors, and budget analysts. Among accountants, the majority of job openings (80%) are available to program completers with a master's degree or bachelor's degree level of education, less so for auditors. The weighted average of job openings, in the last row of the table, is calculated for each program and at each award level where the institutions have produced completions over the past three years. Not accounting for these dynamics in educational attainments would bias the programs' demands by over-counting potential job opportunities for the completers.[18]

17 See Appendix 2 for a description of the sources and processes of Emsi data.

18 Given the changing dynamics and need for more education in the existing workforce (i.e., skills-biased technology change in many occupations and industry sectors), this assumption is considered conservative.

Table A5.1: Example of Educational Level Adjustments for a Program

PROGRAM	OCCUPATION	ASSOC AND ONE LEVEL BELOW	BACH AND ONE LEVEL BELOW	MAST AND ONE LEVEL BELOW	PHD AND ONE LEVEL BELOW
Accounting	Accountant	10%	65%	80%	25%
	Auditor	5%	70%	75%	20%
	Budget analyst	15%	70%	80%	30%
Weighted average		**10%**	**68%**	**78%**	**25%**

De-Duplication of Annual Openings

Most programs are designed to train people for multiple occupational types, many of which are simultaneously linked with other educational programs. This presents a complexity when comparing supply and demand for any one program. For instance, the Accounting program is mapped to three different occupations: accountants, auditors, and budget analysts. If we focus on one of the occupations for this list—accountants—it is also mapped to three different educational programs, for example, Business, Medical Office Administration, and Commerce.

To ensure that double counting does not occur, it is necessary to either realign the program groupings to eliminate the mapping of occupations to multiple programs or to determine what proportion of job openings should be compared with program completions. Emsi takes the second approach in this analysis, which has the advantage of maintaining program titles and descriptions in roughly the same format of the completion data originally delivered to Emsi. Emsi also uses a formula that favors programs with the largest completions, attributing a greater proportion of job openings to programs with a large number of completions by award level. This method utilizes the assumption that the higher output programs are likely feeding a higher degree of demand in Kentucky.[19] Appendix 4 contains the detailed mapping of each CIP code to all relevant occupations, by their six-digit SOC codes. A result of de-duplication is that in a region where a unique program, Commercial & Advertising Art for example, is larger than Graphic Design, it is assumed that completers of the Commercial & Advertising Art program will be offered a proportional, therefore larger number of job openings than students from the Graphic Design program.

19 Note this adjustment is performed on a program-by-program basis without consideration of individual colleges or training providers. Therefore, a single program offered at one large institution has no advantage over a group of similar programs offered at several smaller educational providers given that the aggregate output of the smaller schools is near the output of the single larger school.

APPENDIX 6: Living Wage

As shown in the following table, the living wage is the hourly rate that an individual must earn to support his or her family as a sole income provider working full-time or 2,080 hours annually. Part-time is defined as less than 35 hours per week of work. State minimum wage rates are the same for all individuals, regardless of the number of dependents in the household. Values are reported per adult in the household. The poverty rate is typically reported as gross annual income and has been adjusted to an hourly wage rate.

Table A6.1: Living Wage Calculations for Kentucky

ADULTS IN HOUSEHOLD	CHILDREN IN HOUSEHOLD	LIVING WAGE	POVERTY WAGE	MINIMUM WAGE
One Adult	No Children	$10.98	$6.00	$7.25
	1 Child	$23.19	$8.13	$7.25
	2 Children	$29.01	$10.25	$7.25
	3 Children	$36.76	$12.38	$7.25
Two Adults, One Working	No Children	$18.05	$8.13	$7.25
	1 Child	$22.15	$10.25	$7.25
	2 Children	$24.64	$12.38	$7.25
	3 Children	$27.88	$14.50	$7.25
Two Adults, Both Working	No Children	$9.03	$4.06	$7.25
	1 Child	$12.91	$5.13	$7.25
	2 Children	$15.81	$6.19	$7.25
	3 Children	$19.07	$7.25	$7.25

Source: Dr. Amy K. Glasmeier and the Massachusetts Institute of Technology, http://livingwage.mit.edu. Minimum wage provided by the Commonwealth of Kentucky Labor Cabinet.

APPENDIX 7: Institutional Sectors

The following table shows the Kentucky colleges and universities included in each of the institutional sectors. In addition, the institution's region is identified, which is based on the institution's location in Kentucky. The five regions are the Central, East, South, and West Workforce Planning Regions and the Kentuckiana Local Workforce Area. Note that several institutions in the Other sector are only included in statewide analyses.

Table A7.1: Institutions by Sector and Region

INSTITUTION NAME	REGION	INSTITUTION NAME	REGION
ASSOCIATION OF INDEPENDENT KENTUCKY COLLEGES & UNIVERSITIES (AIKCU)			
Alice Lloyd College	East	Kentucky Wesleyan College	West
Asbury University	Central	Lindsey Wilson College	South
Bellarmine University	Kentuckiana	Midway University	Central
Berea College	Central	Spalding University	Kentuckiana
Brescia University	West	Thomas More University	Central
Campbellsville University	South	Union College	East
Georgetown College	Central	University of Pikeville	East
Kentucky Christian University	East	University of the Cumberlands	South
KENTUCKY COMMUNITY & TECHNICAL COLLEGE SYSTEM (KCTCS)			
Ashland Community & Technical College	East	Jefferson Community & Technical College	Kentuckiana
Big Sandy Community & Technical College	East	Madisonville Community College	West
Bluegrass Community & Technical College	Central	Maysville Community & Technical College	East
Elizabethtown Community & Technical College	Central	Owensboro Community & Technical College	West
Gateway Community & Technical College	Central	Somerset Community College	South
Hazard Community & Technical College	East	Southcentral Kentucky Community & Technical College	South
Henderson Community College	West	Southeast Kentucky Community & Technical College	East
Hopkinsville Community College	West	West Kentucky Community & Technical College	West
STATE			
Eastern Kentucky University	Central	Northern Kentucky University	Central
Kentucky State University	Central	University of Kentucky	Central
Morehead State University	East	University of Louisville	Kentuckiana

INSTITUTION NAME	REGION	INSTITUTION NAME	REGION
Murray State University	West	Western Kentucky University	South
OTHER			
American National University	State only	Indiana Wesleyan University	State only
Ashford University	State only	Lincoln Memorial University	State only
Beckfield College	Central	McKendree University - Elizabethtown	Central
Cincinnati State Technical & Community College	State only	South University	State only
DeVry University	State only	Sullivan University	Kentuckiana
Frontier Nursing University	East	Walden University - Online	State only
Galen College of Nursing	Kentuckiana	Webster University - Louisville	State only
Hussian College	South		

Source: Emsi and http://cpe.ky.gov/campuses/out-of-state.html#.

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