

Aligning CTE Courses to Local Labor Markets

States can do more to ensure that CTE is relevant to the job markets their students will enter.

The 2018 reauthorization of the Perkins Act—the principal federal program supporting career and technical education (CTE)—expressly aims to “align workforce skills with labor market needs.” But it does little to define or operationalize such alignment. Likewise, the Foundation for Excellence in Education admonishes states to phase out “dead end” CTE programs that “do not reflect labor market demand” and “develop new programs of study to address gaps in industry demand.”¹ But here’s the catch: Every local labor market is different. Occupations that might be a smart bet in Canton may not be so in Kansas City.

High school graduates tend not to move to where the jobs are. According to a 2015 analysis in the *New York Times*, “Over the last few decades, Americans have become less mobile, and most adults—especially those with less education or lower incomes—do not venture far from their hometowns.” Specifically, “the median distance Americans live from their mother is 18 miles, and only 20 percent live more than a couple of hours’ drive from their parents.”²

As state boards of education begin work on their long-term plans to implement Perkins V, they will need to reckon with young people’s immobility. Students’ hometowns need to do far better at readying them to succeed at local colleges and in local careers. And therefore high school CTE programs must mesh with real-world job opportunities in their own and nearby communities.

How do states and districts know which CTE course taking in high school aligns with the kinds of work available in local labor markets? Our organization recently published a study by Cameron Sublett and David Griffith that maps data from CTE courses in American high schools to their

associated industry and real-world occupations, as categorized by the Bureau of Labor Statistics.³ Doing so allowed them to determine whether students in high school CTE programs are more likely to take courses in in-demand and high-wage industries, both nationally and locally.

Sublett and Griffith found that many fields that account for a significant number of U.S. jobs align little with CTE course taking in high school. Over half of U.S. jobs are in four fields: business management and administration (18.0 percent); hospitality and tourism (12.5 percent); marketing (11.6 percent); and manufacturing (8.9 percent). Yet collectively, these fields account for only a quarter of CTE enrollment and concentrations.⁴

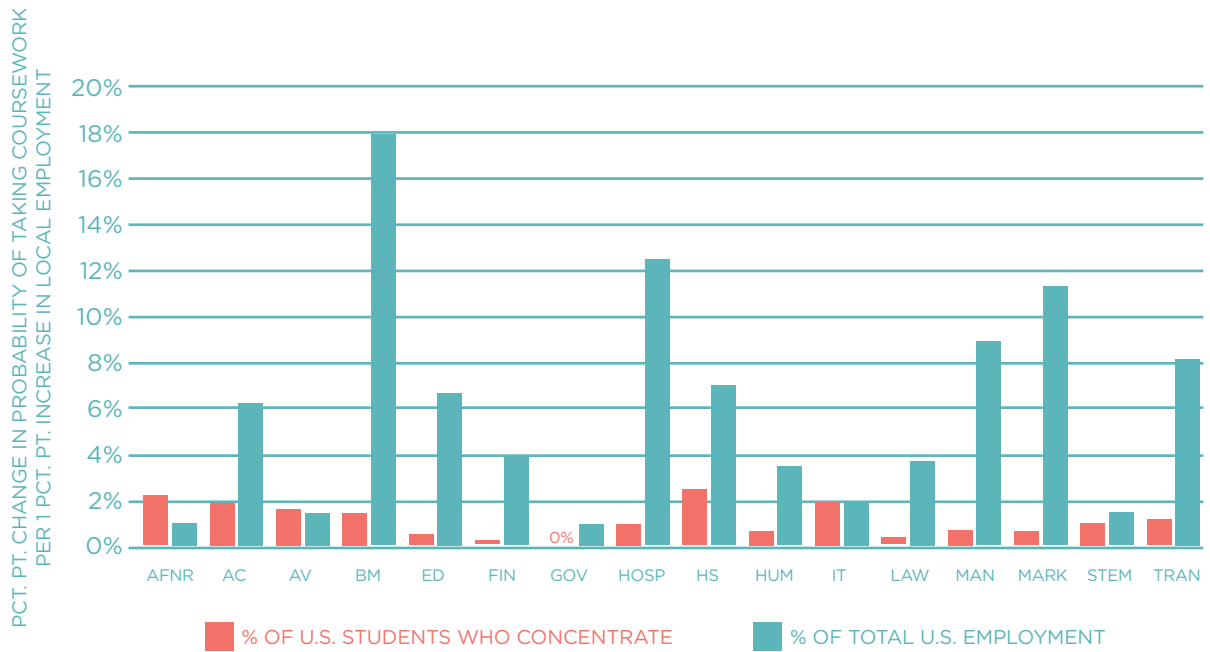
National versus Local Mismatches

There is no evident relationship between the share of total CTE enrollment or concentrations for which a field accounts and its national employment share. And because only 15.5 percent of U.S. students concentrate in a CTE career cluster, the concentration rates for most fields are much lower than their share of employment. For example, almost no students concentrate in marketing. In fact, of the 16 CTE fields, only two—agriculture, food, and natural resources; and arts, A/V technology, and communications—have concentration rates that exceed their employment shares (figure 1).

In contrast to this mismatch between CTE courses taken and national labor market demand, a specific industry’s share of *local* employment is positively related to a student’s odds of taking related coursework. For example, a percentage point increase in the information technology sector’s local employment share is associated with a 10.2 percentage point increase in a student’s probability of taking at least

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Figure 1. CTE Concentration Rates and Employment Shares by Sector



Note: Agriculture, Food & Natural Resources (AFNR); Architecture & Construction (AC); Arts, A/V Technology & Communications (AV); Business Management & Administration (BM); Education & Training (ED); Finance (FIN); Government & Public Administration (GOV); Health Science (HS); Hospitality & Tourism (HOSP); Human Services (HUM); Information Technology (IT); Law, Public Safety, Corrections & Security (LAW); Manufacturing (MAN); Marketing (MARK); Science, Technology, Engineering & Mathematics (STEM); Transportation, Distribution & Logistics (TRAN).

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one IT course. Similarly, a percentage point increase in employment in arts, A/V technology, and communications is associated with a 14.8 percentage point increase in a student’s probability of taking related coursework (figure 2).

Oddly enough, in most fields, students are actually less likely to take related CTE courses when local industry wages are higher—perhaps because CTE programs are not connecting them with the highest paying jobs or positions within those industries. For example, a \$1,000 increase in local IT wages is associated with a 13.6 percentage point decrease in the probability that a student will take one or more IT courses. Similarly, a \$1,000 increase in arts, A/V technology, and communications wages locally is associated with a 14 percentage point decrease in the probability that a student will take one or more courses in this field. The two exceptions are architecture and construction and health science, wherein a \$1,000 increase in local wages is associated with 2.3 percentage point and 0.7 percentage point increases, respectively, in the probability of taking related coursework (figure 3).

Race and Gender Patterns

National CTE course-taking patterns differ significantly by race and gender, even though all groups of students exhibit similar responses to local labor market demand. Male and female students exhibit strikingly different patterns of CTE course taking at the national level. For example, male students take slightly more courses in IT and far more courses in STEM; manufacturing; architecture and construction; and transportation, distribution, and logistics. Female students take significantly more courses in health science; human services; education and training; and arts, A/V technology, and communications.

Similarly, national course-taking patterns differ by race. Roughly 18 percent of white students concentrate in any CTE field versus 15 percent of black students and 13 percent of Hispanic students. Yet black students take more courses in high-paying fields like health science and IT than do their white or Hispanic peers, while substantially larger numbers of white students are taking coursework in the

low-paying agriculture, food, and natural resources field (figure 4).

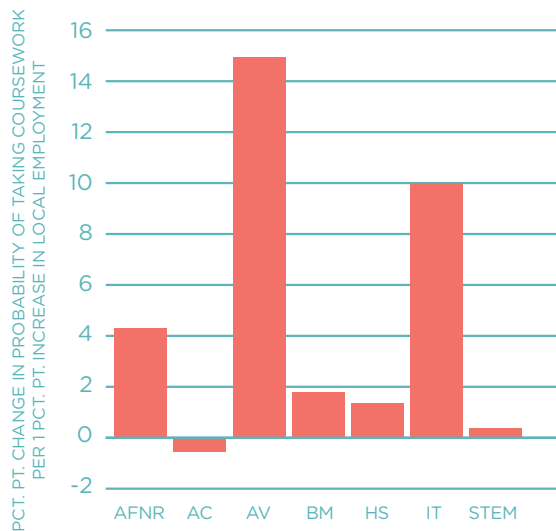
Despite these differences, there is no evidence that students respond differently to local variations in employment or wages based on their race or gender. In other words, all students are more likely to take CTE coursework in fields that support more local jobs but less likely to do so when those jobs pay a higher wage.

State Role in Improving Alignment

Sublett and Griffith conclude that there is significant potential for greater alignment in most fields. Because only one in six high school students concentrates in any CTE field, they are missing out on career preparation for any industry, including those in high-wage, in-demand industries.

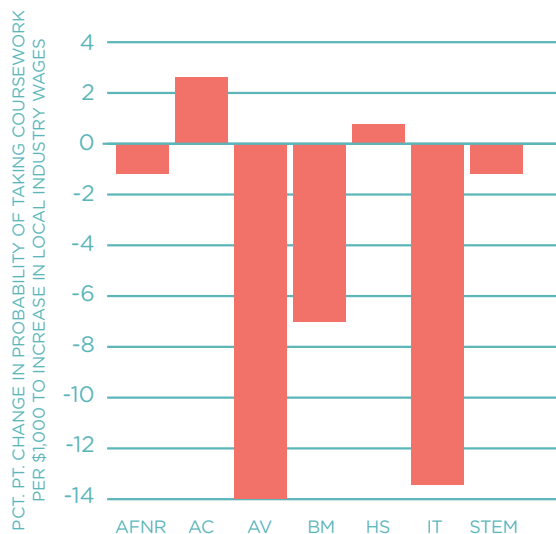
That said, alignment is not always easily

Figure 2. Students' Likelihood of Taking Courses Related to Local Jobs



Note: Because some CTE clusters have very low participation rates, our exploration of local course-taking patterns is limited to the seven clusters with enough data to facilitate a meaningful analysis.

Figure 3. Students' Likelihood of Taking CTE Courses in High-Wage Local Industry



defined or easily achieved. Some fields and careers rely heavily on postsecondary training, and the mismatch between high school courses taken and industry demand may occur not because students are neglecting certain industries but because related courses are simply not offered.⁵

Still, state boards and state education agencies can do much to help make CTE courses more relevant to local labor markets. Here are four ideas.

Conduct an in-depth analysis of industry employment and CTE course taking in your state. Where are the potential areas of misalignment? For example, healthcare is a growing industry and has the highest concentration rate of any field at the national level. So if fewer than 2 percent of the students in your state are concentrating in it, much more may be possible and desirable.

What programs and courses are students able to take? Access is part of what drives patterns of CTE course taking. State officials should examine the factors that drive access—for example, geographical boundaries, funding, industry demand, lack of high-quality CTE teachers. Which are most problematic, and what can be done to address them?

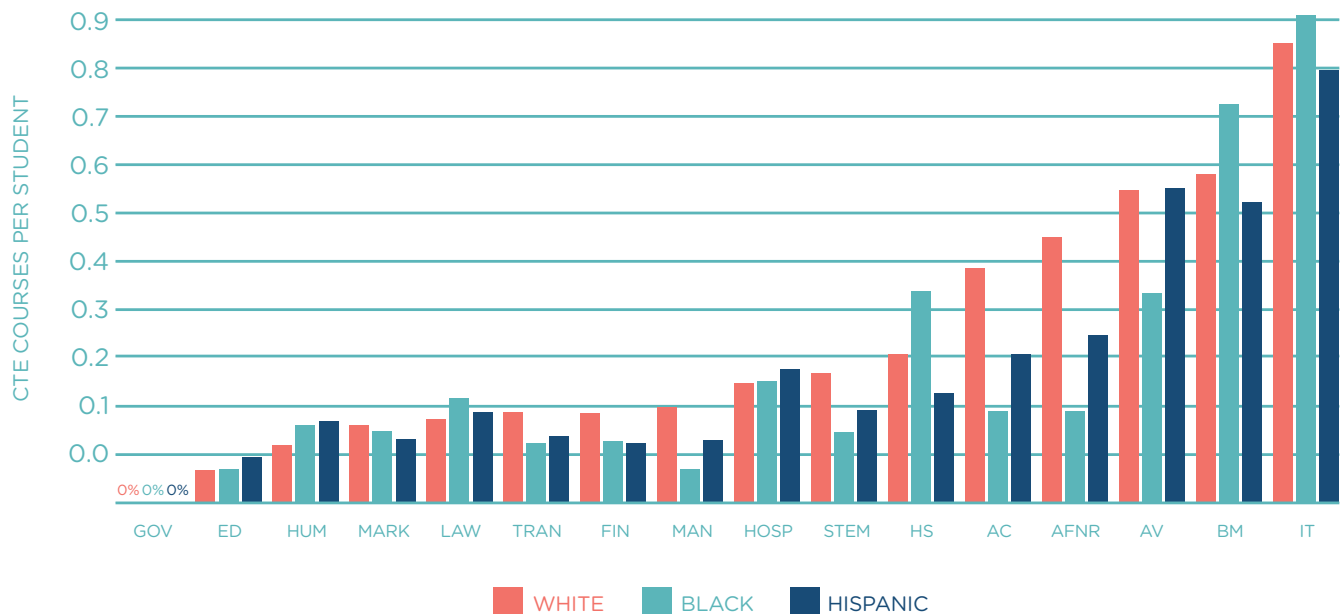
They should also take a close look at the quality of the specific courses that students are

taking, since our analysis suggests that how states are defining CTE is an issue in some places. For instance, there’s a big difference between a general computer skills course and learning to code in Python. Does what students are learning in CTE courses match the intent of the programs of study?

Perkins V requires comprehensive local needs assessments to ensure alignment between local offerings and state and regional needs, so the development of Perkins state plans presents a new opportunity to address this issue. State boards might also require that the state’s longitudinal data system support an evaluation of its education and workforce programs.

Establish collaborations among government entities, the business community, workforce agencies, and other stakeholders to advance CTE programs. For instance, the Governor’s Workforce Cabinet in **Indiana** comprises workforce and high school and postsecondary education agencies tasked with identifying workforce needs in the state and developing a strategic plan to meet those needs, including plans to help high school and college students navigate potential careers and coach them along the way. In Kentucky, the Economic Development and State and Regional Workforce boards are collaborating to review labor market data to ensure their accuracy. In other states,

Figure 4. CTE Course Taking by Race



agencies work together to post an inventory of industry-based certifications and credentials that may be earned (in full or in part) through high school CTE programs—or publish data showing how well aligned pathways are to occupations in the state.

Strengthen career pathways to ensure alignment. Numerous strategies can and should be put in place to better align career pathways to the demands of the local labor market. For starters, states can ask their business and education task force teams to bring into line the requirements of each career pathway with the skills and knowledge needed in specific occupations tied to said pathway. That includes creating alignment between a state's Classification of Instructional Programs (CIP) and the federal government's Standard Occupational Classification (SOC).

States should periodically review pathway offerings to ensure that all pathways are aligned to in-demand occupations in the state or region. That means working with districts and schools to phase out unaligned pathways, which can be difficult for beloved but less relevant pathways. It is important to offer flexibility during this process since it may take time to accomplish. For instance, state officials can convene regional sessions with district superintendents to demonstrate the need to change pathways.

Numerous states are making strides in strengthening high-quality career pathways. For instance, **Massachusetts** has developed a High Quality College and Career Pathways (HQCCP) designation, which includes a requirement that career pathways align to labor market needs. They are increasing their approved Early College Designation and Innovation Pathways from 9 in 2018 to 71 by 2019, which will expand access to high-quality pathways to over 5,000 students by the fall of 2019, up from approximately 1,300 students in 2018.

Delaware has created robust cross-sector partnerships between education and industry through the Delaware Pathways program, an initiative launched to expand access to state-model career pathways. This has led to the Delaware Promise—a statewide commitment between education and industry to ensure that by 2025, 65 percent of Delaware's workforce will earn a two- or four-year degree or a professional certificate. Delaware has launched 14 career pathways in in-demand fields so far.

Align funding to your priorities. This is likeliest the hardest step to take, given the complexity and intransigence of state education budgets. Still, linking CTE funding to in-demand occupations to incentivize pathway alignment is an admirable goal. So is offering financial incentives to high school students to complete work-based learning programs and creating or expanding tax credits to businesses that employ paid apprentices. Footing the bill for students to obtain industry-recognized credentials is another way to demonstrate commitment in and the value of CTE programs. The bottom line is this: Take whatever steps you can to make CTE not only a high-quality option but fiscally advantageous for students and other stakeholders.

Our study underscores the need for local business, industrial, and secondary and post-secondary education sectors to join hands. At the top of their to-do list should be better integration of what is taught in high school CTE programs with the skills, knowledge, and positions needed in their local labor markets, both now and in the future.

In a handful of states and cities, industry and education leaders are already collaborating to make that vision a reality for their students. For the sake of all the young Americans who will live no more than 18 miles from mom, we hope that more communities follow in their footsteps. ■

¹Quentin Suffren and Dr. Danielle Mezera, "Aligning State Career and Technical Education Programs with Industry Need and Priorities: A Playbook for State Policymakers," CTE Playbook Series & Perkins V Brief (Tallahassee, FL: ExcelinEd, December 2018). This reauthorization of the Perkins law is dubbed Perkins V.

²Quoc Trung Bui and Claire Cain Miller, "The Typical American Lives Only 18 Miles from Mom," *New York Times* (December 23, 2015).

³Cameron Sublett and David Griffith, "How Aligned Is Career and Technical Education to Labor Markets?" (Washington, DC: Fordham Institute, 2019).

⁴The study defined concentrators as students who completed three or more courses in one of 16 nationally recognized career clusters, and 18 states have been using this definition, according to the Association for Career and Technical Education. (Perkins V instituted a definition of two or more courses.) And while many students interested in business or marketing might be pursuing a traditional four-year college route—taking academic courses in high school but no CTE—that is surely not the case for most teenagers interested in hospitality, tourism, or manufacturing.

⁵For instance, the lack of teachers with industry expertise is one barrier to comprehensive CTE programs. See "The State of Career Technical Education: Increasing Access to Industry Experts in High Schools" (Washington, DC: Advance CTE, December 2016).

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