JOB QUALITY INDEX FRAMEWORK

JUNE 2024

SCAG™

INNOVATING FOR A BETTER TOMORROW

Job Quality Index Framework

JUNE 2024

Prepared for:

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Introduction

SCAG leads the region by empowering jurisdictions with collaborative resources that improve access to data best practices and tools. The SCAG Job Quality Index (JQI) provides a benchmark for a common understanding of the region's job markets. This can inform policy discussions and help measure progress toward a more robust, inclusive, and equitable economy. Quality jobs are the foundation for economic growth and resilience against economic downturns, disruptions, and external shocks. Pathways to high-quality jobs lead to a more equitable and inclusive economy by building resilience among all workers and helping businesses be more competitive, particularly in tight labor markets.

SCAG's Inclusive Economic Recovery Strategy Report (IERS) proposed the development and estimation of a subregional (county-level) job quality index (JQI). The JQI aligns with the California Future of Work Commission's March 2021 Report, which identified a job quality index as a tool for advancing the goal of raising the quality and share of high-quality jobs. SCAG received a one-time grant from the state to implement IERS recommendations, including development of a JQI for the SCAG region and counties. With technological advances and globalization, the benefits of skill development and specialization have made economies and job markets more complex, increasing wage disparities and risks of mismatch between the skills offered by workers and those demanded by firms. The JQI is intended as a tool for understanding the complexities of local job markets, identifying and measuring opportunities and challenges for economic development policy, and addressing regional disparities of opportunity.

SCAG collaborated with Berkeley Economic Analysis and Research (BEAR) LLC to develop a rigorous, transparent framework for a subregional job quality index that can be readily updated and replicated. The SCAG JQI framework defines job quality based on the latest economic literature and a survey of workers in the region. The SCAG JQI concisely measures labor market conditions and progress toward a more equitable and resilient labor market for Southern California and each of its six counties. Workers and employers will benefit from greater information, facilitating planning, career development, and recruiting for productivity and retention. The SCAG JQI summarizes different dimensions of job quality, such as compensation, benefits, and workplace conditions. Key inputs to the JQI are the specific job attributes and the relative importance of such attributes that best reflect the SCAG region and its six counties.

In addition to technical expertise, background research discussed in the next section, and California's relatively rich data, development of the JQI has been informed by consultation with three primary sources: a Technical Advisory Group, senior SCAG staff, and SCAG's Global Land Use and Economics council (GLUE). These interactions were of great value to assuring the policy relevance of this indicator. To establish the relative importance of different job attributes in the indicator, the project conducted a direct survey of workers across all six SCAG counties (results reported below), identifying important heterogeneity in the process. Finally, we also solicited feedback on the JQI from SCAG's own Economic Roundtable of regional economic experts.

Review of Job Quality Measurement and Metrics

The economic literature on labor markets has evolved dramatically since WWII. After the relatively homogeneous macroeconomic growth during and after the Marshall Plan, the energy crisis and globalization began to disrupt the more advanced economies of the Organization of Economic Cooperation and Development (OECD), inducing both cycles and structural fragmentation. Aggregate growth has prevailed across the OECD in the long run, but each country's labor market now faces significant challenges from skill and sector mismatches. In response, the early contributions of Katz, Akerlof, Yellen, Rose, and their intellectual successors addressed the bifurcation of the US labor market in response to technology and globalization. As other forces and better information emerged, this literature was succeeded by more data-intensive insights from Autor, Card, and others who ascertained more complex structural dynamics of domestic economies.[1]

Increasing economic complexity has reinforced the need to move beyond generic macro perspectives (technology or global competition) and recognize **heterogeneity**. In particular, it has become obvious that effective labor market support requires much more detailed understanding of patterns in both supply and demand, occupationally, sectorally, and spatially. Fortunately, ever-expanding data resources can now support much more effective identification of these forces, as well as better targeting of labor market policies. Several institutions have proposed and/or adopted job quality indexes to capture multiple dimensions of this issue. The SCAG Job Quality Index (JQI) can make an important contribution to this across the region and generally.

This section surveys the leading examples of similar projects. Conceptually, we divide the approaches along two lines which we designate as "market" vs "bargaining" oriented. Market approaches seek to facilitate public and private agency on both the supply and demand sides of labor markets. With respect to labor demand, they seek to promote enterprise investment, job creation, and management practices that reward productivity and retention. With respect to labor supply, they seek to improve skills and information available to workers for education, training, career development, job search, and mobility decisions. In contrast, bargaining-oriented approaches focus on employer responsibility for job characteristics and direct, post placement negotiation between labor and management. Grounded in the traditional collective bargaining literature, this approach has serious scale bias and will be of limited relevance to subject matter experts and non-unionized workers.

BROOKINGS

EARLY WORK

Holzer et al. (2011) uses a hybrid high wage and high skill approach, matching across panel data to show that "good" (high-wage) jobs are still growing, but only for high skilled cohorts highlights a long-run increase in the importance of selected skills in giving U.S. workers access to what are identified as good jobs. The authors use a massive data set that covers most workers and businesses in 12 states from 1992 to 2003. They identify employers that pay unusually high wages, which represents good jobs. Workers

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[1] Card: 2022 has a very up-to-date overview.

who earn unusually high wages relative to the wages paid for similar workers in their current firms are identified as good workers. This method of classification allows analysis of changes over time in sorting workers among employers.

Figure 1: Average Earnings of US Workers by Educational Attainment within Occupational/Industry Groupings
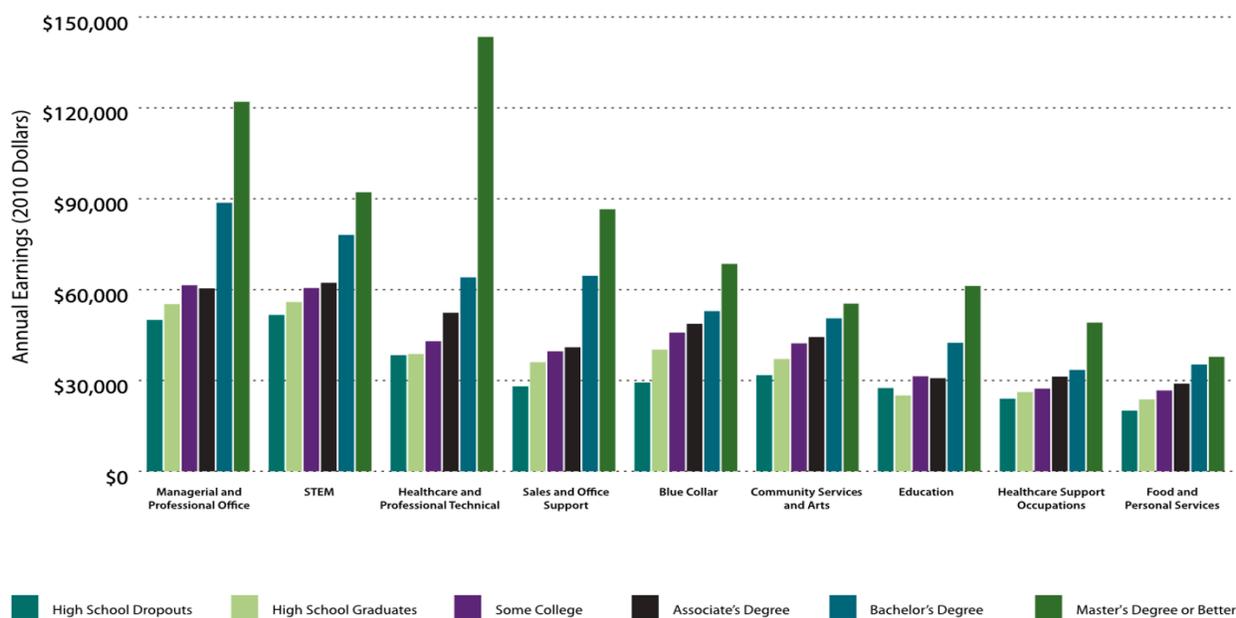
Note: In 2010 dollars.
Source: Carnevale et al. 2010.

Example: Holzer, Harry, Julia Lane, David Rosenblum, and Fredrik Andersson. 2011. Where Are All the Good Jobs Going? What National and Local Job Quality and Dynamics Mean for U.S. Workers. New York: Russell Sage Foundation.

Main findings

These authors show that, for less-skilled workers, sources of good jobs shifted away from the manufacturing sector toward the retail, administrative, construction, and healthcare sectors from 1992 to 2003. Nonmanufacturing sectors account for a rising share of low-skill workers who earn above-average wages. Most importantly, this work suggests that it has become increasingly difficult for low-skill workers to land high-paying jobs. In other words, high pay is increasingly a function of one's skills rather than one's job, implying that high-paying jobs that do not require advanced skills have grown increasingly scarce. Moreover, other evidence suggests that soft job skills, such as the ability to communicate effectively, have become increasingly important, contrary to the common perception that technical skills are paramount.

Policy implications

The study takes a relatively passive approach to industrial policy, suggesting that mismatches are a leading cause of labor market gaps and slack. This perspective suggests that improving information for and encouraging workers to acquire skills remains important to help them find better jobs, even if skill mismatch is limited in the current labor market.

LATEST WORK

Building on the work that has come before, Marcela Escobari and co-authors are developing quite innovative descriptive methods that level new data resources and capture essential heterogeneity in the process. Results, policy implications, and relevance to our work vary, but a few examples below suggest opportunities for JQI work to be communicated effectively.

Figure 2: Mobility Example (Escobari et al: 2021)

a. Retail salespersons: High upward mobility
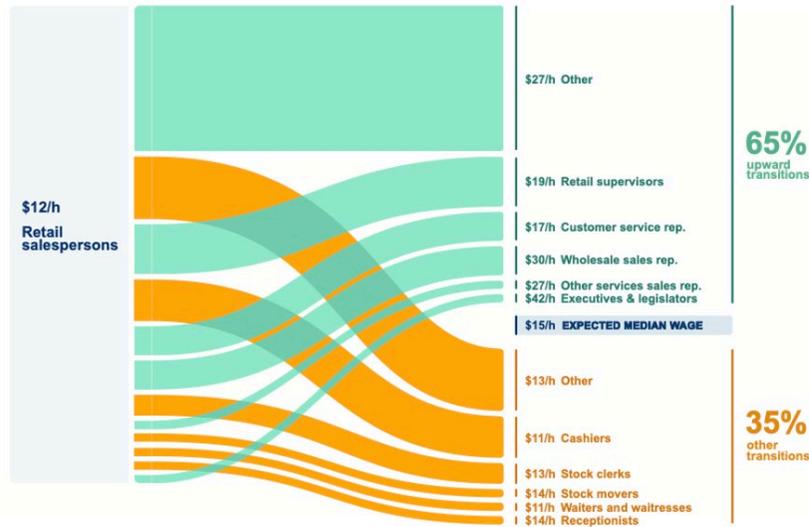
b. Personal care aides: Low upward mobility
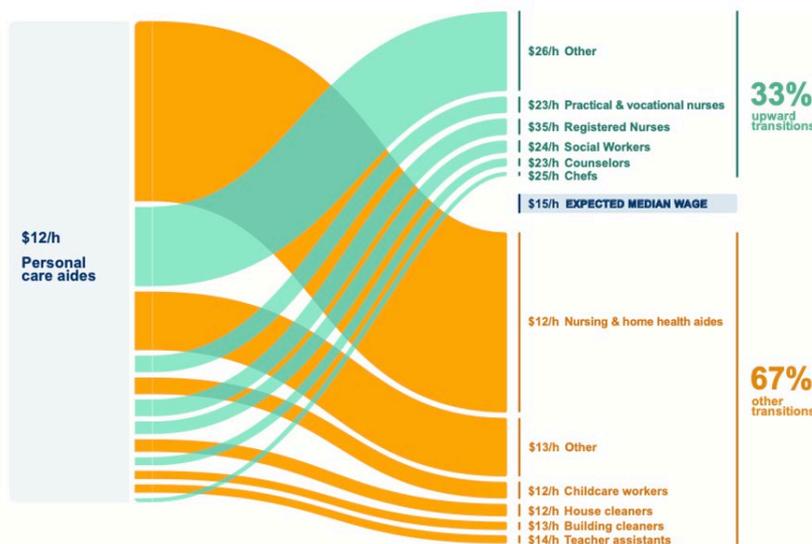
Source: Authors' analysis of CPS-IPUMS data.

Example: Escobari, M., I. Seyal, and C. Daboín Contreras. "Moving up: Promoting workers' economic mobility using network analysis." Technical report. Workforce of the Future Initiative. Brookings. 2021. July. https://www.brookings.edu/research/moving-up-promoting-workers-upward-mobility-in-a-time-of-change/

Main findings

Heterogeneity is much more important than has been recognized, both in terms of patterns of opportunity and enterprise results. Better information for private and public actors can significantly increase benefits on both sides.

Policy implications

More detailed and timely labor market Information is a public good that can have high returns to individual workers, firms, and the economy generally.

A LOCAL BROOKINGS ASSESSMENT

Approach

Based on a general policy consulting model they have applied nationally and regionally (see References for more examples), Shearer, Shah, and Gootman (2019) have a good analysis of the issues in the Inland Empire. They take an explicitly multidimensional approach – focusing on earnings, mobility, and benefits. The core of their analysis, including an extension of Holzer's original quintile matching approach and estimation of occupational mobility matrices, makes intensive use of BLS/CPS, Census/ACS, and related sources with a twofold target job classification:

- Good jobs – Offer middle-class wages and benefits

- Promising jobs – Entry-level and may not be good now, but offer credible pathways to good jobs

Figure 3: Share of good jobs, promising jobs, and other jobs based on the 101 million total jobs in the 100 largest US metropolitan areas
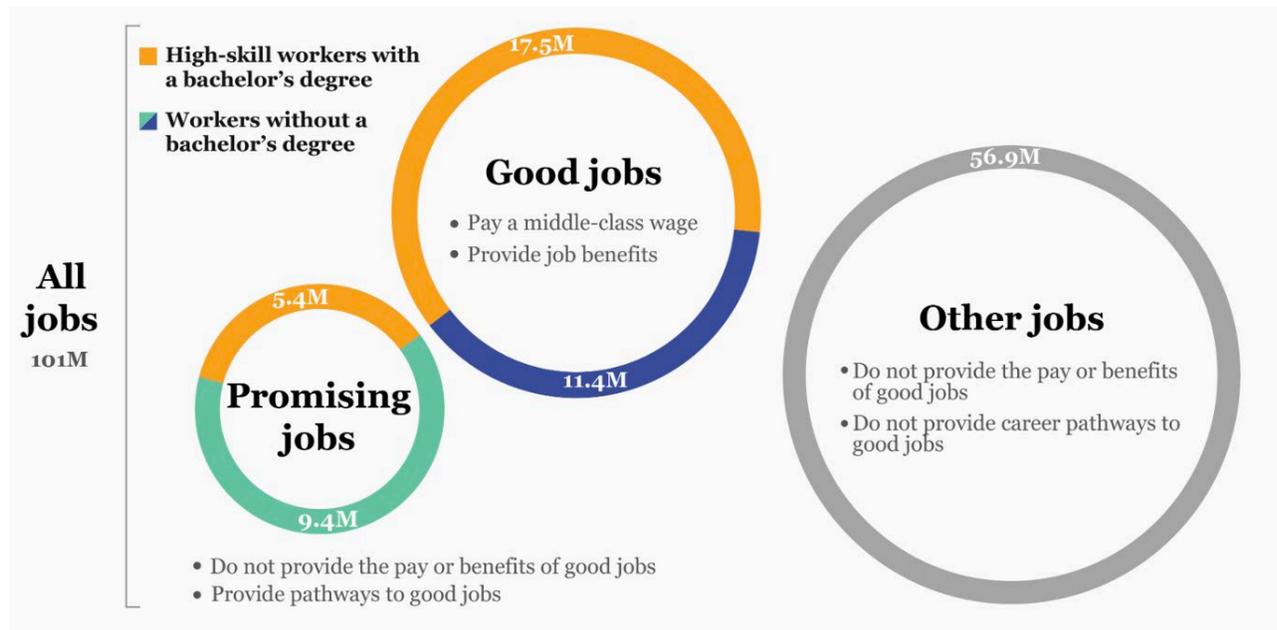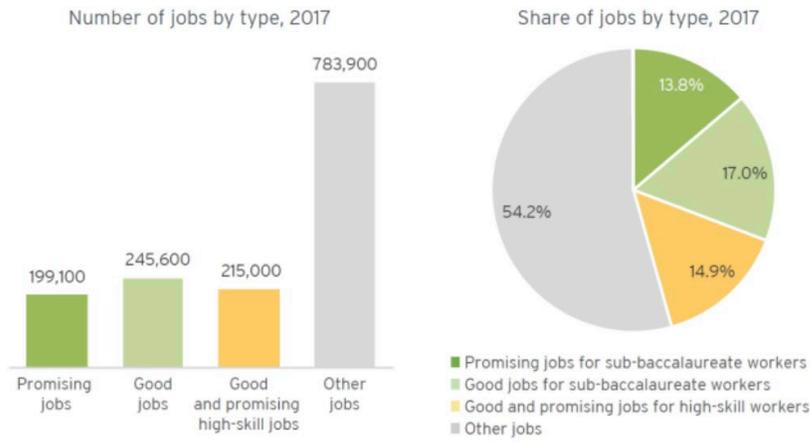
Figure 4: Glass Half Full or Half Empty?

About 445,000 of the Inland Empire's 1,445,000 jobs are good or promising for sub-baccalaureate workers
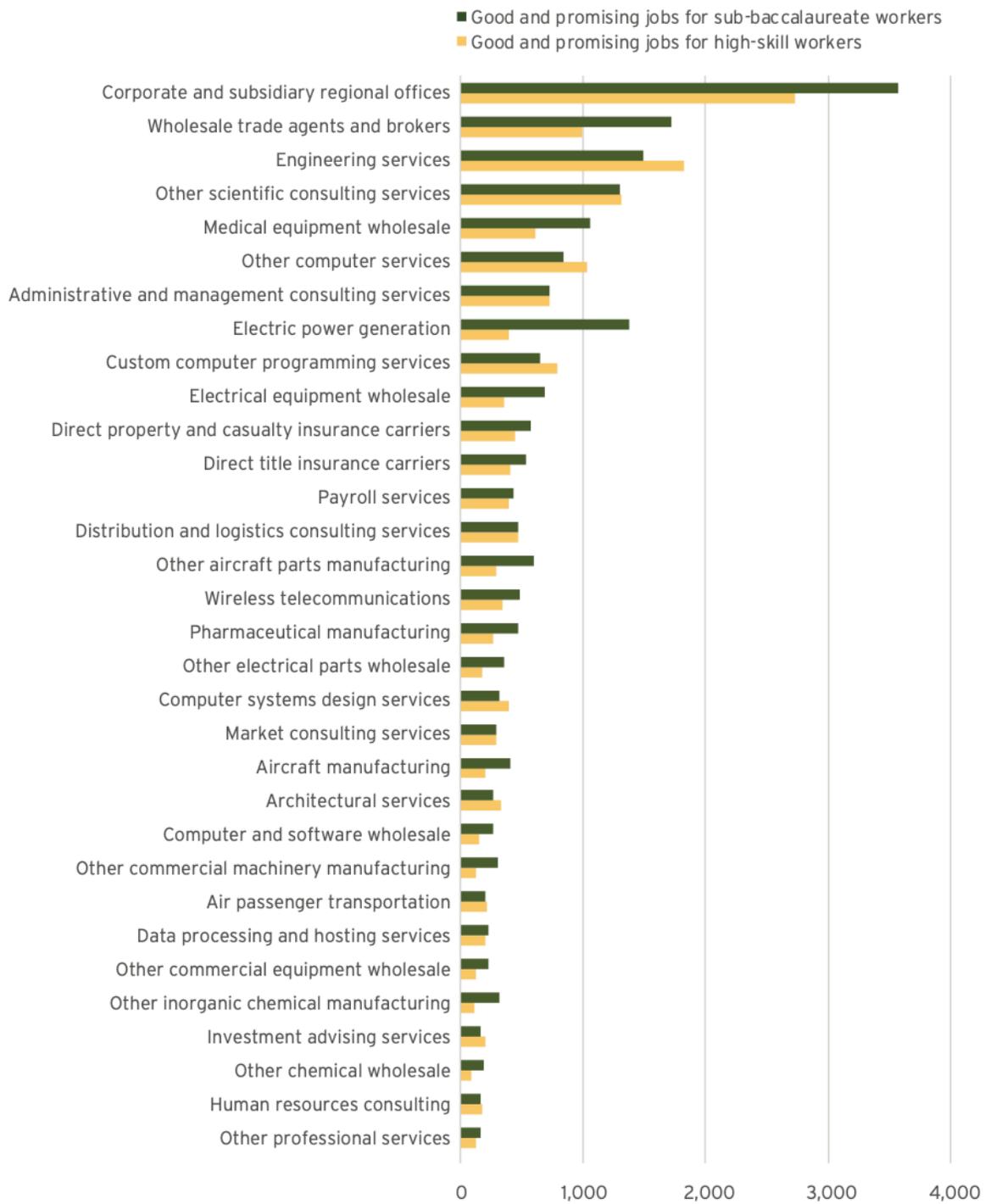

Source: Figure 10, page 27 of https://www.brookings.edu/wp-content/uploads/2019/02/Full-Report_Opportunity-Industries_Inland-California_Final_Shearer-Shah-Gootman.pdf

Figure 5: Some Sectors are much more Promising than others

A select set of tradable industries concentrate good and promising jobs for all workers

Good and promising jobs in the Inland Empire's Opportunity Industries, 2017

Legend:
- ■ Good and promising jobs for sub-baccalaureate workers
- ■ Good and promising jobs for high-skill workers

Categories (top to bottom):
- Corporate and subsidiary regional offices
- Wholesale trade agents and brokers
- Engineering services
- Other scientific consulting services
- Medical equipment wholesale
- Other computer services
- Administrative and management consulting services
- Electric power generation
- Custom computer programming services
- Electrical equipment wholesale
- Direct property and casualty insurance carriers
- Direct title insurance carriers
- Payroll services
- Distribution and logistics consulting services
- Other aircraft parts manufacturing
- Wireless telecommunications
- Pharmaceutical manufacturing
- Other electrical parts wholesale
- Computer systems design services
- Market consulting services
- Aircraft manufacturing
- Architectural services
- Computer and software wholesale
- Other commercial machinery manufacturing
- Air passenger transportation
- Data processing and hosting services
- Other commercial equipment wholesale
- Other inorganic chemical manufacturing
- Investment advising services
- Other chemical wholesale
- Human resources consulting
- Other professional services

X-axis: 0, 1,000, 2,000, 3,000, 4,000

Source: Authors' analysis of U.S. Census Bureau microdata and EMSI estimates

Main findings

- It has become increasingly difficult for sub-baccalaureate workers to find high-paying jobs.

- Investing in the competitiveness of certain opportunity industries can increase the region's stock of Good jobs.

- Providing new types of education and workforce support can improve workers' ability to obtain Good or Promising jobs.

- Addressing race and gender gaps is crucial to securing the Inland Empire's economic future.

Policy implications

- Advance the capabilities and competitiveness of local firms in opportunity-rich manufacturing and logistics industries, prioritizing higher wages and skills.

- Diversify the region's economic base by developing new technological and industrial capabilities that complement its logistics and manufacturing specializations.

- Connect people to the information, education, and resources they need to obtain a Good job now or in the future.

CORNELL LAW SCHOOL (NOW AT SUNY BUFFALO)

This study represented a significant advance in terms of structural detail, taking account of much more specialized sectors and occupations. There were also important innovations on the statistical side, examining more detailed distributional characteristics relevant to inequality and asymmetry of labor market returns. Despite this, the approach remains hierarchical and not multidimension. In essence, it relies on wage data and stratifies the population using a number of proxy variables based on relative compensation.

Example: Alpert, Daniel, Jeffrey Ferry, Robert Hockett, and Amir Khaleghi. 2019. "The U.S. Private Sector Job Quality Index". Cornell Law School.

CALLUP/GATES/LUMINA/OMIDYAR

Approach

This is a next-generation contribution that can be very helpful. Technically like Brookings and OECD (discussed below), but the most sophisticated yet among US assessments.

Figure 6: Job Satisfaction and Placement
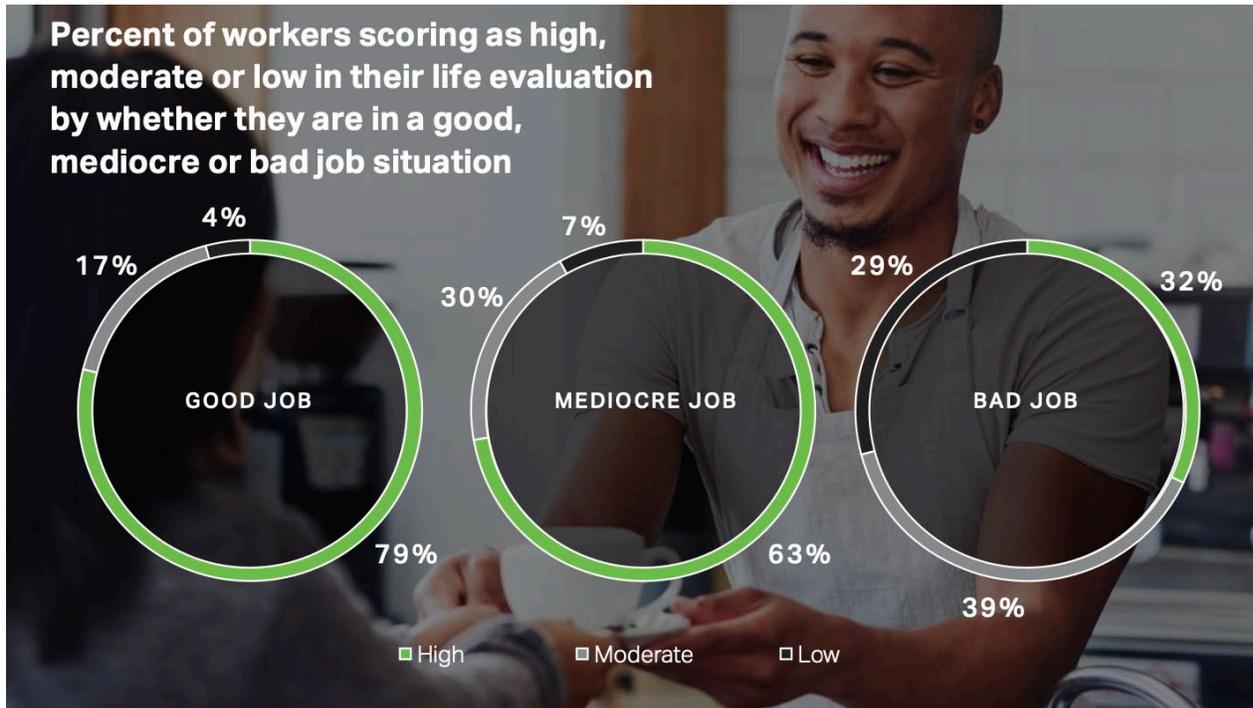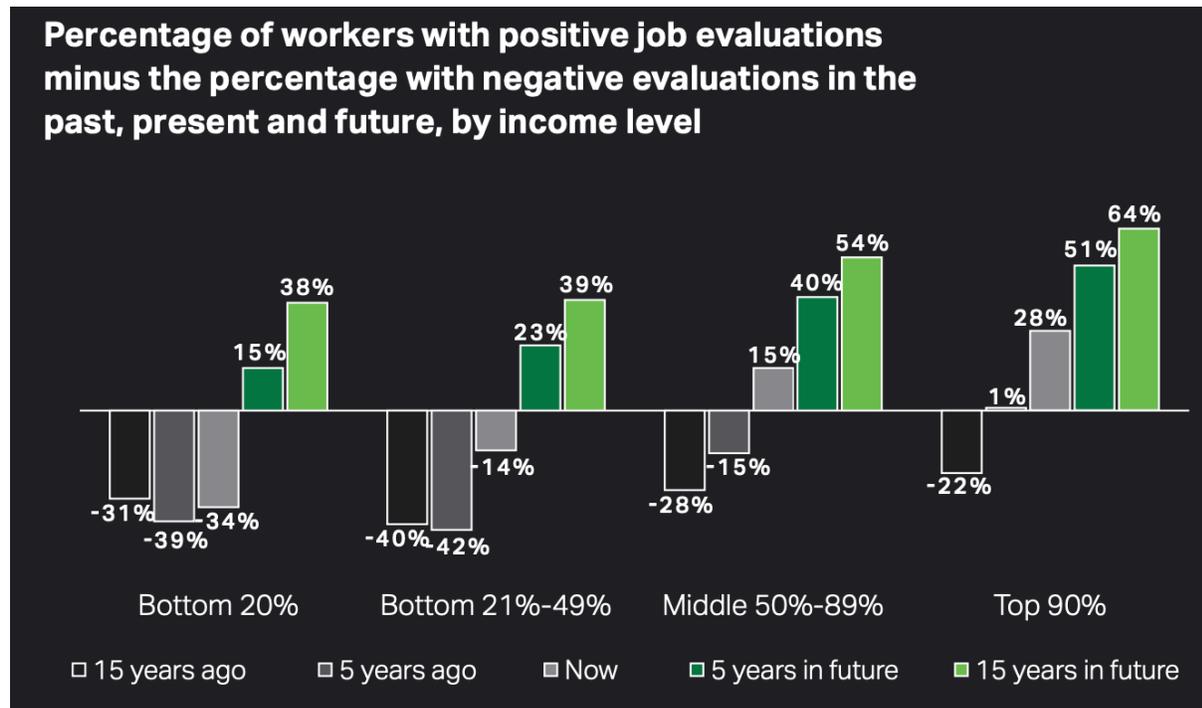

Percent of workers scoring as high, moderate or low in their life evaluation by whether they are in a good, mediocre or bad job situation

GOOD JOB: 4%, 17%, 79%
MEDIOCRE JOB: 7%, 30%, 63%
BAD JOB: 29%, 32%, 39%

■ High ■ Moderate □ Low

Figure 7: Job Quality Expectations

Percentage of workers with positive job evaluations minus the percentage with negative evaluations in the past, present and future, by income level

Example: Rothwell, Jonathan, and Steve Crabtree. 2019. "Not Just a Job: New Evidence on the Quality of Work in the United States". Gallup and The Bill & Melinda Gates Foundation

Distinguishing features of the study:

1. Historical focus on wages
2. Considers 10 dimensions of quality workers care about
3. Uses a direct (GALLUP) survey of about 10K US workers to estimate their JQI, then compares to CEPR's indicator[2]

Variables studied:[3]

1. Level of pay
2. Stable and predictable pay
3. Stable and predictable hours
4. Control over hours and/or location (e.g., ability to work flexible hours, work remotely)
5. Job security
6. Employee benefits (e.g., healthcare, retirement)
7. Career advancement opportunities (e.g., promotion path, learning new skills)
8. Enjoying your day-to-day work (e.g., good coworkers/managers, pleasant work environment, manageable stress level)
9. Having a sense of purpose and dignity in your work

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[2] We have taken a similar approach with a randomized survey of local labor markets.

[3] In a comprehensive scheme, it would be important to take account of potentially offsetting and/or synergistic interactions between all these factors, as well as representation among the self-employed and informal workers.

10. Having the power to change things about your job that you're not satisfied with

These are then converted to indices with weights from subject "importance" questions. A Good job has an importance-weighted average score of "4" or above; a Mediocre job has an importance weighted score that is less than "4" but above "3." A Bad job has a score at or below "3." These scores are used to support the following. They also evaluate extremes and clusters of responses ("life" and "career" quality proxies). National satisfaction results generally agree with Shearer et al. (2019).

Main findings

1. Less than half of American workers are in good jobs
2. Low-income workers are far less likely to receive employment benefits, from health insurance and retirement plans to maternity and sick leave
3. Older workers, white workers, and those with high levels of education are most likely to be in good jobs
4. Among sub-baccalaureate workers, certifications are strongly associated with good jobs
5. Workers in rural areas and small towns give higher job quality ratings despite lower average incomes
6. Workers across income levels generally agree on the most important job quality dimensions
7. Low-income workers are more likely to be "disappointed" with all aspects of job quality
8. Most workers say their pay has improved in the last five years, but other aspects of their job have not
9. Two-thirds of U.S. workers say they are currently in their "best job ever"
10. Job quality varies systematically by type of job (full time, part time, multiple), organization size, type of work, occupation, and sector."

Policy implications

Not forthcoming in this area, the report emphasized sampling and estimation of labor market characteristics. Many policy conclusions may be drawn from these results by readers, but the report is primarily a public information exercise and not prescriptive.

ASPEN INSTITUTE / MIT

Approach

Aspen collects, features, and occasionally sponsors a diverse array of job quality-relevant sources and institutions. They have limited in-house capacity but are a useful portal for relevant research by others.

Example: Aspen Institute. "Job Quality Tools Library," Aspen Institute, October 29, 2020, https://www.aspeninstitute.org/longform/job-quality-tools-library/section-1-understanding-job-quality/.

Aspen features MIT's Good Jobs Institute, an innovative, women-founded and directed research group, striking a good balance of the multidimensional and market orientation approaches. In addition to high

empirical standards, they offer enterprises tools to facilitate voluntary and effectively targeted job quality improvements.[4]

Main findings

Aspen synthesizes many results from their various contributors, but it is better to consult the original sources.

Policy implications

There are a variety of implications that can be drawn; however, like the Good Jobs Institute, they are relatively non-prescriptive and more targeted at promoting public information.

CENTRE FOR ECONOMIC POLICY RESEARCH (CEPR)

Approach

This work initiated job quality research in Europe and has been quite influential with European Commission (EC), United Kingdom (UK), and the Organization of Economic Cooperation and Development (OECD, see below)[5]. It begins with a generic Good-Bad indicator based on three job characteristics: pay, health insurance, and pension benefits.

The seminal work for CEPR (Schmitt: 2005, 2007, and 2012) relied mainly on data from the US Bureau of Labor Statistics. This has since evolved under OECD sponsorship, which has invested in its own database, focused on more economies (especially the European Community) and a broader vision of job quality.

Main findings

Consistent with the sense of the time (globalization), labor market conditions are fragmenting and subject to "slack" demand cycles.

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[4] https://goodjobsinstitute.org/good-jobs-scorecard/

[5] See, e.g., "Good jobs for all in a changing world of work," OECD, 2023. https://www.oecd-ilibrary.org/social-issues-migration-health/good-jobs-for-all-in-a-changing-world-of-work_9789264308817-en

Figure 8: Good Jobs as a Share of Total Employment, 1979-2006
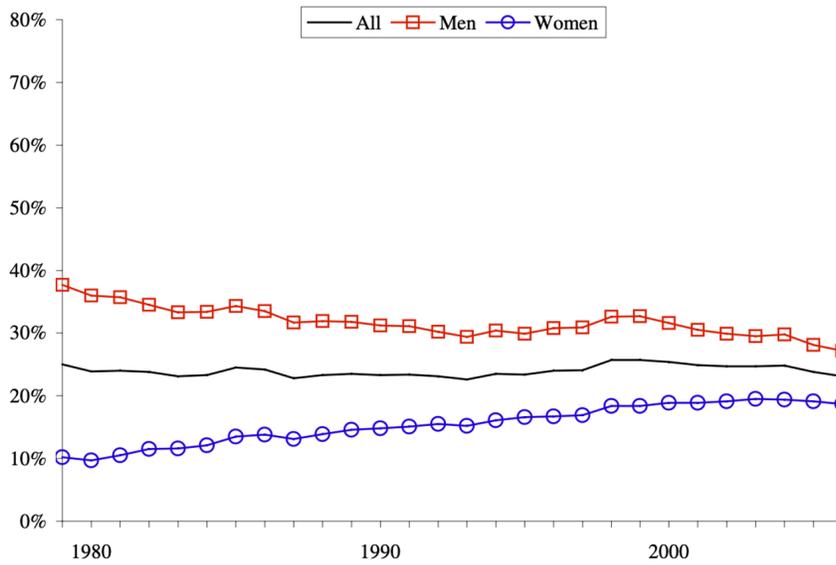
Example: Schmitt, John, and Janelle Jones. "Making jobs good." Challenge 56, no. 4 (2013): 6-21.

Policy implications

A variety of policies can help, but they need to be much more specifically targeted than macroeconomic stabilization measures.

Figure 9: Impacts of Alternative Labor Market Policy Regimes
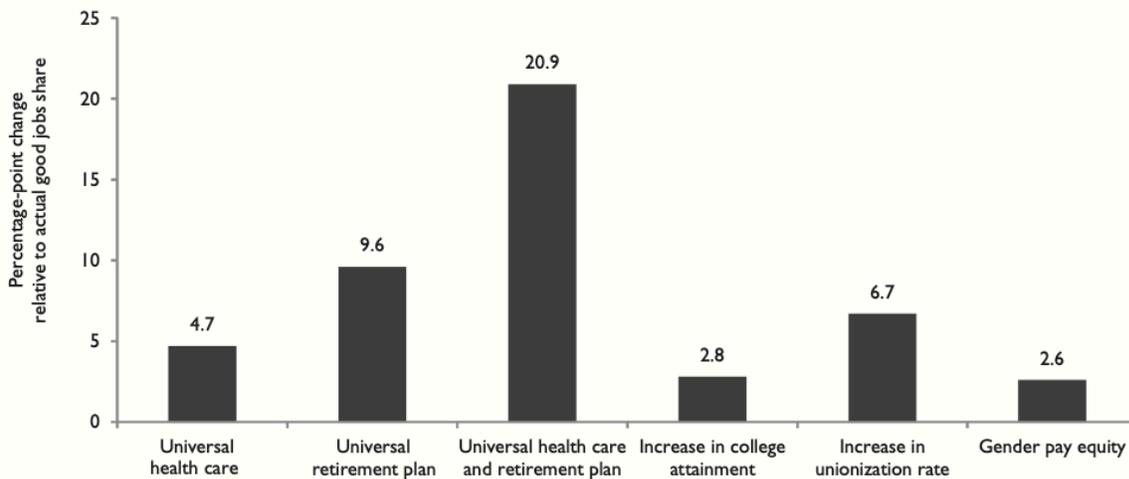
Figure 3. Simulated Effect of Policy Changes, Good Jobs, 2011

Source: Authors' analysis of U.S. Census Bureau and U.S. Bureau of Labor Statistics, Current Population Survey, March.

ORGANIZATION FOR ECONOMIC COOPERATION AND DEVELOPMENT (OECD)

Approach

This approach originated in the Centre for Economic Policy Research (CEPR) and includes three criteria multidimensional tracking:

1. Earnings quality - relative to distribution and Cost of Living Adjustment (COLA) issues
2. Labor market security – risk of unemployment, adjusted for income support
3. Labor market security – includes "job strain"

OECD took the original CEPR (Schmitt and co-authors), US-oriented work in this area and made big investments in public data resources (following BLS).

Figure 10: OECD Job Quality Indicator

Dimensions	Indicators
Earnings	**Headline indicator: Earnings Quality**
	- Average Earnings
	- Earnings Inequality
Labour Market Security	**Headline indicator: Labour Market security against unemployment**
	- Unemployment risk
	- Unemployment insurance
	Headline indicator: Labour Market security against extreme low-pay *(a)*
	- Probability of falling into extreme low-pay
	- Probability of getting out of extreme low-pay
Quality of the Working Environment	**Headline indicator: Job strain**
	Job Demands
	- Time pressure at work
	- Physical health risk factors
	Job Resources
	- Work autonomy and learning opportunities
	- Workplace relationships
	Supplementary indicator: Working very long hours

Example: Cazes, Sandrine, Alexander Hijzen, Anne Saint-Martin. "Measuring and Assessing Job Quality: The OECD Job Quality Framework." OECD Social, Employment and Migration Working Papers No. 174. 2016. https://dx.doi.org/10.1787/5jrp02kjw1mr-en

Main findings

Substantial and sustained heterogeneity across countries in all three job quality indicators.

Figure 11: Earnings Quality

(PPP-adjusted gross hourly earnings in US dollars, 2013 or latest year available)
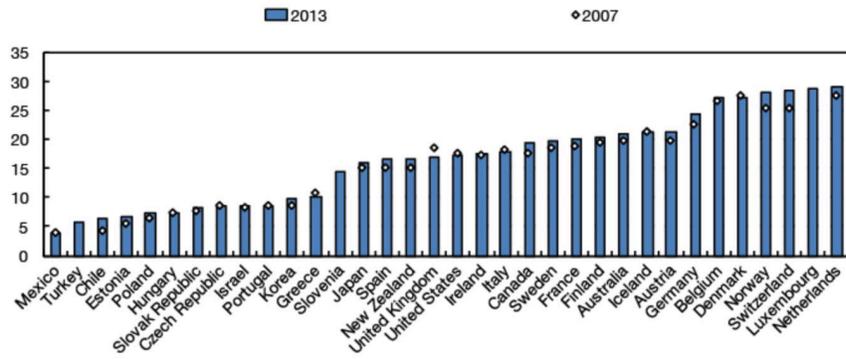
Source: OECD Job Quality Database (2016).

Figure 12: Labor Market Insecurity

(risk of becoming unemployed and its expected cost as a percentage of previous earnings, 2013)

Figure 13: Quality of the Working Environment

(incidence of job strain, %)

Example: Garnero, Andrea, Stefano Scarpetta Sandrine Cazes. "Measuring the quality of jobs in OECD countries." CEPR VoxEU Working Paper. London. 2016. https://cepr.org/voxeu/columns/measuring-quality-jobs-oecd-countries
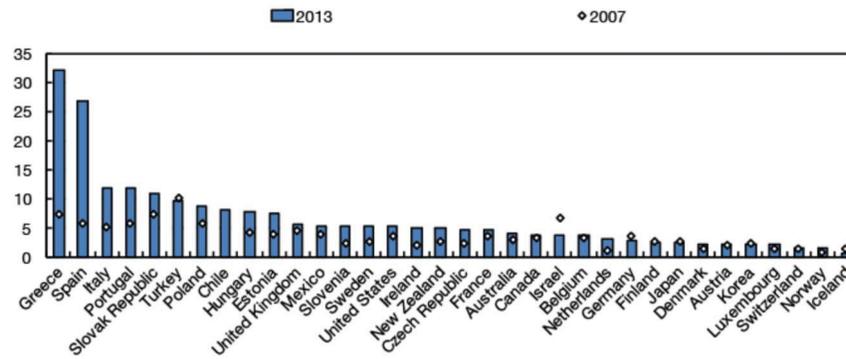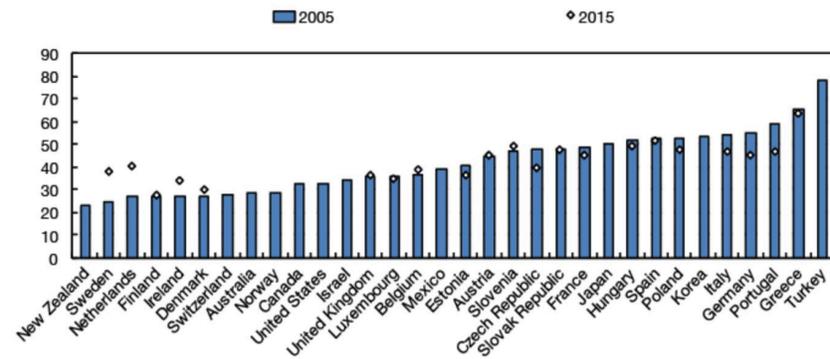
Policy implications

Policies aimed at improving job quality will not necessarily face a trade off with the objective of also creating more jobs. On the contrary, there are potential synergies: countries that do relatively poorly with respect to job quality tend to have relatively low employment rates and vice versa.

OECD's approach requires a substantial amount of resources for data development, synthesis, and presentation, making this approach difficult to replicate; nevertheless, SCAG's JQI benefits from these ideas. SCAG's JQI also incorporates direct local survey data and California's relatively rich economic data allow us to build out many descriptive dimensions of the JQI discussed below. For future extensions, some of OECD's information tools are very attractive potential extensions to the current JQI, e.g. the Job Strategy Dashboard[6]:

OTHER ACADEMIC WORK

A vast literature, but surprisingly few contributions meet our needs in terms of relevance and quality. Most work is too macro or too specifically enterprise focused. For example, many studies focus on firm-level human resource use (skill requirements, training, etc.), productivity, innovation, profitability, and competitiveness and are not easy to generalize with two exceptions.

Estevão and Tsounta (2011) seek to determine the magnitude of skill mismatches in the United States after the Great Recession. Most analysts agree that the high post-recession unemployment rate has a large cyclical component reflecting low labor demand. These authors agree that labor demand may be trending below potential, but they believe the main challenges are skill mismatches and limits to geographic mobility (especially fixed asset values). The skill mismatch challenge could be addressed with a combination of better information and workforce development. Asset (especially housing) values will be cyclical and capital market inefficiencies will continue to hinder mobility.

Furchtgott-Roth, Jacobson, and Mokher (2009) stress how community colleges can enhance skills and highlight how these institutions can improve. The authors use a large data set tracking 135,000 Florida students from the high school class of 2000. They match high school and post-secondary education with detailed earnings data from the unemployment insurance system. These data illuminate the associations between grades in school, degrees, courses of study, and labor market experiences. Community colleges are particularly interesting because they account for nearly half of U.S. undergraduate enrollments and provide disadvantaged groups a key route for upward mobility.

The authors believe this channel for human resource development is underperforming for two reasons. Firstly, community colleges lack rational incentives to adapt their curricula toward higher quality jobs. In California their funding is based on enrollment rather than the relative costs of different fields of study. In addition, community colleges face financial obstacles to expanding course offerings in high-earnings fields. In technical fields, for example, instruction is more expensive. Secondly, students may not have information about earnings prospects in different fields.

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[6] https://www.oecd.org/employment/jobs-strategy/country/dashboard/

Community colleges could also place greater emphasis on career counseling that provides information about the relative returns in those fields. The authors also recommend that community colleges expand guidance programs to help students acquire skills that qualify them for job opportunities. Meanwhile these institutions should also establish and sustain closer working relationships with local business communities (Hu et al: 2019, Mokher et al: 2018).

BARGAINING APPROACHES

Approach

This work owes most of its conceptual and institutional framework to political economy approaches supporting organized labor since the first quarter of the last century, especially in the US. As such, it emphasizes firm or industry-specific bilateral management-labor relations, collective bargaining, and other paradigms of regulating employer behavior.

Main findings

In California, this work is concentrated at labor-focused institutes, especially the Labor Institute at UC Berkeley and the Labor Center at UCLA. Their contributions are exemplified by two "High Road" studies that, beginning from the same initial conditions as everybody else, reach different policy conclusions. These differences can be adduced to alternative causal (political economy) interpretations of past, present, and future enterprise development in the state.

Example: González-Vásquez, Ana Luz, Magaly N. López, and Javier Garcia-Perez. "The High Road to Economic Prosperity: An Assessment of the California Workforce Development Board's High Road Training Partnership Initiative." (2021).

Policy implications

These are numerous and distinctive, including advocacy of a California Workforce Development Board's (CWDB) High Road Training Partnership (HRTP) initiative, offering "a more inclusive definition of industry leadership and build collective power", "promoting worker voice and power, systems change, culture shifts", etc.

Summary

This research and policy literature represents valuable diversity of perspective and stakeholder advocacy. It cannot, however, inclusively address the information needs of the enterprise sector and the majority of California workers who are not, do not want to be, and are unlikely to be represented by unions.

SCAG's Approach to Measuring Local Job Quality

BASIC STRUCTURE OF THE JQI

This section summarizes the general methodology developed to estimate the SCAG JQI. For both workers and enterprises, better information is essential to planning career development and recruiting for productivity and retention. For policymakers, the complexity of today's economy means that relying on intuition alone is unlikely to achieve anything close to optimality. All these factors increase the value of relevant, accurate, and timely data on labor market conditions. Wage data are relatively easy to find, but job quality characteristics are not as available to inform more effective job choice, recruitment, or policy. Because these are important to workers and firms, job quality metrics can support more effective decision making and more inclusive economic progress.

Figure 14: A SCAG Job Quality Index (JQI) Aggregating 16 Sub-Indicators
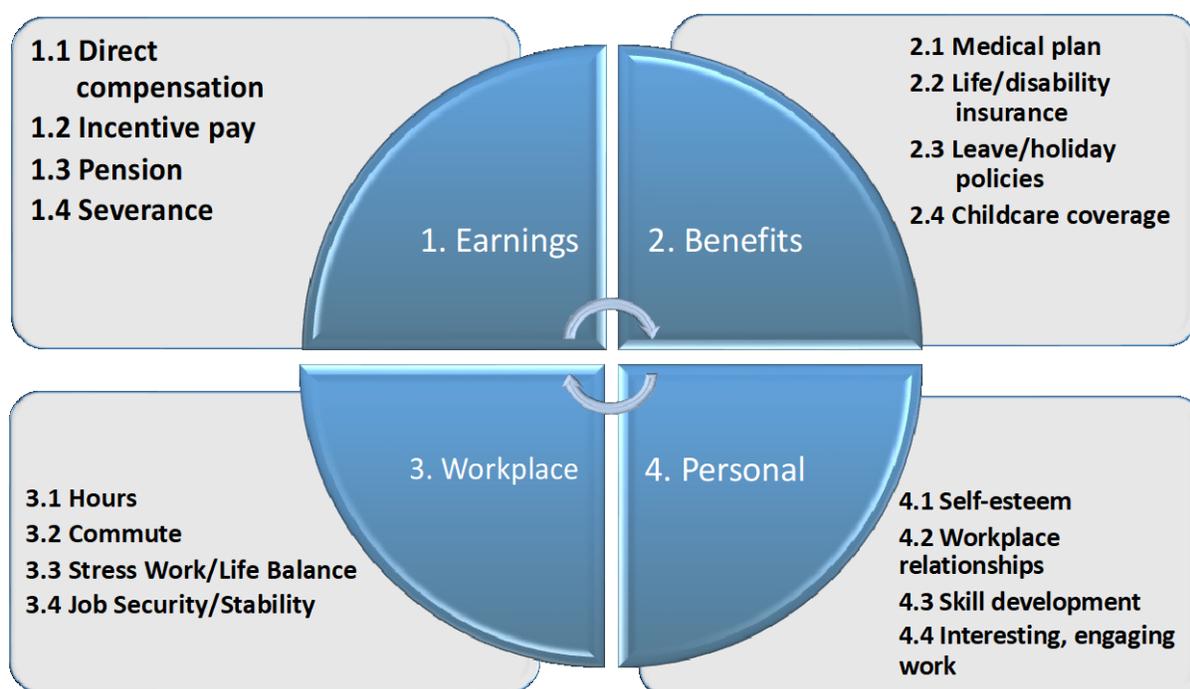
In this review of the literature on job quality, an overarching message is that effective labor market policy requires a much more detailed understanding of supply and demand patterns, occupations, sectors, and space. Fortunately, ever-expanding data resources can now support much more effective identification of the forces and better targeting of labor market policies. This project designed a multidimensional Job Quality Index incorporating the latest data and statistical methods. The approach is comprised of two parts.

1. A composite indicator representing different dimensions of job quality.
2. A weighting scheme based on direct surveys of the local working population, rating each sub-indicator in order of personal importance.

Figure 14 shows schematically how job quality can be proxied by the composite indicator and progress tracked and reported at the sub-indicator level. This approach, a hybrid of methods surveyed above, would be estimated with an appropriately cost-effective combination of secondary data and primary survey information, based on a representative sample across SCAG.

JQI ESTIMATES AND INFERENCES

The direct survey provides a basis to assure that the JQI reflects local preferences toward job characteristics, but then it remains to calibrate the indicator to relevant data on labor market characteristics. As a practical matter, it is not realistic to gather primary data on an economy the size of the SCAG region, but fortunately California has relatively rich publicly available, detailed, and timely data. For this purpose, the project identified one or more sources of information or proxy variables that can represent the sixteen constituent attributes of the JQI. In some cases (e.g. direct compensation, benefit coverage), these correspond literally to job quality characteristic of interest. In others, direct measurement can only be made for related variables that can reasonably be expected to be highly correlated with the job characteristic (e.g. Stress or Job Security). In all cases, a dedicated effort was made to meet three standards: **relevance, geographic detail, and timeliness.** As time goes, better fitting data sources may be identified or emerge, but for the present effort, Table 2 summarizes the data that has been assembled. This information is also assembled in a companion Excel tool for public access. As with Figure 1, these categories are defined in four parts, sixteen individual job quality characteristics, four generic groups, and one JQI, all aggregated with weights reflecting local preferences.

Table 3: Data Sources for JQI Components

Indicator	Category	Proxy Variables	Sources	Region	Frequency
JQI	Job Quality Index				
1	Compensation				
2	Benefits				
3	Workplace				
4	Personal				
1.1	Direct compensation	Weighted average of real wages (occupation and headcount)	BLS, ACS, EDD	County, Census Tract	1,5 year
1.2	Incentive pay	Percentage of workers with bonus or overtime pay	BLS, ACS, EDD	State	Annual
1.3	Pension	Percentage of workers covered	BLS, Fred	National	Annual
1.4	Severance	Weighted average weeks of FTE job tenure	BLS	National	Annual
2.1	Medical Insurance	Percent of workers with employer provided medical coverage	IPUMS	County	1, 5 year
2.2	Life/disability Insurance	Percentage of workers with California coverage	BLS, ACS, CES4	State	Annual
2.3	Leave/holiday Policies	Percent of workers with access to leave and vacation benefits	BLS	National	Annual
2.4	Childcare coverage	Total FTE Employment of Childare Workers ('000)	Fred	State	Annual
3.1	Hours	Weeks worked last year	IPUMS	County, SOC-22	1,5 year
3.2	Commute	Transit time to work, individual reporting	IPUMS	County, NAICS-2, SOC-22	1,5 year
3.3	Stress, Work/Life Balance	Housing costs as a percent of HH Income	IPUMS	County, SOC-22	1,5 year
3.4	Job Security/Stabiity	Percent of eligible workers looking for work	IPUMS	County, SOC-22	1,5 year
4.1	Self-Esteem	Average of 5 independent job status indicators	IPUMS	County, NAICS-2, SOC-22	1,5 year
4.2	Workplace Relationships	Gallup Workplace Engagement Indicator	ACS, CA/EDD, USCB	National	One time
4.3	Skill development	Expenses for Business Schools and Computer and Management Training, Establishments Exempt From Federal Income Tax, Employer Firms, Millions of Dollars, Annual, Not Seasonally Adjusted	BLS-Beta	National	One time
4.4	Interesting, Engaging Work	Quits as percent of Total EFT Employment	BLS-JOLTS	National	Annual

Abbreviations: Bureau of Labor Statistics (BLS), CalEnviroScreen 4.0 (CES4), American Community Survey (ACS), Employment Development Department (EDD) of California, Federal Reserve Bank of St. Louis (Fred), Integrated Public Use Microdata Series (IPUMS).

Once the estimation data are assembled, the next step is to combine estimates of each proxy index in the sixteen categories with its respective weight.

It should be noted at the outset that the range of values for each indicator is decided by the sample and calculated. Original units depend on the individual data series, but results in the Index column are unit free, making them additive. Higher values correspond to higher perceived job quality. In other words, like Fahrenheit or Celsius, inches or centimetres, units are arbitrary but sticking to one standard enables comparisons.

If that number goes up or down, the labor market looks better or worse to the average SCAG worker, to a degree that could be estimated in simple percentage change terms. Moreover, the source of the aggregate JQI difference would be immediately decomposable into sixteen possible determinants.

With respect to the economic data, several of our proxy variables did not have county-level industry and occupation level disaggregation, and thus the economic data for these metrics will not have variation (e.g. a state, national, or all-industries proxy is used). As more bespoke and granular independent data become available, more heterogeneity can be identified. It should also be born in mind that comparisons across time will reveal more complex changes.

Because the economic data is weighted by industry average, we first present the JQI calculated across industry (Table 4). The industry classifications used are NAICs 1-digit industry codes. Each value represents the economic data for a particular industry, normalized by the industry average, and then scaled by the preference data for that industry.
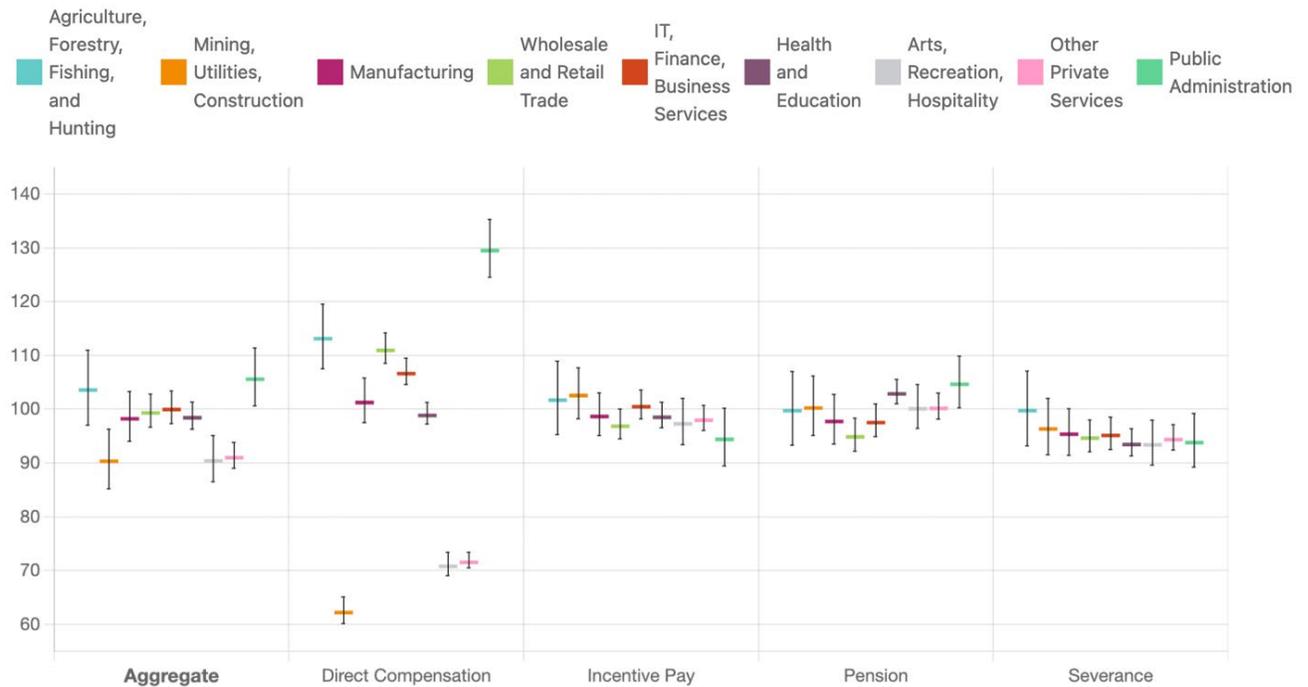
Table 4: Job Quality Indicators across Industries (100 = average quality)

Indicator #	Category	Indicator	Agriculture, Forestry, Fishing, and Hunting	Mining, Utilities, Construction	Manufacturing	Wholesale and Retail Trade	IT, Finance, Business Services	Health and Education	Arts, Recreation, Hospitality	Other Private Services	Public Admin
1	Earnings	-	100.7	108.9	101.4	96.8	101.4	98.0	94.5	93.5	104.7
2	Benefits	-	98.2	101.5	101.0	101.6	102.4	101.9	93.3	94.9	104.3
3	Workplace	-	111.6	110.8	110.2	117.7	114.3	124.0	115.5	126.1	119.1
4	Personal	-	98.3	97.0	98.5	94.7	97.8	98.1	97.6	94.2	97.4
1.1	Earnings	Direct Compensation	104.6	135.6	112.7	99.8	111.3	96.0	86.2	80.6	124.9
1.2		Incentive Pay	100.8	102.9	99.0	97.2	100.8	98.9	97.6	98.3	94.7
1.3		Pension	99.7	100.6	98.1	95.2	97.9	103.2	100.4	100.5	105.0
1.4		Severance	97.7	96.7	95.7	95.0	95.5	93.8	93.7	94.7	94.1
2.1	Benefits	Medical insurance	107.3	119.7	114.0	113.7	116.9	120.3	98.4	94.1	121.4
2.2		Life and Disability Insurance	99.1	99.3	98.1	99.7	98.4	97.6	93.5	98.0	103.3
2.3		Leave / Holidays	99.9	100.1	103.2	104.9	106.9	104.2	100.3	105.8	105.2
2.4		Employer-provided Childcare	86.5	87.1	89.0	87.8	87.3	85.6	81.0	81.7	87.4
3.1	Workplace Conditions	Hours	111.5	114.4	112.2	117.6	105.8	109.6	107.1	114.3	112.6
3.2		Commute	109.1	98.4	106.8	115.8	122.4	117.6	128.2	118.3	101.6
3.3		Stress	108.5	112.1	98.3	118.6	113.3	112.9	110.4	130.1	116.4
3.4		Job Security	117.4	118.5	123.4	118.9	115.7	156.0	116.4	141.9	145.9
4.1	Personal Development	Self-esteem	98.3	101.0	98.3	94.9	98.8	101.3	99.3	95.0	94.5
4.2		Workplace Relationships	92.1	88.0	91.3	88.1	92.6	91.5	88.1	86.1	93.6
4.3		Skill Development	101.5	101.2	102.6	98.6	100.4	99.7	99.8	98.2	101.3
4.4		Interesting Work	101.2	98.0	101.7	97.0	99.3	99.7	103.1	97.5	100.3

Table 4 reveals the significant JQI variation across industries, especially in the Direct Compensation, Medical Insurance, and Job Security sub-indicators but also in Commute, Hours, and Leave / Holiday policy.

We observe that in Direct Compensation; the Mining, Utilities, Construction industry has a JQI that is 52% lower than the Public Administration industry; the Arts, Recreation, Hospitality and Other Private Services industries also similarly have a low Direct Compensation score. The variation in Direct Compensation can be further visualized in Figure 15.

Figure 15: JQI of Earnings sub-indicators across industry (100 = average quality)

In the Job Security sub-indicator, we also see significant divergence. Agriculture, Forestry, Fishing, and Hunting; along with Mining, Utilities, Construction score significantly worse than the Public Administration or Health and Education (Mining, Utilities, Construction scores a JQI that is 83% lower than Public Administration). Figure 16 highlights the dramatic disparity in Job Security across industries, which is far more dramatic than the variation we see in Hours or Commute time to work.

Figure 16: JQI of Workplace Condition sub-indicators across industry (100 = average quality)
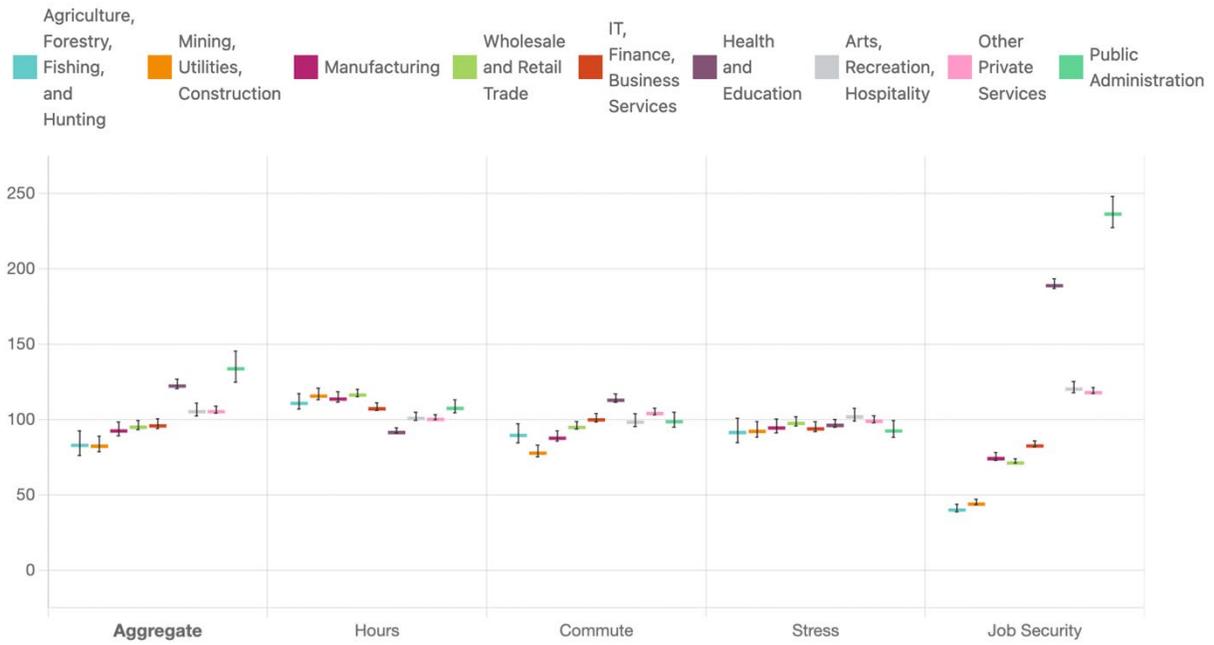
This variation seen in Table 4 is largely driven by the economic data; rather than different preferences across industry as Figure 15 shows that the survey ratings for JQI sub-indicators are largely stable across industry. Thus, the large Job Quality Index divergence discussed above is largely due to the differences in economic conditions across industry.

Figure 17: JQI Category Survey Ratings by Industry (1-5 scale)
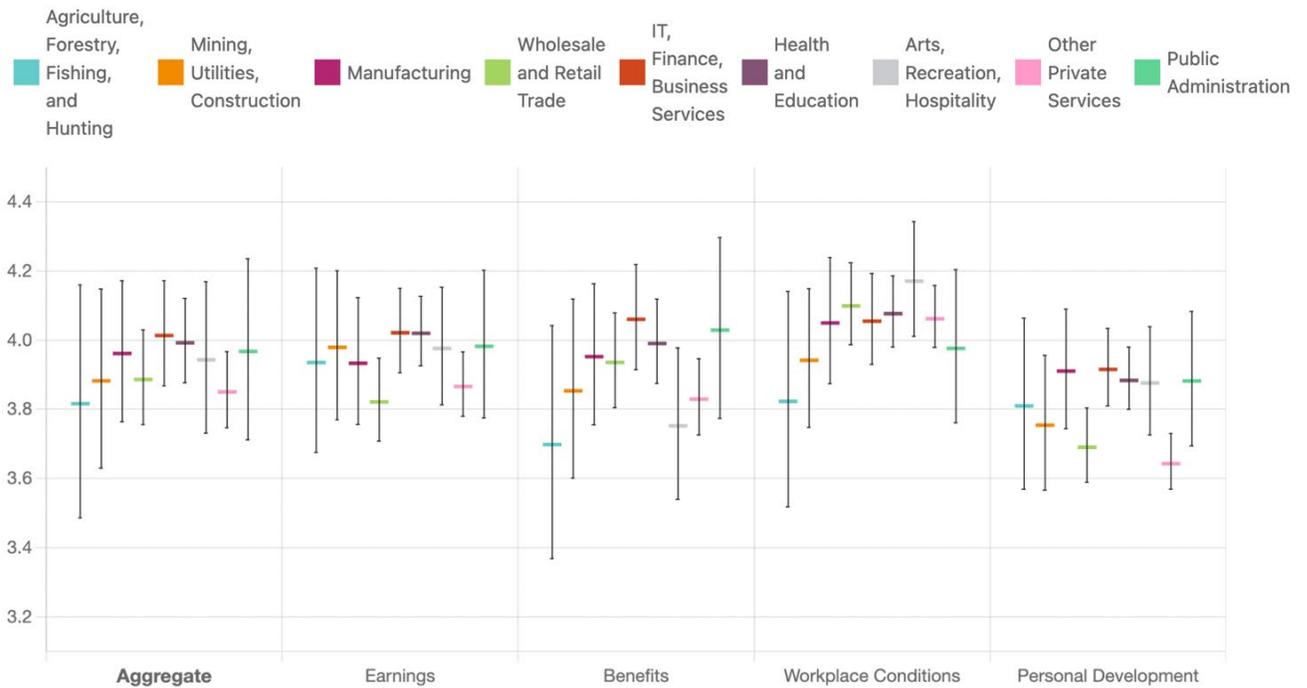
Next, we compare each county to the SCAG region in the following six tables. Like the cross-industry data, the tables are constructed taking into consideration the different preference weights and different economic data. Note that these tables compare sub-indicator values against the other sub-indicators in that county (e.g., the Direct Compensation in Imperial vs Imperial's other sub-indicators). It does not directly compare Imperial's Direct Compensation against another county's Direct Compensation.

For the following tables, we look at county-specific survey data and the economic data for all industries in that county. Because we weight the economic data by the industry average of each county, the JQI for each county (which is industry-aggregated) are driven by survey preference data.

Table 5 presents these estimates across all of SCAG's six counties. Tables 6 through 11 will present the estimates for each individual county and provide a comparison to SCAG average value from Table 5.

Table 5: Job Quality Indicators for the SCAG Economy

SCAG					
Indicator #	**Category**	**Indicator**	**Survey Rating**	**JQI Value**	**JQI Std Error**
1	**Earnings**	**-**	**3.95**	**100.25**	**0.58**
2	**Benefits**	**-**	**3.93**	**99.78**	**0.57**
3	**Workplace**	**-**	**4.08**	**103.50**	**0.50**
4	**Personal**	**-**	**3.80**	**96.46**	**0.47**
1.1	**Earnings**	**Direct Compensation**	4.24	107.51	0.51
1.2		**Incentive Pay**	3.89	98.73	0.55
1.3		**Pension**	3.94	99.90	0.58
1.4		**Severance**	3.74	94.87	0.57
2.1	**Benefits**	**Medical insurance**	4.39	111.29	0.50
2.2		**Life and Disability Insurance**	3.87	98.27	0.58
2.3		**Leave / Holidays**	4.11	104.39	0.52
2.4		**Employer-provided Childcare**	3.36	85.18	0.70
3.1	**Workplace Conditions**	**Hours**	4.23	107.44	0.44
3.2		**Commute**	3.89	98.81	0.52
3.3		**Stress**	3.85	97.64	0.59
3.4		**Job Security**	4.34	110.13	0.45
4.1	**Personal Development**	**Self-esteem**	3.85	97.82	0.47
4.2		**Workplace Relationships**	3.52	89.36	0.53
4.3		**Skill Development**	3.93	99.64	0.45
4.4		**Interesting Work**	3.90	99.03	0.45

The JQI value column in table 2 can provide a comparison of what sub-indicators are better or worse overall in the SCAG region—for example, provision of health insurance (111.29) scores highest and employer-provided childcare (85.18) the lowest. Note again that some sub-indicators are not available for the region, meaning they are derived from national data about industries or occupations—as such, these measures are best interpreted *relative* to other areas or categories of workers. For example, a user could:

- Compare the *Earnings* indicator in Orange versus Riverside County

- Compare the *Personal Development* indicator in management occupations versus transportation and material moving occupations, or across all occupation categories

- Assess whether manufacturing workers in Los Angeles county do better in terms of earnings or in terms of benefits, workplace, or personal categories

- Use the survey rating to show which factors are most important and least important to workers in the region.

Table 6: Job Quality Indicators for Imperial County

Imperial						
Indicator #	Category	Indicator	Survey Rating	JQI Value	JQI Std Error	JQI vs SCAG JQI (%)
1	**Earnings**	-	**3.99**	**99.81**	**1.48**	-0.4%
2	**Benefits**	-	**4.04**	**101.01**	**1.52**	1.2%
3	**Workplace**	-	**4.02**	**100.58**	**1.32**	-2.9%
4	**Personal**	-	**3.94**	**98.60**	**1.29**	2.2%
1.1	**Earnings**	**Direct Compensation**	4.15	103.83	1.36	-3.5%
1.2		**Incentive Pay**	3.94	98.56	1.46	-0.2%
1.3		**Pension**	4.03	100.86	1.40	1.0%
1.4		**Severance**	3.84	96.00	1.48	1.2%
2.1	**Benefits**	**Medical insurance**	4.33	108.36	1.40	-2.7%
2.2		**Life and Disability Insurance**	4.11	102.86	1.45	4.5%
2.3		**Leave / Holidays**	4.05	101.31	1.47	-3.0%
2.4		**Employer-provided Childcare**	3.66	91.50	1.76	6.9%
3.1	**Workplace Conditions**	**Hours**	4.25	106.24	1.09	-1.1%
3.2		**Commute**	3.80	95.05	1.38	-3.9%
3.3		**Stress**	3.78	94.63	1.58	-3.2%
3.4		**Job Security**	4.25	106.41	1.24	-3.5%
4.1	**Personal Development**	**Self-esteem**	3.94	98.53	1.28	0.7%
4.2		**Workplace Relationships**	3.67	91.78	1.49	2.6%
4.3		**Skill Development**	4.14	103.53	1.18	3.8%
4.4		**Interesting Work**	4.02	100.56	1.22	1.5%

A few salient job quality features distinguish Imperial County from SCAG generally. Firstly, the Direct Compensation sub-indicator is 3.5% lower, driven by the preferences of the county. Employer-provided Medical Insurance and Leave also have lower JQI scores for the average Imperial worker. However, compared to the SCAG average, Life and Disability Insurance and Employer-provided healthcare are much more important to Imperial County.

Table 7: Job Quality Indicators for Los Angeles County

		Los Angeles				
Indicator #	Category	Indicator	Survey Rating	JQI Value	JQI Std Error	JQI vs SCAG JQI
1	**Earnings**	**-**	**3.86**	**98.81**	**1.36**	-1.5%
2	**Benefits**	**-**	**3.95**	**101.09**	**1.38**	1.3%
3	**Workplace**	**-**	**4.06**	**103.99**	**1.20**	0.5%
4	**Personal**	**-**	**3.75**	**96.10**	**1.15**	-0.4%
1.1	**Earnings**	**Direct Compensation**	4.07	104.18	1.25	-3.2%
1.2		**Incentive Pay**	3.81	97.42	1.34	-1.3%
1.3		**Pension**	3.88	99.26	1.34	-0.6%
1.4		**Severance**	3.69	94.37	1.36	-0.5%
2.1	**Benefits**	**Medical insurance**	4.43	113.53	1.17	2.0%
2.2		**Life and Disability Insurance**	3.86	98.88	1.40	0.6%
2.3		**Leave / Holidays**	4.15	106.31	1.23	1.8%
2.4		**Employer-provided Childcare**	3.35	85.67	1.74	0.6%
3.1	**Workplace Conditions**	**Hours**	4.19	107.18	1.09	-0.2%
3.2		**Commute**	3.95	101.01	1.22	2.2%
3.3		**Stress**	3.85	98.55	1.37	0.9%
3.4		**Job Security**	4.27	109.25	1.13	-0.8%
4.1	**Personal Development**	**Self-esteem**	3.81	97.55	1.17	-0.3%
4.2		**Workplace Relationships**	3.52	90.05	1.29	0.8%
4.3		**Skill Development**	3.83	97.98	1.07	-1.7%
4.4		**Interesting Work**	3.86	98.83	1.08	-0.2%

In terms of spatial comparison with SCAG, Los Angeles county differs little from the regional average, which makes sense since it contains well over half of the region's population. Of greater interest will be comparisons of these results over time and perhaps with respect to other California and National regions.

Orange Country notably has a much higher rating for the Direct Compensation sub-indicator, which is 6% higher than the SCAG average. Workplace conditions are also rated higher in Orange County, with hours, job stress, and job security 1.4% - 2.4% higher.

Table 8: Job Quality Indicators for Orange County

Indicator #	Category	Indicator	Survey Rating	JQI Value	JQI Std Error	JQI vs SCAG JQI
			Orange			
1	**Earnings**	-	**3.92**	**101.67**	**1.46**	1.4%
2	**Benefits**	-	**3.83**	**99.44**	**1.31**	-0.3%
3	**Workplace**	-	**4.04**	**104.77**	**1.18**	1.2%
4	**Personal**	-	**3.63**	**94.12**	**1.14**	-2.5%
1.1	**Earnings**	**Direct Compensation**	4.36	113.18	1.12	5.0%
1.2		**Incentive Pay**	3.84	99.69	1.32	1.0%
1.3		**Pension**	3.83	99.43	1.46	-0.5%
1.4		**Severance**	3.64	94.39	1.39	-0.5%
2.1	**Benefits**	**Medical insurance**	4.39	113.91	1.10	2.3%
2.2		**Life and Disability Insurance**	3.68	95.54	1.35	-2.9%
2.3		**Leave / Holidays**	4.09	106.07	1.13	1.6%
2.4		**Employer-provided Childcare**	3.17	82.25	1.67	-3.6%
3.1	**Workplace Conditions**	**Hours**	4.23	109.83	1.00	2.2%
3.2		**Commute**	3.79	98.21	1.28	-0.6%
3.3		**Stress**	3.82	99.01	1.41	1.4%
3.4		**Job Security**	4.32	112.01	1.04	1.7%
4.1	**Personal Development**	**Self-esteem**	3.65	94.71	1.16	-3.3%
4.2		**Workplace Relationships**	3.42	88.61	1.22	-0.9%
4.3		**Skill Development**	3.72	96.50	1.10	-3.3%
4.4		**Interesting Work**	3.73	96.68	1.07	-2.4%

Riverside County is close to the SCAG norm for the Earnings and Workplace Conditions categories. However, Riverside County workers value several of the Personal Development sub-indicators higher, notably Skill Development and Interesting Work.

Table 9: Job Quality Indicators for Riverside County

Riverside						
Indicator #	**Category**	**Indicator**	**Survey Rating**	**JQI Value**	**JQI Std Error**	**JQI vs SCAG JQI**
1	**Earnings**	**-**	**3.95**	**99.82**	**1.37**	-0.4%
2	**Benefits**	**-**	**3.91**	**98.66**	**1.39**	-1.1%
3	**Workplace**	**-**	**4.10**	**103.45**	**1.18**	-0.1%
4	**Personal**	**-**	**3.88**	**98.08**	**1.10**	1.6%
1.1	**Earnings**	**Direct Compensation**	4.18	105.59	1.21	-1.8%
1.2		**Incentive Pay**	3.89	98.32	1.30	-0.4%
1.3		**Pension**	3.97	100.28	1.37	0.4%
1.4		**Severance**	3.77	95.08	1.35	0.2%
2.1	**Benefits**	**Medical insurance**	4.36	110.03	1.25	-1.1%
2.2		**Life and Disability Insurance**	3.89	98.16	1.38	-0.1%
2.3		**Leave / Holidays**	4.10	103.62	1.24	-0.7%
2.4		**Employer-provided Childcare**	3.28	82.81	1.68	-2.9%
3.1	**Workplace Conditions**	**Hours**	4.23	106.77	1.01	-0.6%
3.2		**Commute**	3.90	98.42	1.24	-0.4%
3.3		**Stress**	3.89	98.26	1.36	0.6%
3.4		**Job Security**	4.37	110.33	1.10	0.2%
4.1	**Personal Development**	**Self-esteem**	3.92	98.90	1.12	1.1%
4.2		**Workplace Relationships**	3.52	88.75	1.28	-0.7%
4.3		**Skill Development**	4.06	102.61	1.00	2.9%
4.4		**Interesting Work**	4.04	102.08	1.00	3.0%

The JQI score of San Bernardino workers places more importance on the Personal Development indicators (1.6% higher than the SCAG average), notably self-esteem, skill development, and interesting work.

Table 10: Job Quality Indicators for San Bernardino County

San Bernardino						
Indicator #	Category	Indicator	Survey Rating	JQI Value	JQI Std Error	JQI vs SCAG JQI
1	**Earnings**	-	**3.90**	**98.68**	**1.50**	-1.6%
2	**Benefits**	-	**3.88**	**98.32**	**1.48**	-1.5%
3	**Workplace**	-	**4.14**	**104.96**	**1.25**	1.4%
4	**Personal**	-	**3.87**	**98.04**	**1.18**	1.6%
1.1	**Earnings**	**Direct Compensation**	4.16	105.35	1.36	-2.1%
1.2		**Incentive Pay**	3.83	96.87	1.37	-1.9%
1.3		**Pension**	3.86	97.83	1.50	-2.1%
1.4		**Severance**	3.74	94.69	1.44	-0.2%
2.1	**Benefits**	**Medical insurance**	4.21	106.54	1.36	-4.5%
2.2		**Life and Disability Insurance**	3.84	97.32	1.47	-1.0%
2.3		**Leave / Holidays**	4.06	102.77	1.39	-1.6%
2.4		**Employer-provided Childcare**	3.42	86.64	1.70	1.7%
3.1	**Workplace Conditions**	**Hours**	4.35	110.16	1.07	2.5%
3.2		**Commute**	3.98	100.84	1.31	2.0%
3.3		**Stress**	3.83	96.94	1.50	-0.7%
3.4		**Job Security**	4.42	111.88	1.11	1.6%
4.1	**Personal Development**	**Self-esteem**	3.97	100.46	1.15	2.6%
4.2		**Workplace Relationships**	3.55	89.98	1.34	0.7%
4.3		**Skill Development**	4.00	101.32	1.13	1.7%
4.4		**Interesting Work**	3.97	100.41	1.10	1.4%

Finally, Ventura County workers rate Earnings higher on average than their SCAG counterparts, while Personal Development is lower.

Table 11: Job Quality Indicators for Ventura County

Ventura						
Indicator #	**Category**	**Indicator**	**Rating**	**JQI Value**	**JQI Std Error**	**JQI vs SCAG JQI**
1	**Earnings**	-	**3.97**	**102.54**	**1.42**	2.2%
2	**Benefits**	-	**3.89**	**100.39**	**1.37**	0.6%
3	**Workplace**	-	**3.98**	**102.73**	**1.25**	-0.8%
4	**Personal**	-	**3.65**	**94.33**	**1.14**	-2.3%
1.1	**Earnings**	**Direct Compensation**	4.35	112.34	1.15	4.3%
1.2		**Incentive Pay**	3.93	101.43	1.35	2.7%
1.3		**Pension**	3.94	101.69	1.38	1.8%
1.4		**Severance**	3.67	94.72	1.42	-0.2%
2.1	**Benefits**	**Medical insurance**	4.45	114.89	1.06	3.1%
2.2		**Life and Disability Insurance**	3.78	97.63	1.42	-0.7%
2.3		**Leave / Holidays**	4.09	105.67	1.24	1.2%
2.4		**Employer-provided Childcare**	3.23	83.37	1.77	-2.2%
3.1	**Workplace Conditions**	**Hours**	4.04	104.30	1.16	-3.0%
3.2		**Commute**	3.82	98.59	1.29	-0.2%
3.3		**Stress**	3.79	97.82	1.47	0.2%
3.4		**Job Security**	4.27	110.22	1.10	0.1%
4.1	**Personal Development**	**Self-esteem**	3.75	96.96	1.12	-0.9%
4.2		**Workplace Relationships**	3.39	87.51	1.24	-2.1%
4.3		**Skill Development**	3.75	96.86	1.09	-2.9%
4.4		**Interesting Work**	3.72	96.01	1.13	-3.2%

JOB QUALITY SURVEY - INSIGHTS

The following figures present survey findings regarding worker attitudes toward jobs in the SCAG region, as measured by their personal ranking of the 16 components of job quality represented in the JQI above. Workers exhibited preferences toward quality characteristics that differed statistically significantly across counties and especially demographic attributes. Spatial differences were less significant than demographic ones, and indeed the former could be interpreted as depending mainly on demographic differences across counties. For this reason, we focus in this discussion on demographic differences. Better understanding of these will enable firms and local governments to better accommodate their own constituencies.

A pointed example of worker diversity is gender, where Figure 16 shows that important differences in job quality preferences emerge for even the more aggregate indicators. Across our sample of 2900 SCAG regional workers, women show much higher preference for Workplace Conditions and (statistically significant) more positive preferences for Benefits programs and Personal Development. Attitudes toward compensation are about the same for men and women, but achieving the often-stated goal of increased women's labor force participation appears even more closely linked to enhanced public and private commitments to working conditions and benefits.

Figure 15: Ranking of Job Quality sub-indicators (JQI1-JQI4) across SCAG Counties
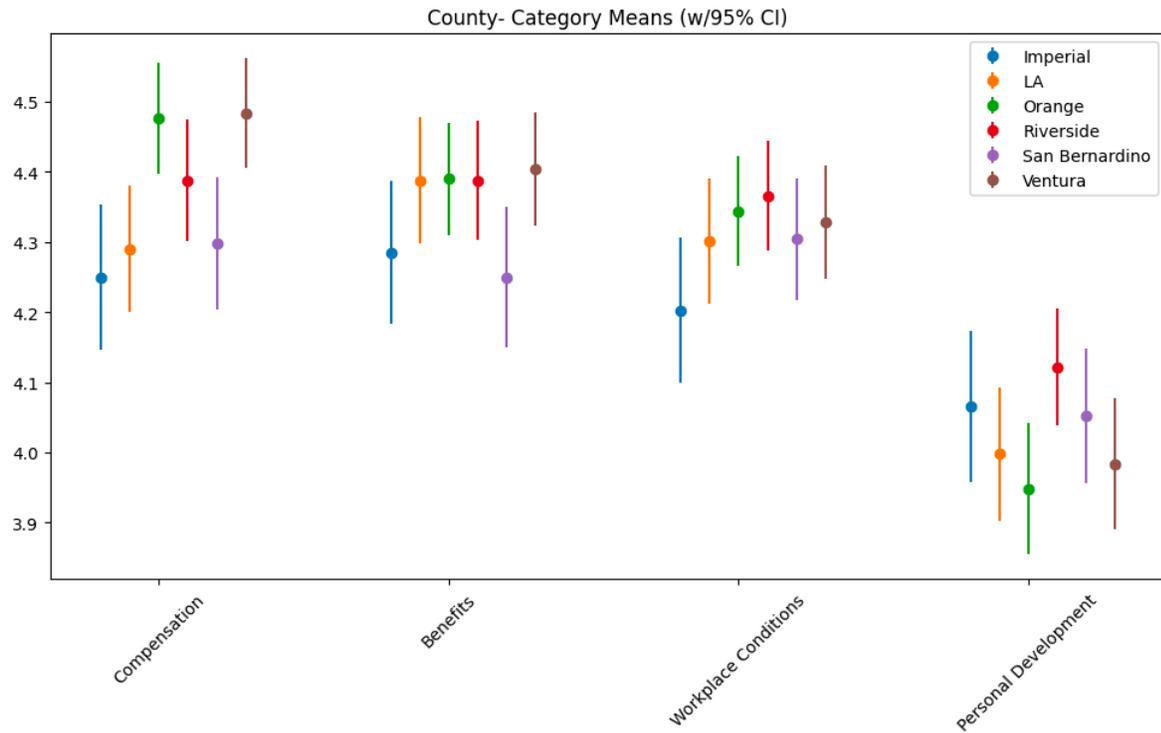
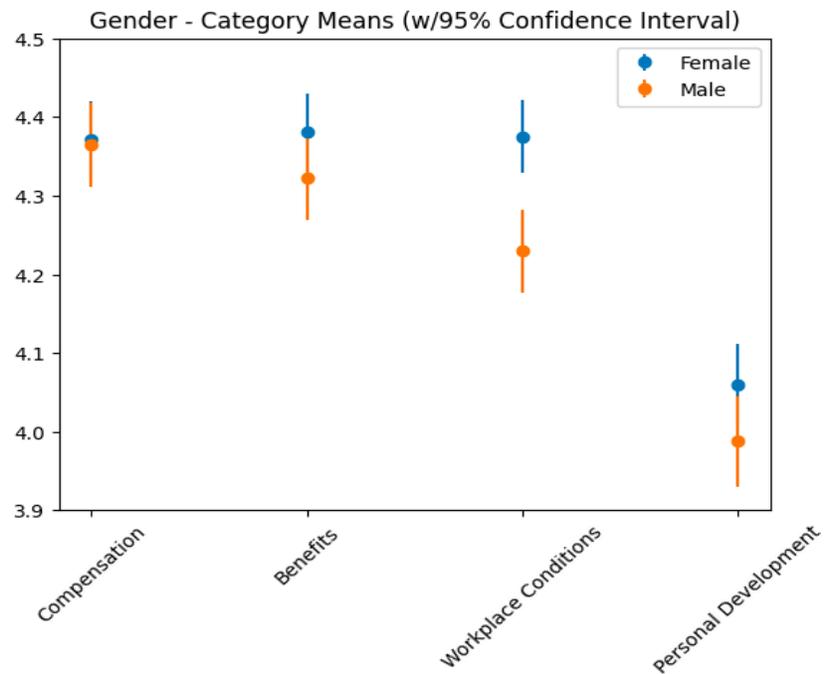**Figure 16: Ranking of Indicators JQI1-JQI4 by Gender**

Figure 15 indicates that, across counties, the Direct Compensation sub-indicator JQI1 was the most important to workers, while Personal Development job features (JQI4) were the least important. This is consistent with most economic literature, where material livelihood benefits tend to dominate job

selection. Some variation was evident across counties, but the overall ordering of the four sub-indicators remained the same for each county. Similar logic applies within the Compensation category, where Direct Compensation (JQI1.1) dominates worker preferences across counties. Severance Pay (JQI1.4) is much less important to workers, and Pension Benefits (JQI1.3) slightly exceed Incentive Pay (JQ1.2) in the intermediate rankings.[7]

A more complex picture emerges if we move from county comparison to examine differences across age groups. In Figure 18 it is apparent that some age groups can differ significantly in their attitudes toward job attributes. As expected, preference for Pension insurance increases with age, but the Direct Compensation results are more subtle. Younger workers express significantly lower priority for Direct Compensation (JQI1.1), which could lend credence to the Training Wage Hypothesis (early hiring increases lifetime earning potential), but may also be a manifestation of other characteristics, including more intense competition in this age group, higher mobility/turnover, access to family support, etc. Only a more focused survey could definitively identify these factors, and indeed there is a vast academic literature on this subject. From the pragmatic view of today's enterprises and policy makers, however, it represents an opportunity to reward young workers with other job characteristics including training, mentorship, etc. Nevertheless, Direct Compensation (JQI1.1) is still the highest preference for young workers, even though they score it lower than other age groups.

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[7] It should be noted that most jobs do not include explicit incentive compensation, meaning there will be little variation across jobs in this characteristic.

Figure 17: Ranking of Compensation Sub-indicators JQI1.1-JQI1.4 Across Counties
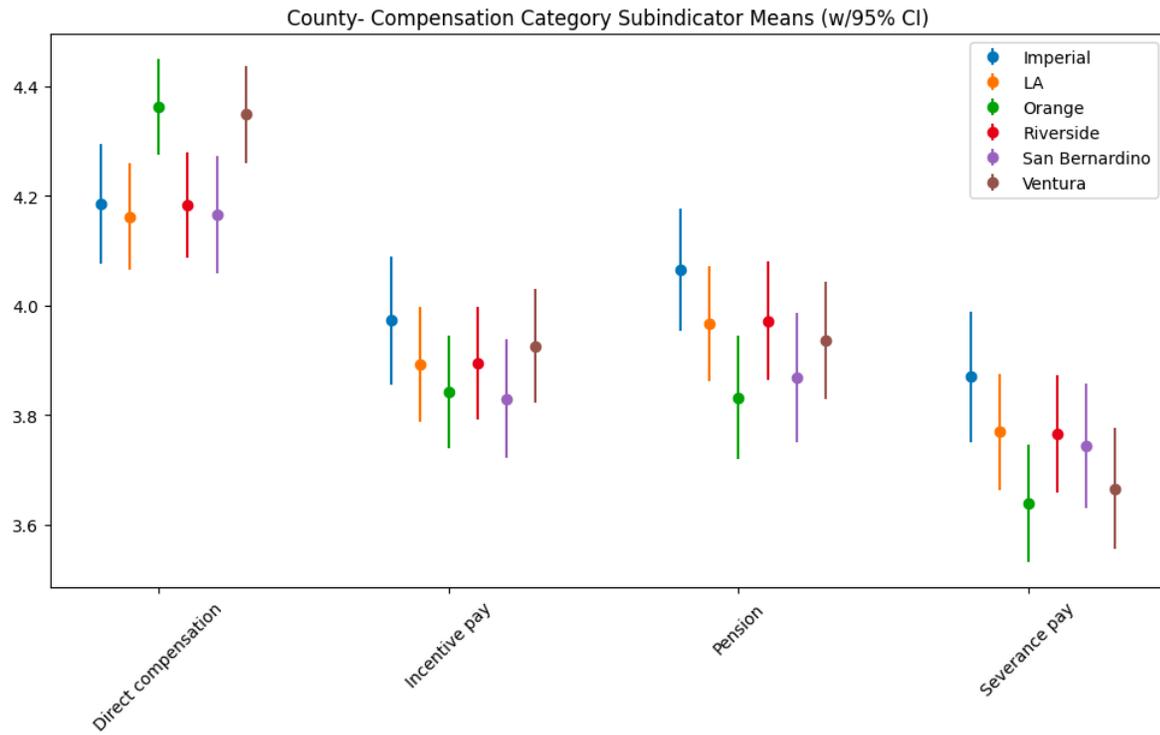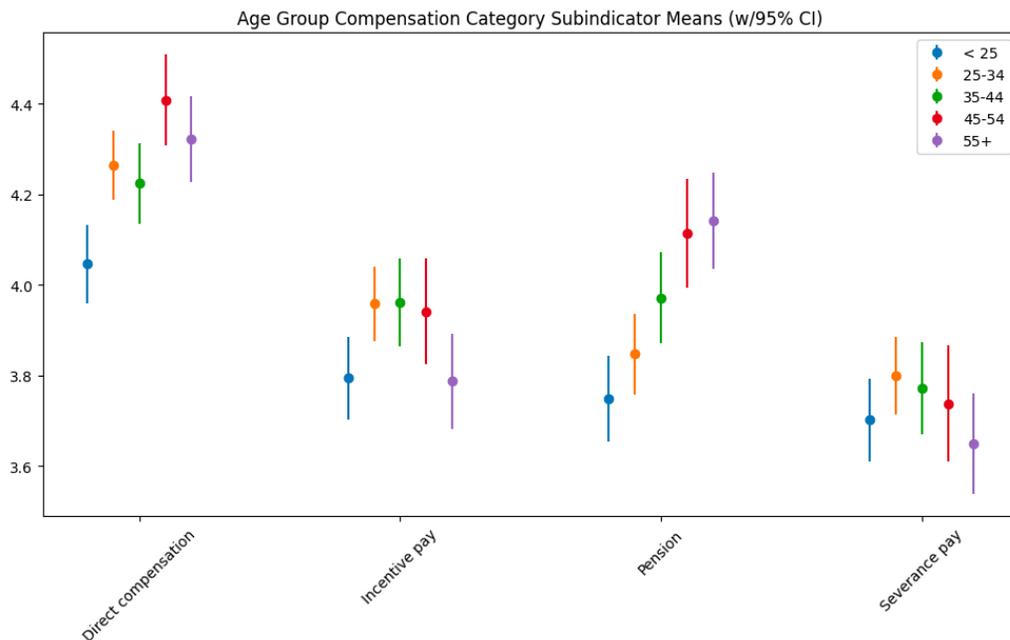

Figure 18: Ranking Compensation Indicators (JQI1.1-JQI1.4) by Age Group

Being the second most important group of job quality characteristics, benefits are a primary consideration for both workers and firms. Within the benefits category, results of the survey clearly suggest that Medical Insurance is the leading benefit for most workers. Insurance and Leave Policies are also important, but the aggregate ranking of Childcare is well below the others. The last result should be interpreted with caution,

however, since more detailed analysis (below) suggest this result is due to workforce demographic heterogeneity and the low countywide averages for Childcare Coverage (JQI2.4) mask high priority for some important worker groups. This is the reason Imperial County is an outlier in Figure 19, with larger average family size and a larger percentage of young working adult females.

Figure 20 offers another case in point, where we see very significant differences in preferences for childcare across age groups. Of course, this makes sense from a nuclear family perspective, where older workers are less likely to have primary responsibility for care of dependent children. This case offers an important insight for employers about recruitment and retention of younger workers, especially those forming families.

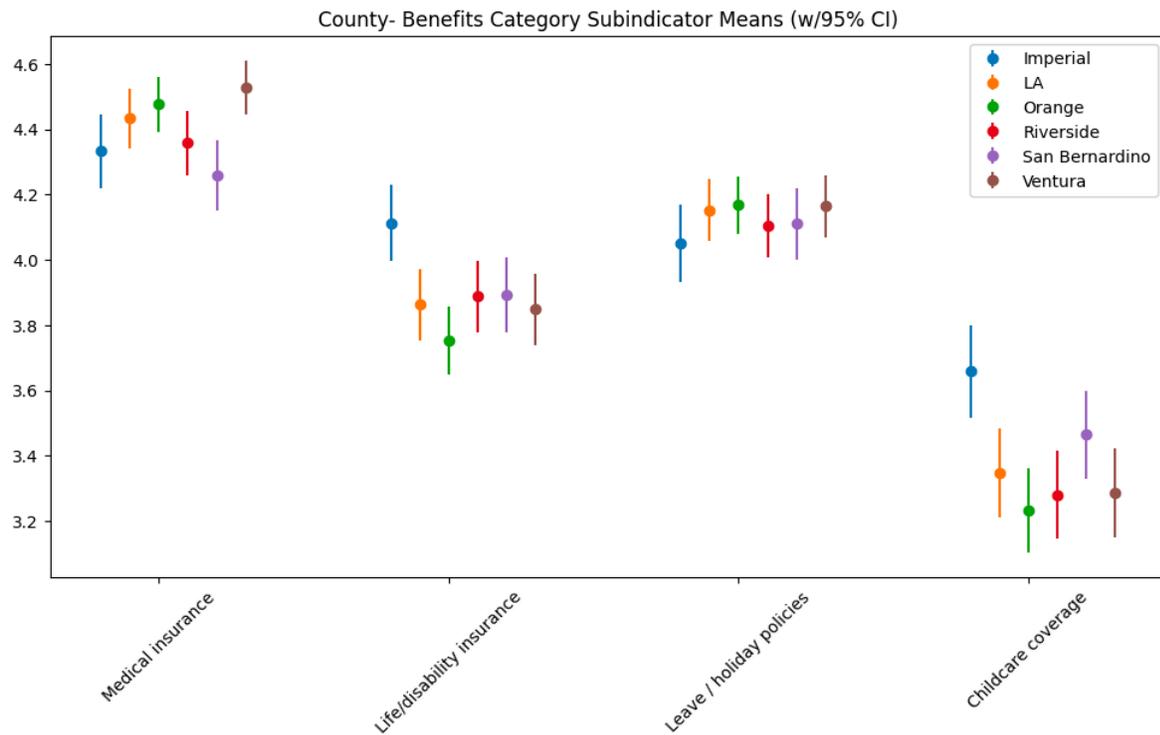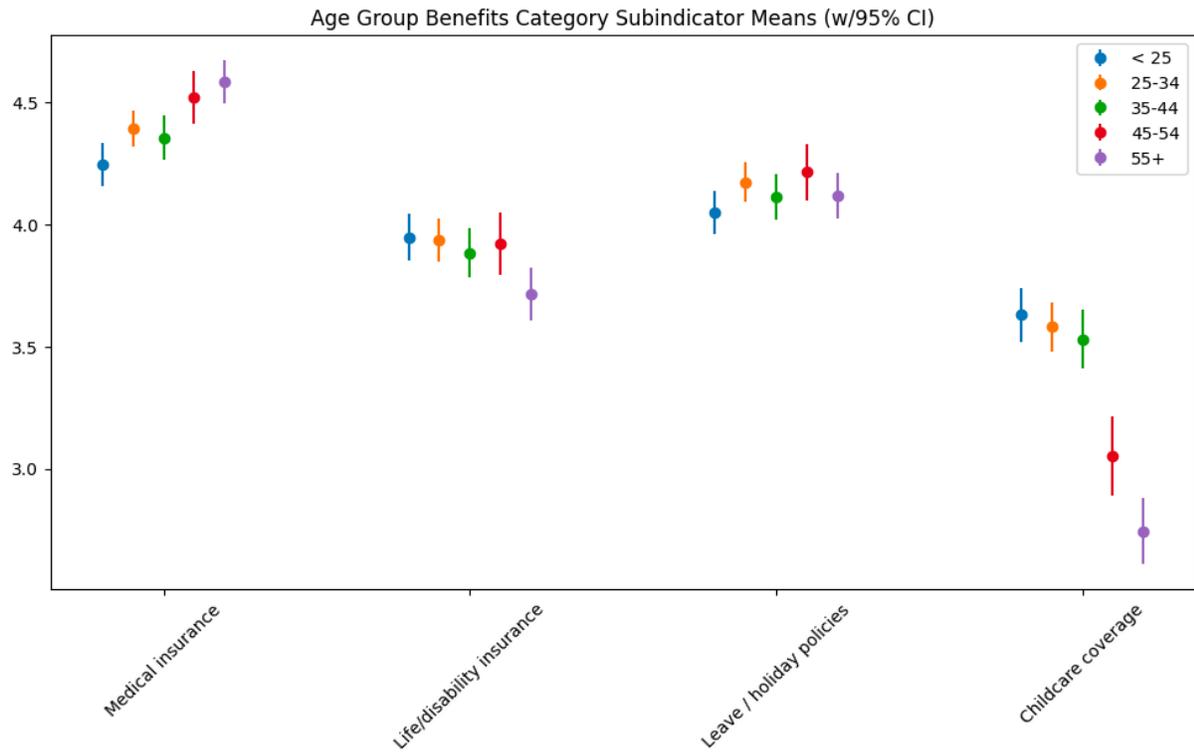**Figure 19: Worker Rankings of Main Job Benefit Categories**

County- Benefits Category Subindicator Means (w/95% CI)

Figure 20: Preferences for Occupational Benefits by Age Group

Age Group Benefits Category Subindicator Means (w/95% CI)

Worker attitudes to workplace conditions (Figure 21) are relatively consistent across counties, one exception is the understandable sensitivity to Commute time (JQI3.1) in Los Angeles County. Job Security (JQI3.4) is clearly the highest priority in this group, followed closely by hours of work available. The average worker in each county appears to express less concern about Commute time and job Stress.

While the Personal Development Indicator JQI4 was lowest among the aggregate indicators on average (Figure 22), the averaging here masks important differences among Personal Development attributes. Most workers (especially in Imperial County) express strong preference for Skill Development (JQI4.3), followed closely by intrinsic work Interest (JQI4.4) and Self-esteem / Sense of Purpose (JQI4.1). They seem willing to accept weaker workplace relationships to the extent that these might be compensated by other sources of workplace satisfaction.

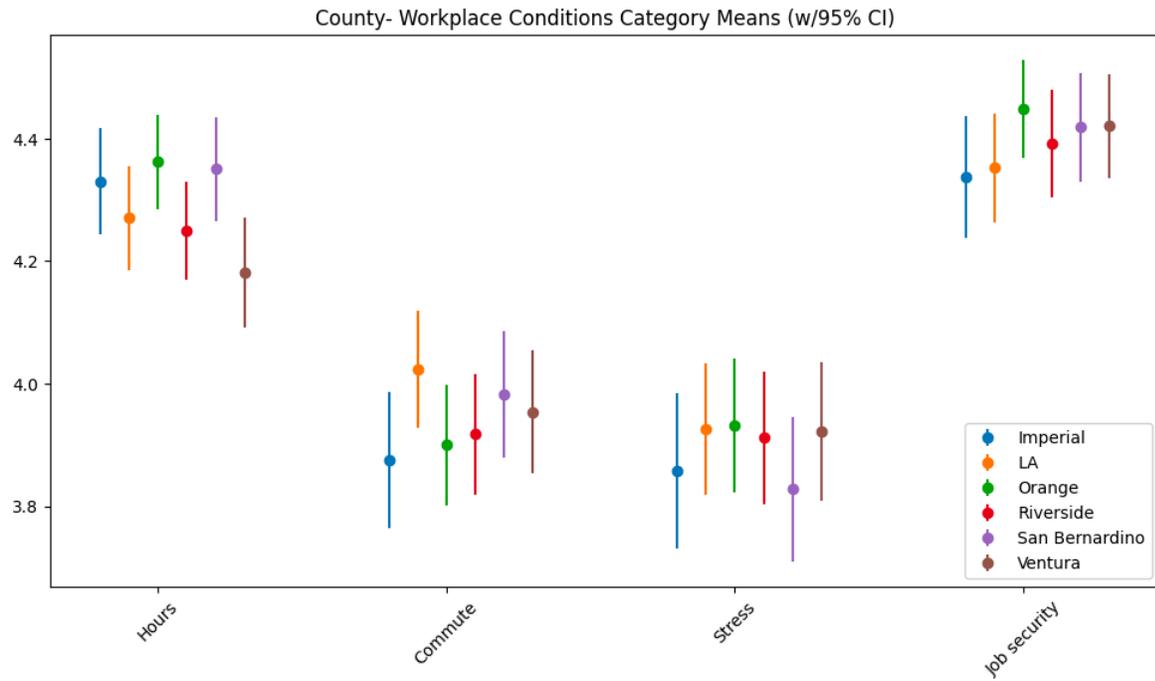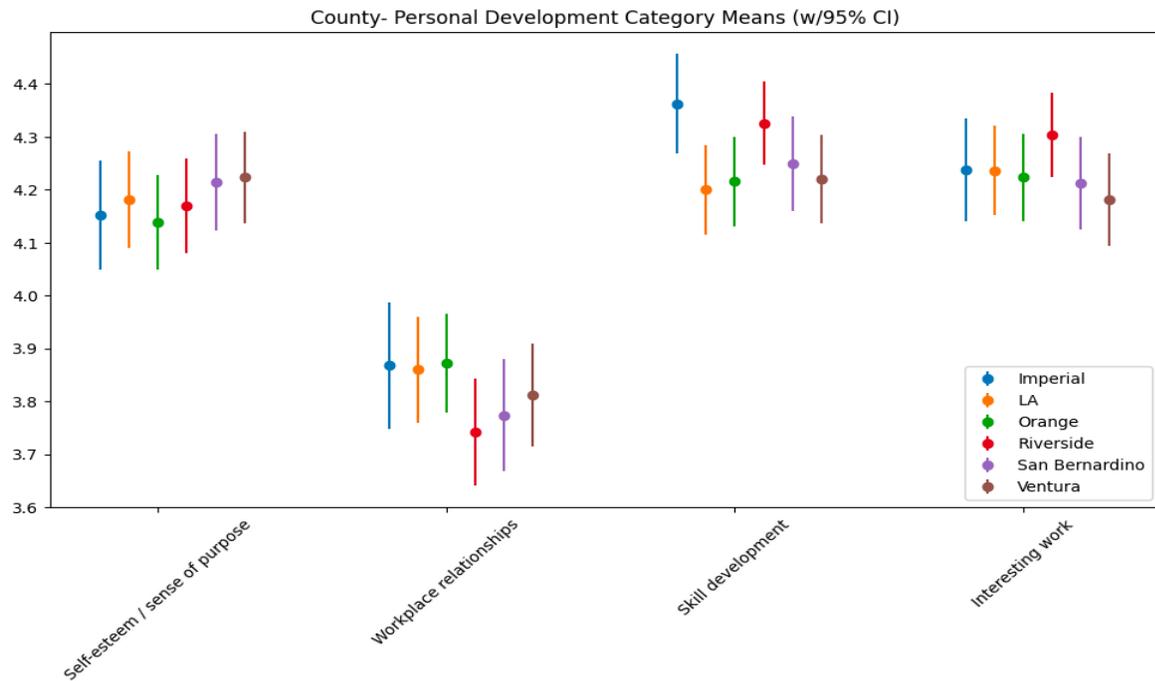**Figure 21: Worker Preferences for Workplace Characteristics, by County**

County- Workplace Conditions Category Means (w/95% CI)

Figure 22: Preferences for Personal Development Job Characteristics, by County

County- Personal Development Category Means (w/95% CI)

A final set of indicators is presented for special consideration in Figure 23, examining all the disaggregated rankings across self-identified ethnic groups. Patterns of variation here are especially noteworthy. Firstly, it is clear that workers of different backgrounds agree strongly on core job quality characteristics, including Pension rights, Medical Insurance, Leave Policies, Working Hours, and Workplace conditions (JQI4.1,JQI4.3, JQI4.4). Despite this, significant differences are also apparent, including ranking of Direct Compensation, Life/Disability Insurance, Childcare Coverage, and Job Stress. These disparities invite further consideration for policy makers, who can improve outcomes through regulation and social support, and for enterprises, who can improve outcomes in ways that enhance motivation, retention, and productivity. One case in point is Childcare Coverage (JQI4.4), a work resource of much higher importance to workers identifying as Latino or Black.

Figure 23: Job Quality Sub-indicators by Expressed Ethnicity
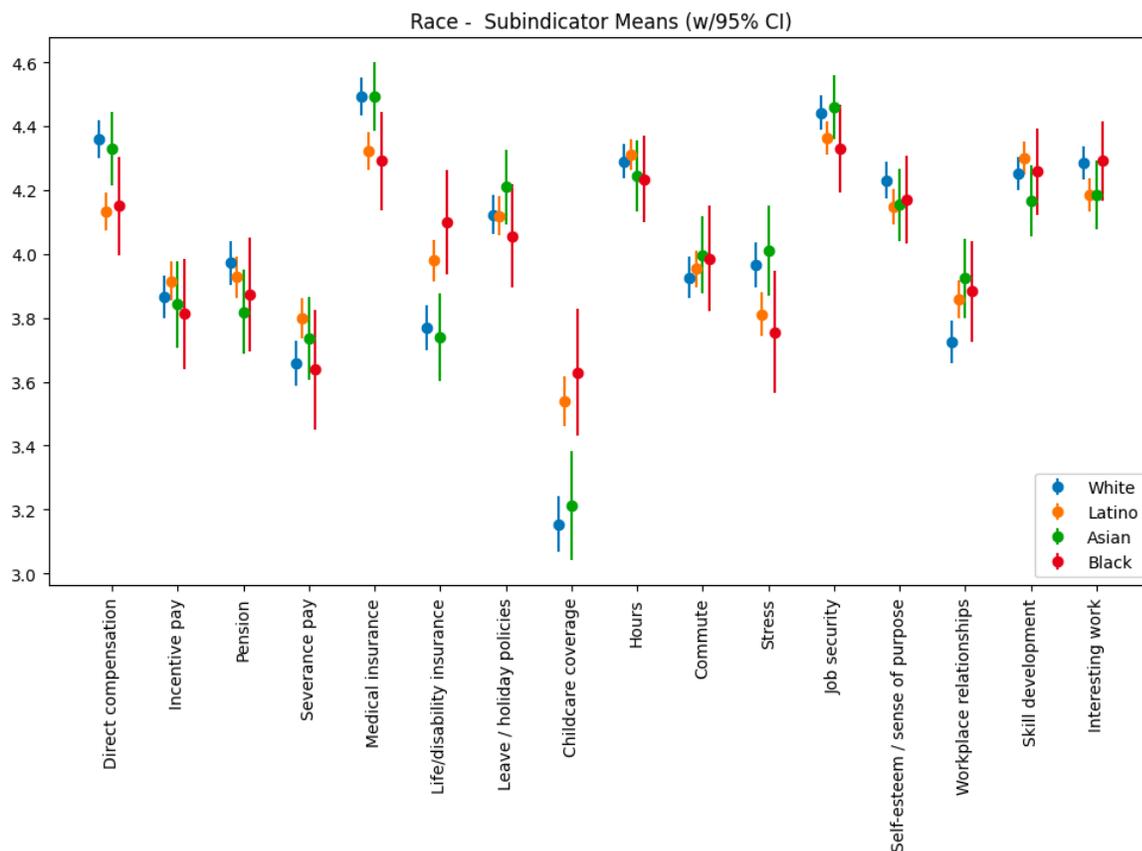
In summary, the diversity of California's workforce is miraculous for its creative potential and cultural riches, but it also presents remarkable complexity in the context of management and social policy. To the extent that success for enterprises and local governments is measured by responsiveness to this diversity, detailed evidence, analysis, and targeting of incentives and policies is essential. To the extent that firms and governments ignore heterogeneity, they can expect economic and social outcomes to fall short of what inclusive strategies can accomplish, undermining incentives and sharpening divisions. Recognizing this, SCAG's commitment to evidence-based policy can strongly support more effective managerial and regulatory approaches to realizing the extraordinary human potential of Southern California.

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Begins with basic Good-Bad job indicator - based on three job characteristics: pay, health insurance, and pension benefits.

First work (Schmitt: 2005) relies mainly on BLS/CPS. This then evolved under OECD sponsorship, which has invested in its own database, focused on more economies (esp. EU) and a broader vision of JQ.

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Appendix I – JQI Excel Tool

The JQI Excel tool allows simple comparisons and data extraction of the JQI and its sub-indicators in the SCAG region and its six counties.

Job Quality Index and Job Quality Survey tabs report average JQI by industry sector (2-digit NAICS) and occupation (SOC). For each of the 4 indicators above, the JQI is the average for each sub-indicator weighted by workers' preferences for that sub-indicator. The overall JQI is the average across the Earnings, Benefits, Workplace, and Personal indicators. A value of 1 indicates "average" quality.

Job Quality Index

Reports the JQI by industry and occupation for Earnings, Benefits, Workplace, and Personal indicators. The overall JQI is the average across these 4 indicators. A value of 1 indicates "average" quality.

Select County/Region	SCAG
Select Industry Sector (if desired):	10-All Sectors

Job Quality Index by Occupation in All Sectors

	Occupation Category	Overall	Earnings	Benefits	Workplace	Personal
11	Management Occupations	1.023	1.004	0.999	1.116	0.971
13	Business and Financial Operations Occupations	1.053	1.005	0.998	1.238	0.971
15	Computer and Mathematical Occupations	1.022	1.005	0.999	1.115	0.971
17	Architecture and Engineering Occupations	1.005	1.005	0.999	1.045	0.971
19	Life, Physical, and Social Science Occupations	1.025	1.005	0.998	1.124	0.971
21	Community and Social Service Occupations	1.012	1.005	1.012	1.059	0.971
23	Legal Occupations	1.015	1.006	0.998	1.085	0.971
25	Educational Instruction, and Library Occupations	1.005	1.004	1.013	1.032	0.971
27	Arts, Design, Entertainment, Sports, and Media Occupations	1.029	1.006	0.999	1.141	0.971
29	Healthcare Practitioners and Technical Occupations	1.085	1.005	0.998	1.367	0.971
31	Healthcare Support Occupations	1.081	1.005	1.012	1.338	0.971
33	Protective Service Occupations	1.047	1.005	0.998	1.214	0.971
35	Food Preparation and Serving Related Occupations	1.042	1.005	1.012	1.178	0.971
37	Building and Grounds Cleaning and Maintenance Occupations	1.056	1.005	0.998	1.250	0.971
39	Personal Care and Service Occupations	1.052	1.005	0.998	1.233	0.971
41	Sales and Related Occupations	1.014	1.004	0.998	1.081	0.971
43	Office and Administrative Support Occupations	1.014	1.005	0.999	1.082	0.971
45	Farming, Fishing, and Forestry Occupations	1.049	1.005	1.012	1.207	0.971
47	Construction and Extraction Occupations	1.023	1.005	0.998	1.118	0.971
49	Installation, Maintenance, and Repair Occupations	1.027	1.005	0.998	1.133	0.971
51	Production Occupations	1.041	1.005	0.998	1.190	0.971
53	Transportation and Material Moving Occupations	1.004	1.005	0.999	1.042	0.971
	All Occupations in All Sectors	**1.033**	**1.005**	**1.002**	**1.154**	**0.971**

*SCAG Job Quality Index, May 2024. See **Full Report** for data sources and additional detail. "Overall" index is the average of the four job attribute categories.*

Job Quality Survey

*Shows the results of the representative survey of 2,900 workers in the region's 6 counties and their preference for each job attribute. Column headers are 1-digit occupation (SOC) codes. See **Full report** for survey details.*

Survey Results by occupation (1-5 scale)	All Occupations	Agriculture, Forestry, Fishing, and Hunting	Mining, Utilities, Construction	Manufacturing	Wholesale and Retail Trade	IT, Finance, Business Services	Health and Education	Arts, Recreation, Hospitality	Other Private Services	Public Administration
1. Earnings	**4.368**	**4.225**	**4.359**	**4.277**	**4.310**	**4.447**	**4.450**	**4.420**	**4.329**	**4.398**
1.1 Direct compensation	4.236	4.213	4.269	4.141	4.125	4.287	4.275	4.405	4.171	4.276
1.2 Incentive pay	3.890	3.900	4.000	3.927	3.782	4.052	3.952	3.856	3.790	3.764
1.3 Pension	3.936	3.825	3.910	3.890	3.705	3.933	4.126	3.966	3.875	4.171
1.4 Severance	3.738	3.825	3.759	3.796	3.696	3.836	3.749	3.701	3.651	3.740
2. Benefits	**4.353**	**4.025**	**4.324**	**4.277**	**4.363**	**4.469**	**4.461**	**4.265**	**4.292**	**4.398**
2.1 Medical Plan	4.400	4.025	4.297	4.319	4.379	4.506	4.494	4.178	4.331	4.382
2.2 Life/disability insurance	3.885	3.811	3.859	3.890	3.882	3.953	3.901	3.692	3.779	4.106
2.3 Leave/holiday policies	4.127	3.668	3.893	4.094	4.085	4.297	4.166	3.961	4.081	4.179
2.4 Childcare coverage	3.368	3.311	3.387	3.529	3.419	3.508	3.423	3.200	3.149	3.472
3. Workplace	**4.311**	**4.050**	**4.193**	**4.199**	**4.334**	**4.389**	**4.394**	**4.425**	**4.270**	**4.195**
3.1 Hours	4.289	4.122	4.186	4.225	4.283	4.157	4.209	4.410	4.207	4.102
3.2 Commute	3.944	3.691	3.768	3.927	3.949	3.963	3.844	3.875	3.860	3.885
3.3 Stress, Work/Life Balance	3.898	3.535	3.623	3.788	3.834	3.816	3.885	4.065	3.852	3.714
3.4 Job Security/Stability	4.397	3.966	4.213	4.281	4.352	4.307	4.391	4.355	4.351	4.226
4. Personal	**4.027**	**3.938**	**3.959**	**4.094**	**4.002**	**4.142**	**4.098**	**4.105**	**3.907**	**4.146**
4.1 Self-esteem	4.181	3.809	3.877	3.939	3.741	3.936	3.927	4.031	3.729	3.824
4.2 Workplace relationships	3.820	3.588	3.420	3.623	3.430	3.722	3.657	3.479	3.319	3.717
4.3 Skill development	4.259	3.926	3.934	4.069	3.839	4.036	3.986	3.943	3.787	4.024
4.4 Interesting, engaging work	4.232	3.938	3.808	4.034	3.773	3.990	3.986	4.073	3.759	3.985

Select County	(All)
Select Age Group	(All)
Select Gender	(All)
Select Race / Ethnicity	(All)

*Notes: An error of #REF! or #DIV/0! Indicates there were no respondents in that occupation in the selection. "All occupations" column does not allow user to Select Multiple Items in a drop-down list. Sub-indicators are scaled by their category totals (e.g. respondents were asked to consider 1.1 Direct Compensation relative to 1. Earnings). See **Full report** for details and descriptions.*

Appendix II – Overview of the Job Quality Index Survey

OVERVIEW

From July 17 to September 12, 2023, BEAR collected 2900 responses for a Job Quality Survey from respondents living in Southern California. These 2900 responses consisted of 500 responses from 5 counties – Los Angeles, Orange, Riverside, San Bernardino, and Ventura – and 400 responses from Imperial County. For each county, the responses were representative based on the latest age, ethnicity, and gender data from the US Census Bureau.

SURVEY SOFTWARE AND DATA SAMPLE PANEL:

BEAR ran the survey using the Qualtrics platform (specifically, QualtricsXM[8]), which is the industry standard for online digital survey software. The Qualtrics survey was designed to be optimized for both mobile web browsers as well as desktop browsers.

To obtain the sample data, BEAR worked with Harmon Research, a firm located in Anaheim, California.[9] After screening several survey data providers, we determined that Harmon was able to provide the desired sample at a competitive rate while also maintaining data quality standards.

Harmon distributed the survey to a panel of pre-screened respondents based on the survey's criteria of county of residence, age, gender, ethnicity, and work status. Though Harmon Research provided the panel, BEAR maintained complete control over the programming of the survey on Qualtrics, the collected data, the sample quota and screening process, and all the analytics. BEAR and Harmon held regular check-ins throughout the data collection process to make sure that fielding was going according to plan.

For each county, BEAR implemented a custom sampling quota based on county-level Census data on age, gender, and ethnicity.[10] Once a quota for a specific county / age / gender / ethnicity combination was filled, respondents over that quota were not able to take the survey.

SURVEY SOFTWARE AND DESIGN

A respondent first sees a landing screen which shows the SCAG logo and a brief description of the purpose of the research ("improving job quality for CA workers"). The respondent is then routed to the survey screener, which used several questions to determine survey eligibility. We first asked respondents to type in their ZIP code. If the inputted ZIP code doesn't correspond to the list of valid Zip codes (which we obtained via the latest Census Bureau data), users were redirected to the survey terminate page. We

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[8] https://www.qualtrics.com/platform/

[9] https://www.harmonresearch.com/

[10] https://www.census.gov/quickfacts/fact/table/losangelescountycalifornia,orangecountycalifornia,imperialcountycalifornia,venturacountycalifornia,CA/PST045222

then asked for user age – those under 18 were screened out. We then asked respondents to select their relevant work experience – those without work experience were also screened out.

After the respondent passes the commitment check (which we discuss in the Survey Data Integrity section), the user is then asked to answer 20 questions about job quality. The questions were grouped into five sets of four questions each. The five sets of questions correspond to one set for each of the four job quality categories in the JQI (Compensation, Benefits, Workplace Conditions, and Personal Development) plus one set of questions comparing the categories. For each individual category, we asked respondents to rate four sub-indicators.

We used a 5-star scale for each of the 20 questions, with 5 stars being the highest / most important rating and 1 star being the lowest / least important rating. While we considered using more complex question formats such as rank ordering or MaxDiff, we ultimately concluded that this 5-star rating struck the right balance of user comprehension and level of effort / response fatigue. Finally, a 5-point rating system is more straightforward to interpret than rank order methods, which require several assumptions about the relationships between the ranked items.

In order to prevent any bias based on the order in which choices are displayed to the user, we randomized the order in which questions and choices are shown throughout the survey. Additionally, in order to make sure that the respondent could most accurately rate the JQI categories against each other, we asked the respondent to compare the JQI categories after they had rated the sub-indicators of each of individual category. Thus, the respondent should have a much better understanding of what each of those categories entails in the context of the JQI.

SURVEY DATA INTEGRITY

Several strategies were employed to maintain survey data integrity. First, the survey utilized Qualtric's built-in fraud detection features.[11] This included using a Captcha test at the beginning of the survey, which is used to screen out bots. We also included checks for preventing multiple submissions. Finally, we also used Qualtric's RelevantID feature, which flags suspicious surveys based on user's browser, operating system, and location.

In addition to utilizing Qualtric's fraud detection features, we also made several appeals to the survey taker to provide thoughtful and honest answers. The landing screen of the survey shows the SCAG logo and informs survey takers that "This survey is sponsored by California local government, with the goal of improving job quality for CA workers. Please support this effort by giving us your honest opinion. Your answers are completely confidential, and you will never be identified individually."

Before showing the user answered any questions, we also implemented a commitment/attention check, where we asked the user whether they are ready to provide thoughtful and truthful responses. If the user didn't affirm this commitment, we terminated the survey. We used this in place of more traditional attention checks based on research that indicated this strategy was as good or better than factual or textual attention tasks.[12]

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[11] https://www.qualtrics.com/support/survey-platform/survey-module/survey-checker/fraud-detection/

[12] https://www.qualtrics.com/blog/attention-checks-and-data-quality/

Finally, we also asked users to enter in their ZIP code. If their ZIP code was from a valid list of ZIP codes corresponding to the 6 counties, users were then asked to select their county of residence. If a respondent's ZIP code and selected county did not match, we disqualified their survey.

DATA ANALYSIS

The final data is stored in CSV file format. All analysis on this data was done in Python using the Pandas and Numpy libraries which are the standard statistics and data analysis software packages for the Python language. The graphs were generated using the Matplotlib and Seaborn libraries, which are the most popular Python data visualization and graphing libraries. The data analysis script is saved in a Jupyter Notebook (.ipynb file), which allows anyone to easily run, reproduce, and verify the data analysis. All the data analysis software used is open-source and free.

ANNOTATED JQI SURVEY

SCAG
SOUTHERN CALIFORNIA
ASSOCIATION OF GOVERNMENTS

These bold headers do not show up on the online survey, they're just labels for our use

Screener

This survey is sponsored by California local government, with the goal of improving job quality for CA workers. Please support this effort by giving us your honest opinion.

Your answers are completely confidential and you will never be identified individually.

if not in list of zip codes, exit survey.

What is your zip code?

if not 18+, exit survey. Also checks age quota

What is your age?

What types of employment best describe your work experience (check all that apply)?

radio buttons, select one

Private wage and salary worker
Government worker
Self-employed
Unpaid family worker
No work experience

captcha test

☐ I'm not a robot
reCAPTCHA
Privacy - Terms

demographics

radio buttons, select one

Also has a quota for each county; if over, will exit

In which county do you reside?

Ventura County
Riverside County
Orange County
Imperial County
San Bernardino County
Los Angeles County

What is your gender?

radio buttons, select one

Male
Female
Non-binary / third gender

Please indicate how you identify yourself (pick one or more).

checkboxes, select one or more

American Indian or Alaska Native
Asian
Black or African American
Hispanic or Latino
Native Hawaiian or Other Pacific Islander
White

Marital status

radio buttons, select one

Single, never married
Married or domestic partnership
Widowed
Divorced
Separated

What sector do you work in?

radio buttons, select one

Agriculture, Forestry, Fishing, and Hunting
Mining, Utilities, Construction
Manufacturing
Wholesale and Retail Trade
IT, Finance, Business Services
Health and Education
Arts, Recreation, Hospitality
Other Private Services
Public Administration

What is your occupation type?

radio buttons, select one

Agriculture and Unskilled worker

Service and Trade worker

Technical or Skilled Operator

Clerical worker

Management or Professional

attention check

radio buttons, select one.

If user doesn't select "Yes, I will" the survey ends

In order to get the most accurate opinions of California workers, it is important that you provide thoughtful answers to each question.

Do you commit to providing thoughtful answers to the questions in this survey?

Yes, I will

No, I will not

I can't promise either way

16 sub-indicators

The following 4 questions are displayed in random order (minimize any order bias).

The options are also randomized

How do you rate these job compensation types in terms of importance (5 stars is most important)?

Incentive pay	☆☆☆☆☆	
Pension	☆☆☆☆☆	
Severance pay	☆☆☆☆☆	
Direct compensation	☆☆☆☆☆	

How do you rate these job benefits in terms of importance (5 stars is most important)?

Life / disability insurance	☆☆☆☆☆	
Childcare coverage	☆☆☆☆☆	
Medical insurance	☆☆☆☆☆	
Leave / holiday policies	☆☆☆☆☆	

How do you rate these workplace conditions in terms of importance (5 stars is most important)?

Stress	☆☆☆☆☆	___
Job security	☆☆☆☆☆	___
Hours	☆☆☆☆☆	___
Commute	☆☆☆☆☆	___

How do you rate a job's effect on the following personal development characteristics in terms of importance (5 stars is most important)?

Workplace interpersonal relationships	☆☆☆☆☆	___
Self-esteem and sense of purpose	☆☆☆☆☆	___
Skill development	☆☆☆☆☆	___
Interesting, engaging work	☆☆☆☆☆	___

Default Question Block

How do you rate these job characteristics in terms of importance (5 stars is most important)?

Workplace Conditions	☆☆☆☆☆	___
Benefits	☆☆☆☆☆	___
Compensation	☆☆☆☆☆	___
Personal Development	☆☆☆☆☆	___

This question moved to end; after respondent has seen the prior 4 questions which should help them better understand what each category entails

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