B3K PROSPERITY
A Better Bakersfield & Boundless Kern
Regional Action for Economic Prosperity

Excerpts from the Market Assessment Data Book and Findings
February 2021

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B3K Regional Economic Prosperity project motivation, differentiation, and "Market Assessment" role

Despite years of extraordinary job growth and economic mobility for residents, the Bakersfield MSA / Kern County region is starting to fall behind peers and the nation in core aspects of economic performance and competitiveness. In particular, the region is experiencing extreme pressure from state regulatory action and market forces on the industry strengths that historically drive the region's economy and create opportunity. These challenges have been masked by rapid increases in population that drive local consumption and the expansion of industry sectors offering lower job quality.

Responding to these trends and disruptions, regional leaders launched "A Better Bakersfield and Boundless Kern (B3K)" in late spring 2020. B3K is a collaboration among business, government, and civic stakeholders to create and deliver a joint strategy and operational / investment plan for regional economic growth and opportunity, centered on promoting quality job creation that is enduring and accessible to all residents.

The B3K process differs from prior strategies in the scale and depth of active engagement across stakeholders to develop and implement solutions – large and small firms in multiple industries, labor, education, workforce development, community and environmental groups, local and state government, philanthropy – not just economic development professionals setting an agenda for their individual organizations. Significant early effort was dedicated to this basic civic organizing and education. Thus, beyond strategy decisions, B3K aligns diverse actors to maximize impact in advancing a common agenda for regional prosperity, focusing on shared implementation, commitments to execution, and performance measures for mutual accountability.

Developed over five months, this Market Assessment is the evidence-based foundation needed to achieve those objectives, aggregating data and qualitative analyses into a candid picture of the region's performance and competitive position. The purpose of the Market Assessment is not to make definitive decisions on new programs. Rather, the function is to deliver findings and considerations that inform stakeholders in the final phase of collectively determining strategic interventions and institutional accountability for implementation. Thus, the Market Assessment research –

- Provides a broad community understanding of core regional economic challenges, and a realistic view of assets and opportunities.
- Promotes a shared economic development philosophy and framework for gauging economic success in order to jointly set objectives, guide decisions, and measure progress.
- Sets boundaries and criteria for the strategic trade-offs required on what will have the greatest impact toward those objectives, given resource constraints.
- Identifies contributory roles of diverse actors across sectors -- beyond economic development professionals -- in order to both guide individual efforts toward mutual outcomes and promote functional collaborations in delivering tactics and programs.
- Enables an honest self-evaluation of the region's expectations for economic development actors versus strategies into actions, and evolution to current needs.
- Establishes the topics and areas for exploration by stakeholders in developing tactical responses and determining how to carry them out.

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Traditional expectations and emphasis of economic development do not address current dynamics

Conventional views about what regional economic development should accomplish and by which methods no longer align with changes in the most important inputs to competitiveness and how the economy creates opportunity for residents.

For decades, the purpose of economic development has been viewed predominantly as job creation and tax base enhancement, with metrics that center on greenfield projects. Practitioners most often are rewarded based on job counts from attracting a business or capital investment totals for a new facility. These wins are media-friendly, simple to quantify, and easy to interpret as connected to an economic development organization's visible activities.

However, the vast majority of job creation actually comes from expansion of existing firms and formation of new firms within a region, not business attraction. For Kern County, approximately 1% of job gains over the past decade were attributable to firms moving in, roughly the same proportion as losses from businesses leaving the region – these attraction outcomes are consistent with many peer economic regions, also reflecting site selector analyses showing a persistent decline in potential deals worth more than 50 jobs or $1 million.

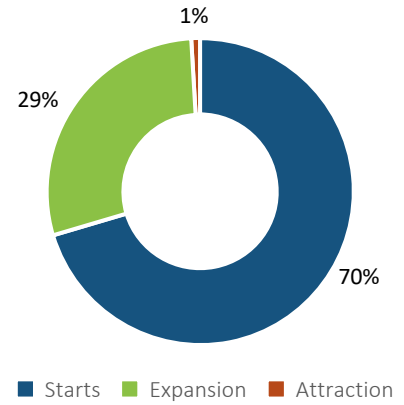
Thus, traditional expectations and misperceptions incentivize an excessive emphasis on attracting businesses. This also rewards focusing on external marketing over internal ecosystem-building that help a region to grow from within by providing business supports, talent development, shared innovation assets, export and FDI promotion, and capital access. Despite evaluations consistently finding return on investment from customized training is ten times greater than tax breaks, only 2% of the $50 billion spent each year on economic development incentives goes to job training. At the same time, site selectors rank workforce skills and workforce development as their top two criteria, followed by transport infrastructure, permitting processes, and taxes; with higher-value opportunities competing on labor quality versus cheap land (*Site Selection Magazine survey, Nov 2020*).

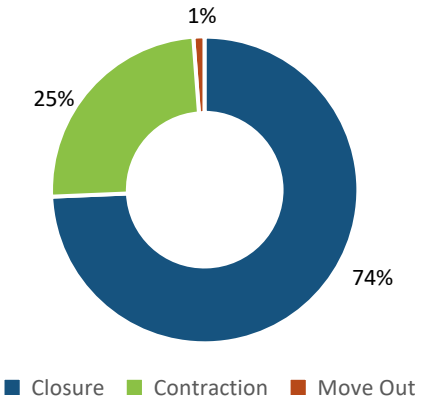
This dynamic also influences financing of economic development organizations (EDOs). Real estate developers and local governments are drawn to attraction. Regional traded sector and young firms benefit most from investments in resources and programs that benefit their own growth, not pitching location decisions to outside businesses.

Business attraction remains a valuable part of the economic development toolkit, especially when focused on an anchor that can spin off supply chain development, inject the benefits of foreign investment, or augment a high-value cluster by adding to the shared innovation and talent pool. COVID-19 adaptations likely increase potential for proximate supply chain nodes. However, the amount of attention, effort, resources, and weight given to business attraction as an economic development tool typically is far beyond its value and return on investment.

In rebalancing to grow from within, EDOs only hold direct responsibility or capability for a subset of all the policies, programs, and investments that contribute to the ecosystem. Many other regional stakeholders contribute to the prerequisites for improving economic performance – workforce developers, universities and technical colleges, innovation centers, infrastructure agencies, local and state government, community groups, and businesses individually and collectively. What distinguishes EDOS is their core mission to work directly with firms toward outcomes; the other contributors are essential, but their inputs need to be orchestrated for maximum effect.

Sources of Job Gains vs Losses in Kern County, 2009-2019





Source: Analysis of National Establishment Time-Series (NETS) data, Business Dynamics Research Consortium

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Macro trends and impacts have shifted the rationale and focus for regional economic development

Over the past three decades, macroeconomic trends in globalization, agglomeration of growth into larger urban centers, acceleration of technological disruptions, and demographic change have transformed regional economies and the kind of growth they produce. While Kern faces distinct issues as an economy built on commodities and resource extraction, plus external regulatory decisions, these macro trends are core challenges to every mid-size city-region and fundamentally altered how economies work for residents.

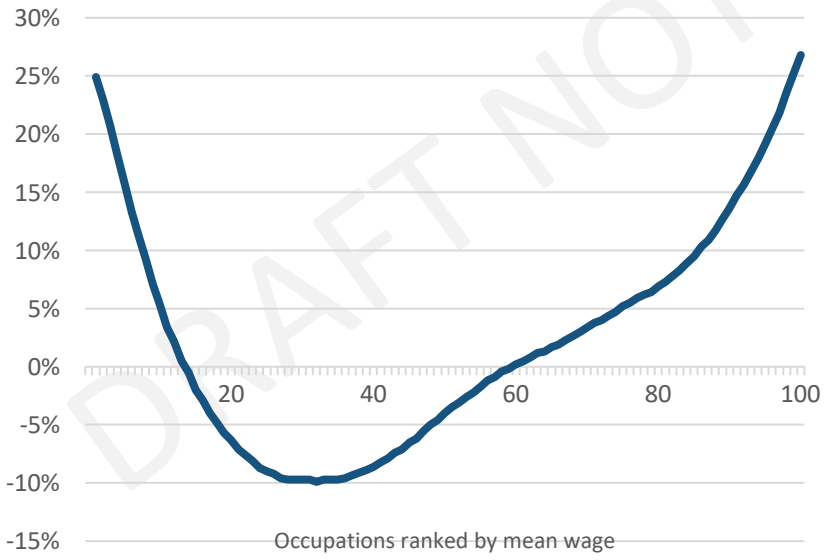
Specifically, the shifts have led to expansion of jobs at the high-wage and low-wage ends of the spectrum, with a hollowing out of middle-skill, middle-income jobs. In turn, that has reduced economic mobility – the ability to improve income and wealth over generations – especially for the middle-class; only 50% of 30 year-olds out-earned their parents in 2015, compared to nearly 80% in 1980.

Globalization	Agglomeration	Technology	Demographics
			
39% of Global GDP comes from cross-sector transactions in goods, services, and capital.	20 counties account for 50% of US business growth, versus 125 counties two decades ago.	Industry digital skill intensity correlates to higher mean annual wages, less susceptibility to automation.	Labor force growth is driven by more diverse populations, but with lower educational attainment.

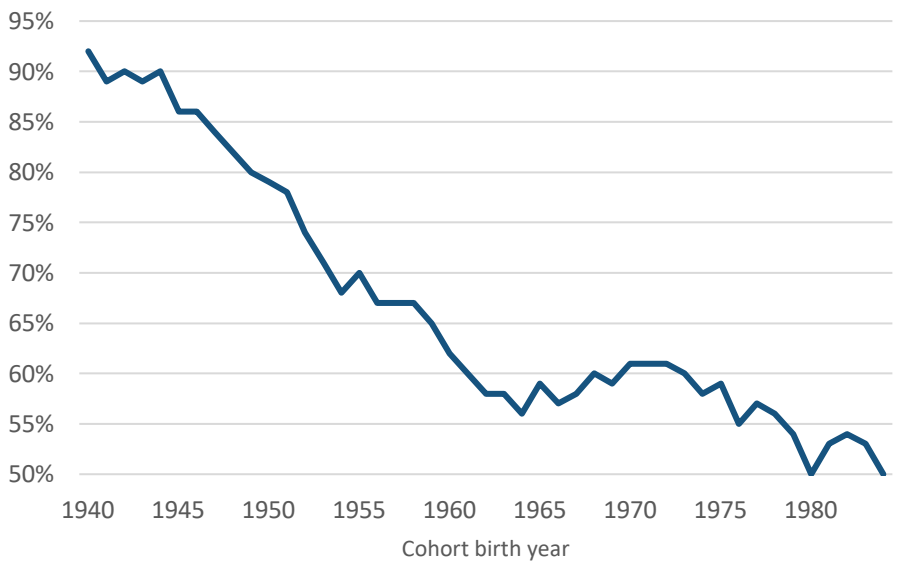
These dynamics also impact the productivity and competitiveness of regions themselves. Controlling for other factors, research shows that metro areas where lower-income children experience greater upward mobility achieve faster per capita income growth.

Responding to these challenges and opportunities requires a competitive economic development focus on targeting job quality and access over job counts or aggregate induced wages; building globally-distinctive clusters versus opportunistic business recruitments; and cultivating talent and technological aptitude versus capital expenditures.

Percentage change in employment share by mean wages, 1980-2015



Share of children earning more than their parents by age 30



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Redefining economic success and the focus for regional economic development efforts

Thus, economic success for any region now is more holistic – the ability to achieve long-term expansion (growth), by improving the productivity and value-creation of individuals and firms (prosperity), to create and promote access to quality jobs and economic mobility for all residents (inclusion).

These three aspects are related and mutually reinforcing. Growth does not automatically equate to economic opportunity and inclusive prosperity, but it also is impossible to achieve resident self-sufficiency and middle-class aspirations without sustained growth. For businesses to adapt and generate better quality growth amidst rising competition and disruptive technological change, they must be able to draw from regional capacity to solve their innovation challenges and adequately prepare people for the rigors of the modern economy, regardless of race or class.

These outcomes demand a different approach to economic development that distinguishes sectoral opportunities for job quality and access, prioritizes building local ecosystem assets for firms to form and grow as much as marketing for a business to move in, and integrates efforts by all contributors to economic competitiveness.

GROWTH

More jobs created and expanded output that increases labor demand and wages, plus young firms that generate greater wealth, employment, and earnings.

METRICS
Jobs
Gross Metropolitan Product
Entrepreneurship *(Young Firms)*

PROSPERITY

More productive firms to grow the economy from within and generate higher-paying jobs, so the region competes on quality versus low wages.

METRICS
Productivity *(GMP per Job)*
Standard of Living *(GMP per capita)*
Average Annual Wage

INCLUSION

Access to opportunities that raise employment and income, enabling residents across all community segments to participate to the fullest of their ability.

METRICS
Employment Rate
Median Wage
Relative Poverty
**differences by Race and Geography*

Brookings ***Metro Monitor***

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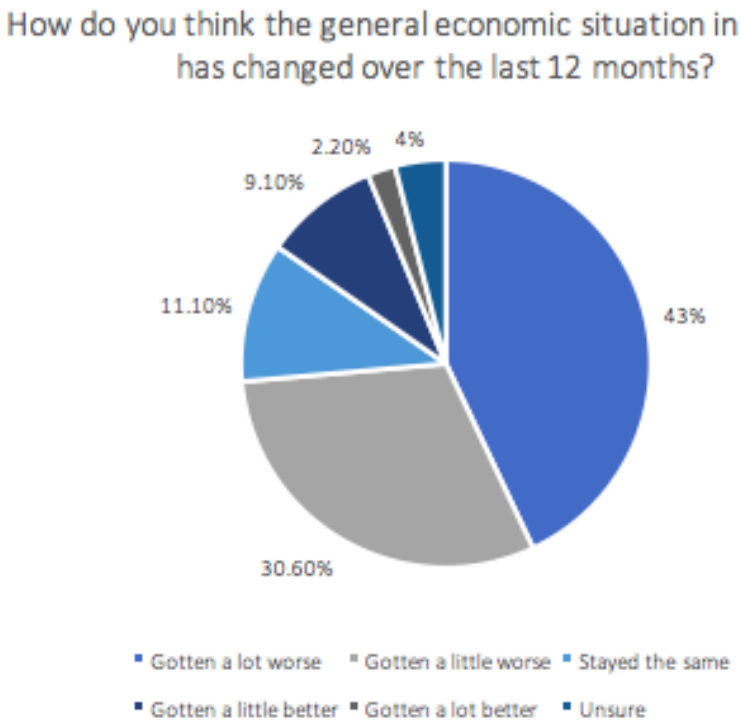
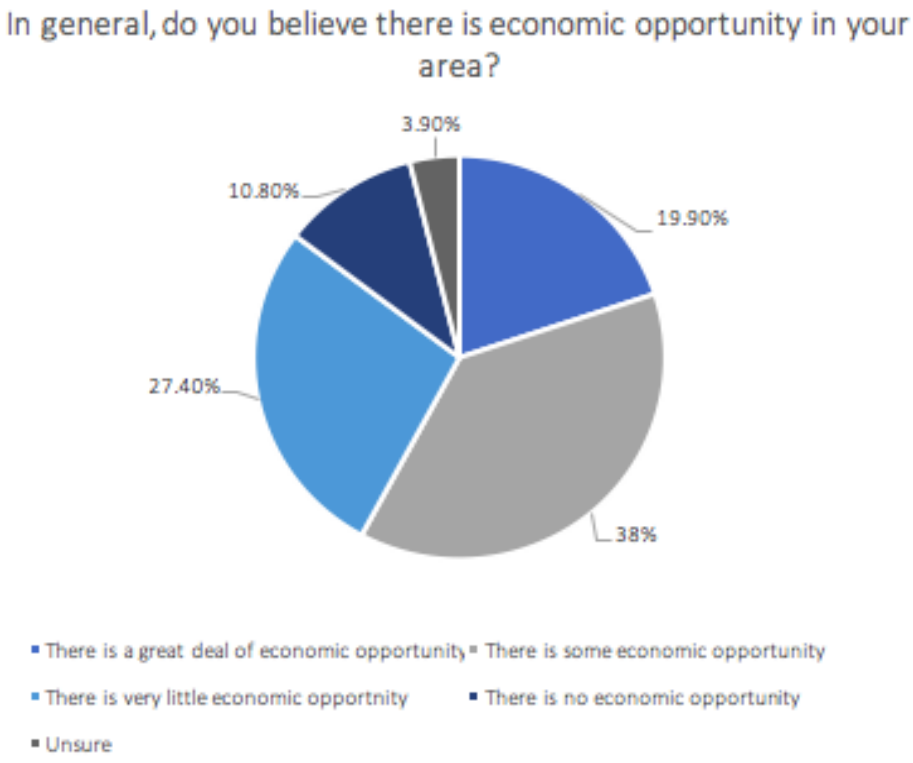
Community perceptions echo need for greater economic opportunity

B3K stakeholders conducted a county-wide, scientifically-valid public opinion poll in Summer 2020 to better understand perceptions of economic performance and opportunity. These findings validated the perceived importance of strategic action for improving the regional economy, aligned with success principles that focus on greater economic opportunity and mobility.

43% of Kern residents say the economic situation has gotten a lot worse over the last 12 months



Nearly 40% of Kern residents say there is very little or no economic opportunity in their area



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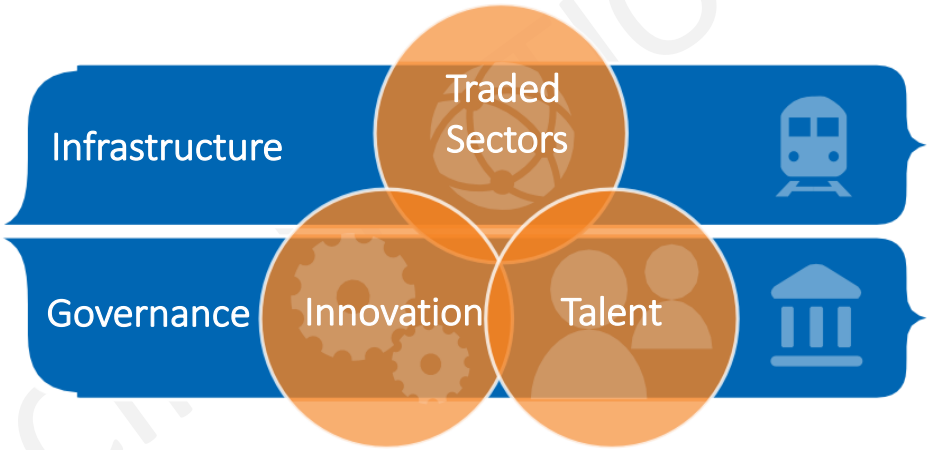
Delivering different economic outcomes requires focus on competitiveness drivers and scale

Regional economic competitiveness is the result of five factors. Strong **traded sector** industries, skilled **talent**, and robust **innovation** ecosystems drive overall productivity, job creation, and income growth. These are enabled by well-connected, efficient **infrastructure**, and effective **governance** through private, public, and civic relationships to deliver a positive economic environment by focusing and coordinating their contributions; however, the presence of enablers is insufficient to spur economic outcomes on their own.

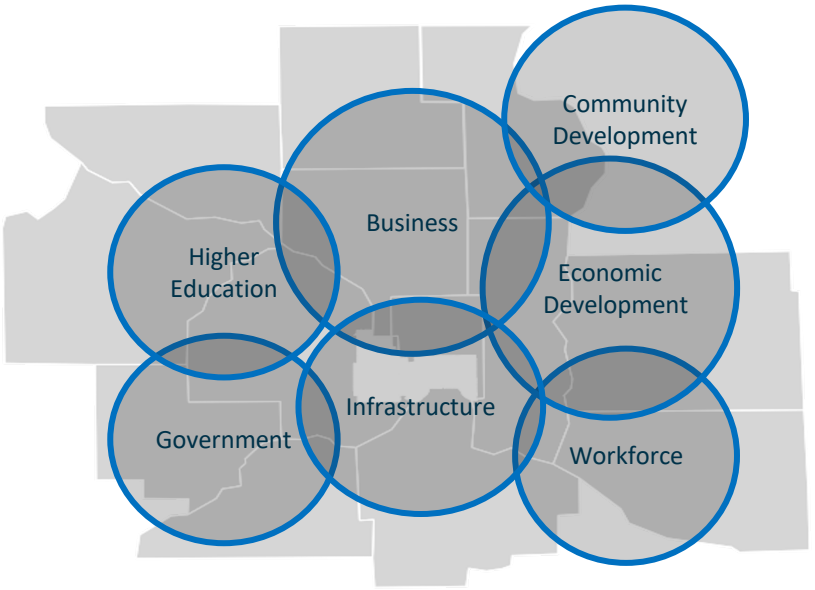
The Market Assessment is organized around these elements that define the region's economic position and areas for influence –

- Why traded sectors matter: Firms selling goods and services to customers from outside the region bring new money into the local economy. When this wealth is spent, it creates a multiplier effect spurring three to five new locally-serving jobs, depending on the industry. Participating in trade also makes regions more productive, with firms that link and learn in global value chains increasing in growth and wages; a 1% increase in international trade results in a 0.5% to 2% gain in per capita income.
- Why talent matters: In the modern economy, workforce capabilities far surpass any other single input to regional economic development. Regions grow when they develop and deploy residents to maximize their productive potential. The pool of available knowledge, skills, and expertise – and ability to cultivate more – is the top factor in cluster formation and business location decisions. The economic success of individuals, firms, and regions correlates closely to educational attainment and the density of relevant talent to draw from.
- Why innovation matters: A region's innovative capacity represents the ability to create new value, uncover new products and services, start new businesses, adopt solutions that improve productivity, and adapt to rapid technological change. The most competitive, diversified regional economies have strengths in four areas – research and development, commercialization, entrepreneurial dynamism, and advanced industrial production.
- Why infrastructure matters: Transportation efficiency, broadband connectivity, and land use policies support regional productivity, access to talent, and promotion of density for agglomeration and proximity benefits.
- Why governance matters: Jurisdictional lines do not define the geography at which the economy operates; there is no national, state, or city economy, but regional scale at which competitiveness driver assets are shared – workforce commutes, business networks, university access, transportation systems. Further, the economy relies on contributions of many actors across sectors with different institutional responsibilities and resources. Governance is the formulation and execution of collective action across these boundaries, so regional competitiveness relies on the capacity of private, public, and civic institutions to focus, marshal, and execute strategy and investment for a common economic development agenda.

Drivers of economic competitiveness



Cross-sector action at the regional scale



Sources: Brookings: Remaking Economic Development; Brookings / McKinsey / RW Ventures

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Market Assessment Approach

This Market Assessment is an action-oriented research product resulting from a process led by the Brookings Advisory Team between June and November 2020. It provides the evidence base and implications from which B3K participants can decide priorities and create interventions during the Strategy Phase in December 2020 through April 2021.

- **Quantitative analysis** examined more than 80 indicators of the region's economic performance, drawing on data from a range of proprietary and public sources, anchored by a novel assessment of "Opportunity Industries" job quality and access.

- **Qualitative research** undertook individual interviews, six topically-focused roundtables, and a continuing community involvement effort that totaled more than 100 substantive contacts with government, community, and business stakeholders; in order to collect market insights, contextualize quantitative findings, inventory programs and pilots, and consider civic governance capacity.

Through the late summer and early fall, the Advisory Team previewed progress and analysis with stakeholders, receiving collective and individual feedback that informed or guided the process. For example, the Executive Committee as a whole set policy targets for reducing the share of working families that cannot achieve self-sufficiency in order to define the wage threshold for a "good job" used in the Opportunity Industries analysis. The Research Committee similarly provided perspective and input at various stages, including suggestions and context from supplementary analyses and data sources. Lastly, the Advisory Team conferred with consultants to Bakersfield preparing a city-specific plan for an economic development function start-up and strategy, in order to ensure alignment in approaches.

Accounting for COVID-19:

B3K started to organize as the COVID-19 pandemic began. Amidst a disruption of unknown duration and impact, undertaking a long-term regional economic strategy ran counter to the immediacy of severe disruptions for the region's residents, workers, and businesses – as well as the uncertainty about implications for mid-term recovery or permanent changes to how the economy trends. Data reflecting ten years of post-recession economic performance or twenty years of worker career movements seemed disconnected from current circumstances, yet no post-COVID data would be available or any indicator of future directions.

Yet, what drives regional competitiveness, how to measure economic success, or options to organize for economic development have not changed with COVID-19. Rather, the pandemic has exposed and reinforced the challenges of job quality, family self-sufficiency, and economic mobility. It also has accelerated prior trends in digitalization, automation, and logistics. Several prospective growth opportunities raised by the pandemic – remote work; manufacturing supply chain resiliency; the potential that some second-tier cities could be more competitive with larger hubs – are intriguing, but remain to be proven.

Like all disruptions – technological, natural, or economic – goals and principles still set the basis for response, forecasting is an educated guess based on evidence and experience, and adaptability to evolving circumstances is required. The objectives and challenges for Bakersfield and Kern remain the same, as do assets, liabilities, and longitudinal data that defines those strengths and weaknesses.

COVID-19 impacts are a consideration for inputs, but they do not reset the fundamentals of how to approach an inclusive economic development strategy for the region.

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Performance is benchmarked against economic, geographic, federal R&D peers and aspirational metros

Benchmarking Kern externally against peers is required to understand the region's performance and competitive attributes, and to identify transferable program or policy interventions from comparable circumstances. Four categories are identified to provide insights on different aspects of the region.

Economic Peers are identified based on similarities in industrial mix, population, Gross Metropolitan Product, wealth, productivity, anchor institutions (*e.g. no Tier 1 research university*), and other competitiveness factors.

Geographic Peers are California city-regions typically associated with each other given their location in the San Joaquin Valley and prominence in agriculture. However, the historic tendency to associate these areas based on their inland location, agribusiness presence, and high unemployment and poverty rates does not necessarily reflect a close economic likeness or connection; in fact, the economic characteristics of Kern are very distinct from other San Joaquin Valley metros, and they also are differentiated from each other. Additionally, geographic comparisons did not include southern California regions like Los Angeles or the Inland Empire that do not resemble Kern, despite local theories about a connection in migration in residents and businesses.

Federal R&D Peers are mid-size metro areas with national lab or military base research centers akin to those in East Kern, particularly in aerospace and without attachment to a major research university. While not particularly similar in industry composition, size, or economic outputs, these comparisons reveal performance in translating federal assets to commercial advantages.

Aspirational Metros are larger "American Middleweight" regions with characteristics that Kern could reasonably target for long-term improvement in performance. These metros experience steady economic progress with at least one globally-relevant export niche, an educated talent base, and commercially-valuable anchor institutions, but compared to high-growth "knowledge capitals" still grapple with larger concentrations of local services, a lack of elite innovation outputs and Tier 1 research universities, less foreign investment, and lower traded sector productivity.

Economic Peers
- Albuquerque, NM
- Boise, ID
- Ogden, UT
- Oklahoma City, OK
- Omaha, NE
- Spokane, WA
- Syracuse, NY
- Tulsa, OK

Geographic Peers
- Fresno
- Modesto
- Stockton
- Salinas

Federal R&D Peers
- Dayton, OH
- Huntsville, AL
- Santa Fe, NM
- Santa Maria / Santa Barbara, CA

Aspirational Metros
- Indianapolis, IN
- Kansas City, KC
- San Antonio, TX

Market Assessment Data Book

1. Economic performance and traded sectors
2. Opportunity Industries: Job quality and economic mobility
3. Competitiveness Drivers
4. Implications, next steps, and workgroup activity

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Kern County added jobs faster than the nation and projections, based on its industry mix

Kern County's recent job growth has outpaced the nation. Kern County's job base grew 23% over the 10 years from 2009 to 2019, from 278,000 to 342,000 jobs. This exceeded the nation's rate of job growth. The county entered and exited the Great Recession before the rest of the country and mounted a strong jobs recovery.

"Competitive shifts" account for about one-third of the county's job growth during this period. The national labor market grew 14.3%, and Kern County's specializations in faster-growing industries added another 1.1 percentage points to the county's job growth rate. However, Kern County's sectors added jobs at an even faster pace than the nation, accounting for the final 7.3 percentage points of the county's job growth.

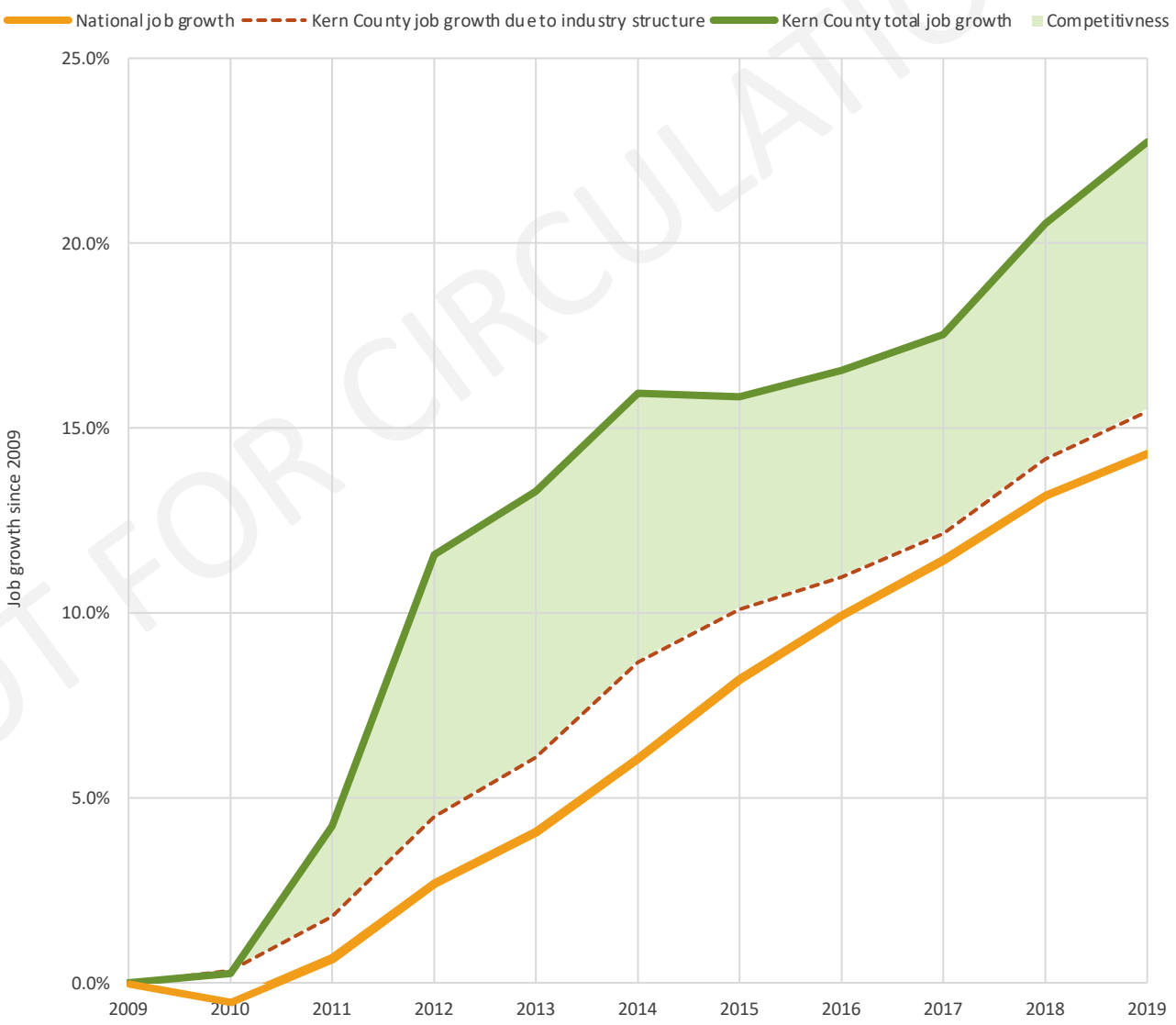
These industries were able to add jobs at a faster rate than their national counterparts because of distinct local economic conditions that drove their growth and/or made them more competitive.

Kern experienced a brief recession in the middle of the last decade. The county's competitiveness was greatest during the early years of the recovery from the Great Recession, from 2010 to 2014. In 2015, the county's two largest traded clusters, agriculture and oil, saw simultaneous downturns that caused a brief recession within the County. Though much of the agricultural sector since recovered, the county's food manufacturing cluster did not. The oil industry shed half its jobs from 2015 to 2017 and has remained stagnant.

The County's labor market revived thanks to population growth, and a few high-growth sectors. Though the county's growth slowed from 2014 to 2017, it accelerated once more thanks in large part to increasing local demand, recovery of agricultural production, and the emergence of a transportation and logistics cluster.

Kern County's job growth and components of change

Cumulative from 2009 to 2019*



* This chart displays the results of a dynamic shift-share analysis, which decomposes local job growth into three factors: national macroeconomic growth, national industry growth, and growth due to local competitive shifts.

Source: Brookings analysis of Economic Modeling Specialists Intl. estimates and U.S. Clusters Mapping Project cluster definitions.

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Tradable industries represent a small portion of the county's performance

Kern County's local-serving, traded, and public sectors all saw notable job growth from 2009 to 2019. Traded sectors – industries that produce goods or services that are primarily sold to customers outside of the County – added nearly 25,000 jobs. Its locally-serving sector, which provides goods and services for consumers and businesses within the County, added nearly 37,000 jobs. The public sector, which includes federal civilian and military employment, added 8,700 jobs.

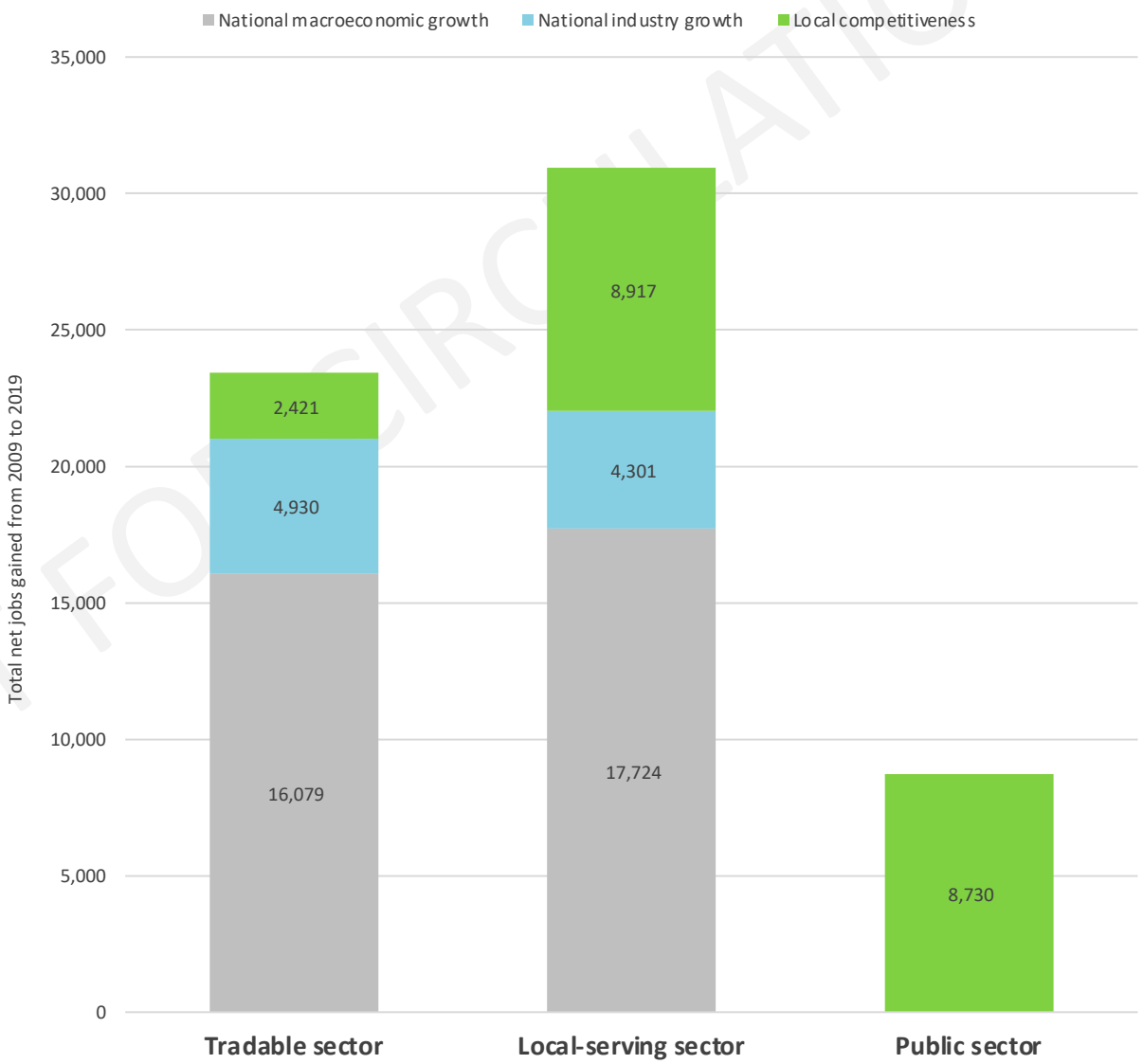
The locally-serving and public sectors each far exceeded average national job creation during this period. Job growth in the locally-serving and government sectors netted the county close to 18,000 more jobs than expected. In fact, nationwide, the public sector shed jobs. Kern's public-sector growth was driven not by its federal civilian or military installations but by state and local government, primarily within the city of Bakersfield. Those jobs may be related to growth in prison employment.

Traded sectors were not as competitive. The sectors that export goods and services to bring new income into Kern County accounted for notable job creation over the decade and grew slightly faster than expectations. However, they accounted for far less total growth compared to locally-serving sectors at just 2,400 net jobs, representing only 12% of the county's performance in outpacing the national baseline.

This balance of growth and competitiveness raises concerns about the trajectory and resilience of Kern County's economy. Although the county looks very competitive on the surface, this analysis finds that traded sectors that typically drive regional economic growth actually are only slightly competitive compared to the national base and account for an only relatively small portion of the county's economic value.

Kern County's job growth by sector and component

Cumulative from 2009 to 2018*



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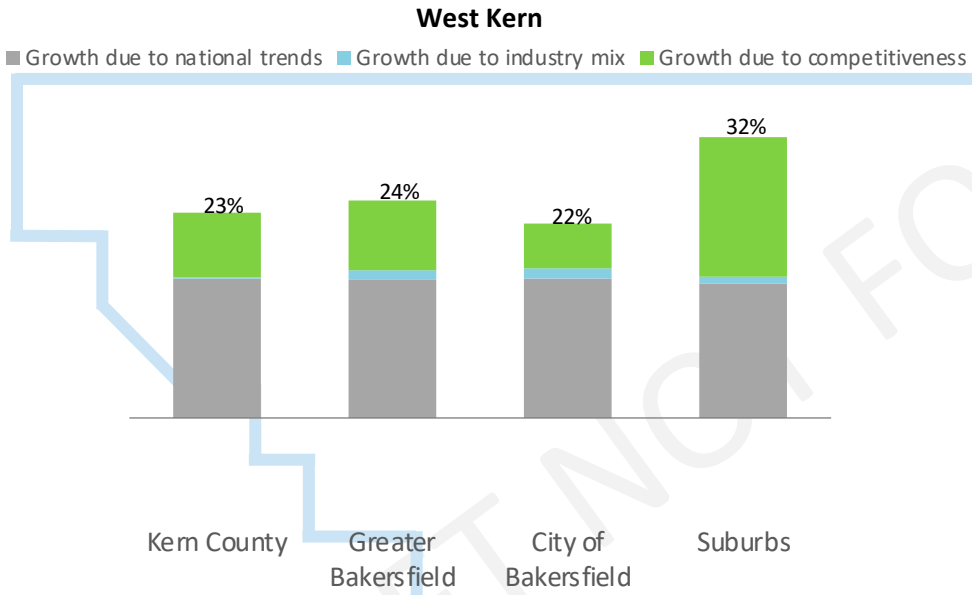
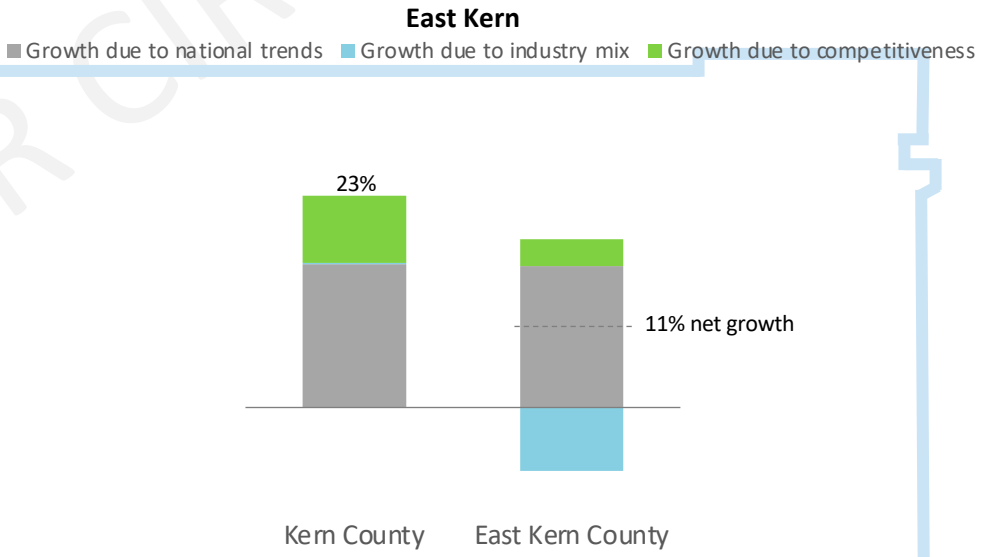
Although classified as one metro, Kern has two functional economic areas that diverge in character

Economic regions typically are defined by Metropolitan Statistical Areas (MSAs) designated by the federal government as encompassing cities and surrounding suburban and rural areas closely linked by significant economic factors and interaction, most notably as workforce commuting sheds. For clarity and statistical purposes, these regions follow political jurisdictions, and usually extend across adjacent county boundaries. Different parts of a region vary in performance and assets, or may be on the fringe, but they share functional economic connections.

The Bakersfield MSA is coterminous with Kern County, so intuitively the vision is of one functional economic area, despite a population spread over 8,000 square miles that otherwise would encompass multiple states and metropolitan areas. Overseeing a single administrative unit, elected leaders have emphasized commonalities and potential for links between Greater Bakersfield and East Kern, in the same way that states do. Kern's written economic development strategies consistently have focused on the County as one region, except for the East Kern diversification study in 2017 in response to US Defense Department funding focused on the military presence.

In fact, analysis shows the performance, growth drivers, industry composition, and talent base of Greater Bakersfield versus East Kern are fundamentally different, and the functional economic and workforce affinities are not significant. But for the County boundary, it is likely that these two areas could be classified as separate metros, with East Kern associating to Palmdale and Lancaster rather than Bakersfield.





- Jobs in the Greater Bakersfield portion of Kern County **grew by 24%** from 2009 to 2019.
- Almost one-third of job growth in Greater Bakersfield was attributable to factors other than industry composition and national economic trends – namely population growth.
- Locally-serving **consumer-driven sectors** and **local government** accounted for most of this performance.
- Traded sectors account for only 12% of the region's accelerated growth -- driven primarily by agriculture.

- Jobs in the East Kern portion of the county **grew by 11%** from 2009 to 2019.
- East Kern specialized in industries that grew slowly nationwide, but still performed better within Kern County.
- **Traded sector advanced industries** and federal innovation center employment drove the area's job growth.
- The area's competitiveness enabled it to overcome these headwinds and add more jobs than expected.

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Regional industries mapped to cluster combinations show deficit in growth and specialization

Current sectoral specializations and growth patterns are a foundation on which to consider future economic potential. To improve interpretation and application, the Market Assessment organized standard industry codes into "clusters" established by the US Cluster Mapping Project that group related activities. These clusters are split by upstream and downstream functions, such as separating agricultural production from processing.

The resulting analysis shows selected clusters based on their concentration, competitiveness, and job counts. The clusters had at least 100 jobs in 2019 and met at least one criteria of:

1. adding jobs in Greater Bakersfield or East Kern from 2009 to 2019
2. competitive growth in Greater Bakersfield and/or East Kern from 2009 to 2019
3. location quotient greater than one in the County as a whole, indicating specialization

The extraordinary challenge for Kern is the lack of any sectors in the upper right quadrant – with both growth and specialization.

Agricultural production and oil drilling are so specialized and large in the region that they cannot be shown within the chart scales.

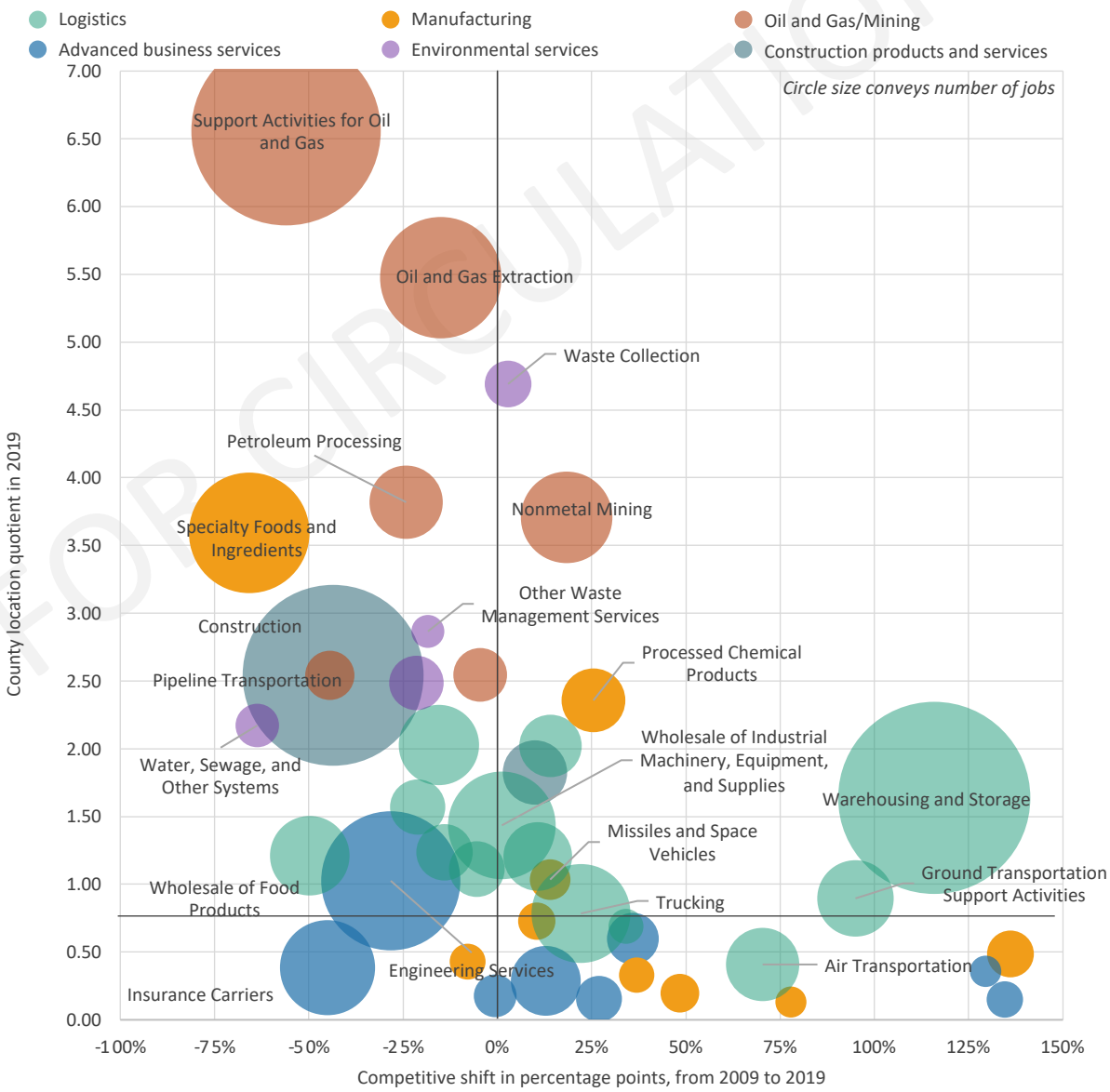
Aerospace-related manufacturing is somewhat understated in specialization because its concentration in East Kern is diluted within the county economy as a whole.

The region evinced very high growth and mild specialization in the logistics cluster, particularly in warehousing.

The logistics cluster also is defined to encompass wholesale trade, which also reflects regional production strengths. In combination, manufacturing subclusters emerge as either moderately specialized or increasingly competitive.

Business services experienced notable decline in some major clusters like insurance and engineering, and evinced no other specializations. Some hints of emerging potential appear for narrow categories based on fast growth off a low base.

Concentration and competitiveness of selected tradable subclusters in Kern County



* This chart displays the results of a dynamic shift-share analysis, which decomposes local job growth into three factors: national macroeconomic growth, national industry growth, and growth due to local competitive shifts.

Source: Brookings analysis of Economic Modeling Specialists Intl. estimates and U.S. Clusters Mapping Project cluster definitions.

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Agriculture and logistics accounted for most of the region's ten-year traded sector growth

The region's tradable sector competitive performance derived almost entirely from agriculture. The agricultural cluster, which contains farms and farm services, is Kern's largest beside government. It grew twice as fast as the national agricultural cluster, adding nearly 12,700 more jobs than expected, for a total of 65,000 jobs; these gains account for basically all of the region's traded sector expansion. Kern's largest private-sector cluster in terms of jobs, it represents a share of regional employment that is almost 22 times larger than agriculture represents in the U.S. economy as a whole.

The logistics cluster was the only other notable industry contributing to Kern County's traded sector competitiveness. However, competitive shifts in the transportation, distribution, and electronic commerce clusters only netted a combined 900 jobs during this period, or 7% of the agriculture impact.

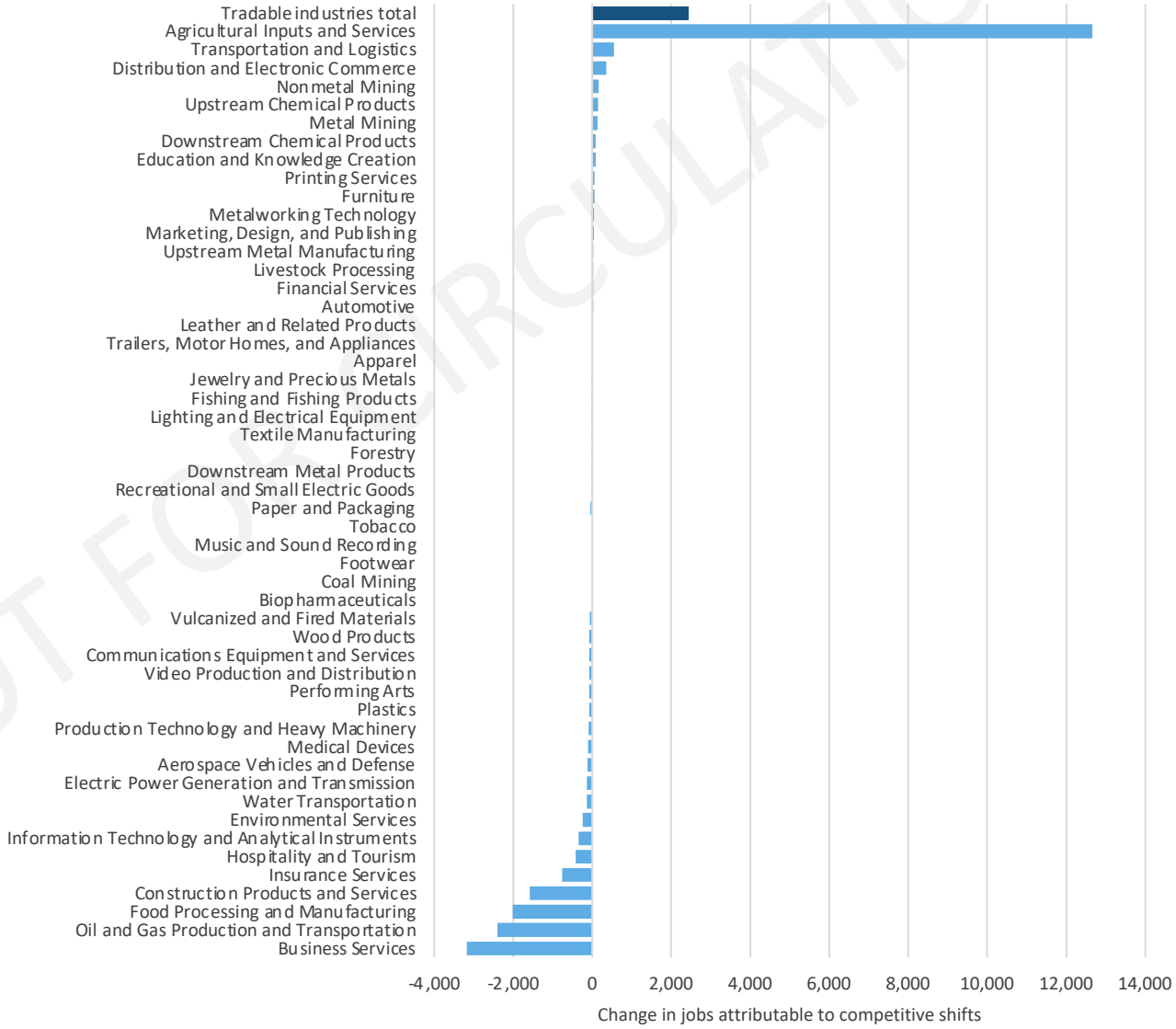
The competitiveness of regional agriculture and logistics was offset by oil and gas and food processing clusters. These two clusters are pillars of the county's traded sector jobs, but they grew slower than national baseline. In fact, they lost a combined 4,400 jobs over ten years.

The knowledge-intensive business services cluster lost jobs, against macro trends. This cluster grew nationwide but shrank in Kern County. Within business services, the competitive deficits of insurance, computer, and engineering services subclusters cost the greatest number of jobs. These subclusters concentrate especially large numbers of highly educated workers and support other quality mid-skill jobs.

The aerospace cluster did not show its competitive advantage against other regions. While masked by the scale of the overall county economy, the aerospace cluster is distinctive, and very significant to the East Kern economy and the entire county's R&D capacity. Although its existence is built on unique assets, it did not outperform general trends overall. Defense and space subclusters were competitive but offset by a decline in aircraft manufacturing.

Local competitive shifts in Kern County's tradable clusters

Cumulative from 2009 to 2018



* This chart displays the results of a dynamic shift-share analysis, which decomposes local job growth into three factors: national macroeconomic growth, national industry growth, and growth due to local competitive shifts.

Source: Brookings analysis of Economic Modeling Specialists Intl. estimates and U.S. Clusters Mapping Project cluster definitions.

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The region's largest tradable clusters confront serious market headwinds

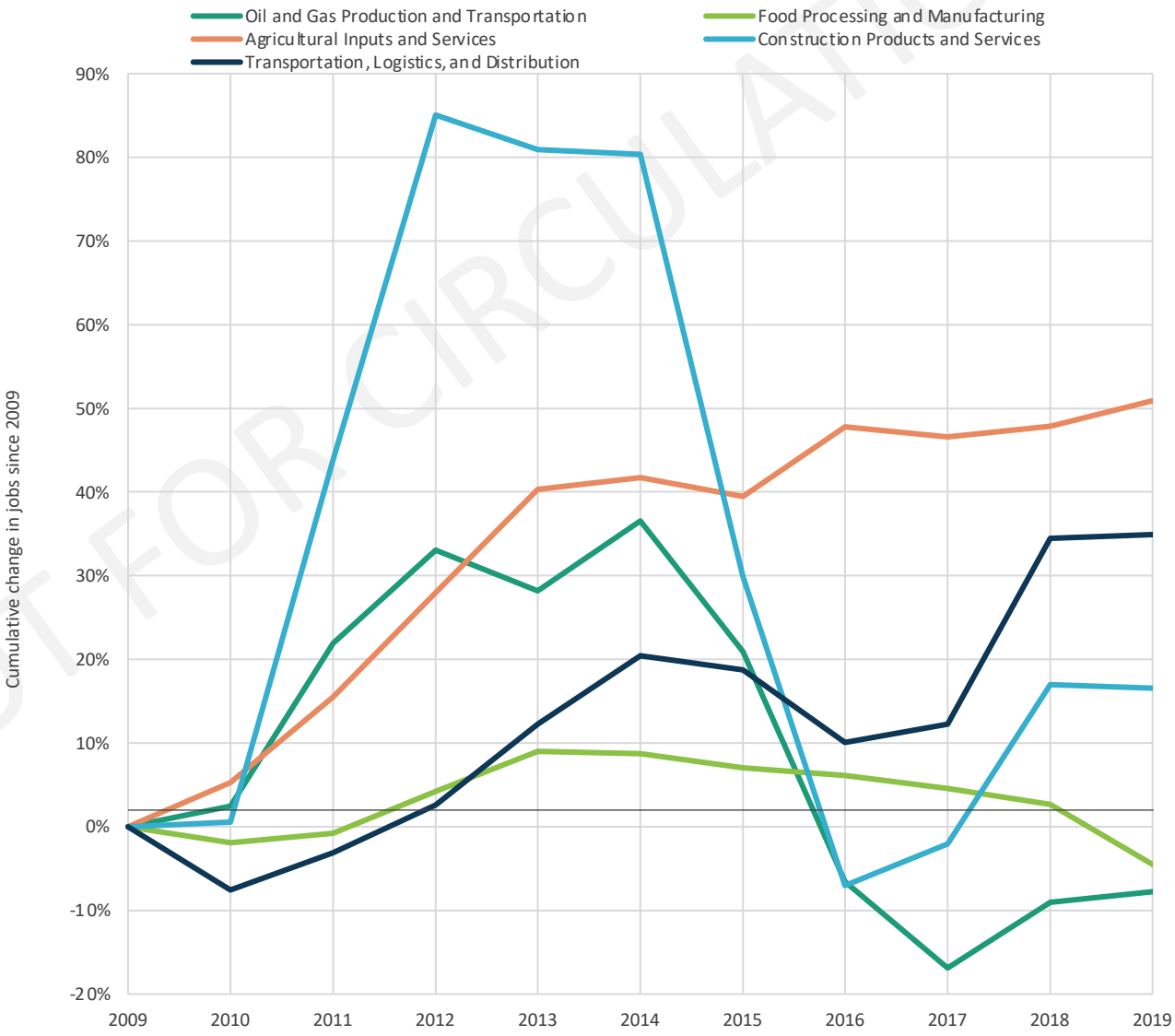
These performance reviews suggest that significant parts of Kern County's economy reached an inflection point in the middle of the last decade. Underneath the positive growth picture, the region's faster-than-average job creation was dependent largely on a massive expansion of its agricultural sector in the aftermath of the Great Recession, the more recent emergence of a logistics cluster expanding from southern California, and rapid increases in state / local government and education employment.

Meanwhile, oil and gas and food manufacturing have become less competitive or stagnant. The decline of these clusters is particularly troubling because they account for so much new regional income from the sales outside the county, as well as employment; oil and gas in particular generates an extraordinary number of quality jobs accessible to low-skill and mid-skill workers.

Changing global economic conditions, external competition, consumer preferences, regulatory policies, and the COVID recession will further test Kern County's economy. Combined, these external forces will continue to challenge many of the industries and clusters on which the Kern economy has traditionally relied and may accelerate their decline. The effects of environmental policies, water management, and general business climate raise resiliency and adaptation issues for the oil and gas and agricultural sectors. Aerospace in East Kern faces new intrastate and national competitors for operations.

Kern County needs new growth engines. The county can seek to leverage the strengths and momentum it has in legacy clusters to shore up competitiveness where possible. However, it also needs to pursue moving those sectors up the value chain; expanding into adjacent industries; and promoting emerging clusters that are the future of the U.S. economy, reflecting more innovative and value-added activities.

Kern County's job growth in major employment clusters (excluding aerospace), 2009-2018



Source: Brookings analysis of Economic Modeling Specialists Intl. estimates and U.S. Clusters Mapping Project cluster definitions.

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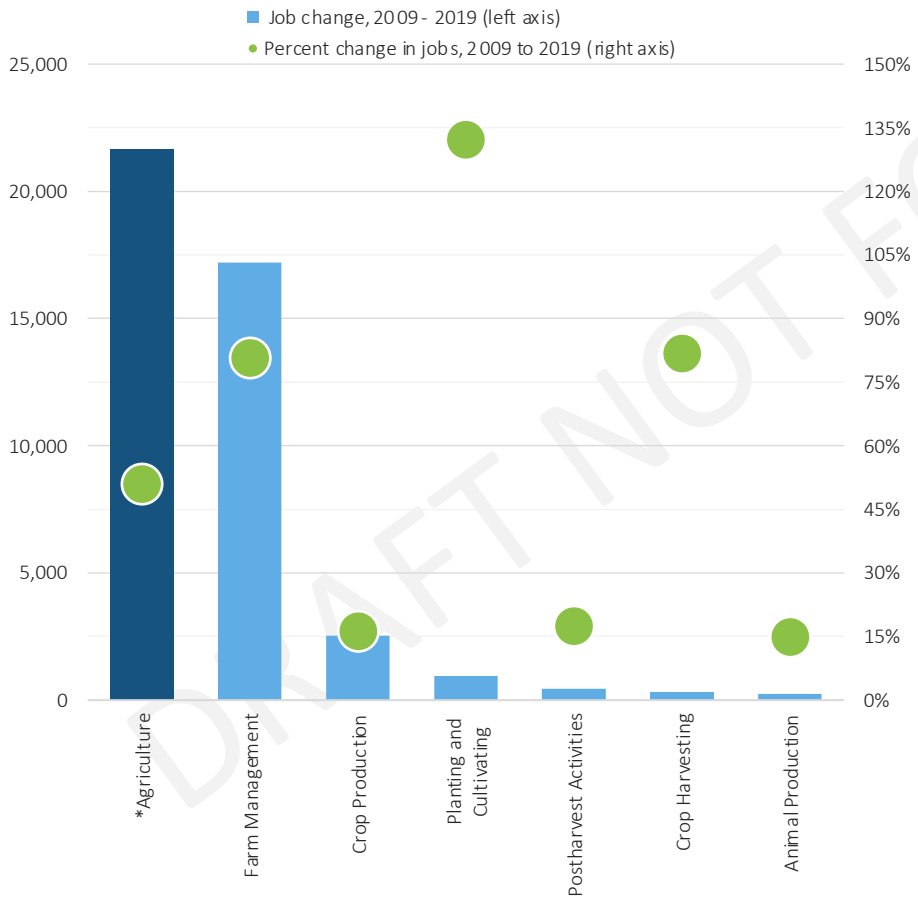
Amid exceptional growth in agricultural production, food manufacturing stagnated

Rapid job growth in agricultural commodity production – accounting for 21,600 new jobs over the past decade – obscured problems in the region's smaller, but higher-value, food processing and manufacturing cluster.

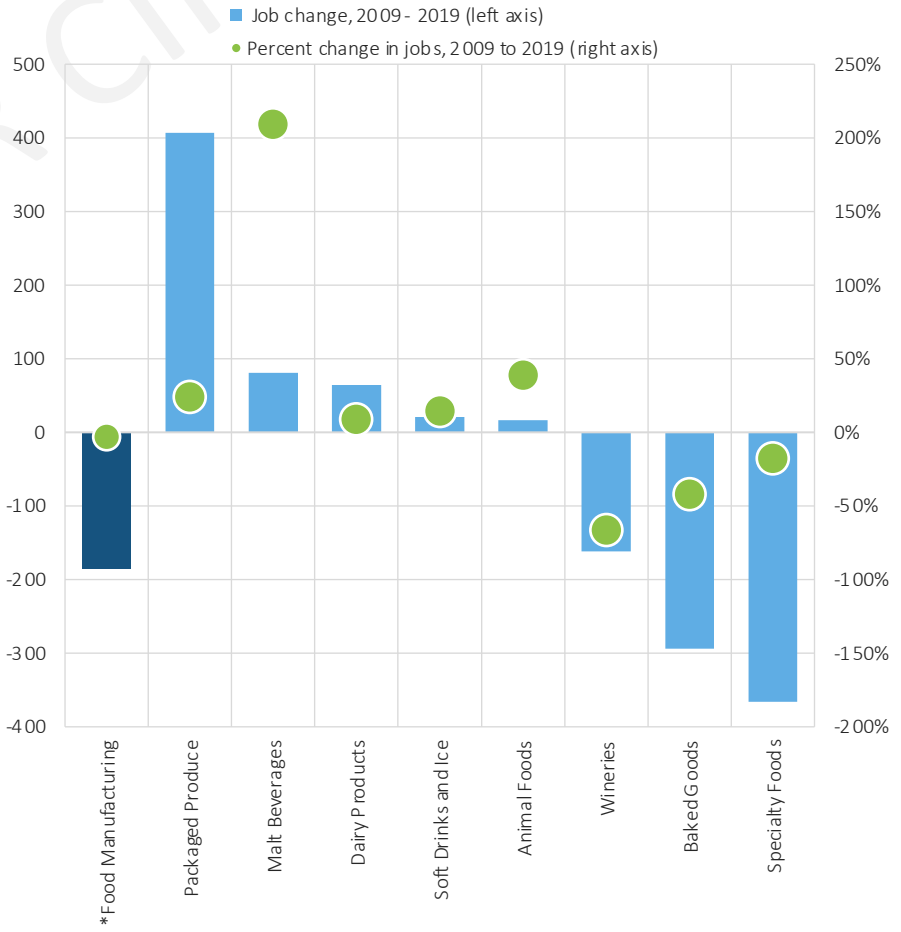
Agriculture's expansion was driven by farm management, a subcluster that contains companies that provide labor and crop cultivation and harvesting services to farms. A smaller number of jobs were added directly by farms in the crop production, planting, cultivating, and harvesting subclusters. This job growth suggests the cluster is thriving in Kern County amid regulatory and water challenges, and may be evolving toward more labor-intensive crops. However, agricultural jobs are low-paid, meaning this growth likely is not supporting efforts to ensure that more Kern residents can access higher-quality, family-sustaining jobs.

Food manufacturing historically has been a specialization of the County economy, with twice the concentration of employment as in the U.S. as a whole. However, while the sub-sector actually added jobs nationwide during this period, Kern's cluster experienced considerable churn, as certain parts (e.g. specialty food manufacturing, baked goods manufacturing, and wineries) lost jobs while others (e.g. packaged produce and smaller beverage and dairy subclusters) gained. Several of the declining areas are some of the highest value-added portions of the food manufacturing cluster, although specialty foods remains a large subcluster with around 1,700 jobs.

Change in jobs within Kern's agriculture cluster, 2009 to 2019



Change in jobs within Kern's tradable food manufacturing cluster, 2009 to 2019



Source: Brookings analysis of Economic Modeling Specialists Intl. estimates and U.S. Clusters Mapping Project cluster definitions.

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Options for higher-value agricultural activity and better jobs are limited

Despite the outsized performance of the agricultural production sector, pressure from state groundwater management constraints, potential for automation, and low job quality force a strategic question: whether this agriculture base can be leveraged into other more enduring aspects of the value chain with better quality jobs.

Unfortunately, the region's underdeveloped innovation assets (*see Section 3*) vis-à-vis competing, first-mover regions complicate ambitions to evolve into either new agri-food tech products or services to be used locally and exported (e.g. plant or animal sciences, robotics, precision agriculture, supply chain control) or water management innovations.

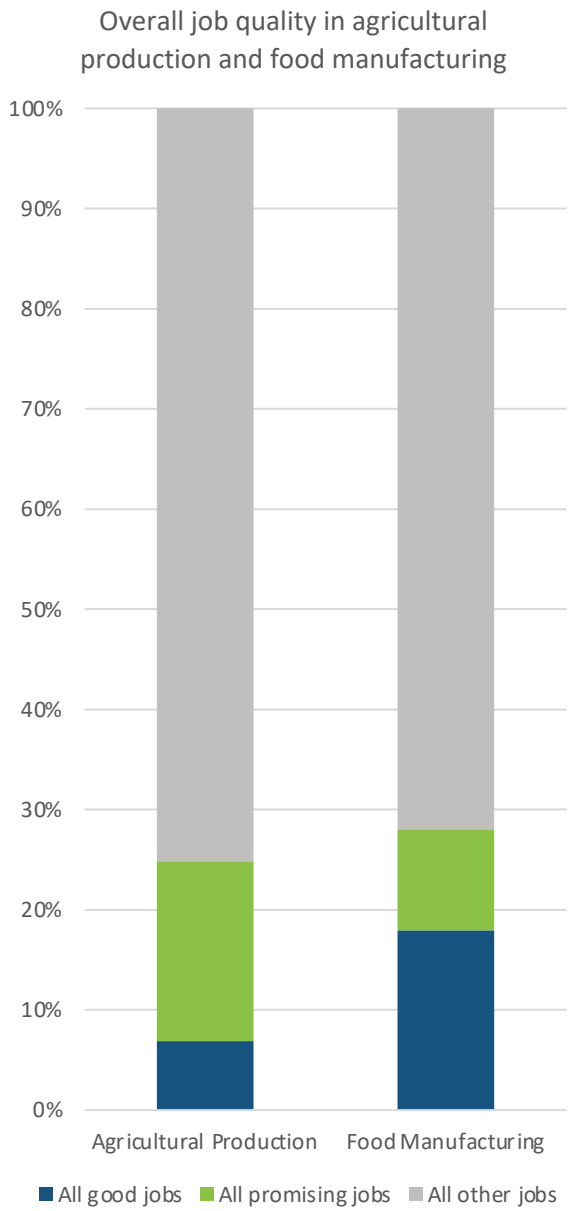
Notwithstanding high impact research concentrations in basic agricultural disciplines like entomology, horticulture, veterinary services, and agronomy, Kern does not have novel convergence or any comparative advantage to other established specialized agricultural hubs.

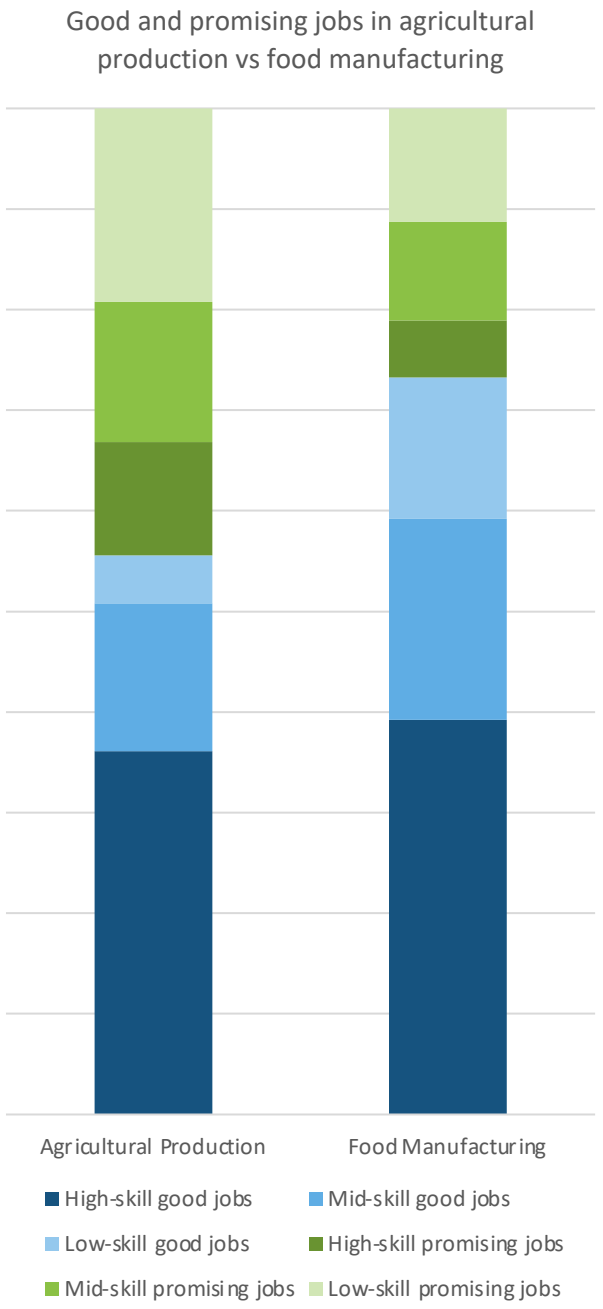
Meanwhile, despite expertise in pumps, an evaluation of the business base; innovation map and physical assets; and competing water tech, management, and policy centers did not uncover a strong foundation for a water management niche.

The alternative is finding more areas within "value-added agriculture" that differentiate from commodity production, which could range from growing organic to making carrots into hot dogs, rice, and pasta.

Only reinforcing and expanding food manufacturing, reversing current trends, offers some opportunity within this category. While slightly below-average in job quality against other sectors, food manufacturing generates better quality jobs than agricultural production, as well as higher multiplier effects of between 2.5 and 5.0 for indirect and induced jobs. Skills adjacency between the sub-sectors is strong. Therefore, food manufacturing provides good jobs across skill levels and can upgrade overall job quality.

Food manufacturing offers higher job quality than agricultural production





**.Source: Brookings Opportunity Industries analysis. This methodology is introduced and presented in more detail in Section 2.*

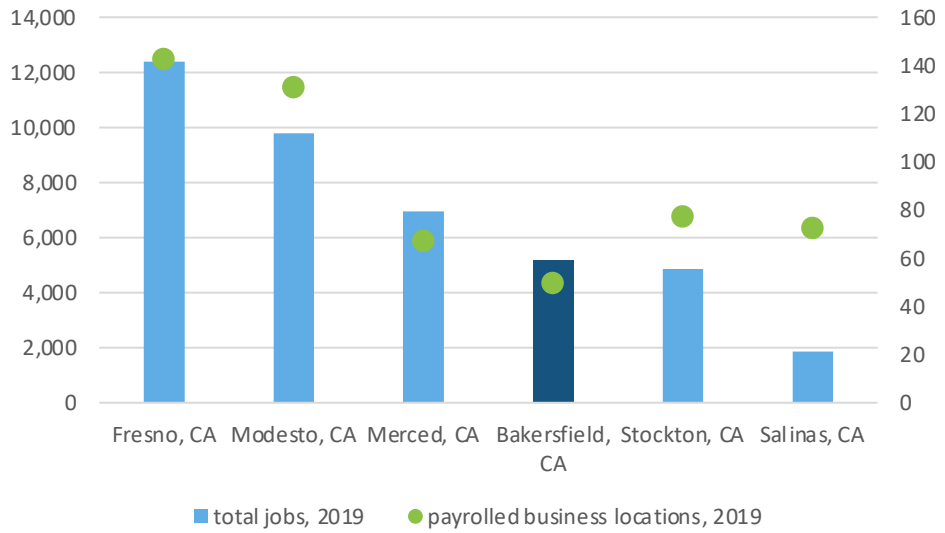
Though less present than in comparable California agricultural regions, food manufacturing has potential

The scale of Kern's food manufacturing jobs and firms is notably behind comparable California agricultural production regions in terms of absolute numbers and intensity. Despite leading the San Joaquin Valley in growing commodities, it lags all others in converting those into value-added food products. Still, the region has a location quotient of 1.76 and is base to some large, nationally-recognizable firms.

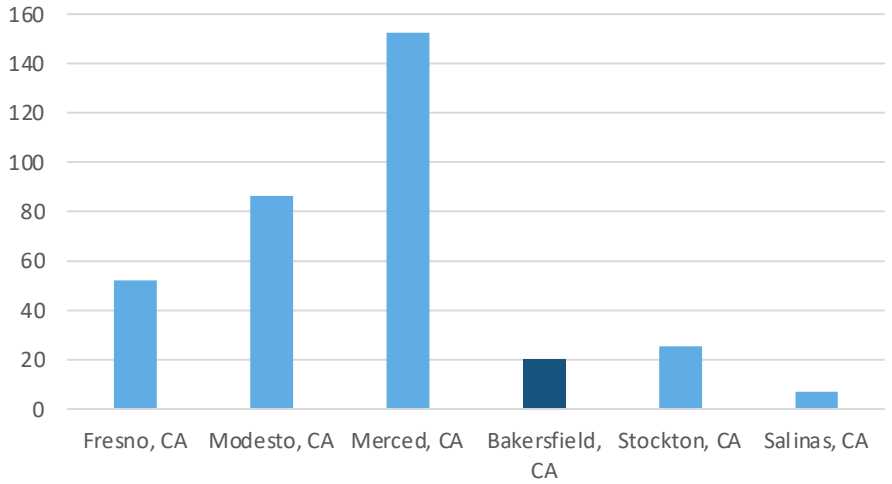
One factor for the location of food production activities depends on value-to-weight and perishability. Those that are low in both categories typically are regionalized in multiple locations (*e.g. soft drink bottling*), while those that are high may be manufactured more centrally in fewer places.

With the region's other locational elements and talent base, this suggests untapped potential for spurring more food manufacturing activity as a straightforward economic development opportunity that meets job quality and access objectives. It also relates to other manufacturing strengths for the region.

Total food manufacturing jobs and payrolled business locations, 2019



Food manufacturing jobs per 1000 workers, 2019



Analysis of Emsi-economicmodeling.com data, 2020

Opportunity for food innovation and R&D appears more limited. A few local firms also have internal research and development capabilities to make entirely new products, with their own food scientists, research chefs, and process engineers. Additionally, the innovation ecosystem mapping (*slide 67*) uncovered a node of food science technology expertise, but it is too small to rank anywhere on the impact index.

However, no strong evidence emerged from the Market Assessment analysis that the region has existing assets to be positioned more broadly as a hub of food manufacturing product or process innovations that could spin off significant new commercial opportunities, whether in products or services. Large food and beverage companies tend to centralize their own research and development at headquarters, whether in products, production, or packaging. Without that presence to build on, the basics of universities with strong research and development in food processing innovation, or even a public test kitchen, it is difficult to spur dynamic new firms within the market.

Therefore, the most accessible opportunity is simply looking to expand existing or attract other food manufacturing activities.

Within food manufacturing, occupational growth narrows potential focus

Within food manufacturing, the largest occupational categories are packaging and hand laborers, offering a variable mix of job quality.

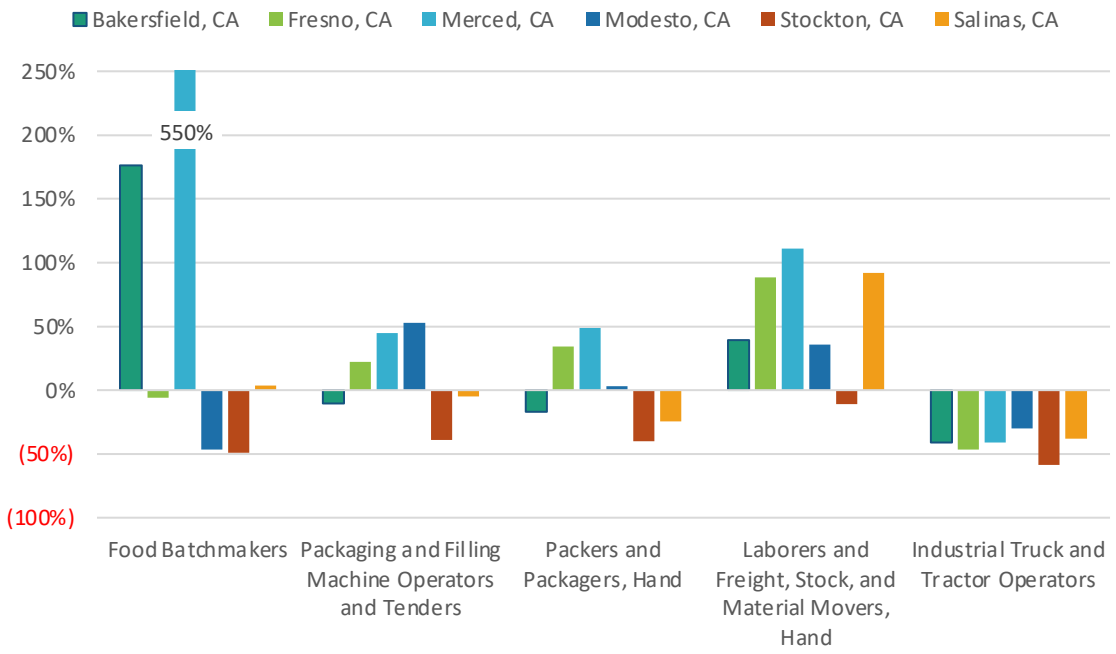
The interesting dynamic for the Kern region is the disproportionate prevalence of food batchmakers, with slightly higher job quality and value.

Additionally, regional growth in this category has been dramatic over the past decade.

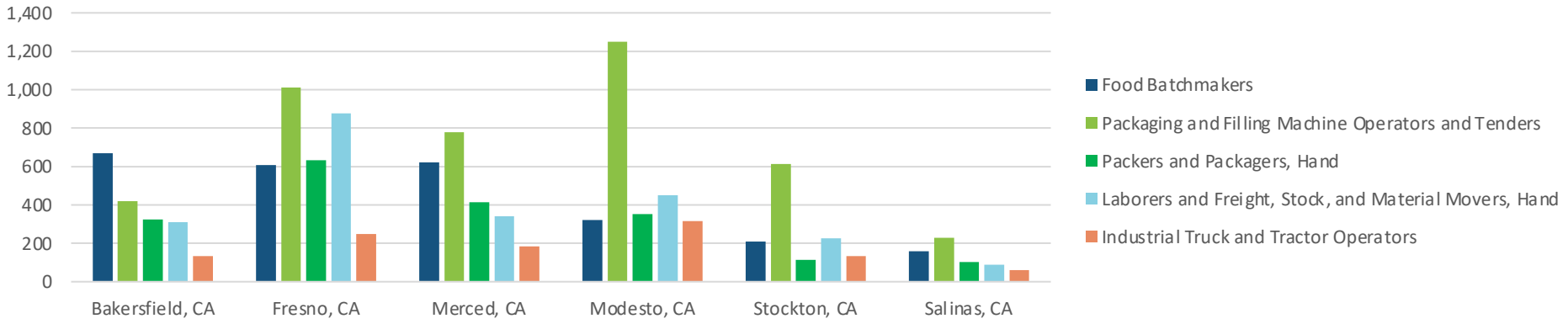
This reinforces the potential to target specialty food manufacturing in plant-based protein and beverage alternatives, confectionary, snack foods, and traditional activities.

However, without adding innovation assets, the primary appeal is specifically targeting southern California companies to place their production activities in Kern for regional distribution.

Change in top food manufacturing occupations in comparable California agriculture production regions, 2009-2019



Total job counts for top food manufacturing occupations in comparable California agricultural production regions, 2019



Analysis of Emsi-economicmodeling.com data, 2020

Kern's oil and gas industry is confronting significant market and regulatory pressures

Oil and gas has been a primary driver of Kern County's economy, representing six times the concentration of employment compared to the U.S. as a whole, providing good jobs and economic mobility to many workers with very low educational attainment.

However, changing market conditions and State regulations aiming to meet ambitious climate change targets have severely impacted the industry and challenge its future growth in the region.

Since the market-driven collapse in oil prices in 2015, the cluster has shed a considerable number of jobs. The cluster's job counts are down 10% compared to 2009, but closer to 33% compared to 2014. The rate of cluster job losses in Kern notably exceeds that of the U.S. baseline.

These declines have hit every sub-sector of the cluster except drilling wells, which may represent a short-term push in anticipation of anticipating policy and market shifts. Most troublingly, support activities for oil and gas – which contains many of the region's uniquely-talented, highly-educated engineers and executives – declined the most in absolute terms.

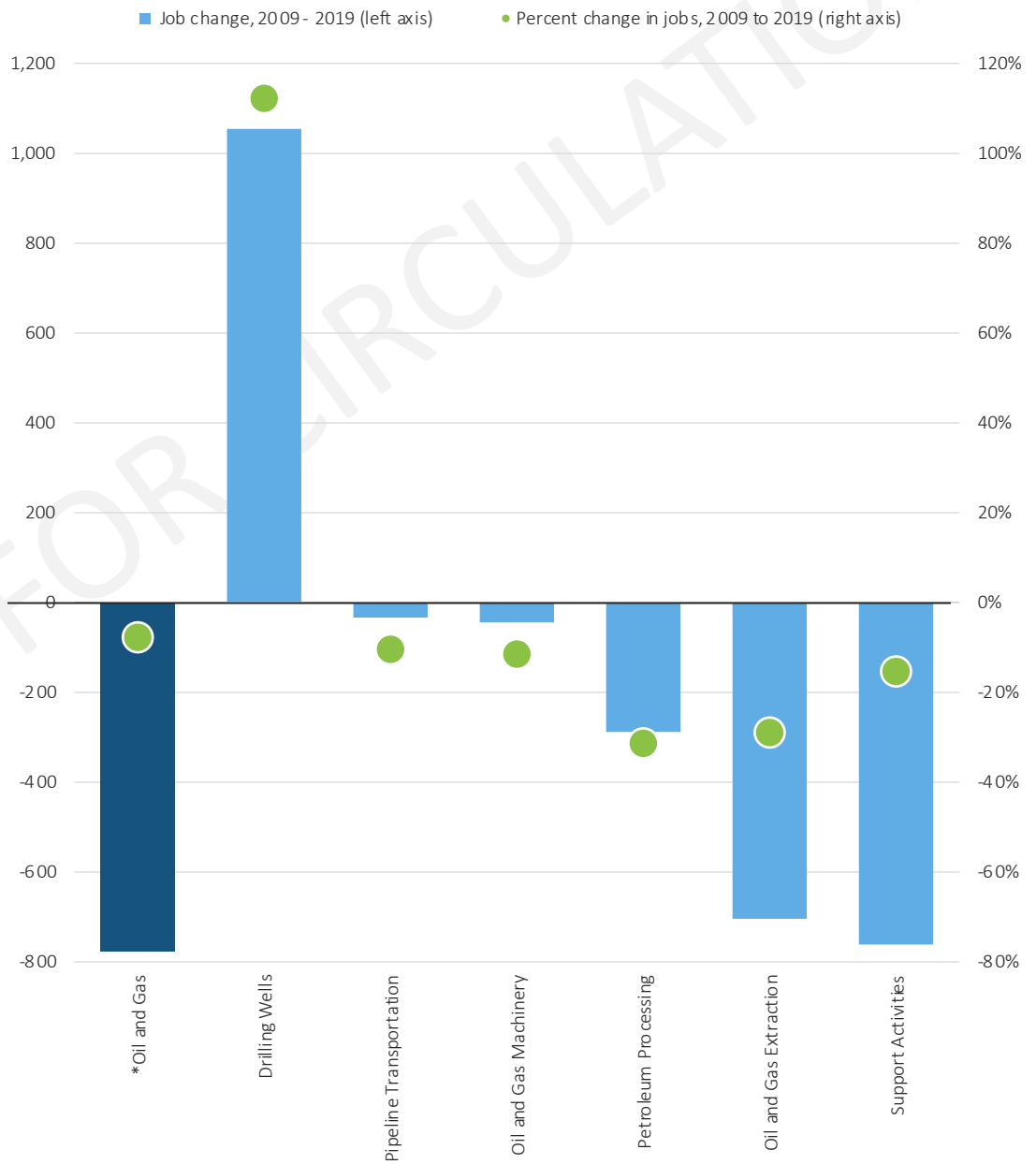
The decline of the oil and gas industry represents a significant shock to both Kern's economy and its identity. In addition to generating wealth, tax revenue, good jobs, and global connections, the industry has been a source of regional pride and international recognition.

Business leaders describe the last 15 years of State regulatory actions as fueling an either-or perspective between environmental goals and economic impact, resulting in postures centered on preservation versus elimination rather than finding ways to achieve both outcomes.

Even in the renewable fuels and carbon management sector, business leaders note a “stigma” around the industry that impedes collaboration to achieve environmental objectives while also grappling with economic development reality.

Moving beyond this frame will require new cooperation and partnership between the region and the State to encourage investments and policy certainty -- building off existing energy assets and expertise in ways that grow related value-add businesses and enduring, accessible jobs.

Change in jobs within Kern County’s tradable oil and gas cluster, 2009 to 2019



Source: Brookings analysis of Economic Modeling Specialists Intl. estimates and U.S. Clusters Mapping Project cluster definitions.

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Existing energy capabilities provide a foundation for new sub-sectors, innovation, quality growth

Challenges in the oil and gas cluster do not necessarily spell the end of the region's distinctive foothold in energy based on its DNA.

Recent opportunities for Kern County centered on expansion of renewable energy production with wind and solar energy installations in East Kern, such as the Tehachapi Storage Project, Alta Wind Energy Center, and BHE Renewables's Solar Star Project. While these major facilities have generated construction jobs and visibility for the region, renewable energy generation has not been a large source of longer-term, durable job creation. Solar energy production added net 60 jobs off a small existing base, and wind power actually shed jobs in recent years. This sub-sector is no replacement for the scale of oil and gas production.

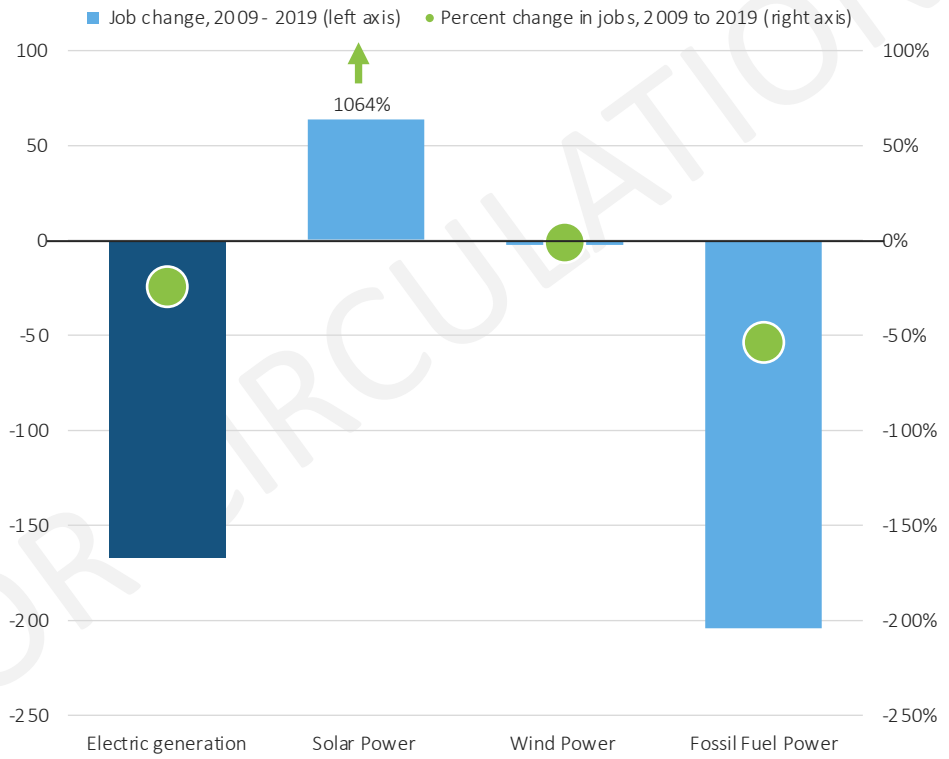
Other opportunities, more directly leveraging the region's legacy oil and gas strengths, may offer greater opportunities for growth.

First, the region has experienced notable expansion of and external investment in **renewable biofuels production and innovation**, such as firms repurposing existing refineries for biodiesel to supply the State and primes (*e.g. Global Clean Energy Holding, Kern Oil and Refining*). These firms are developing and testing new production technologies and processes. Fostering further renewable fuels production and industry-leading commercialization of technologies and processes for export could be a distinctive niche, spurred by State policy and market demand.

Second**, other renewable fuels and energy production, including hydrogen and agricultural or woody biomass** can be further adjacent industries that fit Kern's energy foundations, alongside supportive research, practice, and policy interests of the state.

Third, **carbon capture and storage (CCS) development** represents a globally-significant opportunity for which the region is uniquely positioned – proving and scaling the function, and innovating products, processes, and services for export. Talent and industry adjacencies analyses affirm that CCS matches the region's capabilities. Both multinational and regional energy companies present in Kern are investing enormous effort in this area. Efforts like CRC seeking to demonstrate the CCS technology at Elk Hills Field could be the basis for a cluster initiative versus a stand-alone project. No other location in California, or nationally, fully occupies this space.

Change in jobs within Kern County's tradable energy generation cluster, 2009 to 2019



Source: Brookings analysis of Economic Modeling Specialists Intl. estimates and U.S. Clusters Mapping Project cluster definitions.

Even Kern County's comparatively low innovation capacity *(see Section 3*) shows strength and convergence in related geological and engineering disciplines, as well as China Lake biofuels research. Still substantial investments in research and development capacities will be required for these possibilities to succeed. Nascent work by CSU Bakersfield in establishing an Energy Research Center and Bakersfield College connecting the National Renewable Energy Laboratory to the region are examples of required assets, but need to be integrated and augmented.

In addition to potential investments, State policy support that enables greater industry certainty and navigates complex, fragmented regulatory authorities likely also are required to enable proof of concept and scale.

These options require additional examination and market-testing and are not a guarantee to replace oil and gas at its scale of employment and revenue. Nonetheless, they reflect potentially significant opportunities to evolve and repurpose Kern's legacy strengths.

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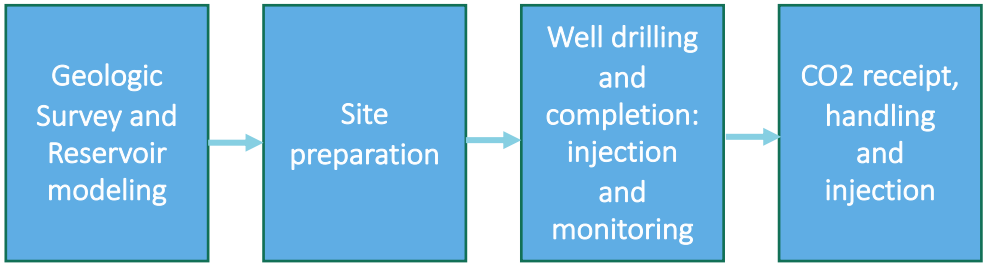
Carbon capture and storage show strong adjacencies to regional industry and talent assets

Activities Supporting Geologic Storage of CO2



Although not entirely new, potential in carbon capture and storage is a growing area of focus for California and international environmental policy-makers, given expert views that removal and storage of carbon will be required to achieve climate change objectives. Research and investment in CCS options in the U.S. and internationally, along with pilot installations for commercial applications, are growing substantially.

However, debate over CCS potential for carbon management and achieving carbon neutrality is unsettled. While technological advancements are less an issue, market feasibility and cost structures are uncertain, heavily dependent on federal and state government regulation, policy, and tax credits or subsidies. Environmental justice advocates raise possible opposition to CCS regarding impacts related to groundwater and water use, potential leaks, life-cycle emissions, and neighbor and worker conditions.

Additionally, the extent of durable long-term job creation after installations is not definitive, although expert consultation indicates substantial extended mid-term opportunities through scale-up and significant ongoing requirements.

Notwithstanding these ambiguities, the potential for Kern to take advantage of CCS opportunities is reinforced by analysis of industry and talent adjacencies. Studies by the RAND Corporation and others have identified industrial and occupational functions required by the sector for capture and storage in geological formations. These evaluations determined that activities to support the CCS industrial base are largely shared with the oil and gas sector. Beyond overlapping industrial categories, there are 37 occupations that correspond to CCS and are aligned with capabilities present in the region, such as: Mining and Geologic Engineers, Mining Safety Engineers (17–2151), Petroleum Engineers (17–2171), Geologic and Petroleum Technicians (19–4041), Service Unit Operators, Oil, Gas, and Mining (47–5013), Petroleum Pump System Operators, Refinery Operators, and Gaugers (51–8093).

Industrial sectors relevant to the Base for CCS, specifically Geological Storage

NAICS	Industry Classification
213111	Drilling Oil and Gas Wells
213112	Support Activities for Oil and Gas Operations
541360	Geophysical Surveying and Mapping Services
333132	Oil and Gas Field Machinery and Equipment Manufacturing
331210	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel
332420	Metal Tank (Heavy Gauge) Manufacturing
333911	Pump and Pumping Equipment Manufacturing
333912	Air and Gas Compressor Manufacturing
532412	Construction, Mining, and Forestry Machinery and Equipment Rental Leasing

Source: RAND Corporation, The Industrial Base for Carbon Dioxide Storage: Status and Prospects

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Kern County's aerospace cluster requires strategic action to maintain and leverage competitiveness

Home to Mojave Air and Space Port, Edwards Air Force Base, and China Lake Naval Air Weapons Station, East Kern County contains some of the world's leading public and private aerospace and defense assets. Yet this alone is not enough to ensure the success of the region's aerospace cluster amid serious global competition.

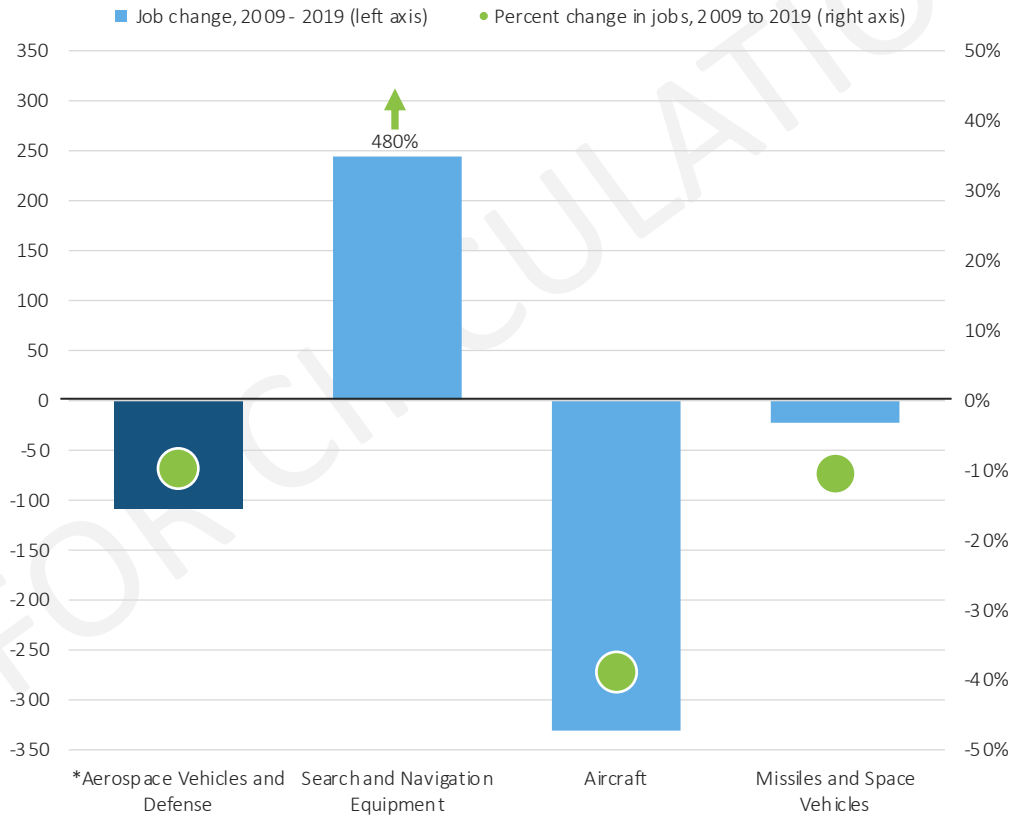
Aerospace manufacturing generally has seen uneven growth in recent years. The U.S. airplane and aircraft parts industry has struggled in recent years as supply chains have globalized and the industry has become increasingly reliant on non-metal materials.

In Kern, traditional aircraft manufacturing related to commercial freight and passenger airplanes has declined, alongside churn in more niche and higher value-added subclusters related to high-altitude navigation technologies, defense, and space vehicles. The county's aerospace cluster as a whole has been buoyed by the rise of defense and high-altitude-related aerospace industries. However, Kern's aircraft industry's job losses mainly are attributable to relocation across the county line to Palmdale / Lancaster, effectively part of the same cluster and functional economic area.

At the same time, East Kern faces increasing competition from existing and emerging aerospace hubs in states like Colorado, Florida, New Mexico, and Texas, some of which have succeeded in attracting jobs away from the region. Several of these states have dedicated, written space strategies to support cluster development, including incentives, alongside more favorable policy environments. The establishment of the Central Coast's REACH strategy to enhance aerospace activity at Vandenburg AFB speaks to growing competition even within California.

Meanwhile, East Kern faces other challenges for sector retention and expansion. For both small and large companies, availability of skilled talent is inhibited by the absence of a four-year university in the immediate area and other coordinated training at scale, and amenities that make it difficult to attract workers.

Change in jobs within Kern County's tradable aerospace manufacturing cluster, 2009 to 2019



Source: Brookings analysis of Economic Modeling Specialists Intl. estimates and U.S. Clusters Mapping Project cluster definitions.

To date, mechanisms to enhance access to and commercialization of sophisticated innovation assets at the region's military installations have been lacking compared to peer regions, contributing to low SBIR/STTR awards (see Section 3) and unrealized growth opportunities. Specific policy constraints on financing have also constrained expansion at Mojave Air and Space Port.

Strategic, sustained, proactive efforts to address these challenges at scale, including in collaboration with the broader Antelope Valley, have been notably lacking. The region has failed to mount a regional cluster effort to support aerospace development—or any other cluster—leaving individual firms and other actors on their own to navigate this landscape. Meanwhile, firms have expressed frustration with response from regional actors on even basic local service delivery. Closing these gaps will be imperative to ensuring the cluster's continued competitiveness.

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Tradable manufacturing sub-clusters show positive momentum, against trends

Notwithstanding barriers that have eroded the sector statewide over recent decades, manufacturing emerged as a growing strength in Kern -- if not a specialization -- and driver of good jobs for workers without a bachelor's degree.

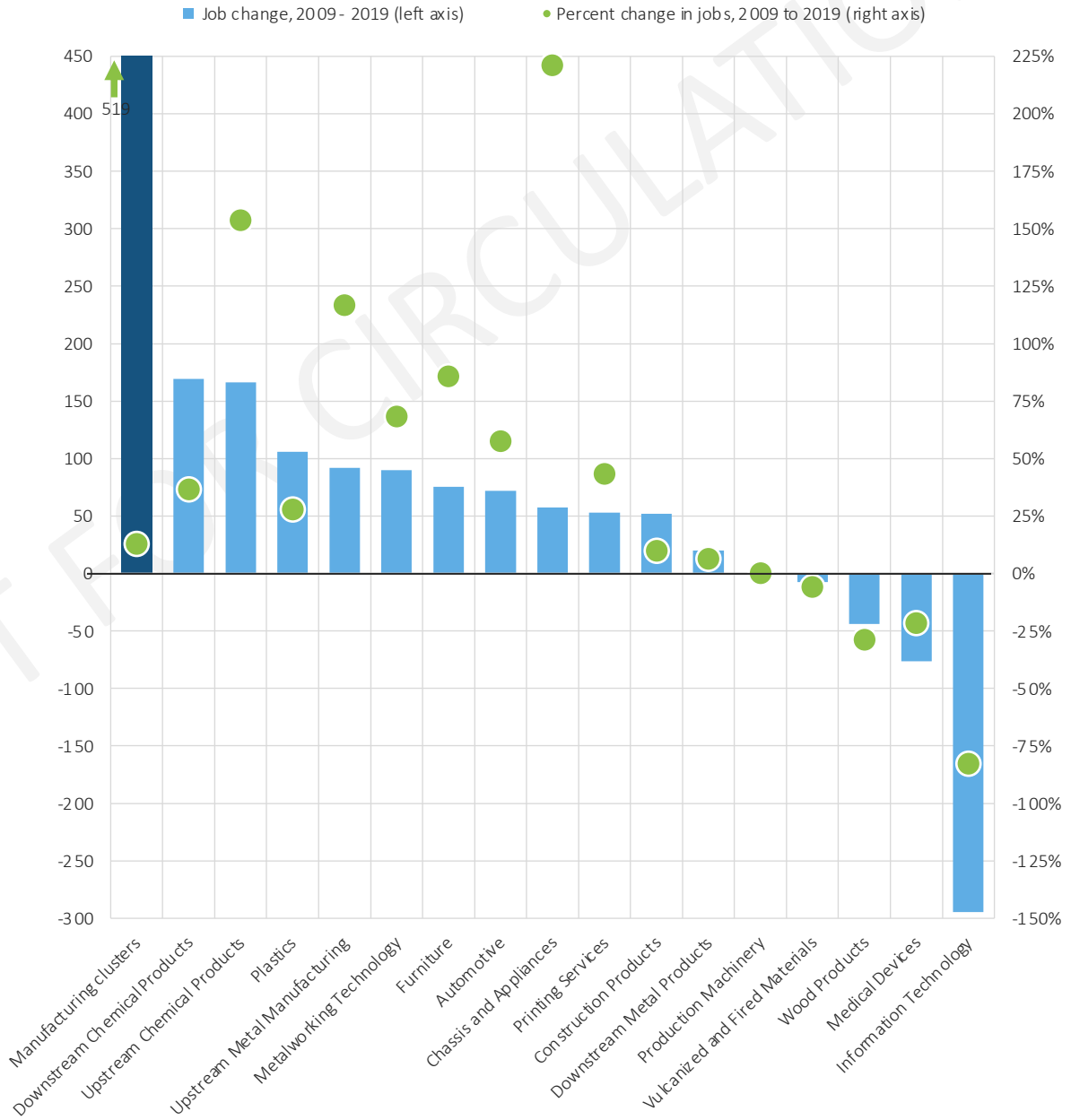
Even without a concerted effort for expansion or attraction, the recent performance of manufacturing collectively and specific sub-sectors revealed this potential. As a group, Kern's tradable manufacturing clusters have performed reasonably well in recent years, netting over 500 jobs from 2009 to 2019 and growing to nearly 4,600 jobs, despite offsets by extreme downturns in two sub-sectors. Information technology and medical devices, were job losers, dropping 83% and 22%, respectively; they represented 375 jobs and masked progress in other categories.

Sub-clusters like chemicals, plastics, and metalworking performed especially well. These clusters mainly related to parts of the regional supply chain, such as a wide range of non-fuel petroleum-based products, fertilizers, metal manufacturing and metalworking, and machinery. Further, food manufacturing likely offers the best opportunity to evolve the region's agricultural strengths into higher-value activity.

The region's talent, innovation, and enabling infrastructure fit with manufacturing potential. Analysis shows that manufacturing is an area of particularly high "talent adjacency" with existing labor knowledge and skill capabilities in regional sectors, including oil and gas workers (*see Section 3*). These talent factors can be boosted by new program resources, such as the Bakersfield College industrial automation degree, or a targeting of workforce development. Some limited regional innovation assets identified could connect to process and product problem-solving. Industrial park development potential, business-friendly permitting, fand logistics platforms reinforce the environment.

However, while the data and qualitative analyses uncovered potential, it also suggests that scale will not be realized through organic growth without ongoing focus and proactive strategy.

Change in jobs within Kern County's tradable manufacturing clusters*, 2009 to 2019



* Excludes local-serving manufacturing industries, aerospace manufacturing, agricultural and food manufacturing, and oil and gas manufacturing.

Source: Brookings analysis of Economic Modeling Specialists Intl. estimates and U.S. Clusters Mapping Project cluster definitions.

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Logistics grew dramatically, focused on warehousing, storage, and fulfillment

Logistics has been a major focus of Kern's economic development efforts in recent years, resulting in a wave of ribbon-cuttings at new warehouse facilities for companies including Amazon and L'Oreal.

This expansion has leveraged Kern County's physical location proximate to southern California and other major markets, accessibility of land and active developers, good enabling infrastructure, and efficient regulatory processes.

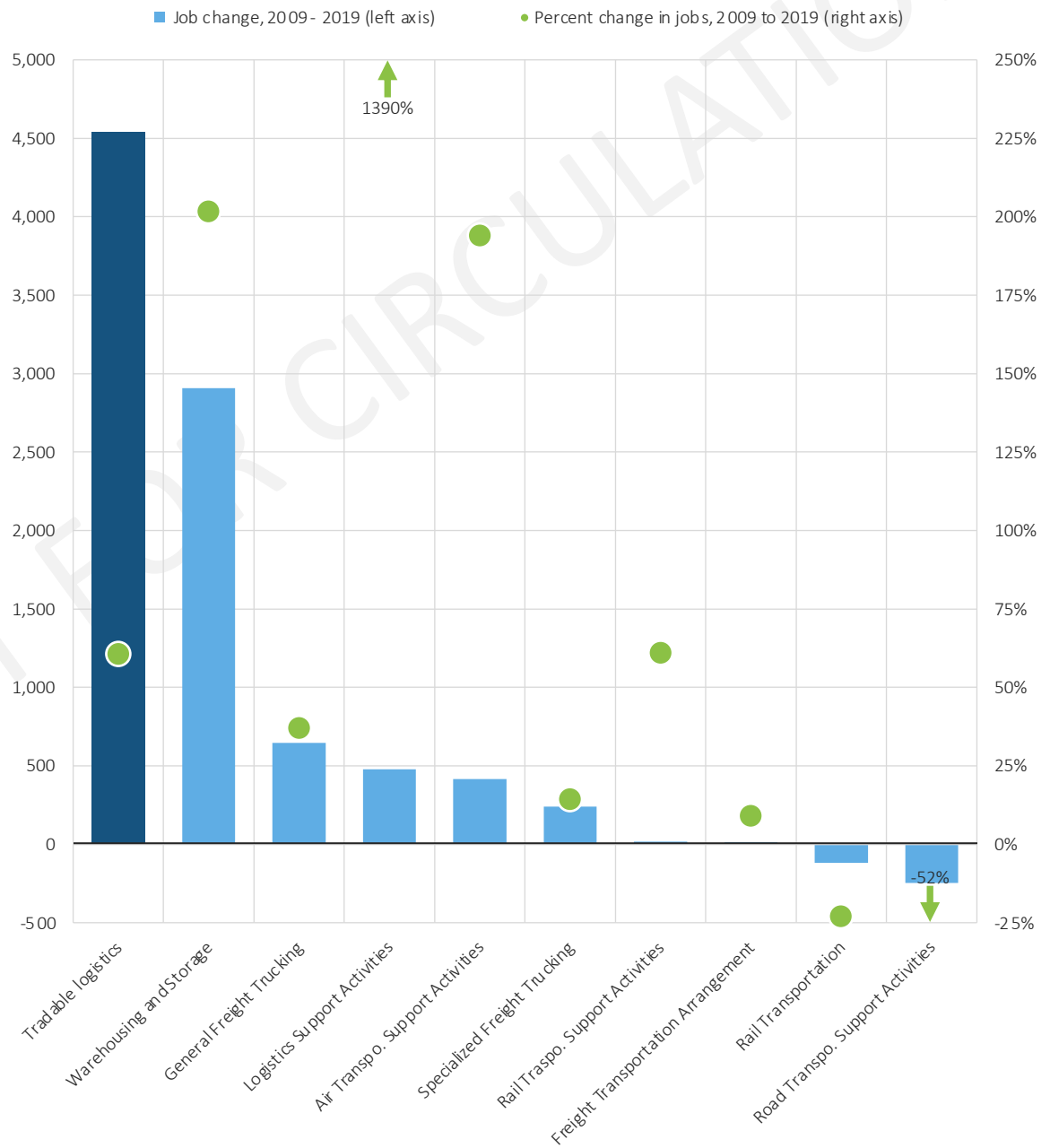
Between 2009 and 2019, Kern County's tradable logistics cluster added 4,500 jobs, growing to over 12,000 total. Two-thirds of this job growth came from the warehousing and storage subcluster, which contains e-commerce activities. The subcluster tripled in size during this period.

However, most of the warehousing and storage subcluster employs a majority of low-paid workers, alongside a few very highly-skilled and highly-paid managers and executives. When averaged, these two extremes make the cluster look reasonably well paid, while job quality actually is low for most workers. As explored in more detail on the next slide, the current mix of primary sector growth in Kern does not appear poised to deliver jobs that enable worker self-sufficiency and economic mobility at scale.

In contrast, the elements of the tradable logistics cluster that deal with goods movement often contain higher-quality jobs. This includes subclusters for trucking, logistics support, air transportation, and rail transportation. However, most of these subclusters have grown at a slower rate than warehousing and storage and account for fewer new jobs.

Momentum in logistics growth is likely to continue, building on local competitiveness factors and new market forces in e-commerce, raising strategic economic development questions regarding job quality and leveraging related sector opportunities (*e.g. manufacturing*).

Change in jobs within Kern County's logistics sector, 2009 to 2019



Source: Brookings analysis of Economic Modeling Specialists Intl. estimates and U.S. Clusters Mapping Project cluster definitions.

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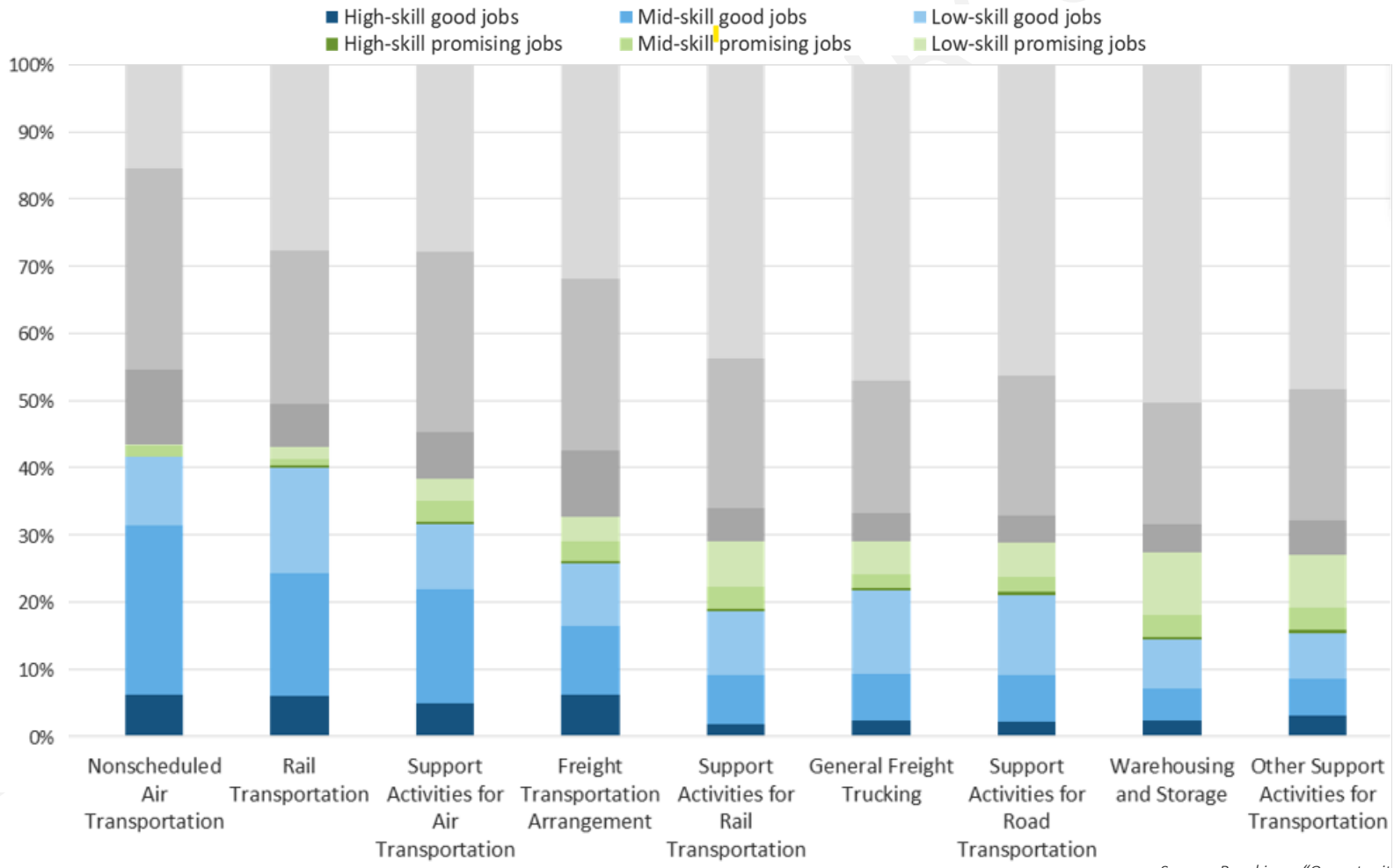
Job quality in logistics varies by sub-sector functions, raising questions of focus and prioritization

Applying the Opportunity Industries analysis on concentrations of job quality within sub-sectors and across skill levels (*see Section 3*), logistics offers wide variation between different types of activity. Goods movement and supply chain management functions, such as those of an inland port, generate a notably higher concentration of quality jobs compared to warehousing and fulfillment, with a difference of up to 10 percentage points for "good" jobs; still, absolute job creation is far greater in warehousing, which creates a notable number of "promising" job that lead to good jobs in any sector within a decade.

As warehousing and fulfillment continue to grow, the questions for economic development efforts are: (i) the overall trade-off in value of focusing on logistics versus other Opportunity Industries; (ii) how to target supports and incentives to those subsectors of logistics that concentrate job quality; and (iii) how to promote warehousing that provides positions meeting the "good jobs" standard for the region and offers incumbent worker training that enables pathways from promising jobs.

Share of good and promising logistics jobs by subsector and skill level in Kern County, 2019



Source: Brookings, "Opportunity Industries".

Business services suffered as the economy restructured, but options for areas, digital skills

Kern's tradable business services clusters have shifted over the past decade as the rest of its economy has evolved; again, the split in performance between Greater Bakersfield and East Kern is notable.

In fact, prior economic development strategies proactively removed business services as a target for growth, considering it a local sector serving regional businesses rather than externally. The most prominent business services subclusters shed extremely large numbers of jobs on net:

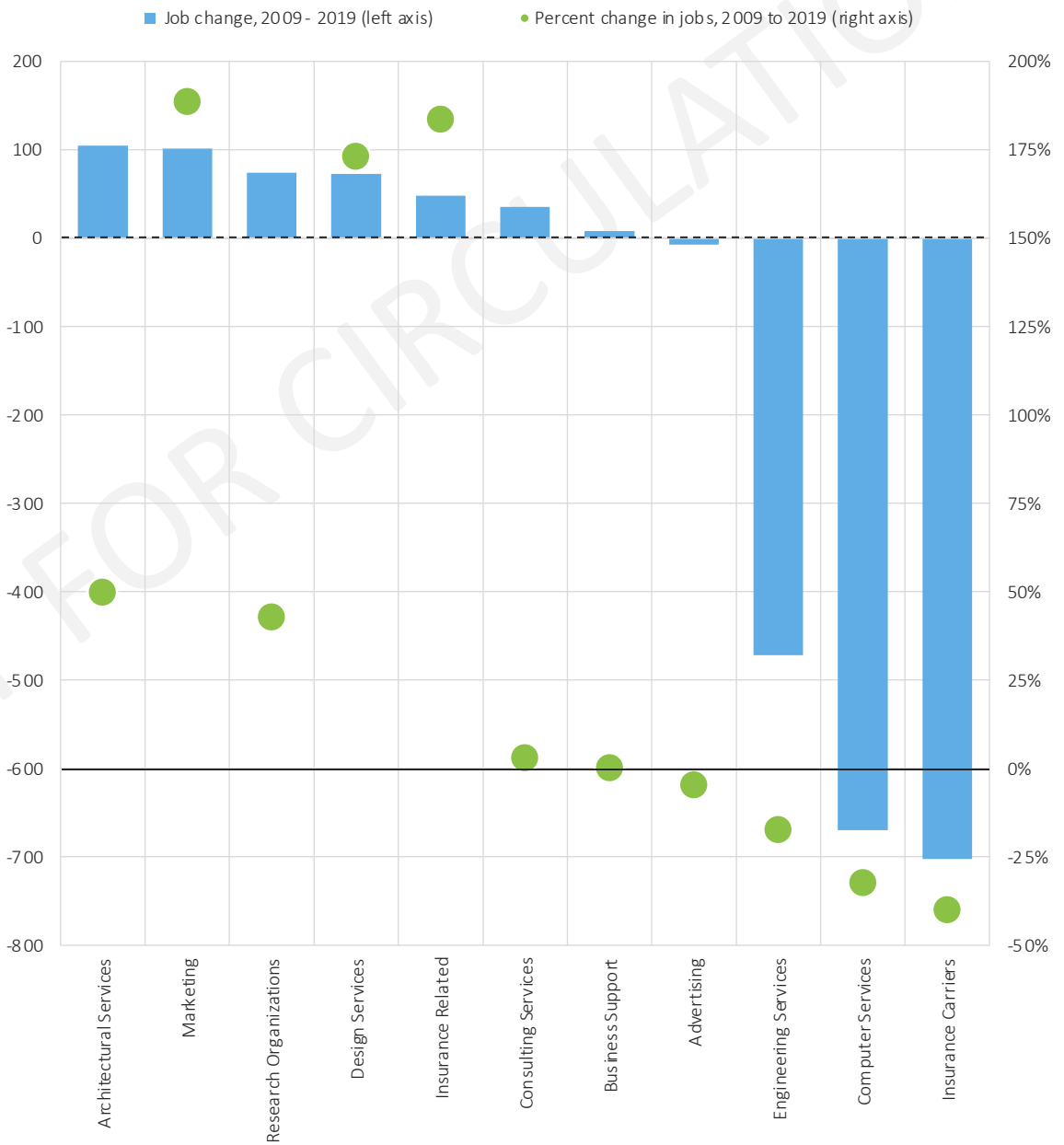
- **Engineering services** jobs dropped by more nearly 25%, likely due to the decline in the county's oil and gas and heavy construction sectors.
- The **computer services** cluster declined in Bakersfield and environs where it largely services the private sector, even as it added jobs in East Kern with military and federal agency clients.
- In **insurance services**, anchor State Farm pulled 700 jobs out of Bakersfield as it consolidated operations in Tempe, Arizona.

Still, a few subclusters experienced dramatic rates of job growth, more than doubling in size from 2009 to 2019, albeit off relatively low employment baselines. Research organizations, including scientific and technical consulting grew especially fast in East Kern, with other areas in marketing, design, and consulting also expanding.

These data points by themselves do not indicate strength. Thus, business services also may offer a longer-term growth and diversification option, despite the recent declines in Greater Bakersfield. This would target support for young tech-oriented firms, as well as capturing back-office function "leakage" from more expensive coastal markets, either through "second office" locations or expanded outsource contracting to serve firms based elsewhere (*e.g. Stria*).

However, talent analysis (*see Section 3*) indicates that any prospects for business services expansion will require development of a stronger digital skills and tech talent base as a prerequisite component of a deliberate overall effort.

Change in jobs within Kern County's tradable business services subclusters, 2009 to 2019



Source: Brookings analysis of Economic Modeling Specialists Intl. estimates and U.S. Clusters Mapping Project cluster definitions.

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Market Assessment Data Book

1. Economic performance and traded sectors
2. Opportunity Industries: Job quality and economic mobility
3. Competitiveness drivers
4. Implications, next steps, and workgroup activity

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“Opportunity Industries”: Rationale and Purpose

B3K focuses on achieving dual economic objectives of (i) enduring growth and competitiveness for the Bakersfield-Kern region and (ii) jobs that enable self-sufficiency and upward mobility of residents.

The longitudinal economic performance, sector, and talent analyses showed that, for decades, Kern’s distinctive industry mix generated outsized income potential for less-educated workers, primarily via the oil and gas industry. Thus, Kern was an extraordinary outlier with regard to economic mobility, compared to regions with much higher levels of educational attainment (*see Slide 49-50*). The same reviews affirmed that the recent decline in certain traded industries and growth in others is decreasing historic opportunity for residents.

These outcomes require economic development strategies that focus not just on job counts, but the quality of jobs created and providing access to them. In particular, “middle-skill, middle-income" jobs for workers with less than a bachelor's degree are central to determining economic development priorities, responding to the impact of macroeconomic trends that hollowed out job creation in that category and reduced pathways for younger workers to out-earn their parents.

The challenge is making the connection between industries and worker outcomes more explicit and detailed – how to distinguish the quality of jobs that different sectors and activities generate, factoring in scale, educational requirements, and career progressions.

For example, a traditional assessment that gauges the median wage in a given industry does not reveal the extent to which the distribution of the jobs actually pay enough to meet basic expenses or are accessible to workers at specific skill levels. Nor can it indicate whether a particular job in that sector is likely to lead to a better quality job later.

The "Opportunity Industries" analysis identifies the sectoral concentrations of “good” and “promising” jobs that enable workers to achieve self-sufficiency for themselves and their families.

Furthermore, Opportunity Industries affords a granular understanding of progressions in job quality by sector, by occupation and worker demographics.

With this information, regional leaders can:

- prioritize economic development interventions to focus on sectors that concentrate quality jobs,
- enhance job quality in other prominent clusters,
- align workforce outreach and training activities to ensure residents are better connected to those jobs.

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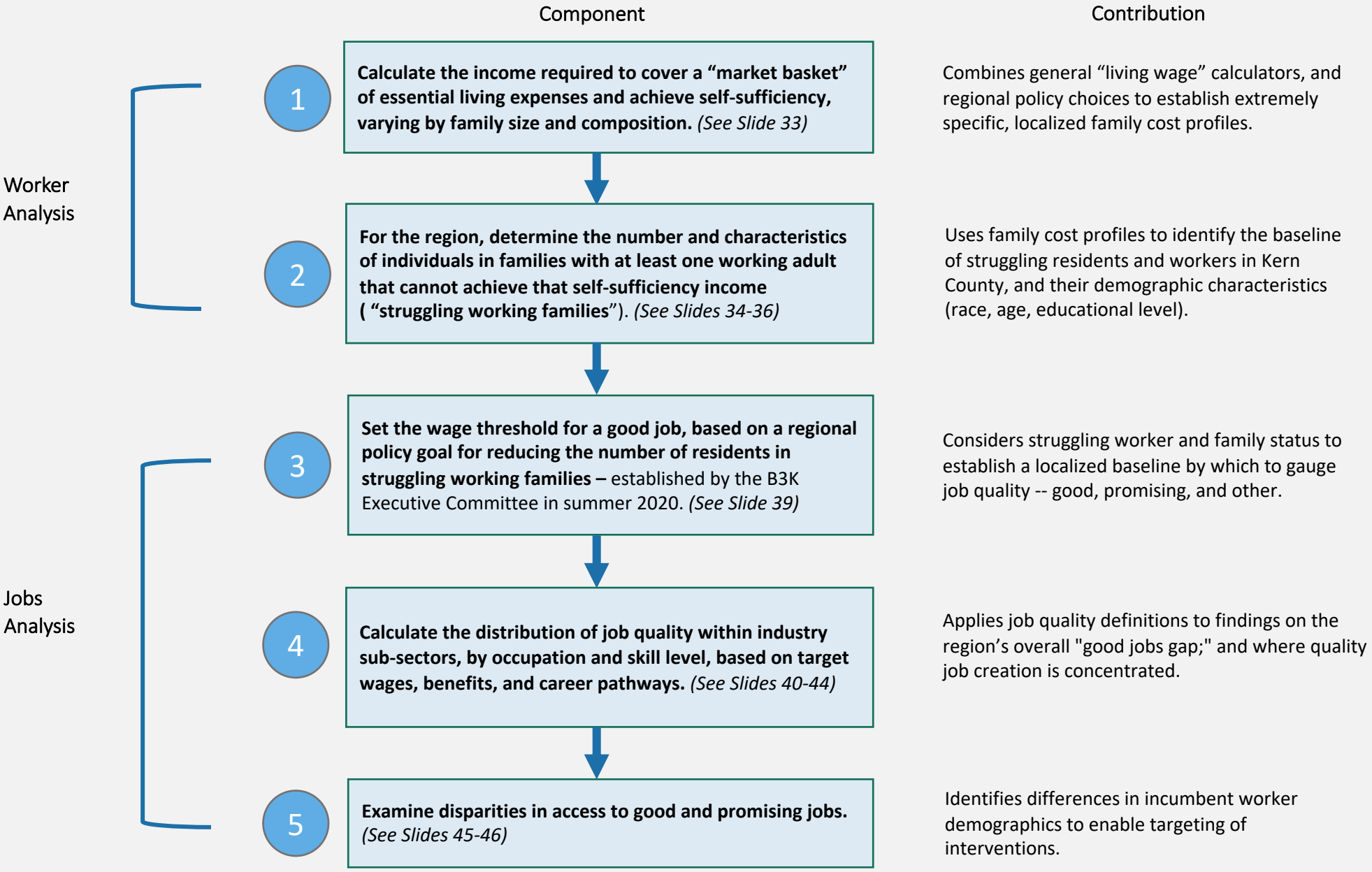
Methodology: “Opportunity Industries” approach and steps

"Opportunity Industries" is a multi-dimensional analysis examining attributes of **both local workers *and* jobs,** leading to findings on regional shares of good and promising jobs and the industries poised to support their growth.



Income needed for self-sufficiency varies by family composition, market basket choices

Opportunity Industries analysis starts with a **determination of income required to achieve "self-sufficiency" for different families in Kern County.**

First, U.S. Census Bureau microdata details family demographic and socio-economic characteristics that notably influence costs of living. Thus, budgets account for the number of individuals, ages, and work status; a two-adult family with only one working assumes the other provides childcare, negating that cost.

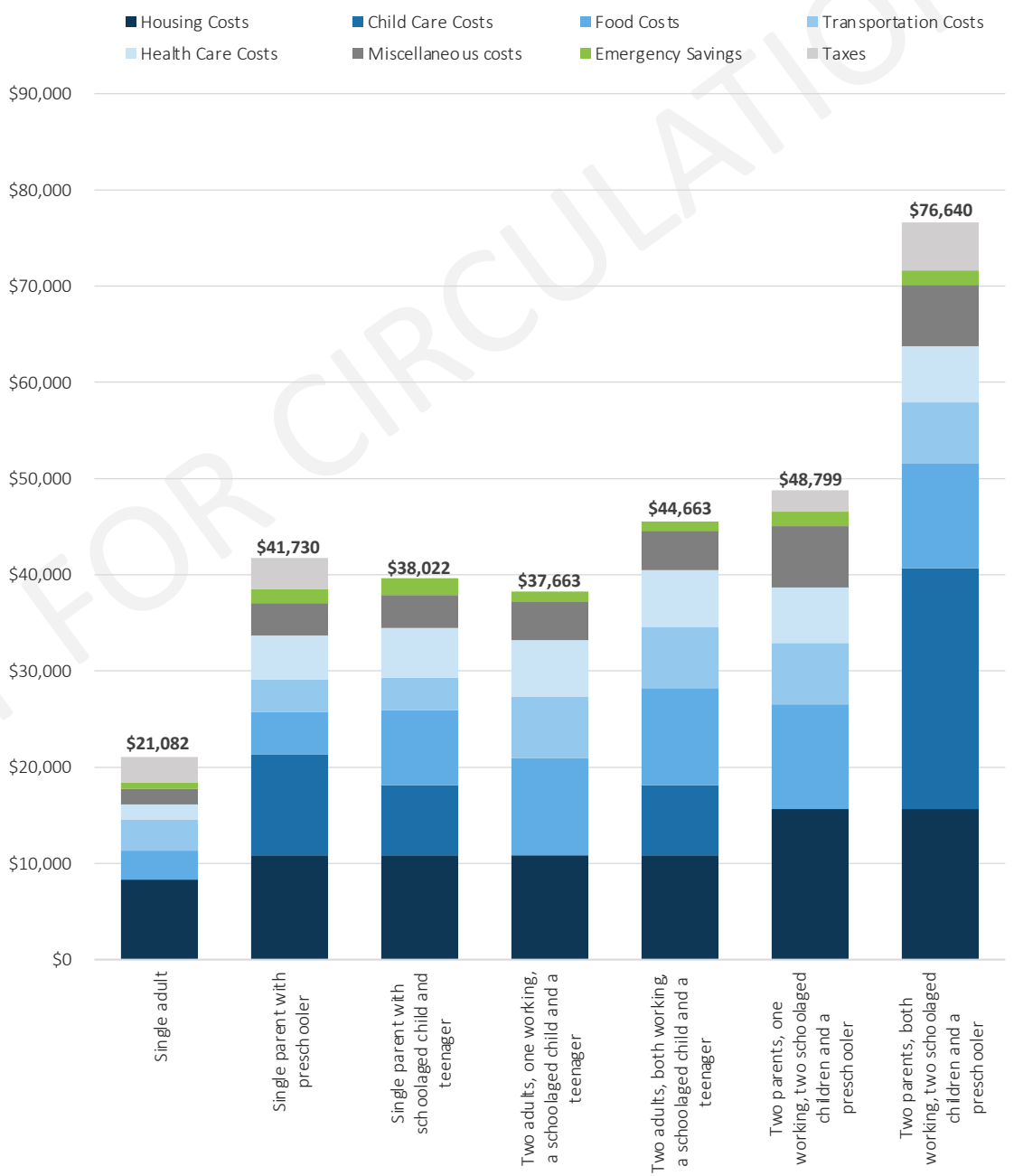
Second, budgets are set for the basic expenses that each type of family must cover annually – a "market basket" of needs tailored to local costs. While there are several "living wage calculators" available (*e.g. MIT, United Way ALICE*), the analysis uses University of Washington metrics because it enables more granular assessments of family composition.

Still, these account for the most minimal standards versus enabling financial stability and wealth-building. For example, housing costs are based on the federally-established market rates for the smallest livable space that can accommodate the family, and food budget reflects meeting caloric needs versus nutrition.

As a policy choice, Kern County stakeholders decided that more savings were necessary to ensure that these struggling working families would be both self-sufficient and economically mobile. These added savings would help families build wealth through home ownership, set money aside for education, or for their retirement. The agreed benchmark for that additional savings is the lesser of (i) 10% of a family's annual base self-sufficiency income or (ii) the $6,000 tax-free IRA limit per worker.

Adding that further savings requirement to the minimum self-sufficiency budgets has the effect of increasing the portion of Kern County residents who cannot make ends meet from 48% to 52%.

Annual Income needed to cover basic expenses for a sampling of Kern County families, 2018



Source: Brookings analysis of University of Washington, "Sufficiency Standard for California" (http://www.selfsufficiencystandard.org/California).

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More than half of Kern County's residents struggle to make ends meet and achieve self-sufficiency

More than 450,000 people or *more than half* of Kern County residents lived on less income than required to cover their basic expenses in 2018. This large share primarily a reflection of the economy, the quality of job creation, and local workers' qualifications for well-paid jobs.

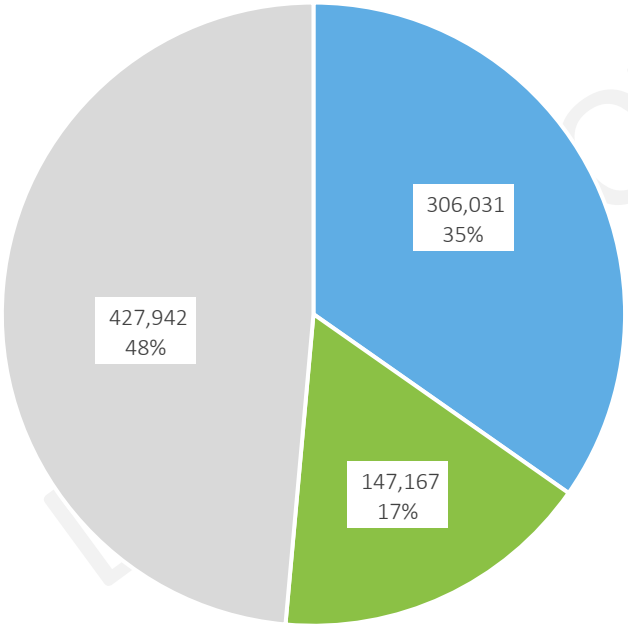
The data indicates that most people in these families struggle to achieve self-sufficiency because adults cannot earn enough income at work – not because they are not working.

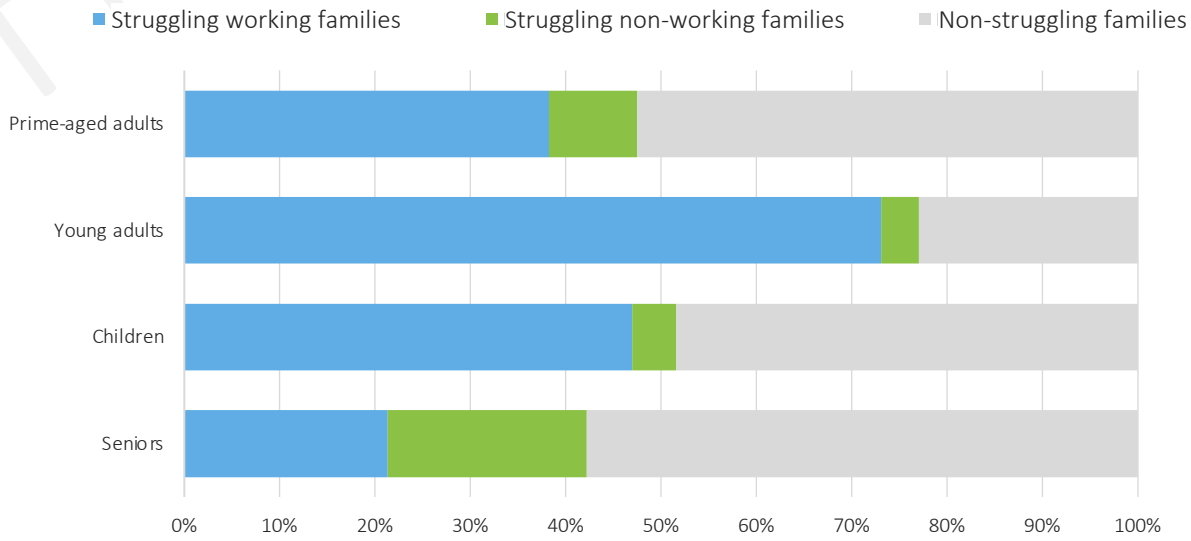
Less than one-third of Kern residents in struggling families belong to families without workers. A disproportionate share of people in these families are seniors aged 65 years or more, or include adults unable to work due to a disability.

However, most struggling Kern residents are members of families having at least one adult who participates in the labor market, yet cannot cover all basic living expenses.

Furthermore, the vast majority of struggling prime-aged adults aged 25 to 55 years and struggling young adults younger than 25 years-old belong to working families. Likewise, more than 95% of the children in struggling families belong to working families.

Share of Kern County's residents that belong to families with insufficient income, 2018





Source: Brookings analysis of American Community Survey public-use microdata and University of Washington estimates.

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There are significant disparities in the likelihood a worker struggles by age, education, and race

Focusing only on the status of struggling working families, more than 133,000 adult workers in Kern County struggled to make ends meet for their families in 2018, prior to the COVID-19 pandemic and economic downturn.

However, there are notable differences in the rate at which workers struggle. Some vary predictably across characteristics like education and age, since these serve as proxies for human capital. Younger workers have less labor market experience, which means they may not be as productive or well-paid. Workers with less education have fewer skills, and tend to earn less on average.

Though disparities along these dimensions are common in other regions, the share of younger and less-educated workers that struggle in Kern remains very high in comparison to other major U.S. metropolitan areas. This is consistent with the unusually low levels of educational attainment in the region.

Kern also has significant racial disparities in the likelihood a worker struggles, only a portion of which are correlated to education and age. A Hispanic worker is 80% more likely to struggle to make ends meet compared to a white worker. A Black worker is 60% more likely to struggle than a white worker.

While a smaller portion of Black and Hispanic adults in Kern County have post-secondary education compared to whites, these differences in educational attainment explain only about half of the disparities between white workers and workers of color. Age explains another 18% of the difference.

This still leaves one-third of these disparities unexplained, raising questions of how to address potential socio-economic barriers. Further, these discrepancies indirectly reinforce disparities in educational attainment, since incentives for a white worker and a worker of color to attain more education are unequal.

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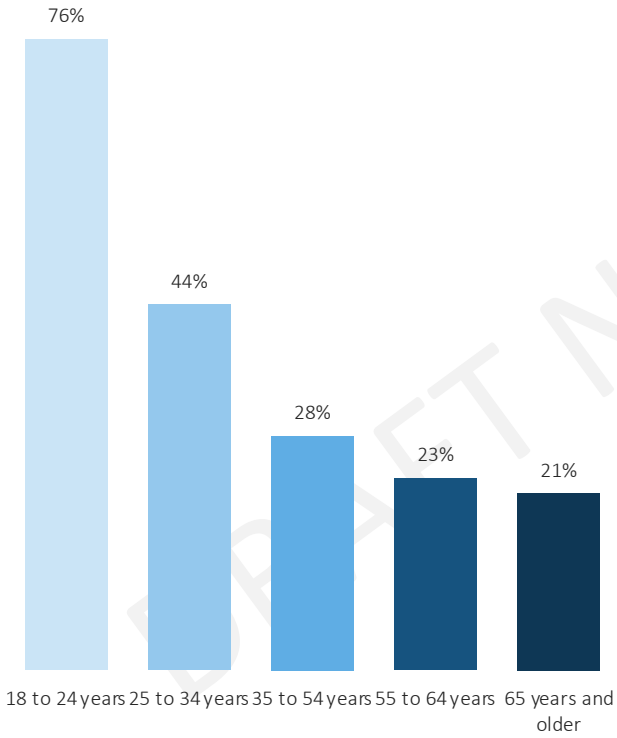
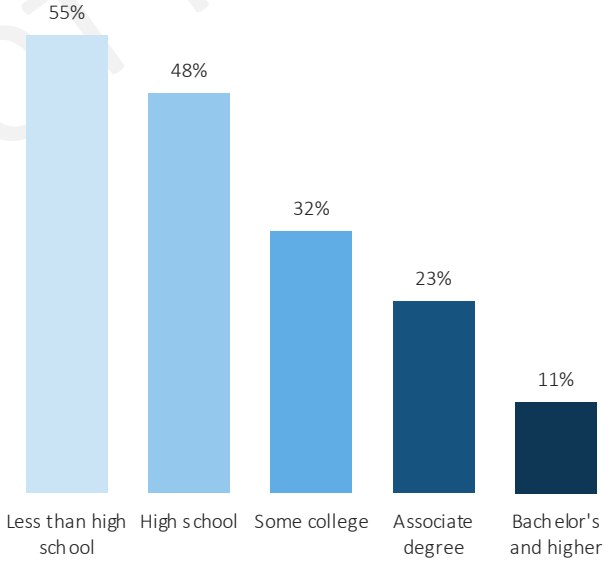
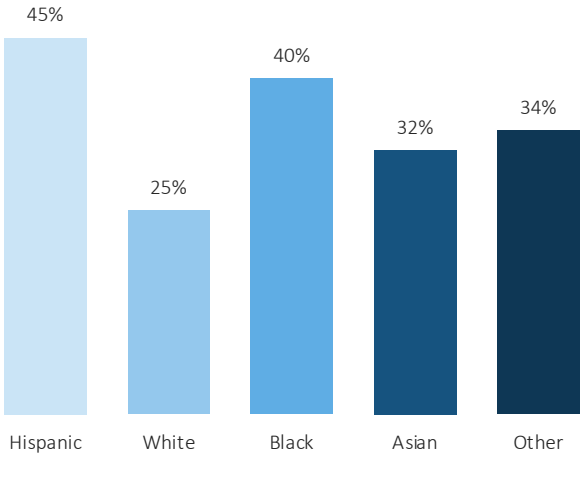
Within age group, share of struggling workers



Within education level, share of struggling workers



Within race, share of struggling workers



Source: Brookings analysis of American Community Survey public-use microdata and University of Washington estimates.

Most struggling workers have diplomas, suggesting further credentialing, job quality, access barriers

Understanding the representation and characteristics of struggling workers in the overall labor force also is critical to decision-making about economic and workforce issues, versus the share of workers who struggle based on their individual attributes.

Three-quarters of all struggling workers are prime-age adults aged 25 to 54 years. This age group has the highest labor market participation rate and it is during these years that most individuals reach their peak earnings potential. While struggling workers are disproportionately young and less educated, they do have labor market experience and skills.

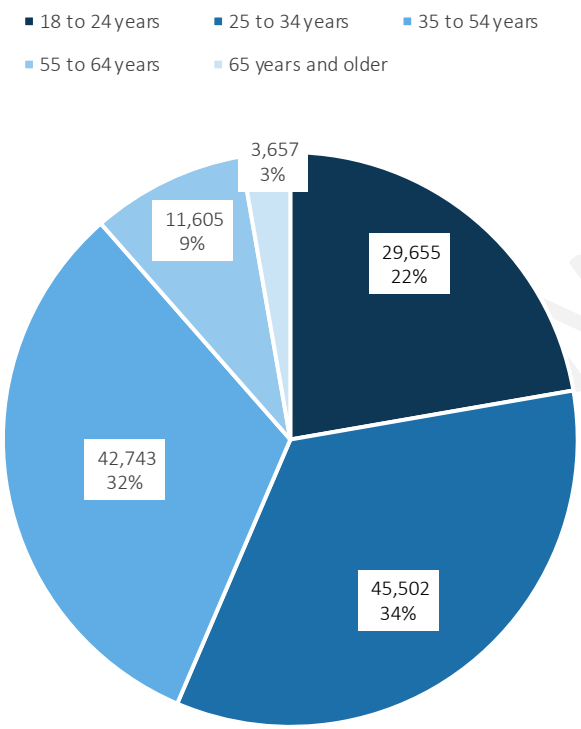
Nearly 70% of all struggling workers have a high school diploma, and over 30% have some post-secondary education, though few have a post-secondary degree.

First, these breakdowns of struggling workers – particularly by education – indicate that **workers with a high school degree or some college need to be a focus for credentialing and completing more education, in order to compete for better quality jobs.**

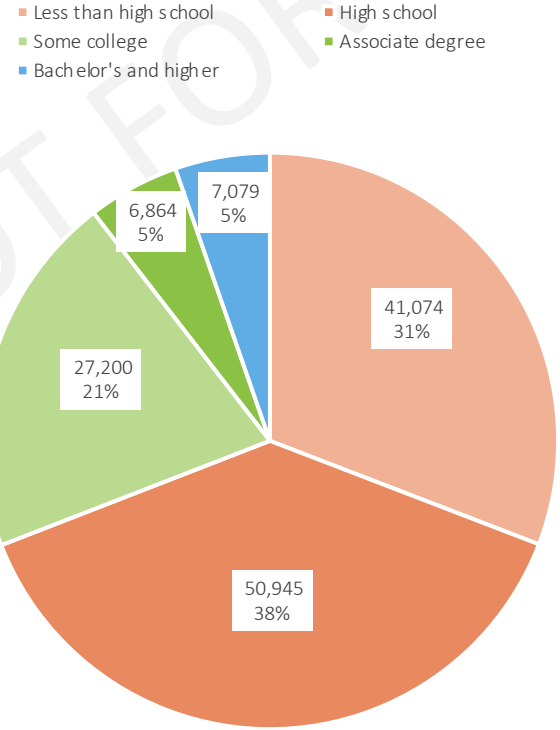
Second, recognizing the constraints of upskilling 91,000 struggling workers who do not have post-secondary education, these **gaps reemphasize the importance of prioritizing economic development centered on middle-skill, middle-income job creation.**

Third, the blend of **workforce credentialing and economic development must be tightly linked to ensure relevance and access.** Executing this should include consideration that most struggling workers are people of color.

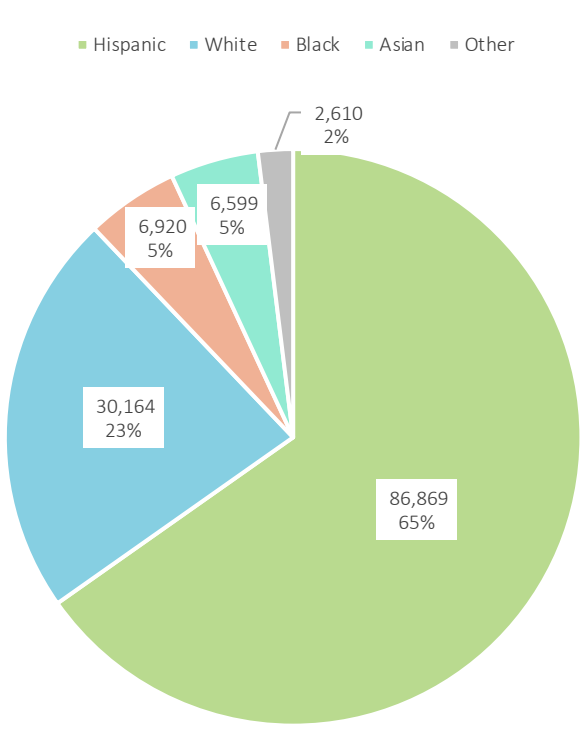
Share of struggling workers by age



Share of struggling workers by education



Share of struggling workers by race



Source: Brookings analysis of American Community Survey public-use microdata and University of Washington estimates.

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Opportunity Industries: Improving outcomes for workers requires focus on job quality

Labor market outcomes are driven by supply and demand: the matching of pools of skilled workers with employment opportunities that require certain education and experience. Focusing economic development to support better outcomes requires evaluating skills and education of Kern residents alongside the nature and quality of available jobs in the region.

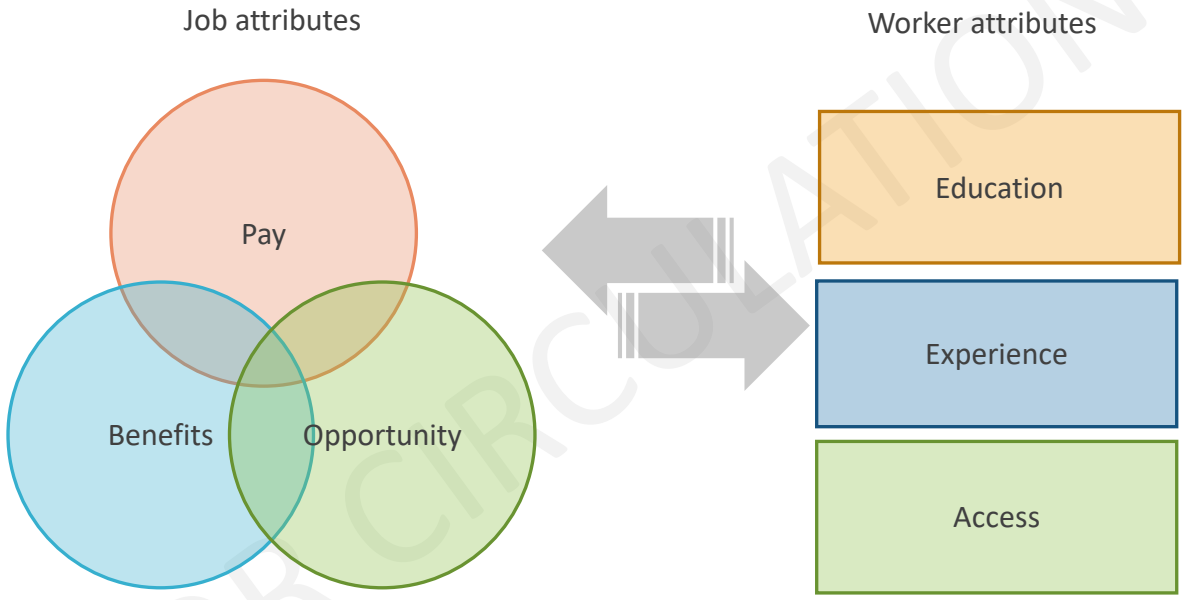
"Good jobs" most often are defined by **pay** and **benefits.** Usually pay is assessed against median wages, not linked to enabling worker or family self-sufficiency. Opportunity Industries analysis makes those connections and adds a third component: **upward mobility toward better quality jobs**.

This analysis also accounts for differences in the quality of a job and the likelihood of upward mobility depending on the attributes of the person who holds the job. Two people who have exactly the same job with the same employer can have different earnings and benefits depending on their education, age or experience, and even non-skill factors like gender and race or ethnicity.

Combined with prior analyses of worker self-sufficiency and regional policy decisions on impact, the analysis models job quality in Kern County based on the local industry and occupational structure, growth rates, and attributes of the workers who hold its jobs.

This yields a detailed, highly nuanced picture of the supply of economic opportunity in Kern County's labor market, leading to actionable implications for industries that concentrate good and promising jobs.

Good jobs also can be defined by a very broad range of qualitative factors -- from work environment to scheduling stability – but these are attached to individual employer policies rather than consistently comparable sector or occupational characteristics.



Defining job quality

"Good jobs" meet three criteria:

1. Pays a ***sufficient annual wage*** that enables workers to (i) meet their family's market basket of expenses and savings, and (ii) be ineligible for California benefit transfers (*i.e. SNAP, TANF, Medicaid*)
2. Provides ***employer-sponsored health insurance*****,** which is a proxy for other employment benefits
3. Affords career pathways that lead to the same or another good job in the future

"Promising jobs" do not meet all the criteria of a good job, but provide *career pathways* that are 100% likely to lead a worker to have a good job by 2030.

"Other jobs" do not qualify as good or promising.

Within each category, jobs can be segmented by accessibility based on educational attainment: high-skill (at least a four-year degree), middle-skill (high school degree to four-year degree); or low-skill (less than high school).

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Methodology: Identifying the career pathway potential from promising to good jobs

The vast majority of workers obtain good jobs after making major career shifts, and these shifts are more important for less-educated workers. These are not “career ladders” advancing in one vocation or sector, but “career pathways” that may change dramatically.

How can promising jobs that afford upward mobility to good jobs be identified, especially when transitioning into entirely different industries and occupations?

Using the largest publicly-run national labor market survey, the Opportunity Industries analysis follows workers through job changes over the past 20 years. It tracks individuals’ transitions from month to month over two four-month long periods to yield more than 8 million records representing billions of months worked in the U.S. labor market.

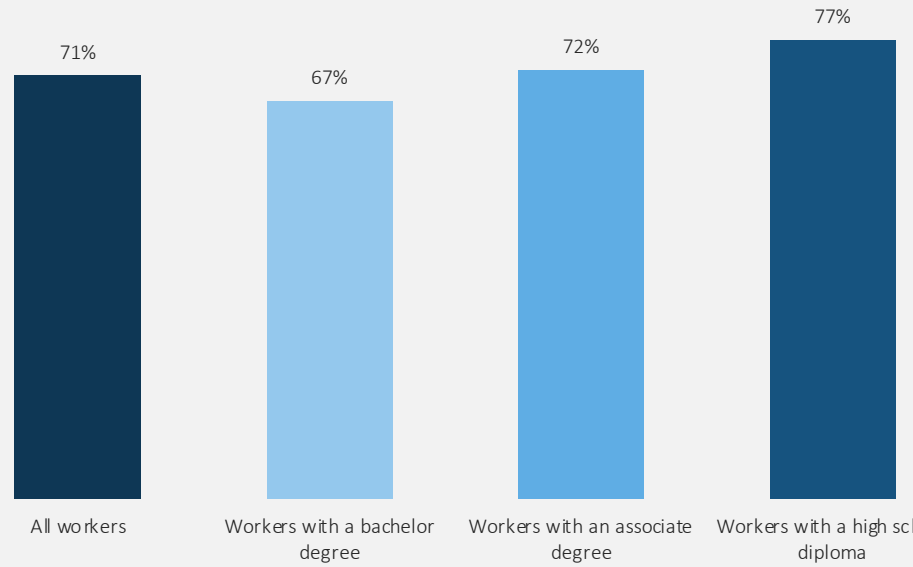
As the example of a credit clerk shows, these transitions are not always intuitive, incremental, or improving wages and job quality.

These pathways are not theoretical nor prescriptive. Rather, they reveal what happens across individuals' attributes and observed labor market behaviors.

The data enables modeling the probability of each movement based on particular circumstances -- the rate of job growth in a place and time, and the characteristics of the worker who made the transition.

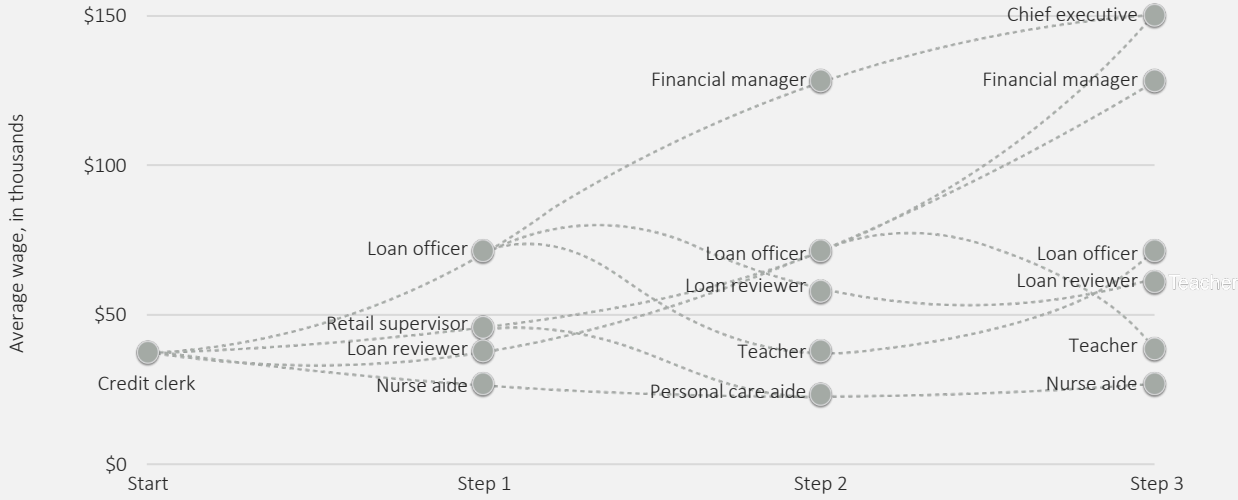
Those models establish the career pathways for workers based on their starting occupation and attributes. These can be applied to regional economic and labor market conditions to determine the likelihood that a certain job will lead to a good job.

Share of workers in good jobs who made major career shifts



Source: Brookings, “Opportunity Industries”.

Common career paths for credit clerks



Methodology: Determining the wage threshold for a "good job"

What constitutes the target for a “good job” depends on the policy objectives for the region.

Based on regional stakeholder preferences, the family self-sufficiency “market basket” budget extended beyond the minimum required for breakeven with annual expenses to also include some savings and wealth-building. That market basket then was applied to determine the proportion of working families that could not meet that self-sufficiency standard, based on their unique characteristics. Tracking across the variety of family compositions and annual income needs, an hourly wage curve can be created that shows how many people – individual adults, children, or undifferentiated residents – can achieve self-sufficiency at different levels.

The policy question then becomes: What is the change in status of struggling workers and their families that Kern County stakeholders consider the goal for improving job quality? How many residents should move out of struggling status?

Typically, regions center this decision around the impact on children, given the exceptional influence that lower incomes have on their development, health, and lifelong socio-economic outcomes.

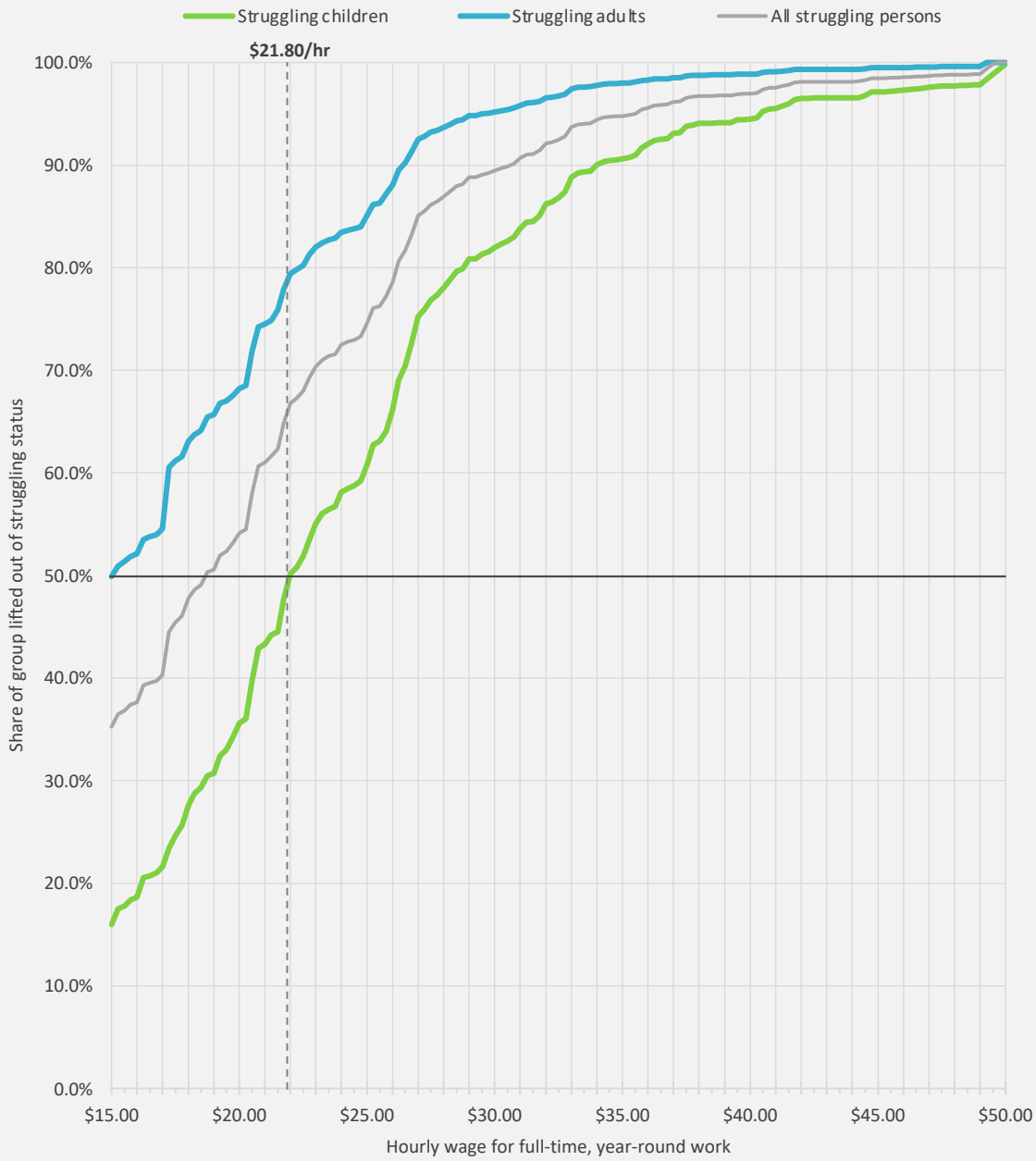
As in other metros, the debate in Kern County balanced what is ambitious and achievable, meaningful and realistic. It considered current economic development and labor market conditions, the scale of progress required to reach wage and job creation targets, and forecasted conditions.

Stakeholders set a policy goal of reducing the share of Kern County children in struggling working families by 50%, resulting in a target wage of $21.80 per hour.*

This analysis was done at the peak of a tight labor market of a 10-year long business cycle. Although economic conditions are disrupted and uncertain, this wage threshold remains an appropriate "high-water mark" for defining good jobs.

*(*Note: The bare minimum market basket expenses, without added savings and wealth-building, required $20.20 per hour wage to meet the 50% goal.)*

Share of Kern County's struggling residents lifted to self-sufficiency at different wage thresholds



Source: Brookings analysis of American Community Survey public-use microdata and University of Washington estimates.

Only 30% of region's jobs offer self-sufficiency or pathway; need to double number of quality jobs

Analysis reveals the struggling status of workers is clearly linked to the quality of Kern job creation: only **19% of the region's jobs qualify as "good" and 11% as "promising," with the remaining 70% "other" jobs**.

These proportions vary by skill level, with the least educated workers unsurprisingly having highest probability of holding an "other" job.

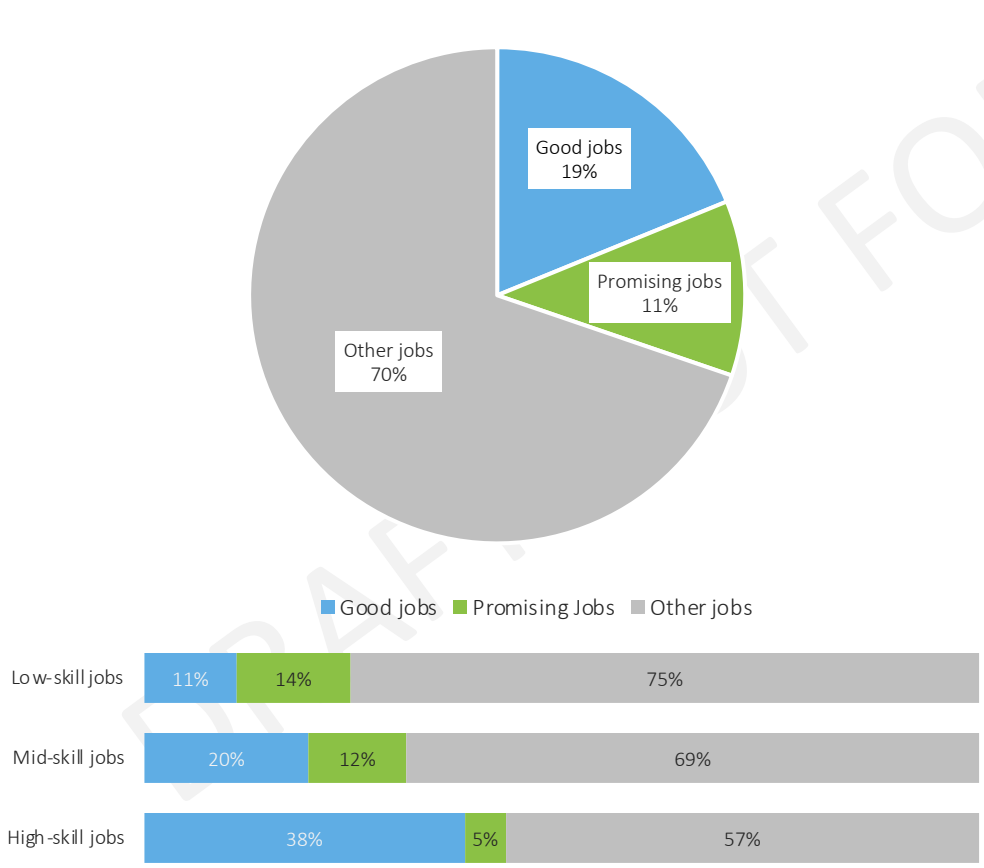
Although direct comparisons are not possible given different policy choices in targeting good job standards, large U.S. metro areas with solid economic performance typically generate fewer than 60% other jobs and more than 20% good jobs. The low baseline in the Kern region poses a significant challenge for elevating the prosperity of residents.

The Kern economy simply does not generate enough good and promising jobs to help the region's 133,000 struggling workers reach self-sufficiency.

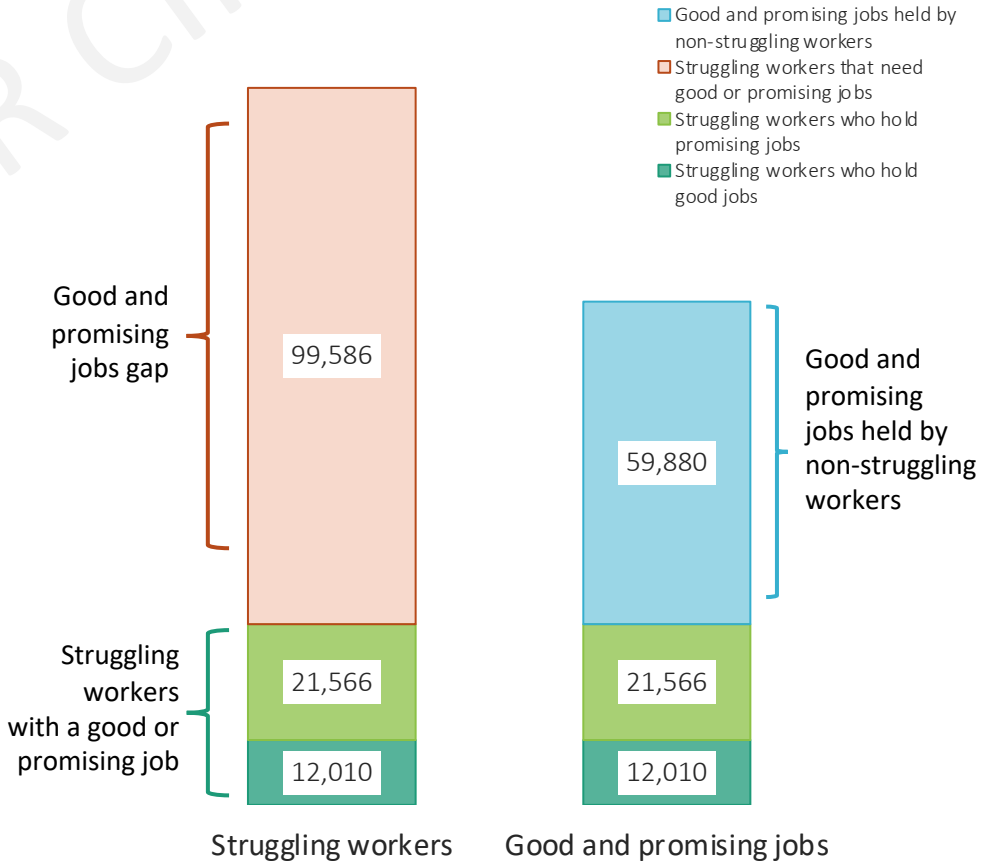
Less than 25% of struggling workers currently hold promising jobs, or good jobs that still did not meet their particular family self-sufficiency needs. Deducting these from the mix leaves a gap of nearly 100,000 quality jobs needed to meet the target 50% reduction of children in struggling families – the equivalent of growing or upgrading the quality of almost 30% of the county's 2019 job base.

Closing that gap is a monumental and generational task, but reinforces the urgency of focusing economic development efforts on job quality and access, and potentially ways to enhance job quality in existing foundational industries.

Share of Kern County jobs by quality and skill levels, 2018



Gap in good and promising jobs



Source: Brookings, "Opportunity Industries".

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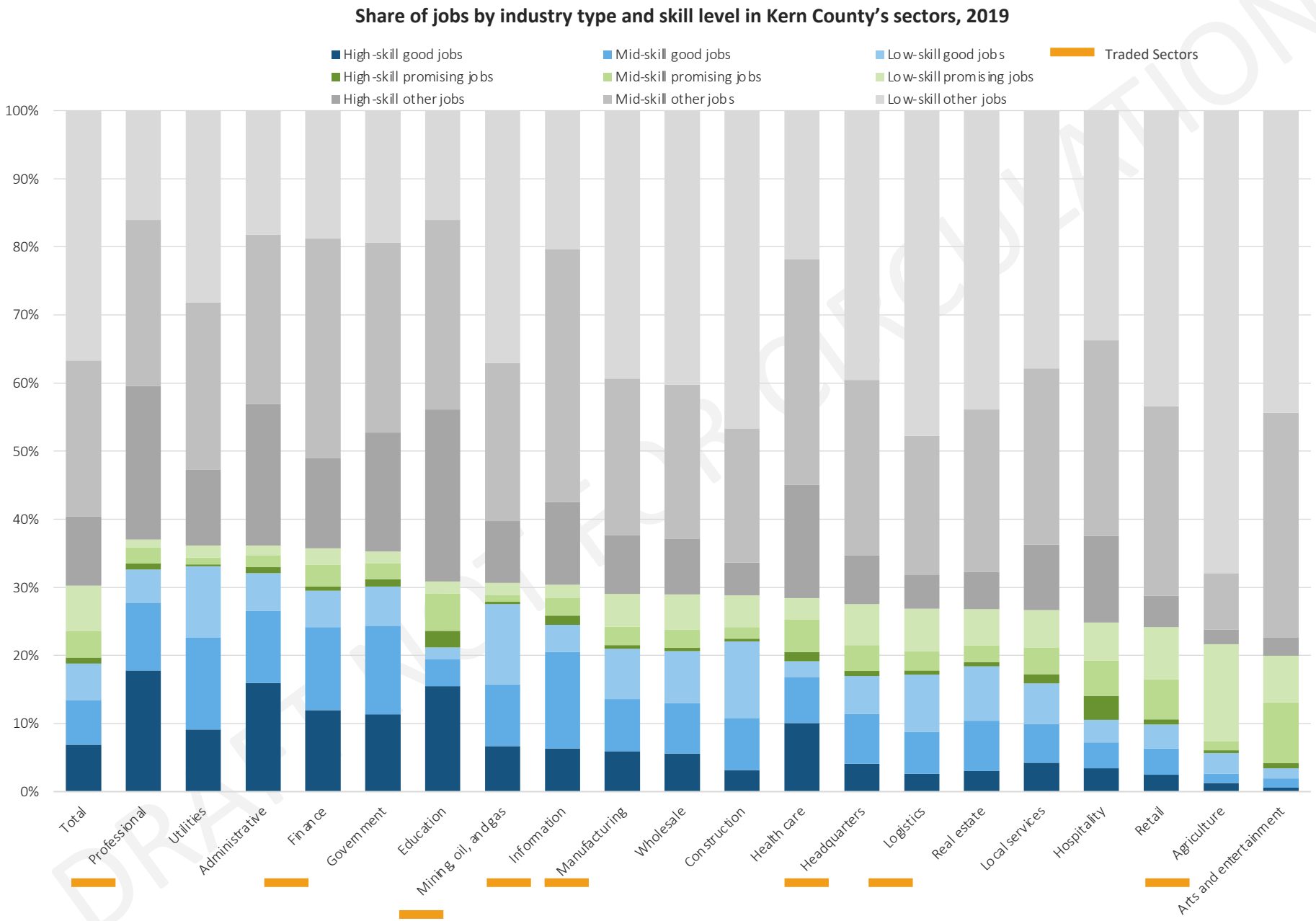
Share of job quality varies by industry and skill level, with more good jobs in high-value traded sectors



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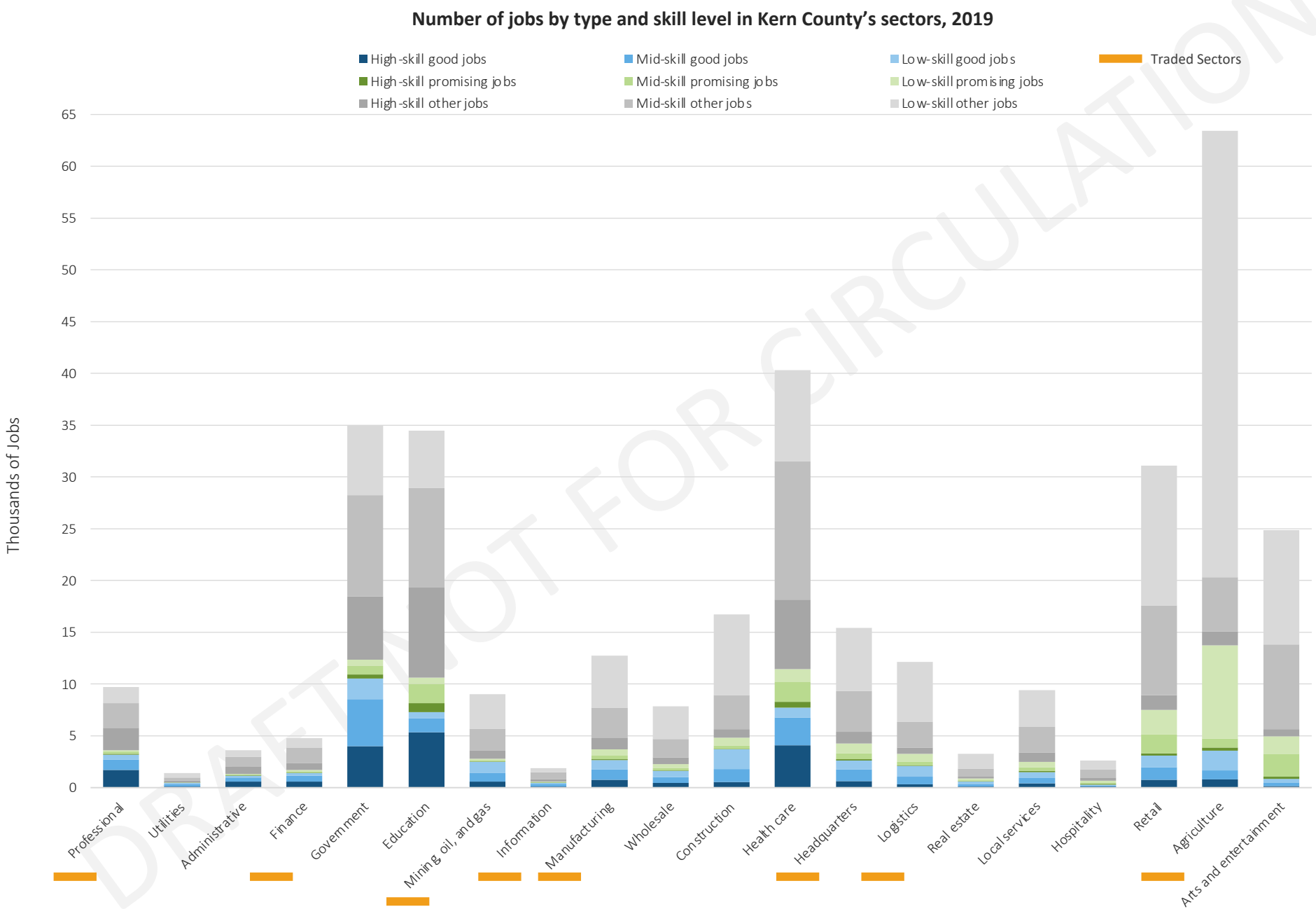
Source: Brookings, "Opportunity Industries".

Kern sectors that concentrate the greatest job quality tend to create fewer jobs



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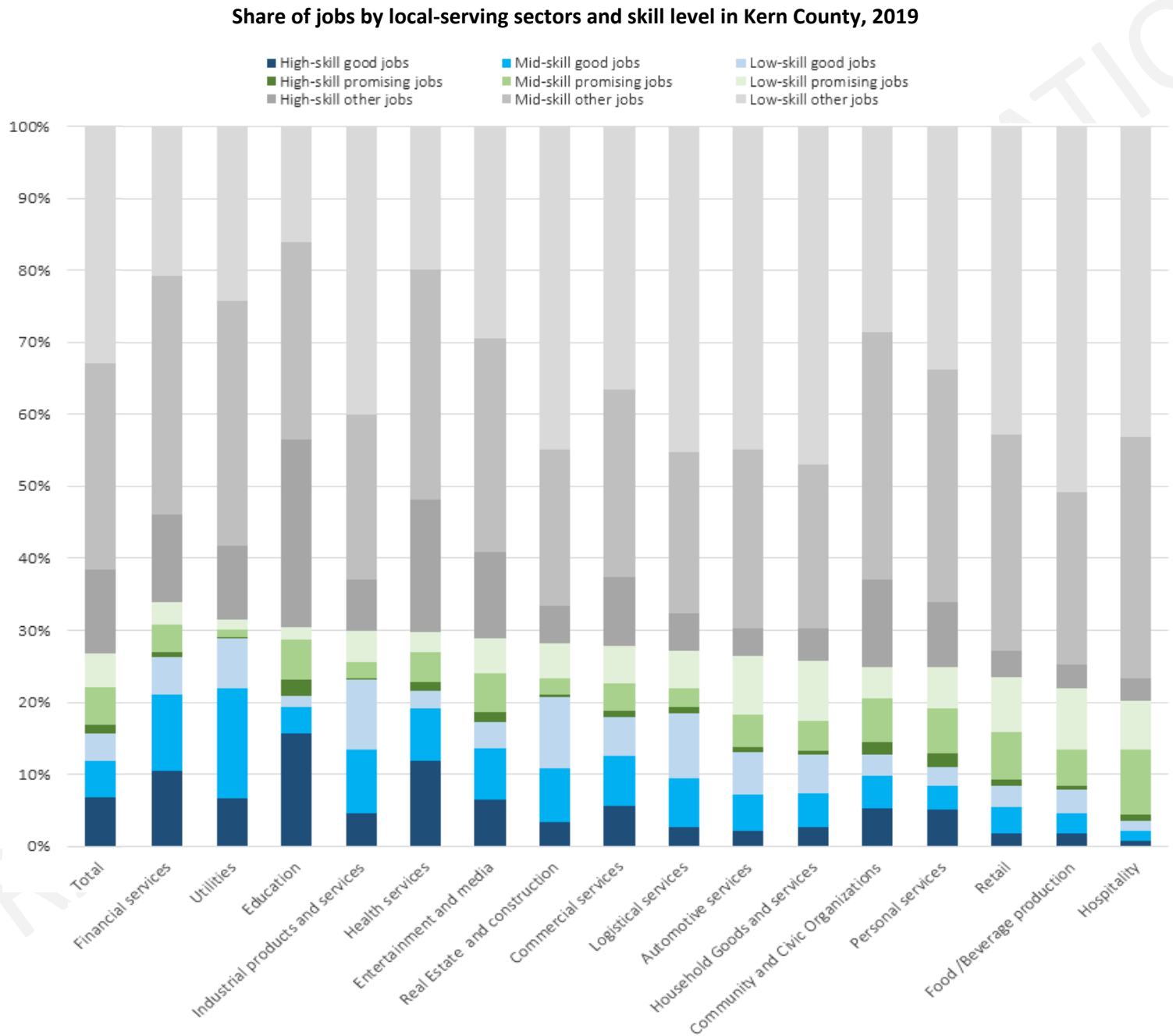
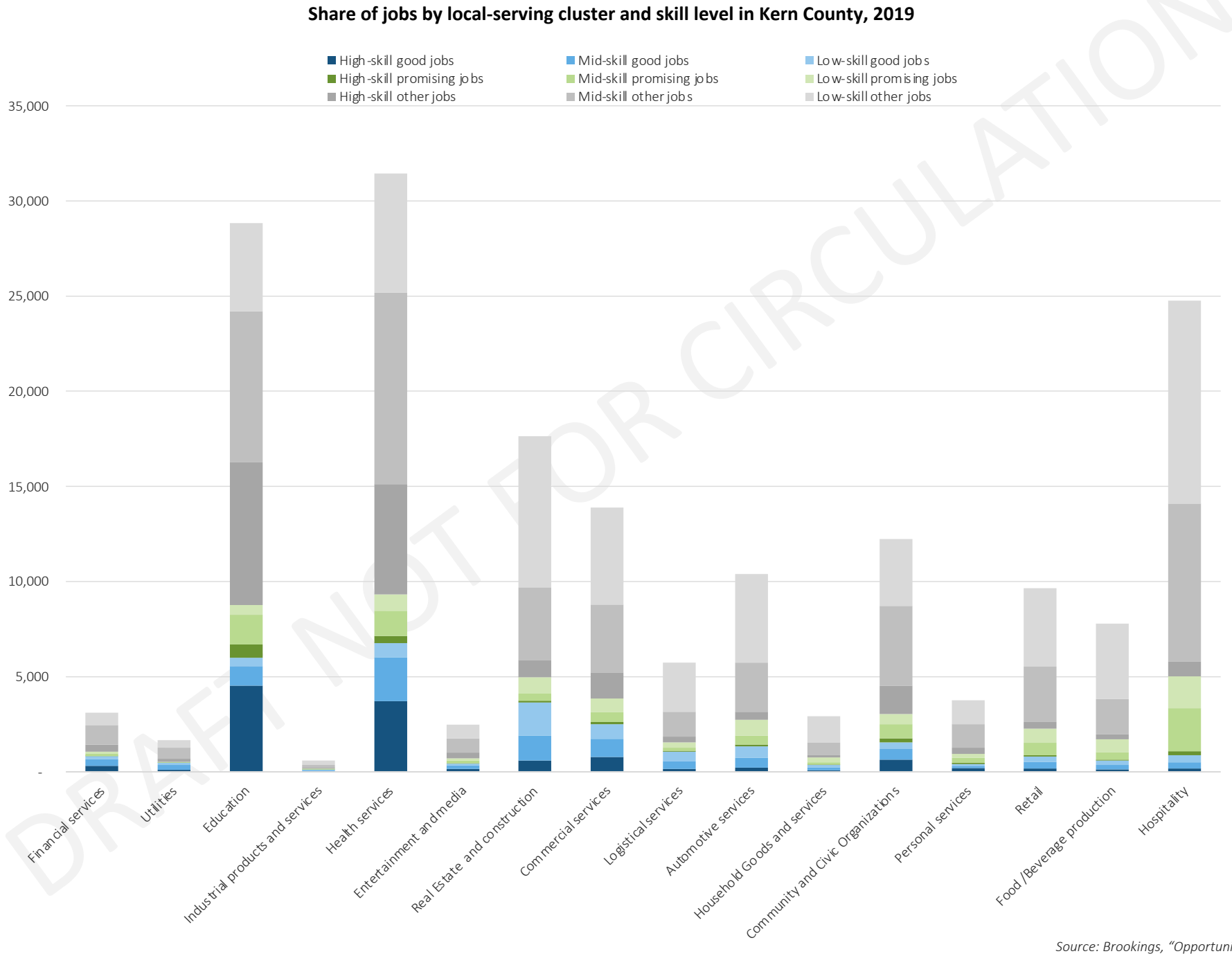
Source: Brookings, "Opportunity Industries".

Most locally-serving sectors concentrate more promising jobs than accessible good jobs



Source: Brookings, "Opportunity Industries".

The most opportunity-rich locally-serving sectors tend to generate fewer total jobs



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Source: Brookings, "Opportunity Industries".

Workers with different demographics face clear disparities in occupying good and promising jobs

Beyond the need for more quality jobs, Kern economic development stakeholders must consider how to close gaps in access to those jobs.

The Opportunity Industries analysis uncovered significant disparities in who occupies good and promising jobs based on a range of demographic characteristics.

Predictably, many of those disparities follow human capital dimensions. For example, workers who hold a bachelor's degree are more likely to have a good job than those with only a high school diploma. Older workers are more likely to have a good job than younger workers and hold relatively few promising jobs, reflecting the value of experience and on-the-job learning; younger workers tend to hold promising jobs that afford knowledge and skills acquisition that enable them to command higher good job wages and benefits within the next ten years.

However, differences also emerge along dimensions that are not directly connected to human capital.

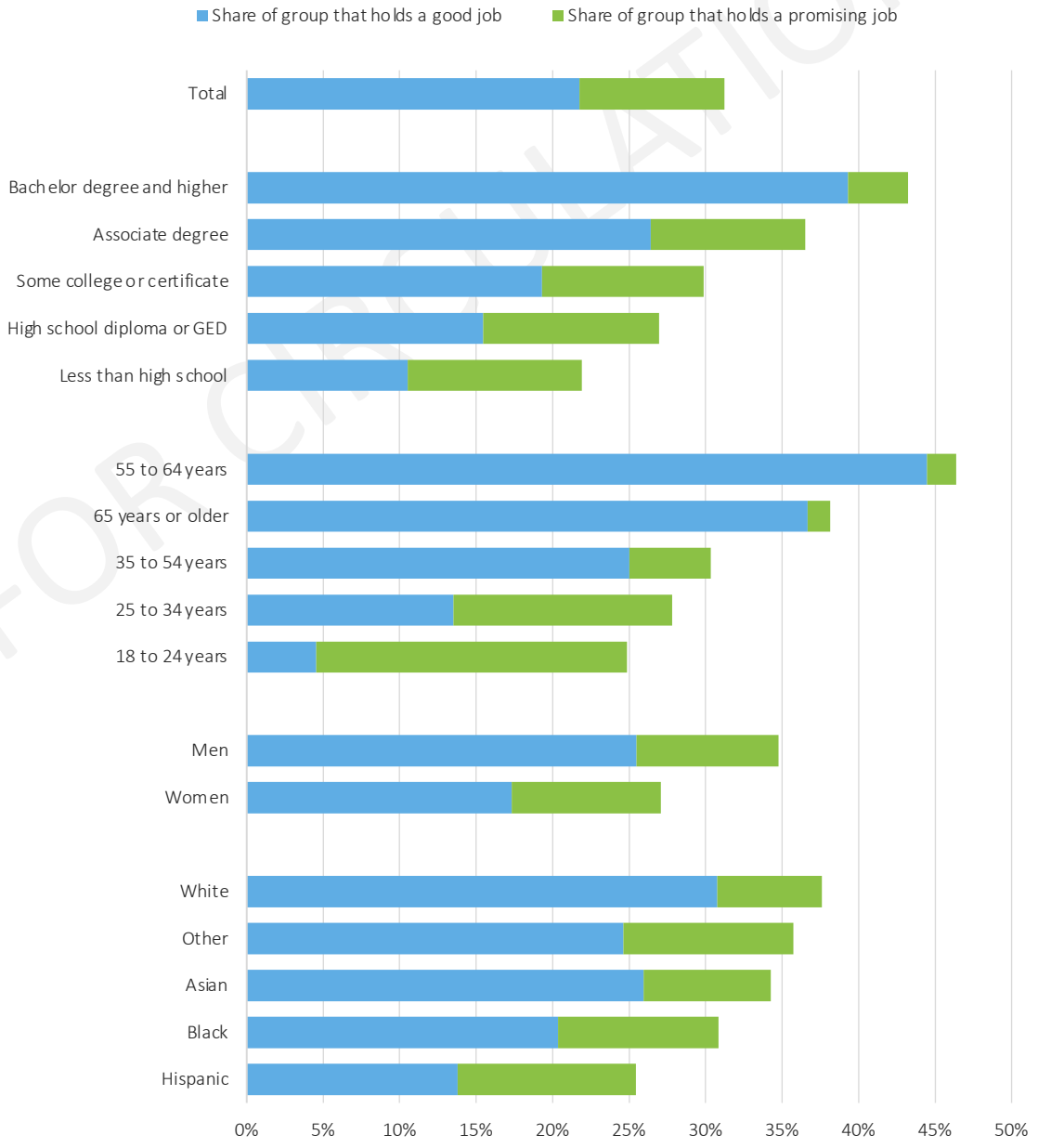
Men are more likely than women to hold a good job—an especially concerning disparity given that a large portion of struggling workers are single mothers. Furthermore, out-of-work population analysis finds rates for women dramatically higher than men, including those in prime working age with more than a high school degree. (*see Slide 53*)

Race also is a dividing line in who occupies a good or promising job. White workers are more likely to hold a good job than workers of color.

Some race-based disparities may be attributable to other demographic characteristics. For example, the region's Hispanic cohort trends significantly younger than the white population, thereby naturally skewing Hispanic residents toward holding fewer good jobs and a larger proportion of promising jobs.

Nevertheless, similar to the differences uncovered in analysis of struggling workers generally, age and educational attainment do not explain all of these gaps in performance.

Share of workers in each demographic group that have a good or promising job



Source: Brookings, "Opportunity Industries".

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Demographic disparities in job quality persist among workers with the same educational attainment

Even among workers with the same education, disparities persist between workers of different races in the share occupying good or promising jobs. At every level of educational attainment, workers of color are at some disadvantage. More education helps to significantly narrow gaps between whites and workers of color, but no amount closes them completely.

- A white worker with a high school diploma or GED is twice as likely to hold a good job as a Hispanic worker with the same degrees.
- A white worker with at least a bachelor's degree is 50% more likely to hold a good job than a Hispanic worker with the same education.

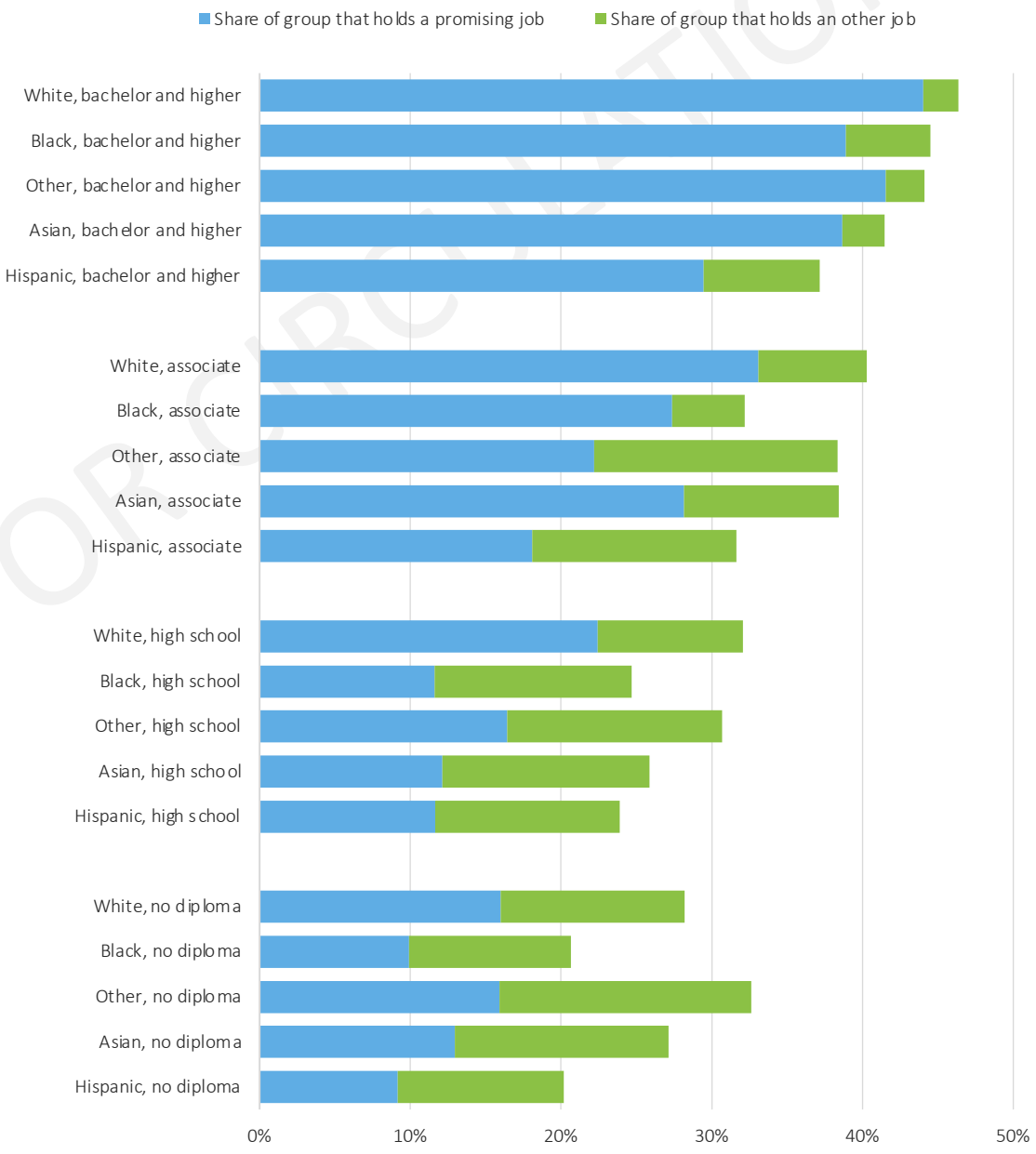
Again, age and associated work experience may be a major factor, with the Hispanic cohort of workers younger than the white population. However, the struggling worker analysis correlated less than 20% of the difference in outcomes to age.

At higher levels of educational attainment, some of this divergence could be attributable to fields of study that tend to be pursued by particular racial groups, whether by interest or structural expectations. Hispanic and white students might disproportionately seek degrees in different disciplines with varying salary profiles, such as liberal arts versus computer science. In addition to retention and graduation rates, examining the distribution of majors by race at CSU Bakersfield and Kern Community College District may offer insights on this theory. Either way, the difference in likely outcomes from enrolling in a four-year degree program creates different levels of risk and reward for Hispanic versus white students, which can lead to different decisions about whether the investment of time and resources is worth it.

Similarly, the distribution of training and workforce development system participants and focus of placements could influence outcomes. For example, programs may consider the extent to which they tend to serve more Hispanic versus white workers, prioritize filling high volumes of job openings versus targeting job quality, and have different results in the type of training provided or placement made.

However, the scale of the labor market and disparities among similarly situated workers compared to these suggests other factors are more significant in racial differences, such as social networks to connect with better quality jobs; or firm hiring outreach and incumbent worker advancement practices.

Share of workers in each demographic group that have a good or promising job



Source: Brookings, "Opportunity Industries".

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Market Assessment Data Book

1. Economic performance and traded sectors
2. Opportunity Industries: Job quality and economic mobility
3. Competitiveness drivers
4. Implications, next steps, and workgroup activity

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Competitiveness Drivers: Talent

Why talent matters:

In the modern economy, workforce capabilities far surpass any other single input to regional economic development.

Regions grow when they develop and deploy residents to maximize their productive potential.

The pool of available knowledge, skills, and expertise – and ability to cultivate more – is the top factor in cluster formation and business location decisions.

The economic success of individuals, firms, and regions correlates closely to educational attainment and the density of relevant talent to draw from.

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Educational attainment in the region lags economic peers, with deficits hidden by historic job mix

Talent drives regional economic performance, and economic outcomes for workers are closely correlated to higher educational attainment levels of the local labor force. As demonstrated by the Opportunity Industries analysis, higher-skilled workers are considerably more likely to hold a good or promising job. According to research by the City Observatory, educational attainment now explains about two-thirds of the variation in per capita incomes about large US city-regions.

Kern has been a dramatic outlier. While consistently lagging behind California and national comparisons in levels of educational attainment, Kern benefited from the unique presence of high-wage extraction industry jobs that are accessible to residents holding a high school degree or less.

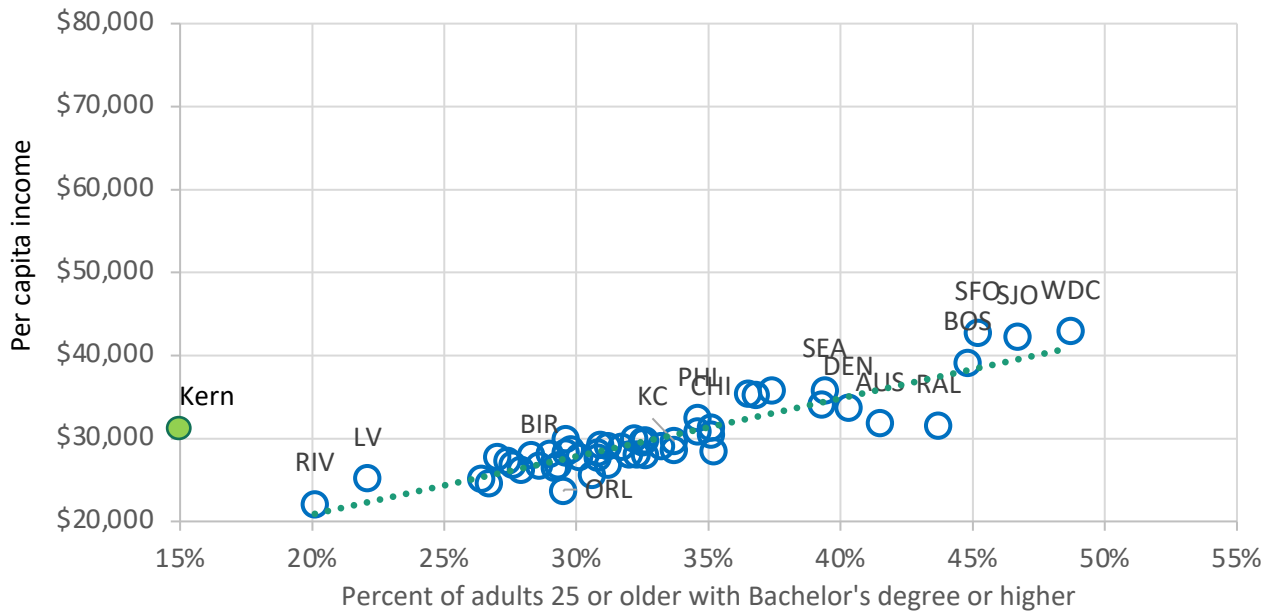
As a result, the region placed far outside the trend line in offering economic mobility for a relatively uneducated workforce. In 2010, Kern per capita earnings were roughly $31,000 despite less than 15% of residents holding at least a Bachelor's degree. That put the region ahead of the Inland Empire and Las Vegas, and on par with metros having about twice the educational attainment.

However, by 2018, declines in core low-skill industries and job quality caught up with Kern. Per capita income grew to $39,700 while educational attainment only rose to 16%, but the more educated regions experienced substantially greater improvements that surpassed Kern in economic opportunity.

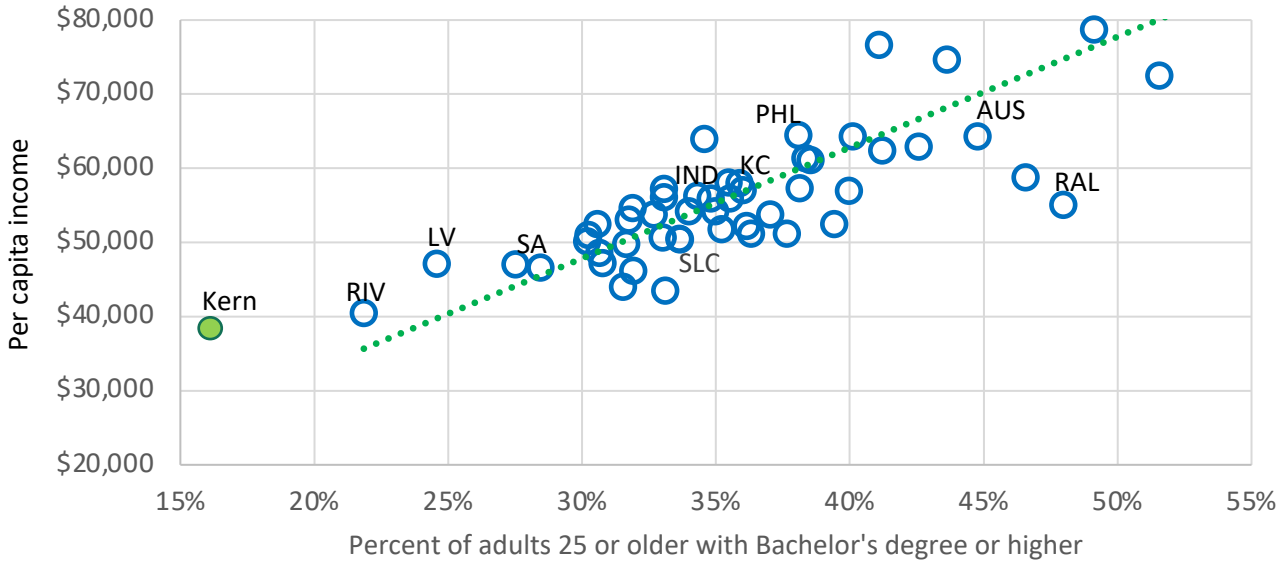
While still exceeding expectations, the decline in oil industry jobs and economic drag from over 50% of the population lacking more than a high school degree has pulled Kern more in line with national standards. These downward trends will continue.

No economic development strategy can change long-term outcomes in job quality, vitality, and competitiveness if the region does not dramatically improve educational attainment rates at all levels. This responsibility extends beyond educators to all stakeholders – business, government, and community.

Metro per capita income vs educational attainment, 2010



Metro per capita income vs educational attainment, 2018



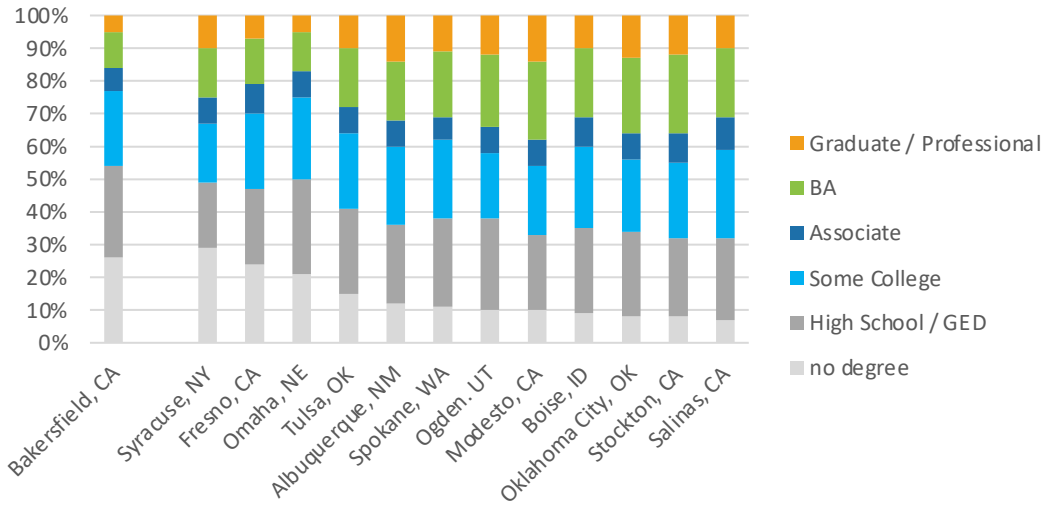
Source: City Observatory analysis of ACS and BEA data

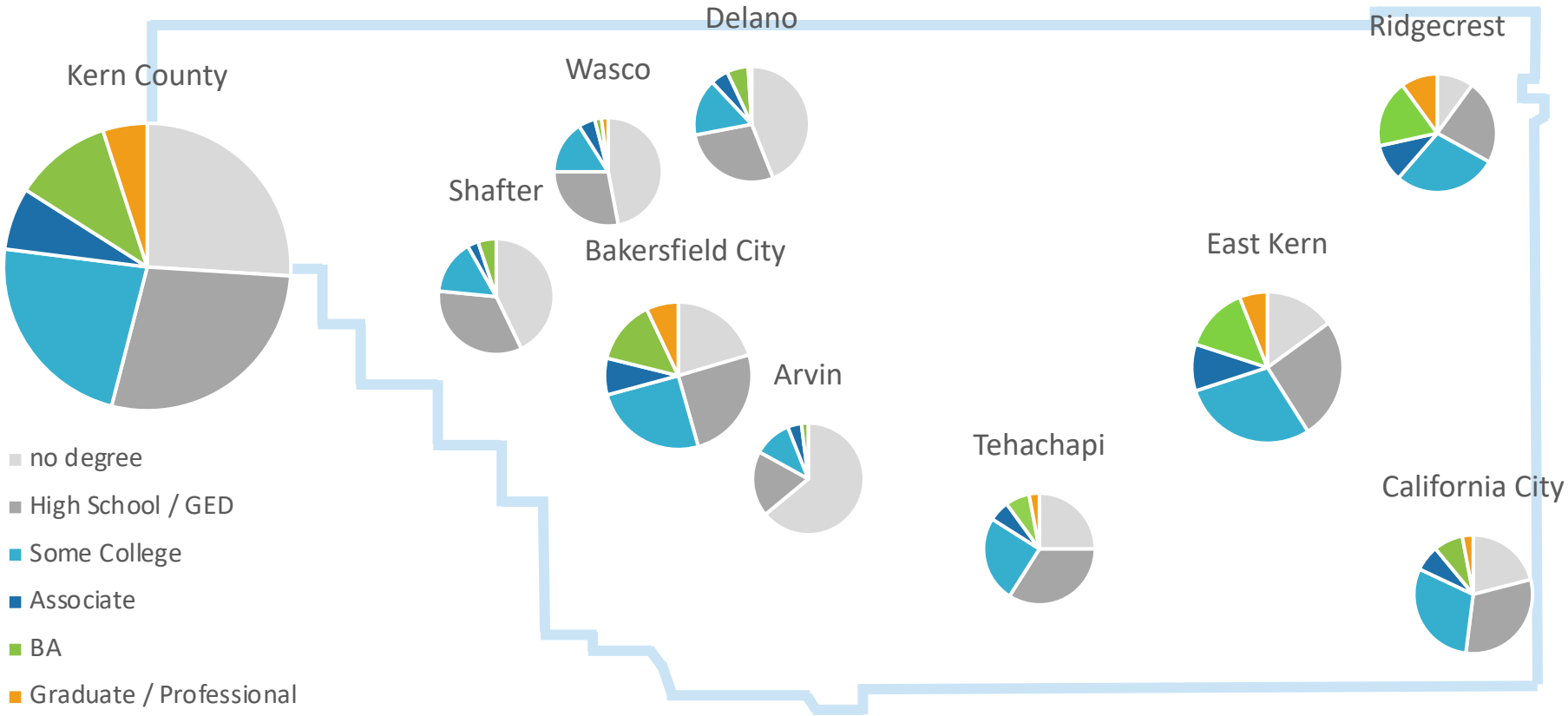
Educational attainment is below economic peers, dramatically split between East and West Kern

Against economic peers nationally and within the state, the region has among the largest shares of residents lacking a high school degree or equivalent, and the smallest with a Bachelor's degree or above (*Omaha is similar in profile*).

Inside the County is a dramatic split with East Kern only 16% lacking a degree and 20% having a BA or more, versus most population centers in West Kern. While the military bases and aerospace industry may attract more educated workers to East Kern, that does not account for the exceptionally low levels elsewhere.

Efforts are underway related to these objectives, such as the Kern Education Pledge and individual initiatives like KCSOS career pathway programs and California Community Colleges' Vision for Success campaign. However, in the near term, geographically targeting and scaling workforce credentialing and outreach efforts most be considered specific to sectoral economic development opportunities.



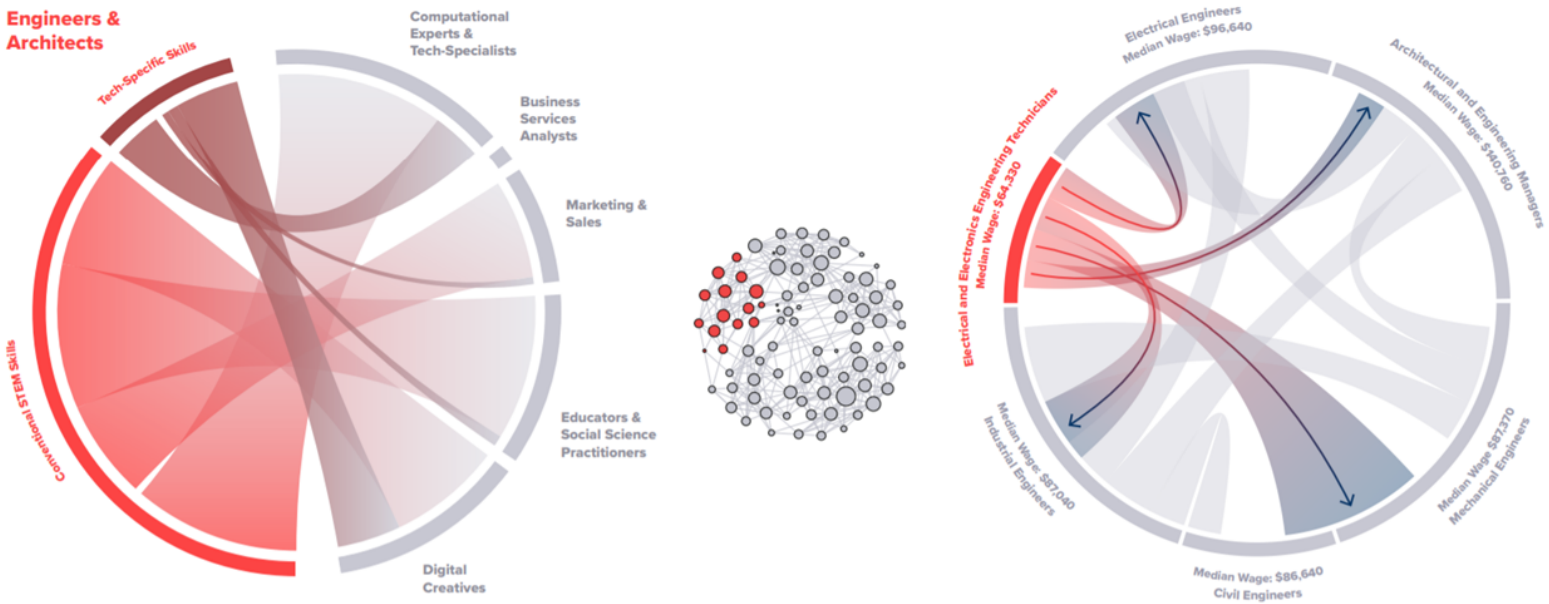


Talent Adjacency analysis identifies skill and knowledge strengths that support new specializations

Kern's ability to develop new traded sector specializations depends in large part on whether it has the labor force capabilities needed by that sector. Traditional indicators of comparative growth and job concentrations effectively measured historical human capital availability. Examining talent adjacencies can reveal which industries or sectors the region already possesses and the types and amounts of human capital to power the development of new specializations.

Talent adjacency compares two dimensions of regional workforce capabilities in existing traded industries against a national baseline: (i) substantive knowledge or technical abilities in particular disciplines, and (ii) skills that enable effective application of information to practical use.

For example, engineers, have the sort of science, technology, engineering, and math (STEM) skills demanded in many fast-growing occupations and industries today. Architects and engineers could easily parlay their knowledge and skills into other creative design professions, information and technology professions, or marketing and sales positions where the ability to fluidly communicate complex technical details is essential.



The analysis then evaluates two specific aspects of potential transferability into other sectors. "Correlation" gauges the similarity in types and level of human capital requirements between sectors and another under consideration. "Overlap" measures the general availability of human capital within the region that can fulfill the needs of the target sector.

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Oil and gas talent adjacency show knowledge and skill strengths that support new specializations

Talent adjacency analysis for Kern looked broadly across all sectors for potential hidden competencies and connections. That review gauged where Kern's traded sectors have greater concentrations of expertise in technical knowledge or applied skills – and accord them more value– compared to a baseline of U.S. traded sectors in the aggregate.

The assessment also specifically examined sectors of particular interest. For example, the analysis targeted assessment of regional workforce knowledge and skills for sub-sectors identified as emerging based on growth trends, such as manufacturing and business services. These reviews were scored for a combination of talent overlap and correlation, with a strong adjacency indicated if in the mid-90th percentile and weaker in the 80th percentile or below. Those factors were applied to the future sector review matrices. (*see Slides 78-83*)

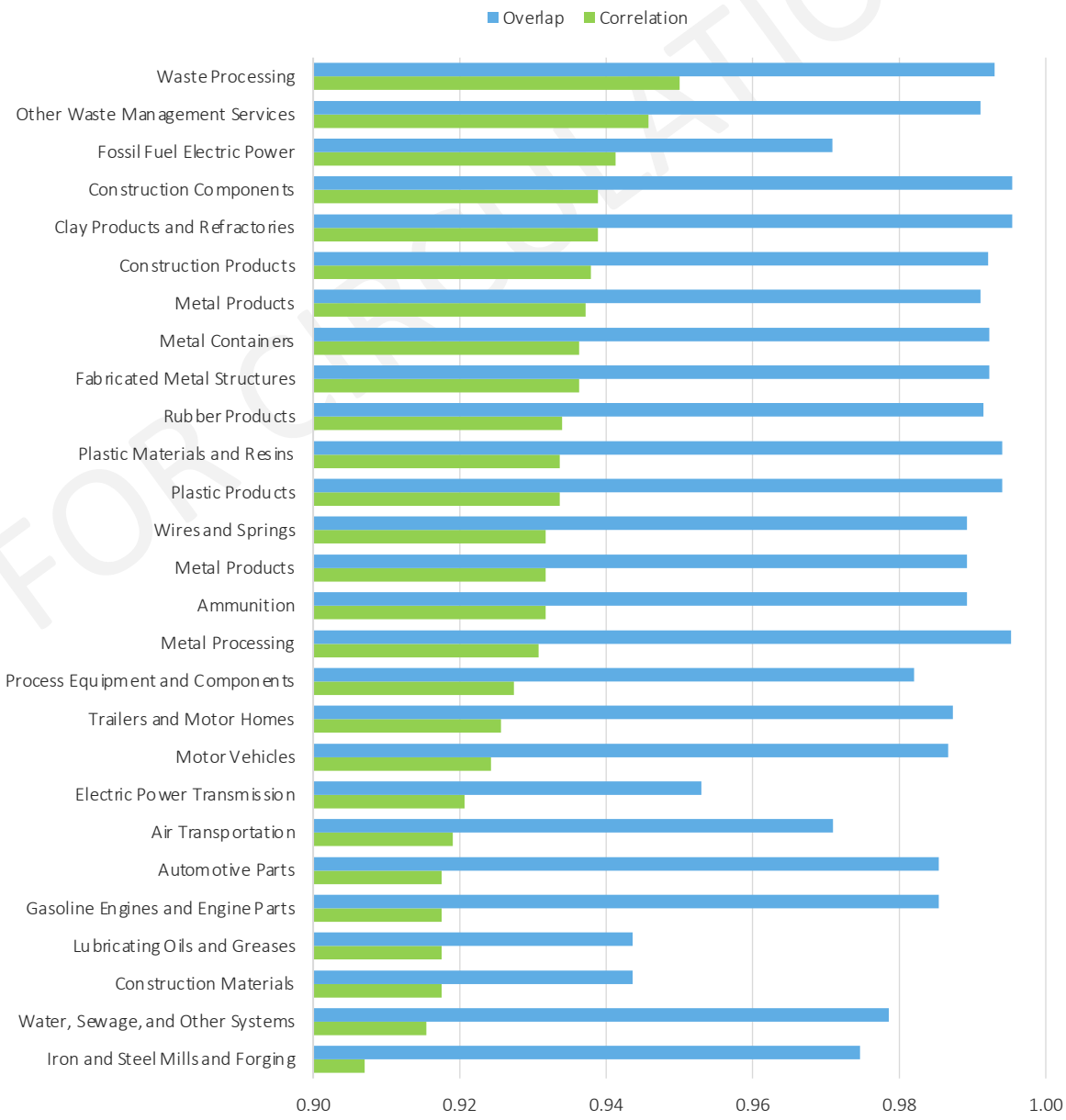
Additionally, the analysis focused specifically on the question of oil and gas workforce, where displacement already has occurred and is forecasted to continue based on market and regulatory forces.

The research determined that the workforce is well-suited for jobs in several other clusters, including those where Kern features other advantages for economic development efforts.

Unsurprisingly, the region's existing oil and gas sector has a reasonably high correlation of human capital needs with several other sub-sectors where Kern does not currently have especially large numbers of jobs but share core knowledge and skills, such as aspects of manufacturing, construction, and utilities clusters where advanced mechanical skills, spatial abilities, and physical abilities are most critical.

To an even greater degree, the region's oil and gas workforce capabilities can substantially fulfill demands in other clusters with high overlap scores, indicating a very strong alignment with many manufacturing specializations.

Clusters that have the most similar human capital needs to Oil and Gas



*Source: Analysis of O*Net data and Economic Modeling Specialists Intl. estimates.*

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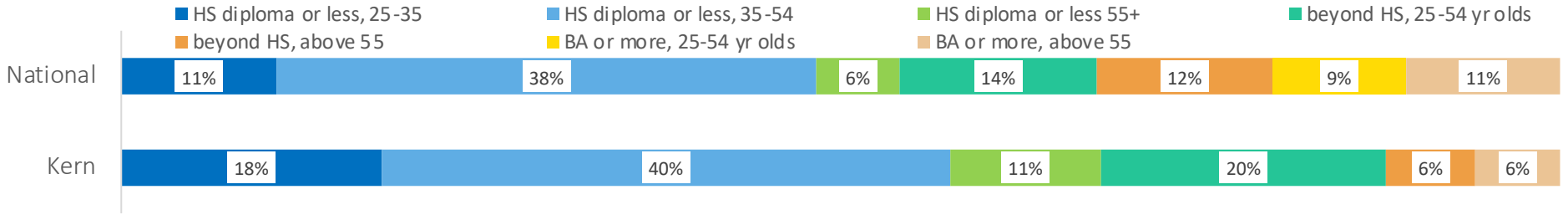
One-fifth of prime age adults in Kern are out-of-work; skills, gender, and childcare issues

Economic development and inclusive growth requires ensuring maximizing the potential of residents to contribute in the labor market. Beyond educational attainment and skills, Kern County faces fundamental challenges in engaging "out-of-work" populations – individuals who are unemployed and actively seeking work, plus those who have dropped out of the labor market but still would like to work. These exclude traditional students, disabled individuals, retirees, and stay-at-home parents with an employed spouse and family income at least twice the federal poverty line.

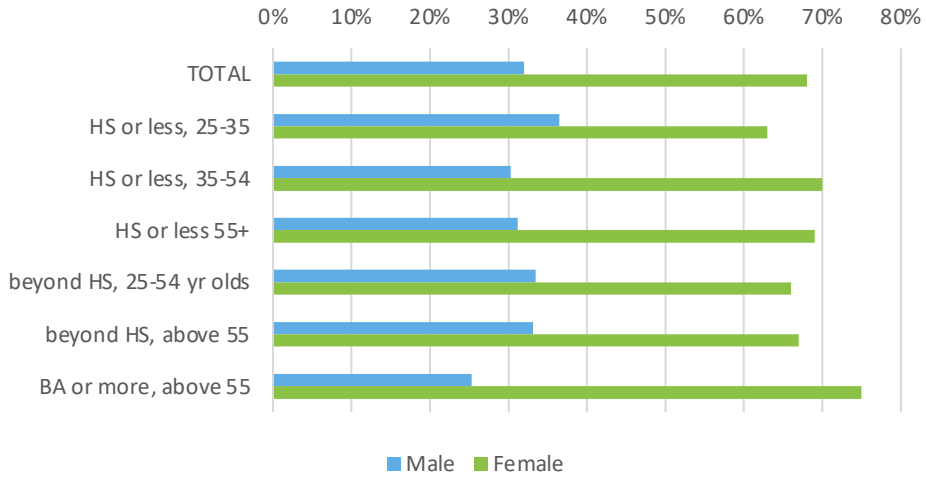
Analysis determined that 20% of Kern County adults in prime working age of 25 to 64 are out-of-work, above the national rate of 14.4%. Nearly 70% of Kern residents who are out-of-work are less educated, holding a high school diploma or less, compared to the national baseline share of 55%. Additionally, prime-age working adults with some post-secondary education or certifications represent 20% of the Kern out-of-work, also above the national distribution, while a smaller share of residents with a BA or more are out-of-work compared to the nation.

These allocations may reflect the overall lower educational attainment levels of the region's workforce, but suggests that a higher-than-average number of Kern residents face barriers to employment and that Kern's labor market is failing to provide opportunities that match resident qualifications.

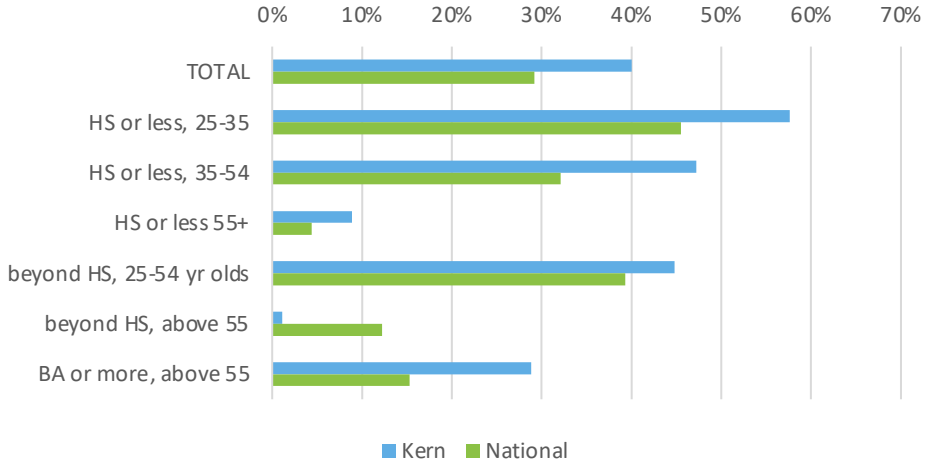


Women in Kern are substantially more likely than men to be out-of-work at all education and age levels. A higher share of out-of-work in Kern are caring for children than the national baseline. In combination, this suggests a disproportionate childcare burden based on availability and/or costs that impedes connecting with the labor market. Expanding accessible childcare and "two-generation programs" combining workforce and early childhood interventions with other supports may help narrow these gaps. (*e.g. CareerAdvance, Tulsa, OK*).

Out-of-work by gender in Kern County



Out-of-work caring for children, but desiring jobs



Characteristics of out-of-work suggest some targeted interventions for populations and language

Among working-age adults, white and Hispanic cohorts represent the largest share of out-of-work in the County, consistent with their bigger proportion of total residents.

This racial distribution of out-of-work by age and education similarly reflect the characteristics of those demographics, with a bigger proportion of Hispanics in the younger and less-educated groupings versus whites in the older categories with more than a high school degree.

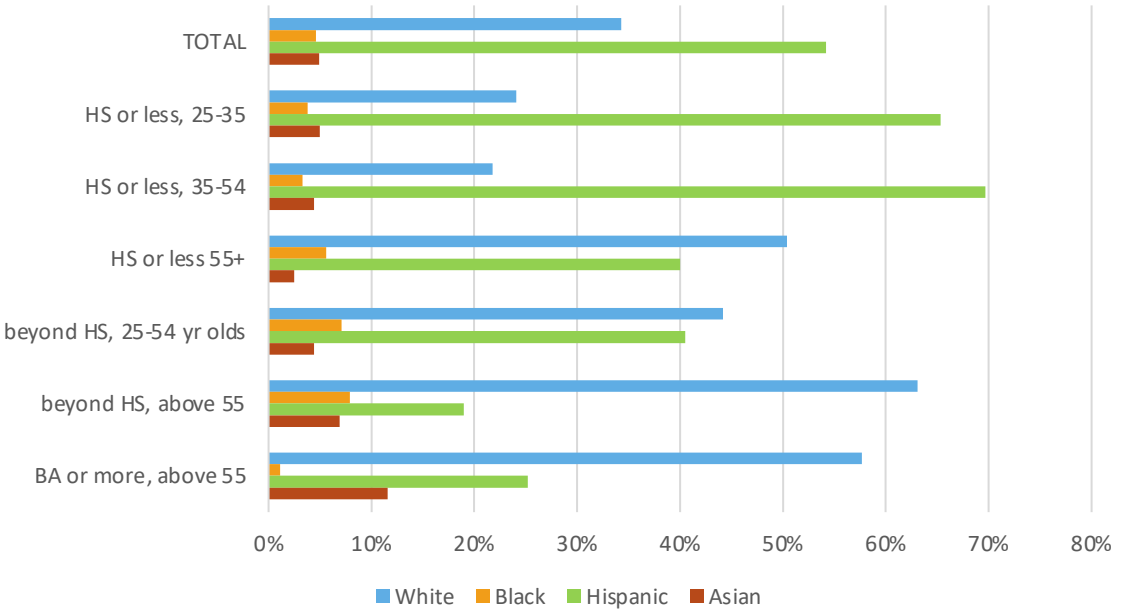
In general, distribution of Black and Asian out-of-work are roughly aligned with County population shares. However, the proportion of out-of-work prime-age and moderately-educated Black residents is nearly double their share of County population.

These factors may justify revisiting the targeted outreach and services offered by workforce development and other providers focused on reengaging workers.

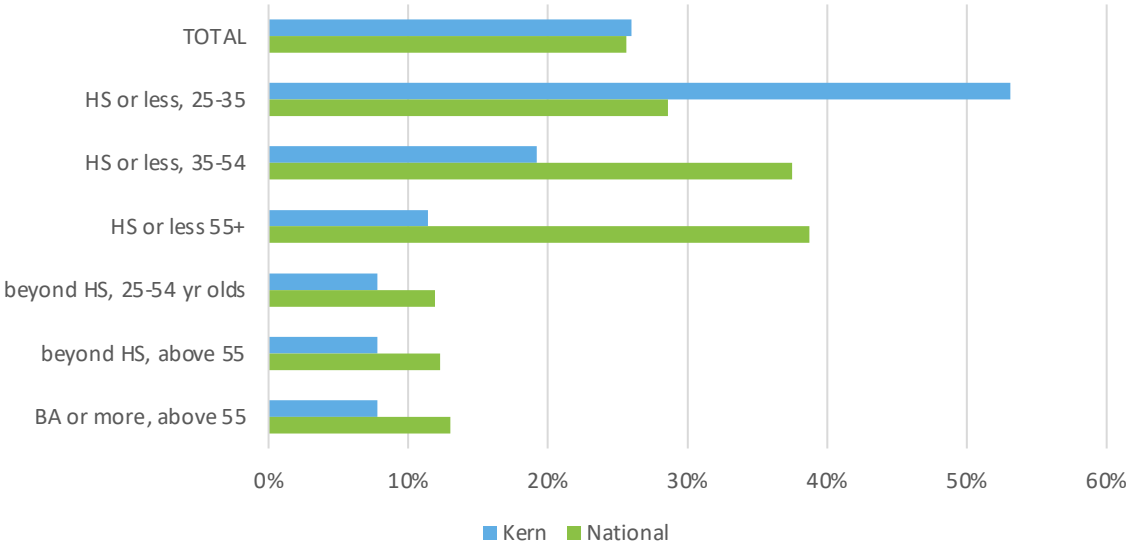
Overall, language barriers are less of an issue for most out-of-work Kern County residents than the national baseline comparison. The notable exception is adults aged 25-35 having a high school diploma or less, where more than 50% have limited English proficiency, presenting a distinctive barrier to labor market success.

This difference suggests a focus on gaps that likely require customized interventions to improve English proficiency. Established models exist to provide this language training at worksites and online (including via mobile technology). Examples include programming from the Building Skills Partnership (active in seven California locations) and English Innovations, a combined in-person/online platform in Washington state supported by the Gates Foundation.

Proportion of total out-of-work adult cohort by race



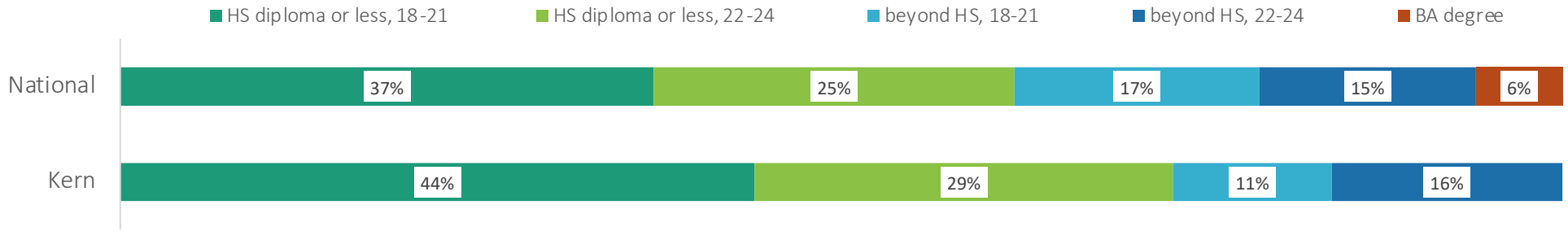
Out-of-work adults with Limited English Proficiency



One-quarter of young adults are out-of-work; childcare major issue to reengage moderately educated

Nearly one-quarter of Kern's young adults aged 18 to 24 are out-of-work, compared to a national average of 17% in large metro areas. These counts exclude high school and college students, disabled individuals, and stay-at-home parents with an employed spouse and family income at least twice the federal poverty line.

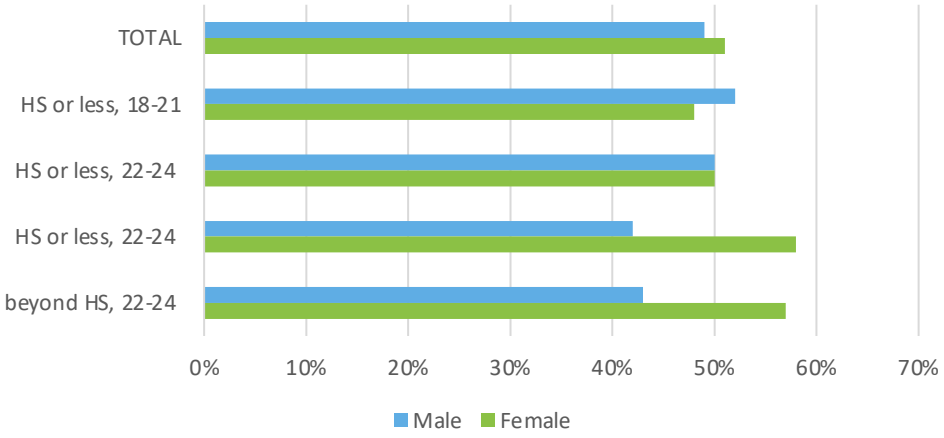
The out-of-work challenge is particularly acute among less-educated young residents. Nearly three-quarters (73%) of Kern's out-of-work young adults hold a high school diploma or less, higher than the national average of 62%. On the other side, the number of out-of-work Kern residents having a four-year degree is so small as to be statistically insignificant compared a national baseline of 6%, reinforcing the value and demand for higher educational attainment.



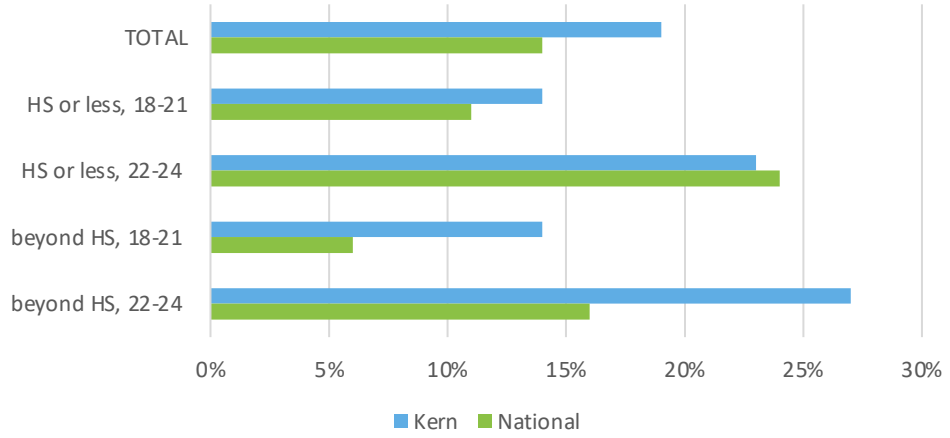
Unlike adult population, disparities in gender are not as notable among young adults, although a diverging increase for women starts to emerge with age.

However, a much sharper differentiation for potential response is the childcare barrier. Across both out-of-work age groups, a notably higher share of better-educated young adults in Kern are caring for children than the national baseline, nearly double the amount. This suggests that lack of childcare access is blocking labor force participation, especially among a group with knowledge and skills.

Out-of-work young adults by gender



Out-of-work young adults caring for children, by educational attainment



Shares of out-of-work Hispanic and Black young adults are disproportionately high

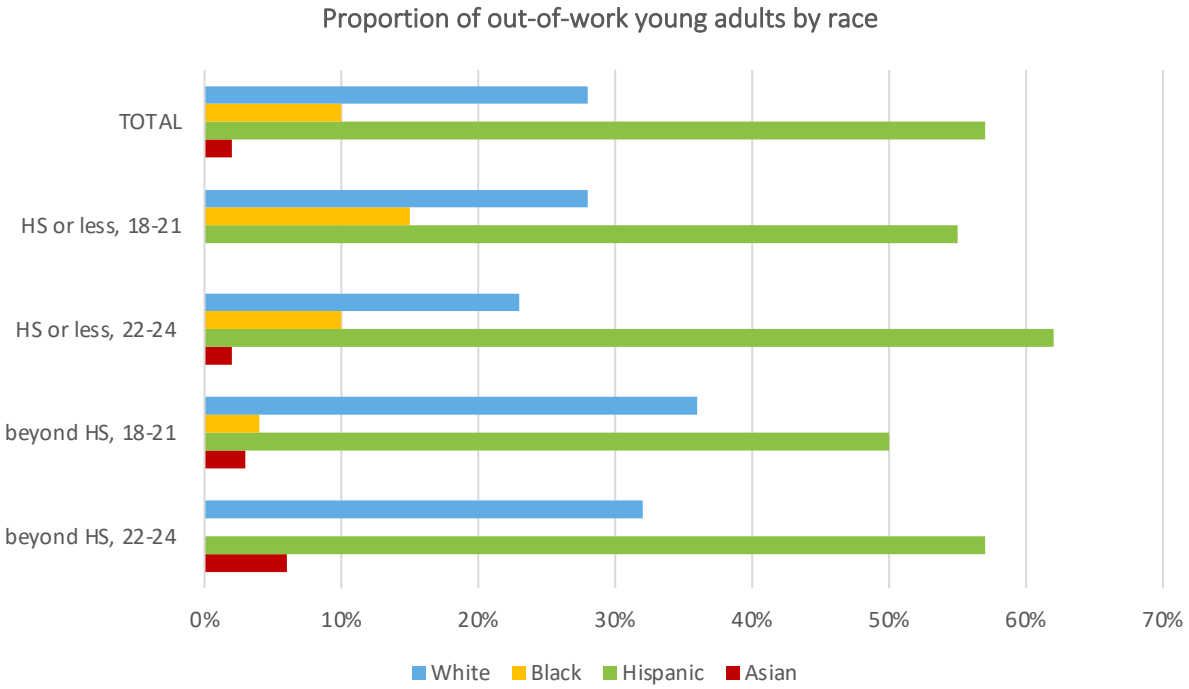
Hispanic and white residents account for the most out-of-work young adults.

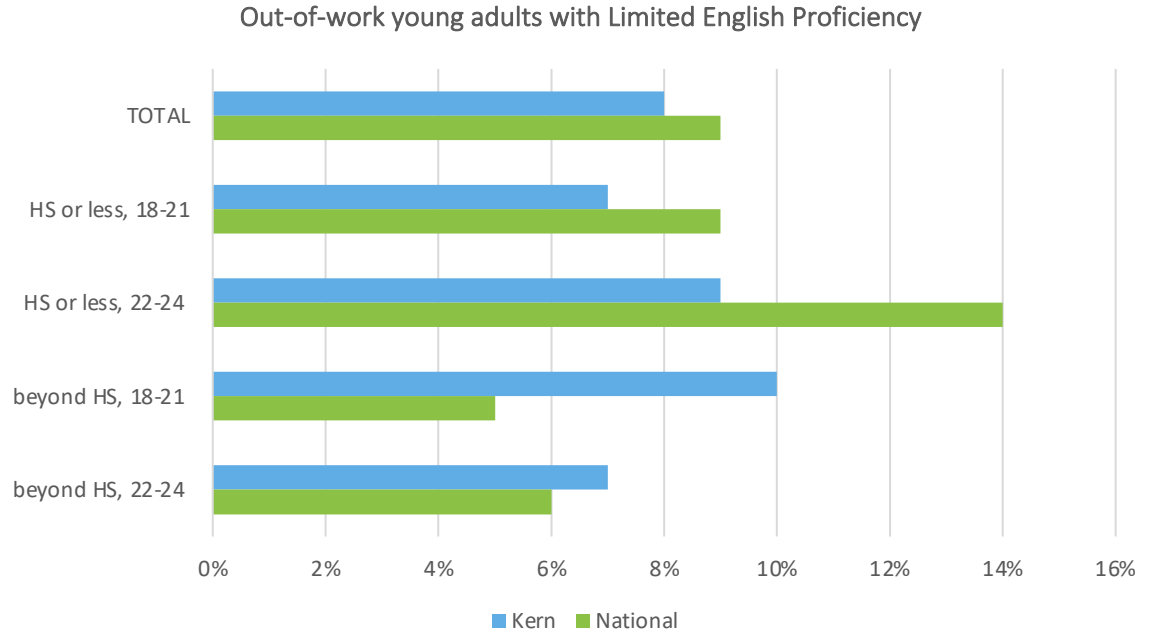
However, despite their large share of the overall population, Hispanic residents represent an excessive proportion of out-of-work young adults in the region, from 50% to more than 60%. To some extent, these shares again may reflect the characteristics of Hispanic demographics in the region as younger and less-educated. However, this greater out-of-work status even includes better educated, slightly older Hispanic young adults having more than a high school degree.

Similarly, the proportion of out-of-work Black young adults with lower educational attainment is unduly high relative to their share of the population, specifically for those with lower educational attainment. While representing about 6% of the total population, they account for between 10% and 15% of the out-of-work young adult cohort with a high school degree or less. Those with higher levels of education do not experience these barriers.

Addressing these challenges suggests the need for targeted, multi-pronged efforts to re-engage young adults in training or credentialing that will improve their labor market outcomes. Strengthened connections between high school and post-secondary education, between school and work through work-based learning, and supports to promote successful "bridging" between high school and post-secondary programs and ultimate completion are typical strategies to prevent disconnection in the first place.

Unlike the adult categories, the share of out-of-work young adults with Limited English Proficiency is roughly equal to or better than national baselines in most instances. However, the data indicates a slightly greater need among the younger cohort having some credentialing or college.



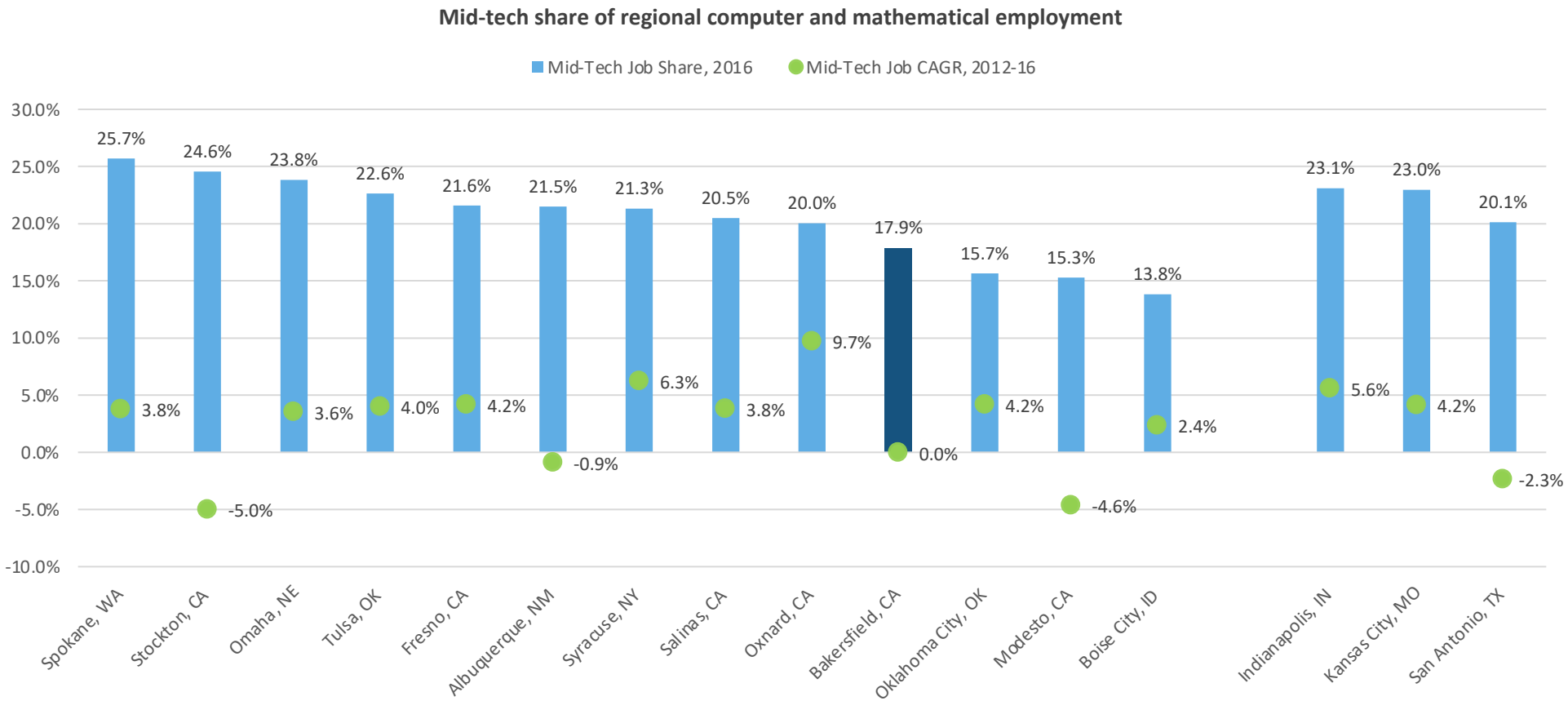


Kern lags comparison regions in tech employment growth and mid-tech opportunities

Outside of the major high-tech hubs like Silicon Valley, Seattle, and DC, there is promising growth in a middle-skill portion of technology-based jobs, accessible to workers without a bachelor's degree. The core occupations include computer network architects (52%), support specialists (50%), and systems analysts (31%), and to a lesser extent programmers and security analysts (22%).

High-tech hubs where Big Tech is head-quartered and creative leaps are made actually employ lower concentrations of mid-tech workers. Regions with more mid-tech work revolve around applications, buildouts, and backoffice opportunities. Some bias is associated with the presence of government and higher education institutions with large digital networks. The strongest locations in scale and growth are in mid-size Midwest metros, linked to support for advancing tech and digital skill demands in other industries.

Kern had both a relatively small proportion of mid-tech jobs and a zero compound annual growth in jobs over five years, which is an unusual combination against economic peers or aspirational regions. The lower share of jobs could be associated with the disproportionately high-tech job presence in East Kern. However, the absence of growth in mid-tech jobs may suggest some combination of an existing industrial mix with low tech adoption, lack of diversification in business, professional, and back-office services, and talent constraints; all of which could be targeted to bring the region more in line with these opportunities.



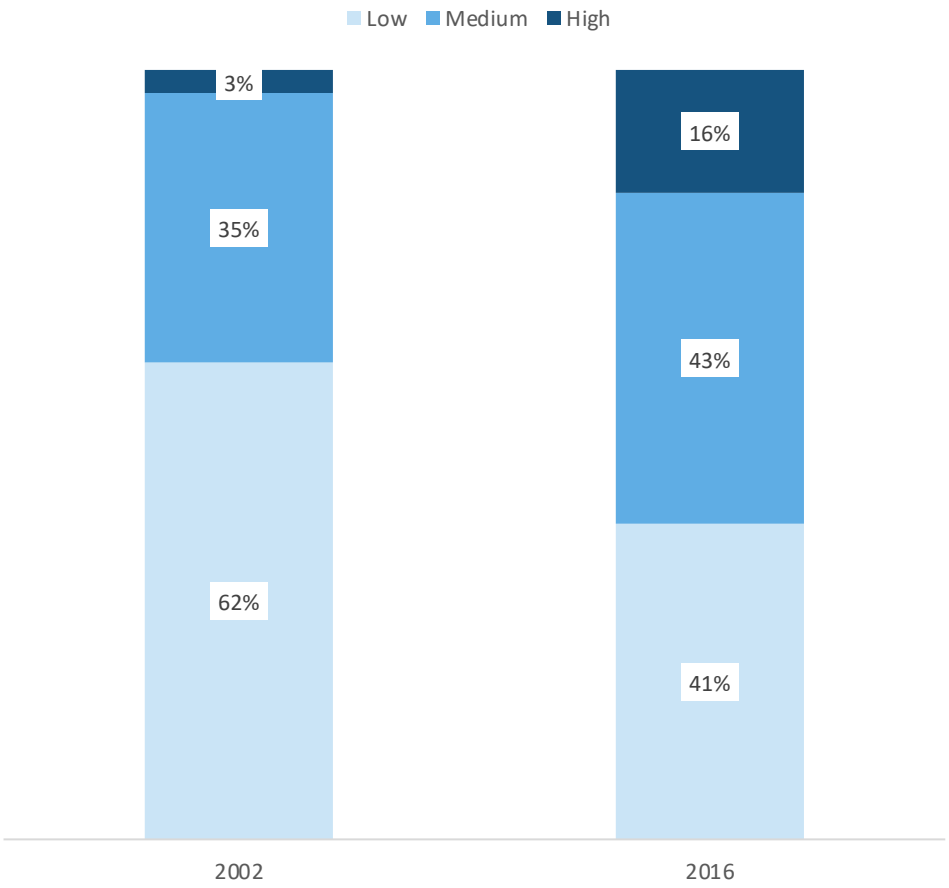
Digital skills among workers are a challenge and opportunity

Despite the lack of tech job growth, regional employers are demanding workers with more digital skills and technology aptitudes across other job functions – whether in agriculture, logistics, or business services.

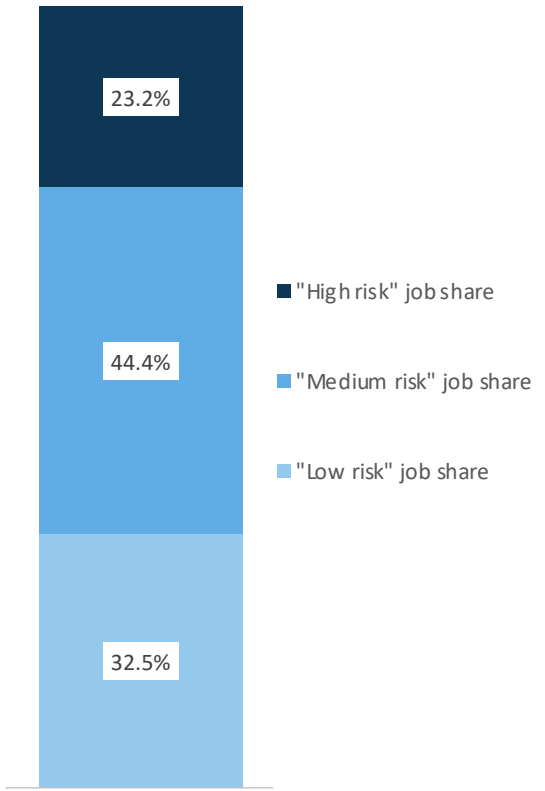
The share of Kern jobs requiring either medium or high levels of digital skills increased from 38% to 59% over 14 years. While this is very significant for workers, it actually ranks among the lowest levels of overall change among large metropolitan areas. With a high correlation between income and occupational digital skill requirements, the smaller relative impact on the County again indicates less advancement in technological advantage and the economic opportunities that brings.

At the same time, Kern has an above-average proportion of job tasks that are at medium risk of automation versus economic peers, although fewer high-risk jobs. This suggests an urgency for improving the digital skills base for the region, both to take advantage of current potential and prepare for future demands.

Share of regional jobs requiring various digital skill levels, 2002-2016



Risk of automation for job tasks



Notable unmet demand for mid-tech and high-tech talent, indicating need for digital skills

Analysis of monthly job postings and hires indicate major workforce gaps in digital skills, industry needs, differentiation in demand between Greater Bakersfield and East Kern, and business hiring practices that unnecessarily exclude middle-skill workers.

1 in 5

mid-tech positions filled per month

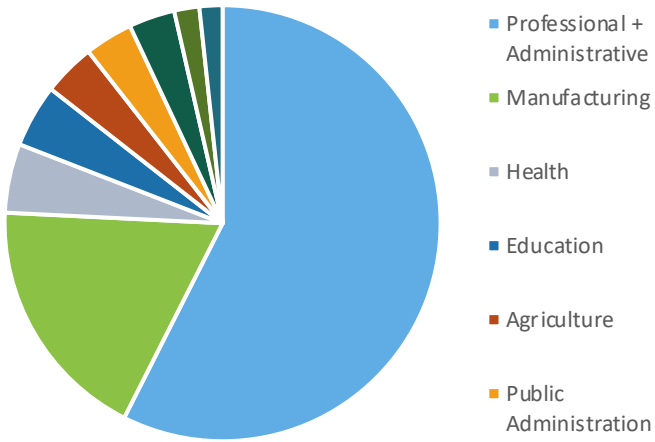
- approximately 760 unique postings per year
- split evenly between Greater Bakersfield and East Kern
- primarily computer systems analysts, plus network architects and support specialists
- top hard skills in programming languages (SQL), business processes and requirements, computer science, information systems, systems analysis, data analysis, project management
- main certifications sought in CompTIA Security, ITL, IAT Level II, Cisco Network Associate, Project Management
- ***frequent BA screen, despite occupational functions typically not requiring a degree***

1 in 10

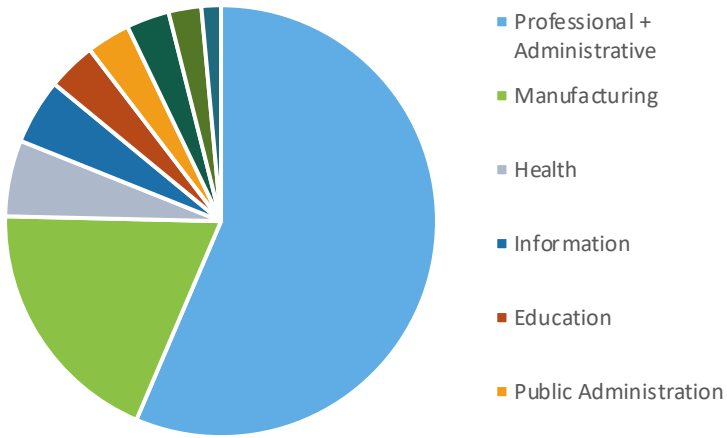
high-tech positions filled per month

- approximately 6700 unique postings per year
- almost evenly split, with 3% more in East Kern
- predominantly software engineers and developers, systems and network administrators, information security
- top hard skills in computer science, software engineering, programming languages (SQL + Java), operating systems, software development
- main certifications sought in CompTIA Security / Network, Certified Information Services Professional, IAT Level II, Microsoft Systems Administrator / Engineer, GIAC, Cisco Network Associate, DOD Information Assurance

Mid-tech job postings by industry



High-tech job postings by industry



Analysis of Emsi-economicmodeling.com data, 2020

Competitiveness Drivers: Innovation

Why innovation matters:

A region's innovative capacity represents the ability to create new value, uncover new products and services, start new businesses, adopt solutions to improve productivity, and adapt to rapid technological change.

The most competitive, diversified regional economies show strengths in four areas – research and development, commercialization, entrepreneurial dynamism, and advanced industrial production.

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The region lags peers in *open* institutional research assets

Academic expenditures on research and development are a helpful indicator of the level and nature of institutional capacity within a region. In most regions, a university is the most significant performer of R&D.

- **CSU Bakersfield spent just $26 million on R&D from 2009 to 2018.** This is a very small amount of academic R&D expenditure for an economy the size of the Bakersfield-Kern region. In contrast, CSU Fresno spent $77 million and CSU San Bernardino spent over $100 million; University of Nebraska – Omaha spent $90 million; and University of Oklahoma – Tulsa spent $22 million over only five years.

- **About half of CSU Bakersfield funding for its R&D expenditures came from the federal government.** This level is commensurate with the average among U.S. research universities.

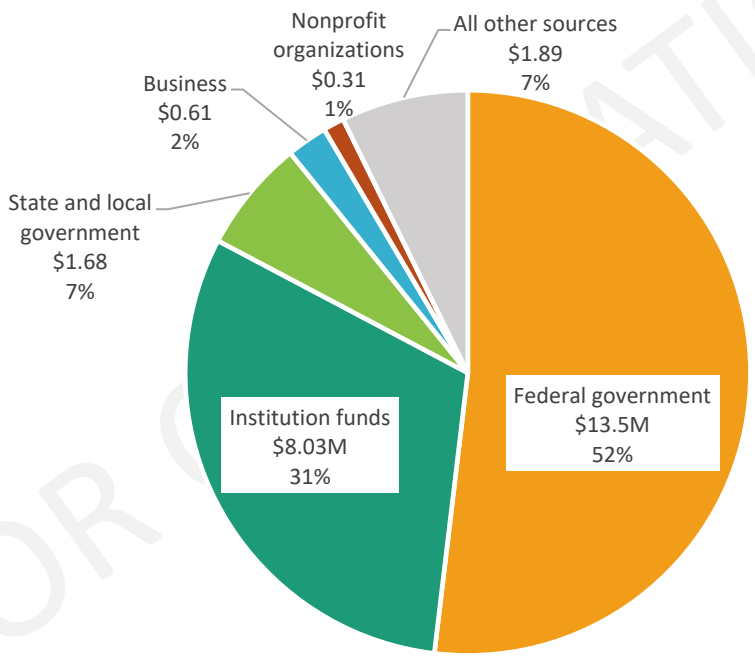
- **CSU Bakersfield reallocated other sources of income toward R&D.** CSU Bakersfield was its own second-largest source of R&D funding. The university invested more of its own income from other sources into R&D to complement its external income for R&D. This practice is not uncommon among public universities.

- **Together, the state and local governments represent an atypically large share of investment in the university's R&D.** These sources funded about 7% of CSU Bakersfield's R&D expenditures during this period—an above-average proportion compared to all U.S. research universities.

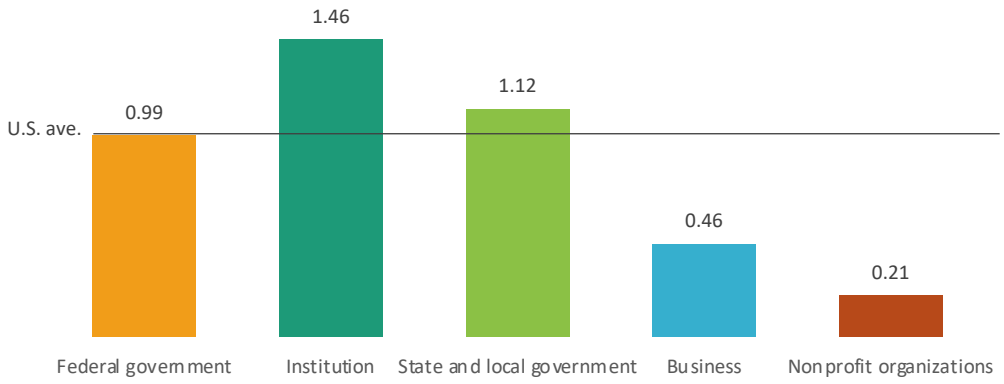
- **The university receives relatively little funding from business or nonprofit groups for its R&D.** Recognizing CSU Bakersfield's core mission and capabilities, this still is a very low level of support compared to peers, creating a major gap in translational R&D and applied problem-solving that would lead to commercialization regional economic benefits.

Although CSU Bakersfield is the largest source of "open" R&D in Kern County, a significant portion of the county's R&D capacity resides outside academia. As home to military bases, military contractors, and portions of the U.S. aerospace industry, it contains unique R&D capacities in a diverse set of institutions not found in other regions.

California State University, Bakersfield R&D expenditures by source of funding
From 2009 to 2018, in millions



Relative concentration of CSU Bakersfield's R&D expenditures by source of funding
Compared to all U.S. research universities



Source: Brookings analysis of National Science Foundation's Higher Education R&D Survey microdata.

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CSU Bakersfield's R&D spending reflects the county's economic specialties

Despite CSU Bakersfield's relatively small amount of spending on R&D, those activities are highly concentrated in select fields and subfields of science. They appear closely aligned with Kern's specializations in oil and gas drilling, but also computer science and operations that belie the lack of tech-related firms and digital skills in the region beyond military assets.

- **The field of mathematics and computer science is the university's most outsized area of R&D expenditures.** This field represents 3.4 times as much of CSU Bakersfield's R&D expenditures than the national average. Further, the university is "specialized" in every math and computer science subfield, especially math and statistics, which represents over 14 times as much of the university's total R&D expenditures than the national average.

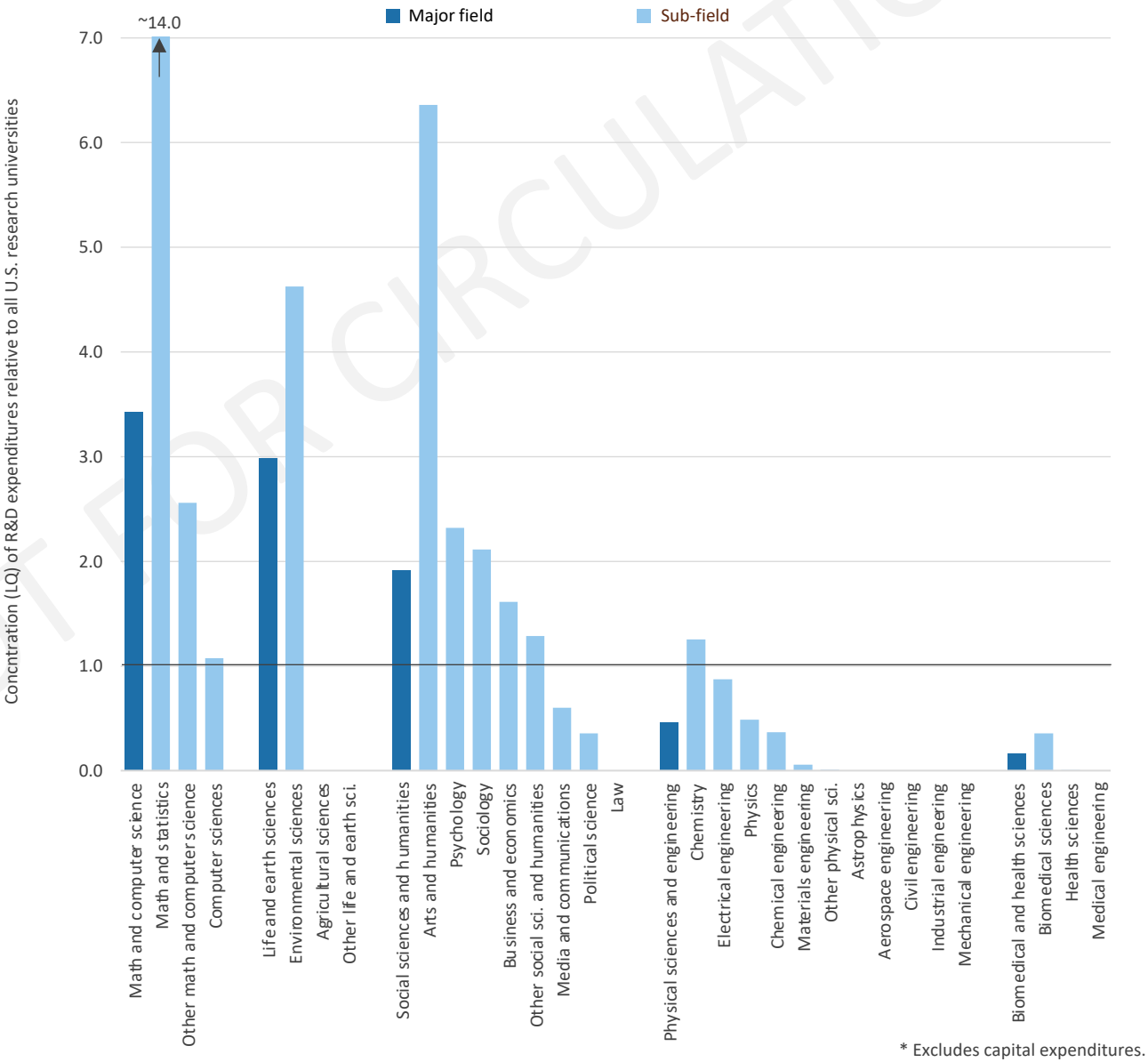
- **Life and earth sciences is the university's second-most outsized area of R&D expenditures.** Nearly all spending in this field is in environmental sciences, which includes geochemistry, geophysics, and environmental engineering disciplines closely related to oil and gas drilling and exploration, as well as life sciences such as ecology and mycology.

- **The university undertakes R&D in physical sciences and engineering that complements its other specialties.** The university's near or above-average R&D expenditures in chemistry and electrical engineering may complement or converge with its research in environmental sciences and computer science.

- **CSU Bakersfield boasts large R&D capacity in the social sciences and humanities.** The analyses shown on the last page suggests that the university's strengths in psychology, sociology, and business and economics may converge with the university's strengths in computer science and environmental sciences.

Relative concentration of CSU Bakersfield's R&D expenditures by scientific field and subfield*

Compared to all U.S. research universities



* Excludes capital expenditures.

Source: Brookings analysis of National Science Foundation's Higher Education R&D Survey microdata.

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Kern County research institutions publish very small amounts of *open* scholarship

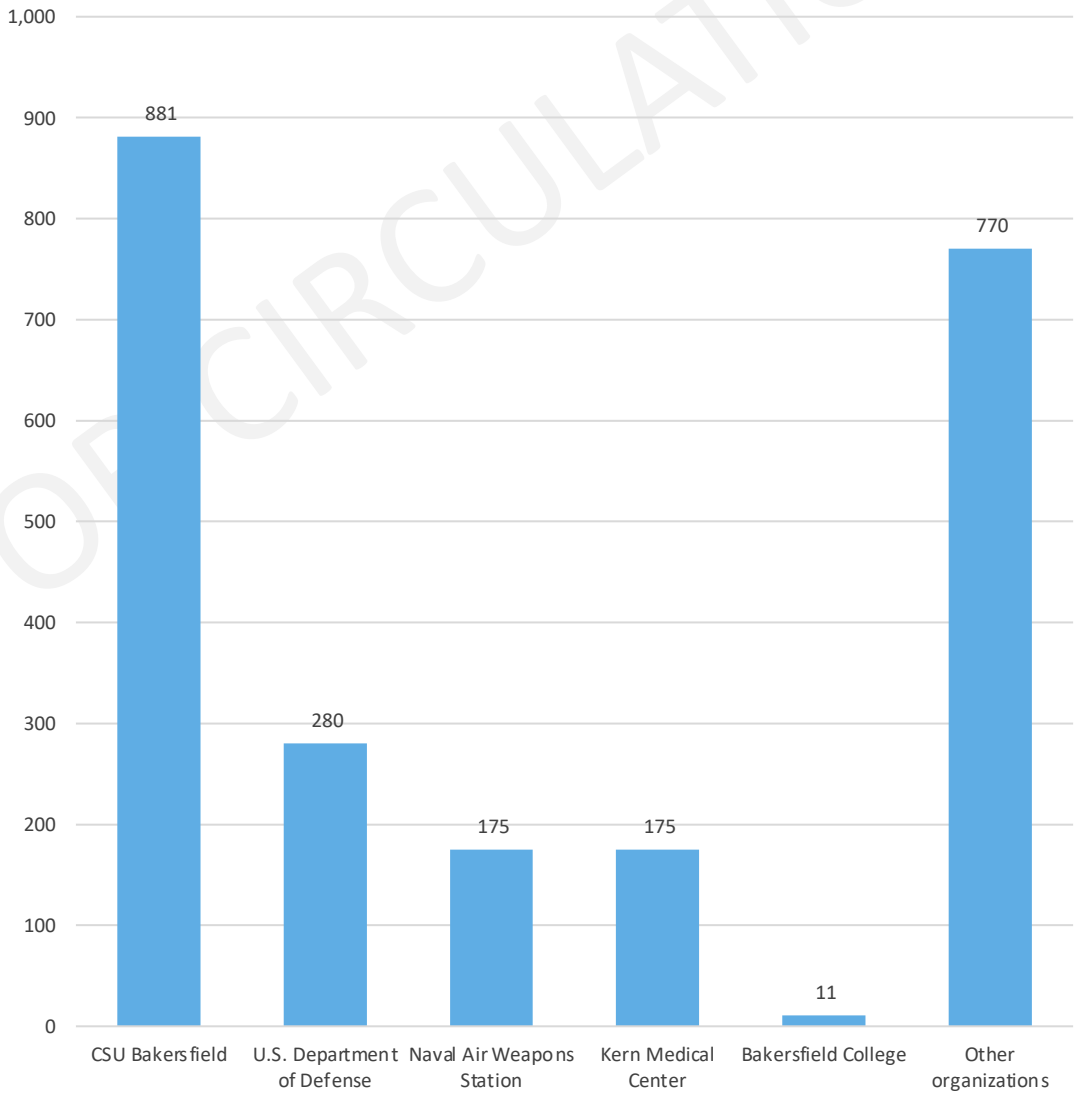
Another strong basis for assessing innovation capabilities of public and private entities within a region are publications of research results in peer-reviewed scholarly articles.

Innovation strengths and areas of new opportunity can be identified by examining the content, volume, concentration, relative impact, and convergence of scholarly articles published by institutions within Kern County and adjacent to Edwards Air Force Base across the county border in Palmdale / Lancaster.

These analyses can only look at "open" articles; defense DOD installations and military contractors perform groundbreaking research that cannot be published.

- **Altogether, regional institutions only published 2,300 articles over roughly two decades.** This is an extremely low amount of scholarship for a region of this size. In fact, on a per-capita basis, that is about 12% of the U.S. metro average.
- **CSU Bakersfield is the county's most prolific single research institution in terms of volume of published scholarship.** The university published 881 scholarly articles over nearly 20 years.
- **U.S. military institutions were the second largest source of scholarship published from Kern County.** The Naval Air Weapons Station (NAWS) at China Lake was the anchor for federal research scholarship for the county. Divisions of the U.S. Department of Defense including the Army, Navy, and Air Force jointly or independently published research with NAWS.
- **Kern Medical Center in Bakersfield published 175 scholarly articles.** This volume rivaled other significant research entities in the county, but not compared against major medical institutions in general.
- **A large and diverse collection of other entities also publish research.** For example, Chevron, Aera Energy, military contractors, Bakersfield Dermatology, and some other groups published a few scholarly articles per year, on average, explicitly associated with Kern as the source of the authorship.

Number of peer-reviewed scholarly articles published by Kern County institutions
From 2001 to 2020



Source: Brookings analysis of Clarivate data.

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China Lake Naval Air Warfare Center and other installations contain sizable but hidden R&D capacities

The Naval Air Warfare Center Weapons Division at China Lake and other U.S. military installations in Kern County such as Edwards Air Force Base contain broad and deep R&D capacity in a range of disciplines. Indeed, these installations are some of the most significant sources of innovation in the entire country.

The U.S. Navy was ranked seventh for its patent pipeline in 2017, the latest year of available data, ahead of NASA and just behind some of the nation's largest aerospace and defense contractors, including Lockheed Martin. NAWCWD accounted for about 12% of the Navy's pipeline that year.

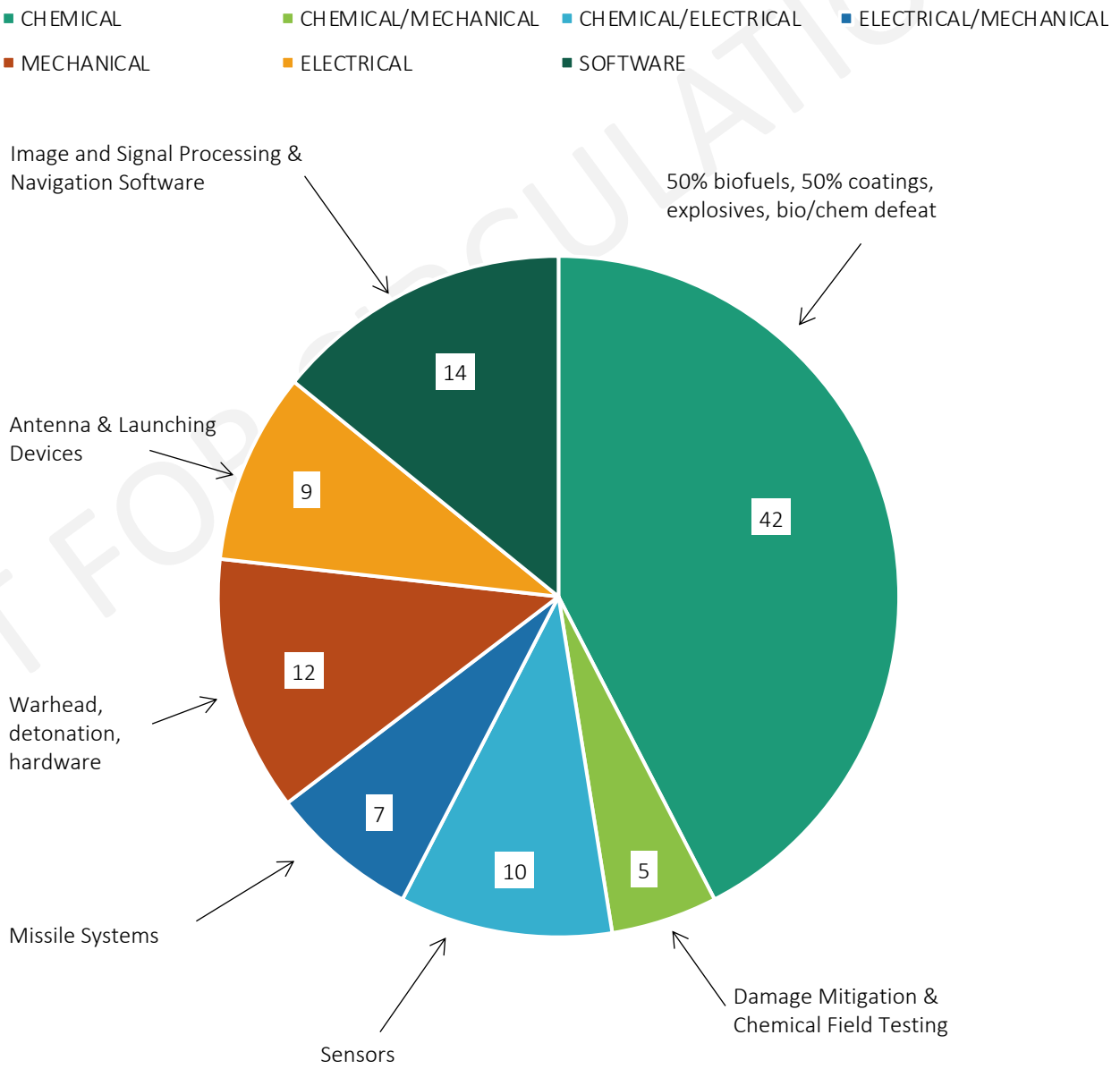
The U.S. Air Force also ranked highly for its patent pipeline, as did many of its suppliers and contractors with operations in or adjacent to Kern County.

NAWCWD's exceptional role in the Navy's innovation pipeline is in part a result of an incredible volume of R&D expenditures – $1.8 billion in 2019 alone, most of it spent on applied research and technology development and prototyping.

Based on available information, much of the technology being developed at NAWCWD may have applications to industries that are core to the region's economy and future growth. Technologies including biofuels and coatings, sensor technologies, and signal processing that could be relevant to evolution of the energy industry, manufacturing technology, and tech-enabled agriculture, as well as the core commercial aerospace sector.

The challenge is unlocking the R&D that occurs at these military installations is secret. But leaders at many similar installations across the country recognize the potential upsides for opening up this innovation output and infrastructure to the local economic development ecosystem. These regions have partnered to use existing military programs and funding sources, or tailor new initiatives and procedures that facilitate tapping assets, creating a win-win for innovation at these installations and the regions in which they are anchored.

Naval Air Warfare Center Weapons Division patent applications by class of technology, FY2012



Source: NAWCWD by courtesy of Scott O'Neil.

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Research scholarship in the region is highly concentrated in select subfields

The scholarship that Kern County does produce is highly concentrated in select fields of science. The volume of that published research output by scientific subfield can be mapped against the relative impact of the work as measured by global citations in other publications and patents.

- **Kern County's research institutions and organizations publish outsized amounts of research in select engineering disciplines,** including environmental engineering, chemical engineering, and mechanical engineering. Each of these subfields accounts for more than twice as much of the region's scholarship than the national average, and at least 1.4 times as much of the region's citations.

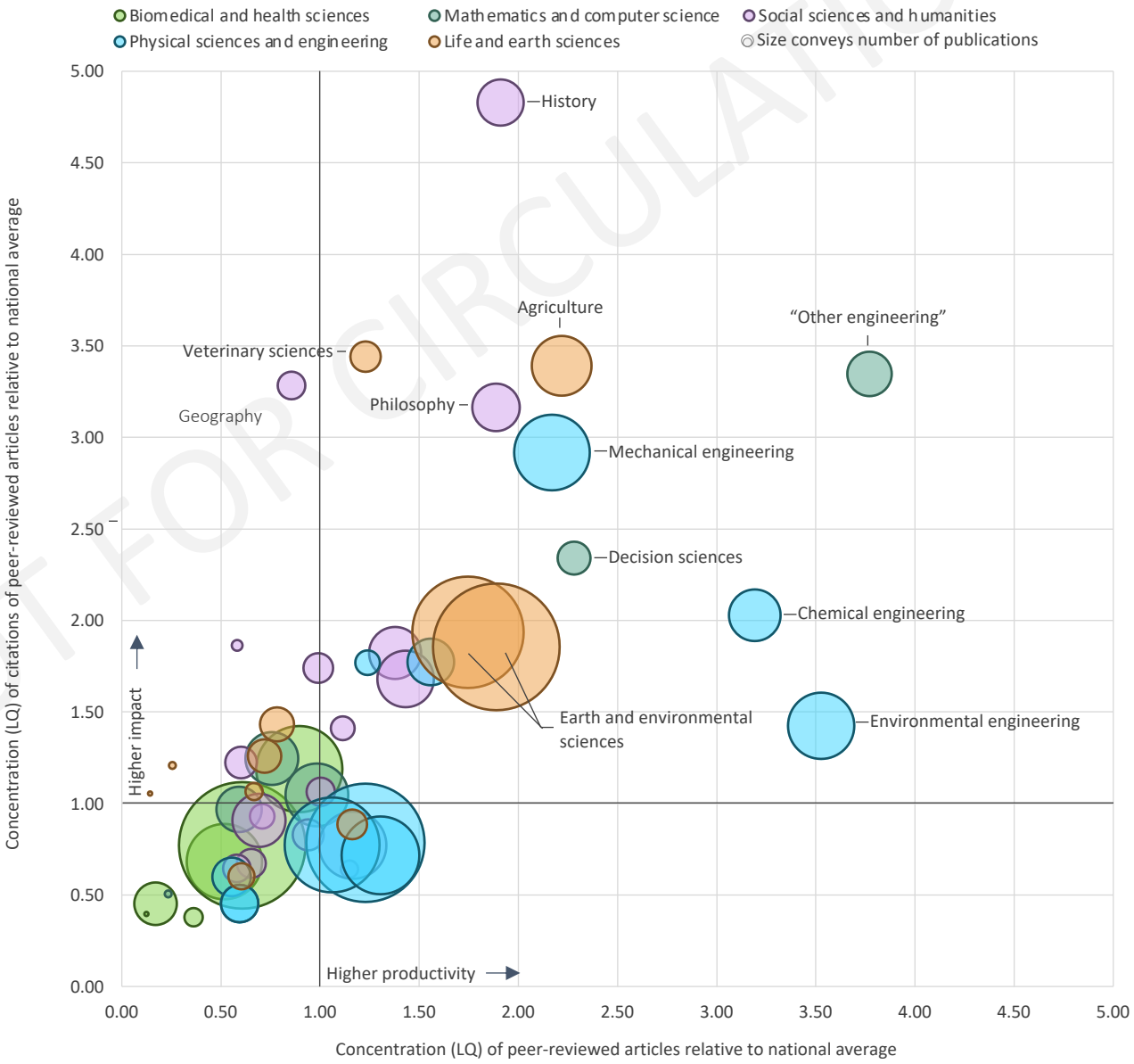
- **Research also specializes in most subfields within life and earth sciences, consistent with R&D spending.** In terms of total scholarly output or impact, the region specializes in 10 out of 11 subfields of life and earth sciences. These subfields relate to geosciences, agriculture, and ecology – disciplines complementary to the major economic drivers, and potentially the basis for adjacencies in the oil and gas sector.

- **Military installations and CSU Bakersfield produce strengths in decision sciences and "other engineering."** These subfields are categorized within the field of mathematics and computer sciences, but in fact reflect interdisciplinary disciplines related to operations research, artificial intelligence, cybernetics, and electrical engineering.

- **CSU Bakersfield output in the social sciences and humanities results in above-average impact,** most significantly in history, geography, and philosophy.

Concentration of Kern County's "open" scholarship by scientific subfield

Peer-reviewed articles published from 2001 to 2020



Source: Brookings analysis of Clarivate data.

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The region's research scholarship aligns tightly with current and potential economic specializations

Going one level deeper – from subfields to scientific disciplines within these subfields – affirms more notable and complementary specializations within the region's body of research scholarship.

Again, these disciplines represent both an outsized volume of regional scholarship output and an outsized portion of its global citations.

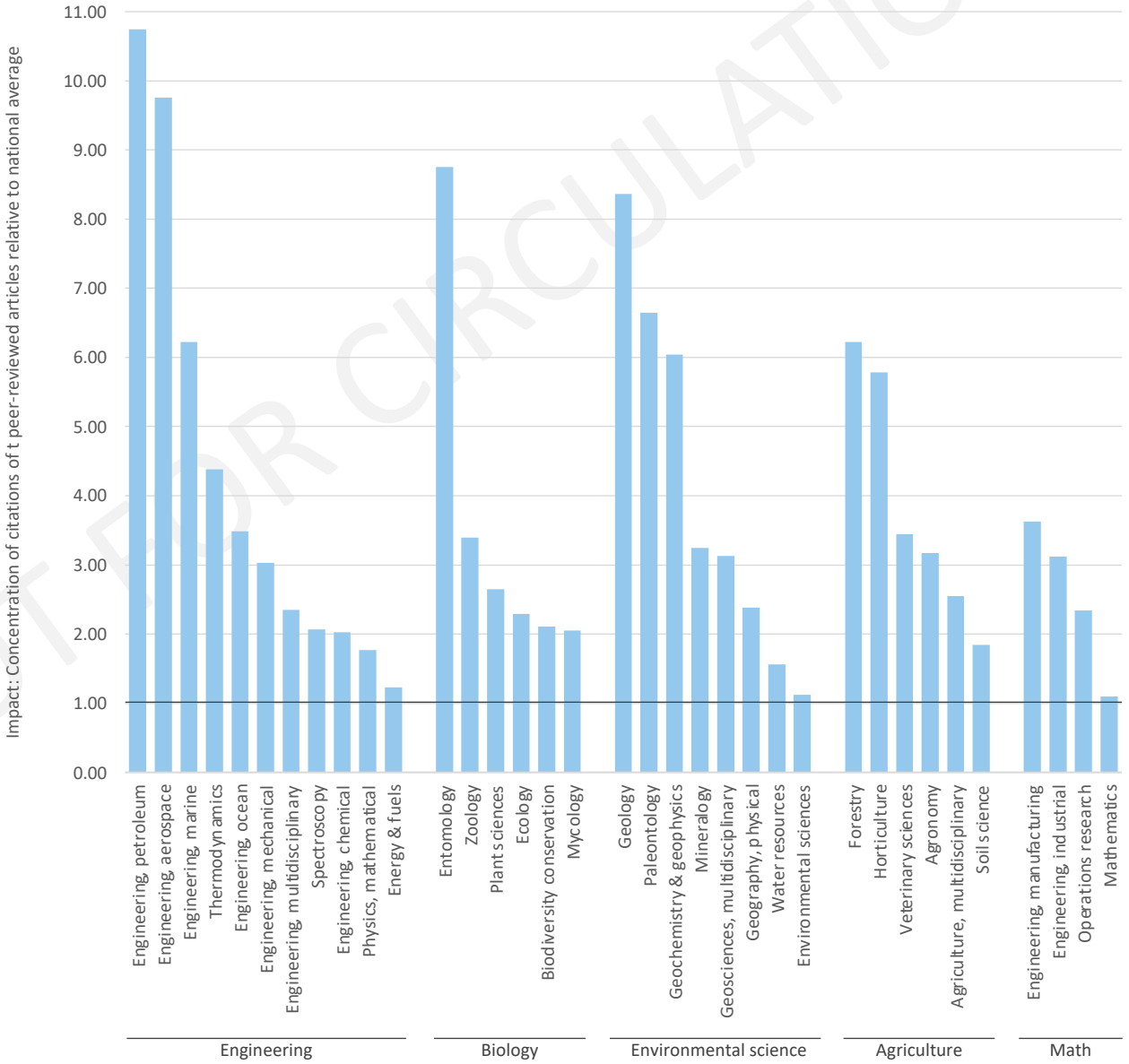
- **Engineering disciplines account for among the biggest portions of the region's impact**, and those closely related to economic strengths are its most specialized in terms of scholarly impact. Petroleum engineering and aerospace engineering account for more than 9.5 times as much of the Kern's scholarly citations compared to the national average.

- **The region is especially impactful in virtually all the disciplines within the field of life and earth sciences.** From geosciences to biology and ecology to agriculture, research institutions, led by CSU Bakersfield, produce disproportionate impact in each. Strengths in geochemistry, geophysics, physical geography, and basic geology all link with existing oil and gas activities, but also other adjacent parts of the value-chain.

- **Kern County's research institutions are especially impactful in interdisciplinary mathematics and computer sciences.** These are something of a cross-institution area of strength -- both the university and the military installations produce substantial research in these disciplines. Specifically, manufacturing engineering, industrial engineering, and operations research are prominent, and afford capabilities and connections to sectoral growth targets in the region.

Concentration of citations of Kern County's "open" scholarship by scientific discipline

Citations of peer-reviewed articles published from 2001 to 2020



Source: Brookings analysis of Clarivate data.

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Kern County features converging research strengths in engineering disciplines

The value of research and innovation capabilities in regional economic development often is for competitiveness and advancement of a particular industry strength, but the greatest benefit is finding new sector and commercial potential.

Those opportunities typically arise from relationships across disciplines, indicated by connections between scholarly publications. This convergence can signal emerging areas of science and technology with leverageable advantages for developing new products, services, and clusters.

Analyzing cross-disciplinary publications associated with the region can identify connections between disciplines where the volume of scholarship is especially large relative to the average across the state of California. Often, these connections also can be identified with other metro economies in the U.S. and globally; however the limited volume of open scholarship produced in the region could not uncover robust links.

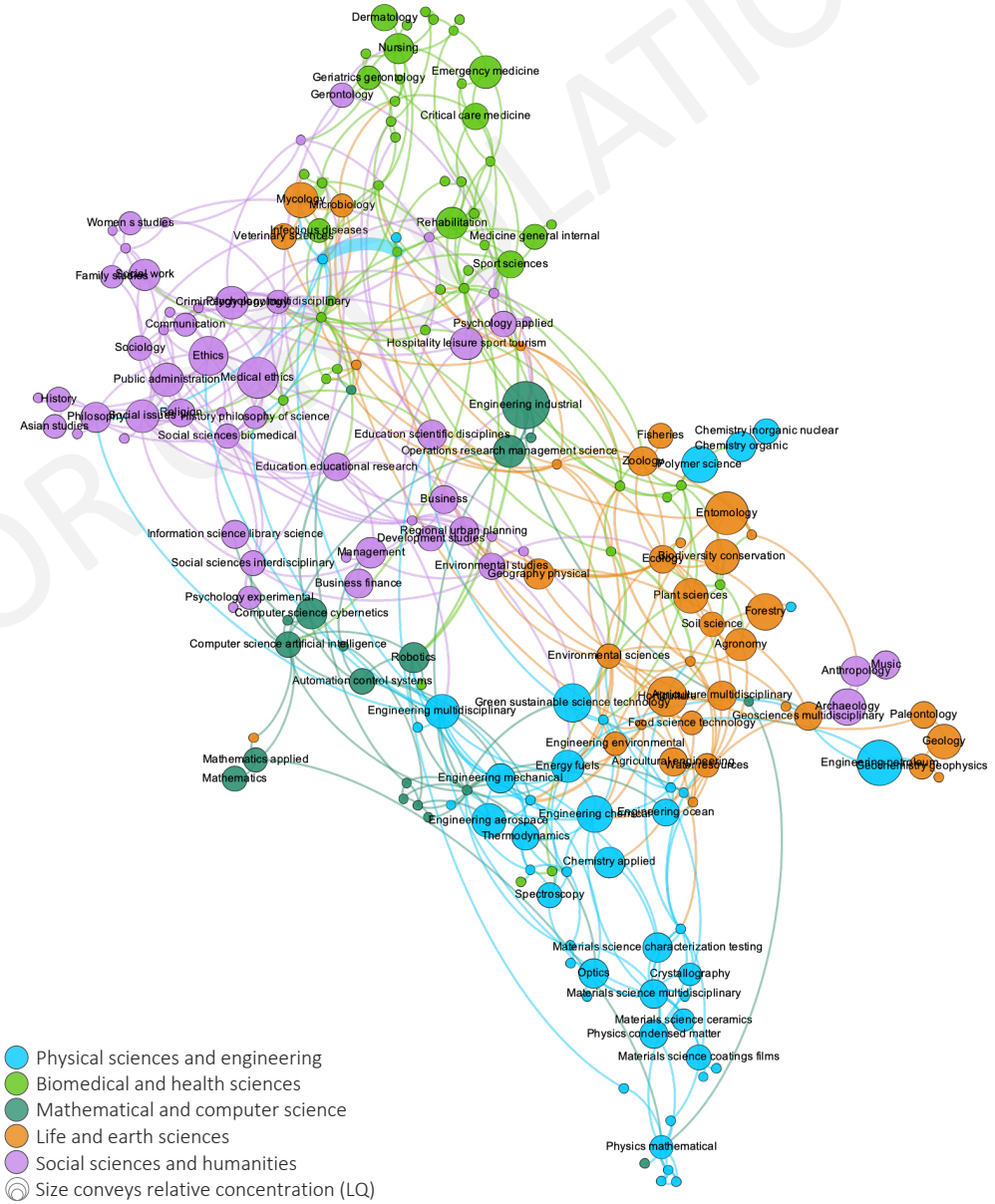
- **The region's strengths in social sciences and humanities are sprawling and linked to unusual commercial disciplines.** Unique connections exist between scholarship in philosophy, public administration, and medical ethics, for example, some of which are strongly connected to fields within biomedical and health sciences. Other social science disciplines converge with computer science, such as experimental psychology, applied psychology, and management.

- **Physical science and engineering are tightly linked in two clusters -- energy engineering, mechanical engineering, and thermodynamics; and another around materials sciences.** The former is especially associated with other specializations in computer science and an array of environmental sciences.

- **Life and earth science disciplines are especially convergent across other fields.** The environmental sciences within this field converge with aspects of physical sciences and engineering and, surprisingly, humanities disciplines. For example, biological disciplines and veterinary sciences converge with biomedical and health sciences.

Kern County's unique network of cross-disciplinary "open" scholarship

Peer-reviewed articles published from 2001 to 2020



Source: Brookings analysis of Clarivate data.

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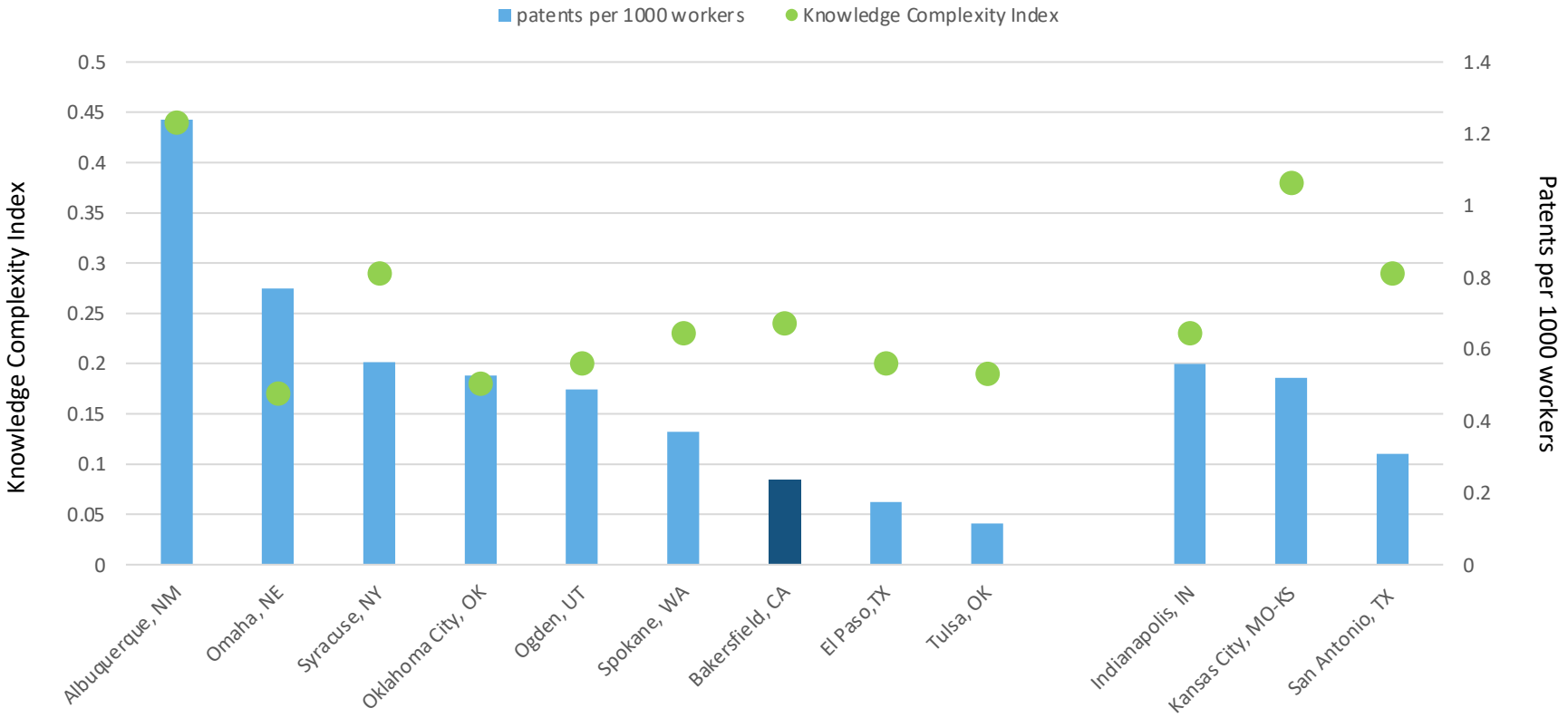
Kern lags economic peers in utility patent generation, but with above-median distinction

The region generates a below-average number of patents compared to its economic and size peers, as well as larger aspirational "middleweight" regions, even accounting for the absence of a Tier 1 research university (*e.g. Omaha, Ogden, Spokane, Indianapolis, Kansas City*). However, military-associated patents like those produced at China Lake are difficult to assign and compare consistently attached to the specific locations that generate them, so likely are underreported for the region.

Despite the low volume, the distinctiveness of the patents generated in the region is slightly above the median among all metro areas. This "knowledge complexity index" (KCI) metric is based on the ubiquity versus novelty of the patent content. Taking into account the novelty of military intellectual property, both the output and the KCI assigned to the region is likely understated.

This further reinforces the potential and importance for (1) bringing existing innovation and financing tools "off base" for commercialization (2) accessing to base resources, and (3) investing in new private-public innovation capabilities and activities highly focused on sector priorities.

Patent output and novelty among peer economies and aspirational middleweights



** Note: Fresno ranks similarly to Bakersfield. Boise is excluded as an extreme outlier in both productivity and complexity, driven by two major computer innovators (HP and Micron Technology). Oxnard also overproduces based on the concentration of Amgen and other biotech companies.*

SBIR/STTR awards underperform federal R&D and economic peers, demanding focus to tap potential

A proxy for the region's effectiveness in tapping federal research and innovation assets toward commercial activities are Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs. These competitive awards enable domestic and small businesses to engage with federal R&D with potential for commercialization. A requirement is to partner with a federal or non-profit research partner.

Accessibility and geographic distribution of SBIR/STTR is much greater than venture capital, with more than 55% of funds received outside the 10 most populous metro areas versus 20% of VC dollars. Still, the activities that SBIR/STTR support naturally gravitate to knowledge capitals and major research universities with relevant expertise, even in smaller population centers.

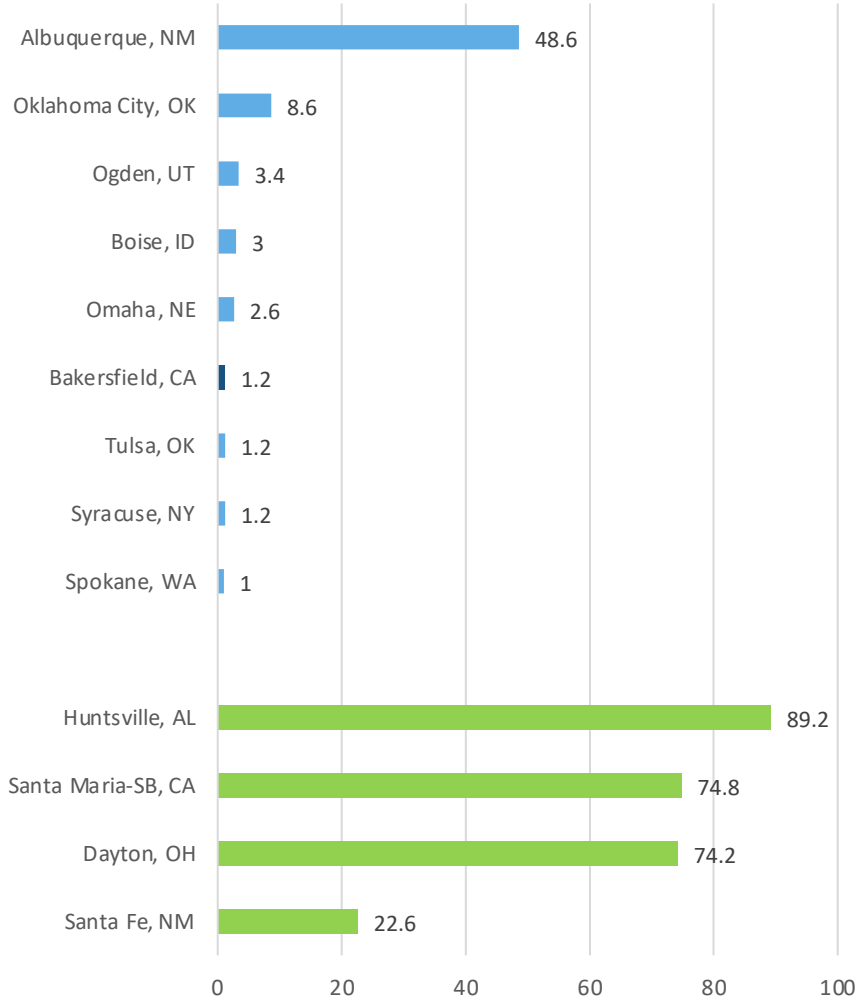
SBIR/STTR awards also disproportionately concentrate in regions -- like Kern -- with large federal R&D assets (national labs or military bases) which spin off both tech and talent to the recipient businesses and are available partners in support of the work. For example, Huntsville, Santa Maria - Santa Barbara, Dayton, and Santa Fe rank among the most intense SBIR/STTR regions, leveraging proximity to NASA Marshall Space Flight Center, Vandenberg AFB, Wright-Patterson AFB, and Los Alamos National Lab, respectively. Notably, neither Dayton nor Santa Fe feature a Tier 1 research university, demonstrating that is not a prerequisite to successful commercialization and scale.

Kern economic development practitioners have called the region a "death zone" for SBIR/STTR. The scale of awards lags economic peers, even taking into account those without a major research university. **Even more problematic is the extraordinary underperformance of the region against federal R&D counterparts, where comparable assets actually should put Kern far ahead of those economic peers.**

This benchmarking again reveals enormous untapped potential in federal assets, and the need to focus a highly organized and sustained effort on that agenda.

A deliberate, proactive approach can help advance toward the overall objective of commercialization, adapting local models like establishing external collaboration centers, providing centralized proposal development assistance, or nationally promoting access to federal assets in the region to attract entrepreneurs and innovators. Examples of such efforts include: the Commercialization Academy partnership between the Air Force Research Laboratory (AFRL) Information Directorate in Rome, NY and the Griffiss Institute; the Military-to-Market program collaboration between Naval Surface Warfare Center and Indiana's Ball State University; and the Technology Acceleration Program of The Wright Brothers Institute and AFRL directorates at Wright-Patterson AFB in Dayton.

Average SBIR/STTR Awards per Year (2013-2017)



Analysis of SSTI data on SBIR/STTR awards by metro area, May 2018

Despite strengths in firm formation, impact of entrepreneurship and business dynamism in Kern is low

Most net new job creation in a region comes from two types of firms: (1) new knowledge-intensive, high-growth companies under 5 years old; and (2) established mid-size traded sector businesses that expand steadily over time.

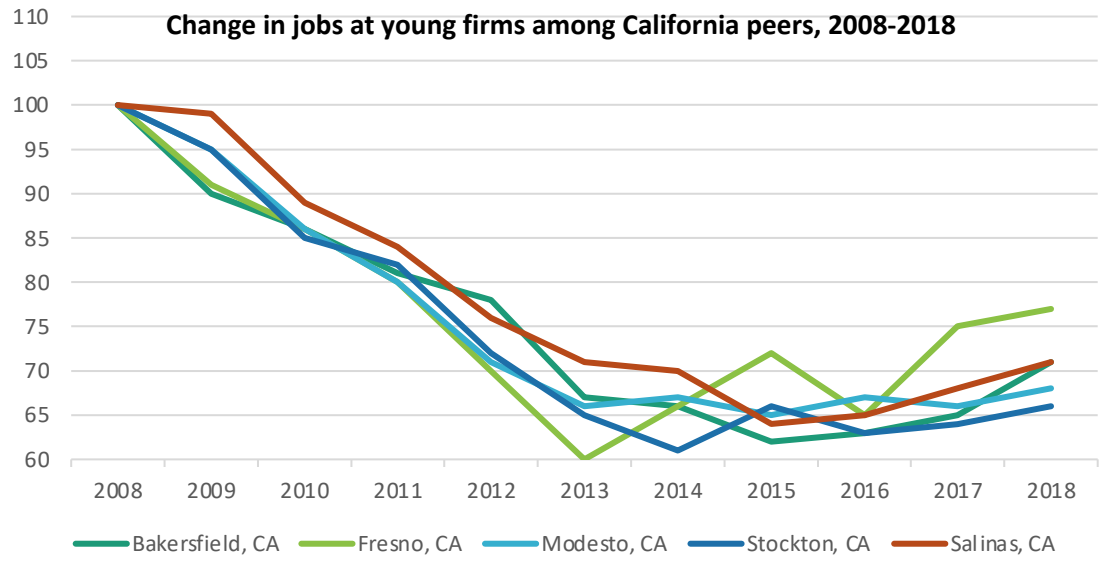
Between these, the formation of new firms is extremely important for competitive reasons beyond job creation, per ongoing research from the Kauffman Foundation.

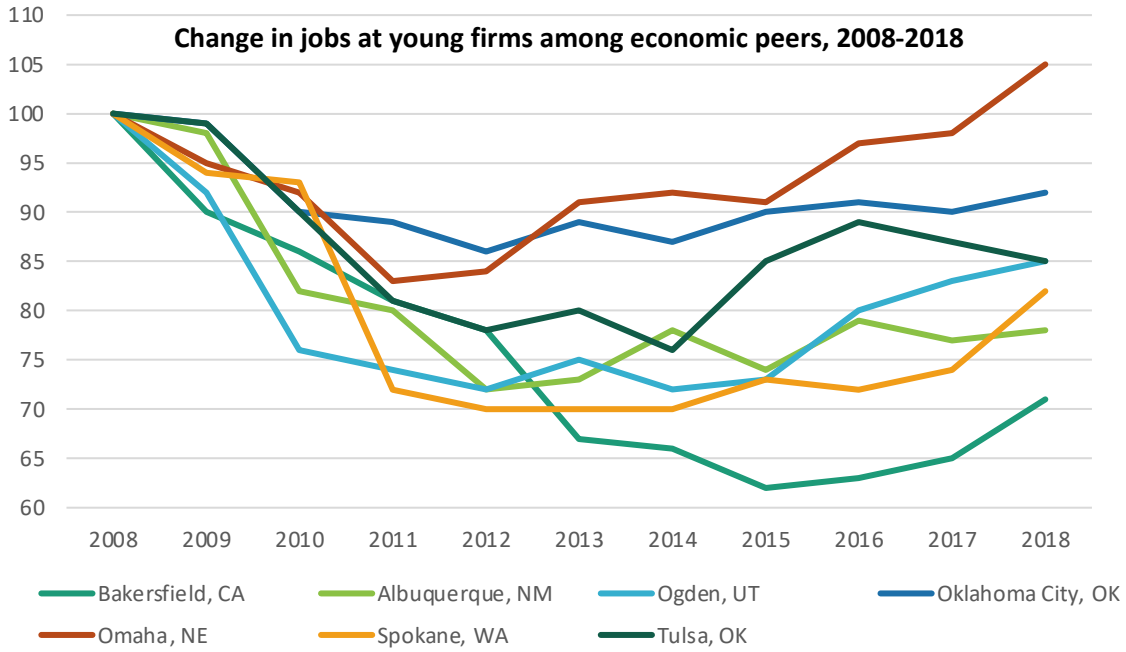
While startup firms are by default "small businesses" to begin, small businesses are not necessarily young. The focus and benefit is in firm age, not size. Young firms in traded sectors generate greater multiplier effects and economic impact. They also contribute disproportionately to aggregate productivity and innovation, where Kern generally lags.

Toward these outcomes, assessment of Kern entrepreneurship and business dynamism captures the quantity and quality of job creation in the Kern region compared against other metro economies. Each dimension is a useful baseline to gauge the Bakersfield region's performance and potential for improvement, recognizing that US regions generally have experienced downturns in this area.

These dimensions incorporate the Kauffman Foundation "Indicators of Entrepreneurship" across different firm age groupings, plus regional employment contributions and density of high-growth firms.

First, Kern experienced a substantial decline in the employment impact of entrepreneurship over ten years, equivalent to other inland California but much worse than economic peers. This employment is reflected by the percent change in total jobs at young firms active for up to five years, normalized from a common starting point. However, Kern also is on a sharp upswing in the past few years.





Analysis of U.S. Census Bureau's Longitudinal Employer-Household Dynamics (LEHD) program.

Kern young firms excel in private job creation, but cannot sustain quality and durability of jobs

Second, Kern tops economic peers in "contribution" of jobs by young firms, and by a substantial margin, counter to lagging overall change in number of jobs at young firms. Kauffman defines contribution as the proportion of the total private sector jobs in a region attributable to young firms at each age segment up to five years. Counter to lagging overall change in number of jobs at young firms, Kern has outperformed national baselines and countered general downward trends in contribution. This indicates relative strength in new firm formation.

Third, Kern ranks low in "compensation" for jobs in young firms, by a notable amount, although improves its position over time. Kauffman measures compensation as the percentage of earnings a typical job in young firm in the region offers relative to a typical private sector job in a business of any age nationally. Jobs at new firms are expected to pay substantially less than a national standard, and also may be influenced by localized cost of living, but the gap suggests that many firms started may not be knowledge-based or well-resourced for durability.

Fourth, Kern jobs created at young firms are destroyed most rapidly, ranking at the bottom for job "constancy" among peers. Kauffman tracks constancy as the share of jobs in firms at each age segment that last more than three consecutive quarters; for example, only 29% of jobs created at Kern firms under two years old survived beyond nine months. Durability of jobs is less than half or 2/3 the rate of peers in each of the age segments, thus losing the advantages in firm formation.

Composite comparisons across economic regions can be ranked by the Kauffman "Jobs Quality-Quantity Index." This aggregates and equally weights the indicators of job contribution, earnings compensation, and constancy of jobs to provide a comprehensive picture of job-related dynamics in young firms within a geographic area. Blending these attributes, Kern is lowest among peers.

Contribution: Share of private sector jobs in a region accounted for by firms of a given age

	0-1 yrs	2-3 yrs	4-5 yrs	Kauffman Index
Boise, ID	3.79%	4.33%	4.03%	1
Oklahoma City, OK	3.21%	4.50%	3.66%	1
Omaha, NE	3.54%	3.42%	3.23%	1
Spokane, WA	3.53%	4.20%	3.61%	1
Albuquerque, NM	2.76%	3.29%	3.62%	0.99
Syracuse, NY	2.35%	2.84%	2.34%	0.99
Tulsa, OK	3.12%	3.76%	3.59%	0.99
Fresno, CA	5.45%	5.88%	4.46%	0.98
Ogden, UT	2.91%	5.39%	3.85%	0.98
Bakersfield, CA	6.64%	6.62%	6.49%	0.95

Compensation: relative earnings of typical job in young firms regionally versus any age nationally

	0-1 yrs	2-3 yrs	4-5 yrs	Kauffman Index
Boise, ID	50.04%	57.06%	62.55%	1
Oklahoma City, OK	59.25%	69.22%	65.19%	1
Omaha, NE	61.54%	59.53%	58.50%	1
Spokane, WA	54.72%	54.37%	80.23%	1
Albuquerque, NM	49.63%	53.25%	58.50%	0.99
Syracuse, NY	46.62%	53.50%	60.74%	0.99
Tulsa, OK	62.28%	74.71%	66.88%	0.99
Fresno, CA	43.82%	47.08%	59.93%	0.98
Ogden, UT	47.92%	48.66%	52.07%	0.98
Bakersfield, CA	38.53%	38.58%	58.38%	0.95

Constancy: share of jobs held in young firms that last more than three quarters

	0-1 yrs	2-3 yrs	4-5 yrs	Kauffman Index
Boise, ID	0.52	0.62	0.66	1
Oklahoma City, OK	0.51	0.63	0.62	1
Omaha, NE	0.57	0.64	0.65	1
Spokane, WA	0.54	0.63	0.66	1
Albuquerque, NM	0.53	0.62	0.67	0.99
Syracuse, NY	0.53	0.62	0.67	0.99
Tulsa, OK	0.51	0.62	0.59	0.99
Fresno, CA	0.44	0.49	0.58	0.98
Ogden, UT	0.5	0.52	0.64	0.98
Bakersfield, CA	0.29	0.33	0.49	0.95

Kauffman Foundation Indicators of Entrepreneurship – multi-dimensional private jobs analysis

Increasing sustainability of young firms requires more basic supports, focus on knowledge-intense firms

Finally, not all new businesses are the same. The vast majority of entrepreneurs are in locally-serving businesses looking to provide enough for their families; they are satisfied with stability and lifestyle, not driven to growth or oriented toward innovation.

The impact of entrepreneurship relies on concentrations of "high-growth" firms. A longitudinal Census analysis showed that businesses reaching one-year employment growth of 25% or higher account for nearly 60% of job creation nationwide. Similarly, the 12% of businesses with one-year revenue growth rate of at least 25% then generate 50% of economy-wide total revenue growth.

Distinguishing among these young firms is a core issue, which leads to targeting different types of assistance between startup needs and small business support.

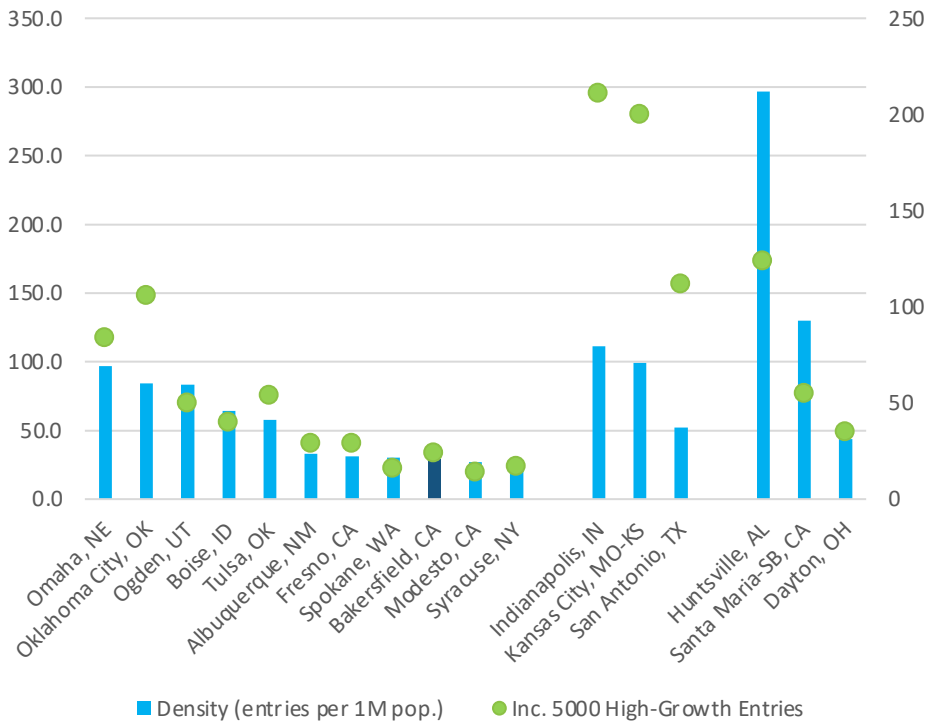
High-growth firms concentrate in knowledge-intensive or STEM traded sectors that enable rapid and sustained differentiation; young tech and ICT firms tend to be net positive job creators, while other young firms lose jobs at a higher rate. According to a Heartland Forward analysis, concentrations of knowledge-intensive firms also unsurprisingly correlate to effective university commercialization programs.

Kern ranks relatively low in its density of high-growth young firms against multiple comparison groups. Analysis of Inc 5000 firm entries based on three-year consecutive high-growth rates meeting OECD definitions, Kern lags against economic peers, California peers, aspirational middleweight regions, and military innovation hubs. (*The most prominent regional firm in this category is Stria.*)

Reinforcing these themes, the new Heartland Forward analysis of "Young Firms and Regional Economic Growth" (May 2020) across 375 metro areas also ranked the Bakersfield MSA extremely high in (9th) in share of young firm employment, but extremely low in knowledge-intensity (346th).

Braiding the findings of strong firm formation and job contributions with weak job durability and development of high-growth, knowledge-intensive firms raises implications for targeting basic missing supports to young firms, beyond generic "small business services" – assets like incubators and accelerators, programs in commercialization and problem-solving assistance, and nurturing of digital / tech talent.

High-growth young firm density, 2011-2017



Brookings Institution analysis

Regional Predictors for High-Growth Firms in Kern - Inherited vs Influenceable?

- Overall rate of business formation in the region, because entrepreneurial regions tend to stay that way due to culture and networked experience.
- Workers with college degrees, which drives entrepreneurship broadly and the likelihood of forming knowledge-intensity of firms.
- Employment in high-tech industries generally, for spinning off new firms, plus supply chain proximity to serving high-tech, high-growth customers (e.g. East Kern concentrations).
- Population in prime entrepreneurship age (35-44 years), where professionals have accumulated experience and wealth, but are not yet risk-averse approaching retirement.

Competitiveness Drivers: Infrastructure

Why Infrastructure Matters:

Transportation efficiency, broadband connectivity, and land use policies support regional productivity, access to talent, and promotion of density for agglomeration and proximity benefits.

DRAFT NOT FOR CIRCULATION

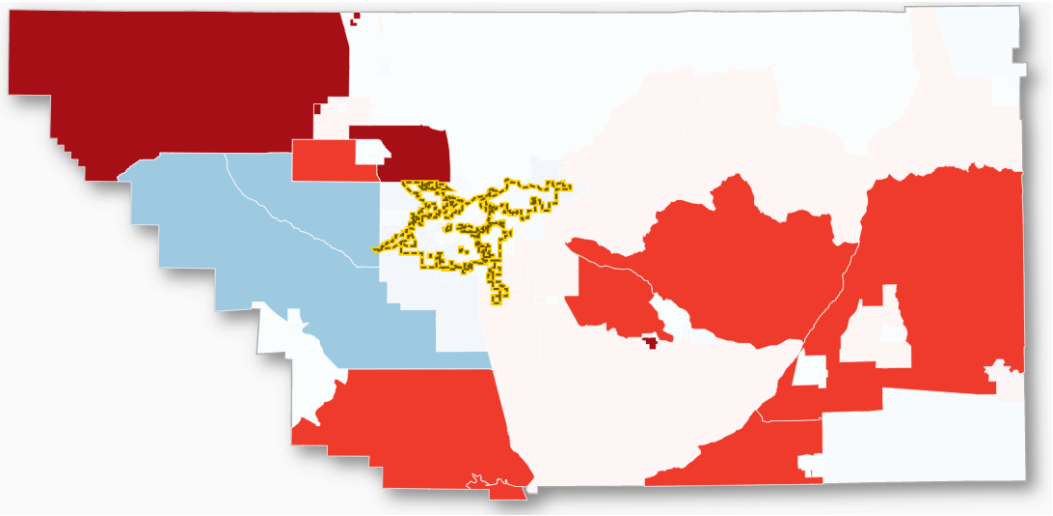
Kern County broadband availability is high, the main challenge is access and subscription rates

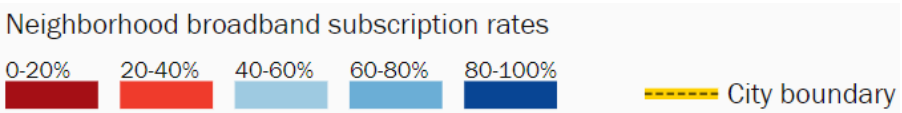
Kern has comparatively strong broadband availability. Only 4% of Kern County residents lack broadband coverage of the FCC standard at 25 Mbps (36,200 people).

These only reflect download speeds, so do not address many expectations, or the needs of precision agriculture.

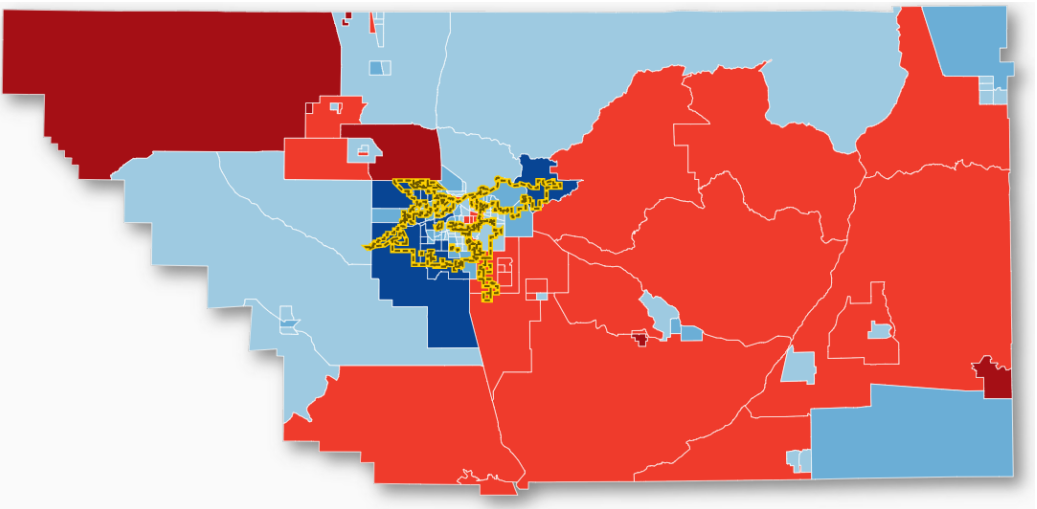
However, lack of availability substantially overlaps with high-poverty and less populous census tracts.

Census tracts without broadband availability of at least 25 Mbps, and subscription levels

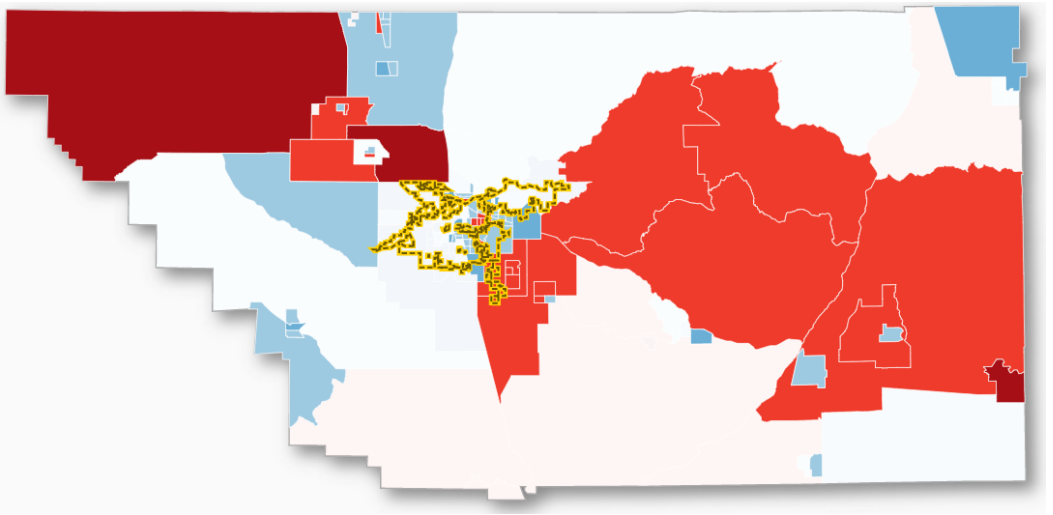




Kern County overall broadband subscription levels by census tract



Kern subscription levels in census tracts with at least 20% poverty

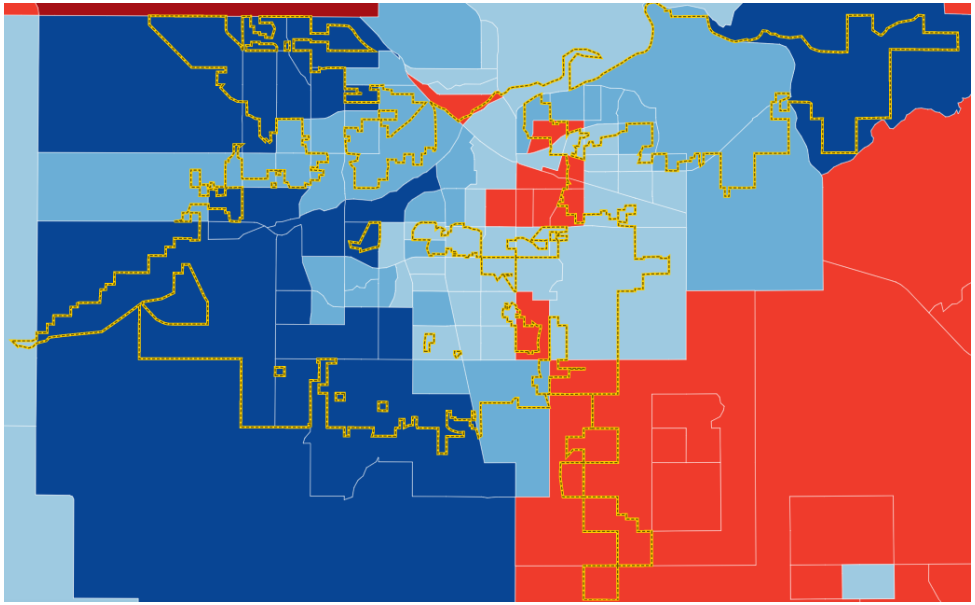


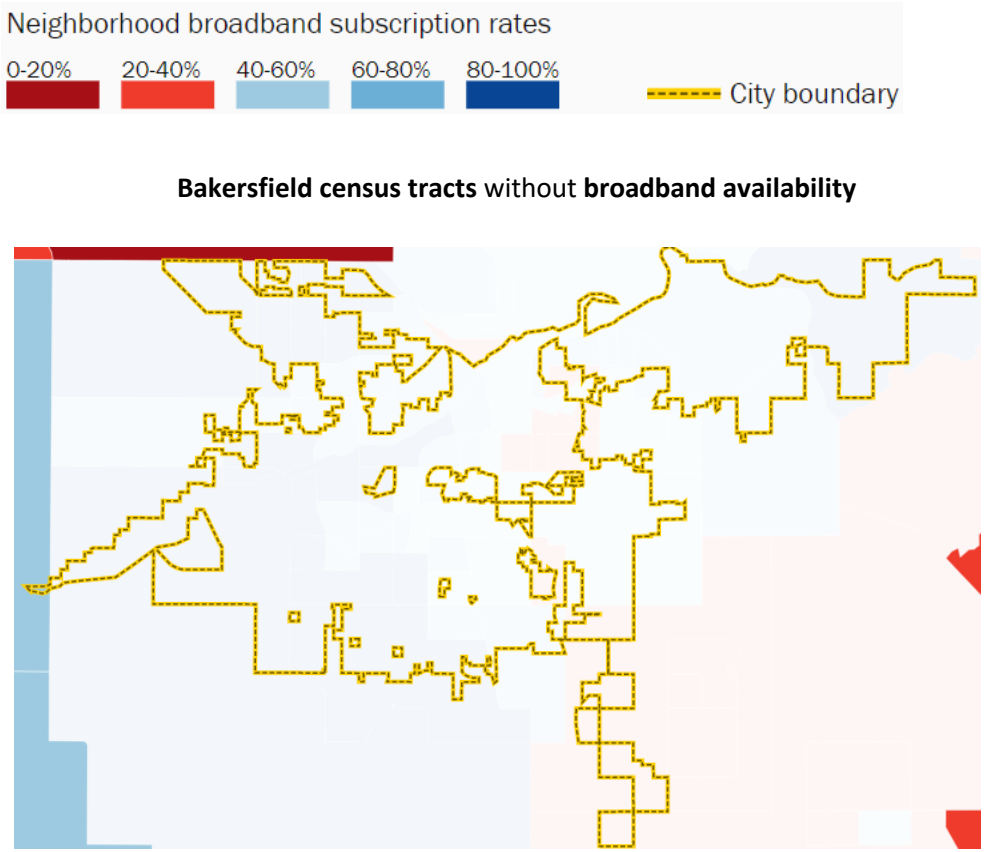
Bakersfield City has near universal broadband availability, but stark divisions in subscription access

The city of Bakersfield has basically universal broadband coverage with availability of at least 25 Mbps in all neighborhoods.

However, actual household access is highly differentiated, mainly by poverty levels. Subscription levels are markedly lower in census tracts with at least 20% poverty, which also have an above-average share of children. Low access follows eastern and southern neighborhood boundaries.

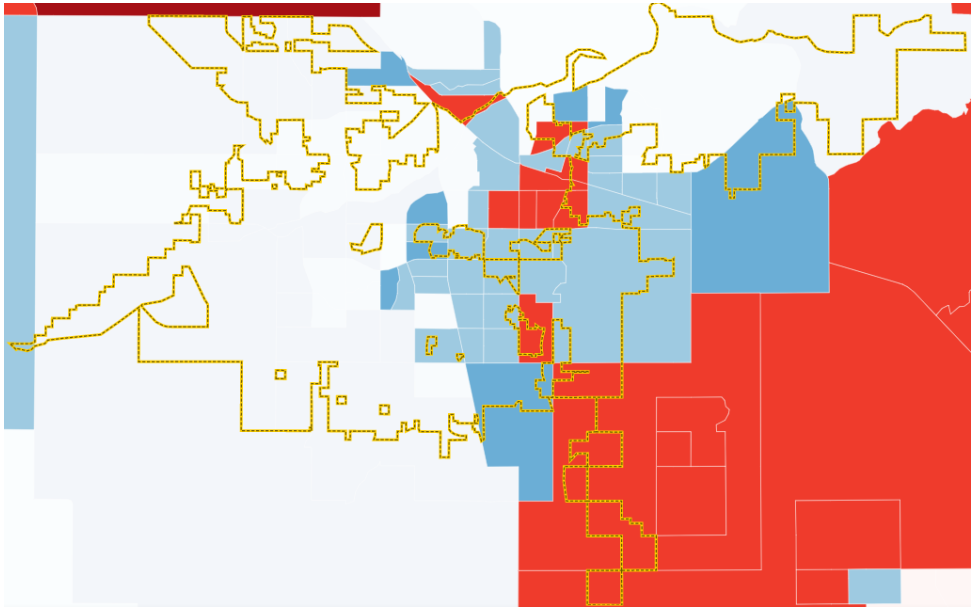
Overall subscription levels in Bakersfield





Bakersfield census tracts without **broadband availability**

Subscription levels in census tracts with at least 20% poverty rate



Competitiveness Drivers: Governance

Why governance matters:

Governance is the formulation and execution of collective action across political and institutional boundaries.

Jurisdictional lines do not define the geography at which the economy operates; there is no national, state, or city economy, but regional scale at which competitiveness driver assets are shared – workforce commutes, business networks, university access, transportation systems.

Further, the economy relies on contributions of many actors across sectors with different institutional responsibilities and resources.

Regional competitiveness relies on the capacity of private, public, and civic institutions to focus, marshal, and execute strategy and investment for a common economic development agenda.

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Kern lags other regions in other core economic development capacities and services

Economic development leadership structures vary across regions, with public-private EDOs, Chambers, municipal governments, cluster organizations, and others taking varying levels of responsibility. However, most regions of comparable size, as well as aspirational metros, offer a more comprehensive ecosystem of supports. These include:

General business / entrepreneurship supports

- In-depth research and business intelligence tracking regional economic performance indicators / metrics and framing trends in priority industries
- Exports assistance, including grant programs and "concierge" services offering counseling, referrals to service providers, etc.
- General incubator and accelerator programs, often including mentoring/coaching, programming, seed funding/pitch competitions, and physical space for product development / testing, networking, and more.
- Seed funds, angel conferences, and other programming designed to fill regional gaps in capital access and raise profile of entrepreneurship
- Programs specifically focused on expanding access to underrepresented entrepreneurs, including dedicated outreach, mentoring, satellite locations.
- *Ex: Tech Garden / Genius NY (Syracuse); mHUB (Chicago); Opportunity Hub (Atlanta); Connect / Connect ALL (San Diego) KC Rise Fund (Kansas City); Global Insurance Accelerator (Des Moines); regional dashboard (Minneapolis-St. Paul); cluster-specific research (San Diego);*

Talent and workforce initiatives

- Mid-tech talent development through short-term training programs, apprenticeships, bootcamps, and related offerings
- Business-driven talent intermediaries and networks focused on priority clusters
- Advisory services helping employers navigate regional workforce offerings and develop customized programming
- Incentives policies prioritizing investments in talent systems and quality jobs
- *Ex. LaunchCode (St. Louis); i.c.stars (Chicago); Ascend workforce intermediary (Indianapolis); SkillUp (Cleveland); inclusive incentives policies (Indianapolis and Portland);*

Sources: Brookings, Talent-Driven Economic Development, Rethinking Cluster Initiatives

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Market Assessment Data Book

1. Kern County: Economic performance and clusters
2. Opportunity Industries: Job quality and shared prosperity
3. Fundamentals of growth: Drivers of competitiveness
4. Implications, next steps, and workgroup activity

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Assessing future sector options applies multiple lenses, beyond scale and performance

The Market Assessment approach to prioritizing sector opportunities overlays multiple criteria to build a holistic view of a region's unique economic DNA using both data and qualitative inputs. While evidence-based, this analysis is discretionary versus formulaic, requiring interpretation and weighting. The factors explicitly consider the core drivers of economic competitiveness and all three dimensions of regional economic development success – growth, prosperity, and inclusion, explicitly accounting for all three dimensions of regional economic development success – growth, prosperity, and inclusion.

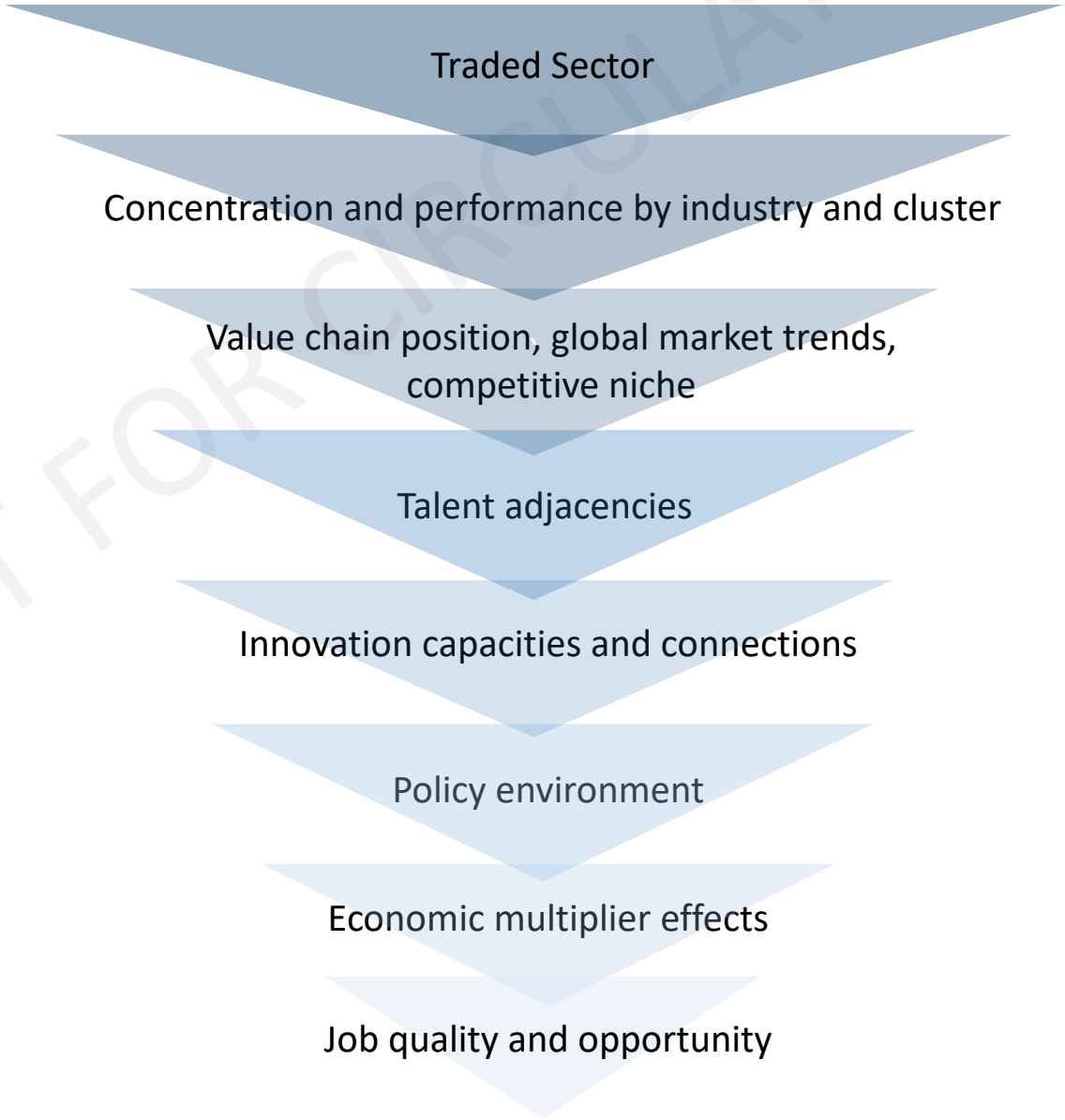
Basic economic development sector analysis typically centers on prior industry performance, scale, and regional "specializations" based on industry job counts versus national average. However, to find true advantages in the global marketplace, that review then must identify very specific sub-sectoral targets versus broad industry classes (*e.g. "manufacturing" vs "industrial machinery production"*). It also must consider how traditional industries are blending into new hybrid sectors that are not captured within a single existing standard industry classifications (*e.g. unmanned aerial vehicles*).

Further, to forecast opportunities outside of historic industry segments, the Market Assessment considers diverse factors that better gauge emerging and future sectoral opportunities, such as:

- transferability of prevalent occupational skill-sets into new industry areas;
- cross-disciplinary links in innovation and R&D activities with commercial applications;
- potential to build off one sub-sector strength into another part of the value chain;
- global market trends;
- policy influences on future demand and funding availability;
- competitor regions or niche.

With evidence of economic potential, the relative value of those options can be considered to set priorities:

- multiplier effects on other job creation;
- job quality and accessibility.



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Emerging cluster analysis seeks hidden potential sub-sectors based on adjacencies, growth, quality

Virtually every successful new cluster has emerged from entrepreneurial activity that relates to a historic regional strength, via commercialization of research or industry talent spinning off expertise into new ventures. Sectors cannot be created by force of will, or at least without enormous public sector investment in innovation assets (typically defense-related).

In rare instances, major economic development potential anchored in converging strengths, innovation, and new demand can be spurred, again seeded with government support – such as using the Kern energy platform for related activities where a current market is relatively small.

More often, "emerging" sub-sectors are hidden by lack of regional scale or specialization, but can be uncovered by notable growth off a relatively low base complemented by data on other selection factors. These data often are inconsistent, so weighting depends on discretion.

For the Market Assessment gauge of these emerging sub-sectors, the minimum threshold for consideration included –

1. Traded sectors
2. Growing nationally
3. Growing locally
4. Contain industries categories that are either:
    (i) individually or collectively specialized in Greater Bakersfield and/or East Kern; or
    (ii) individually or collectively exceeding national performance in Greater Bakersfield and/or East Kern.
5. Have indirect job multipliers greater than 1.0
6. Offer a combined good and promising job concentration above the regional average (with "other jobs" less than the average)

In a few instances, sub-sectors were retained that did not meet all threshold criteria but were frequently raised in qualitative discussions or appeared strategic for review based on contiguity to other industries, institutional assets, or supply chain links.

Categories that passed were evaluated using data on growth and demand trajectories, economic effects, institutional research capacity relevance, skills transferability, and concentration of job quality. Current job counts were used to interpret growth, but not factored heavily given the purpose of identifying emerging and adjacent potential.

Emerging sub-sectors for further consideration based on threshold criteria

- Chemicals and plastics manufacturing
- Metals manufacturing
- Other advanced and precision manufacturing
- Business services
- Marketing and design services
- Financial and insurance services
- Logistics
- Environmental services and utilities

Source: Analysis of Economic Modeling Specialists Intl., Economic Policy Institute, U.S. Clusters Mapping Project, and Brookings data.

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Manufacturing sub-sectors show emerging strength, value connected to existing industry capabilities

Chemicals and plastics manufacturing

	2019 jobs	2009-19 natl job growth	2009-19 actual job growth	Multiplier	Good jobs share	Promising jobs share	Other jobs share	Inst. Research capacity	Talent Adjacency
Personal Care and Cleaning Products	45	62.3%	199.4%	4.95	25%	10%	65%	Yes	96.8%
Processed Chemical Products	477	17.4%	42.8%	4.60	27%	10%	63%	Yes	96.8%
Lubricating Oils and Greases	35	4.5%	-20.7%	14.51	37%	0%	63%	Yes	96.1%
Plastic Products	451	48.0%	27.9%	2.78	20%	10%	69%	Yes	92.8%
Plastic Materials and Resins	38	63.1%	25.2%	2.78	20%	10%	69%	Yes	92.8%
Inorganic Chemicals	129	73.4%	3654.1%	11.51	30%	11%	60%	Yes	96.3%

Metals manufacturing

	2019 jobs	2009-19 natl job growth	2009-19 actual job growth	Multiplier	Good jobs share	Promising jobs share	Other jobs share	Inst. Research capacity	Talent Adjacency
Metal Products	73	20.9%	23.0%	2.46	23%	8%	68%	Some	94.3%
Machine Tools and Accessories	24	16.9%	13.8%	2.13	21%	9%	70%	Some	91.0%
Fasteners	21	31.6%	57.9%	1.73	31%	4%	65%	Some	89.4%
Metal Processing (adv.)	87	31.6%	68.6%	1.78	28%	5%	67%	Some	90.0%
Metal Processing (basic)	63	34.6%	-10.1%	4.13	18%	9%	74%	Some	92.7%

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Aerospace affords adjacent precision manufacturing sub-sector potential, albeit often off low base

Other advanced and precision manufacturing

Subcluster	2019 jobs	2009-19 natl job growth	2009-19 actual job growth	Multiplier	Good jobs share	Promising jobs share	Other jobs share	Inst. Research capacity	Talent Adjacency
Aerospace Vehicles and Defense	1,009	1%	-10%	3.22	38%	4%	58%	Yes	96.2%
Industrial Machinery	150	39%	31%	3.08	26%	9%	65%	Some	96.7%
Process Equipment and Components	256	-2%	134%	2.83	25%	8%	67%	Some	95.4%
Automotive Parts	51	228%	924%	3.71	24%	11%	65%	Some	92.5%
Gasoline Engines and Engine Parts	31	131%	132%	3.71	22%	12%	66%	Some	92.5%
Motor Vehicles	113	46%	124%	6.17	17%	12%	71%	Some	94.9%
Trailers and Motor Homes	83	206%	221%	4.32	17%	11%	71%	Some	94.8%
Process and Laboratory Instruments	28	-13%	-90%	2.88	29%	12%	58%	Some	95.9%
Audio and Video Equipment	31	21%	25%	2.73	28%	14%	57%	Some	93.5%
Surgical and Dental Instruments and Supplies	275	6%	-20%	2.61	24%	9%	67%	No	96.2%

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Business services lack natural growth or financial industry opportunity, but some capacities to build on

Business services

Subcluster	2019 jobs	2009-19 natl job growth	2009-19 actual job growth	Multiplier	Good jobs share	Promising jobs share	Other jobs share	Inst. Research capacity	Talent Adjacency
Consulting Services	1,199	46.0%	3.0%	2.08	39%	2%	59%	Some	96.0%
Business Support Services	3,415	16.7%	0.2%	1.81	29%	7%	63%	n.a.	96.1%
Computer Services	1,403	27.2%	-32.3%	2.85	36%	4%	60%	Yes	94.3%
Architectural and Drafting Services	315	14.0%	49.9%	2.04	45%	5%	50%	No	96.5%
R&D Consulting	246	16%	48%	8.43	42%	3%	55%	Some	94.6%

Marketing and design services

Subcluster	2019 jobs	2009-19 natl job growth	2009-19 actual job growth	Multiplier	Good jobs share	Promising jobs share	Other jobs share	Inst. Research capacity	Skills met by workforce
Advertising Related Services	160	32.5%	-4.6%	7.32	33%	5%	62%	n.a.	94.5%
Other Marketing Related Services	54	54.1%	188.7%	3.08	37%	2%	60%	n.a.	96.1%
Design Services	42	43.8%	173.3%	1.65	31%	6%	63%	n.a.	94.3%

Financial and insurance services

Subcluster	2019 jobs	2009-19 natl job growth	2009-19 actual job growth	Multiplier	Good jobs share	Promising jobs share	Other jobs share	Inst. Research capacity	Skills met by workforce
Financial Investment Activities	151	62.3%	23.2%	1.99	44%	1%	55%	No	88.2%
Securities Brokers, Dealers, and Exchanges	214	5.6%	5.1%	5.10	38%	6%	57%	No	88.6%
Insurance Related Services	75	62.3%	183.6%	1.52	32%	3%	64%	n.a.	89.5%
Insurance Carriers	1,060	5.2%	-39.8%	3.36	39%	2%	59%	n.a.	88.7%

Source: Brookings analysis of Economic Modeling Specialists Intl., Economic Policy Institute, U.S. Clusters Mapping Project, and Brookings data.

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Logistics sub-sectors fail to meet job quality thresholds for consideration; utilities offer limited growth

Logistics

	2019 jobs	2009-19 natl job growth	2009-19 actual job growth	Multiplier	Good jobs share	Promising jobs share	Other jobs share	Inst. Research capacity	Talent Adjacency
Air Transportation	630	33.3%	103.7%	2.78	42%	4%	54%	n.a.	94.2%
Ground Transportation Support Activities	685	54.1%	149.1%	1.96	12%	13%	75%	n.a.	87.5%

Environmental services and utilities

	2019 jobs	2009-19 natl job growth	2009-19 actual job growth	Multiplier	Good jobs share	Promising jobs share	Other jobs share	Inst. Research capacity	Talent Adjacency
Alternative Electric Power	348	33.0%	11.5%	5.64	33%	3%	63%	No	97.6%
Waste Collection	256	18.7%	21.5%	2.31	19%	10%	72%	n.a.	88.3%
Other Waste Management Services	127	45.6%	27.1%	2.31	30%	6%	64%	Some	95.8%

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1. four cross-cutting considerations that must be dealt with in developing strategy interventions

2. three core economic development interventions to address (1) targeted clusters / sub-sectors, (2) fundamental business supports, and (3) delivery system gaps

3. three broad, systemic issues that are connected to and enablers of regional economic success, but beyond the manageable scope of a regional economic development strategy

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1. **Greater Bakersfield and East Kern are two functionally distinctive economic areas that should be treated differently with tailored strategies and resources.** Industry and talent mix, local resources, and infrastructure needs are divergent; complementary strengths are limited; and potential for connections is narrowly targeted for mutual benefit, like anchor institution relationships, rather than assumed to be fully integrated.

2. **With greater clarity on economic development anchored in priority sectors and job quality, workforce development activities can target efforts to address those talent needs versus more opportunistically filling openings.** Although regional workforce capabilities outweigh other competitiveness drivers, the economic development system is not built to address talent issues, and workforce systems are not aligned or incentivized to focus on achieving economic development goals. Integrating Kern's strong mainstream workforce programs with sector-specific tactics are essential to success.

3. **Economic development interventions must consider how to address race and gender gaps in access to quality jobs and economic opportunities.** Regions that are more economically inclusive also are more competitive in growth and productivity. Given the data, an intentional approach will be required to enable deep prosperity for all residents, whether through programs or individual business practices.

4. **State policy has disproportionate effects on Kern's economy; education and engagement of the State through strategy development is required to find areas of mutual benefit.** While Kern should continue to advocate for the health of its oil and gas and agricultural sectors, the region must also pursue proactive partnerships with the state. Meanwhile, Kern's assets and leadership in various sectors are needed by the State to meet its own policy goals. Engaging the State inside strategy creation must be vigorously pursued to establish an ongoing problem-solving relationship, proactively navigate issues, and secure commitments for delivering on Regions Rise Together principles.

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CARBON MANAGEMENT AND RENEWABLE FUELS PRODUCTION AND INNOVATION

- Renewable biofuels expansion, including development of new production technologies and processes for export
- Other renewable fuels and energy production and innovation, including hydrogen and agricultural or woody biomass
- Carbon Capture and Storage implementation and innovation utilizing market and policy opportunities as global first-movers in proof of concepts, products, and services for export

AEROSPACE, focused on untapped potential for smaller high-growth firms, and defending against national competition

- Establishing a true cluster initiative with a dedicated, senior lead having deep industry experience, to meet competitiveness needs of the sector and organize joint stakeholder action.
- Spurring small and mid-size business commercialization through connections with existing military innovation and financing assets and programs through on-and-off-base programs, per successes in peer regions.
- Improving the local talent pipeline through coordinated industry-driven training programs at scale.
- Addressing state policy issues that constrain expansion at Mojave Air and Space Port and pursuing a deliberate intrastate space strategy with other hubs to ensure competitiveness vis-a-vis outside regions.
- Uniting East Kern and Palmdale/Lancaster for scale and visibility as a globally-competitive aerospace region.

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ADVANCED MANUFACTURING SUBCLUSTERS anchored in chemicals, plastic, metalworking, machinery, and food

- Exploring specific acceleration needs of manufacturing firms, especially middle-market expansion, such as talent pipelines and incumbent worker development, innovation identification and adoption, and problem-solving in product or processes.
- Targeting business attraction priorities in collaboration with commercial developers and government incentives, leveraging favorable infrastructure, land use, and location strengths.

BUSINESS SERVICES "SECOND OFFICE" for longer-term diversification and digital skills development

- Capturing growth in remote services and outsourcing functions or back-office leakage from coastal California; deliberately connecting to serving demand in East Kern; and meeting expansion needs of small, emerging tech-oriented firms.
- Focusing on developing a stronger talent base in digital skills for both existing firms and prospects.

NOTE: Prominent sectors that are large sources of employment and growth – Logistics and Agriculture – are critical foundational assets; however, given constrained economic development resources, other Opportunity Industries benefit more from a priority focus and yield higher return on investment. Economic developers still work in these areas -- some sectoral targets overlap with these industries (*e.g. food manufacturing*), and efforts could focus on sub-sectors offering better job quality (*e.g. goods movement*) or firms that meet job quality standards. Additionally, logistics strengths are a platform for other high-value sectors, such as manufacturing.

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Basic business and entrepreneurship supports need to be established or scaled to support creation and durability of young firms and expansion of mid-sized companies:

- The region lacks foundational resources common in comparably-sized areas, such as business incubators or accelerators.
- Existing technical assistance resources and access to problem-solving for innovation adoption or workforce support are not at a scale to have impact.
- Entrepreneurs face challenges raising capital without the presence of a well-resourced, locally-based CDFI or transparency around alternative funding sources.
- Targeted programming and interventions to address barriers to women and minority entrepreneurs are underdeveloped throughout the region.

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The economic development delivery ecosystem currently has significant gaps that need to be filled for delivering on a strategic vision:

- The region lacks a shared vision, goals, and metrics for regional economic success toward which all economic development contributors can orient.

- Implementation of prior strategic ideas has faltered without clear ownership, attention, accountability, or authority for execution, and attendant resource commitments.
  - "Clusters" previously named as regional priorities were not supported by any actual cluster development strategies or initiatives, nor was structure established for targeted, ongoing collaboration with industry to identify and fill distinctive needs.

- Interactions among economic development contributors rarely result in functional collaborations or joint programmatic implementation, versus information exchange and networking.
  - Impediments to more substantive collaboration include outcomes against which organizations and individual performance is measured, with few incentives or resources rewarding such efforts; institutional self-interest and competition for limited resources; difficulty changing long-standing practices; and no agreed "center of gravity" or consistent forum to transparently vet, organize, and partner around opportunities.

- The delivery system is not structured to sufficiently account for race and gender disparities and the distinctive needs of specific populations.

- Compared to other regions, the business community does not take a leadership role in setting and implementing an economic development agenda for collective benefit.

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1 Educational Attainment

No economic development strategy can change outcomes in job quality, vitality, and competitiveness if the region does not dramatically improve educational attainment rates at all levels. That is the purview of collaboratives like the Kern Education Pledge versus a regional economic strategy, but all stakeholders with interest in economic development – including the private sector – must commit equally to advancing that agenda.

2 Placemaking

Lack of commercial and residential development to provide quality of life for workforce is a challenge in particular sub-regions and neighborhoods across the county, most acutely in East Kern. The economics of making these viable in the marketplace is a technical and policy issue that should be addressed by a task force of real estate developers, financers, and county officials – to determine what is required for placemaking to "pencil out," and if that is feasible.

3 Community Development

The traded sector economy functions at a regional scale, and regional strategies can prioritize the creation of accessible good and promising jobs. However, regional efforts cannot target the economy into local communities. For distressed areas, specific city and neighborhood strategies are required to connect residents to these regional opportunities.

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