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Examining Labor Market Variation in CTE Sectors:

Evidence From Florida

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Recent changes to federal policy now require community and technical colleges to complete a comprehensive local needs assessment (CLNA). The purpose of the CLNA is to better align the career and technical education (CTE) courses and programs offered to students with nearby career opportunities. While it is clear students will benefit from better aligned CTE courses and programs, the task of market alignment is quite challenging. First, community and technical colleges have little clarity around what exactly successful alignment looks like. A second challenge is that rapid and disruptive shifts in the U.S. labor market make alignment a moving target, especially following the COVID-19 pandemic. Worse yet, few institutions have access to relevant, high-quality labor market data, and even those that do often struggle to make widespread use of it. The purpose of this brief is to underscore the challenging nature of this last point by analyzing variation in CTE labor markets across and within the state of Florida. This analysis shows that labor market indicators commonly used by CTE providers vary widely by CTE program areas and by geographical region. Furthermore, the analysis illustrates the disparate impacts of the COVID-19 pandemic by examining changes in labor market demand in CTE occupations over time.

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Study Context

The state of Florida is a particularly appealing setting for this analysis for several reasons. First, Florida is a large and growing state. According to the U.S. Census Bureau, Florida was home to over 21 million people in 2019, making it the third most populous state in the nation (U.S. Census Bureau, 2023). Data from the Census Bureau also shows that between 2010 and 2019, Florida's population grew at a rate outmatched only by the state of Texas (U.S. Census Bureau, 2019). Second, Florida has a strong commitment to workforce education and CTE and has, in recent years, set aims to have "the strongest CTE system in the country" and to be "number one in workforce education by 2030" (Florida Department of Education, 2019). Florida's current governor, Ron DeSantis, issued Executive Order 19-31 (EO 19-31) in 2019, which directed Florida's commissioner of education to audit all CTE course offerings in the state and to develop a methodology for annual reviews that go beyond the new Perkins CLNA accountability requirements.

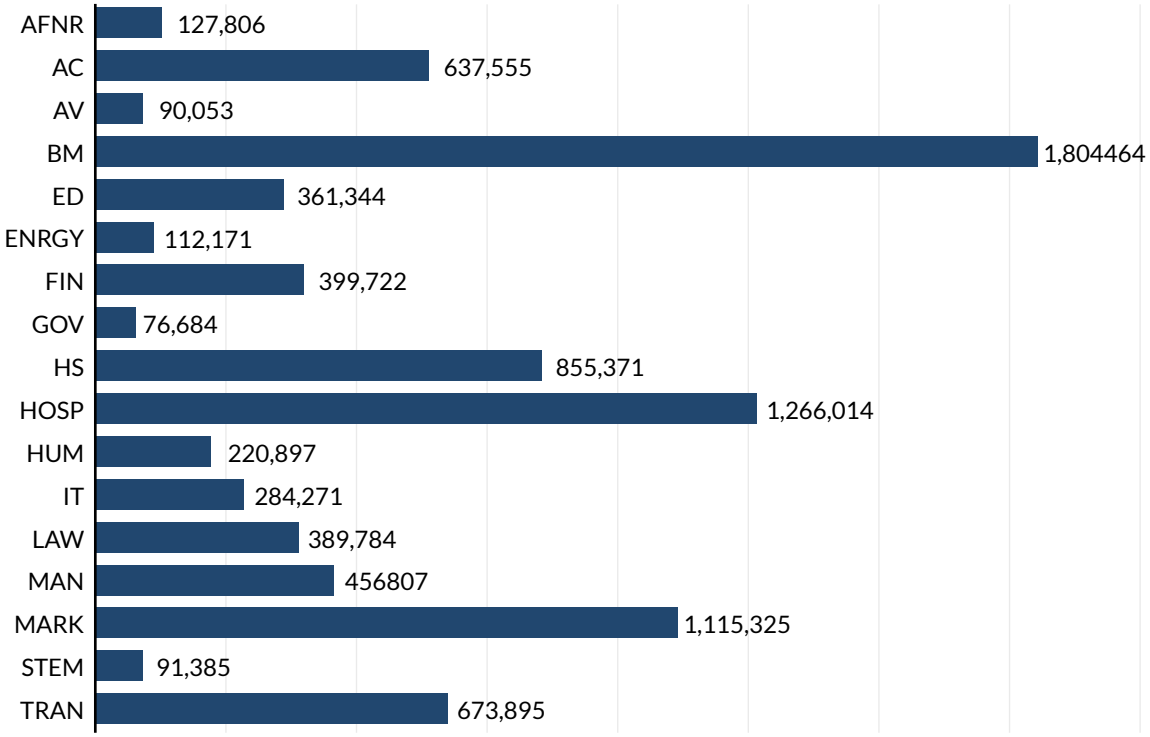
Third, Florida has a large community and technical college system. The Florida College System (FCS) includes 28 two-year community college institutions that serve as the "primary access point to higher education for Floridians" (Florida Department of Education, n.d.). In 2017-18, the FCS system enrolled 730,000 students, more than half of whom were low-income and first-generation college students (Florida Department of Education, 2018). Importantly, colleges within the FCS are recognized as some of the best in the nation: Valencia College was the inaugural winner of the prestigious Aspen Prize for Community College Excellence in 2011; Santa Fe College was the winner in 2015; and Indian River State College and Miami Dade College shared the top prize in 2019. Overall, 13 FCS institutions have either won or been finalists for the Aspen Prize, more than any other state in the nation. Importantly, Florida is also home to 48 district technical colleges that serve students through a diverse set of high-demand CTE programs that equip students with industry-recognized certifications or credentials and/or articulated college credit.

Statewide Labor Market Analysis by CTE Cluster

In 2022, there were roughly 9,125,707 Floridians employed across the state.[1] This represents an increase of roughly 265,886 jobs from the prior year— a 3% increase in employment statewide—across all occupations. However, there was marked variation in employment across the 16 CTE Career Cluster program areas. Figure 1 shows that in 2022, roughly 1.8 million Floridians were employed in an occupation falling within the Business Management & Administration cluster.[2] This amounts to roughly 20% of the 2022 Florida workforce. Another 1.3 million workers (14%) were employed in the Hospitality & Tourism cluster, and just over 1.1 million workers (12%) were employed in the Marketing cluster. By contrast, only 128,000 (1.4%) Floridians were employed in the Agriculture, Food & Natural Resources

cluster; roughly 90,000 (1%) workers were employed in the Arts, A/V Technology & Communications cluster; and another 90,000 (1%) were employed in the Science, Technology, Engineering & Mathematics (STEM) cluster. In 2022, just 77,000 (less than 1%) workers across the state of Florida were employed within the Government & Public Administration cluster. The variation in employment across CTE cluster areas underscores the importance of tailoring CTE education offerings to meet labor market needs; it is clear—even at a state level—that the labor market is stronger for some clusters than for others.

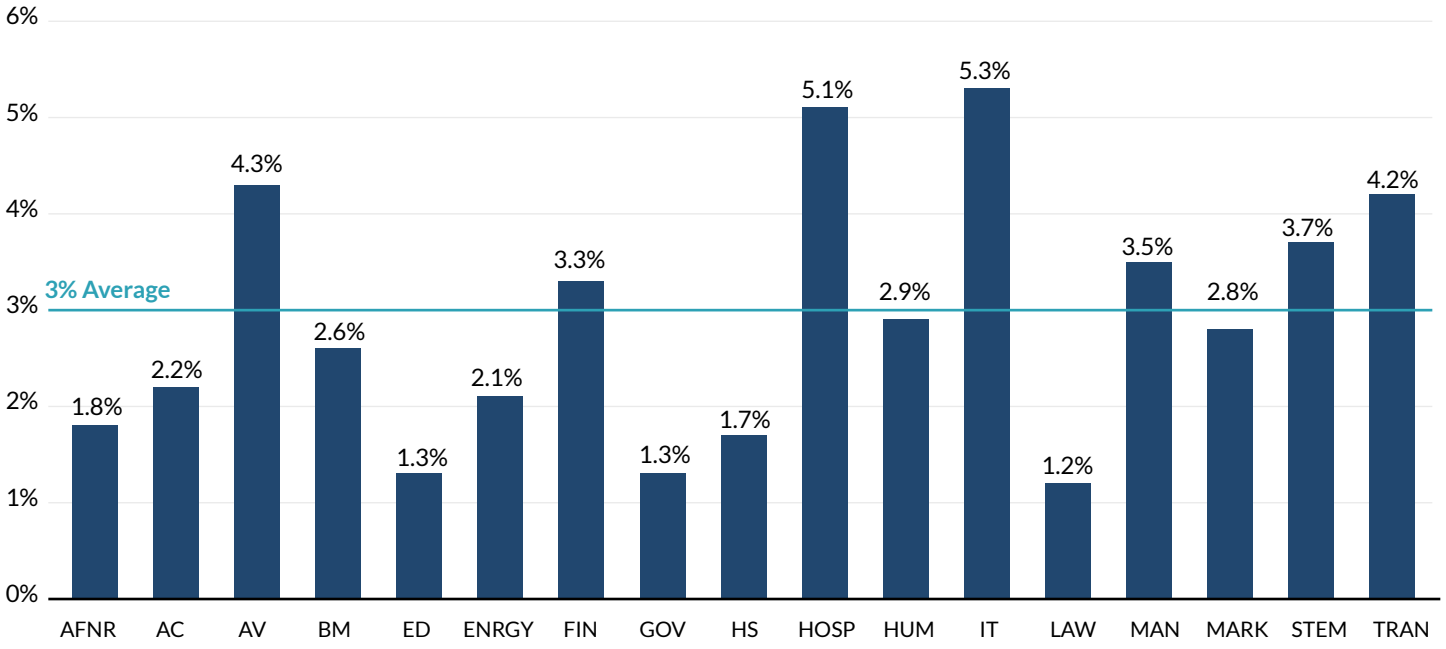
Figure 1. Statewide 2022 Employment Share by CTE Career Cluster



Employment Share Versus Growth

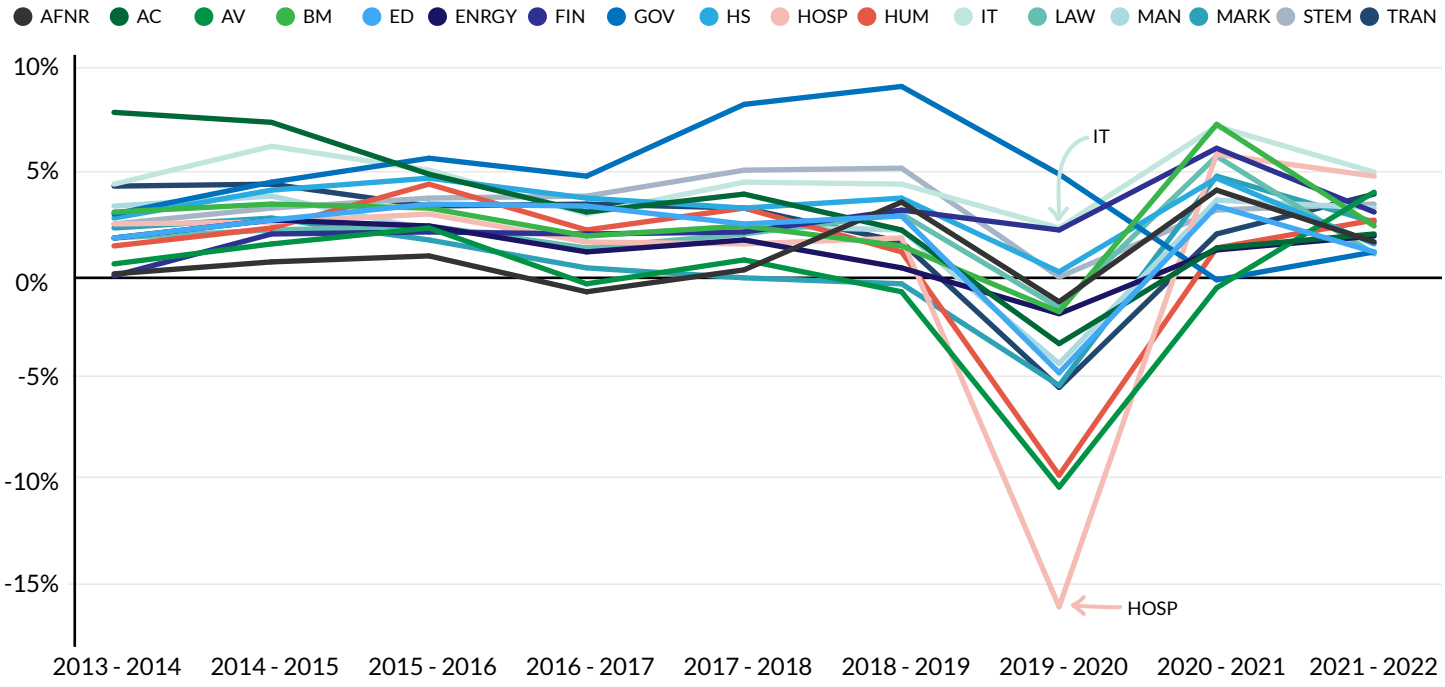
The share of Floridians employed within each cluster is not necessarily an accurate measure of labor market demand, however. For example, while over six times more Floridians were employed within the Business Management & Administration cluster than were employed in the Information Technology cluster in 2022, Figure 2 illustrates that the Information Technology cluster experienced a 5% growth in employment from 2021 to 2022, while Business Management & Administration experienced a growth of 3%, a rate which was roughly equal to the state average across all clusters. Importantly, Figure 2 shows that employment in the Hospitality & Tourism cluster grew at the same rate as employment in Information Technology.

Figure 2. Statewide 2021–2022 Employment Growth by CTE Career Cluster



Yet CTE providers must examine long-term time trends. While the Hospitality & Tourism and Information Technology cluster areas experienced similar growth rates between 2021 and 2022, Figure 3 illustrates that the employment growth in Hospitality & Tourism post-COVID is reflective more of a return to normal following COVID than of a genuine, sustainable demand for Hospitality & Tourism occupations in the state. For example, Figure 3 shows that the share of workers employed in the Information Technology cluster has consistently outpaced growth in Hospitality & Tourism. In the same year that Hospitality & Tourism experienced a 17% decrease in employment, Information Technology experienced a 2% increase in employment. From 2013 to 2022, Information Technology experienced an average annual growth rate of 5%. This was followed by the Government & Public Administration, STEM, Architecture & Construction, and Health Science clusters, which experienced average annual growth rates of 4.9%, 3.6%, 3.5%, and 3.4% respectively.

Figure 3. Statewide Year-Over-Year Employment Growth by CTE Career Cluster



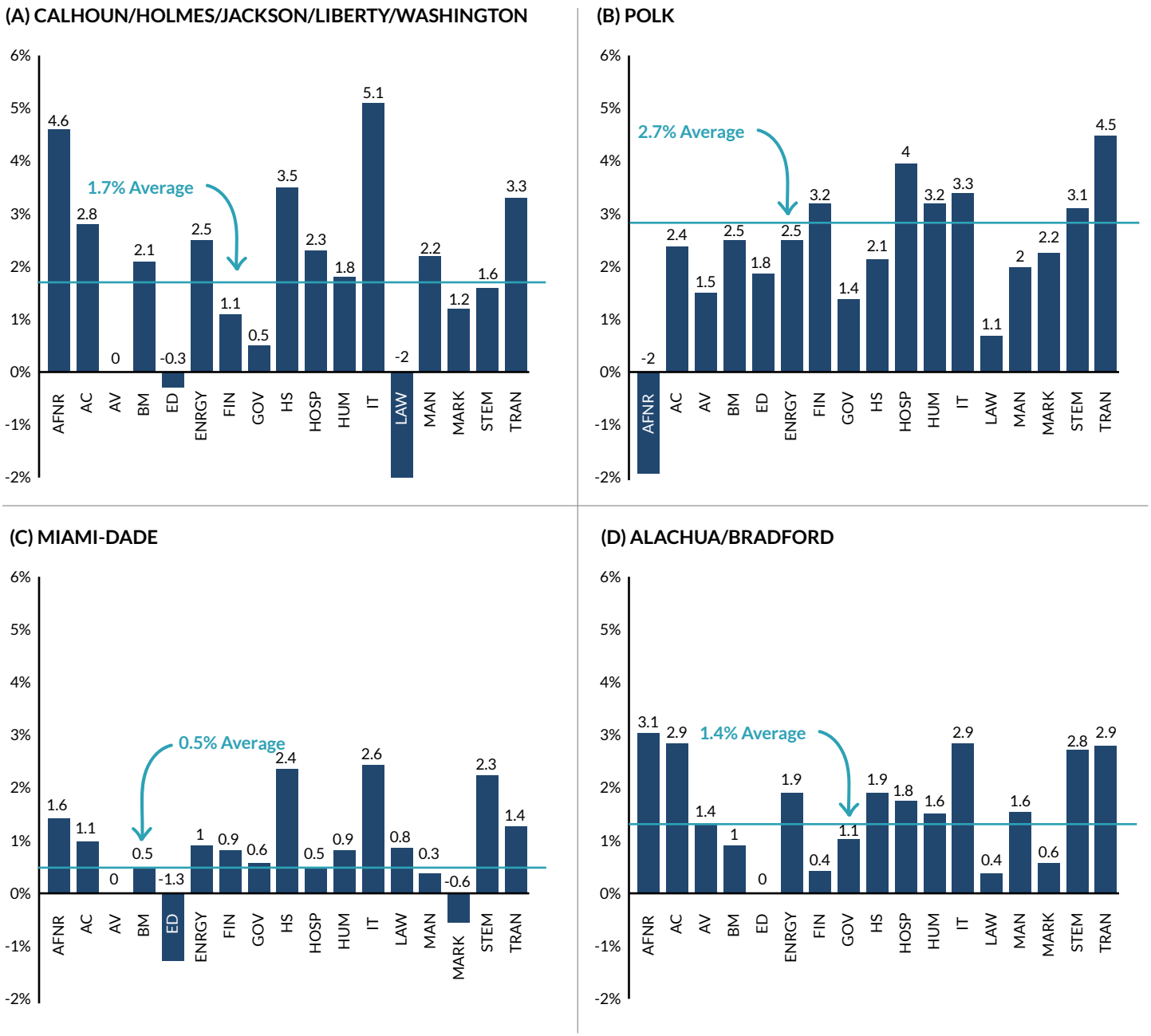
Variation by Community and Technical College Service Area

The Florida Department of Education divides the state into 28 service areas (also known as districts). The CLNA requires every sub-baccalaureate CTE provider in the state to align their CTE courses and programs with the labor markets in their corresponding service areas. This section analyzes labor markets across the Calhoun/Holmes/Jackson/Liberty/Washington, Polk, Miami Dade, and Alachua/Bradford service areas. We analyze these areas for several reasons. First, these areas collectively span the geographic range of the state, from the northern panhandle to the southern tip of Florida. Second, these regions represents the state's social, cultural, and political diversity across rural, suburban, and urban locales. For example, the Calhoun/Holmes/Jackson/Liberty/Washington service area, located in the panhandle, is rural and sparsely populated relative to Miami Dade, which is more urban and densely populated. Third, these service areas showcase the potential range in economic drivers throughout the state. For example, the Polk service area borders Orange County, which is home to the city of Orlando, a tourism and hospitality epicenter within the state. The Alachua/Bradford service area contains the city of Gainesville, which is home to one of the largest universities in the country. By contrast, the Calhoun/Holmes/Jackson/Liberty/Washington service area includes Liberty County, the least densely populated county in Florida. Each of the five counties constituting the Calhoun/Holmes/Jackson/Liberty/Washington

service area is designated "economically distressed rural community" by the Florida Department of Economic Opportunity.

The degree to which CTE labor markets vary not only across CTE clusters and over time but also by service area is evident in Figure 4, which displays the 2021–2022 employment growth for each CTE career cluster for the (A) Calhoun/Holmes/Jackson/Liberty/Washington, (B) Polk, (C) Miami Dade, and (D) Alachua/Bradford service areas. As the figure shows, there is some consistency across the four service areas. For example, in three of the four areas, Information Technology and STEM experienced high employment growth from 2021 to 2022. The one exception is for the rural Calhoun/Holmes/Jackson/Liberty/Washington service area, where STEM employment growth was outpaced by growth in Agriculture, Food & Natural Resources; Health Science; and Transportation, Distribution & Logistics. Additional variation is apparent. Figure 4B shows that employment within the Hospitality & Tourism cluster grew by 4% in the Polk service area between 2021 and 2022; by contrast, employment within the Hospitality & Tourism cluster grew by just 0.5% in the Miami Dade service area during the same period. Also, while Agriculture, Food & Natural Resources employment grew in the Calhoun/Holmes/Jackson/Liberty/Washington and Alachua/Bradford service areas, employment within similar occupations actually shrank by 2% in the Polk service area.

Figure 4. Employment Growth 2021–2022 by Service Area and CTE Career Cluster

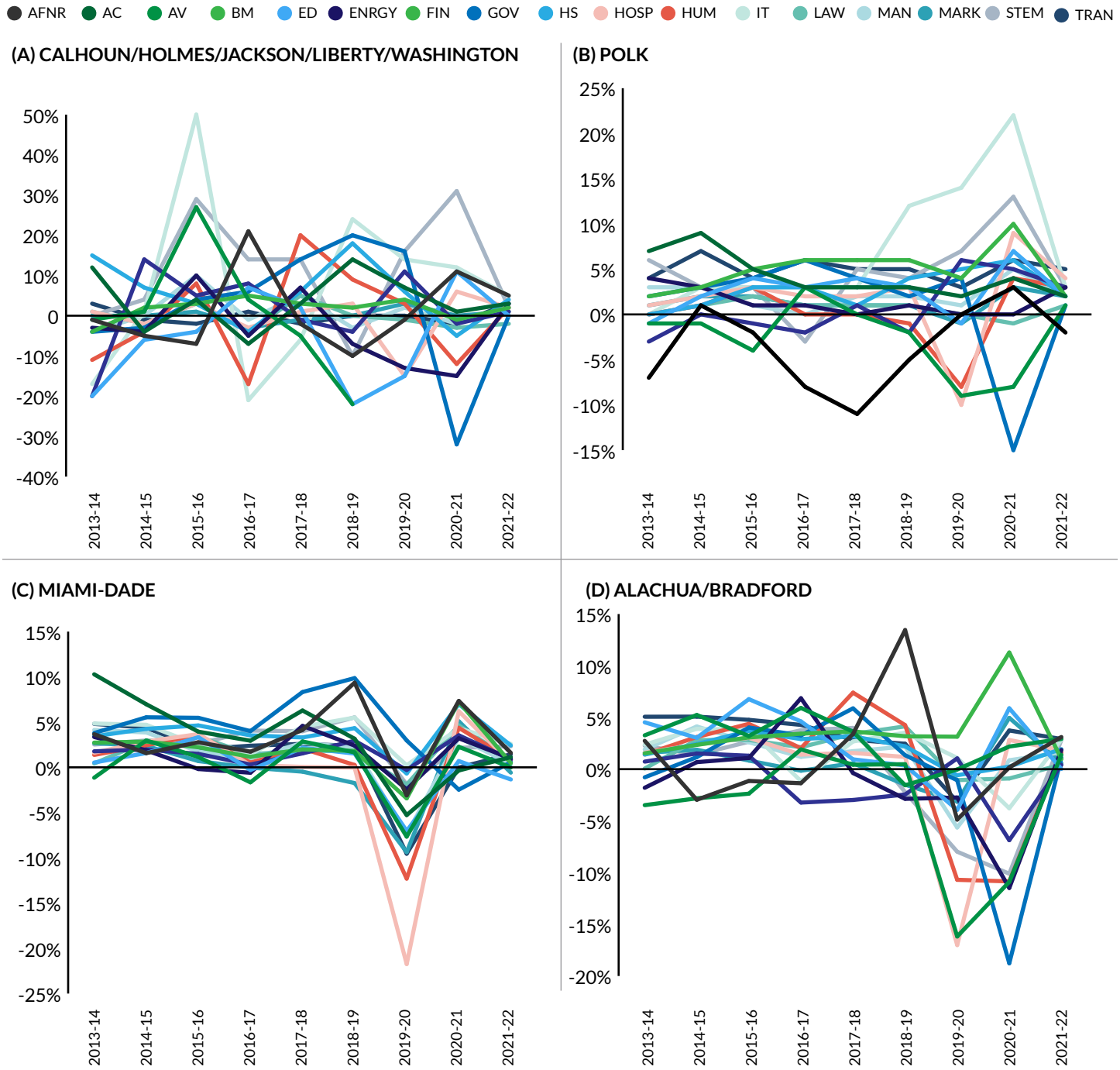


Variation Over Time and COVID

The degree to which labor market demand, as measured by year-over-year fluctuations in employment, varies across services areas and over time is evident from Figure 5. There is a higher degree of employment volatility in the Calhoun/Holmes/Jackson /Liberty/Washington (panel A) service area from 2013-14 through 2018-19, largely because the size of the CTE cluster labor markets is much smaller

than that of, for example, CTE cluster labor markets in the Miami Dade service area, which over time appear much more stable in the pre-COVID years (see panel C). Figure 5 also shows that COVID impacted labor markets differentially across community and technical college service areas. For example, while all four service areas experienced a decline in Hospitality & Tourism employment, the rates of decline were not equal: The Polk service area experienced a 10% decline in Hospitality & Tourism employment, whereas the Miami Dade service area experienced a 20% decline in similar employment. That said, labor markets in the Miami Dade service area rebounded much more quickly and consistently than labor markets in the other service areas. For example, Figure 5C illustrates that between 2020 and 2021, virtually every CTE labor market in the Miami Dade service area rebounded following COVID except for occupations within the Government & Public Administration cluster. By contrast, labor markets rebounded much more differentially and less quickly in, for example, the Calhoun/Holmes/Jackson /Liberty/Washington service area, which experienced a 30% increase in STEM employment and a 30% decrease in Government & Public Administration employment between 2020 and 2021. Similarly, the Polk service area experienced tremendous growth in Information Technology employment and a drastic reduction in Government & Public Administration during the same year. Figure 5 also shows that, compared to the Miami Dade service area (C), which rebounded from COVID quickly, employment in the Alachua/Bradford area (D) rebounded much less quickly.

Figure 5. Year-Over-Year Employment Growth by Service Area and CTE Career Cluster



Examining Multiple Indicators to Aid Market Alignment

Community and district technical college CTE providers must examine a range of indicators simultaneously to align their CTE programs of study with nearby labor markets. In addition to employment share and growth, wages are an important indicator to consider. Figure 6 illustrates the importance and potential value of assessing these three indicators simultaneously. Each panel shows annual average hourly wages for each CTE cluster plotted against employment growth between 2021 and 2022. The size of the bubble reflects the share of the labor market within that service area (i.e., the bigger the bubble, the greater the share of total employment). For example, Figure 6A plots these three factors for the rural Calhoun/Holmes/Jackson /Liberty/Washington service area.

Figure 6. Average Hourly Wages Plotted Against 2021–2022 Employment Growth and Share by Service Area and CTE Career Cluster

While Information Technology represents high-wage and high-growth occupations, there are relatively few occupations within the Calhoun/Holmes/Jackson /Liberty/ Washington service area characterized by high wages and high growth. By contrast, a much larger share of individuals in the area is employed in occupations falling within the Health Science cluster, which, compared to the other clusters, has comparatively high wages and high growth. Simultaneous examination of these indicators provides additional qualification when interpreting single metrics. For example, while Figure 4A indicates occupations within the Agriculture, Food & Natural Resources cluster grew between 2021 and 2022 at an annual rate of 4.6%, average hourly wages as presented in Figure 6 are much lower than those for other, larger and growing clusters. Figure 6 also demonstrates the degree to which these three factors vary across service areas, further emphasizing the importance of aligning CTE programs and courses with local labor markets. For example, growth in STEM between 2021 and 2022 was much lower in the Calhoun/Holmes/Jackson /Liberty/Washington service area than in the Miami Dade, Polk, and Alachua/ Bradford service areas.

Implications for Policy and Practice

The preceding analysis of economic data from the state of Florida underscores the degree to which aligning CTE courses and programs with local labor markets remains a challenge for sub-baccalaureate CTE providers in the state. The analysis suggests several implications for both policy and practice. First, policymakers can support state- and district-level CTE leaders to better align their CTE courses and programs with labor markets by operationalizing market "alignment." The analysis illustrates the many ways in which a CTE provider can define the term. For example, alignment can be operationalized as increasing the proportion of CTE courses and programs to match corresponding employment; however, this approach does not factor in labor market *demand*. Alternatively, then, CTE providers can examine year-over-year employment growth, though the economic volatility in the post-COVID era makes this approach less appealing. Furthermore, employment fluctuations over time can be misleading if the underlying labor market is small. A potential alternative approach is to examine multiple indicators simultaneously. Even still, policymakers can better support CTE providers by providing a consistent definition for practitioners to use and benchmark against.

Second, the CLNA is heavily focused on aligning CTE courses and programs with local labor market demands, but the definition of "local" continues to change with the increased availability of digital communication platforms and the growing adoption of remote work. Federal and state policymakers can support practitioners by updating language and guidance around the CLNA to provide better guidance and clarity.

For practitioners, the preceding analysis indicates the degree to which various measures of labor market demand can be examined to inform market-alignment

practices. A single measure within a single snapshot of time is insufficient and can be misleading. This analysis illustrates potential ways of assessing indicators simultaneously. Additional data to triangulate should be direct input and feedback from employers and local workforce boards. Such information will provide further context and clarification and can help researchers and planners at the local level to understand and prepare for trends. State and institutional research and planning offices should analyze student-level CTE course and completion data. The results of these disaggregated analyses will illustrate patterns and heterogeneity of CTE uptake. The next and final step, then, will be to merge the respective student-level data with the institutional survey and economic data to examine the degree to which supply and demand information are aligned.

Endnotes

1. The data come from the Lightcast Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages (QCEW).
2. AFNR = Agriculture, Food & Natural Resources; AC = Architecture & Construction; AV = Arts, A/V Technology & Communications; BM = Business Management & Administration; ED = Education & Training; ENRGY = Energy; FIN = Finance; GOV = Government & Public Administration; HS = Health Science; HOSP = Hospitality & Tourism; HUM = Human Services; IT = Information Technology; LAW = Law, Public Safety, Corrections & Security; MAN = Manufacturing; MARK = Marketing; STEM = Science, Technology, Engineering & Mathematics; and TRAN = Transportation, Distribution & Logistics. For more information on the CTE Career Clusters framework, see https://careertech.org/what-we-do/career-clusters/.

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