



Market Assessment Data Book

Appendix #1

#1
The county faces two key economic challenges

#2
The county can build on its economic strengths

#1

The county faces two key economic challenges:

A Drivers of *economic growth* may be unsustainable

B Too many people have too little *economic opportunity*



Economic Performance: Growth

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 businesses and regions more productive.

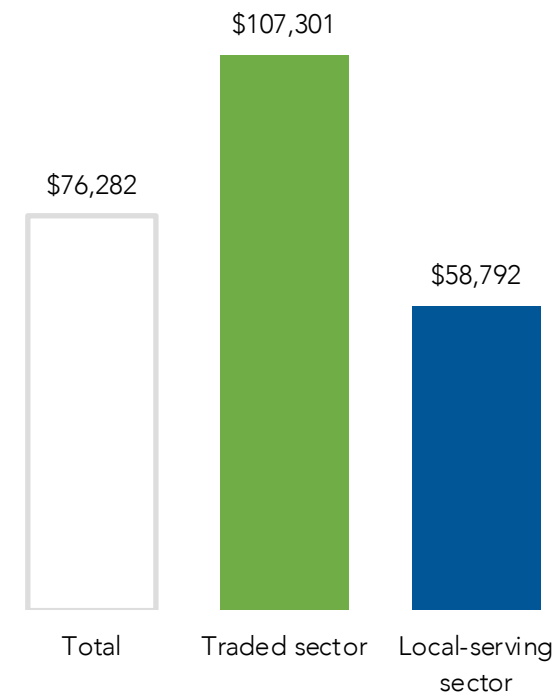
Firms that link and learn through global value chains perform better than peers in growth, job creation, and wages, and are more resilient to economic downturns.

Regionally, a 1% increase in international trade results in a 0.5% to 2% gain in per capita income.

Traded sectors create prosperity

Traded sector firms tend to require more knowledge and skills to compete, reflected in higher wages for workforce

Average annual earnings
nationwide in 2020



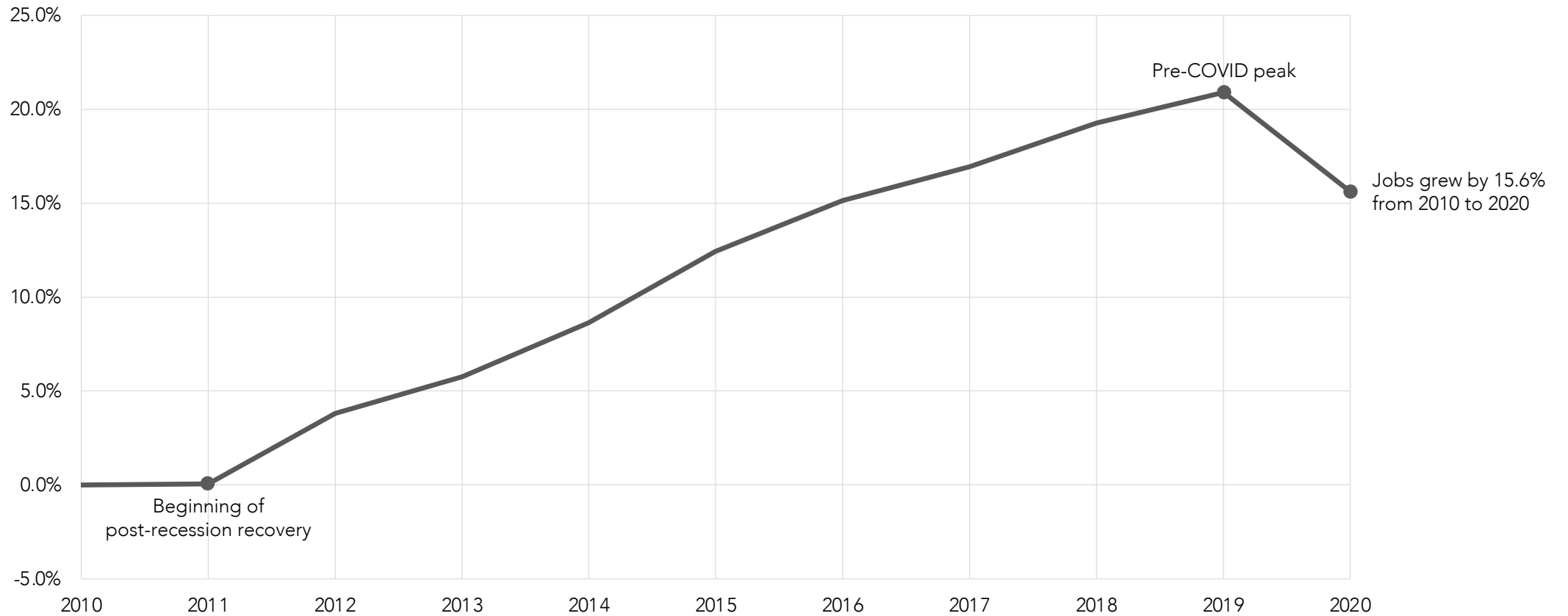
Economic Performance: Growth

Key findings:

1. Stanislaus County's jobs growth exceeded 15% over the 10-year period from 2010 to 2020, surpassing the nation's job growth due to "local shifts" in industry structure.
2. These local shifts are a result of faster-than-average growth in the local-serving sector, which caters to local consumers, and the public sector. This type of growth is likely a reflection of an influx of new residents seeking lower costs of living.
3. Meanwhile, the traded sector, which exports locally produced products and services, added jobs slower than the national average, suggesting waning competitiveness.
4. A closer look reveals that many of the county's traded clusters are growing or competitive, but some of its most prominent are not, such as food manufacturing, automotive (truck) manufacturing, wholesale distribution, and various business services.

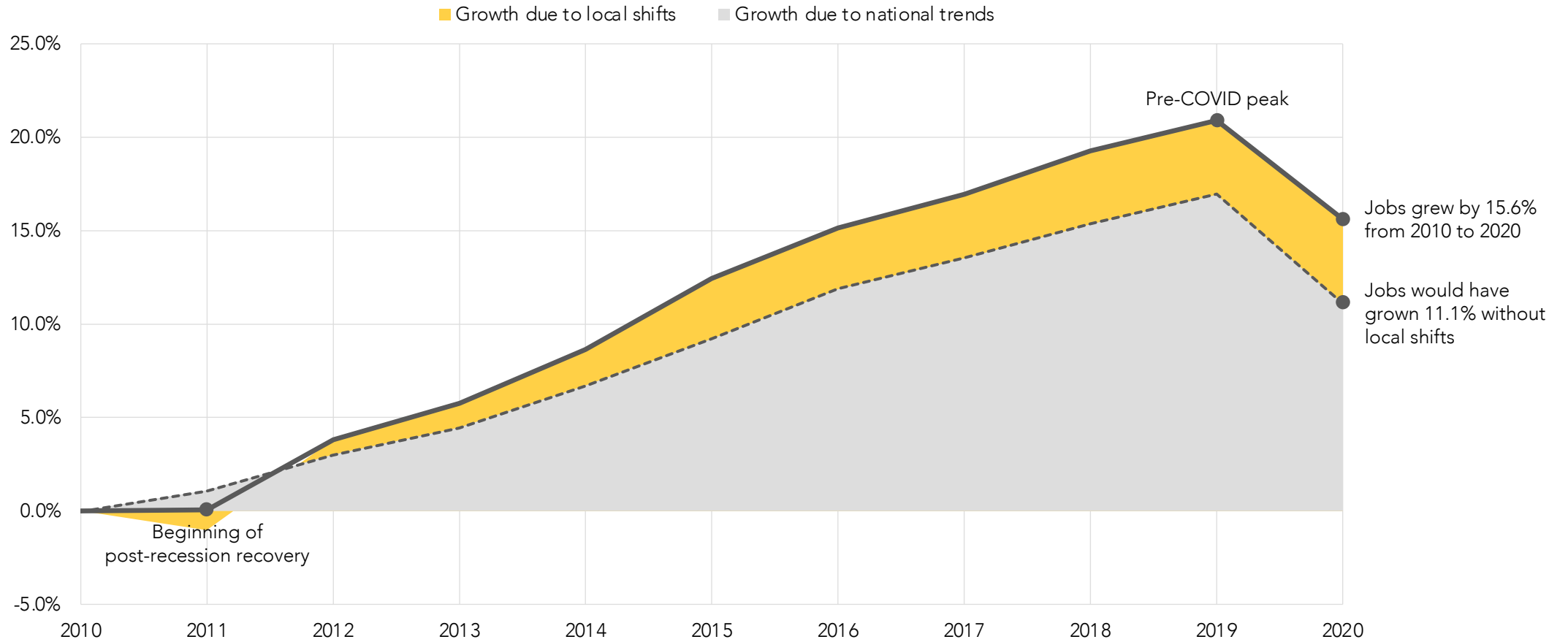
THE COUNTY'S JOB BASE GREW STEADILY FROM 2011 THROUGH 2019

Job growth in Stanislaus County
2010 to 2020



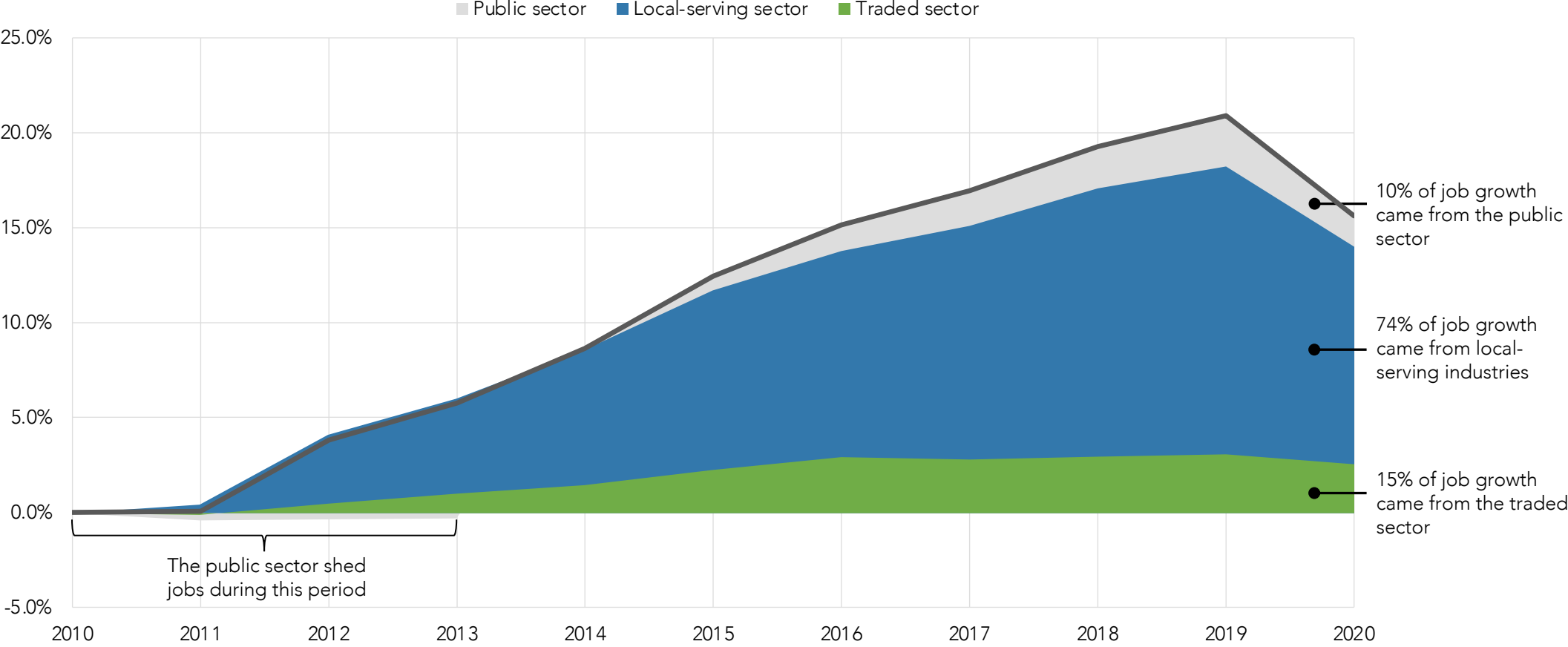
THE COUNTY'S JOB GROWTH EXCEEDED THE NATION'S

Factor contributions to job growth in Stanislaus County
2010 to 2020



TRADED SECTORS DROVE A SMALL PORTION OF JOB GROWTH

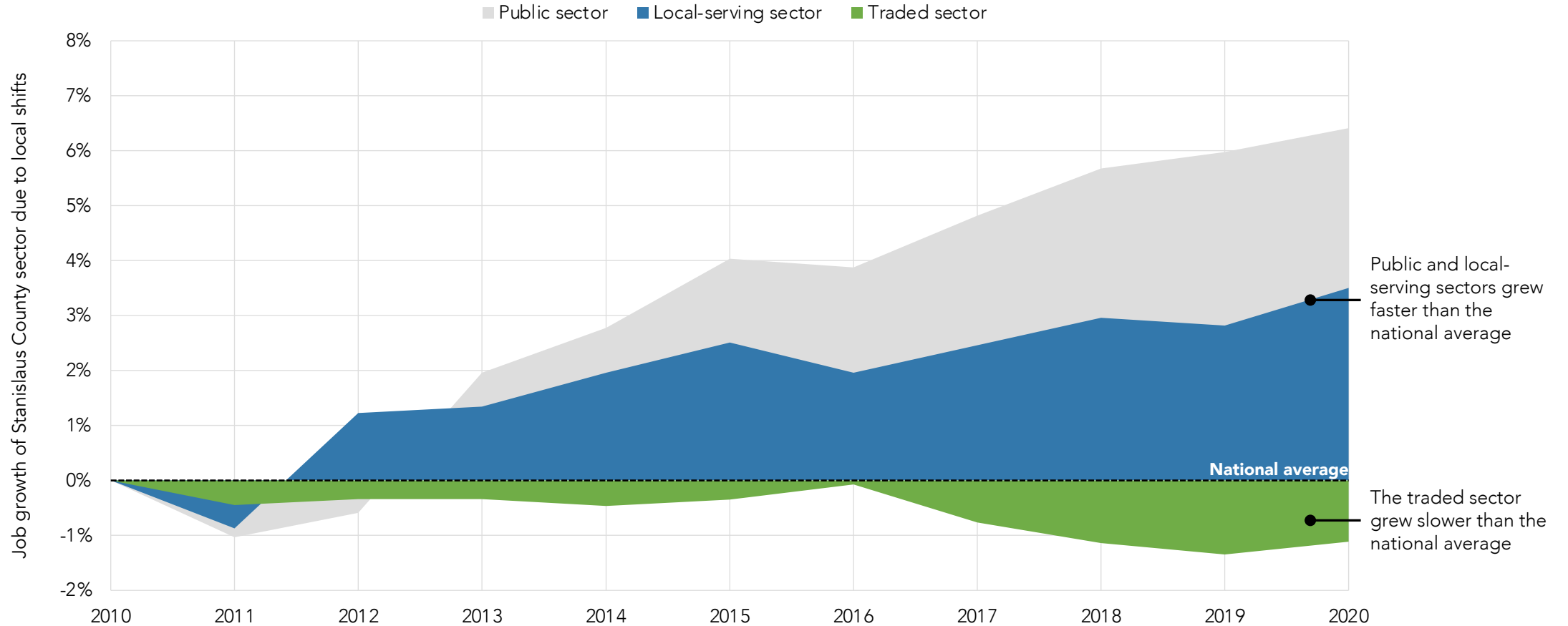
Sectoral contributions to job growth in Stanislaus County
2010 to 2020



Source: Brookings and Cities GPS analysis of Emsi estimates.

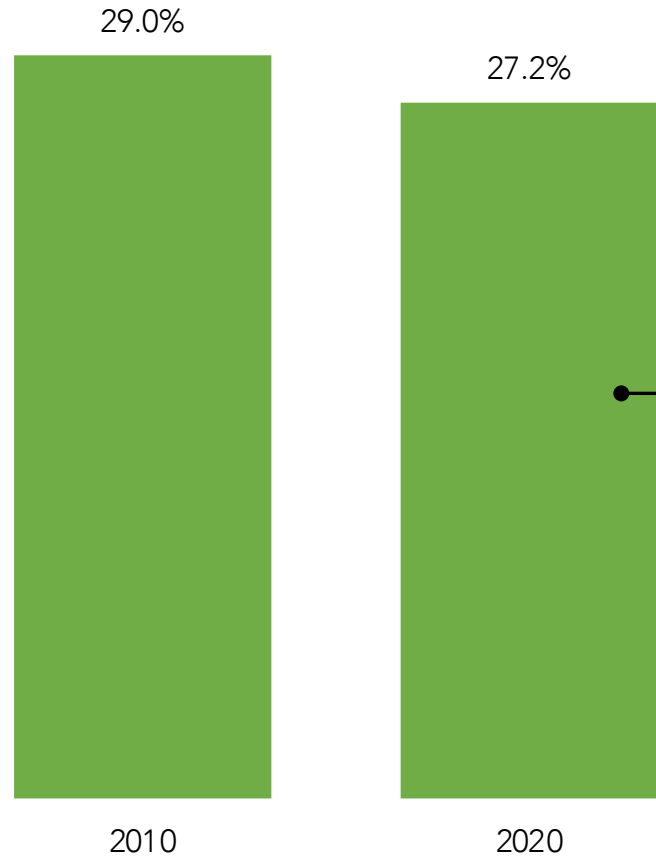
THE TRADED SECTOR ADDED FEWER JOBS THAN EXPECTED

Job growth from local shifts in Stanislaus County, by sector
Since 2010



THE TRADED SECTOR HAS SHRUNK AS A PORTION OF JOBS

The traded sector's share of Stanislaus County's jobs

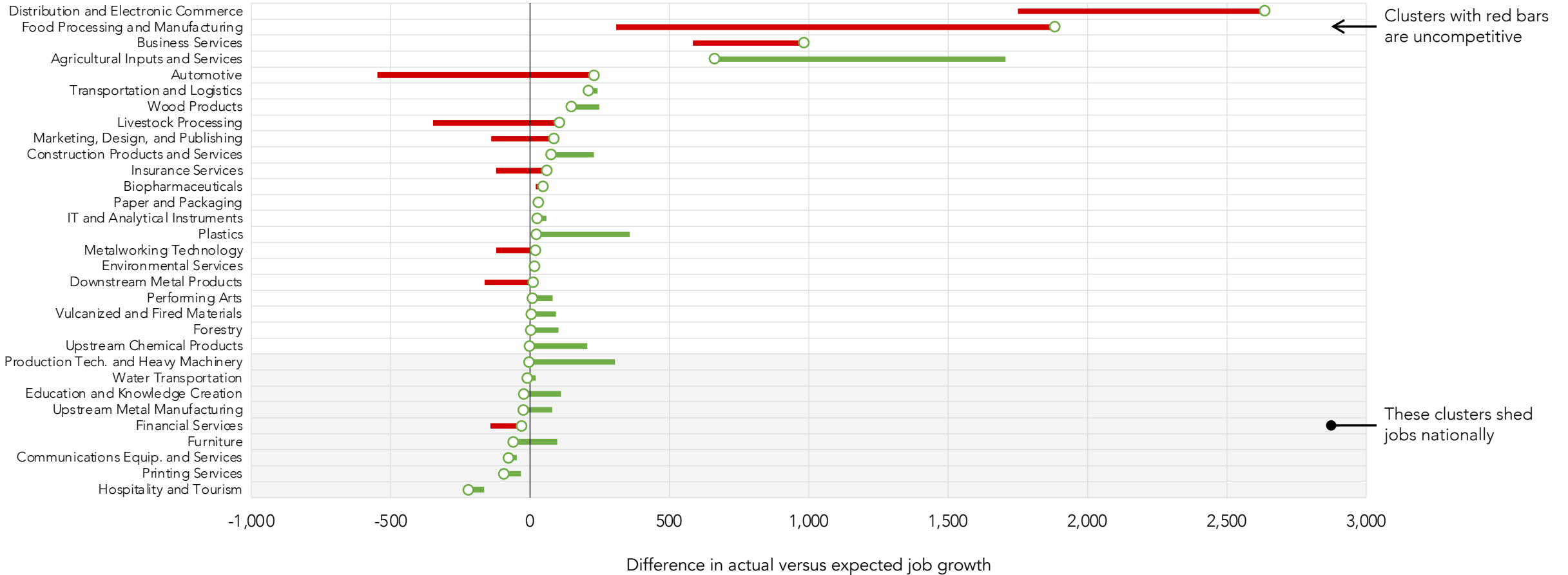


The traded sector's share of jobs has declined 6%, or 1.8% points. Although the traded sector added almost 4,000 jobs, its share of jobs shrank and shrank faster than it did nationwide due to local shifts, imperiling future growth and prosperity.

THE COUNTY'S LARGEST TRADED CLUSTERS HAVE FALLEN BEHIND

Job growth from local shifts in Stanislaus County, by traded cluster
From 2010 to 2020

○ Expected job growth based on national trends ■ Job growth in excess of national trend ■ Job growth less than national trend





Economic Performance: Opportunity

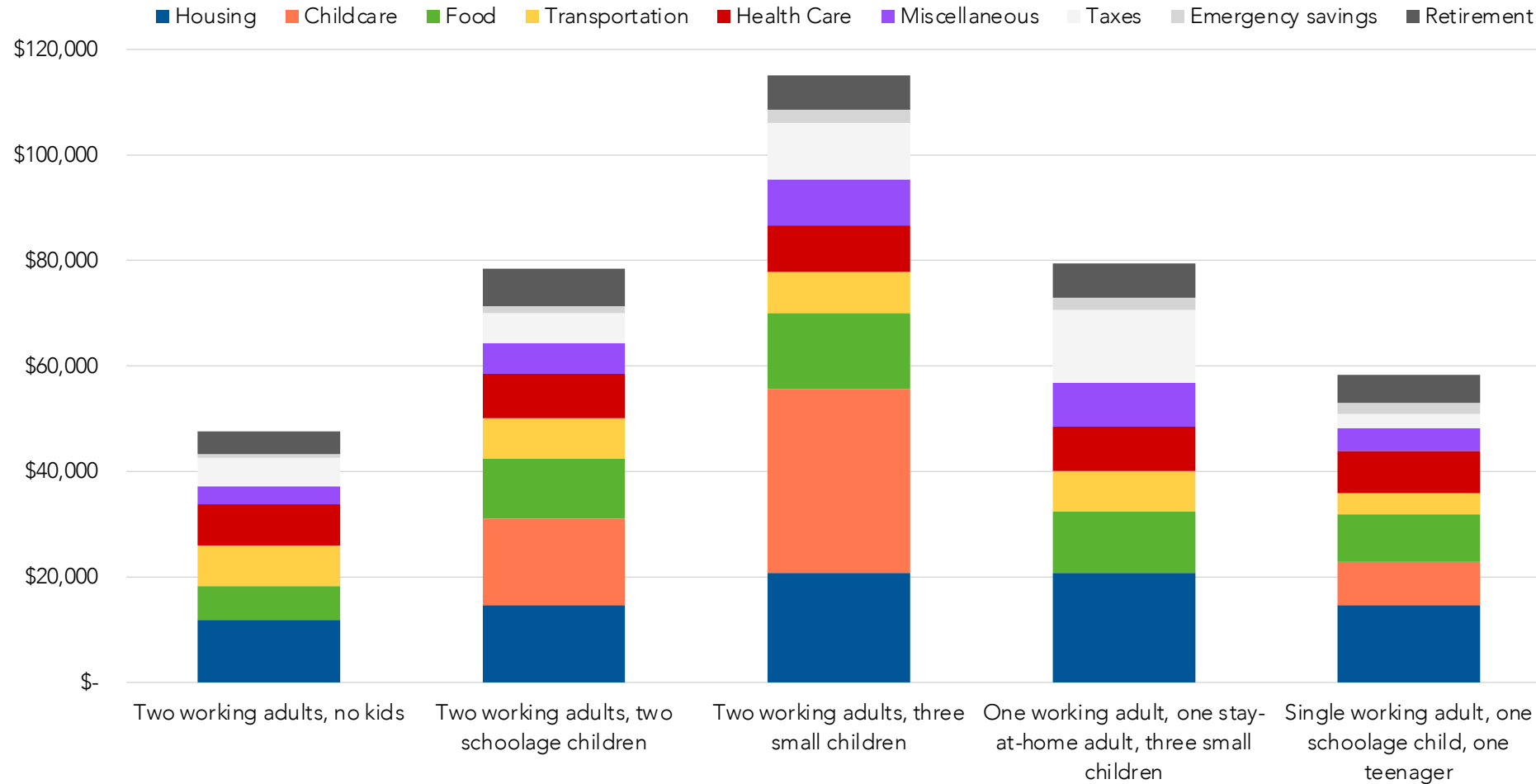
Economic Performance: Opportunity

Key findings:

1. Over half of Stanislaus County's residents and 62% of its children belong to families that struggle to afford necessities, such as nutritious food, suitable housing, and childcare.
2. Most of these "struggling families" (74%) contain at least one working adult. Most of the workers in these families (83%) have a degree. Over a third have some post-secondary education.
3. The high ratio of people in struggling families largely reflects high cost of living in Northern California, but also reflect the poor quality of jobs in Stanislaus County.
4. Only 13% of jobs in the county are "good jobs" and only 22% of jobs will lead an incumbent worker to a good job within 10 years, leaving a huge gap of nearly 41,000 struggling workers in the county who need a good job that does not currently exist.

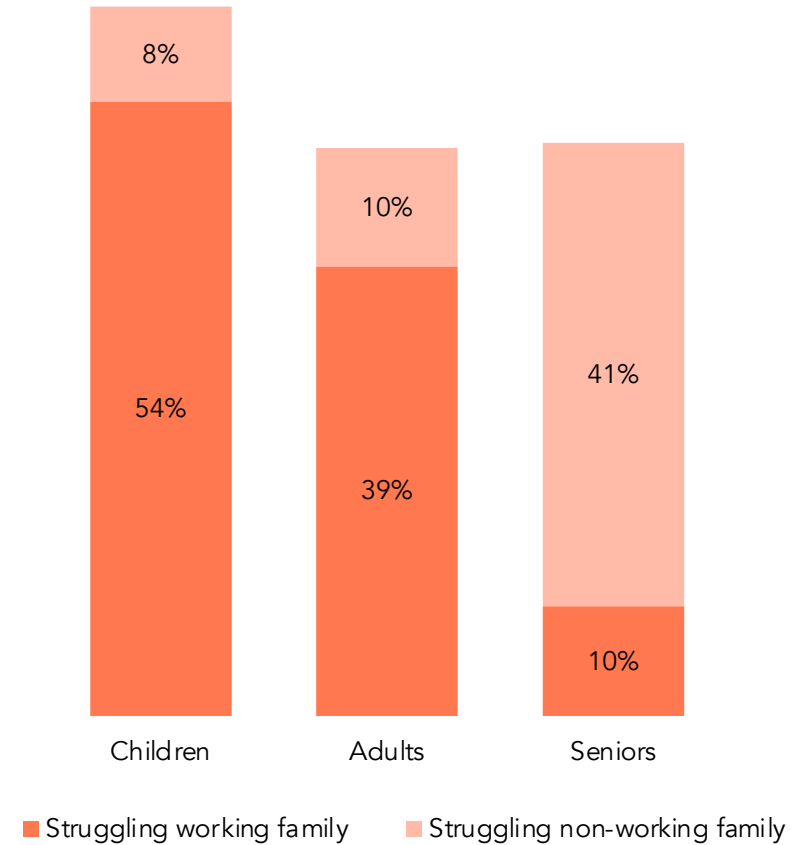
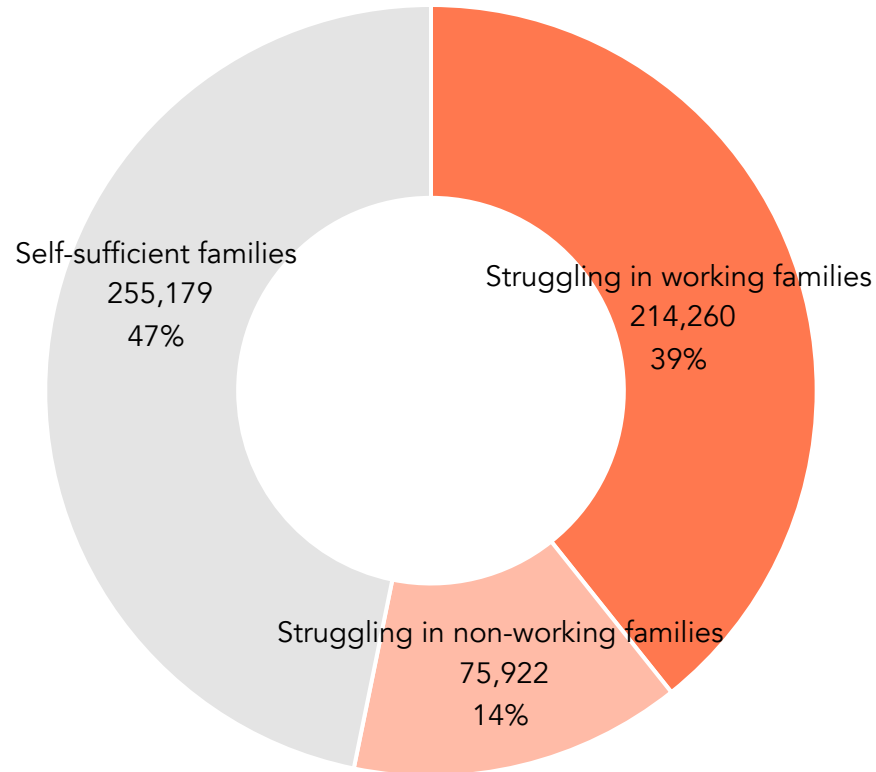
RAISING A FAMILY IN STANISLAUS COUNTY REQUIRES A SIZABLE INCOME

Family sufficiency budgets for Stanislaus County
2021



OVER HALF THE COUNTY'S POPULATION STRUGGLES TO MAKE ENDS MEET

Stanislaus County population that belongs to a struggling family
2019

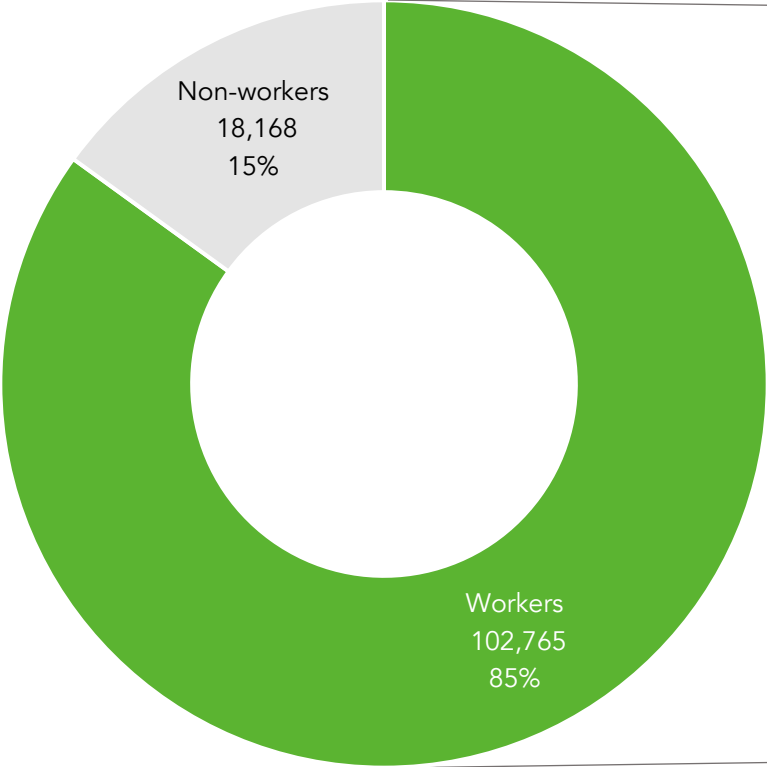


Note: "Children" refers to individuals aged fewer than 18 years or those under 25-years-old who are full-time students. "Adults" refers to working-age adults aged 18 to 64. "Seniors" refers to adults aged 65 years or more.

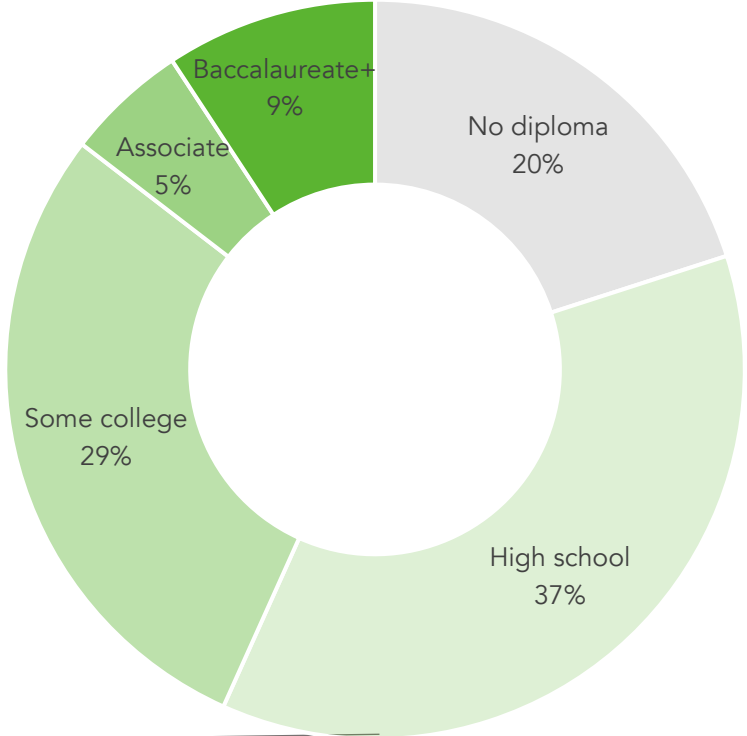
Source: Brookings and Cities GPS analysis of American Community Survey public-use microdata and University of Washington estimates.

MOST STRUGGLING ADULTS ARE DEGREED WORKERS

Labor status of adults in struggling working families
2019



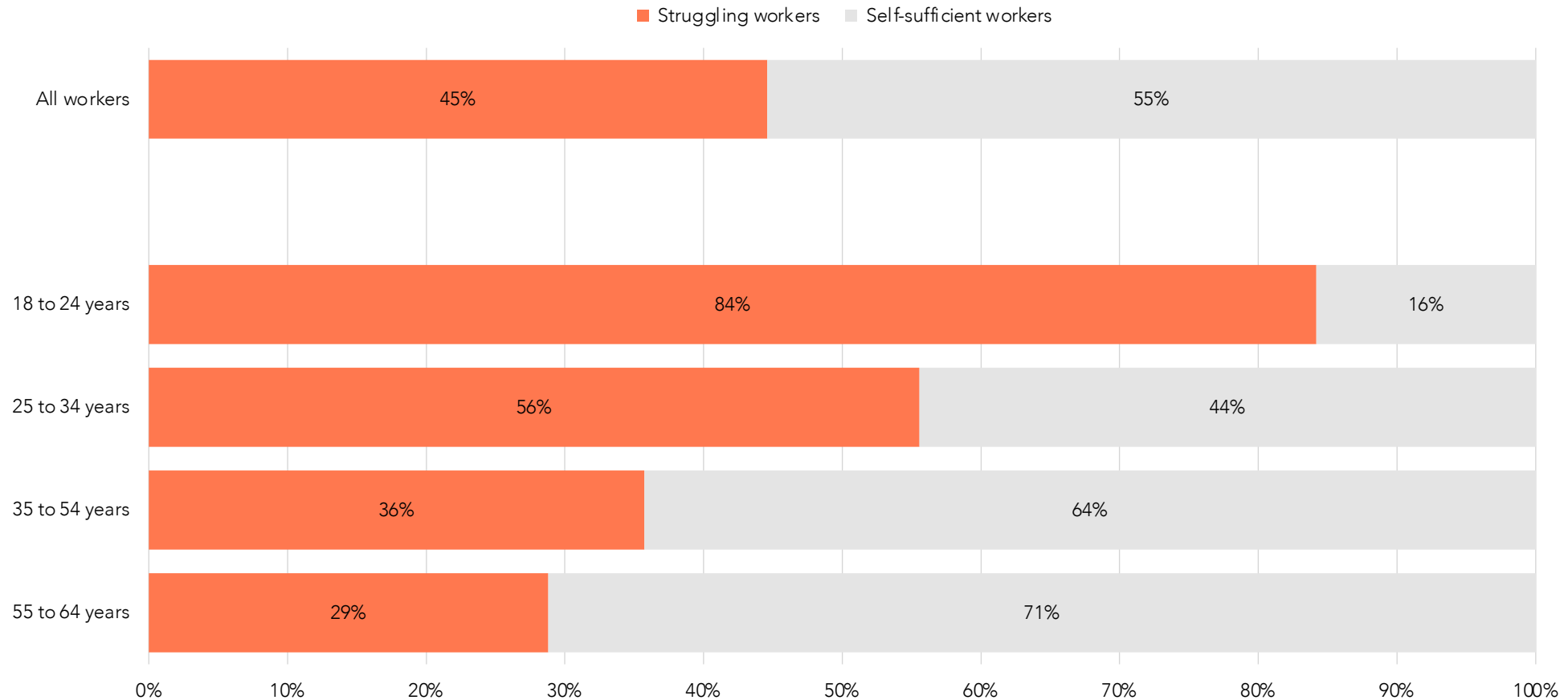
Educational attainment of struggling adult workers
2019



Note: "Adult" refers to working-age individuals aged 18 to 64. "Workers" and "working" refers to adults that are employed, including in the armed forces, or looking for work.
Source: Brookings and Cities GPS analysis of American Community Survey public-use microdata and University of Washington estimates.

YOUNGER WORKERS ARE MORE LIKELY TO STRUGGLE

Share of Stanislaus County's working-age adults in the labor force by struggling status
2019

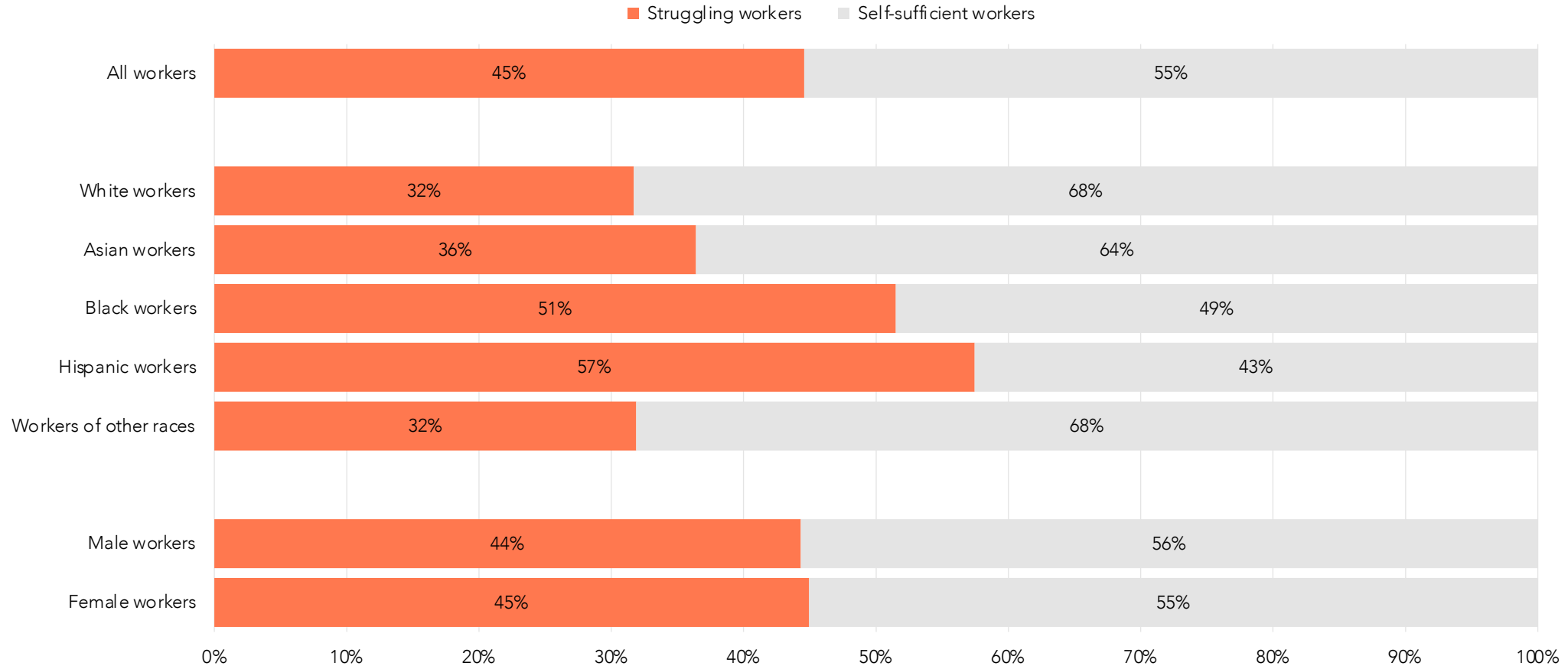


Note: "Adults" refers to working-age adults aged 18 to 64. "Workers" and "working" refers to adults that are employed or looking for work.

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

WORKERS OF COLOR ARE MORE LIKELY TO STRUGGLE

Share of Stanislaus County's working-age adults in the labor force by struggling status
2019

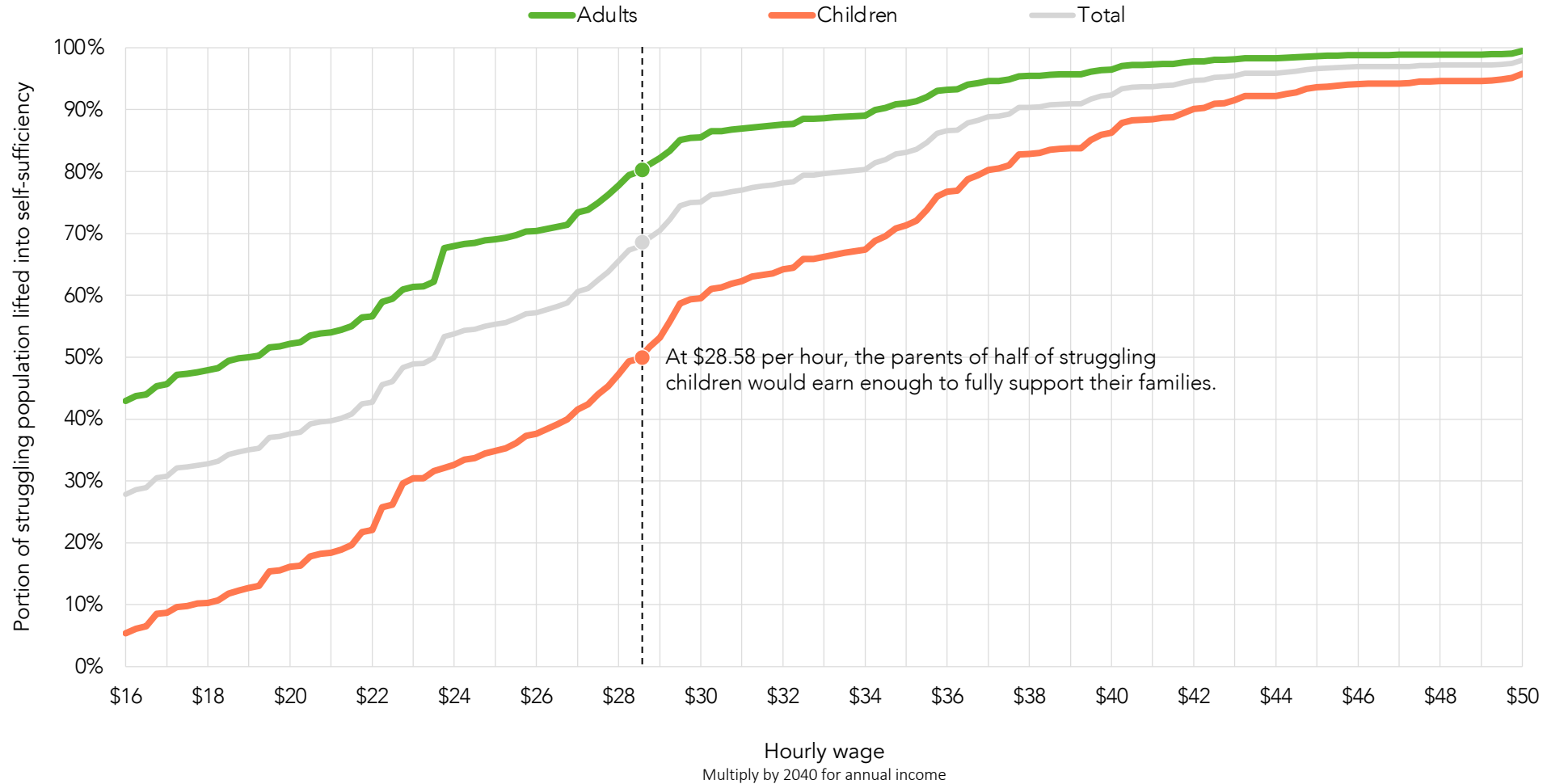


Note: "Adults" refers to working-age adults aged 18 to 64. "Workers" and "working" refers to adults that are employed or looking for work.

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

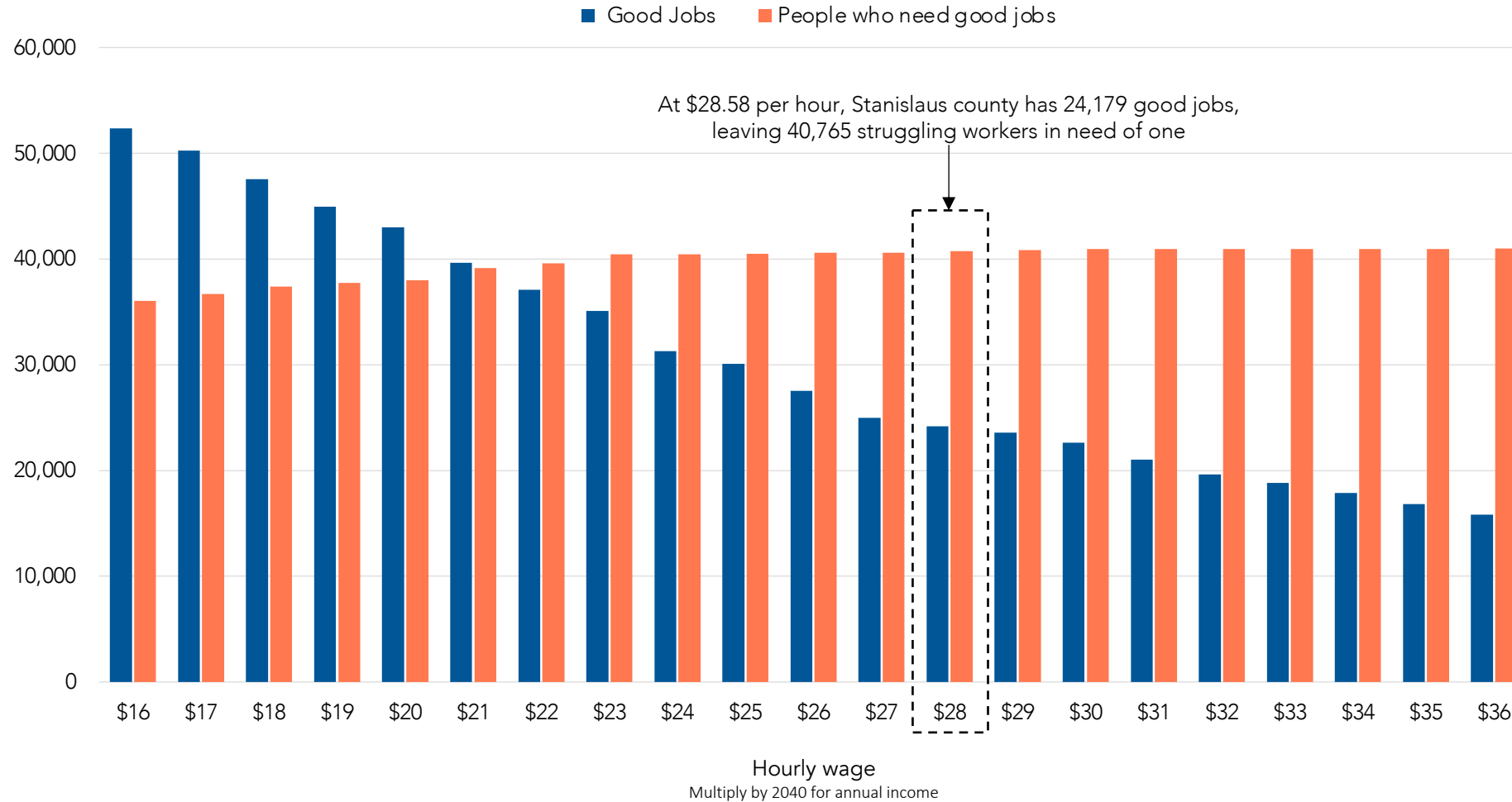
EARNINGS MUST RISE TO MAKE MORE FAMILIES SELF-SUFFICIENT

Share of people in struggling families that would be self-sufficient at different wage thresholds
2015 – 2019, pooled



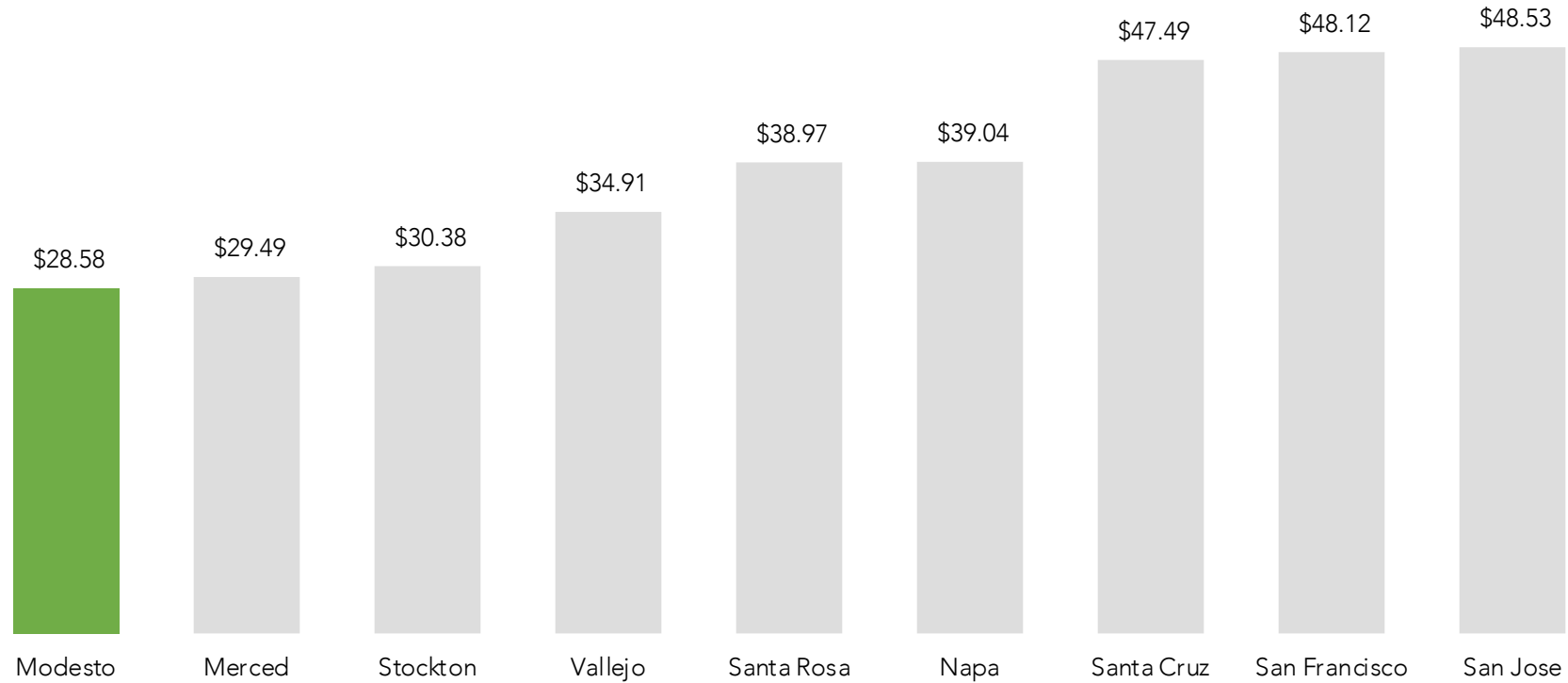
THE COUNTY NEEDS MORE GOOD JOBS FOR STRUGGLING WORKERS

Stanislaus County's number of good jobs and struggling workers at different wage thresholds
 Circa 2020



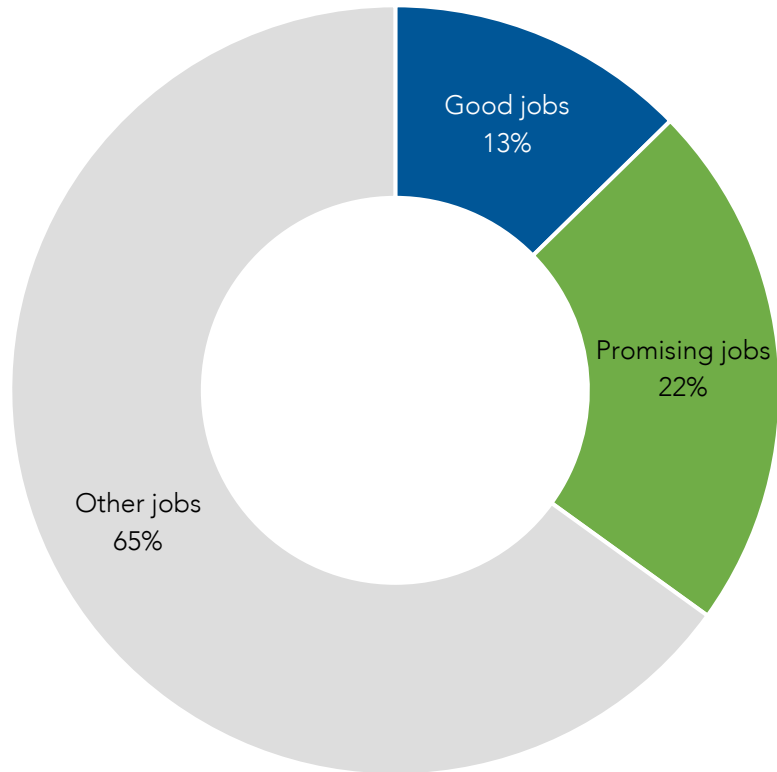
NORTHERN CALIFORNIA IS AN EXPENSIVE PLACE TO RAISE A FAMILY

Sufficiency wage in Northern California metropolitan areas
Wage needed to make families of half of struggling children self-sufficient, 2015 – 2019

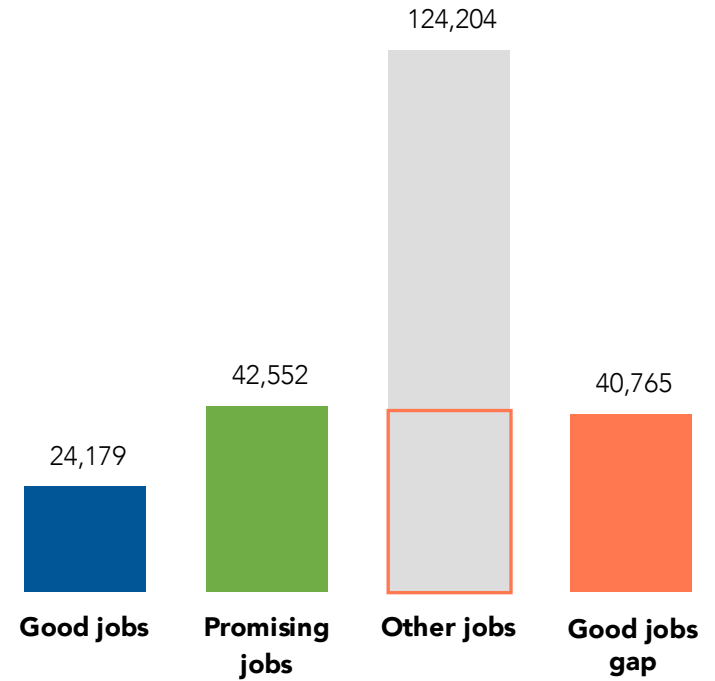


ONE-THIRD OF THE COUNTY'S JOBS PROVIDE PATHWAYS TO PROSPERITY

Share of Stanislaus County's jobs by quality
2020



Stanislaus County's job quality numbers
2020



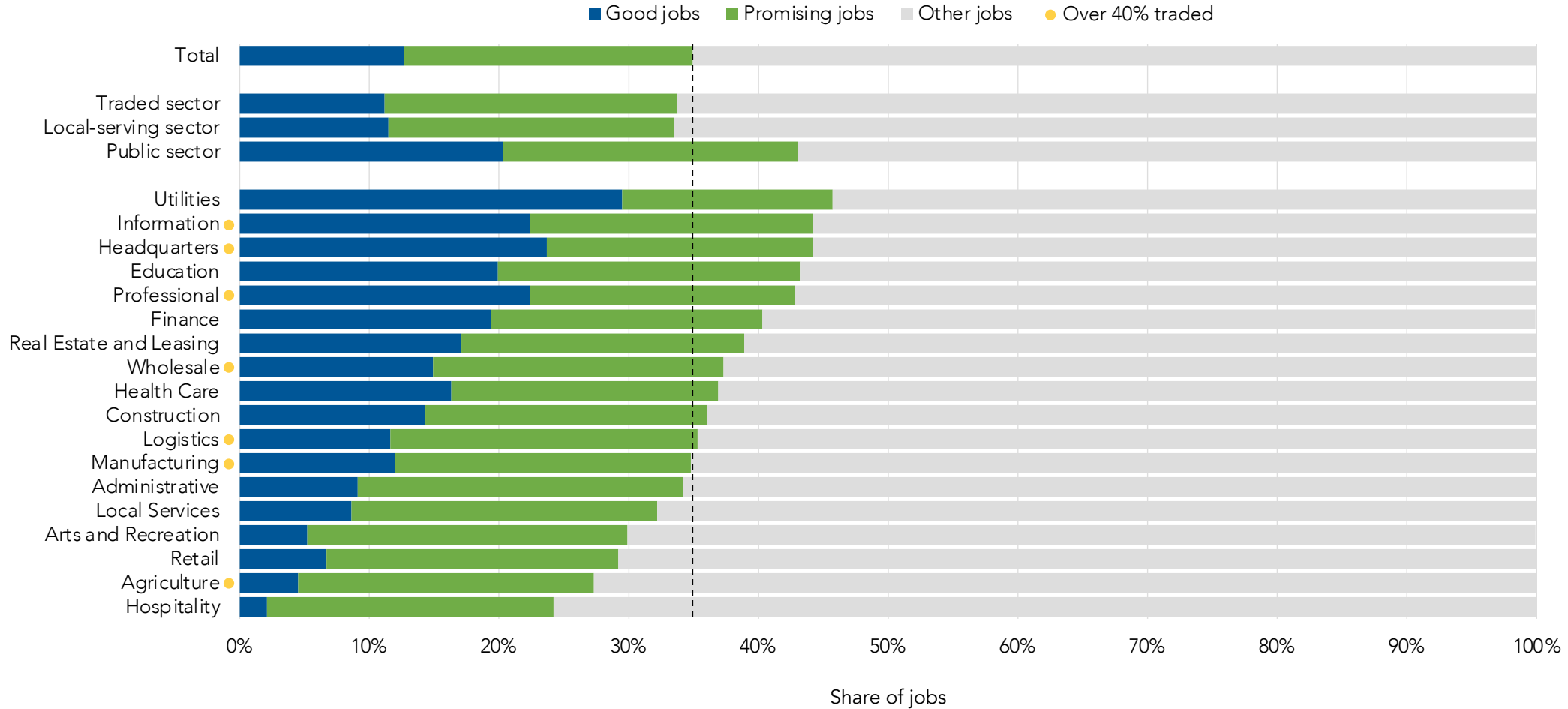
\$28.58/hr, full-time:	✓	✗	✗
Health insurance:	✓	✗	✗
Career pathways:	✓	✓	✗

Note: The jobs gap counts only civilian adults who were actively employed in wage or salary jobs in 2019 at the time of the survey.

Source: Brookings and Cities GPS analysis of Emsi estimates, Moody's analytics employment projections, Current Population Statistics microdata, and American Community Survey public-use microdata.

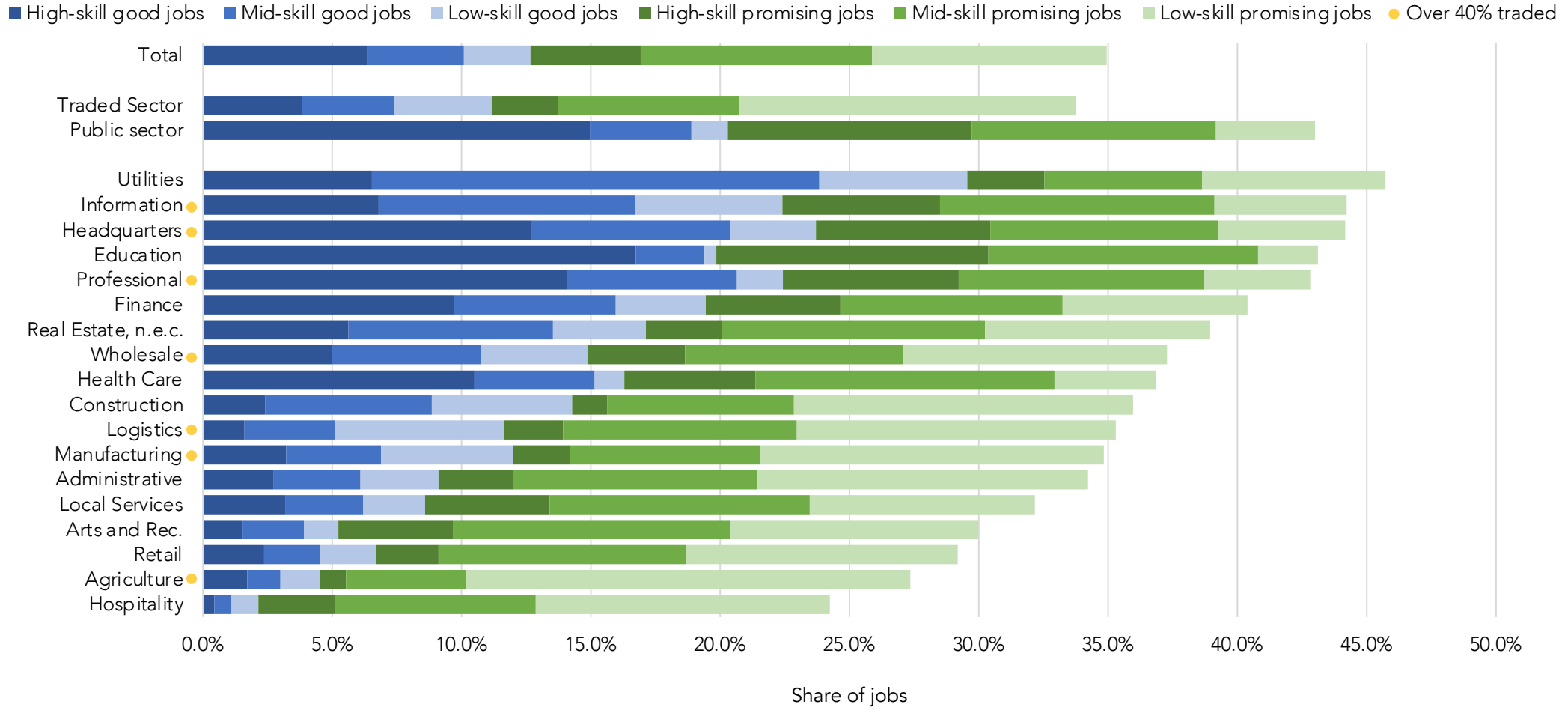
JOB QUALITY VARIES BY SECTOR AND INDUSTRY

Share of jobs according to job quality type, by sector
2020



JOB QUALITY VARIES BY SECTOR AND INDUSTRY

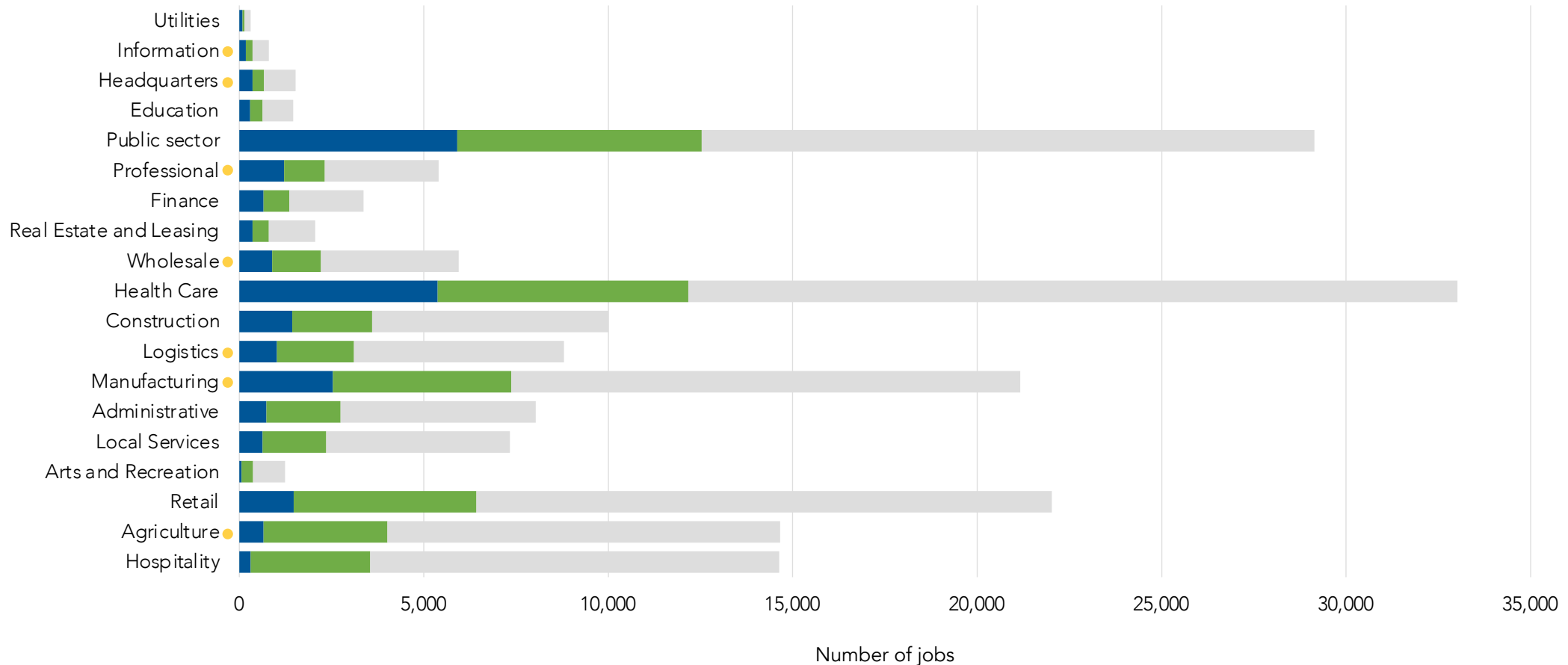
Share of jobs according to job quality type, by sector
2020



SECTORS THAT CONCENTRATE OPPORTUNITY TEND TO CONTAIN FEW JOBS

Share of jobs according to job quality type, by sector
2020

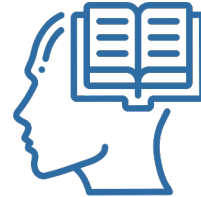
■ Good jobs ■ Promising jobs ■ Other jobs ● Over 40% traded



DRIVERS OF COMPETITIVENESS



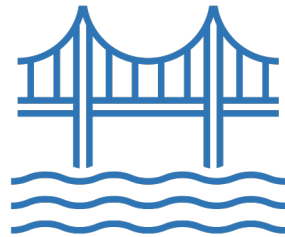
Clusters



Talent



Innovation



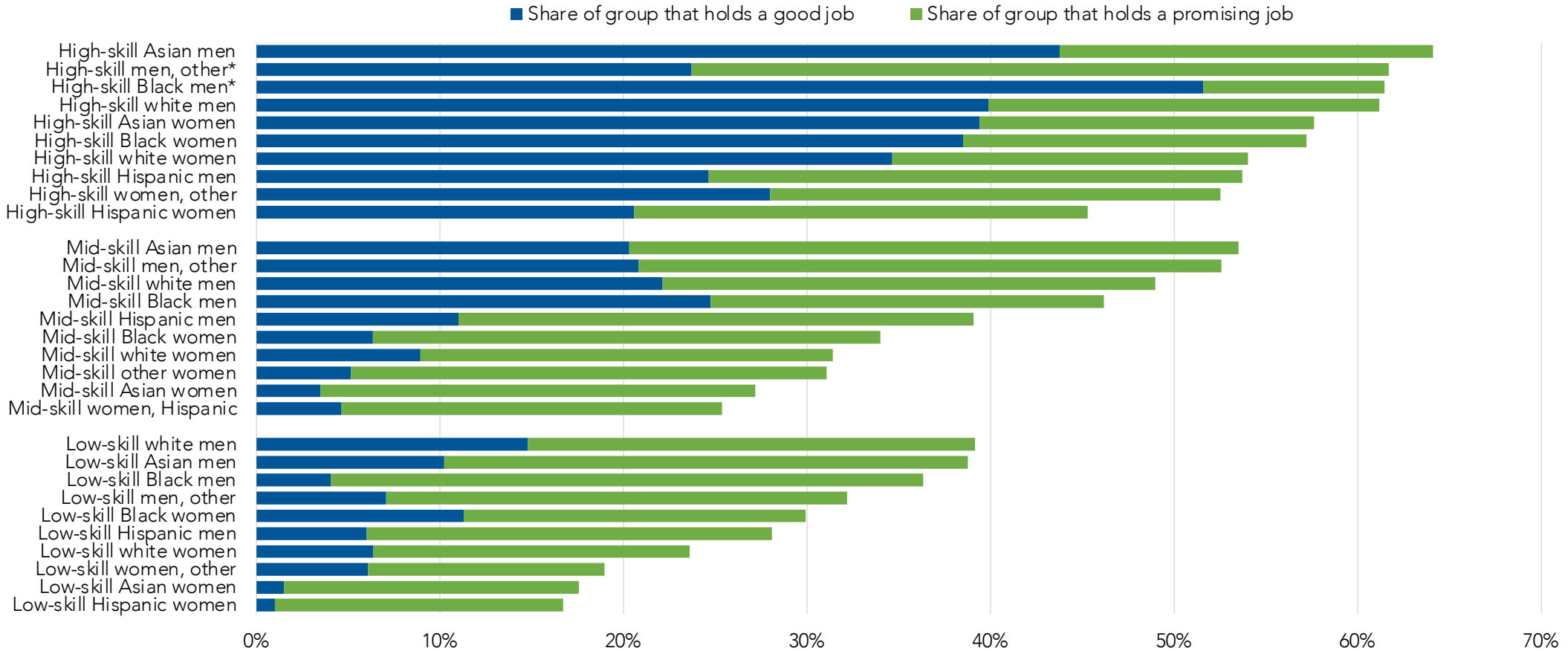
Infrastructure



Governance

EDUCATION ALONE DOES NOT EQUALIZE ACCESS TO OPPORTUNITY JOBS

Disparities in access to opportunity jobs by sex, race, and skill-level



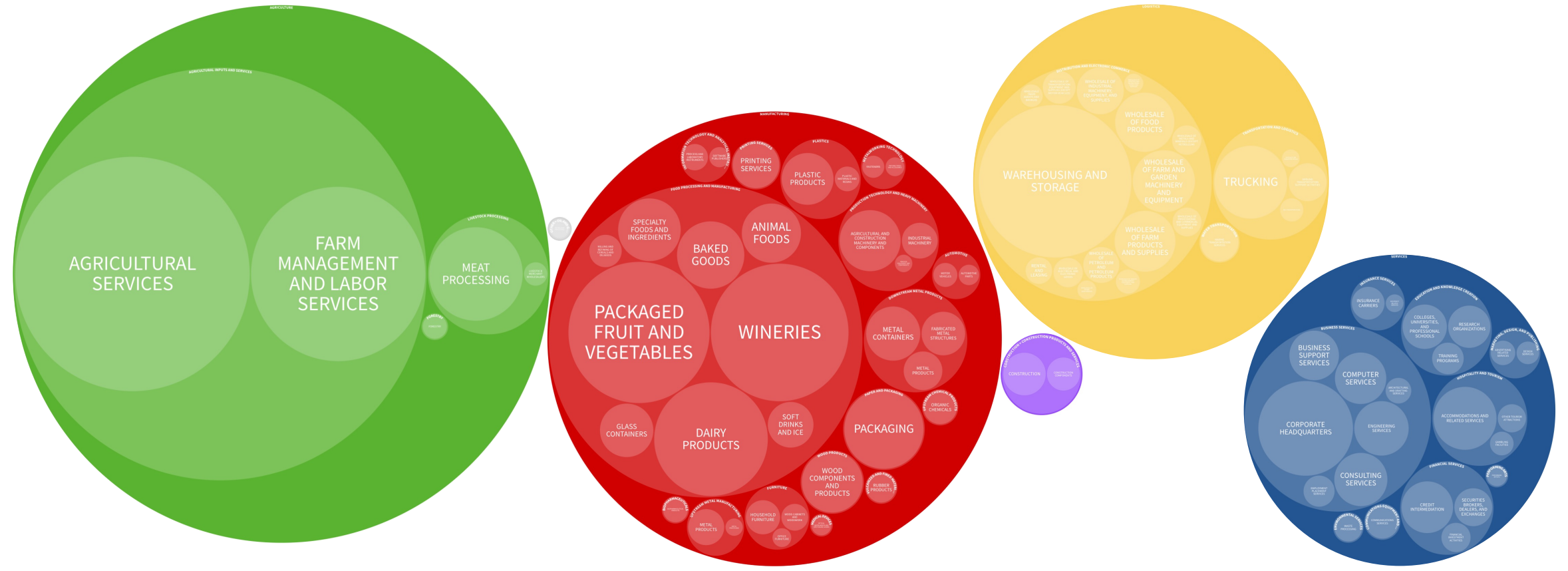
* Small sample size; interpret with caution

Source: Brookings and Cities GPS analysis.

STANISLAUS COUNTY CAN BUILD ON ITS TRADED SECTOR ASSETS

Jobs in traded clusters and sub-clusters in Stanislaus County
2020

● Agriculture
 ● Construction
 ● Logistics
 ● Manufacturing
 ● Services
 🌀 Number of jobs



Shows sub-clusters that contained at least 50 jobs in 2020.
Source: Brookings and Cities GPS analysis of Emsi estimates.

CLUSTER PRIORITIZATION APPLIES SEVERAL FACTORS

Traded Sector concentration and recent performance by industry definitions

Global market demand and value chain position / competitive niche

Economic multiplier effects

Policy environment

Talent adjacencies

Innovation capacities and connections

Job quality and opportunity



Clusters

WHY CLUSTERS MATTER

Regional economies grow and decline based on their ability to specialize in high-value industries and then evolve those specializations over time.

Cluster-based economic development reflects the competitive advantages that accrue for firms with common needs when they concentrate together in place, and thus benefit from the efficiencies or effectiveness of scale enabling specialized supports that cater to those needs.

Clustering helps firms be more productive through: 1) sharing tailored facilities, infrastructure, suppliers, and inputs; 2) matching workers productively with deep labor markets; and 3) learning through dense environments that facilitate knowledge exchange and innovation among interdependent firms.

Clusters

Key findings:

1. To create more good jobs and career pathways to them, Stanislaus County should prioritize traded clusters that concentrate good jobs and have economic momentum.
2. Applying four criteria for cluster prioritization leads to the identification of 55 traded sub-clusters that county leaders should further consider.
3. These potential priority sub-clusters are large, comprising 14% of the county's total jobs and 51% of its jobs in the traded sector.
4. Grouping these subclusters according to their shared talent, innovative assets, and supply chains reveals six key "super clusters" the county can build on.

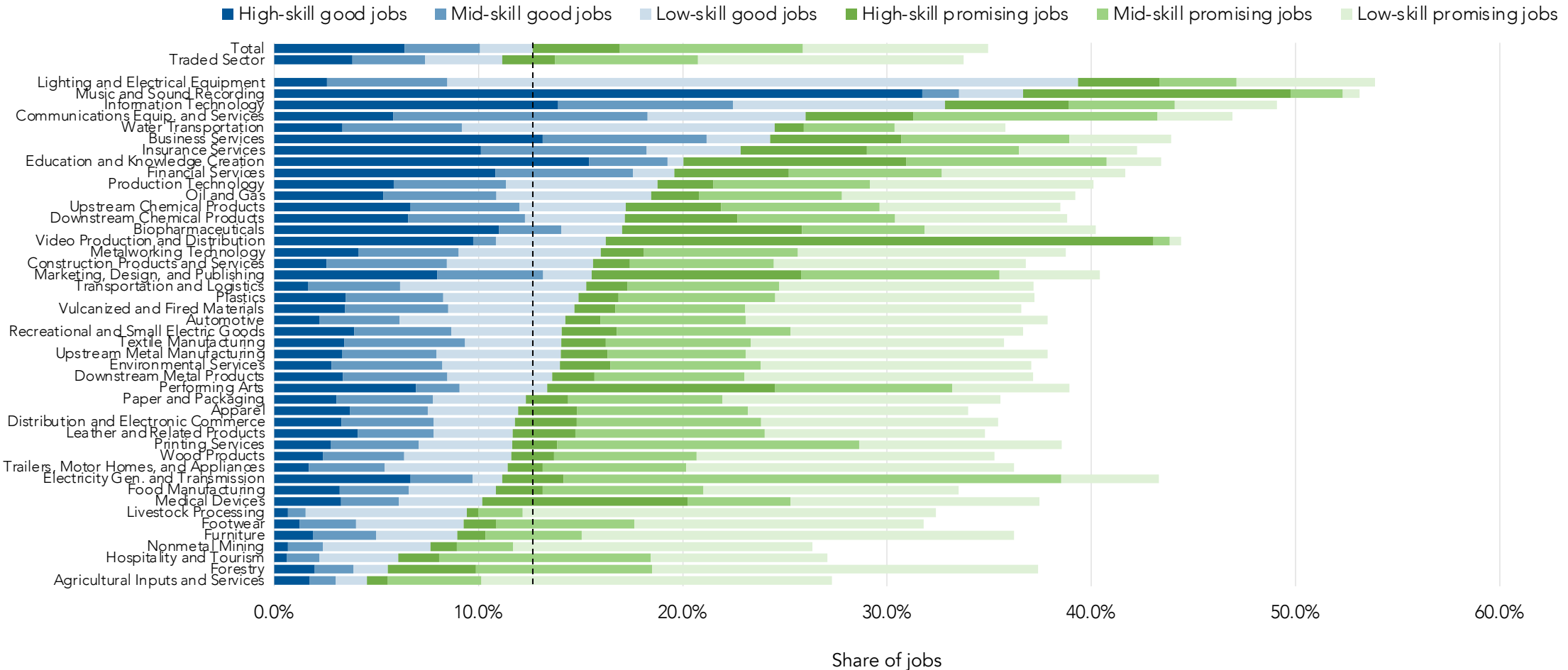
Target Clusters

Criteria for identifying traded sub-cluster targets:

1. Concentrates good jobs overall OR for mid- and low-skilled workers. Screens out sub-clusters that would not expand economic opportunity and mobility.
2. Locally specialized in 2020 OR locally competitive from 2010 to 2020. Screens out sub-clusters with few local assets and poor growth records.
3. Added jobs nationally OR added jobs locally from 2010 to 2020. Screens out sub-clusters with poor growth prospects.
4. Contains over 50 jobs OR belongs to a cluster that meets conditions 2 and 3. Screens out tiny sub-clusters that are not part of a larger local supply chain.

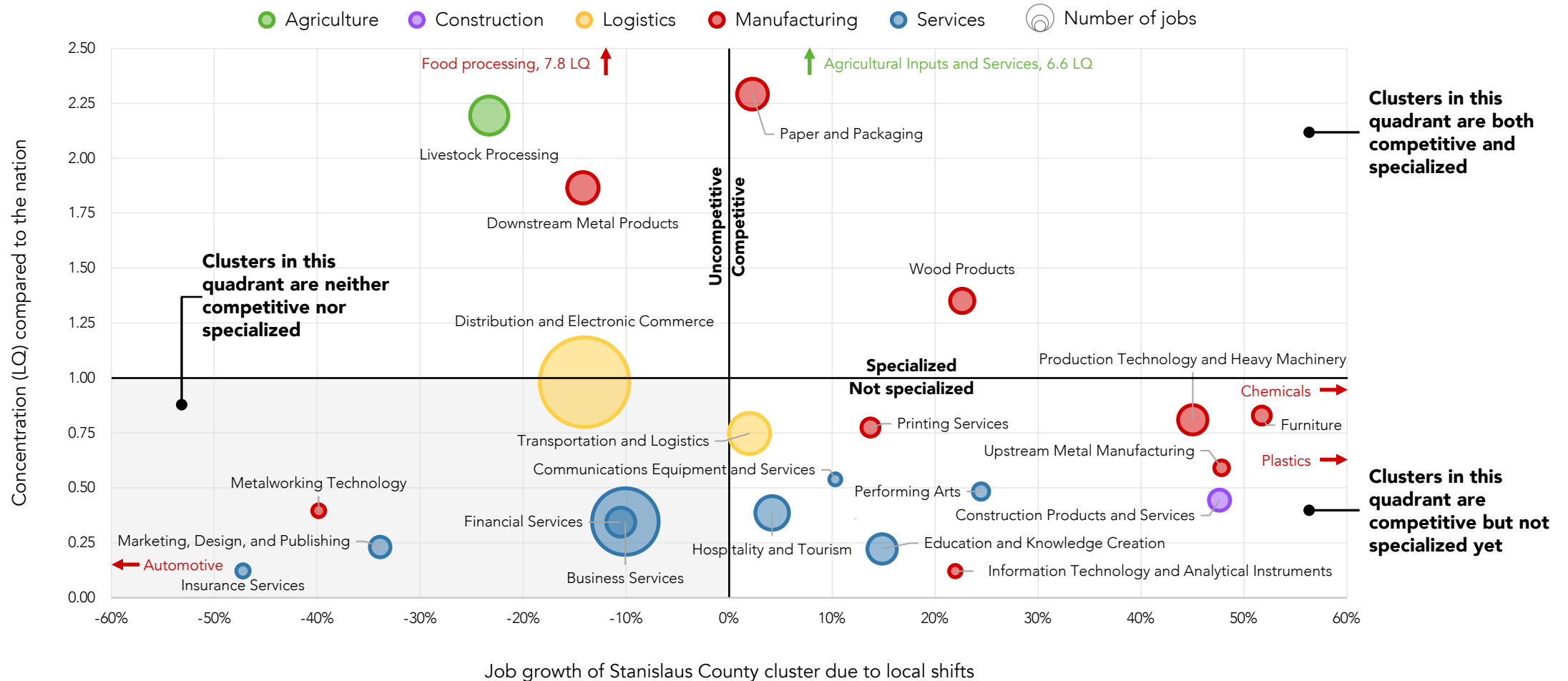
CRITERION 1: MOST TRADED CLUSTERS CONCENTRATE GOOD JOBS

Share of jobs according to job quality type, by traded cluster
2020



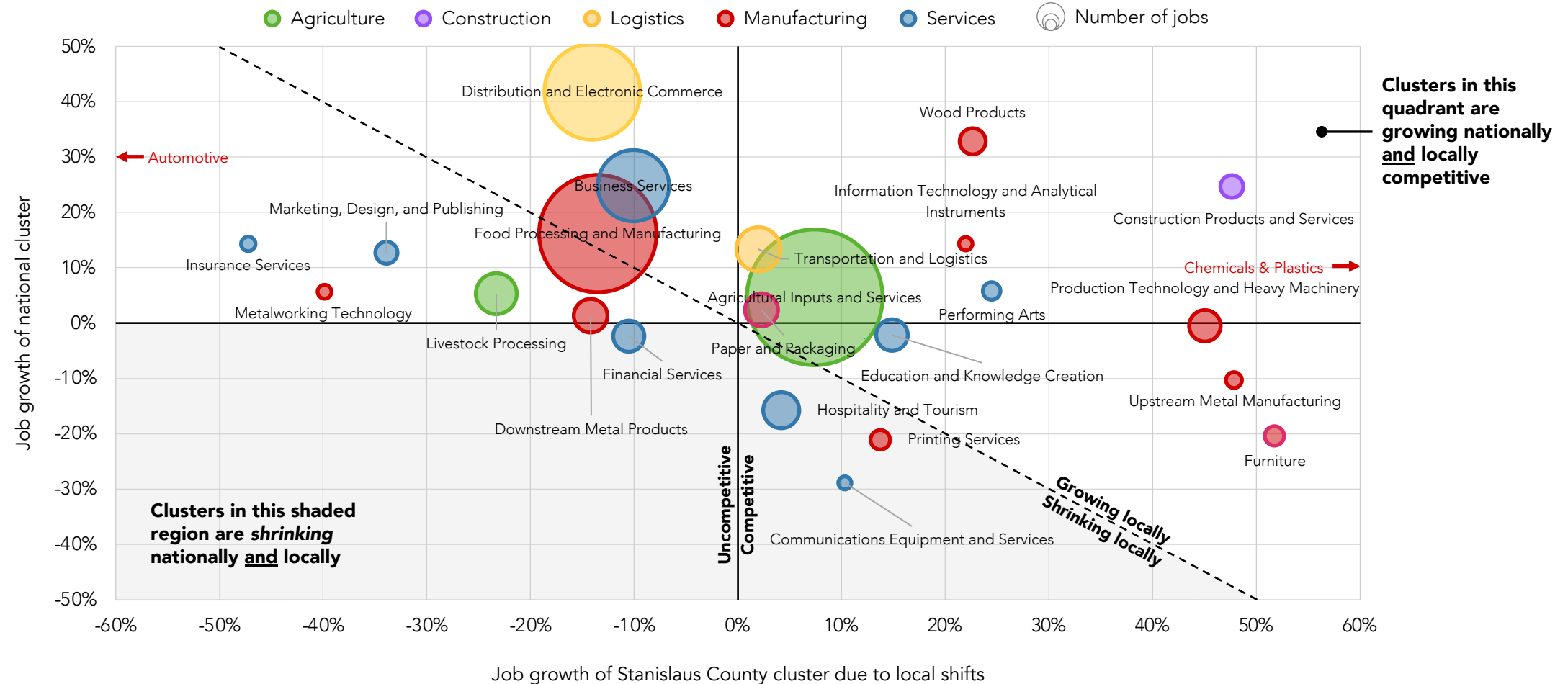
CRITERION 2: FEW TRADED CLUSTERS ARE SPECIALIZED AND COMPETITIVE

Competitive position of tradable clusters in Stanislaus County
2010 to 2020



CRITERION 3: MOST TRADED CLUSTERS ARE GROWING, BUT SLOWLY

Growth factors of traded clusters in Stanislaus County
2010 to 2020

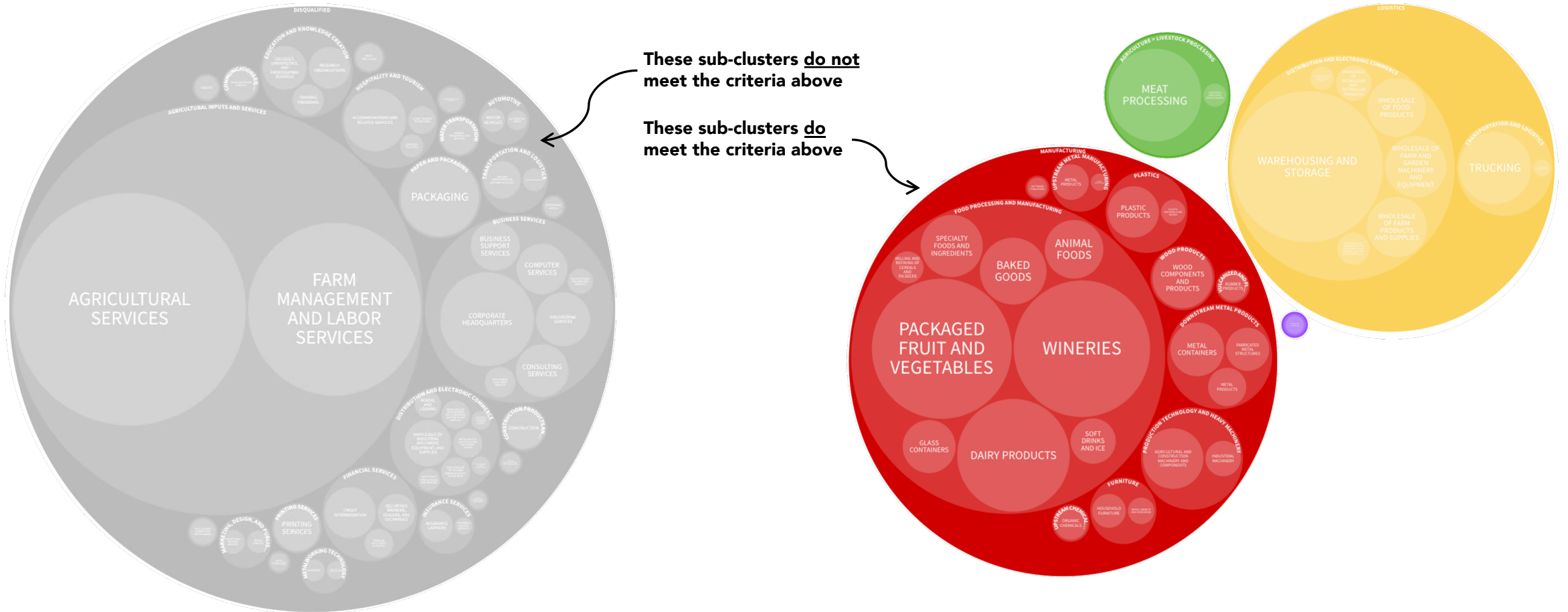


Source: Brookings and Cities GPS analysis of Emsi estimates.

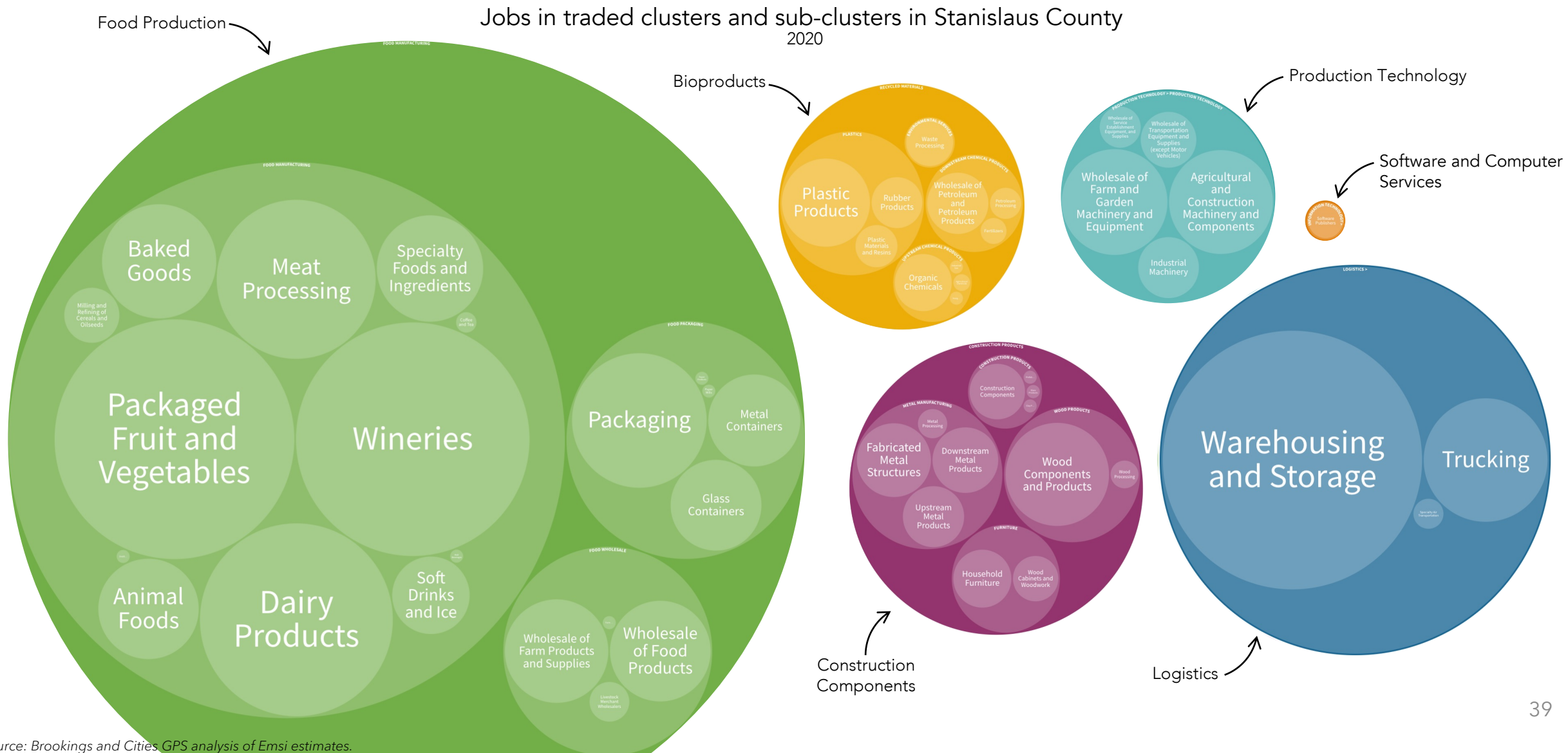
THESE CRITERIA IDENTIFY 55 POTENTIAL TRADED SUB-CLUSTER TARGETS

Jobs in traded clusters and sub-clusters in Stanislaus County
2020

● Agriculture
 ● Construction
 ● Logistics
 ● Manufacturing
 ● Services
  Number of jobs



THESE SUB-CLUSTER TARGETS CAN BE REGROUPED INTO SUPPLY CHAINS



FOOD PRODUCTION IS THE LARGEST SUPPLY CHAIN

Cluster	Criterion 1	Good Jobs			Criterion 2	LQ	Local Shift	Criterion 3	Nat'l Growth	Local Growth	Criterion 4	Jobs
		Overall	Mid-Skill	Low-Skill								
Food Production												
Food Manufacturing												
Milling and Refining of Cereals and Oilseeds	✓	12.0%	3.1%	5.3%	✓	4.02	156%	✓	14%	170%	✓	179
Meat Processing	✓	9.4%	0.7%	8.2%	✓	2.17	-25%	✓	6%	-19%	✓	1,494
Packaged Fruit and Vegetables	✓	10.0%	3.2%	3.8%	✓	23.03	-22%	✗	-3%	-24%	✓	3,397
Dairy Products	✓	12.5%	3.7%	4.9%	✓	11.14	8%	✓	16%	24%	✓	2,199
Specialty Foods and Ingredients	✓	9.9%	3.2%	3.8%	✓	2.37	355%	✓	62%	417%	✓	669
Baked Goods	✓	9.5%	2.9%	3.5%	✓	3.83	-26%	✓	17%	-9%	✓	771
Animal Foods	✓	12.9%	3.7%	5.2%	✓	7.08	-9%	✓	11%	2%	✓	596
Beverage Manufacturing												
Coffee and Tea	✓	9.7%	3.0%	3.5%	✓	0.79	987%	✓	NA	1273%	✓	24
Soft Drinks and Ice	✓	10.5%	3.3%	4.1%	✓	2.68	230%	✓	17%	246%	✓	355
Malt Beverages	✓	10.5%	3.3%	4.1%	✗	0.06	0%	✗	0%	0%	✓	6
Distilleries	✓	NA	NA	NA	✗	-	0%	✗	0%	0%	✓	-
Wineries	✓	10.5%	3.3%	4.1%	✓	38.79	-38%	✓	53%	15%	✓	3,226
Food Packaging												
Glass Containers	✓	13.6%	4.5%	6.6%	✓	30.13	-22%	✗	-17%	-39%	✓	487
Paper Mills	?	NA	NA	NA	✗	-	0%	✗	0%	0%	✓	-
Packaging	✓	12.3%	4.7%	4.5%	✓	4.09	2%	✓	2%	5%	✓	1,071
Paper Products	✓	NA	NA	NA	✗	-	0%	✗	0%	0%	✓	-
Metal Containers	✓	13.4%	5.2%	5.0%	✓	11.75	-24%	✗	-8%	-33%	✓	500
Food Wholesale												
Livestock Merchant Wholesalers	✓	9.2%	3.1%	3.1%	✓	4.27	24%	✓	-17%	7%	✓	93
Farm Wholesalers	✓	NA	NA	NA	✗	-	0%	✗	0%	0%	✓	-
Wholesale of Farm Products and Supplies	✓	11.4%	4.0%	3.4%	✓	2.37	12%	✓	10%	22%	✓	633
Wholesale of Food Products	✓	13.3%	4.6%	4.4%	✓	1.77	-6%	✓	20%	14%	✓	599

SMALLER MANUFACTURING CLUSTERS ALSO LOOK PROMISING

Cluster	Criterion 1	Good Jobs			Criterion 2	LQ	Local Shift	Criterion 3	Nat'l Growth	Local Growth	Criterion 4	Jobs
		Overall	Mid-Skill	Low-Skill								
Construction Components												
Metal Manufacturing												
Metal Processing	✓	11.0%	4.7%	5.4%	✓	0.28	6004%	✓	NA	5120%	✓	51
Upstream Metal Products	✓	14.8%	4.6%	6.3%	✓	2.12	43%	✓	-4%	39%	✓	221
Downstream Metal Products	✓	14.3%	4.9%	5.7%	✗	0.82	16%	✗	15%	31%	✓	255
Fabricated Metal Structures	✓	13.4%	5.2%	5.0%	✓	2.04	0%	✓	16%	15%	✓	323
Wood Products												
Wood Processing	✓	6.6%	1.8%	4.5%	✓	0.35	-8%	✓	29%	21%	✓	46
Wood Components and Products	✓	12.0%	4.1%	5.3%	✓	1.95	28%	✓	35%	63%	✓	631
Construction Products												
Clay Products and Refractories	✓	NA	NA	NA	✗	-	0%	✗	0%	0%	✓	-
Glass Products	✓	13.6%	4.5%	6.6%	✗	0.12	0%	✗	0%	0%	✓	10
Construction Components	✓	13.6%	4.5%	6.6%	✓	1.21	872%	✓	-25%	847%	✓	182
Prefabricated Wood Building	✓	10.2%	3.4%	4.6%	✗	0.03	-86%	✓	13%	-74%	✓	1
Furniture												
Household Furniture	✓	9.0%	3.1%	4.0%	✓	1.37	50%	✓	-41%	8%	✓	198
Wood Cabinets and Woodwork	✓	9.0%	3.1%	4.0%	✓	0.61	129%	✗	17%	146%	✓	122
Production Technology												
Manufacture of Production Technology												
Industrial Machinery	✓	19.0%	5.6%	7.4%	✗	1.10	-5%	✓	7%	2%	✓	218
Agricultural and Construction Machinery and Components	✓	19.0%	5.6%	7.4%	✓	1.85	165%	✓	-9%	155%	✓	635
Wholesale of Production Technology												
Wholesale of Farm and Garden Machinery and Equipment	✓	17.7%	9.4%	3.6%	✓	4.92	99%	✓	7%	106%	✓	659
Wholesale of Service Equipment, and Supplies	✓	19.0%	8.0%	4.8%	✓	1.43	119%	✓	-8%	111%	✓	99
Wholesale of Transportation Equipment and Supplies	✓	19.0%	8.0%	4.8%	✓	4.27	242%	✓	-14%	228%	✓	183
Software Publishers	✓	33.2%	11.0%	3.1%	✓	0.11	232%	✓	166%	397%	✓	69

REUSE OF BIO BYPRODUCTS IS AN INTERESTING EMERGING CLUSTER

Cluster	Criterion 1	Good Jobs			Criterion 2	LQ	Local Shift	Criterion 3	Nat'l Growth	Local Growth	Criterion 4	Jobs
		Overall	Mid-Skill	Low-Skill								
Bioproducts												
Environmental Services	✓	14.5%	5.7%	5.8%	✓	1.27	0%	✓	12%	11%	✓	131
Upstream Chemical Products												
Organic Chemicals	✓	17.2%	5.3%	5.2%	✓	1.65	NA	✓	NA	NA	✓	192
Inorganic Chemicals	✓	17.2%	5.3%	5.2%	✗	0.07	NA	✗	0%	NA	✓	4
Industrial Gas	✓	17.2%	5.3%	5.2%	✗	0.03	NA	✗	0%	NA	✓	1
Agricultural Chemicals	✓	17.2%	5.3%	5.2%	✓	0.67	158%	✓	-21%	137%	✓	17
Downstream Chemical Products												
Fertilizers	✓	17.2%	5.3%	5.2%	✓	1.71	137%	✓	22%	159%	✓	39
Petroleum Processing	✓	18.4%	5.7%	7.5%	✓	0.62	357%	✓	-27%	329%	✓	57
Wholesale of Petroleum and Petroleum Products	✓	11.9%	4.2%	3.5%	✓	1.72	-33%	✓	6%	-27%	✓	221
Plastics												
Rubber Products	✓	14.8%	5.1%	6.2%	✓	0.94	118%	✓	3%	120%	✓	152
Plastic Products	✓	14.9%	4.8%	6.6%	✓	0.74	123%	✓	9%	132%	✓	457
Plastic Materials and Resins	✓	14.9%	4.8%	6.6%	✓	0.51	NA	✓	NA	NA	✓	104
Logistics												
Warehousing and Storage	✓	8.1%	2.7%	4.0%	✓	2.09	-21%	✓	113%	92%	✓	3,963
Trucking	✓	14.8%	4.6%	8.5%	✓	1.07	-19%	✓	12%	-7%	✓	904
Specialty Air Transportation	✓	19.3%	7.0%	7.6%	✓	1.12	194%	✓	2%	196%	✓	53



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.

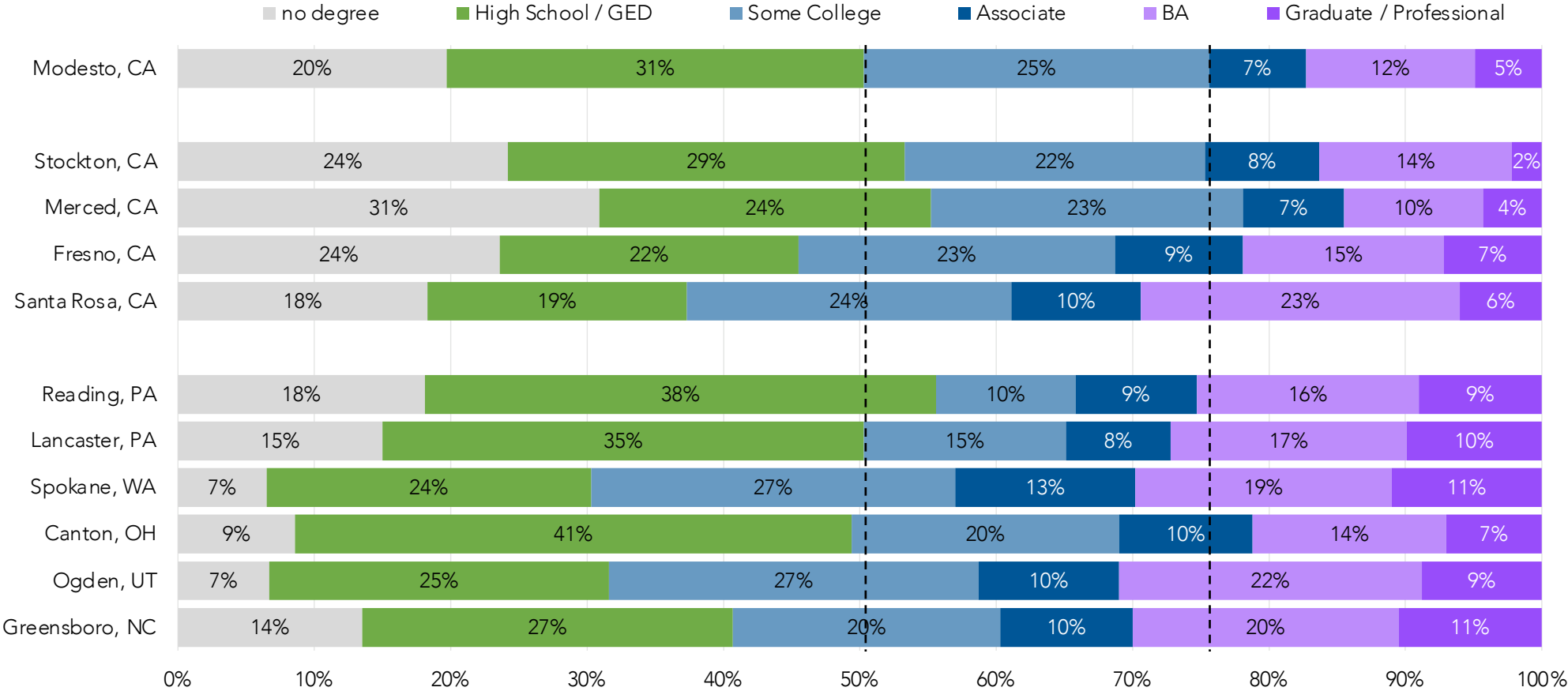
Talent

Key findings:

1. The county's jobs are disproportionately concentrated in occupations in which innate physical abilities are more important than learned knowledge or skills.
2. Struggling workers have fewer human capital specializations, on average, but specialize in knowledge and skills related to food production, sales, and service.
3. The county's struggling workers possess much of the human capital needed in target clusters, though some training would be needed in certain target clusters.
4. Adults who do not work appear to face certain barriers to employment that may also be relevant to struggling workers, including childcare and limited English proficiency.

FEWER DEGREED WORKERS CORRELATE TO LOWER RESULTS

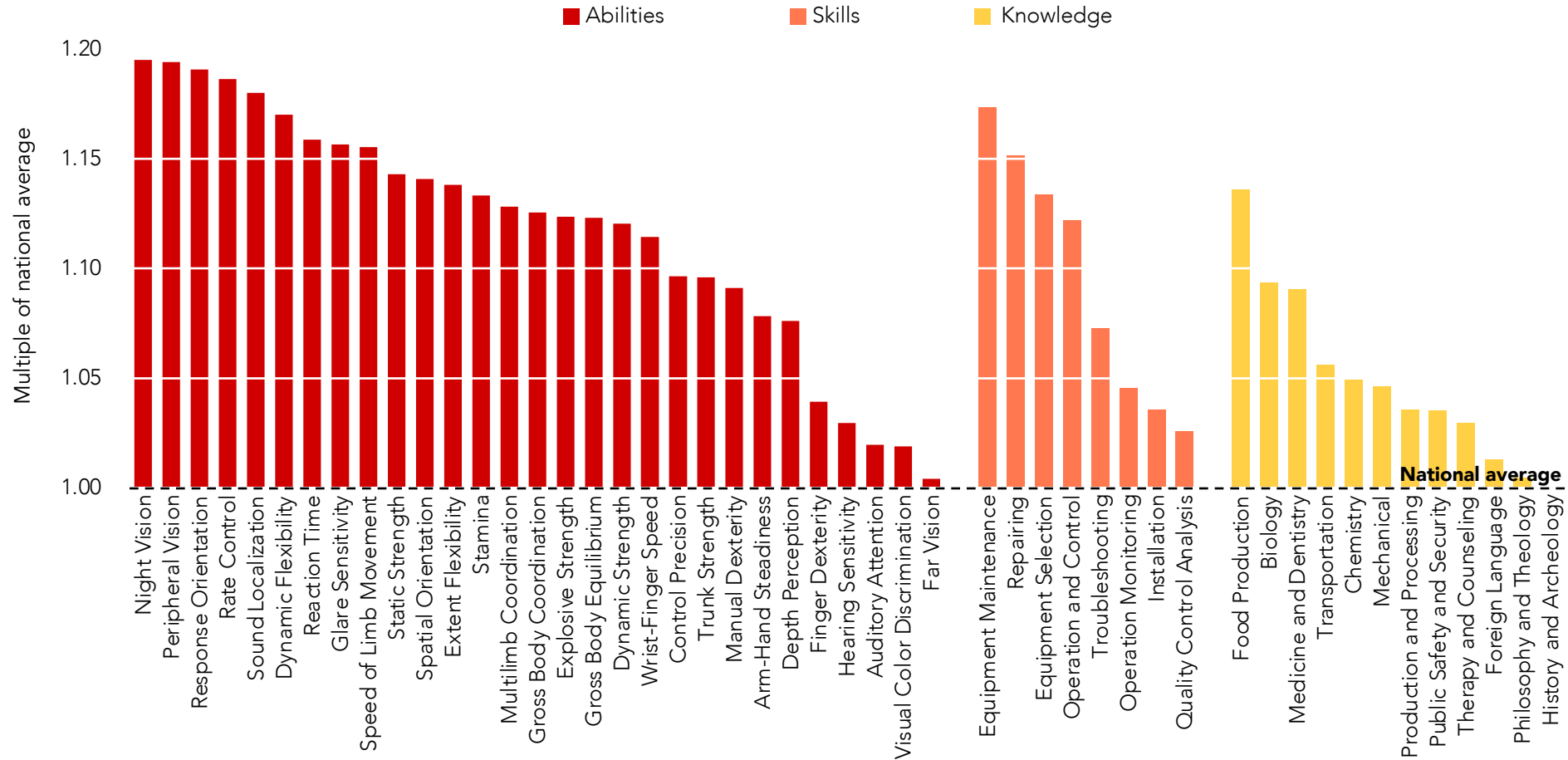
Educational attainment vs. California and national peer metro areas



Source: Brookings and Cities GPS analysis of American Community Survey data.

THE ECONOMY VALUES PHYSICAL ABILITY VERSUS KNOWLEDGE OR SKILLS

Relative importance of human capital elements among all Stanislaus County workers*
Compared to national average, circa 2020

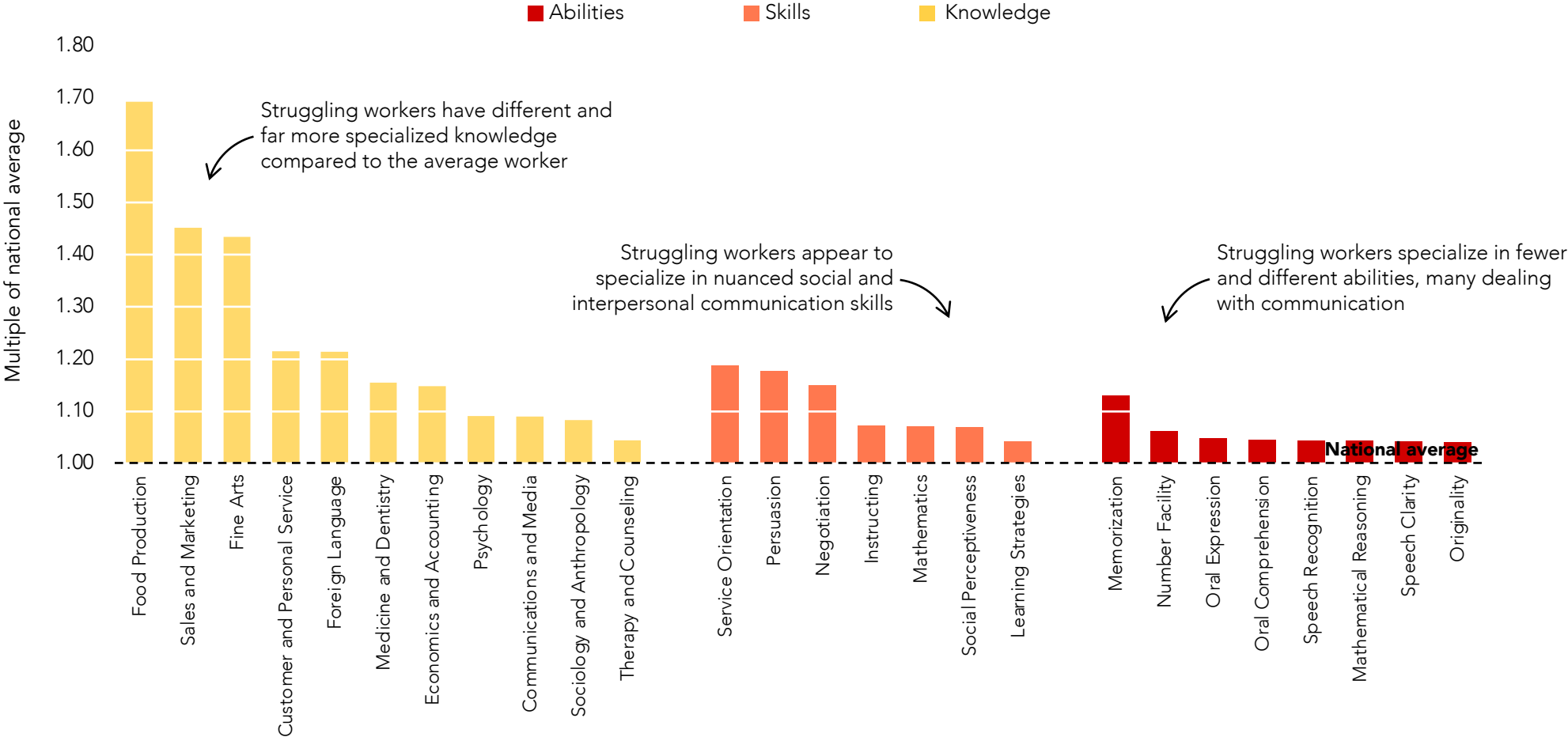


* Displays only those elements relatively more important in the county's economy compared to the national average.

Source: Brookings and Cities GPS analysis of O*Net data and Emsi estimates.

STRUGGLING WORKERS HAVE FEWER BUT STRONGER SPECIALIZATIONS

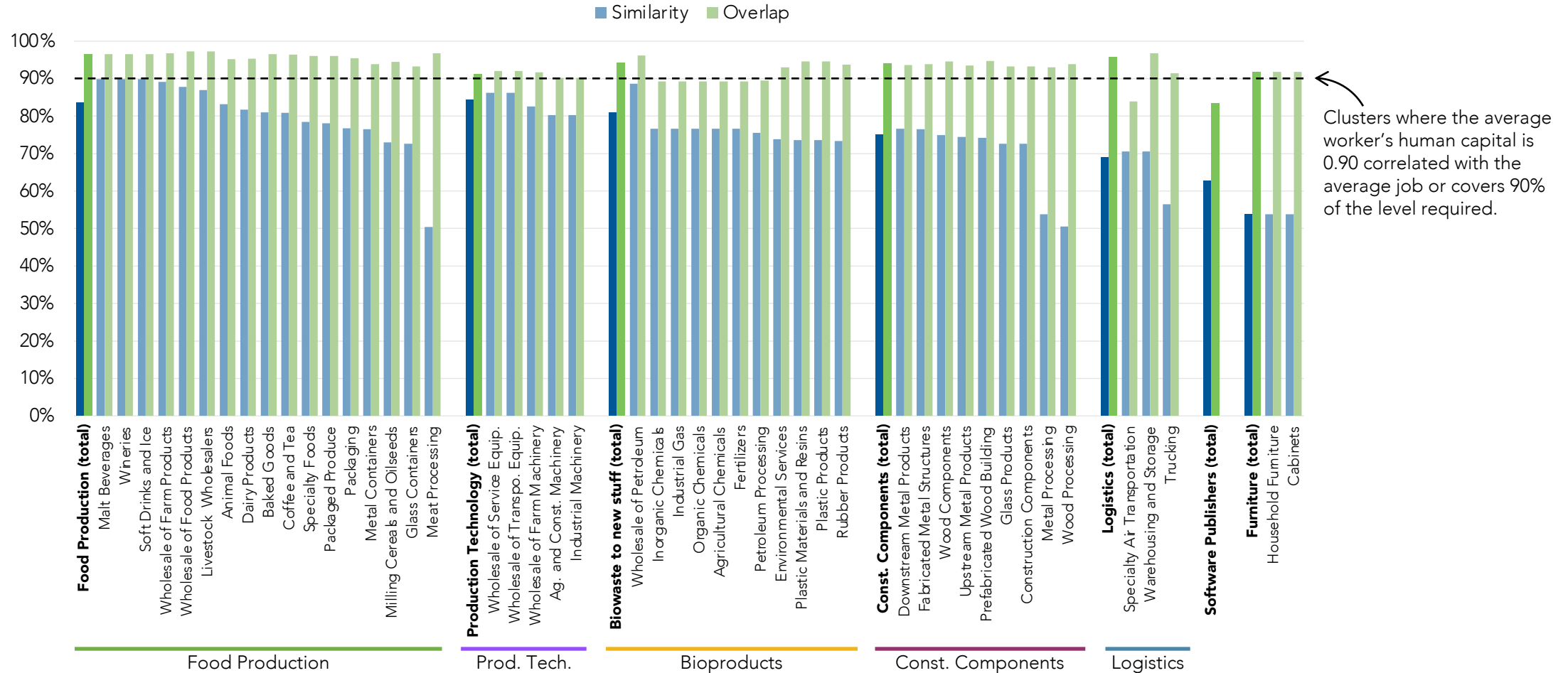
Relative importance of human capital elements among Stanislaus County's struggling workers*
 Compared to national average, circa 2020



* Displays only those elements relatively more important in the county's economy compared to the national average.
 Source: Brookings and Cities GPS analysis of O*Net data and Emsi estimates.

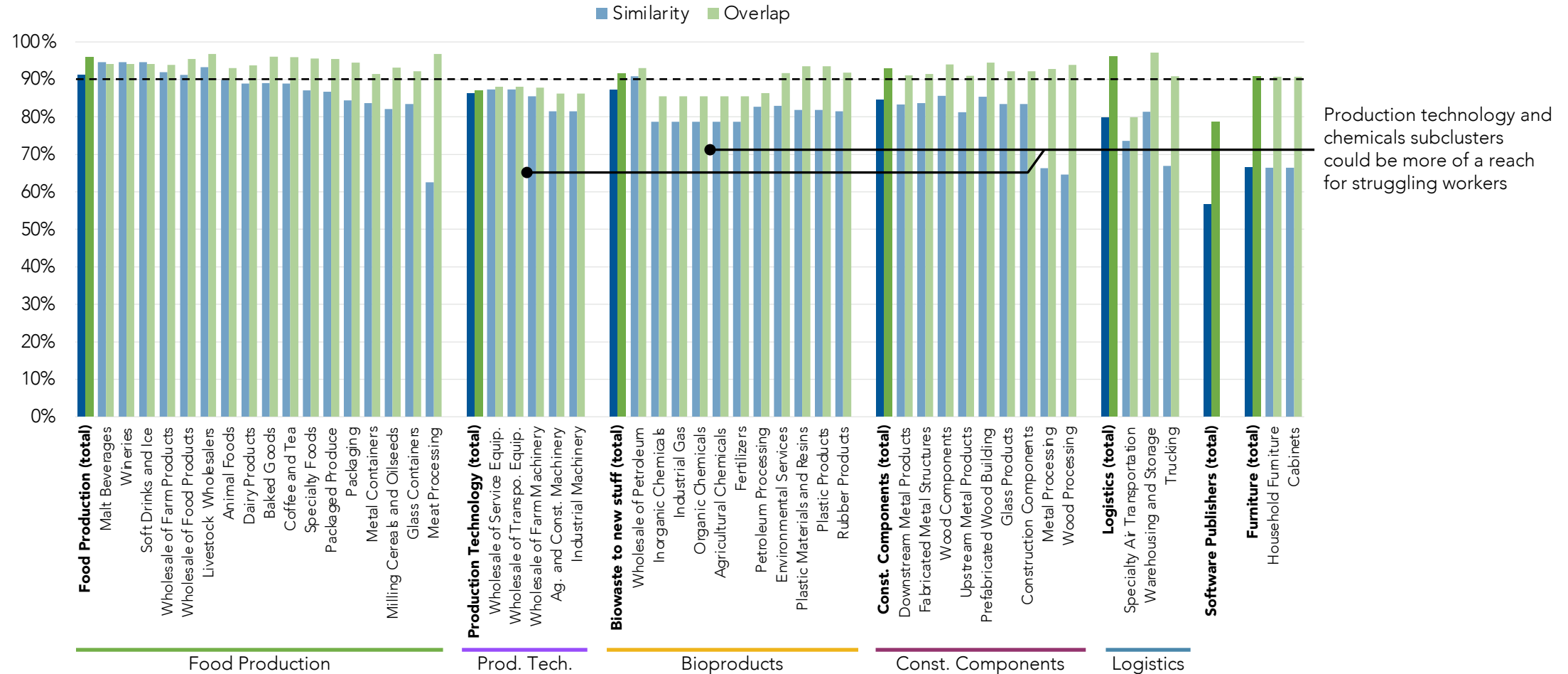
THE WORKFORCE HAS THE SKILLS DEMANDED IN MOST TARGET CLUSTERS

Similarity of Stanislaus County workers' human capital to that demanded in target clusters
2020



STRUGGLING WORKERS' SKILLS ARE BETTER SUITED TO TARGET CLUSTERS

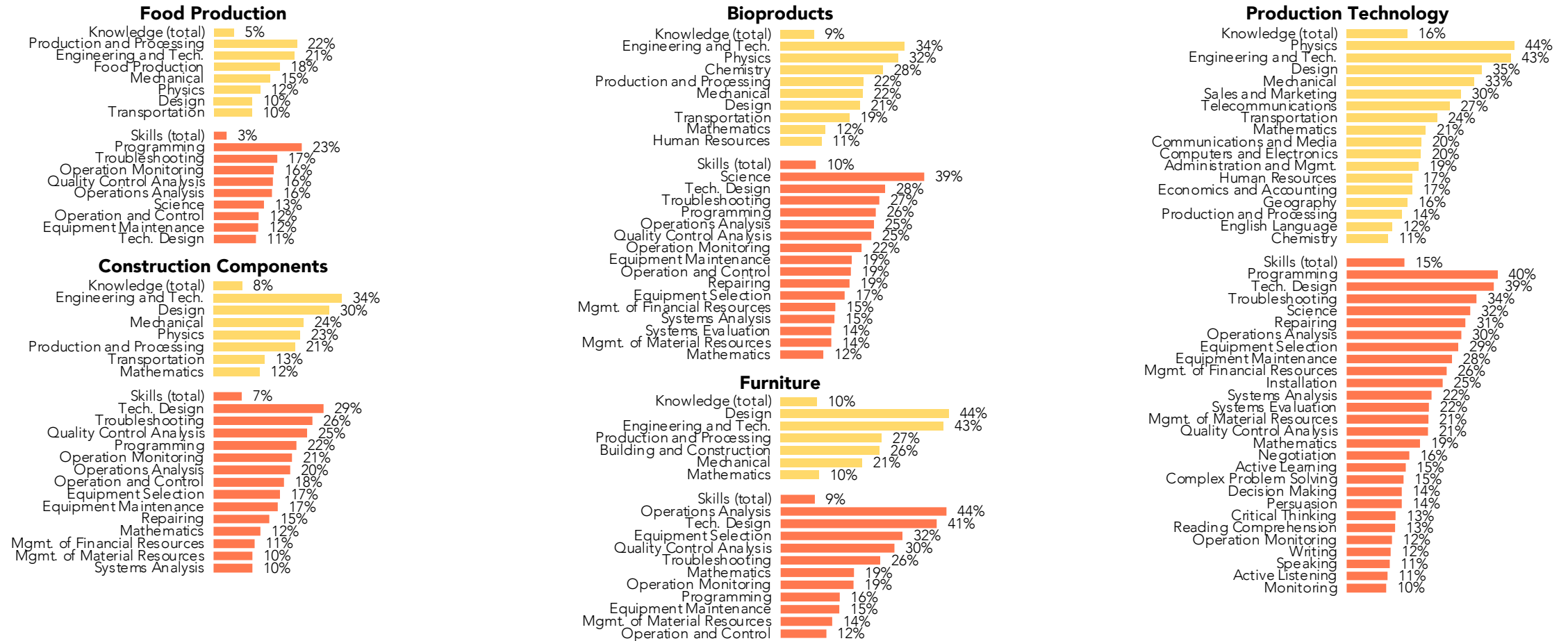
Similarity of *struggling workers'* human capital to that demanded in target clusters
Circa 2020



STRUGGLING WORKERS NEED TRAINING FOR TARGET CLUSTER JOBS

Key knowledge and skill gaps between struggling workers and target cluster jobs*
Circa 2020

■ Skill gaps ■ Knowledge gaps



* Gaps measure the extent to which the average struggling worker's knowledge or skill level would need to increase to meet job requirements. Gaps greater than 10 percentage points are shown.

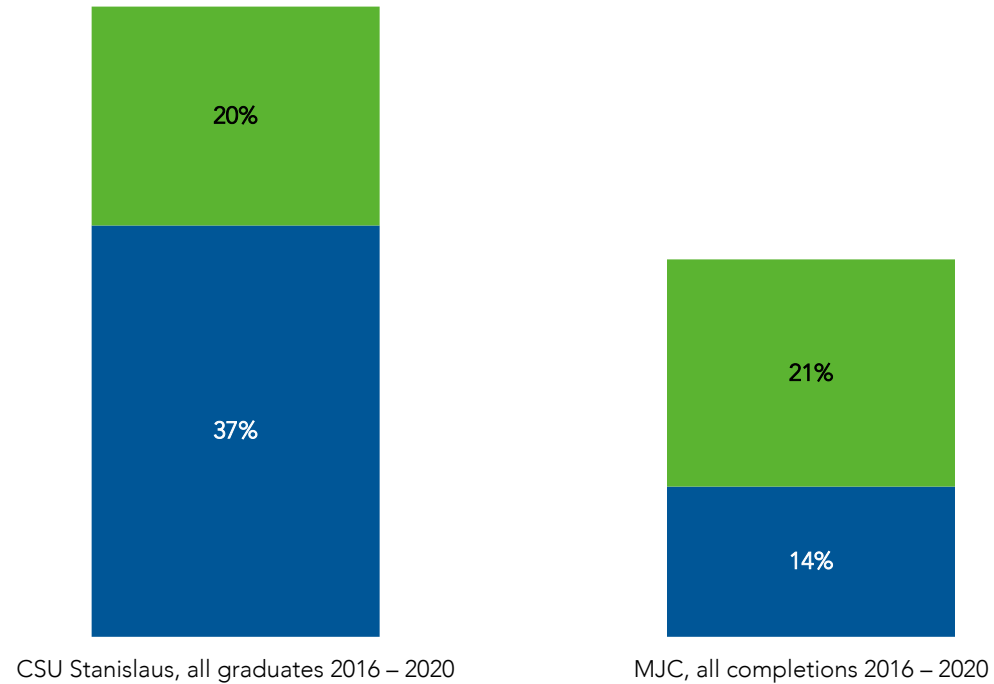
Note: Logistics is not shown because it has only minor knowledge and skill gaps with struggling workers.

Source: Brookings and Cities GPS analysis of O*Net data and Emsi estimates.

HIGHER ED SHOULD HELP PREPARE PEOPLE FOR GOOD JOBS

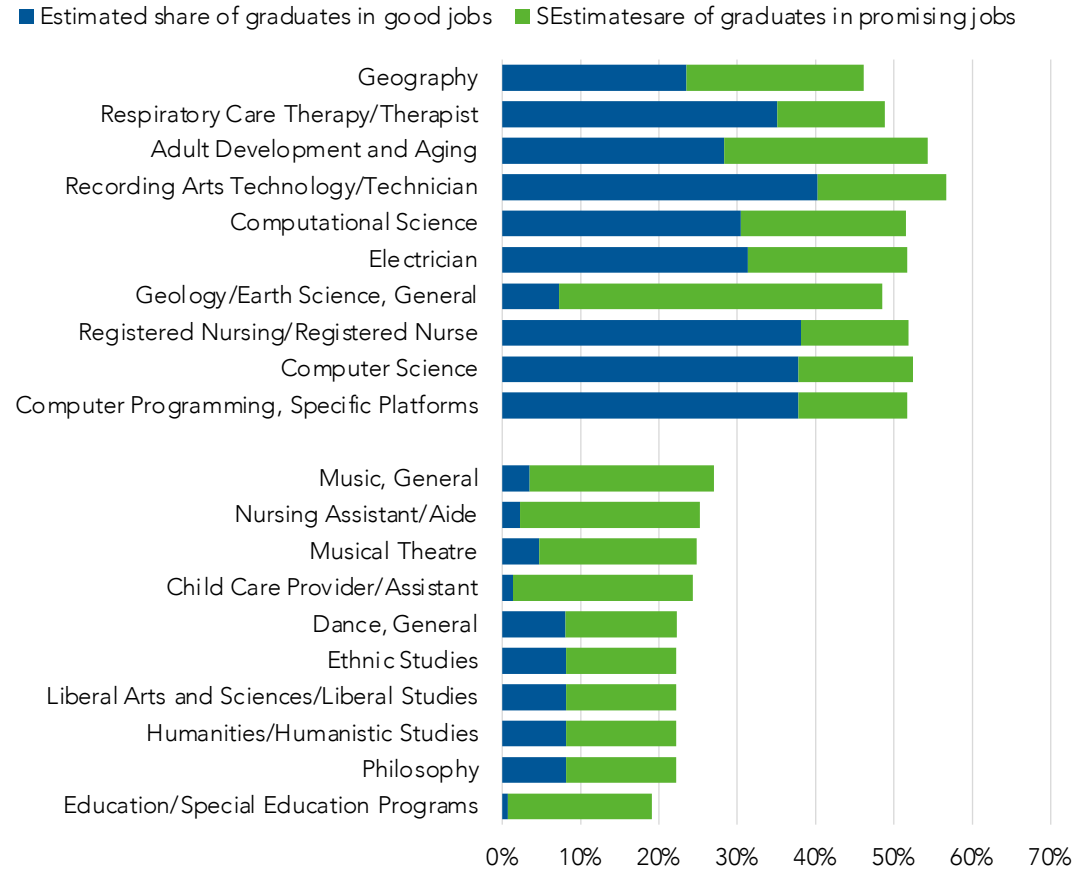
Estimated job quality of graduates based on available jobs in relevant occupations

■ Estimated share of graduates in good jobs ■ Estimated share of graduates in promising jobs

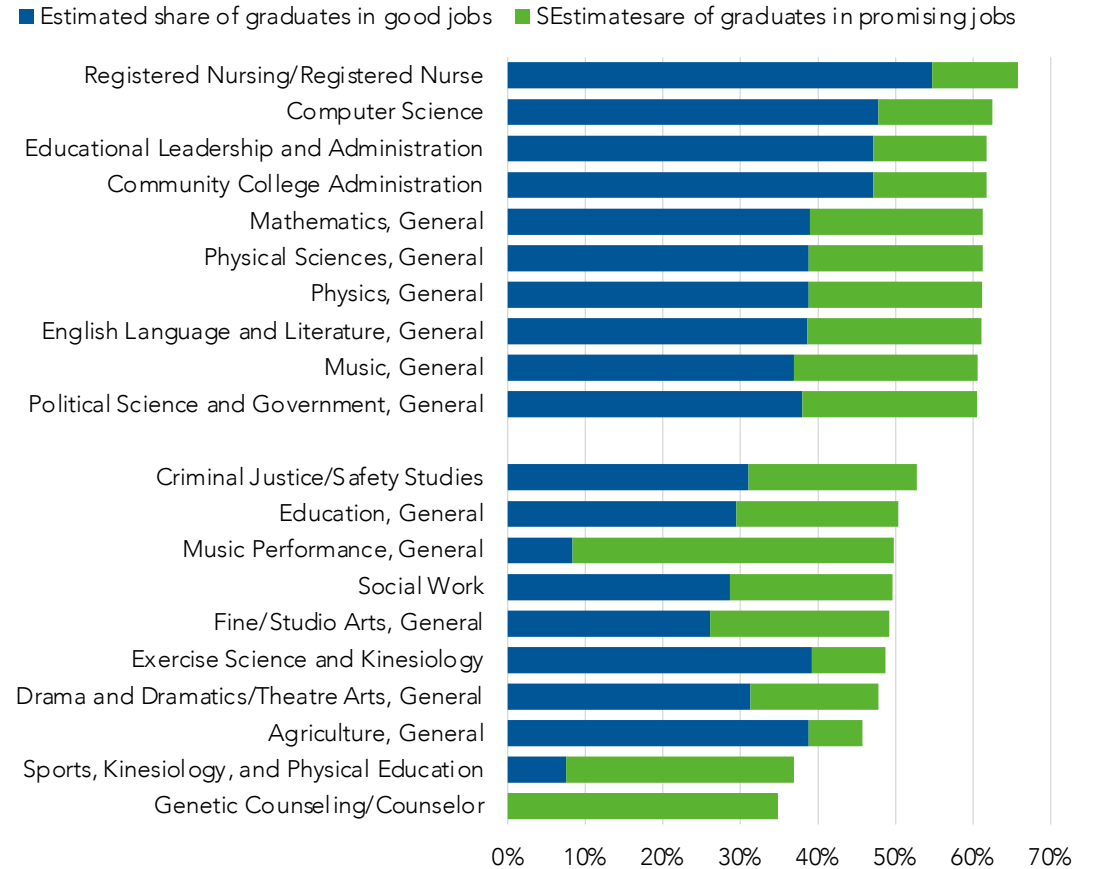


HIGHER ED SHOULD HELP PREPARE PEOPLE FOR GOOD JOBS

CSU Stanislaus's top and bottom 10 programs for job quality

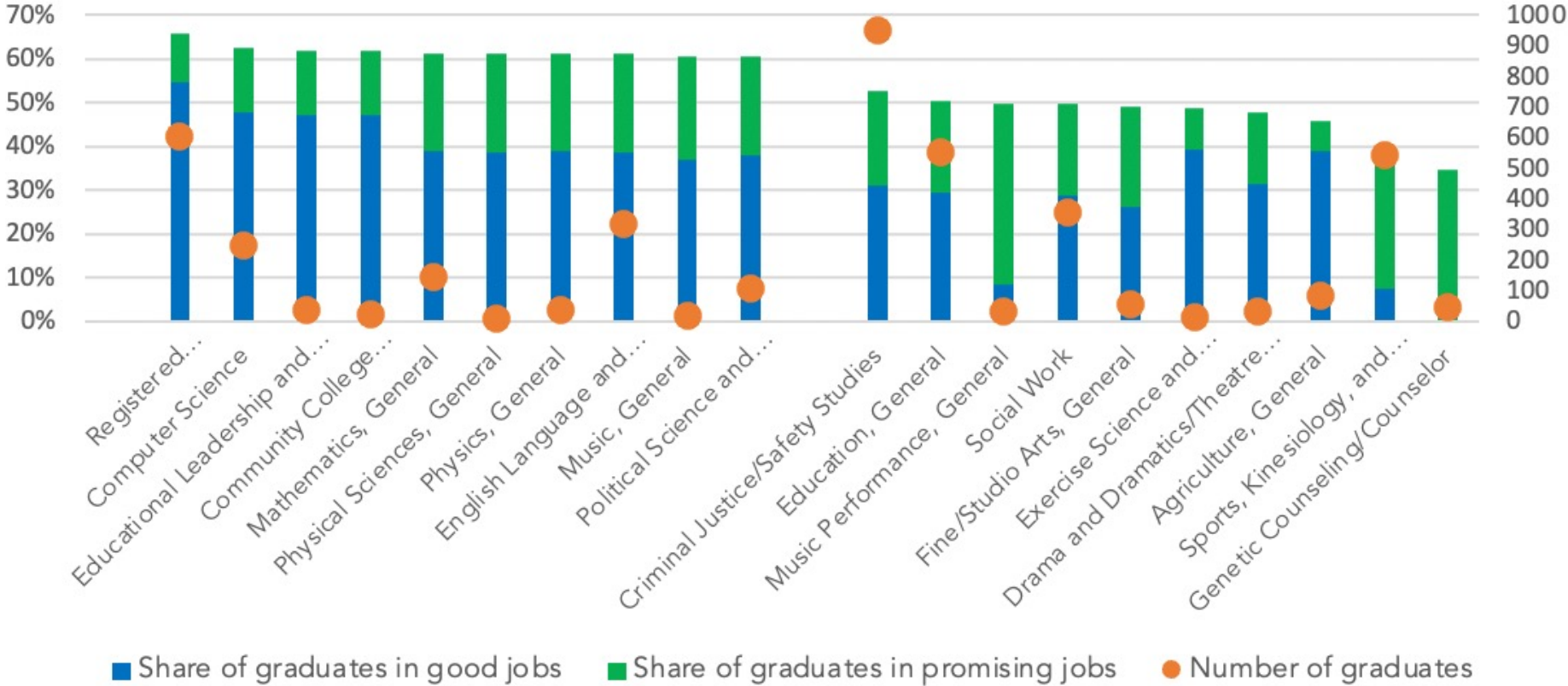


MJC's top and bottom 10 programs for job quality



HIGHER ED SHOULD HELP PREPARE PEOPLE FOR GOOD JOBS

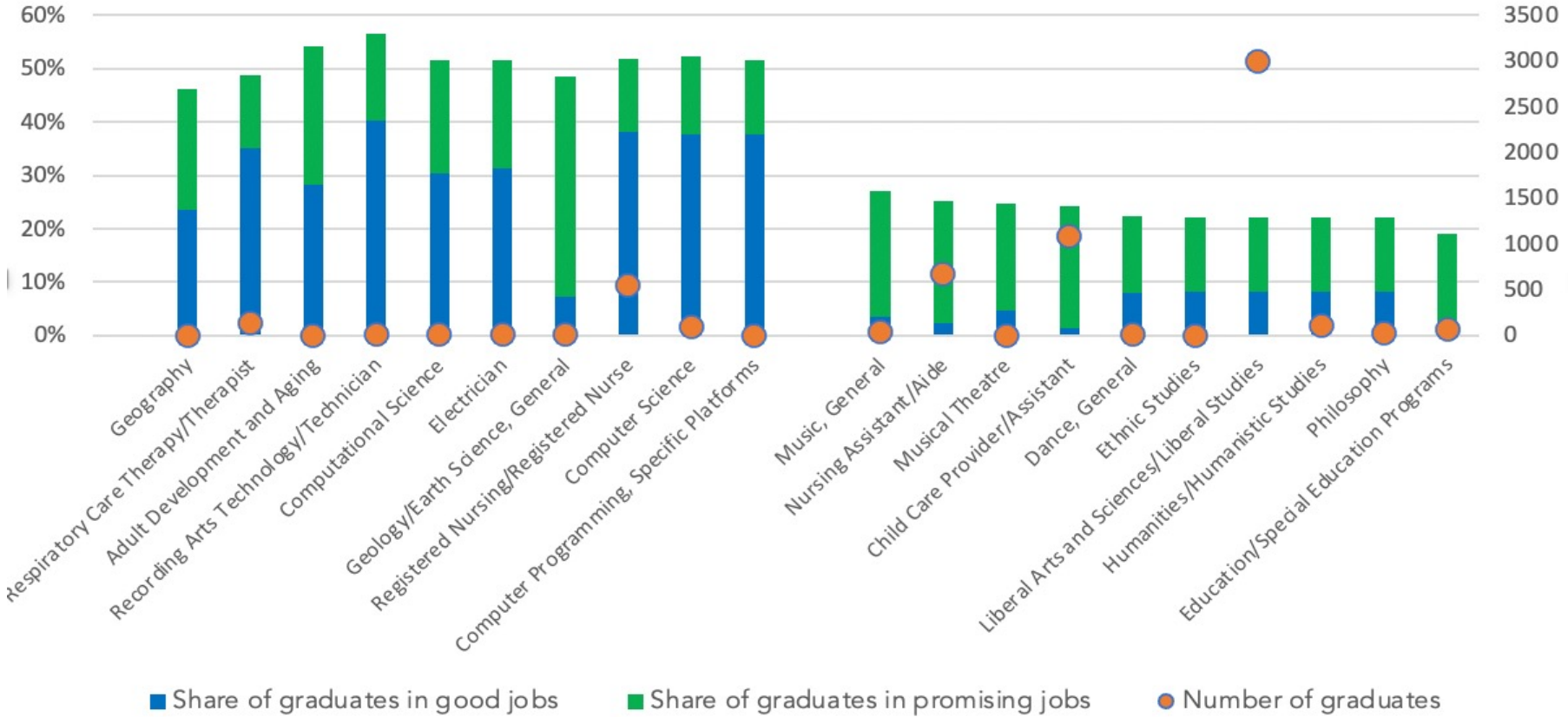
CSU Stanislaus's top and bottom 10 programs for estimated job quality



Source: Brookings and Cities GPS analysis of National Center for Education Statistics data on program completions, Emsi estimates, and original estimates of occupational job quality.

HIGHER ED SHOULD HELP PREPARE PEOPLE FOR GOOD JOBS

MJC's top and bottom 10 programs for estimated job quality

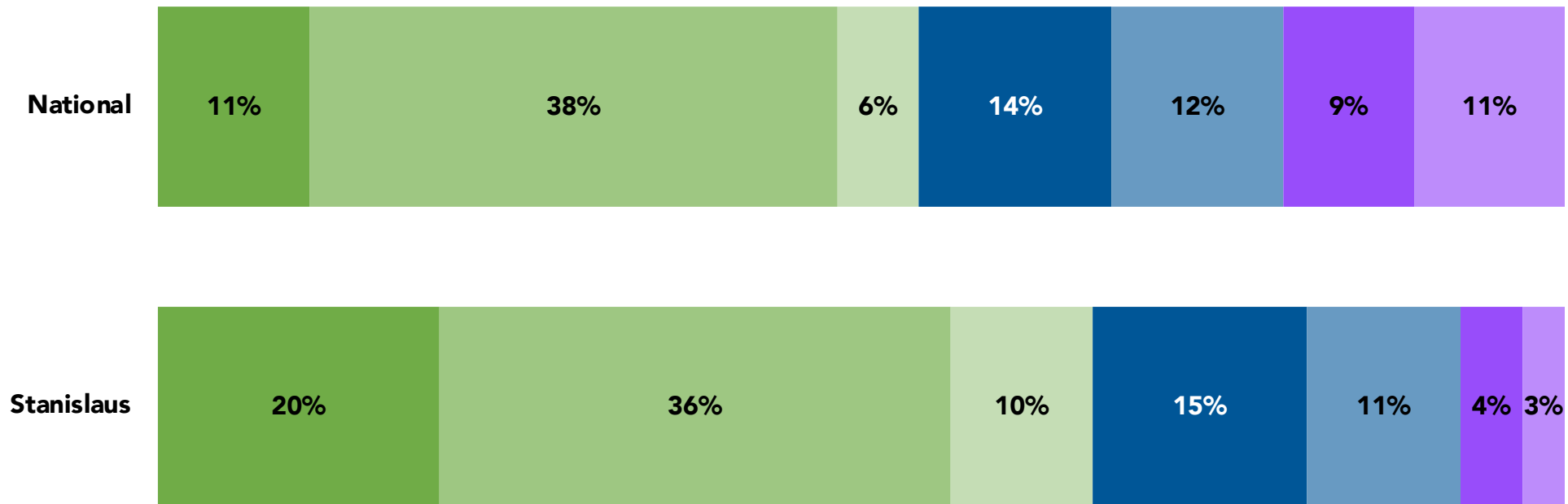


Source: Brookings and Cities GPS analysis of National Center for Education Statistics data on program completions, Emsi estimates, and original estimates of occupational job quality.

EDUCATION WAS A MAJOR BARRIER TO WORK PRIOR TO THE PANDEMIC

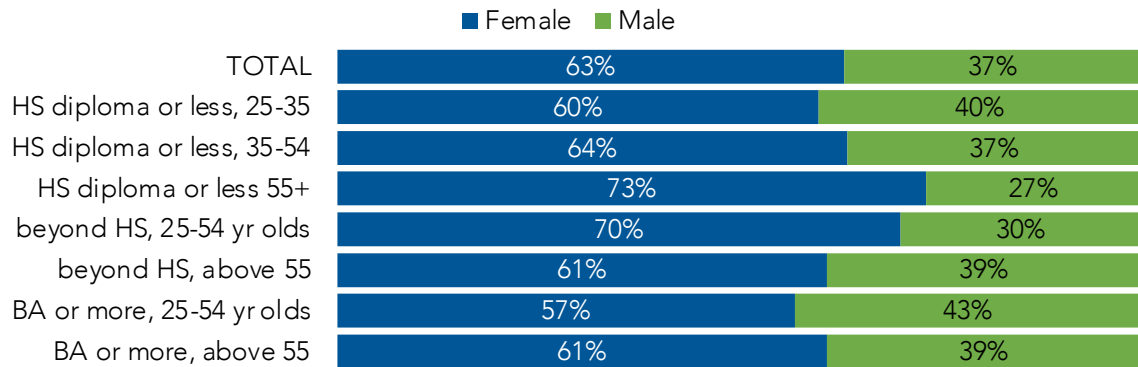
Stanislaus County out-of-work prime-age population by skill level vs. national average benchmark

■ HS diploma or less, 25-35 ■ HS diploma or less, 35-54 ■ HS diploma or less 55+ ■ beyond HS, 25-54 yr olds ■ beyond HS, above 55 ■ BA or more, 25-54 yr olds ■ BA or more, above 55

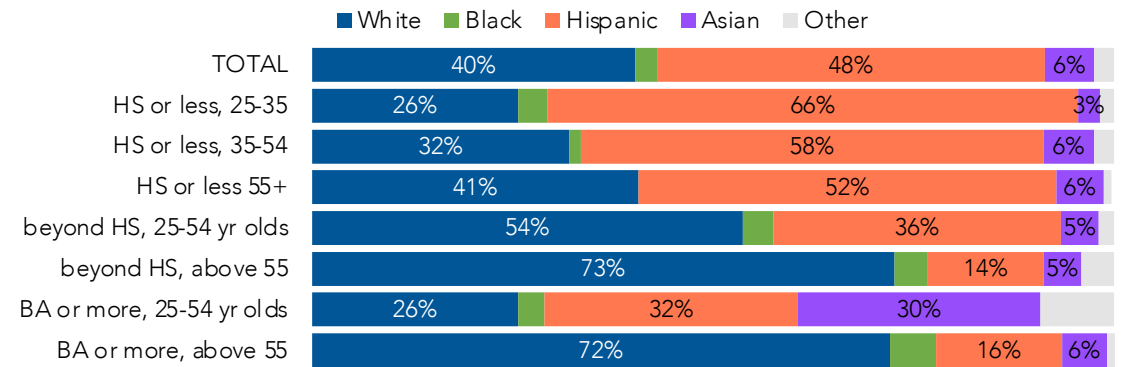


CHILDCARE AND ENGLISH ARE KEY BARRIERS TO WORK IN THE COUNTY

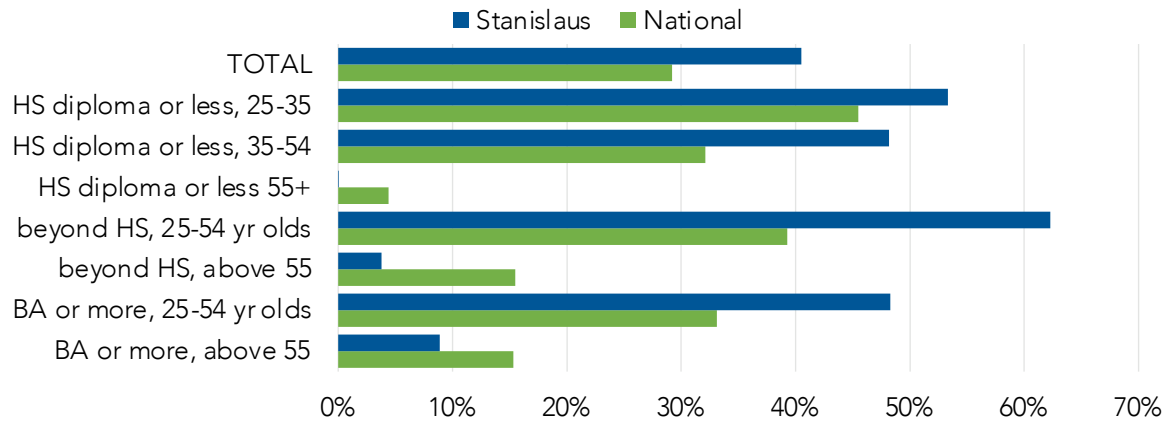
Proportion of out-of-work by gender



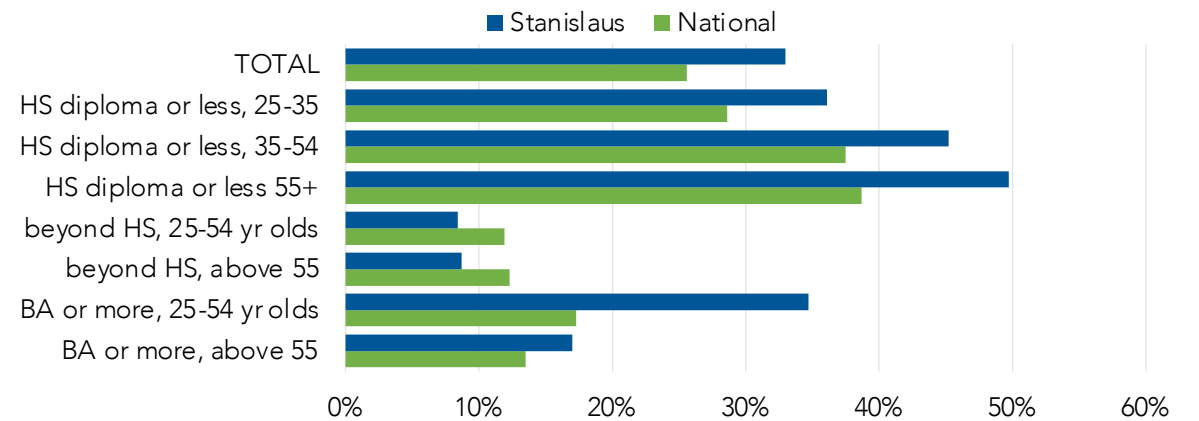
Proportion of out-of-work by race



Out-of-work caring for children



Out-of-work with limited English proficiency





Innovation and Business Dynamism

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.

Strength in four categories mark the most competitive regional economies -

- research and development
- commercialization
- entrepreneurial dynamism
- advanced industrial production

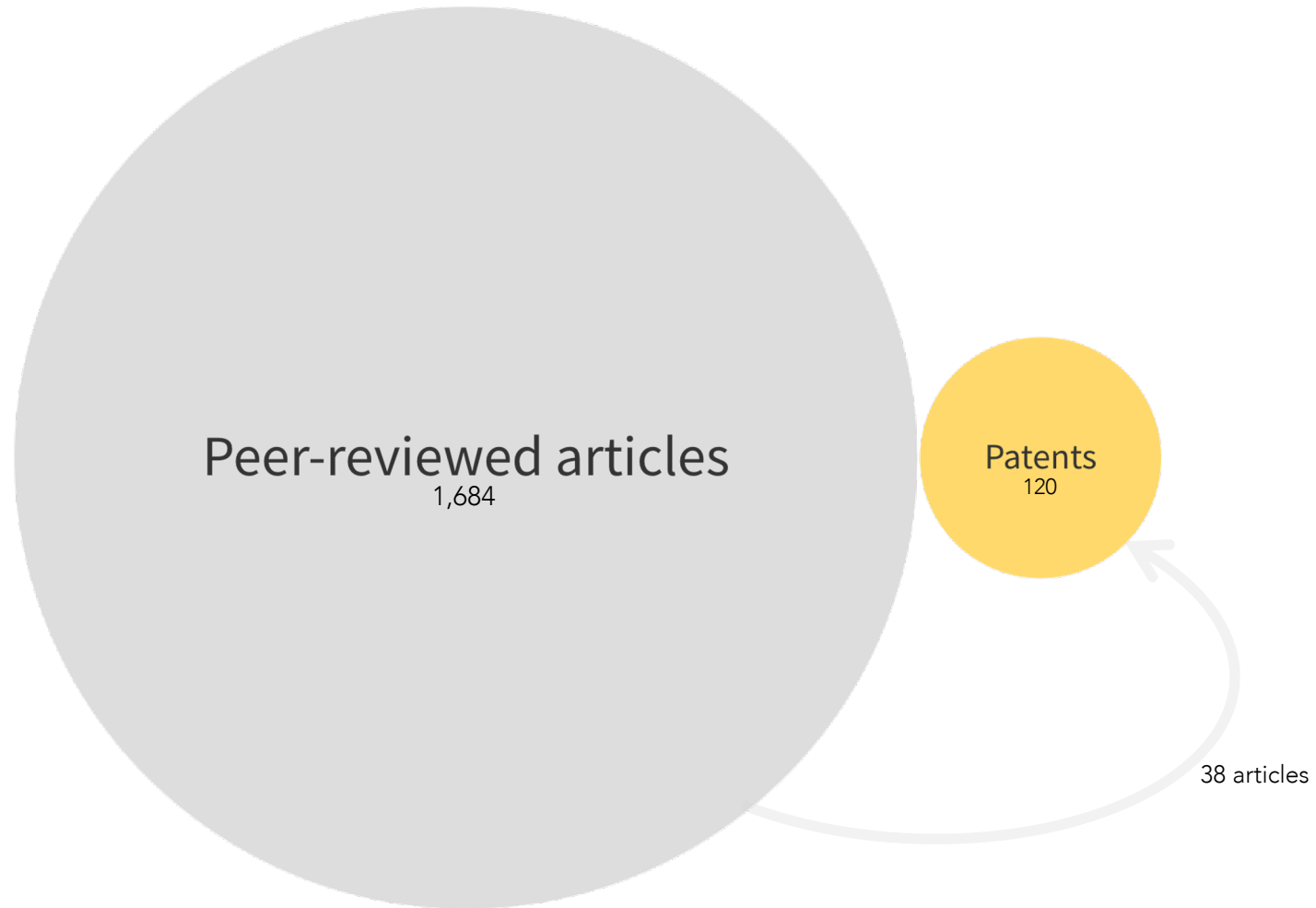
Innovation and Business Dynamism

Key findings:

1. Stanislaus County produces low volumes of novel R&D compared to other cities in Northern and Central California.
2. CSU Stanislaus is the county's largest producer of novel R&D followed by the business community, for which Gallo Winery is the leader.
3. The county boasts R&D links to many parts of the world, though these links are not especially strong due to the low volume of novel R&D.
4. Some of the county's novel R&D relates to four key areas of science relevant to target clusters: Biochemistry, Plant Science, Animal Science, and Cybernetics.
5. Though little of the county's novel R&D is commercialized, some of the portion that is relates to breakthroughs in recycling biomaterials, especially waste-to-energy and materials made from recycled biowaste, such as chemicals, plastics, or textiles.

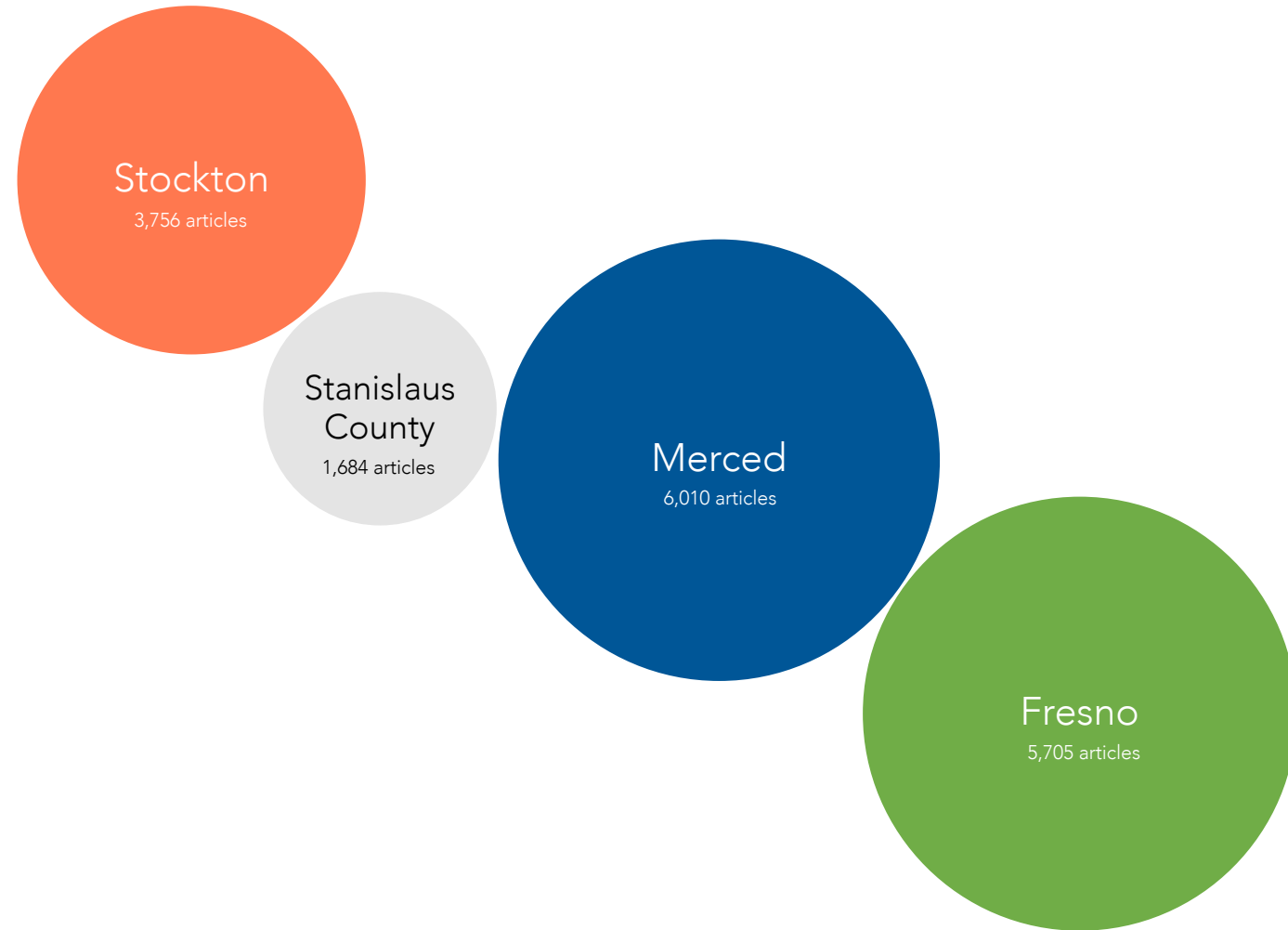
THE COUNTY PUBLISHES FEW ARTICLES BUT HAS A LARGE R&D IMPACT

Stanislaus County's R&D production and impact
2010 to 2021



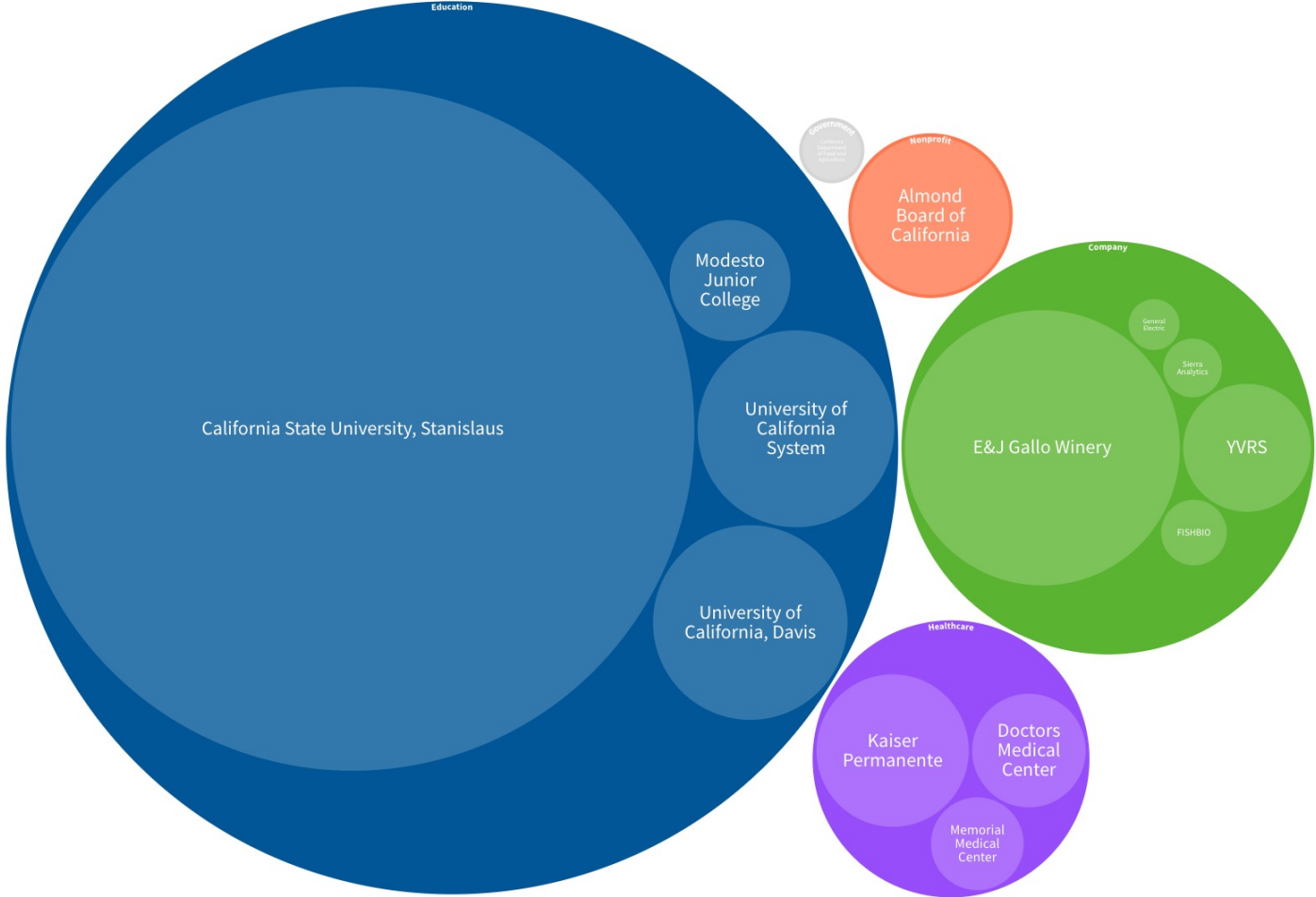
R&D PRODUCTION LAGS REGIONAL PEERS

Peer-reviewed articles by locality
2010 to 2021



CSU IS THE COUNTY'S MOST PRODUCTIVE R&D ORGANIZATION

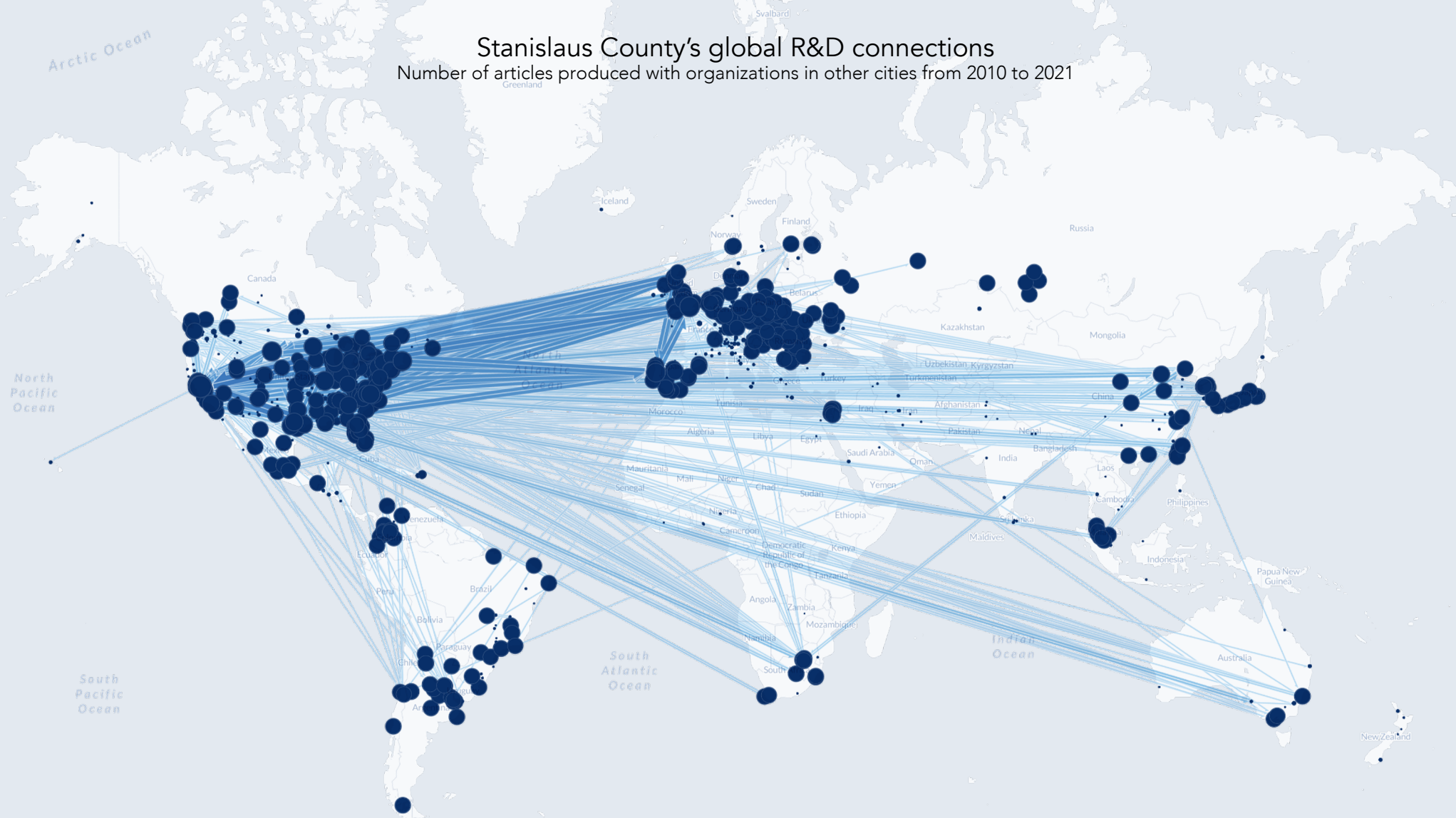
Stanislaus County's top R&D-producing organizations
By number of peer-reviewed articles published from 2010 to 2021



Source: Brookings and Cities GPS analysis of Clarivate and ROR data.

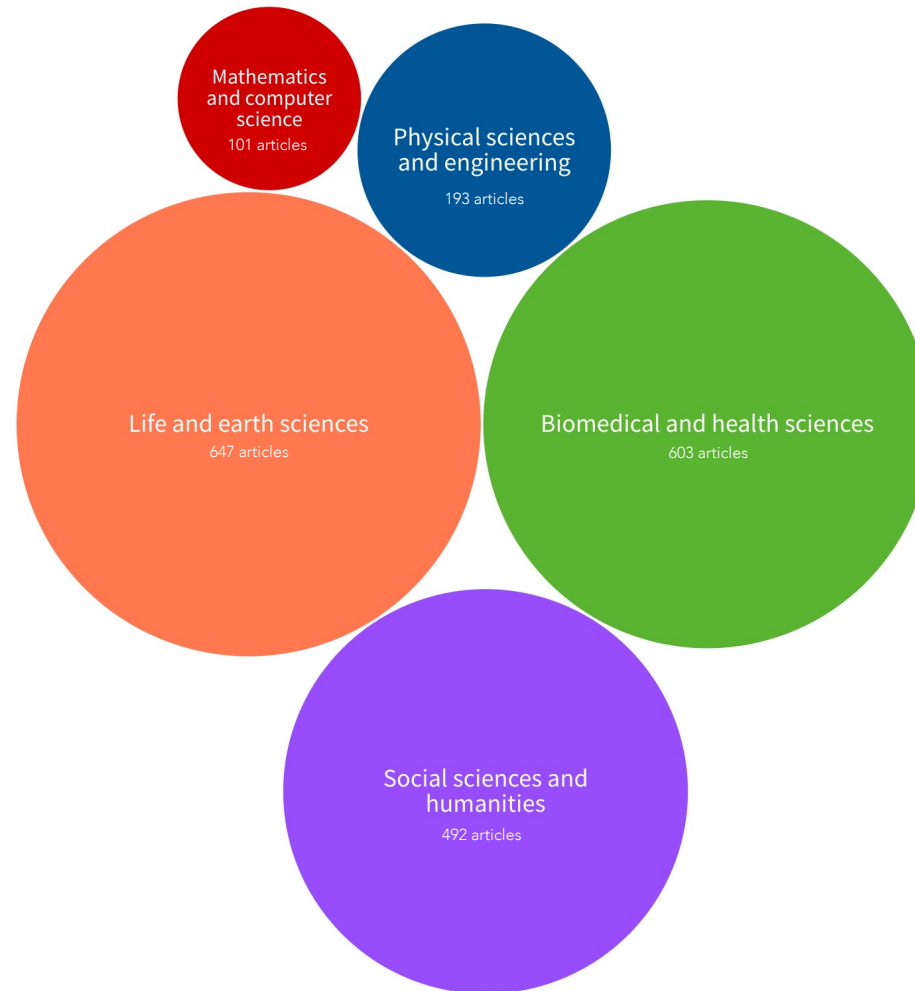
THE COUNTY PERFORMS R&D WITH CITIES THROUGHOUT THE GLOBE

Stanislaus County's global R&D connections
Number of articles produced with organizations in other cities from 2010 to 2021



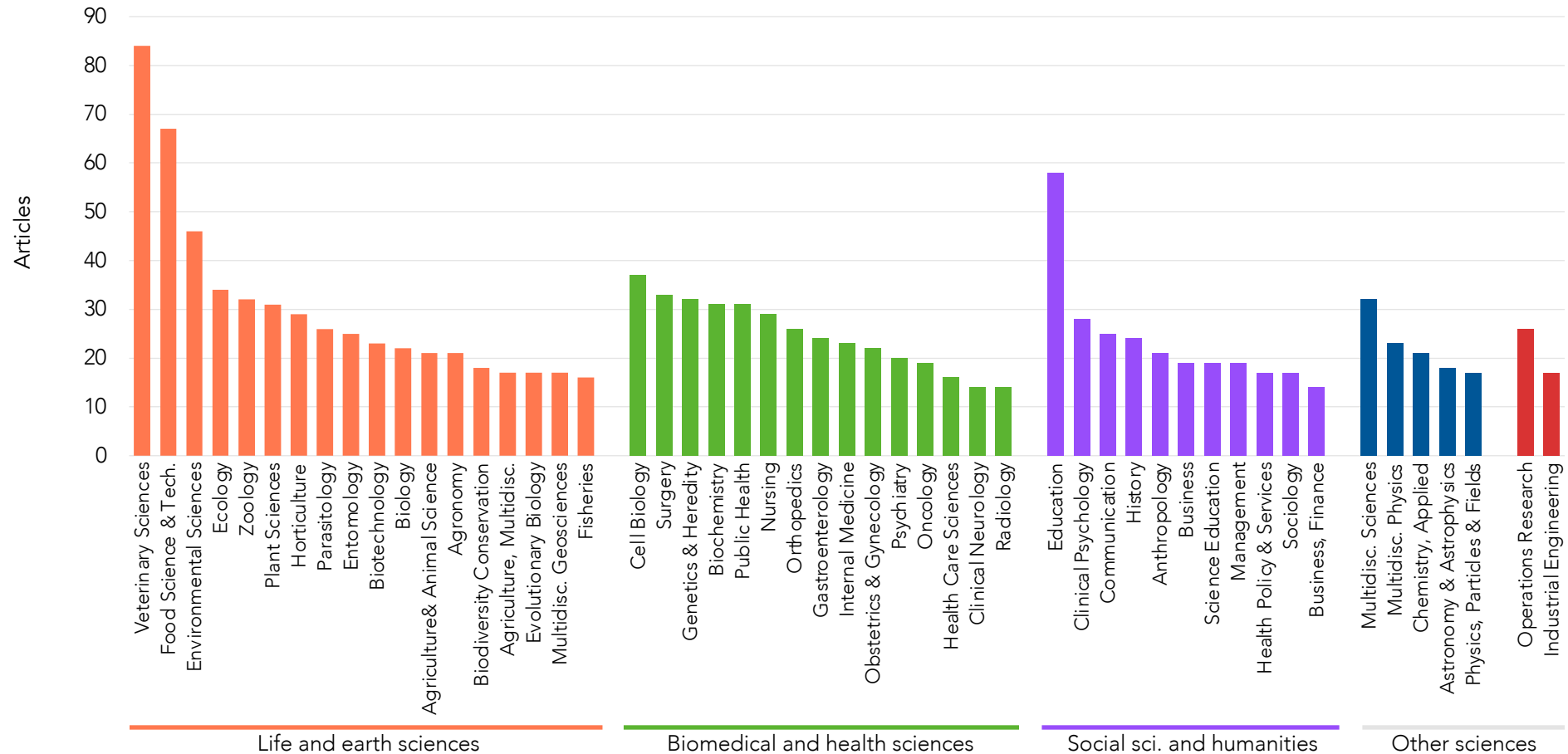
THE COUNTY'S R&D IS CONCENTRATED IN LIFE/BIOMEDICAL SCIENCES

Stanislaus County's volume of peer-reviewed articles by field of science
2010 to 2021



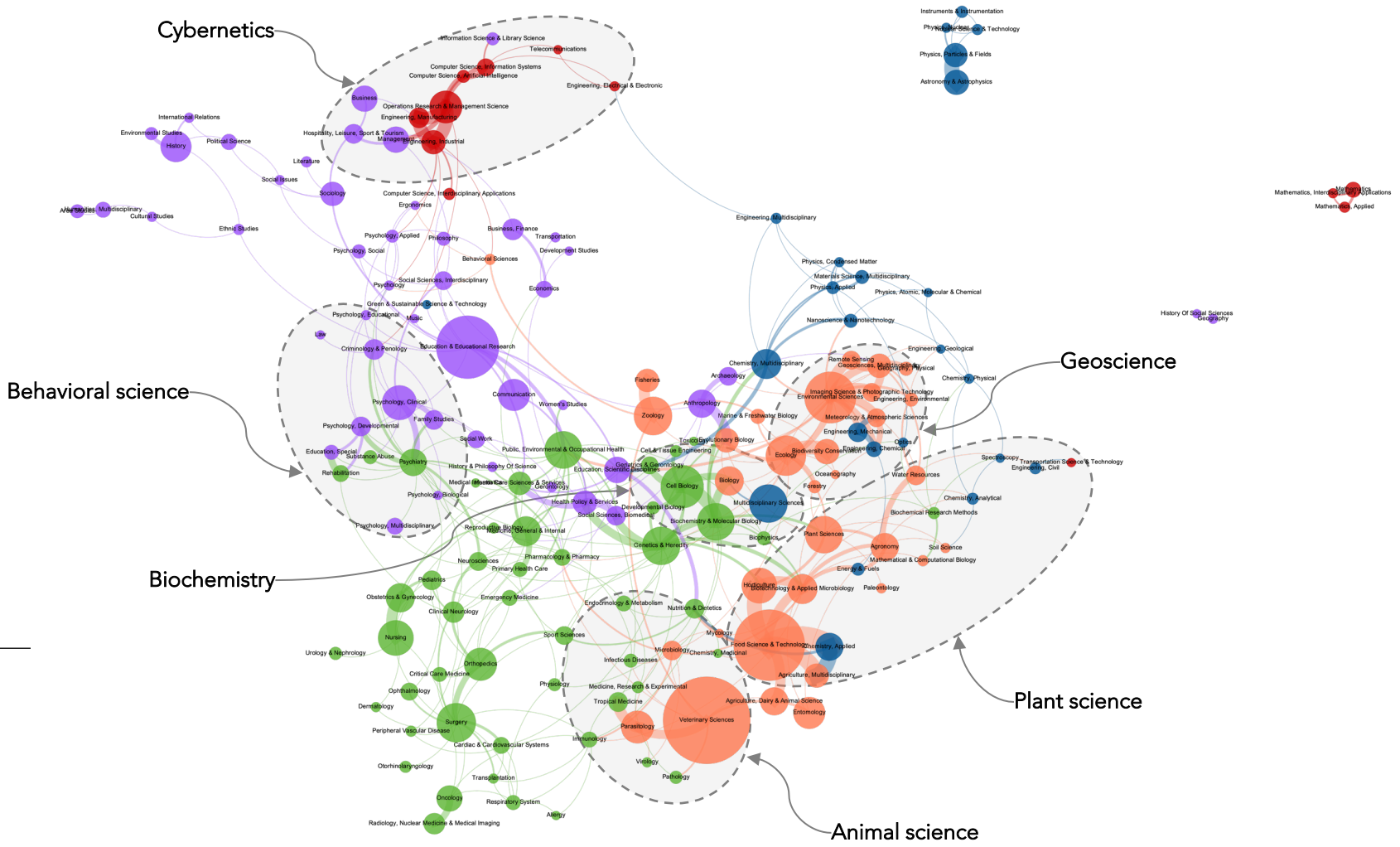
AGRICULTURE AND MEDICINE ARE LEADING AREAS OF R&D

Stanislaus County's top 50 scientific disciplines for R&D
By number of peer-reviewed articles, 2010 to 2021



CROSS-DISCIPLINARY CONNECTIONS REVEAL R&D SPECIALIZATIONS

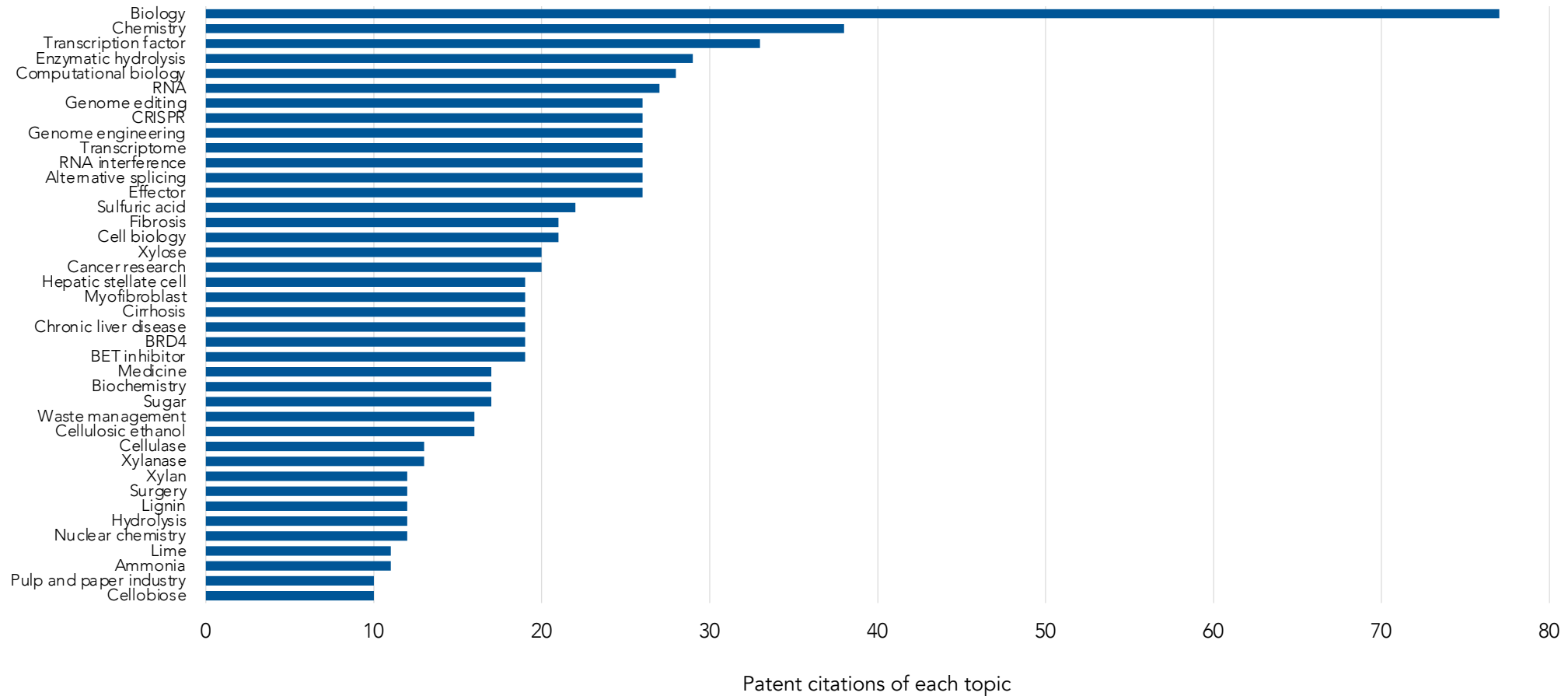
Stanislaus County's volume of cross-disciplinary articles by discipline
2010 to 2021



Source: Brookings and Cities GPS analysis of Clarivate data.

BIOTECH IS THE COUNTY'S LEADING AREA OF R&D PATENTING IMPACT

Stanislaus County's number of patent citations by paper topic
2010 to 2021



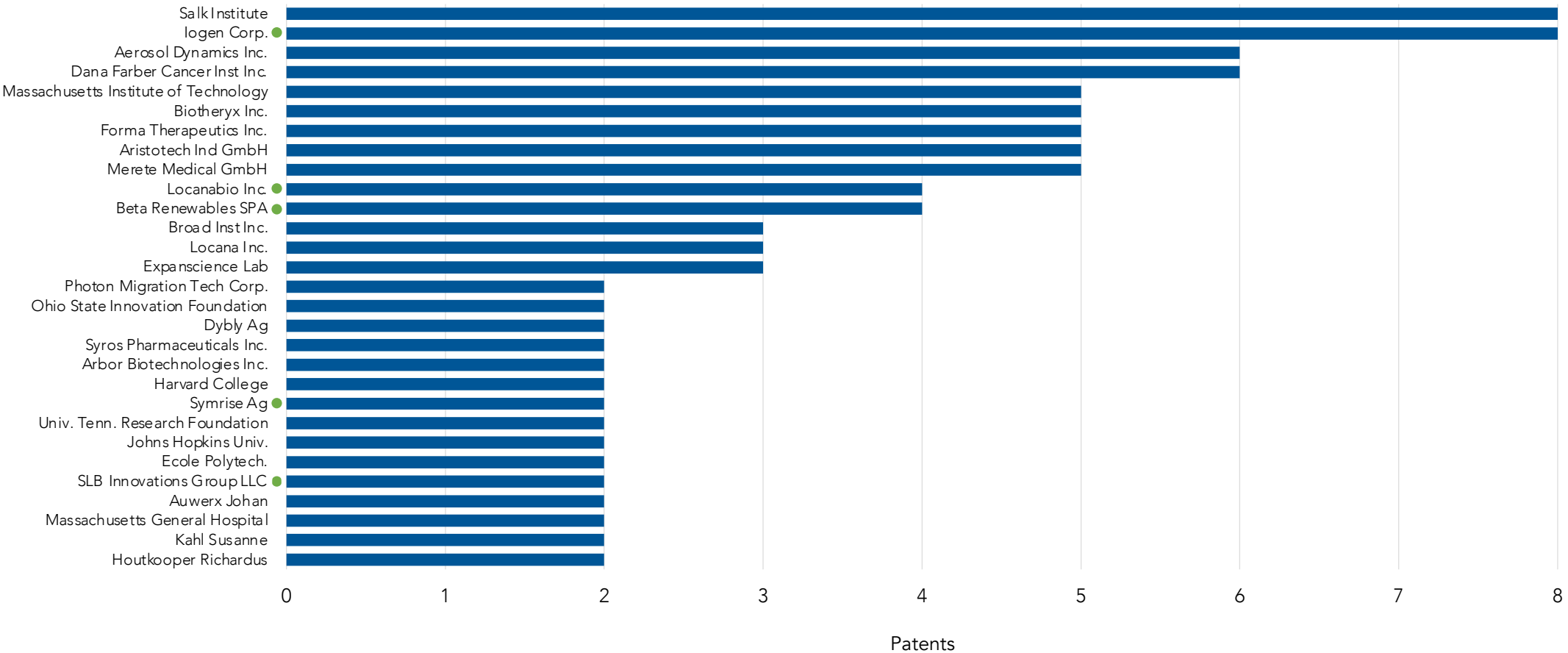
An article can relate to more than one than one topic; some topics are nested within others.

Source: Brookings and Cities GPS analysis of Clarivate and Lens.org data.

A SMALL SET OF ORGANIZATIONS COMMERCIALIZE THE COUNTY'S R&D

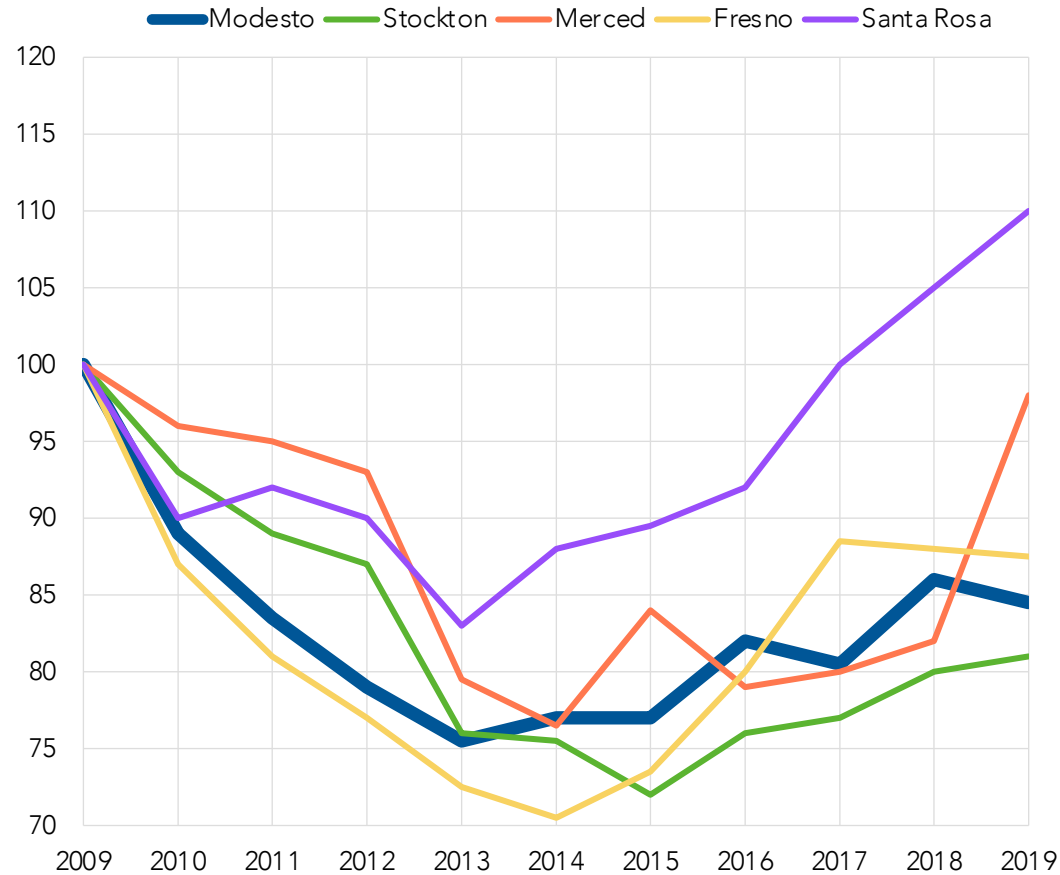
Organizations commercializing Stanislaus County's R&D
 Number of patents filed that cite the county's peer-reviewed articles published from 2010 to 2021

● Agri/Bio-reusables companies

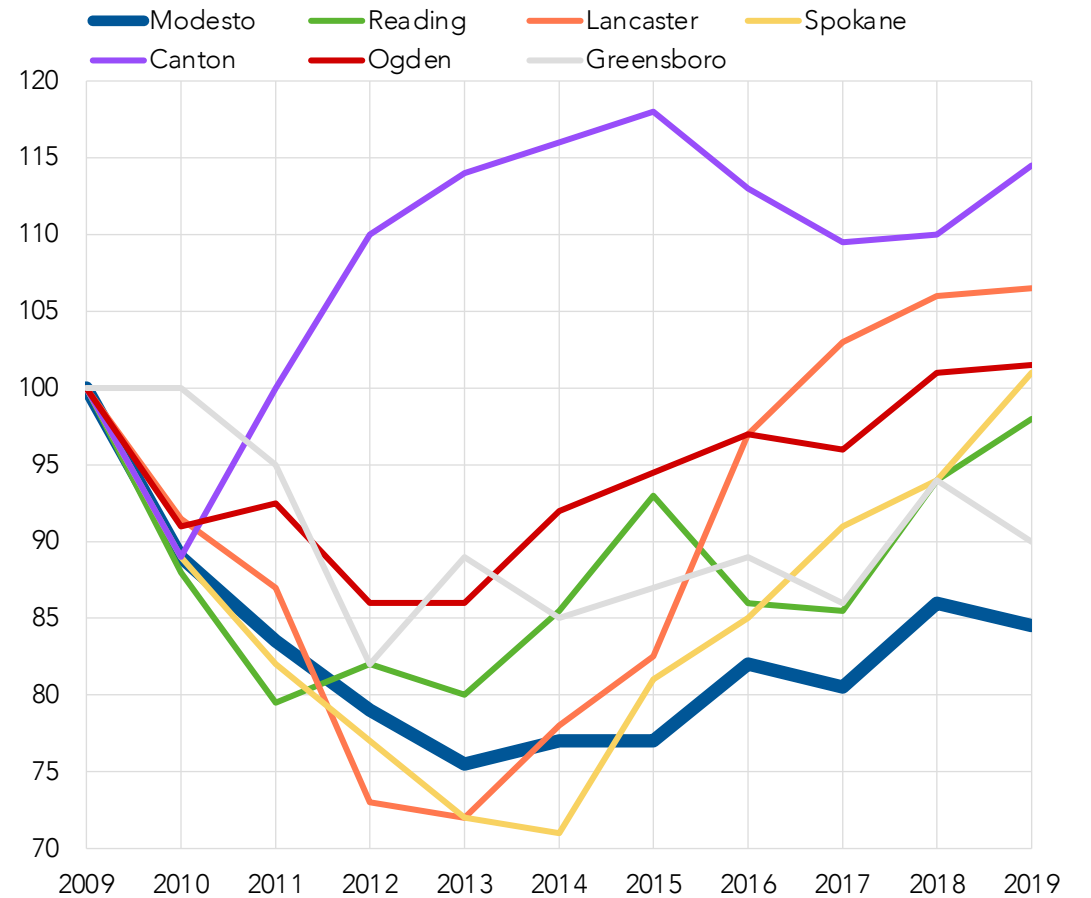


ENTREPRENEURSHIP AND BUSINESS DYNAMISM ARE COMPARATIVELY LOW

Change in jobs at young firms among California peer metro areas
2009 – 2019

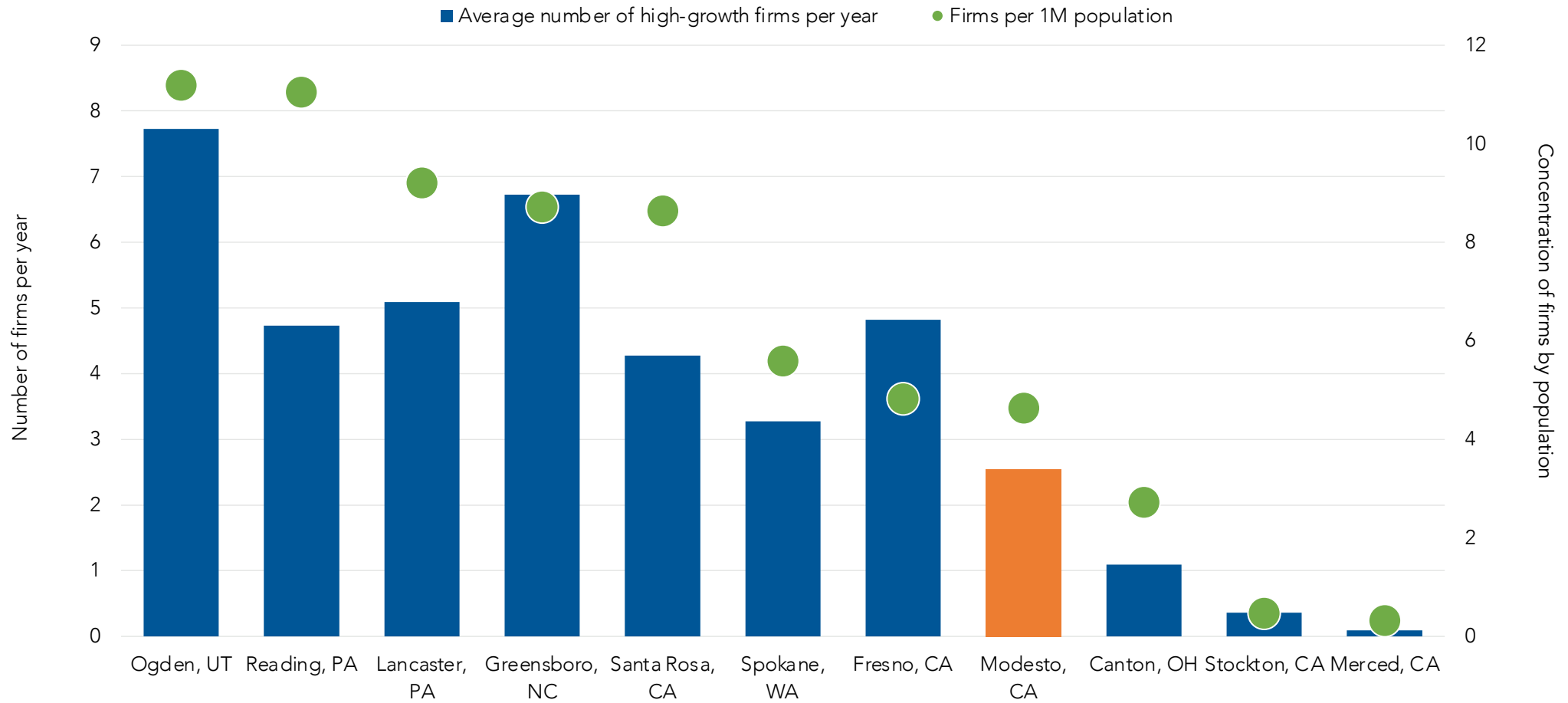


Change in jobs at young firms among national peer metro areas
2009 – 2019



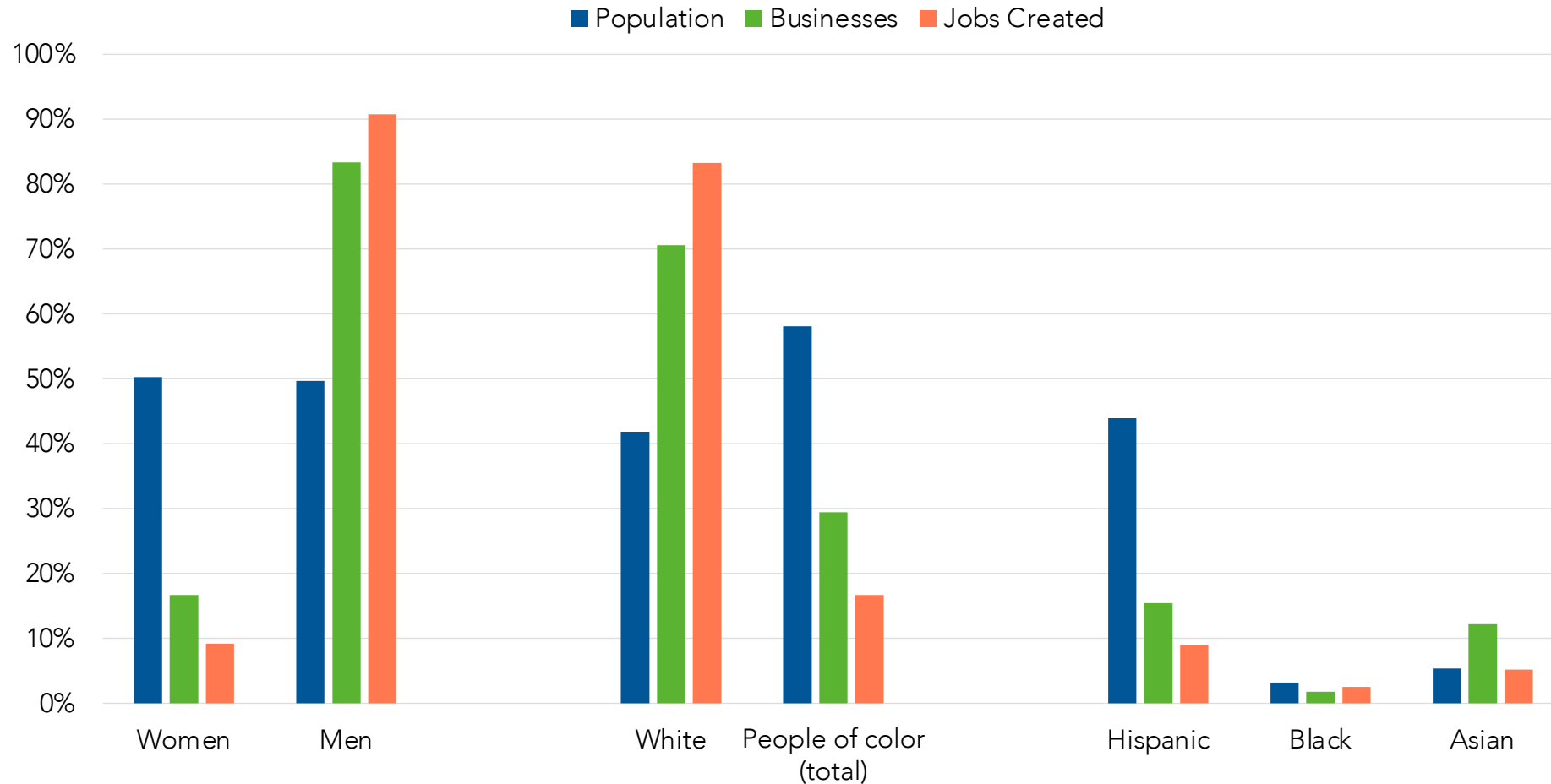
THE METRO GENERATES FEWER HIGH-GROWTH FIRMS THAN PEERS

High-growth young firm density versus California and national peer metros
2011 to 2021



DISPARITIES EXIST IN BUSINESS OWNERSHIP BY GENDER AND RACE

Proportion and job impacts of women and minority business owners versus population in Stanislaus County



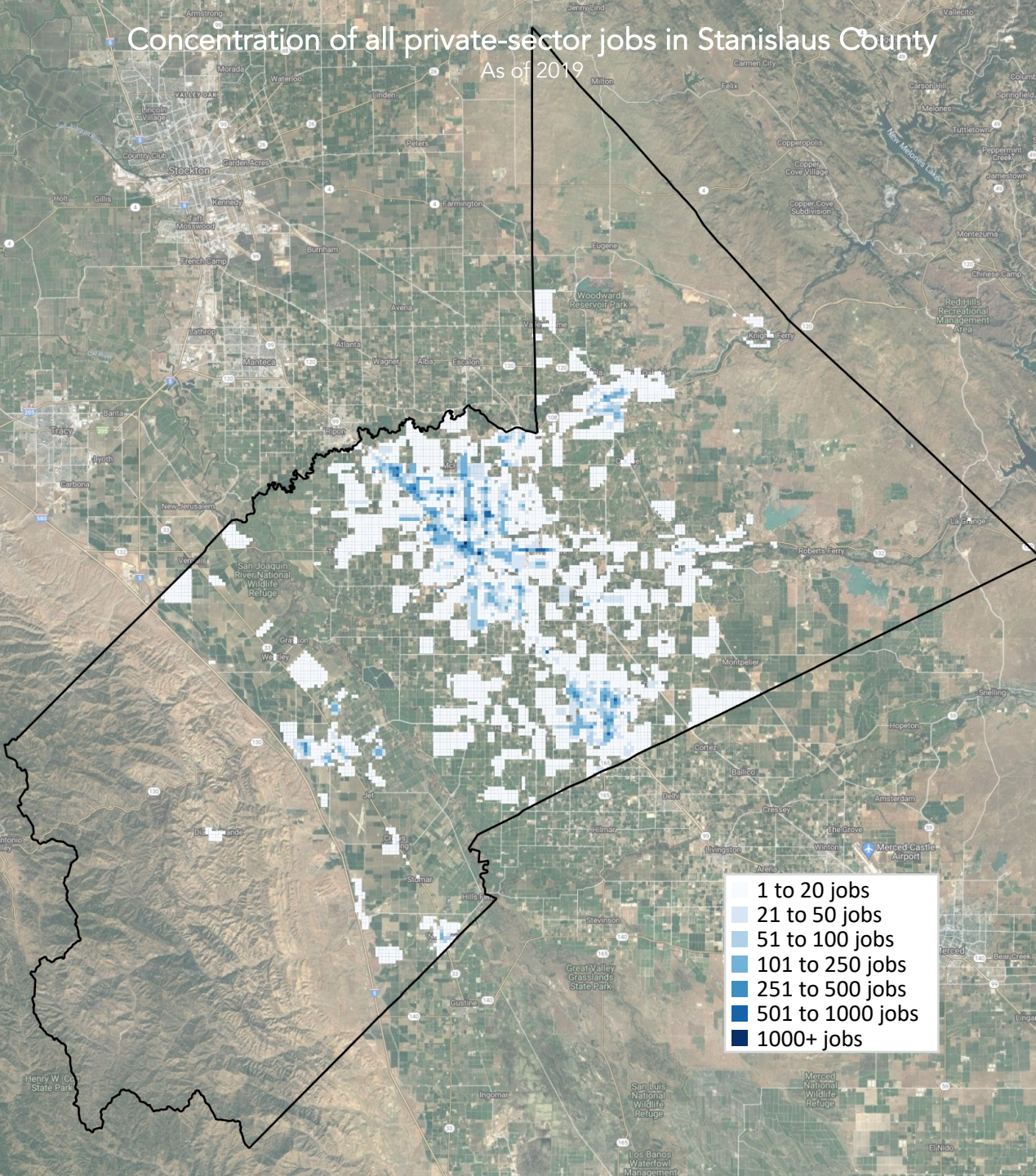


Infrastructure and Geography

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

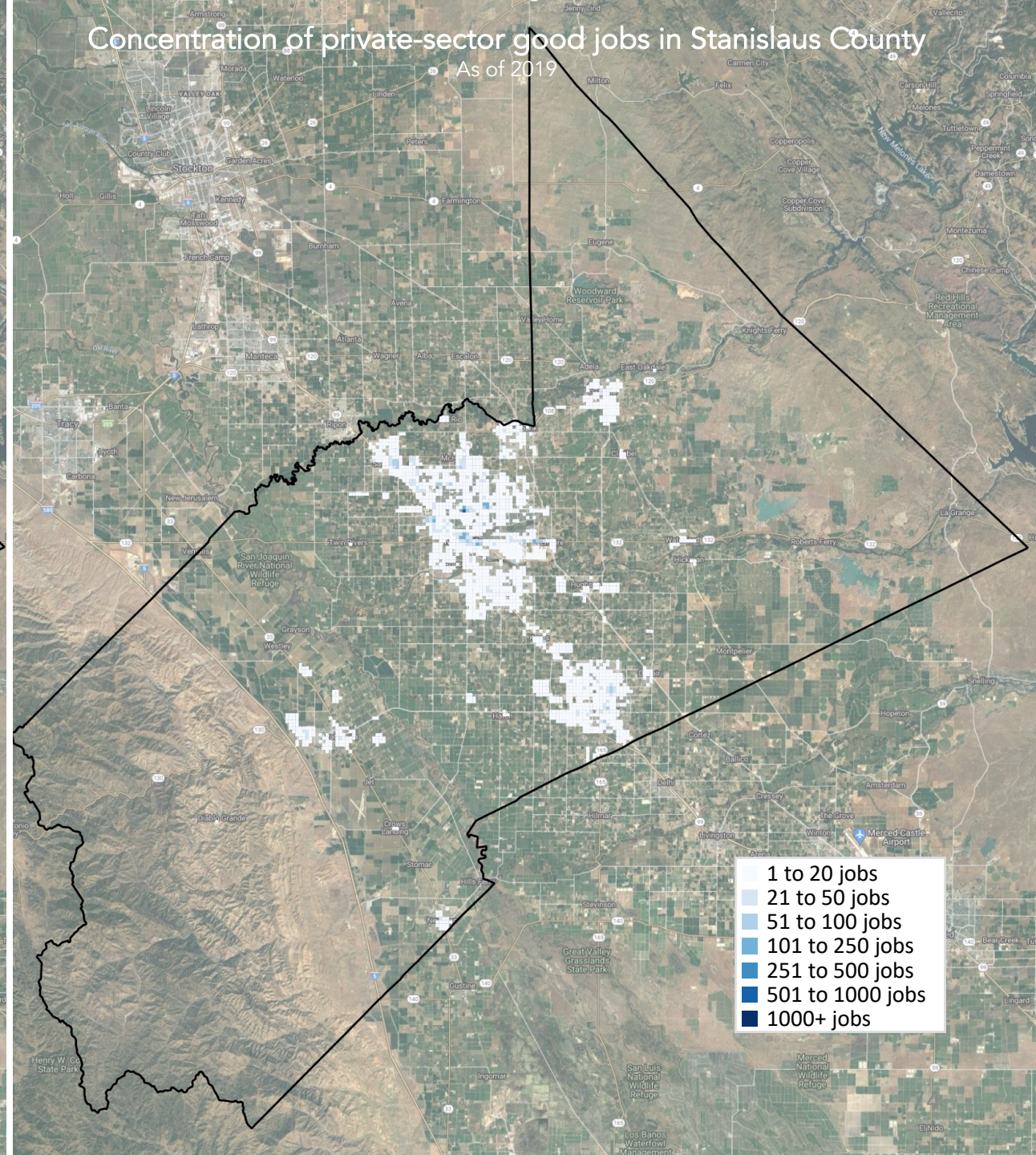
Concentration of all private-sector jobs in Stanislaus County

As of 2019



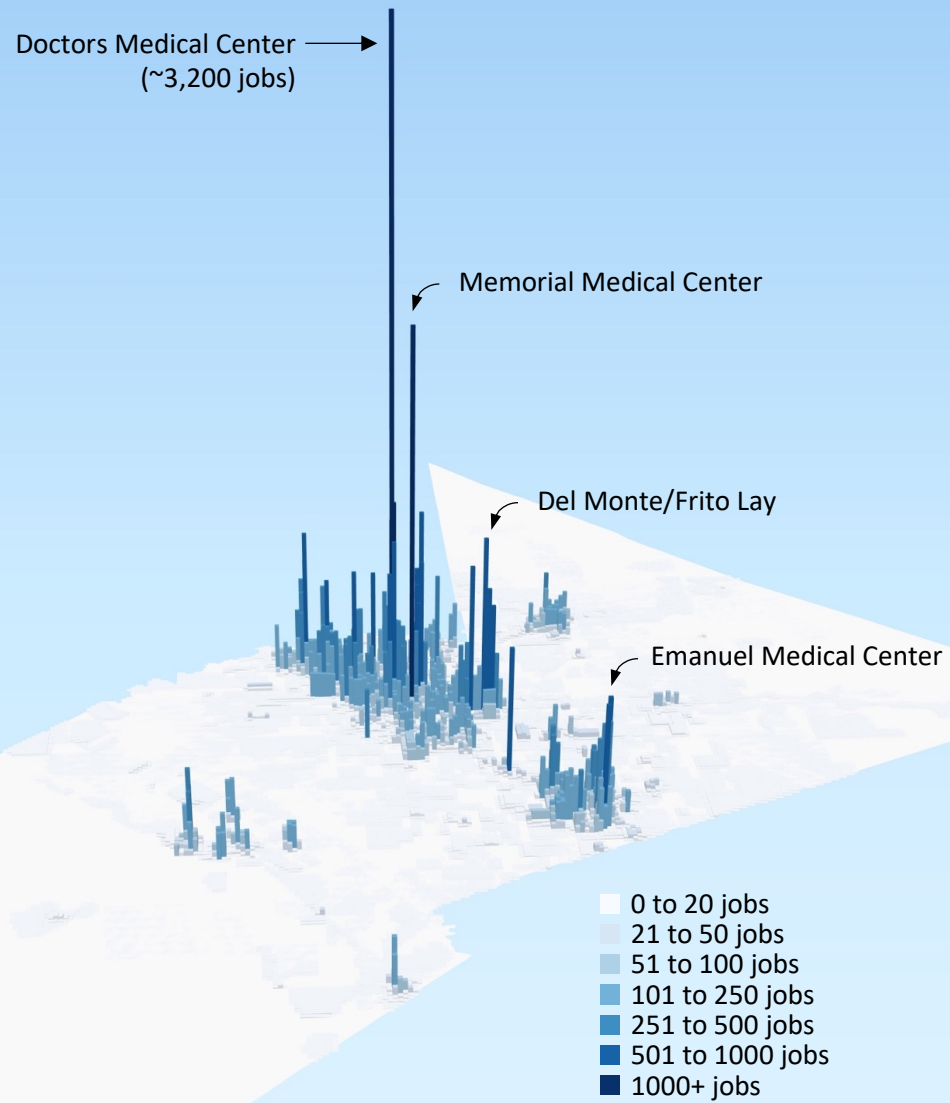
Concentration of private-sector good jobs in Stanislaus County

As of 2019



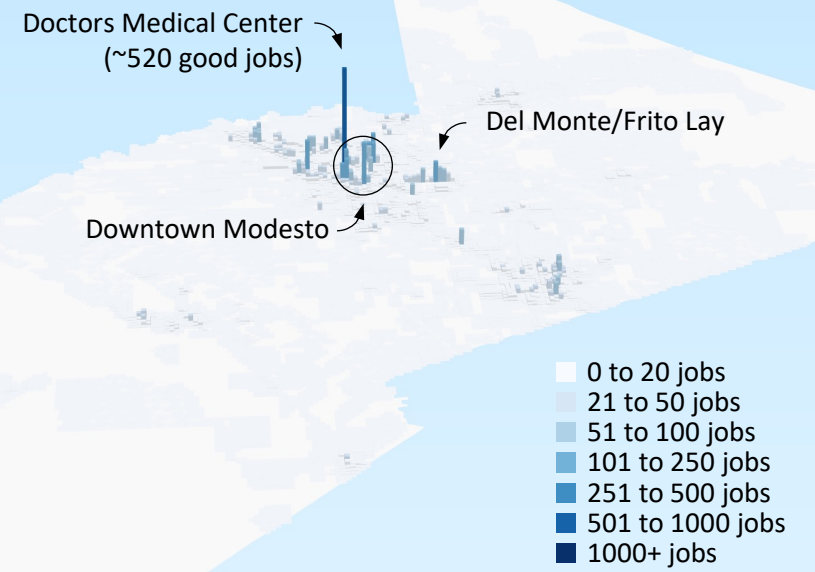
Concentration of all private-sector jobs in Stanislaus County

As of 2019



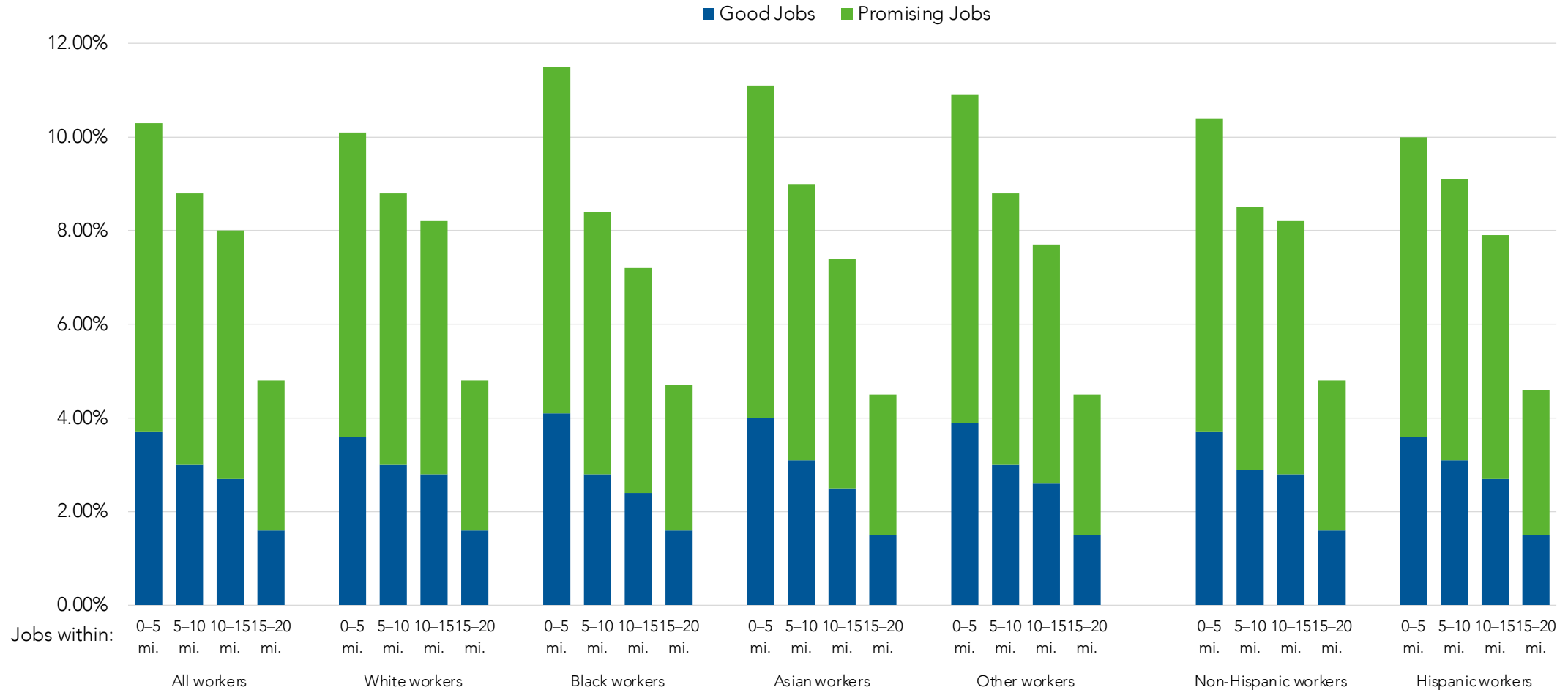
Concentration of private-sector good jobs in Stanislaus County

As of 2019



A SMALL PORTION OF JOBS ARE NEAR THE COUNTY'S AVERAGE WORKER

Share of the county's jobs by distance from the average worker, by job quality type
2019





Governance

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.

Governance is the formulation and execution of collective action across political and institutional boundaries at the scale and geography where the economy operates with shared assets - workforce commutes, business networks, university access, transportation systems.

- objectives and metrics to jointly focus time and resources for maximum impact
- alignment or fragmentation in program choices and activities among diverse contributors
- private sector roles and private-public collaboration
- policies consistent with economic success principles
- organizing at the functional economic scale