

ADVANCING
OPPORTUNITY
in CALIFORNIA'S
INLAND EMPIRE



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EXECUTIVE SUMMARY

Like in many U.S. metropolitan regions today, civic leaders in California’s Inland Empire are seeking new strategies, tools, and resources to advance economic opportunity for more workers and families. Although the Inland Empire has seen exceptional growth for years thanks to its affordability and proximity to the Pacific Coast, it has hardly grown more prosperous. A series of booms and busts have claimed many of the region’s good jobs, leaving some workers worse off. Many families now struggle to make ends meet. Meanwhile, technology and trade threaten to diminish the growth and competitiveness of several of the region’s most critical industries.



The Inland Empire is not alone. Disruptive forces such as technology, trade, and geopolitics continue to reshape regional economies throughout the United States and the access to opportunity they provide.

As these economic and social trends have grown more severe in the years since the housing bust and Great Recession, they have raised alarm among the Inland Empire's leaders. For many years, the challenge in this region has been managing its breakneck pace of growth. Today, however, leaders are committed to ensuring the region's growth is not only manageable, but also sustainable. By investing in new economic and workforce development strategies, leaders are striving to create better opportunities for more workers and families to reach the middle class. Their vision for the region's future prompts this closer look at the industries, occupations, and skills that offer workers the best chances of obtaining jobs that provide family-sustaining wages and benefits.

This report considers ways in which the Inland Empire can advance economic opportunity by focusing regional growth strategies on "Opportunity Industries"—the industries that disproportionately contain the region's "good jobs" and "promising jobs." This novel distinction between good and promising jobs yields a more nuanced understanding of the dynamics of upward mobility in the region. In the report, "good jobs" refer to those that provide middle-class wages and benefits. "Promising jobs" are entry-level jobs that provide career pathways to good jobs. Although promising jobs do not provide the pay or benefits of a good job, they enable an incumbent worker to reach a good job within 10 years.

Overall, the report finds that in order to advance opportunity, the Inland Empire must increase the competitiveness and diversity of those sectors of its economy that concentrate good jobs. Tradable industries that sell their goods and services to customers outside the region, such as the Inland

Empire's logistics and manufacturing industries, are crucial drivers of economic growth and prosperity. They also contain a disproportionate share of the region's good jobs, especially for workers who do not have a bachelor's degree. Advancing the competitiveness of these industries can help ensure they continue to provide opportunities to local workers as the region diversifies into other tradable industries that can expand the number of good jobs and the promising jobs that provide pathways to them.

These high-level insights emerge from four central findings on the Inland Empire's stock of good jobs in Opportunity Industries:

1. The Inland Empire needs more good and promising jobs than it provides. The Inland Empire provides hundreds of thousands of good and promising jobs for both workers without a college degree and its high-skill workers who have at least a bachelor's degree. Yet it still does not provide enough. The region is home to more than 1.7 million prime-aged workers, about 76 percent of whom have less than a four-year college degree. Over 445,000, or 31 percent, of the Inland Empire's jobs are good or promising jobs held by workers without a four-year college degree. Another 215,000, or 15 percent, are good or promising jobs for high-skill workers who have at least a bachelor's degree. However, the other 784,000, or 54 percent, of remaining jobs held by the region's workers are neither good nor promising. This leaves the Inland Empire with a deficit of opportunity—roughly 347,500 of the Inland Empire's workers who hold one of these “other” jobs need a good or promising job in order to earn a family-sustaining wage. Closing this opportunity deficit by providing more good and promising jobs could have important, long-lasting economic and social benefits for the region. Unfortunately, on its current economic trajectory, the

Inland Empire will not close its current deficit of good and promising jobs through growth alone. In fact, the region's deficit of opportunity is slated to grow as good and promising jobs shrink as a share of all jobs.

2. Investing in Opportunity Industries—especially those that are tradable—can increase the region's stock of good jobs.

Focusing economic development efforts on Opportunity Industries can increase the number and share of good jobs in the region, in turn creating more pathways to good jobs. Tradable industries comprise 22 percent of all jobs in the Inland Empire, yet they provide almost 28 percent of the region's good jobs held by sub-baccalaureate workers. On average, good jobs for these workers represent over 21 percent of jobs in tradable industries, compared to just under 16 percent in local-serving industries. The region's tradable industries also provide 22 percent of its promising jobs held by sub-baccalaureate workers, and 20 percent of its good and promising jobs held by high-skill workers. The Inland Empire's well-established tradable industries, such as logistics, wholesale, and manufacturing, each provide above-average concentrations of good jobs. Together, these industries contain 18 percent of the region's total jobs, but contain nearly 27 percent of its good jobs for sub-baccalaureate workers and nearly 18 percent of its promising jobs for these workers. Other tradable industries also provide above-average concentrations of good jobs for sub-baccalaureate workers, including information, corporate headquarters, professional services, and finance. Together, these other tradable industries account for 6 percent of all jobs in the region, but nearly 8 percent of good jobs for sub-baccalaureate workers. Though these other tradable industries are currently relatively small in the Inland Empire, they are vital to its innovation and trade.

3. Providing education and workforce supports can improve workers' ability to obtain good or promising jobs. Good jobs can be found in a wide variety of occupations, from manufacturing to administrative positions to management jobs. As crucial as specific knowledge and skills are to obtaining good jobs in any of these occupations, this report finds reasoning, creativity, and interpersonal abilities to be even more important. These skills appear to be important not only to provide more value to an employer, but also for adapting to a changing labor market. About 80 percent of sub-baccalaureate workers will switch between completely different types of occupations to obtain a good job, marking a significant career change. These career changes sometimes diminish the relevance of non-transferable specific knowledge and skills. On the other hand, workers who are able to navigate career pathways in which they are able to demonstrate increasingly advanced reasoning abilities and social skills achieve the greatest earnings gains. As important as these abilities are to employers and one's personal success, they are hard to obtain. People tend to learn these skills and

abilities in four-year degree programs. This may require new models of learning for sub-baccalaureate workers.

4. Addressing race and gender gaps is crucial to securing the Inland Empire's economic future. The Inland Empire's shortage of good and promising jobs affects some workers more than others. Workers face quite different chances of obtaining a good job based on several factors. Education is a key determinant of whether someone can obtain a good job. Thirty-eight (38) percent of workers in the Inland Empire who have no more than a high school diploma hold a good job or a promising job, while 77 percent workers with a bachelor's degree hold a good or promising job. However, even among workers with the same level of education, chances of holding a good or promising job vary by gender and race or ethnicity. Among workers with only a high school diploma, 30 percent of black men hold a good or promising job, while the same is true of 45 percent of non-Hispanic men of all other races. Among workers with an associate degree, 43 percent of black women hold a good or promising job, while 74 percent of men who are neither black nor Hispanic do.



The report's findings reinforce the challenges the region faces around advancing opportunity. However, the findings also suggest that the region can adapt to change and help more workers thrive. The region faces a deep and interrelated set of issues requiring new multi-dimensional solutions that marshal the tools, resources, and expertise of actors from many different systems and institutions.

The findings point to three strategic objectives to advance opportunity in the Inland Empire:

- **Advance the capabilities and competitiveness of local firms in its opportunity-rich manufacturing and logistics industries.** Firms in these industries may require new local resources that enable them to develop innovative new products and services, in addition to implementing more efficient processes that reduce costs and improve product and service delivery. Creating centralized expertise and technology can provide a shared resource that increases the capacities of these firms, the capabilities of their workers, and the quality of their jobs.
- **Diversify the region's economic base by developing new technological and industrial capabilities that complement its logistics and manufacturing specializations.** The region's continued reliance on a small set of tradable industries leaves its entire economy vulnerable to idiosyncratic downturns or declines in the competitiveness of these industries. Yet as these industries begin to advance into new products and services, the Inland Empire can encourage the emergence of opportunity-rich industries that complement its existing strengths.
- **Connect people to the information, education, and resources they need to obtain a good job now or in the future.** As in many regions, the Inland Empire faces deep challenges around ensuring that men and women and people of different races and ethnicities enjoy the same access to labor market opportunity. Connecting people to opportunity, especially women and people of color, is paramount to extend and sustain this region's economic progress.

Achieving these three objectives will require planning and collaboration on the part of a majority of the Inland Empire's systems and institutions, including economic development organizations, workforce development organizations, education and training institutions, and—most critically—the private sector.

The Inland Empire faces urgent challenges around advancing opportunity for more workers and families. However, the region also possesses many enviable advantages for advancing opportunity, including not only its economic momentum but also the tremendous capacity of its civic institutions. This report provides data and insights that leaders in the Inland Empire can use to shape strategies and tactics that set the region on a course to a better, more opportunity-rich future. Successful implementation of these strategies hinges on the coordination and alignment of a diverse set of institutions and systems. The future of the region's middle class—and the stability of its economic future—depends on the actions the region's leaders and institutions take today.



INTRODUCTION

Fostering inclusive economic growth that creates opportunity for all has become a defining challenge for many U.S. regions, including California’s Inland Empire. National and global economic forces have fueled this region’s breathtaking growth for decades. Yet, many of the Inland Empire’s workers and families still struggle to get ahead economically. Bridging this gap between growth and opportunity has become an urgent priority for this region and its leaders.

Over the second half of the 20th century, the Inland Empire evolved from a series of farming communities into a center of defense contracting, and then into a global logistics hub. Its economy has boomed in recent years thanks to the region’s relative affordability and proximity to the Pacific Coast of Southern California.

This evolution has not come easily. The decline of the region’s defense industries following the Cold War claimed many of its middle-class jobs. Logistics has since grown into the region’s dominant industry and added tens of thousands of jobs, but few that match the pay or benefits of

those the region lost. And the region’s reliance on a small set of key industries has led to cycles of boom and bust.

The region’s growth dynamics have taken a toll on its prosperity. Today, the Inland Empire is one of the nation’s poorest regions of its size.

These attributes and trends may make the Inland Empire seem distinct from most U.S. regions. Few places have seen as much change over so little time. Yet simultaneously, the Inland Empire’s most pressing challenges are emblematic of those facing most regions today: Its recovery

from the Great Recession has left many people behind. Technology and trade threaten to further undermine its job base. And many of the decisions that determine the region's future are made from beyond its borders.

For the Inland Empire's civic leaders—elected officials, presidents of colleges and universities, CEOs of local businesses, heads of major nonprofits and philanthropies—these challenges have culminated at a crucial moment. The Great Recession was a wakeup call: the region's growth is not enough to sustain lasting, shared prosperity. In its aftermath, local leaders resolved to forge a more prosperous, inclusive, and sustainable path forward.

Their determination prompts this report's examination of the industries, occupations, and skills that offer the best chances for workers in the Inland Empire to obtain jobs that provide family-sustaining wages and benefits. The report lays out the considerations and case for advancing economic opportunity by focusing regional economic and workforce development strategies on "Opportunity Industries." These are the industries of the economy that, based on a first-of-its-kind analysis of workers' experiences over time, appear to offer the best chances for individuals—particularly those without four-year college degrees—to obtain a "good job," one that provides stable middle-class wages and benefits. We examine the presence of these jobs and industries within the nation's 100 largest metropolitan areas, and how pathways to those jobs—including through "promising jobs" that represent stepping stones to good jobs over time—may differ for workers by race, gender, and educational attainment.

Findings on Opportunity Industries inform a three-part framework for advancing opportunity in the Inland Empire:

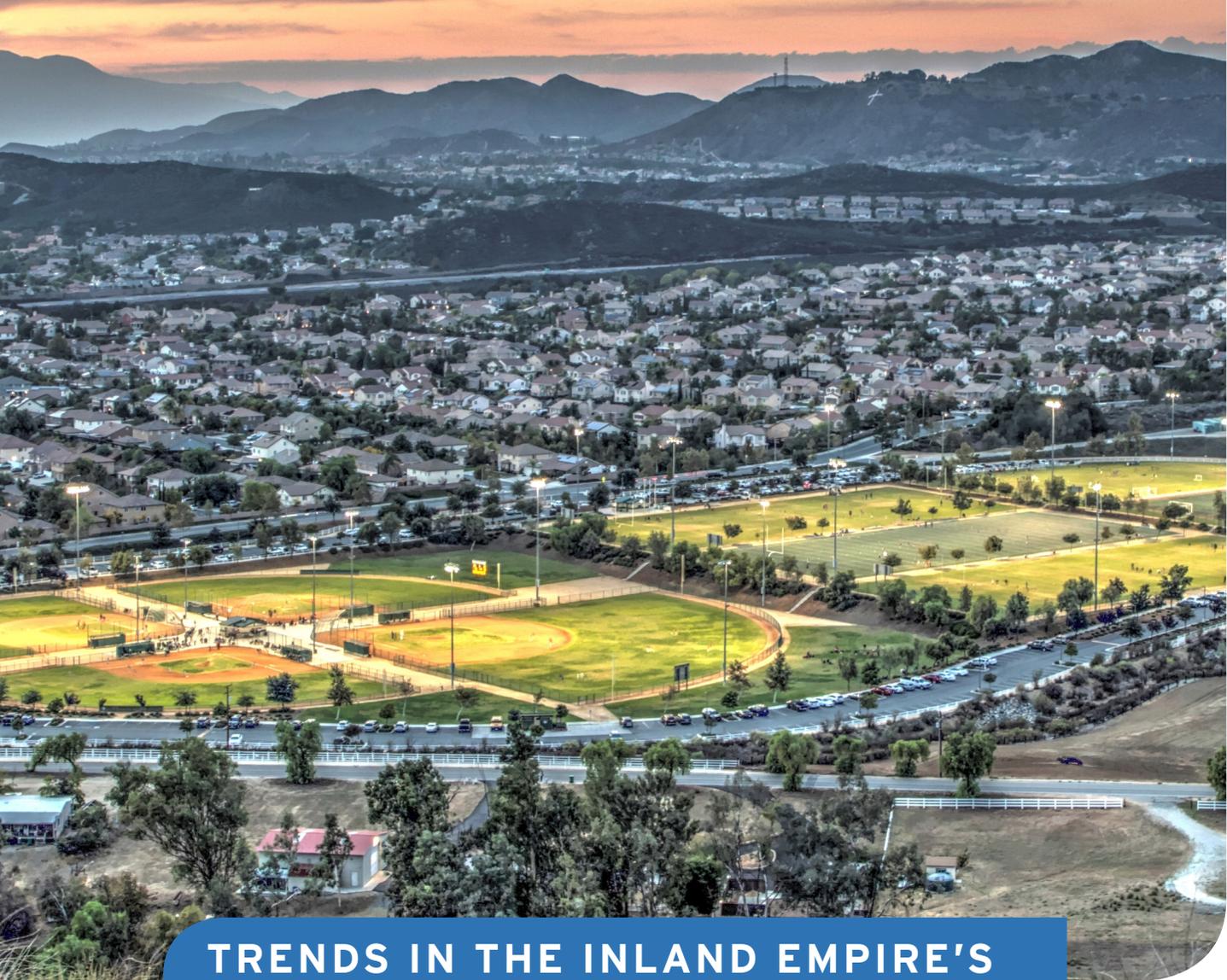
- First, the region should *advance* the productivity and competitiveness of its logistics and manufacturing industries that

serve as key drivers of its economy, ensuring that businesses in these industries can continue to add and improve the quality of jobs in the Inland Empire.

- Second, the region should seek to *diversify* its economic base by prioritizing Opportunity Industries in regional growth strategies.
- Third, the region should seek to better *connect* people looking for opportunity to the industries that provide it, by continuing to invest in innovative education and training initiatives and counseling workers on the career opportunities available to them.

This report proceeds by first reviewing recent trends in the Inland Empire's economic growth and prosperity, the disruptive forces shaping these trends, and the longer-term challenges they may pose. The report then presents a solutions-oriented series of findings highlighting the stock of opportunity the region offers in terms of its "good jobs" and "promising jobs," the industries that concentrate these jobs, the types of knowledge and skills increasingly needed in good jobs, and how access to good jobs in Opportunity Industries varies for workers of different backgrounds. The report concludes with a discussion of the key implications of these findings for how the region fosters inclusive economic growth and opportunity.

As leaders in the Inland Empire begin to act on the findings highlighted in this report, leaders in other regions should take note. For decades, this region has been at the forefront of dramatic economic and demographic changes that have only recently begun to affect other places. The challenges that leaders here face today may resemble those that face leaders in many other communities in the future. Identifying effective scalable solutions that can better foster opportunity in the Inland Empire is vital not only to this region's economic future but may prove instructive to leaders elsewhere.



TRENDS IN THE INLAND EMPIRE'S GROWTH AND PROSPERITY

The Inland Empire enjoyed a booming economy for the better part of the prior two decades, until the housing bust and Great Recession. The recession erased more than a decade's worth of the region's job growth. Although the Inland Empire achieved a strong jobs recovery, many workers remain worse off. Earnings growth since the recession has been weak and few have benefited. Today, many workers and families struggle to make ends meet. This uneven economic recovery reveals that, just like before the recession, the region's economy relies on a small set of industries that provide plentiful numbers of jobs but few pathways to the economic security of the middle class.

THE INLAND EMPIRE AT A GLANCE

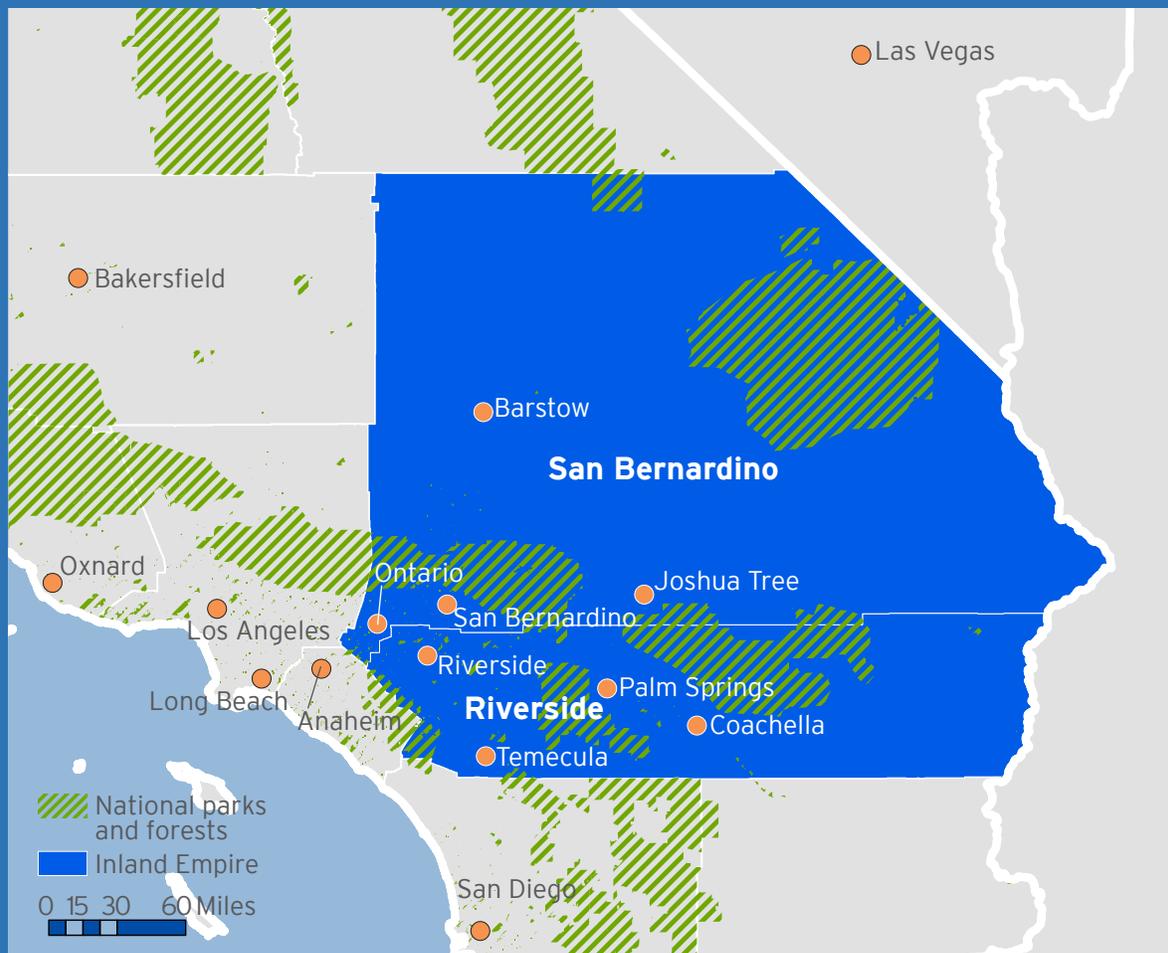
The Inland Empire comprises the California counties of Riverside and San Bernardino, named for the region's two largest cities, which lie about 60 miles east of Los Angeles.¹ The counties stretch from their western borders with Los Angeles and Orange counties to California's eastern border with Nevada and Arizona. Altogether, the region covers nearly as much land as the state of South Carolina and, with

over 4.5 million residents, is more populous than half of U.S. states.²

Political and physical boundaries divide the region into distinct sub-areas. The county line splits the region from east to west. Mountains split the region from roughly north to south. Three-quarters of the region's residents live in the valleys east of Los Angeles and west of

FIGURE 1

The Inland Empire



Source: Esri and U.S. Census Bureau TIGER/Line

the San Bernardino and San Jacinto mountain ranges.³ The rest live east of the mountains in communities throughout San Bernardino County's vast High Desert and Riverside County's Low Desert.

The Inland Empire has boomed for decades thanks to its affordability and proximity to neighboring regions along the Pacific coast. Its population has grown over 76 percent since 1990, fueled in part by families from other parts of Southern California migrating toward the region's lower housing costs.⁴ The Inland Empire's proximity to the Los Angeles-Long Beach port complex has helped make it a vital hub in the logistics of moving imported goods from Asia and the Pacific into the interior United States.

As it has boomed, the Inland Empire has become one of the youngest and most racially and ethnically diverse large metropolitan regions in the nation. Today, more than half of the region's population is under 35 years old, compared to about 46 percent of the U.S. population.⁵ People of color comprise 68 percent of the Inland Empire's population, compared to less than 40 percent of the U.S. population. Over half of the Inland Empire's residents are Hispanic.

The region's location, size, and breathtaking growth offer advantages but also create complex economic and political dynamics:

- First, as the Inland Empire's economy has evolved, it has not developed a diverse set of tradable industries. Tradable industries are crucial to the growth and stability of regional economies. Businesses in these industries tend to sell most of their products and services to customers outside the region, bringing in new income that generates growth and wealth. The Inland

Empire's reliance on a small set of tradable industries, namely logistics, makes it particularly sensitive to business cycles and industry shifts, as the trends described below reveal.

- Second, despite its growth, the Inland Empire continues to struggle with high rates of joblessness and poverty. The share of its population living below the federal poverty line has exceeded the U.S. and large metropolitan region averages since 2008.⁶ Among large regions, the Inland Empire consistently ranks nearly last on measures of prosperity and economic inclusion. It has remained near the bottom tenth of large regions in terms of its standard of living and employment rate since at least 2006.⁷

- Third, the Inland Empire's geography and pattern of development have inhibited regional collaboration on economic and social issues in the past. In most regions, civic and quasi-governmental institutions such as chambers of commerce and councils of governments help coordinate development. In the Inland Empire, these institutions grew separately in each of the two counties, reducing collaboration between them. Further, the vast and sprawling nature of the region sometimes limits collaboration within each county.

These economic and political dynamics have contributed to the region's uneven economic growth in recent years. The Great Recession of 2007 undermined several pillars of the region's economy, leading to a severe local downturn. Although the region's economy has since returned to its breakneck pace of job growth, it is less inclusive and has yet to recover its prior prosperity.

THE REGION'S JOBS RECOVERY EXCEEDED EXPECTATIONS

The 10 years from 2006 to 2016 marked a tumultuous period for the Inland Empire. The region's cumulative rate of job growth exceeded the nation's—a remarkable outcome given the extents of its losses during the Great Recession.

Like other metropolitan regions in Southern California and the Southwest, the Inland Empire saw a steep rise in home prices in the early 2000s, which spurred local housing construction and consumer spending. This contributed to a period of dramatic economic growth leading up to 2006. However, as home prices began to weaken in 2007 and construction slowed, the region's economy started to falter. By 2010, the Great Recession had erased half the region's housing values and claimed nearly 11 percent of its jobs—

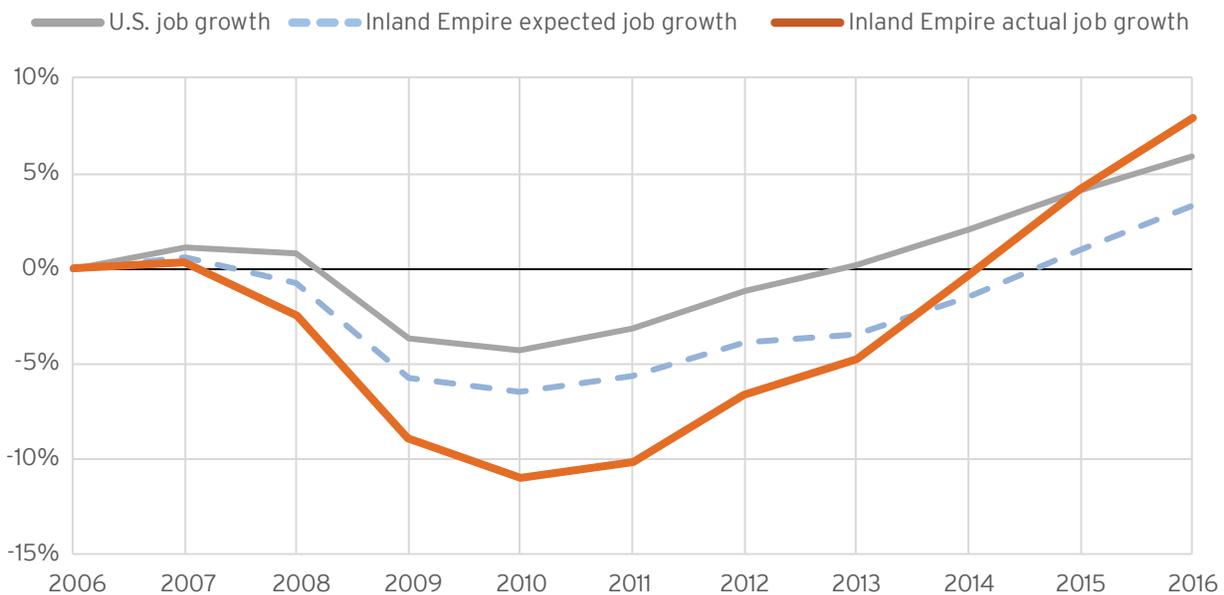
losses that far exceeded those of other large metropolitan regions and the nation as a whole.⁸

The Inland Empire's recession was so severe because several of its sources of economic growth slowed at once. Home construction was just one: The construction and real estate sectors laid off 38 and 20 percent of their workers, respectively, from 2007 to 2010.⁹ Consumer spending was another: Retail and hospitality sectors laid off 12 and 7 percent of their workers, respectively. Logistics industries also contracted: Taken together, jobs in the region's transportation, warehousing, and wholesale sectors declined nearly 9 percent. Temporary employment agencies, which employ many of the people who report to work at the region's logistics and manufacturing facilities, laid off 35 percent of their workers. Together, these sectors, which had fueled 57 percent of the Inland Empire's job gains from 2001 through 2007, accounted for 76 percent of its job losses during the recession.

FIGURE 2

The Inland Empire overcame its deep recession to post a better-than-expected job recovery

Inland Empire job growth compared to the nation's since 2006



Source: Authors' analysis of Economic Modeling Specialists, Inc. estimates

Despite the severity of the downturn, however, the region mounted an unexpectedly swift jobs recovery. If each of the Inland Empire's industries had grown only at the rate of its national counterpart following recession, the region would still be working towards recovering all the jobs it lost over the course of the recession.¹⁰ Instead, many of the sectors that led the region into the recession powered its speedy recovery and continue to drive its growth today. The retail, hospitality, and logistics sectors had each exceeded their pre-recession job levels by 2016, together accounting for 38 percent of the region's job growth during the recovery period from 2010 through 2016. Construction and real estate also added jobs, though they had not yet achieved a full jobs recovery by 2016. The health care sector featured heavily in the region's recovery period, accounting for 28 percent of the region's job growth.

The cumulative effect of the region's job growth over the recession and recovery was a job growth rate from 2006 to 2016 that exceeded the nation's. Yet the region's growth over this period has also left it even more vulnerable to severe job losses in future downturns, in two ways. First, many of the sectors that animated the region's boom and bust have also fueled its recovery. These sectors may follow a similar pattern in future business cycles. Second, the job losses the region sustained during the recession left the region's employment even more concentrated in a small set of industries. Although the region's jobs recovery has helped reverse some of that concentration, the region's economy remains less diverse and therefore more reliant on a handful of industries than it was prior to the recession.

EARNINGS GROWTH HAS LAGGED IN THE INLAND EMPIRE

Although the region's job growth beat expectations from 2006 to 2016, workers' earnings gains did not. Its average annual earnings have grown far slower than expected.

Nationwide, average annual earnings increased 7.3 percent in real terms from 2006 to 2016, to \$65,700 per job.¹¹ As shown in Figure 3, the Inland Empire's average annual earnings grew by just 2.8 percent, to \$56,200. If the region's industries had added jobs and increased earnings at the same rate as their national counterparts, average annual earnings would have instead increased 5.7 percent, to nearly \$57,900.

The region's boom and bust help explain its lagging earnings growth. During the recession, the Inland Empire shed jobs in many of its highest paying industries. Losses were especially severe in construction and manufacturing sectors, where workers' average pay is well above the regional average. These sectors and others had yet to recover their job losses by 2016.

Meanwhile, the region gained many new jobs in lower-paying sectors over the course of its recovery, which further depressed average earnings growth. In fact, sectors with below-average annual earnings, including health care, logistics, hospitality, and retail, accounted for more than three-quarters of the Inland Empire's net job growth between 2006 and 2016, as shown in Figure 4.¹²

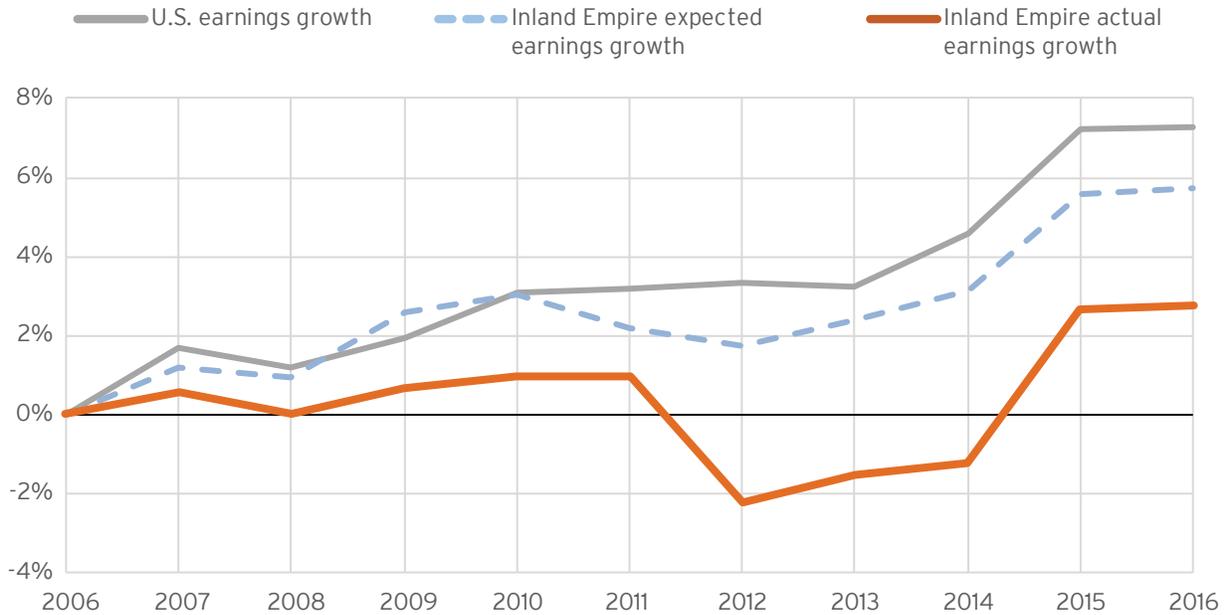
Compounding the damage done by the recession, the region shed many of its highly paid jobs in construction, manufacturing, and government sectors in 2011, contributing to a precipitous decline in average annual earnings. The health care sector, where earnings are below the regional average, grew 19 percent the same year, further depressing average annual earnings. It was not until higher-paying sectors like government and construction began to add jobs at a faster pace in 2015 that the region's average earnings began to recover in earnest.

In addition to being worse-than-expected, the Inland Empire's earnings growth has also been highly uneven. Only one group of the Inland Empire's workers experienced earnings gains: those in the top fifth of the income distribution,

FIGURE 3

The Inland Empire's earnings growth has not kept pace with the nation

Inland Empire average annual earnings growth compared to the nation's since 2006

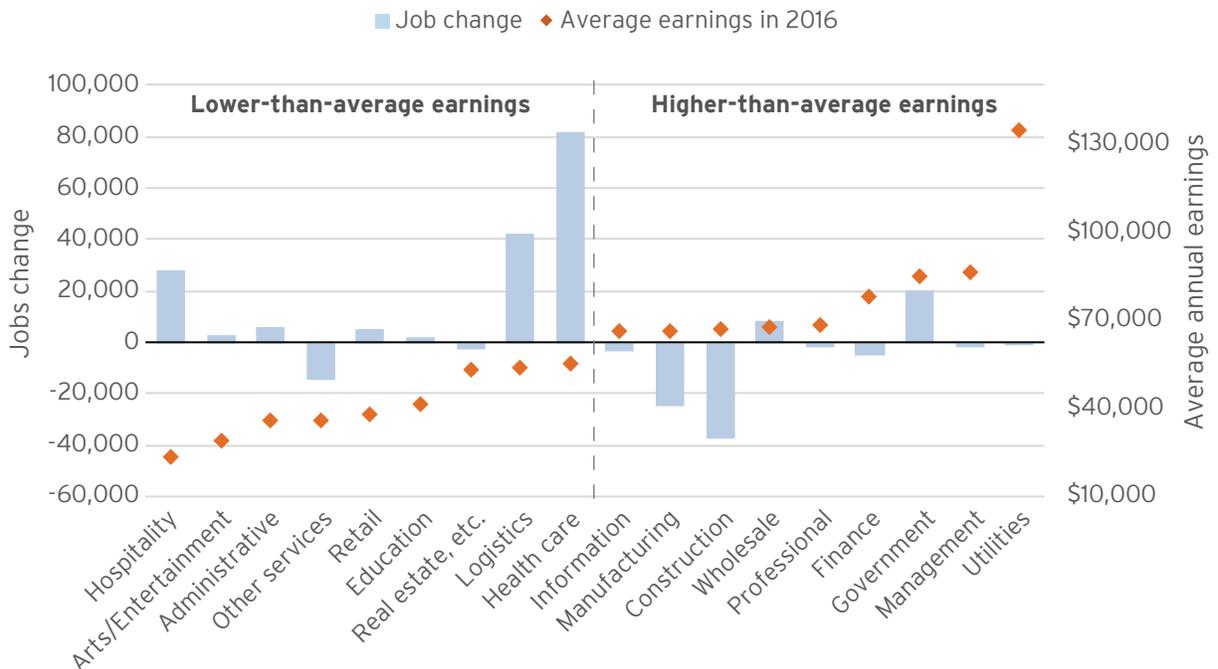


Source: Authors' analysis of Economic Modeling Specialists, Inc. estimates

FIGURE 4

The Inland Empire's net job growth has come from lower-paying sectors of its economy

The Inland Empire's job change and average earnings by industry sector, 2006 to 2016



Source: Authors' analysis of Economic Modeling Specialists, Inc. estimates

as shown in Figure 5. From 2006 to 2016, workers at the 80th percentile of the earnings distribution (those earning more than 80 percent of all workers) saw their annual earnings increase 0.8 percent in real terms, to about \$70,000 per year.¹³ Workers at the 90th percentile (those earning more than 90 percent of all workers) saw their annual earnings increase 3 percent, to about \$91,200 per year. However, earnings declined for all workers below the 80th percentile of the distribution, with some seeing decreases in average annual earnings of nearly 12 percent.

On average, the Inland Empire's workers without a bachelor's degree suffered the largest earnings declines. Median annual earnings in 2016 remained below 2006 levels for workers of all levels of education, as shown in Figure 6.¹⁴ Median annual earnings for workers with a bachelor's degree remained 7 percent below their 2006

levels by 2016. Workers without a bachelor's degree fared far worse, however. Median earnings among workers with only a high school diploma remained 10 percent lower than their 2006 levels in 2016. Median earnings had fallen by 20 percent for workers with some post-secondary education.

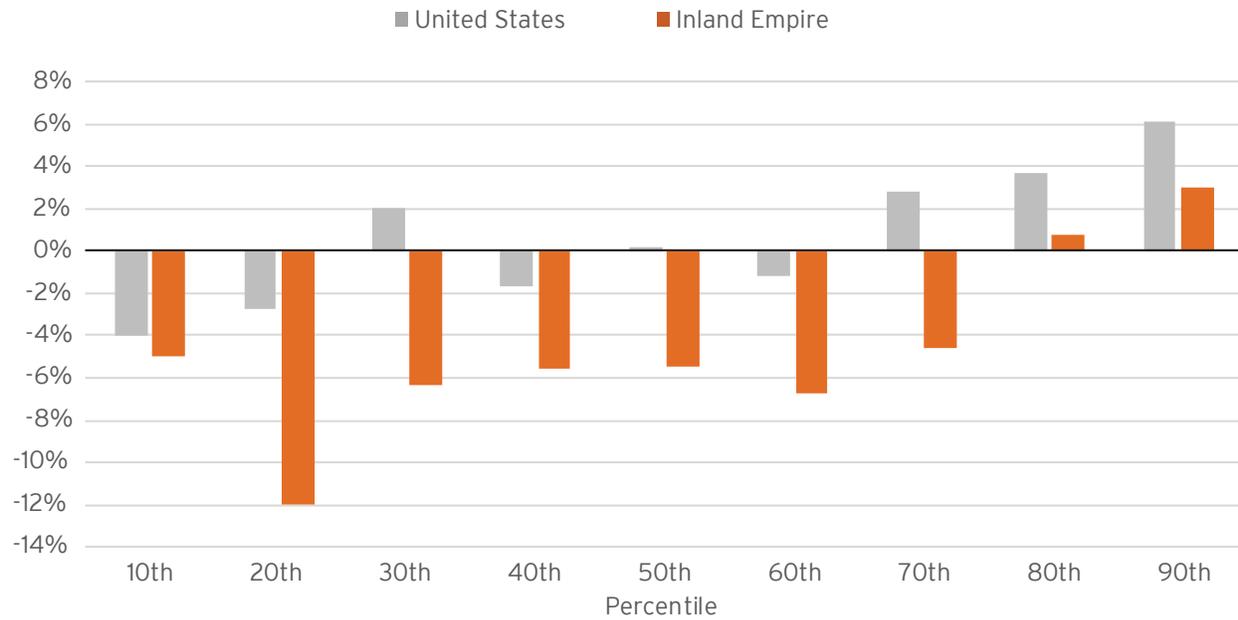
The especially steep and continuing losses in median earnings for workers with some post-secondary education starting in 2010 are likely related to these workers' declining employment in the public sector, which shed a significant number of jobs between 2010 and 2011. Workers with a high school diploma likely saw their earnings begin to rise more quickly after the recession due to their increasing employment in the transportation and warehousing sector after 2012 and the beginnings of the recovery of the construction sector in 2013.



FIGURE 5

Earnings remain lower in all but the top fifth of the Inland Empire's earnings distribution

Change in real annual wages among wage and salary workers in the Inland Empire, 2006 to 2016

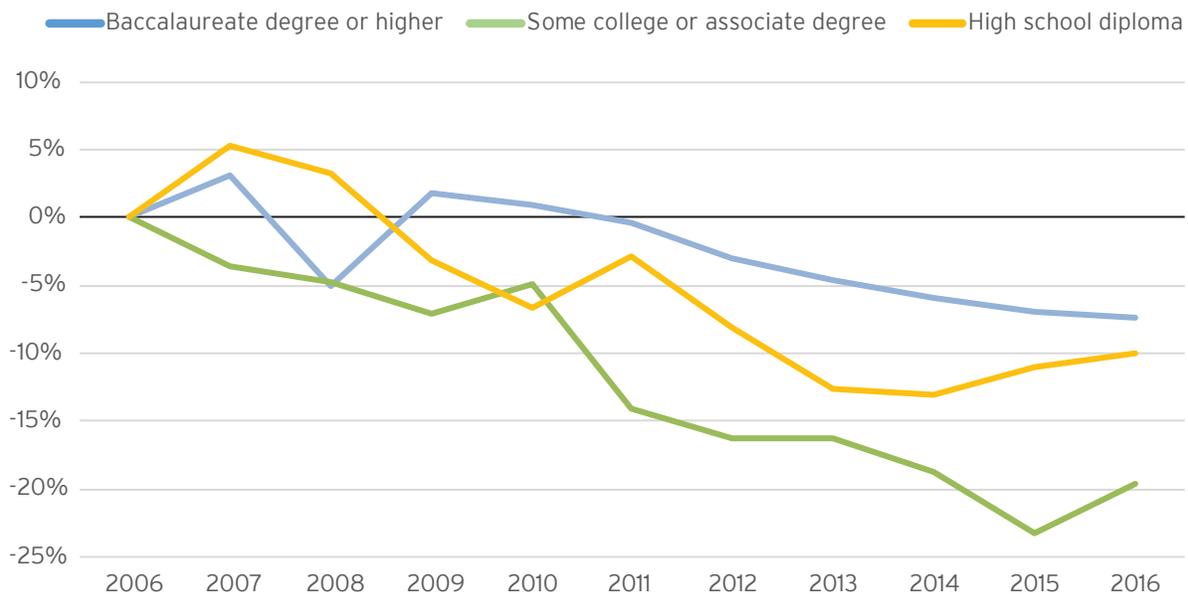


Source: Authors' analysis of American Community Survey public-use microdata

FIGURE 6

Median earnings remain lower among Inland Empire workers regardless of their education

Percent change in median real earnings since 2006 among wage and salary workers in the Inland Empire



Source: Authors' analysis of American Community Survey public-use microdata

MORE WORKERS AND FAMILIES NOW STRUGGLE TO MAKE ENDS MEET

Although the Inland Empire's economic recovery has restored its number of jobs to pre-recession levels, more of its workers still find it more difficult to find a job that pays a family-sustaining wage. More working families now struggle to make ends meet, and younger workers appear to be finding fewer opportunities that allow them to advance in their careers. The increased number of families and workers who are struggling and the forces they must contend with pose challenges for the region's current and future prosperity, equity, and resilience.

The number and share of the Inland Empire's workers and residents that belong to families that struggle to make ends meet grew over the course of the Great Recession and remains high. Just prior to the recession, nearly 1.3 million residents or 36 percent of the population belonged to families that struggled to make ends meet, as shown in Figure 7. This number swelled by an

additional 560,000 individuals over the course of the recession, reaching a peak of nearly 1.9 million people or 47 percent of the population in 2012. Since then, few workers and families have found a path back to the economic security of the middle class. Nearly 1.7 million people, or 41 percent of the Inland region's population, belonged to struggling families in 2016.

The Inland Empire's struggling families live in both counties in approximately equal numbers. The region's struggling families were equally likely to live in Riverside and San Bernardino counties. About 874,000 people, or 50.4 percent of the population living in one of the region's struggling families, lived in Riverside County in 2016. About 862,000 people, or the remaining 49.6 percent, lived in San Bernardino County. Within each county, the share of people struggling was similar: 39 percent of all residents of Riverside County belonged to a struggling family, compared to 44 percent of people in San Bernardino County. Residents of areas in Riverside County's Low Desert and San Bernardino County's High Desert were more likely to struggle than the regional average.

IDENTIFYING THE INLAND EMPIRE'S STRUGGLING FAMILIES

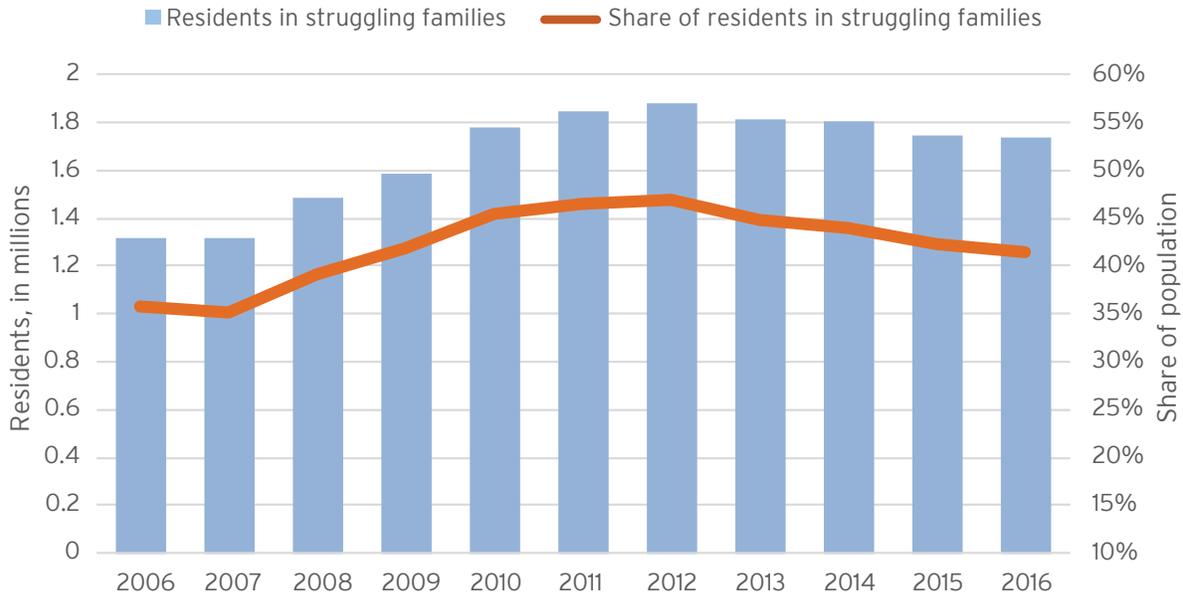
Workers and families that "struggle to make ends meet" are not necessarily in poverty. Federal poverty guidelines refer to the amount of income a family needs to put food on the table.¹⁵ The Inland Empire's poverty rate rose from 13 percent in 2005 to 16 percent in 2016.¹⁶ Yet, as the numbers above suggest, a far greater share of the region's residents belong to families that struggle to afford other basic needs. The federal poverty threshold for a family of four with two children was \$24,300 per year in 2016.¹⁷ However, a family might live above this line but still have little choice but to live in substandard housing, or it might struggle to

afford quality child care. Poverty thresholds also fail to account for differences in costs of living in different areas. For example, a family of four in San Bernardino County would need an income of at least \$58,926 to make ends meet. The same family would need \$62,218 to make ends meet in Riverside County because of its higher housing costs. These thresholds reflect the income families need to sufficiently cover basic expenses such as food, housing, transportation, child care, health care, and taxes, and to save a small amount for emergencies like medical care, auto repairs, or joblessness.¹⁸

FIGURE 7

The share of Inland Empire residents that belong to families that struggle to make ends meet remains higher than in the years prior to the Great Recession

Residents that belong to families that struggle to make ends meet, 2016

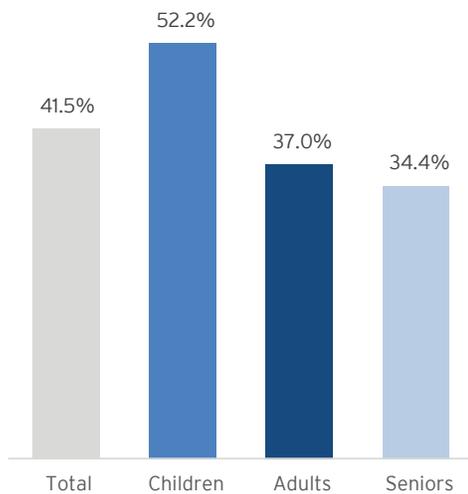


Source: Authors' analysis of American Community Survey public-use microdata and the University of Washington Center for Women's Welfare County-Based Sufficiency Standard

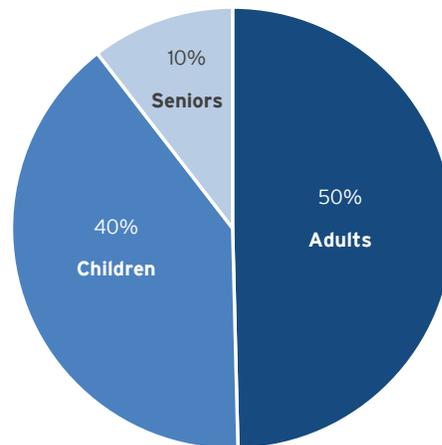
FIGURE 8

Over 37 percent of working-age adults and over half of children belong to struggling families

Share of residents in struggling families by age group, 2016



Share of struggling residents by age group, 2016



Source: Authors' analysis of American Community Survey public-use microdata and the University of Washington Center for Women's Welfare County-Based Sufficiency Standard

The Inland Empire’s job growth has made it harder for many to make ends meet

Changes in the distribution and pay of the Inland Empire’s jobs, rather than changes in its employment rate or cost of living, are the main drivers of the region’s growing share of residents that struggling to make ends meet.¹⁹ Working-age adults in the region were employed at comparable rates in 2016 as they were in 2006 (69 percent in 2016 versus 71 percent in 2006).²⁰ Meanwhile, falling wages are making it more difficult for many families to earn enough to make ends meet: Nearly 29 percent of people who are employed struggled to make ends meet for their families in 2016, up from 24 percent in 2006.

Some groups of workers struggle more than others. Nearly 34 percent of working-age sub-baccalaureate workers struggled to make ends

meet in 2016, compared to about 28 percent in 2006, suggesting that well-paid jobs for these workers have grown scarcer.²¹ This rise is not solely attributable to younger or less-educated workers entering the region’s workforce in recent years. In fact, the share of sub-baccalaureate workers under 35 years old actually decreased during this period. Meanwhile, these workers actually became more educated, on average: 35 percent of sub-baccalaureate workers had at least some post-secondary education in 2016, compared to less than 30 percent in 2006.

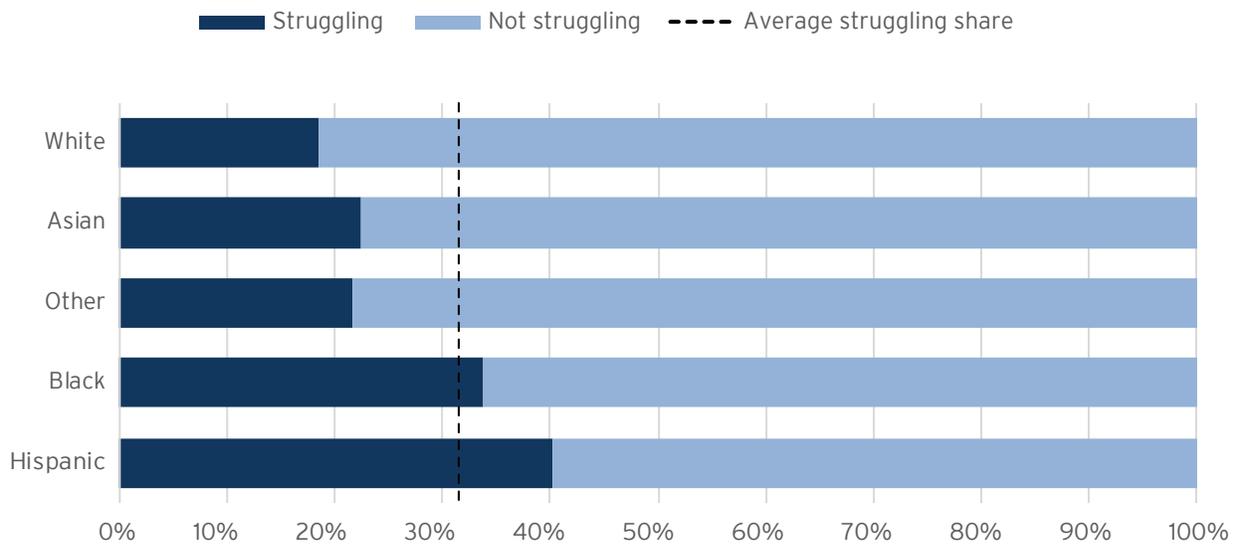
People of color are far more likely to struggle to make ends meet

Black and Hispanic residents make up 58 percent of the Inland Empire’s population but 71 percent of all people living in struggling families. A key reason black and Hispanic residents are over represented in struggling families is that

FIGURE 9

People of color are more likely to belong to families that struggle to make ends meet

Share of workers aged 18 to 64 years in struggling versus non-struggling families, 2016



Source: Authors’ analysis of American Community Survey public-use microdata and the University of Washington Center for Women’s Welfare County-Based Sufficiency Standard

black and Hispanic workers face far greater chances of struggling to support their families: less than 19 percent of white workers belong to a struggling family, but 34 percent of black workers and 40 percent of Hispanic workers belong to a struggling family. Differences in educational attainment may explain some of this gap: although 34 percent of whites have at least a four-year degree, just 28 percent of blacks and 11 percent of Hispanics do. As noted above, educational attainment increasingly determines one's chances of struggling. Yet even among workers with the same educational attainment, black and Hispanic workers are still more likely to struggle than whites.

Persistently high economic insecurity constrains inter-generational economic mobility

The effects of the region's changing labor market reverberate beyond its workers to their families, potentially leading to multi-generational challenges. Fifty-two (52) percent of the region's children belonged to struggling families in 2016, as shown in Figure 8.²² Over 84 percent of the region's struggling children lived with at least one employed adult and another 5 percent live with an adult looking for work. Still, their parent's earnings proved insufficient to cover all their family's needs.

This share of children living in families that struggle to make ends meet represents a multi-generational challenge for the Inland Empire. According to research by Raj Chetty and others at the Equality of Opportunity Project, children that grow up in economically vulnerable families have a harder time improving their station in life than their wealthier peers.²³ In the Inland Empire, a child born between 1980 and 1982 to parents at the 50th percentile of the national income distribution typically rose to the 54th percentile of income as an adult. By contrast, a child born to parents at the 25th percentile of national income rose to just the 42nd percentile.

These findings suggest that differences in the lived experiences of children who grow up in struggling families and those that do not are likely to be perpetuated, rather than corrected, if the trends that have characterized the region's labor market from 2006 to 2016 continue. Today, over a half million of the Inland Empire's workers struggle to make ends meet for their families. Most are parents. In the future, the nearly 693,000 children who live in struggling families today are likely to face the same challenges as their parents.

These recent trends could lead to long-term challenges

These recent trends in the region's growth and prosperity point to a future in which the region will have more entrenched economic and social problems and declining capacity to solve them:

- First, a persistently high portion of economically insecure workers and families can lower public revenues and increase expenditures. Not only are struggling workers earning and spending less, generating fewer taxes, but many may be eligible for support from public benefit programs such as the Supplemental Nutritional Assistance Program (a.k.a SNAP or food stamps) and Medicaid.
- Second, a majority of the region's children are growing up in the region's struggling families. Without all the material support they need to succeed today, these children may have a harder time thriving as adults. This could further stretch public resources in the future. It may also exacerbate existing economic divides along racial and ethnic lines.
- Third, the uneven economic recovery that has contributed to these trends raises questions about how the region's economy and workforce will adapt in an era of hastening technological and social change. The region's reliance on its affordability has brought

many jobs but few that provide the sort of opportunity or capabilities that the region and its workers and families need to get ahead.

The rise in Inland Empire families that struggle to make ends meet has several underlying causes to be sure, many of which are beyond the control of local civic leaders. However, the near- and long-term consequences of these trends threaten the region's future and no doubt concern the region's leaders nonetheless.

THE INLAND EMPIRE MUST CONTEND WITH SHIFTING ECONOMIC FORCES

These trends are not likely to resolve themselves on the region's current path. Just as in other regions, a series of disruptive external forces continues to reshape the Inland Empire's economy and the opportunity it provides to workers and families. Fierce trade competition and disruptive technologies have rendered many capabilities and skills obsolete in recent years, affecting industries and workers everywhere. Unlike in other regions, however, these forces have often been more of a boon than burden for the Inland Empire—until now.

Increasing global trade competition has beset other regions in recent years but has helped fuel the Inland Empire's job growth. The value of global goods trade grew 400 percent from 1990 through 2007.²⁴ This increased in trade has been tough on domestic manufacturing industries, including those in the Inland Empire. However, increasing U.S. trade with Asian countries has

also led to dramatic increases in import volumes at the ports of Los Angeles and Long Beach, which has overflowed to the Inland Empire and contributed to the dramatic growth of the region's logistics industries.

Technological change and automation are also leading to dramatic changes in the demand for skills and the supply of jobs in some industries. Technological disruptions have been minor in the Inland Empire, thanks in part to its industry structure and because automating logistics facilities has not been worth the cost historically.²⁵ However, technological breakthroughs now make automation much easier in all industries, including logistics, and are dramatically increasing the digital content of work in every occupation.²⁶

Today, Inland Empire's growth and competitiveness are facing new headwinds. The growth of U.S. trade with Asia is slowing and may even decline as geopolitical tensions continue to play out. Further, new infrastructure improvements beyond Southern California could disrupt trade routes, further slowing the growth of trade volumes at ports on the Pacific Coast.²⁷ Meanwhile, the costs of land and labor in the Inland Empire—which have historically provided crucial advantages over other regions—are rising. Together, these trends could increase pressure for the region's manufacturing and logistics industries to invest in technologies that lower costs by saving labor. In fact, maintaining this region's manufacturing and labor-intensive logistics industries may depend on the development and application of new technologies, which could bolster these industries' foothold in the region but lead to dramatic job cuts.



THE INLAND EMPIRE'S OPPORTUNITY INDUSTRIES

Recent trends in the Inland Empire's economic growth and prosperity and the challenges the region faces prompt this closer look at how the region's leaders can advance opportunity for more workers. The region enjoys plenty of economic momentum, yet it must do more to ensure that momentum leads to more good jobs for the workers and families struggling to find better opportunities.

The findings that follow identify and explore the Inland Empire's Opportunity Industries, which concentrate the region's "good jobs" that provide family-sustaining wages and benefits and its "promising jobs" that provide career pathways to good jobs. Opportunity Industries help uphold the region's middle class and provide many of the pathways to it, especially for sub-baccalaureate workers.

Some Opportunity Industries also provide good and promising jobs for high-skill workers, who remain crucial to advancing prosperity in the Inland Empire. A select group of Opportunity Industries can advance opportunity for both sub-baccalaureate workers and high-skill workers with a bachelor's degree. These industries drive the region's innovation and trade, fueling its growth.

This analysis of Inland Empire's Opportunity Industries takes an approach that yields helpful insights into several types of local systems and institutions:

- The analysis considers not only whether jobs currently meet job quality criteria, but also how the number, quality, and pathways to jobs may change as the region's economy evolves in the years ahead, providing a sense of the direction of the region's labor market.
- The concentration of good jobs and the promising pathways to them in certain industries offers a lens useful to several regional actors, especially economic and workforce development organizations and the employers within these industries.
- The analysis also reveals the aspects of Opportunity Industries that enable them to concentrate good and promising jobs: the occupations, knowledge, skills, and abilities that good jobs and promising career pathways comprise, which may be useful to education systems.

Certain findings reinforce the challenges facing the region. For one, growing enough good and promising jobs in Opportunity Industries will be difficult and still will not fully address the region's needs, especially in the cases of families with children and systemic intergenerational poverty. Many of the career pathways that lead to good jobs do not reflect traditional models of career advancement, which may require new thinking and interventions to move incumbent workers into better-paying jobs.

Further, the region must improve access to opportunity for different types of workers: These findings reveal how workers' chances of obtaining a good job in Opportunity Industries vary by their education, gender, and race and ethnicity, suggesting yawning gaps in workers' access to good and promising jobs. However, the Inland Empire does have advantages to build on. The

region boasts a higher share of jobs that are good or promising than most peers, providing a head start in its effort to advance opportunity.

DEFINING OPPORTUNITY

As the trends above reveal, sub-baccalaureate workers are finding fewer jobs that lead to economic security. Meanwhile, few are likely to obtain a four-year bachelor's degree that would allow them to compete for better-paid positions. Instead, most must rely on opportunities to gain knowledge and experience in the region's labor market as they work their way toward better-paying jobs and, hopefully, economic security. These dynamics motivate this analysis, which identifies good jobs that can provide economic security and independence and the promising career-based job pathways to them.

This report defines three types of jobs relevant to improving earnings for people without a four-year college degree in the Inland Empire who are working or looking for work, yet still struggle to make ends meet. First, a "good job" is a wage or salary job that pays at least \$37,440 per year, or \$18 per hour on a full-time, year-round basis and provides employer-sponsored health insurance.²⁸ This wage rate represents the income that would be required for at least half of the region's current struggling workers to make ends meet and become economically independent and secure.²⁹ Employer-sponsored health insurance serves as a proxy for other benefits, such as paid leave, and assures most workers' independence from Medicaid and other public-assistance programs.

Second, if good jobs are the middle-class jobs that struggling workers are striving to reach, then "promising jobs" are the entry-level jobs that provide career pathways to them. Promising jobs do not meet the criteria for a good job but, based on the authors' analysis of historical job-switching patterns and projections, would enable an incumbent worker to reach a good job within 10 years. Promising jobs are identified using a novel career-pathways analysis based on records of how

real people have moved between occupations or advanced within an occupation in recent years as they navigated local job opportunities. This analysis of past trends in occupational mobility is projected forward to predict how workers in the Inland Empire will move between occupations over the next 10 years given the region's anticipated growth trends.³⁰

These good and promising jobs are further distinguished by the education of the people who currently hold them: Good and promising jobs held by sub-baccalaureate workers are discussed separately from those that are held by "high-skill" workers who have at least a bachelor's degree.

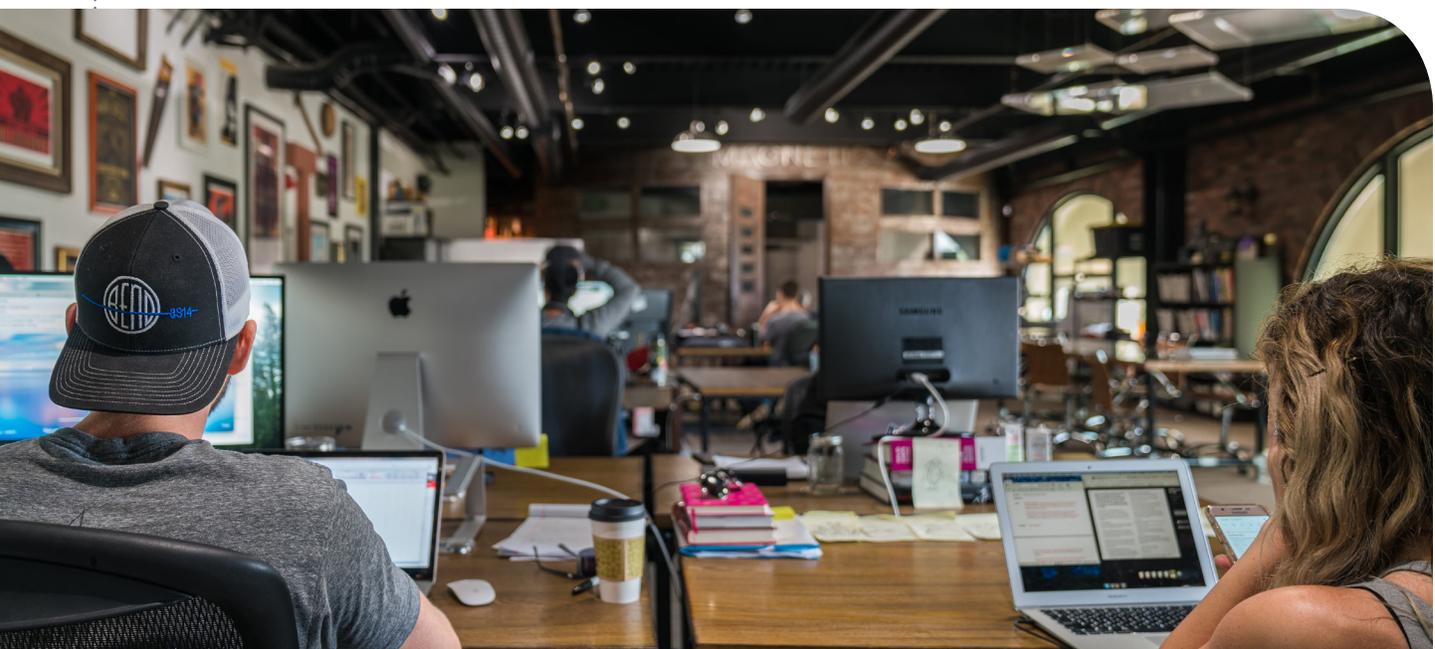
Third, jobs that are neither good nor promising jobs are referred to as "other jobs." Other jobs do not provide the wages or benefits of good jobs, and do not provide reliable career pathways to good jobs.

Good and promising jobs are identified using occupations and then mapped to the Inland Empire's industries. Jobs are labeled "good" or "promising" based on the *probability* that they meet the criteria for either category given jobholders' demographic characteristics and educational attainment. This yields precise findings, revealing what *share* of jobs in each of more than 800 occupations fall into each category of job quality. These occupational job

quality metrics are then tied to industries using detailed data on the staffing patterns of each the region's industries.

The analysis uses standard definitions of industries and occupations. Industry definitions come from the North American Industrial Classification System (NAICS).³¹ Occupation definitions come from the Standard Occupation Classification (SOC) system.³² Some industry and occupation titles have been abbreviated. Tables and text provide more detail on the titles to which these refer.

The result of this analysis is a nuanced reckoning of how the Inland Empire's labor market opportunity will continue to evolve if recent trends continue. The findings point to strategies the Inland Empire's leaders can pursue to increase good and promising jobs for sub-baccalaureate workers; for example, by seeking to grow the industries that concentrate them. Labor market intermediaries can use insights to identify and organize employers in industry sectors that provide better opportunities for workers to get a good foothold in the labor market. Education and training institutions can glean what types of skills and abilities students will need to thrive in the labor market as employer demands continue to shift. Crucially, the findings can provide a common understanding of how these systems can work together to advance opportunity.



FINDINGS

1. The Inland Empire provides too few good jobs for all the workers who need them

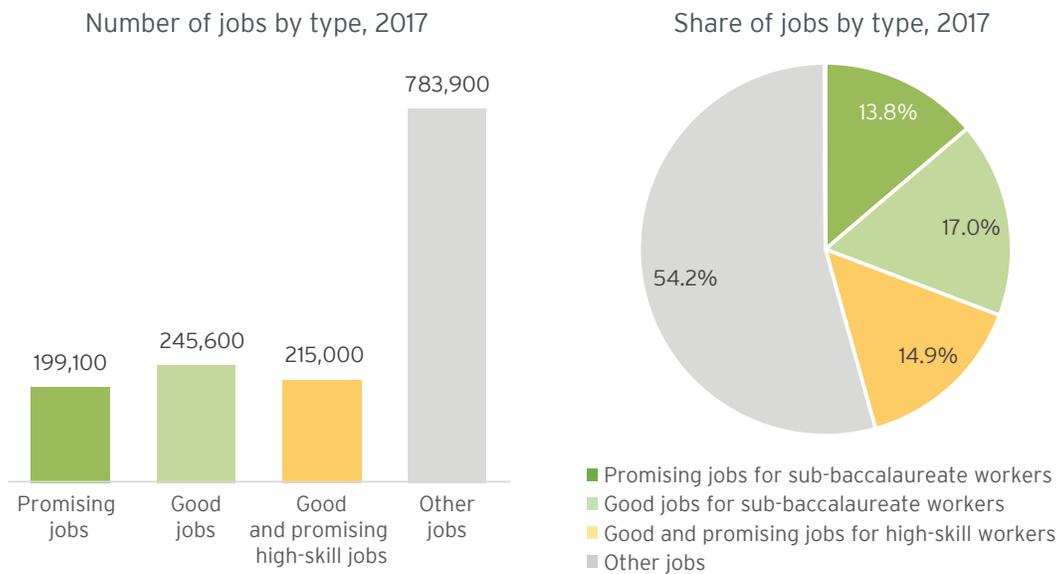
The Inland Empire provides hundreds of thousands of good and promising jobs for both its sub-baccalaureate workers and its high-skill workers who have at least a bachelor’s degree. Despite the region’s stock of good and promising jobs, however, the Inland Empire does not provide enough. Tens of thousands of the region’s workers do not hold a good job and need one to support themselves and their families. Moreover, on its current growth trajectory, the region will not grow enough new good or promising jobs to meet the needs of all its workers in the future.

1A. THE INLAND EMPIRE PROVIDES 445,000 GOOD OR PROMISING JOBS FOR ITS SUB-BACCALAUREATE WORKERS

About one-quarter of the Inland Empire’s jobs are good or promising jobs that provide opportunities for sub-baccalaureate workers to reach middle-class standards of economic security, as shown in Figure 10. The region had about 1,445,000 jobs in 2017, nearly 1,100,000 of which were held by sub-baccalaureate workers. Of these sub-baccalaureate job positions, about 245,600 were good jobs that paid family sustaining wages and provided health insurance. Another 199,100 of these jobs were promising jobs that provide sub-baccalaureate workers with promising career pathways that can lead incumbent workers to a good job within 10 years. Together, these good and promising jobs for sub-baccalaureate workers comprised 31 percent of all the Inland Empire’s jobs in 2017.

FIGURE 10

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



Source: Authors’ analysis of U.S. Census Bureau public-use microdata and EMSI estimates

Of course, the Inland Empire also provides numerous good and promising jobs for high-skill workers who have at least a bachelor's degree. High-skill workers hold the remainder of the region's jobs not held by sub-baccalaureate workers. About 179,000 jobs held by high-skill workers were good jobs and another 36,000 were promising ones in 2017, amounting to another 15 percent of the Inland Empire's total jobs. Because workers with a bachelor's degree have better chances of eventually obtaining good jobs, and because good and promising jobs for high-skill workers are quite similar in character, high-skill workers' good and promising jobs are considered together in the findings that follow.

However, half of the region's jobs are neither good nor promising jobs for workers of any level of education.³³ The Inland Empire provides about 784,000 "other" jobs that do not meet job quality criteria for good jobs and do not appear to provide reliable career pathways to good jobs, for either sub-baccalaureate or high-skill workers.³⁴

1B. THE INLAND EMPIRE NEEDS MORE GOOD AND PROMISING JOBS FOR STRUGGLING WORKERS

Although the Inland Empire boasts numerous good and promising jobs, it does not have enough to provide opportunity for all its struggling workers to reach the middle class within the next 10 years. This deficit of opportunity is most severe for the region's sub-baccalaureate workers.

The Inland Empire's was home to about 1.7 million workers in 2016, about 1.3 million—or 76 percent—of whom did not hold a bachelor's degree. Of these sub-baccalaureate workers, about 462,500 struggled to make ends meet. However, only 136,300 or 29 percent of the region's struggling sub-baccalaureate workers held a good or promising job in 2016. The rest—326,300 struggling sub-baccalaureate workers—need to obtain a good or promising job to reach the middle class within 10 years.

The region's high-skill workers also face a deficit of good and promising jobs, albeit a smaller one. The Inland Empire had 375,000 workers who had at least a bachelor's degree in 2016, about 49,000 of whom struggled to make ends meet. About 27,700 or 67 percent of these struggling high-skill workers held a good or promising job, leaving 21,200 struggling high-skill workers in need of good or promising jobs to reach the middle class within 10 years.

Altogether, this means *The Inland Empire faces a deficit of about 347,500 good or promising jobs—about 24 percent of its current job base.*³⁵ Closing this deficit could yield important and long-lasting benefits for the Inland Empire, though it would not completely address all the region's challenges around advancing opportunity:

- If the Inland Empire were to provide an additional 347,500 good or promising jobs, it could reduce its ranks of workers who struggle to make ends meet by 63 percent, from about 31 percent of workers to 12 percent of workers.
- Because these additional good and promising jobs would also benefit the dependents of struggling workers, they could lift 35 percent of all people in struggling families into the middle class, cutting the ranks of struggling residents from 41 percent of the population to 27 percent.
- However, even with these additional good and promising jobs, many children could remain in struggling families; the minimum pay and benefits of good and promising jobs are great enough to lift only about 27 percent of children in struggling families into the middle class, which would reduce the share of the children growing up in struggling families to 38 percent from 52 percent.

Adding more good and promising jobs in The Inland Empire can go a long way in advancing opportunity in the region, especially if the region

were able to achieve such a dramatic increase as the one required. However, these estimates suggest that new good and promising jobs, at least as they are defined here, still provide too little opportunity for many struggling parents to reach the middle class. Further, the promising jobs identified here that provide reliable pathways to good jobs within 10 years would still leave many workers and families struggling during that decade. The labor market opportunities identified in the findings that follow point to several promising large-scale strategies to fully address region’s challenges around advancing opportunity but also require accompanying action to ease the burden on the region’s struggling workers and their families.

1C. THE INLAND EMPIRE’S DEFICIT OF GOOD AND PROMISING JOBS IS NOT LIKELY TO CLOSE ON ITS OWN

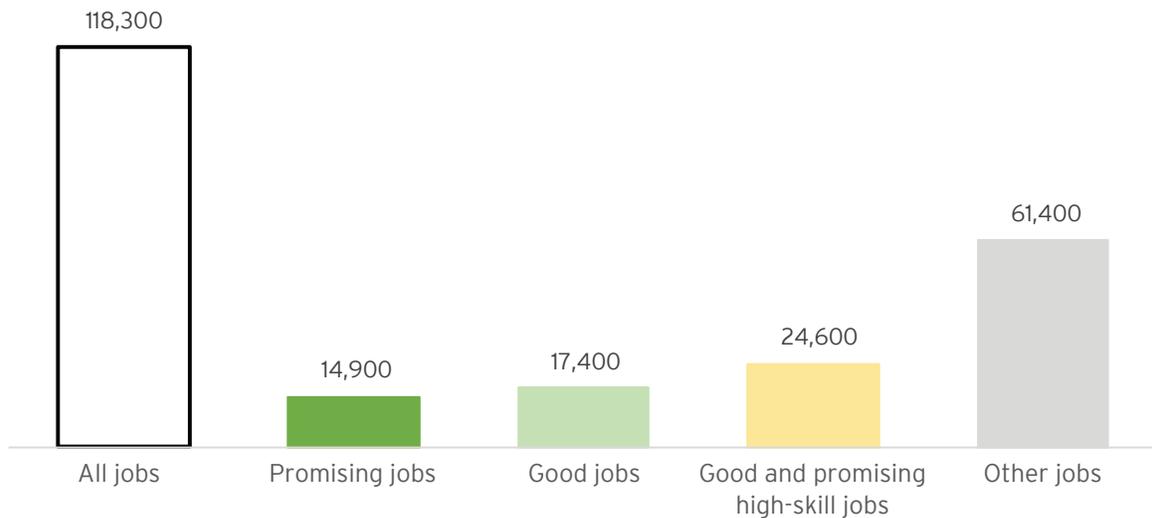
If the nation and the Inland Empire each proceed on their current economic trajectories, the Inland Empire will not close its current deficit of good and promising jobs through growth alone. In fact, the region’s deficit of opportunity may grow as good and promising jobs shrink as a share of all jobs and the ranks of its struggling workers continue to grow with its population:

- First, the Inland Empire is not projected to add as many jobs as it would need to close its current good and promising jobs deficit. Job growth projections suggest The Inland Empire can expect to net about 118,300 new jobs between 2017 and 2027, as shown in Figure 11.

FIGURE 11

The Inland Empire is not projected to grow enough good and promising jobs to fill its deficit

The Inland Empire’s projected rates of job growth by job quality type, 2017 to 2027



Source: Authors’ analysis of U.S. Census Bureau public-use microdata, Moody’s Analytics economic forecasts, BLS occupational employment projections, and EMSI estimates

- Second, most of the region's new jobs will be "other" jobs. Other jobs already comprise a slight majority of jobs in the region and are expected to grow faster than good and promising jobs. Good and promising jobs for all workers will comprise only 48 percent of new jobs.

If these trends play out as anticipated, The Inland Empire's good and promising jobs will shrink as a share of all jobs.

These projected rates of job growth imply that the Inland Empire will likely need more than a growth strategy to close its good and promising jobs deficit. Even if these projections turn out to be too modest, the region will still face a challenge. To close the *current* deficit through growth alone would require the region to add an additional 347,500 good or promising jobs, which amounts to a job growth rate of 24.1 percent from 2017 to 2027—faster than the projected rate of 8.2 percent. However, even at this faster rate, good and promising jobs would need to comprise *all* the region's new jobs to close its current deficit of good and promising jobs.

The Inland Empire's stock of good and promising jobs, and its growth trajectory, reveal two urgent priorities for its leaders. The region faces a large shortage of the sorts of jobs most of its workers need to support themselves and their families. If this shortage persists or grows, as current trends suggest, existing economic and social challenges may become even more intractable. To reverse these trends, the Inland Empire's leaders must first seek to drive the region's job growth toward those industries that expand economic opportunity, especially for sub-baccalaureate workers. Second, since the region has few opportunities to add as many good jobs as it needs, leaders must also improve the quality of jobs in industries that provide few good jobs and little chance of obtaining one.

2. Investing in Opportunity Industries can increase the region's stock of good jobs

Leaders in the Inland Empire can expand economic opportunity for the region's workers by developing strategies to strengthen and grow its Opportunity Industries. Opportunity Industries concentrate good jobs, meaning the share of their jobs that qualify as good is higher than the region's average. The growth of the industries that concentrate these jobs can help increase the number of these jobs that are available to the region's workers and create more career pathways to them.

Opportunity Industries and the good jobs they provide are crucial to the region's economic progress. This research finds that most workers, especially sub-baccalaureate workers, switch industries and careers in order to obtain a good job, suggesting that the supply of these jobs is key to how workers are able to get ahead economically. Furthermore, many Opportunity Industries also turn out to be crucial drivers of the region's innovation and trade—meaning they are responsible for much of the region's economic growth and wealth creation.

The following findings suggest that supporting the growth and competitiveness of the Inland Empire's existing Opportunity Industries and diversifying into others will be crucial not only to expanding opportunity in the region but also to assuring its continued growth and prosperity:

- A. Opportunity Industries that concentrate good jobs are crucial for fostering opportunity in the Inland Empire.** Good jobs and the promising jobs that lead to them are each highly concentrated in select industries, but in different select industries. This finding suggests that a majority of workers ultimately obtain good jobs not by climbing a career ladder within a single company or industry, but by acquiring new knowledge and skills as they move between

jobs in different industries. Critically, this reveals that workers' ability to obtain good jobs depends on the availability of good jobs, rather than promising entry points to the labor market. Therefore, identifying and supporting the growth of industries that concentrate these good jobs is crucial.

B. The Inland Empire can build on the advantages it already offers to tradable Opportunity Industries that concentrate good jobs for sub-baccalaureate workers.

The Inland Empire offers important competitive advantages to its tradable industries that tend to boast among the highest concentrations of good jobs and help drive the region's growth and prosperity, including those in logistics and manufacturing. Deepening these advantages, by offering regional assets that improve productivity, for example, can expand labor market opportunity by creating more good jobs. The region must also develop new assets to foster growth in other tradable Opportunity Industries, such as finance, information, and professional services, which would help diversify the region's economy and expand opportunity.

C. Improving job quality in industries that do not concentrate good jobs is also crucial for expanding promising career pathways to the Opportunity Industries that do. In addition to job growth in tradable Opportunity Industries, the Inland Empire must also find ways to improve job quality and career mobility in its local-serving industries. These industries comprise the bulk of the region's jobs but few of them are promising. Improving job quality within certain local-serving industries could have an outsized effect on the region's labor market opportunity.

Together, these findings reinforce the challenge facing this and many other regions when it comes to expanding labor market opportunity, especially workers who do not have a bachelor's degree.

They suggest that the Inland Empire requires a multi-faceted economic development strategy that can support the competitiveness and inclusiveness of key industries, both tradable and local-serving.

2A. GOOD JOBS ARE CRUCIAL FOR EXPANDING LABOR MARKET OPPORTUNITY IN THE INLAND EMPIRE

The varying distributions of the region's good jobs and its promising jobs among industries suggest that a focus on those that concentrate *good jobs* is most crucial for advancing opportunity. Good jobs and promising jobs held by sub-baccalaureate workers are each highly concentrated in select industries. Nearly 73 percent of the Inland Empire's good jobs for sub-baccalaureate workers are concentrated in industries where they represent a greater share of jobs than the regional average of 17 percent. And more than 70 percent of the region's promising jobs for these workers are concentrated in industries where they represent a greater share of jobs than the regional average of 14 percent. However, these jobs tend to be concentrated in different industries: over two-thirds of promising jobs are found in industries where they outnumber good jobs. This suggests that many people who hold promising jobs will likely need to switch industries to obtain a good job, making industries that concentrate the region's good jobs crucial for creating many of the Inland Empire's promising career pathways.

As subsequent findings reveal, those industries that are considered tradable typically boast higher concentrations of good jobs for sub-baccalaureate workers than industries that are considered to be local-serving. For example, more than one-quarter of jobs in the Inland Empire's manufacturing industries, which tend to be tradable, are good jobs for sub-baccalaureate workers. On the other hand, less than 1 percent of jobs in the region's hospitality industries—which are primarily local-serving—are good jobs for sub-baccalaureate workers. However, local-serving

industries do tend to provide the bulk of the region's promising jobs. Close to 20 percent of hospitality jobs qualify as promising jobs for sub-baccalaureate workers, meaning they will enable an incumbent worker to obtain a good job within 10 years. This means that out of the 26,500 promising jobs in the hospitality sector today, only as many as 700 are likely to lead to good jobs within the hospitality sector in 10 years. The remaining 25,800 jobs will lead to good jobs in other sectors, likely ones where the share of good jobs is greatest, such as manufacturing. These same dynamics can be seen in other industries as well. Hospitality industries are hardly the exceptions. Promising jobs held by sub-baccalaureate workers outnumber good jobs in the agriculture, retail, real estate, administrative services, education, arts and entertainment, and local services industry sectors too.

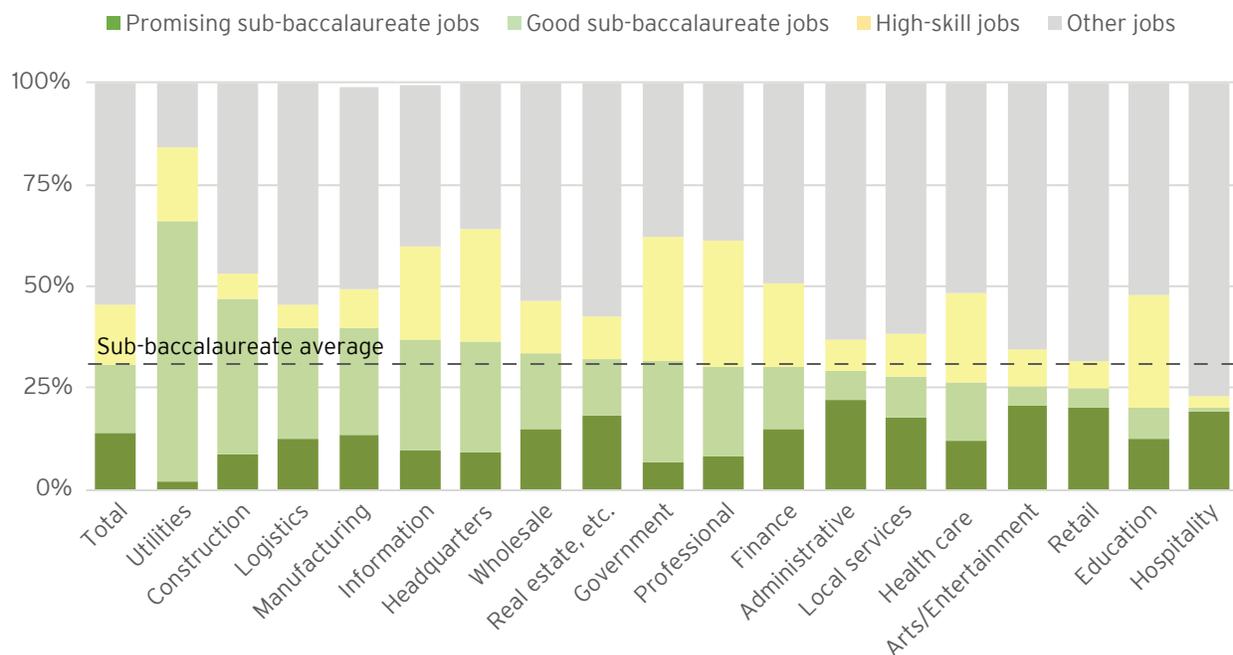
Indeed, overall, as many as 43 percent of sub-baccalaureate workers who hold promising jobs in the Inland Empire will have to switch industries to obtain a good job, and many more may choose to do so whether or not there are good jobs available in their industry. Among the region's high-skill workers, who tend to be a bit more specialized in a particular occupation or industry, as many as 20 percent of those who currently hold a promising job will need to switch industries to obtain a good job.

Many workers in the Inland Empire today will switch between jobs in different sectors in pursuit of opportunity. And these cross-industry career pathways hold important implications for fostering opportunity. First, Opportunity Industries that concentrate the Inland Empire's good jobs matter most for advancing opportunity for sub-baccalaureate workers.

FIGURE 12

Good and promising jobs for sub-baccalaureate workers are concentrated in certain sectors

Concentration of good and promising jobs by industry sector, 2017



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

The availability of good jobs in these industries is what matters for sub-baccalaureate workers' advancement. Job growth in an industry that provides many good jobs but few promising jobs will create more of both types of jobs nonetheless since job growth in such an industry will provide

more chances for workers in jobs with limited advancement opportunities in other industries to find cross-industry pathways to good jobs. Second, education and training models may need to evolve to enable individuals to thrive in this dynamic labor market.

TABLE 1

Good and promising jobs for sub-baccalaureate workers are found in different sectors

Industry sectors listed by share of region's good sub-baccalaureate jobs

Industry Sector (NAICS)	Total Jobs	Good sub-baccalaureate jobs		Promising sub-baccalaureate jobs		High-skill jobs		Other jobs	
	Number	Number	Share	Number	Share	Number	Share	Number	Share
Total*:	1,444,943	245,627	100%	199,089	100%	215,003	100%	783,856	100%
Government (90)	255,687	64,311	26%	16,727	8%	78,554	37%	95,756	12%
Construction (23)	98,482	37,787	15%	8,595	4%	6,055	3%	46,045	6%
Logistics (48-49)	102,553	27,918	11%	12,973	7%	5,602	3%	56,044	7%
Health care (62)	193,564	27,890	11%	22,843	11%	43,263	20%	99,554	13%
Manufacturing (31-33)	96,873	25,568	10%	12,854	6%	9,362	4%	48,331	6%
Wholesale (42)	64,855	11,970	5%	9,675	5%	8,307	4%	34,873	4%
Professional (54)	41,571	9,297	4%	3,328	2%	12,737	6%	16,154	2%
Retail (44-45)	176,196	8,043	3%	35,597	18%	11,771	5%	120,769	15%
Administrative (56)	100,035	7,437	3%	21,939	11%	7,472	3%	63,125	8%
Local services (81)	49,040	4,828	2%	8,783	4%	5,196	2%	30,225	4%
Finance (52)	27,349	4,236	2%	4,058	2%	5,531	3%	13,520	2%
Utilities (22)	5,429	3,496	1%	100	0%	964	0%	870	0%
Information (51)	11,223	3,042	1%	1,070	1%	2,586	1%	4,478	1%
Headquarters (55)	10,014	2,755	1%	891	0%	2,777	1%	3,587	0%
Real estate, etc. (53)	18,261	2,507	1%	3,360	2%	1,930	1%	10,462	1%
Education (61)	21,537	1,647	1%	2,648	1%	5,995	3%	11,236	1%
Arts/Entertainment (71)	19,424	864	0%	4,031	2%	1,758	1%	12,771	2%
Hospitality (72)	136,848	710	0%	26,532	13%	4,371	2%	105,235	13%

*Table excludes agriculture and mining industries; columns may not sum to total.

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

2B. SUPPORTING TRADABLE “OPPORTUNITY INDUSTRIES” THAT CONCENTRATE GOOD JOBS CAN EXPAND OPPORTUNITY

The Inland Empire offers important advantages for Opportunity Industries that boast among the highest shares of good jobs for sub-baccalaureate workers: tradable industries. As noted above, businesses in tradable industries sell most of their products and services to customers outside of the region, which brings new income to the Inland Empire. Much of this new income is passed on to workers, who then spend it on groceries, eating out, health care, and housing. Additionally, because businesses in tradable industries compete in larger national and international markets, they tend to invest heavily in improving and expanding their capabilities, making them key drivers of the region’s productivity and wage growth—measures associated with rising prosperity.

Tradable industries comprise 22 percent of all jobs in the Inland Empire, yet they provide almost 28 percent of the region’s good jobs held by sub-baccalaureate workers. On average, good jobs for these workers represent over 21 percent of jobs in tradable industries, compared to just under 16 percent in local-serving industries. The region’s tradable industries also provide 22 percent of its promising jobs held by sub-baccalaureate workers and 20 percent of its good and promising jobs held by high-skill workers.

These tradable industries represent strategically important levers by which the Inland Empire’s leaders can expand labor market opportunity by supporting the retention and creation of more good jobs. However, leaders may need to adopt more than one set of tactics to grow these industries, depending on how well established they are in the region already:

- **Industries in the Inland Empire’s well-established logistics, wholesale, and manufacturing sectors each provide above-average concentrations of good jobs**, as shown in Figure 12. Good jobs held by sub-baccalaureate workers account for at least 18 percent of all jobs in these sectors. Together, these three sectors contain 18 percent of the region’s total jobs, but contain nearly 27 percent of its good jobs for sub-baccalaureate workers and nearly 18 percent of its promising jobs for these workers. They also account for nearly 11 percent of the region’s good and promising jobs held by high-skill workers. Furthermore, they support much of the Inland Empire’s trade in goods and services with other regions. Yet the competitiveness of these three sectors is flagging. Their productivity lags behind their national counterparts: while the average output per job in the logistics and wholesale trade sectors in the Inland Empire in 2016 was \$85,400 and \$172,200 respectively, the national output per job was \$109,600 and \$187,100.³⁶ Output per job in the manufacturing sector in the Inland Empire was \$144,906, compared to \$176,800 nationwide. Average pay in these sectors also lags their national counterparts. Maintaining these tradable base industries—and advancing opportunity within them—may depend on the region’s ability to shore up their competitiveness.
- **The information, corporate headquarters, professional services, and finance industry sectors also provide above- or near-average shares of good and promising jobs for sub-baccalaureate workers.** At least 15 percent of jobs in these sectors are good jobs for sub-baccalaureate workers and another at least another 8 percent are promising jobs for these workers. Together, these sectors provide a broad set of services,

including telecommunications, broadcasting, management consulting, architecture and engineering, software and computer systems design, marketing, accounting, banking, and insurance. Though these sectors are small, they are vital to innovation and trade. Together, they account for only 6 percent of all jobs in the region, nearly 8 percent of good jobs for sub-baccalaureate workers, and nearly 5 percent of promising jobs for sub-baccalaureate workers. Yet over 26 percent of jobs in these sectors are good or promising jobs for high-skill workers, accounting for 11 percent of the region's good and promising jobs for these workers. They are also highly productive, with an average of \$147,700 in output per job per year—nearly 46 percent higher than the regional average. Therefore, despite their relatively small size, these sectors are important sources of good jobs for both sub-baccalaureate and high-skill workers, in addition to being important drivers of the region's prosperity.

These facts reveal two fundamental challenges for this region and others. First, many of the good jobs that are crucial to advancing opportunity for sub-baccalaureate workers are concentrated in industries that have been shrinking in recent years and that may not be poised for future job growth. Manufacturing has been a net job loser since the onset of the Great Recession while logistics has added jobs at a faster rate. In both industries, pressures to automate work may suppress future job growth. Furthermore, despite the Inland Empire's strong specializations in logistics and some types of manufacturing, these sectors are not as productive in the region as they are elsewhere.

Second, there remains a tension between strategies that advance prosperity and those that expand opportunity for sub-baccalaureate workers. As the findings above reveal, many of the industries responsible for advancing

prosperity through innovation and productive growth, including those industries in the information and professional services sectors, provide more opportunity for high-skill workers than they do for sub-baccalaureate workers. Support for such industries are therefore often seen as subsidizing jobs for workers who need it least. However, without them, the region is less likely to build the more advanced and diversified economy that promotes and upholds opportunity.

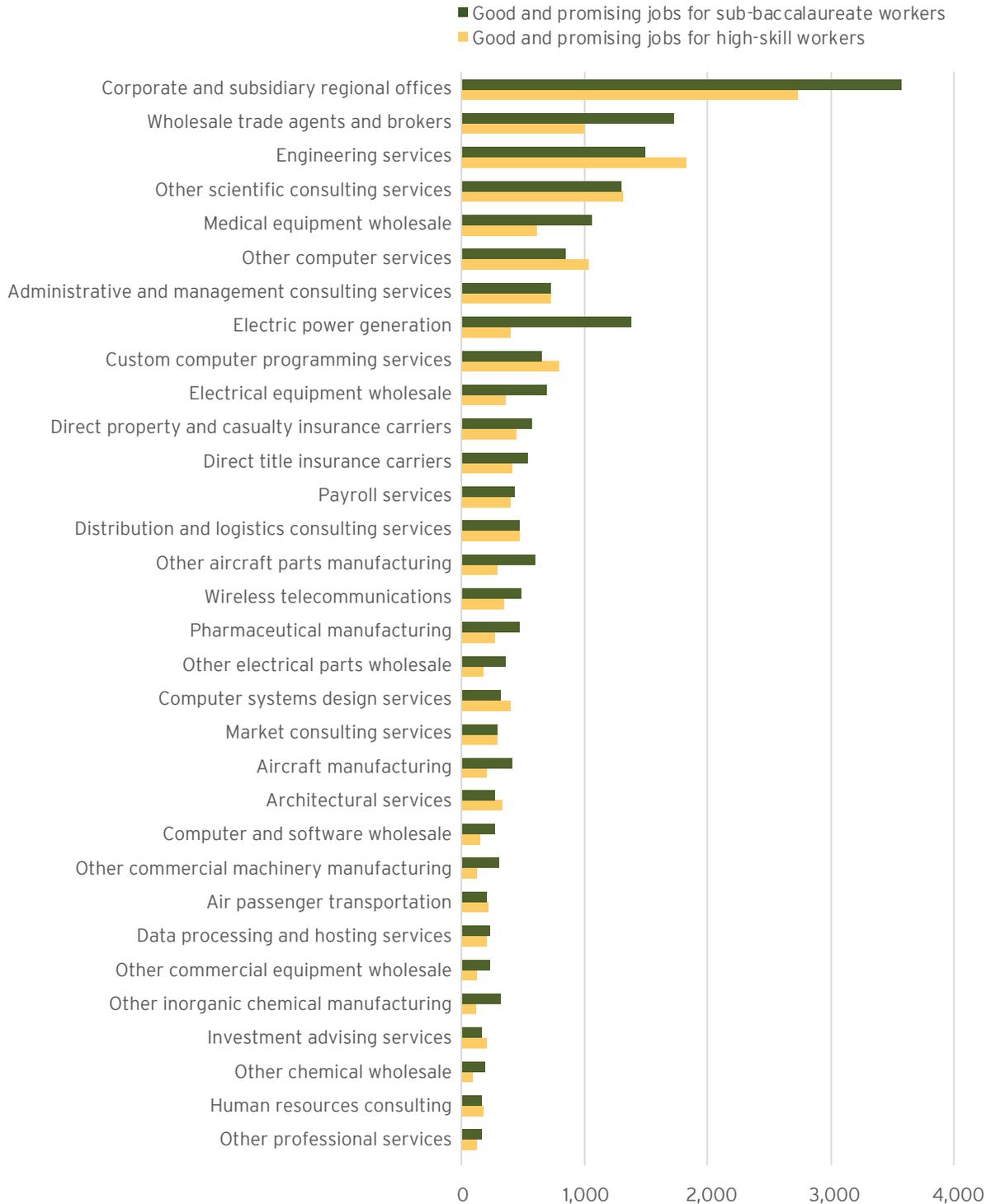
A select set of tradable industries make especially appealing targets for economic development efforts that aim to both advance this region's prosperity and expand opportunity, for all workers. The Inland Empire has 147 tradable industries that boast above-average concentrations of good jobs for sub-baccalaureate workers and good and promising jobs for high-skill workers. Together, these industries comprise 75,700 jobs, or 5 percent of the region's total. They offer 20,200 good jobs for sub-baccalaureate workers and 20,400 good and promising jobs for baccalaureate workers. Of the 147 Opportunity Industries that meet these criteria, those that provide more than 500 jobs overall are shown in Figure 13.

Growing these industries that concentrate opportunity and fuel growth and innovation may not completely close the region's good and promising jobs gap. However, focusing scarce economic development resources on supporting the growth and competitiveness of firms in tradable Opportunity Industries will likely yield substantial benefits and help to close the region's good and promising jobs shortage faster than a focus on other types of industries. The region can also look to tradable industries that disproportionately concentrate good and promising jobs for high-skill workers, which advance prosperity and therefore help fuel the growth of jobs for sub-baccalaureate workers in other industries.

FIGURE 13

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



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

2C. IMPROVING JOB QUALITY IN OTHER SECTORS CAN ALSO HELP EXPAND OPPORTUNITY IN THE REGION'S LABOR MARKET

Although they tend to provide lower concentrations of good jobs for sub-baccalaureate workers, local-serving industries and the public sector also play an important role in expanding opportunity in the Inland Empire. Local-serving industries comprise over two-thirds of the region's jobs and the public sector accounts for another 10 percent. Some local-serving industries, such as those in construction and utilities, offer concentrations of good jobs that rival or exceed those in tradable industries. The public sector is also a leading provider of good jobs. Other industries, such as those in the retail or hospitality sectors, provide few good jobs but many crucial entry points to the labor market, especially for less-skilled workers. Improving job quality and increasing career mobility to good jobs in these local-serving industries can have a large and direct impact on opportunity in the Inland Empire.

A few primarily local-serving industry sectors already provide above-average concentrations of good jobs for sub-baccalaureate workers, and also provide good and promising jobs for high-skill workers:

- **The construction and utilities industry sectors boast above-average shares of good or promising jobs for sub-baccalaureate workers.** Together, the construction and utilities sectors contain 7 percent of the region's total jobs but contain 17 percent of its good jobs for sub-baccalaureate workers and 4 percent of promising jobs for these workers. For the most part, these sectors serve local consumers and businesses and will add jobs as the region's economy grows. All industries within the construction sector, especially those related to heavy construction of commercial buildings and infrastructure, offer

above-average shares of good or promising jobs for sub-baccalaureate workers. The utilities sector, which involves the operation and maintenance of utilities infrastructure including electric, gas, and water distribution and sewage treatment, is small in size but over two-thirds of the jobs it offers are good or promising for sub-baccalaureate workers. In both sectors, good jobs far outnumber promising jobs for sub-baccalaureate workers—suggesting that there maybe some internal career ladders within these sectors but that most good jobs likely require some post-secondary education or training.

- **Government provides above-average shares of good and promising jobs for sub-baccalaureate workers.** The public sector, including state and local hospitals, schools and colleges, and public administration, offers above-average shares of good and promising jobs for all workers. In the Inland Empire, government contains 18 percent of all jobs but comprises 26 percent of all good jobs for sub-baccalaureate workers and 8 percent of promising jobs. Some opportunities within government offer more opportunity to sub-baccalaureate workers than others, such as those in the postal service and state and local public administration.

Beyond these notable exceptions, the share of jobs that qualify as good for sub-baccalaureate workers in other local-serving industries is well below the regional average, including in real estate, health care, retail, administrative services, and hospitality.³⁷ However, these sectors do play an important role in the region's labor market, including its labor market opportunity. For one thing, some of these sectors are enormous, providing tens of thousands of jobs. These sectors matter for another reason too. Although they offer below-average shares of good jobs for sub-baccalaureate workers, they offer among the region's greatest numbers of promising jobs—those that do not currently qualify as good

jobs but will lead to one within 10 years. In fact, they together account for 67 percent of the region's promising jobs held by sub-baccalaureate workers.

Improving job quality and pathways to good jobs in local-serving industries is crucial because, even if the Inland Empire were to make bold investments in the tradable Opportunity Industries that can advance its opportunity and prosperity, it is unlikely to add enough new good and promising jobs to close its opportunity deficit. Since the region is unlikely to close this deficit through growth alone, the Inland Empire would likely also need strategies to improve the quality of its existing jobs. The 347,500 additional good and promising jobs the region needs amount to under 44 percent of its stock of "other" jobs. Many of these other jobs could be made good jobs through small improvements in wage levels, additional hours, or by extending benefits. Similarly, improving career pathways within companies or across industries could potentially transform more of these other jobs into promising jobs.

Several industry sectors can improve the quality of the jobs they offer. Other jobs—those that are neither good nor promising—represent at least 57 percent of all jobs in hospitality, retail, arts and entertainment, administrative services, local services, and real estate and rental and leasing. Within the hospitality sector, 77 percent of food service jobs and 74 percent of jobs in hotels and motels are other jobs. Retail and hospitality provide many entry-level jobs and some of these jobs are promising ones. In fact, retail

and hospitality provide about 16 percent of the region's promising jobs for sub-baccalaureate workers, thanks in part to the large number of jobs they provide in general. Yet among workers who hold entry-level jobs in these sectors, chances of reaching a good job within 10 years are slim. While it may be difficult to improve job quality in these sectors due to their business models, educating workers about their career prospects in these sectors and promoting career mobility—prompting workers to leave for better jobs in other industries—could serve the interests of both employers and workers.

Employers in some industries appear to be better positioned to both improve the quality of their own jobs and to influence employers in other industries to do the same. Institutions in education, health care, and some parts of government provide one other job for each good or promising one. However, many of the other jobs in these industries are on the cusp of qualifying as good jobs. Improvements in job quality (wages and benefits) may help many of these workers achieve economic security. Government and health care, which comprise one-quarter of the region's other jobs, may have an interest in improving job quality since families' economic security can reduce costs to these institutions (and sometimes raise their revenues). Because government and health care provide so many jobs, even small improvements in the quality of their jobs can affect how other employers compete for talent, potentially indirectly improving job quality in other parts of the region's economy.

3. Providing education and workforce supports can improve mobility toward good jobs

One way to support the growth and competitiveness of the Opportunity Industries is to ensure that workers are armed with the skills, knowledge, and abilities firms in these industries need to be successful. The Inland Empire's Opportunity Industries entail jobs in many different types of *occupations*, from jobs in production like machinists and welders to administrative occupations like secretaries and office clerks. The following examination of the types of occupations that concentrate good and promising jobs within the Inland Empire's Opportunity Industries reveals new insights into not only the types of jobs that provide the best labor-market opportunities, but also how workers navigate career pathways to acquire the knowledge and skills good jobs require.

Findings on the types of occupations that concentrate the Inland Empire's good and promising jobs provide greater detail on the nature of opportunity for the region's workers:

- A. Good and promising jobs for sub-baccalaureate workers are concentrated in traditional blue-collar occupations.** Several of these blue-collar occupations map easily to the Opportunity Industries identified above. Installation, maintenance, and repair occupations provide among the highest concentrations of good and promising jobs for sub-baccalaureate workers, followed by construction trades, production occupations in manufacturing, and transportation occupations in logistics industries. As noted above, these jobs are not poised for especially rapid growth or may be vulnerable to automation.
- B. Major occupational switches are a key part of most career pathways to good jobs.** Findings on Opportunity Industries

reveal that as many as 97 percent of sub-baccalaureate workers with a promising job would likely switch industries to obtain a good job. Findings on the the occupations that provide good jobs and the promising career pathways that lead to them reveal that 78 percent of sub-baccalaureate workers will switch between occupations in two different occupation groups in order to obtain a good job, marking a significant career change. In some occupations, nearly all sub-baccalaureate workers with promising jobs will switch to another occupation to get a good job. However, in occupations where advanced education or training is required, fewer workers will switch.

- C. Occupational switches toward jobs that require higher levels of reasoning and related cognitive abilities lead to greater upward earnings mobility.** Workers who move from low-paid to highly-paid jobs are likely to build or demonstrate their skill in inductive reasoning, complex problem-solving, and judgment and decision-making along the way. However, specialized subject knowledge remains critical to workers' ability to compete for jobs. These findings imply that, as individuals acquire specialized knowledge and skills, those who also learn to problem solve and communicate through reasoning and social skills will obtain better jobs, larger earnings gains, and may be able to better adapt to a changing labor market.

These findings reveal considerable churn in the region's labor market, especially for workers making their way from low-paid jobs to good jobs. This should spur new thinking about effective models of career training, advancement, and credentialing. The findings also reveal that many traditional career advancement models like career ladders may shrink as jobs in blue-collar occupations grow more slowly. Meanwhile, the skills and abilities closely associated with high rates of upward earnings mobility enjoy

increasing demand in the region's labor market but are usually acquired in four-year degree programs, which may merit greater emphasis on new models of life-long learning for sub-baccalaureate workers.

3A. GOOD JOBS FOR SUB-BACCALAUREATE WORKERS ARE CONCENTRATED IN A FEW OCCUPATIONAL GROUPS

Good and promising jobs for sub-baccalaureate workers entail many different types of work and in many different work environments. One of the most prevalent types of good and promising jobs in Opportunity Industries are in the traditional blue-collar jobs in construction, maintenance, and production occupations that have defined labor market opportunity for decades. In recent years, transportation occupations have also begun to provide increasing numbers of opportunity jobs. Together, these occupation groups contain 43 percent of the region's good jobs and 27 percent of promising jobs for sub-baccalaureate workers. Occupations in office and administrative support also provide a significant share of the region's opportunity jobs, containing another 15 percent of the region's good jobs and 19 percent of promising jobs for sub-baccalaureate workers. Although these five groups provide over half of the region's good and promising jobs for these workers, several other types of occupations also come close to providing similar concentrations of opportunity, as shown in Figure 14.

Several traditional blue-collar occupations provide among the best chances for a sub-baccalaureate worker to find a good job and provide good career ladders, such as apprenticeships:

- Fifty-nine (59) percent of jobs in **installation, repair, and maintenance occupations** are good or promising for sub-baccalaureate workers. Moreover, more than four out of five of the opportunity jobs in this occupation group are good jobs, or those that already provide a family-sustaining wage. Among the

various occupations within the group, which include vehicle and equipment mechanics and electrical equipment repairers and installers, nearly 70 percent of first-line supervisory roles and over 60 percent of maintenance and repair generalist roles are good or promising. These shares are more than twice the regional average of 31 percent.

- Forty-two (42) percent of all jobs in **construction trades** are good jobs and another 9 percent are promising for sub-baccalaureate workers. While helpers in the construction trades have a near-average share of jobs that are good or promising for sub-baccalaureate workers (30 percent), those at the mid- or supervisory-level have above-average shares (49 and 72 percent, respectively).

However, although each of these occupation groups far surpasses the region's average share of good or promising jobs, they represent a relatively modest 16 percent of the region's total opportunity jobs for sub-baccalaureate workers. Occupations in transportation alone, on the other hand, provide 12 percent of the region's good and promising jobs. Together, the transportation, administrative support, and production occupation groups provide 36 percent of the region's opportunity jobs. Yet, unlike maintenance and construction occupations, where most jobs are good or at least promising for sub-baccalaureate workers, transportation, administrative support, and production occupations in the Inland Empire are more divided in terms of quality.

- The size of the **transportation and material moving** occupation group, rather than its concentration of good and promising jobs, places it among the larger providers of opportunity jobs for sub-baccalaureate workers. Within these occupations, just about any job related to rail or air transportation is a good one for either sub-baccalaureate or baccalaureate workers, from rail yard

engineers, to air traffic controllers, to air cargo handlers. However, for each good job in transportation and material moving occupations as a whole, there is more than one “other” job that does not provide sufficient levels of pay or benefits. In fact, occupations such as stock handlers, packagers, and machine feeders—many of which are found in warehouse and fulfillment centers—have shares of opportunity jobs that are below the regional average. Twenty-nine (29) percent or less of jobs for city or school bus drivers and industrial truck and tractor operators qualify as good or promising, also below the regional average. On the other hand, heavy and tractor-trailer truck drivers, and workers in light trucking or delivery services have higher-than-average shares of other jobs.

- Among **office and administrative support** occupations such as secretaries or clerks, slightly more than one-third of all jobs are good or promising for sub-baccalaureate workers. However, office and administrative support occupations comprise more than 17 percent of the entire region’s good and promising jobs for sub-baccalaureate jobs, and it is the size of the occupation rather than the slight margin by which it exceeds the regional share of these jobs that accounts for this significant share. Administrative support occupations in the public sector, including court, municipal, and license clerks, USPS mail carriers, and government program interviewers, as well as first-line supervisors offer above-average shares of good or promising jobs. However, for occupations such as receptionist and information clerks, tellers, stock, shipping, and receiving clerks and order fillers, only one-quarter or fewer jobs are good or promising.
- Thirty-seven (37) percent of all jobs in **production occupations** qualify as good or promising. The majority of jobs for metal and plastic workers, plant and system

operators, and supervisors qualify as either good or promising. However, jobs in food processing, printing, and textile and apparel manufacturing offer below-average shares of good or promising jobs. In each of these latter occupations, there are more promising than good jobs for sub-baccalaureate workers.

Outside of these traditional blue-collar occupations, few other major occupation groups also provide above- or near-average shares of good and promising jobs primarily for sub-baccalaureate workers:

- Nearly half of jobs in **protective services** are good jobs or promising jobs for sub-baccalaureate workers. Almost all jobs for public-security workers such as police officers and firefighters are good jobs. However, fewer private-sector protective service jobs, like security guards, qualify as either good or promising.

Many occupations that provide above-average concentrations of good jobs for sub-baccalaureate workers also employ many high-skill workers:

- Sub-baccalaureate workers hold a slight majority of good and promising jobs in **management occupations**, and these occupations account for 6 percent of all good or promising jobs for sub-baccalaureate workers. In fact, a greater share of jobs in management occupations overall are good or promising for sub-baccalaureate workers (41 percent) than those in either production (37) or transportation (35). The majority of jobs in several management areas, including general and operations, administrative service, construction, and financial management, all of which provide above-average shares of opportunity jobs, are held by sub-baccalaureate workers.
- **Computer and engineering occupations** slightly exceed the regional average in their share of good or promising jobs for sub-

baccalaureate workers. At least 43 percent of jobs in network and computer systems administration and computer user support are good or promising for sub-baccalaureate workers, and at least another 32 percent are good or promising for baccalaureate workers. More than two-thirds of technician roles in a variety of engineering fields including civil, mechanical, and electrical engineering are good jobs for sub-baccalaureate workers.

- Jobs in **health care practitioner occupations** are near the regional average in their share of good and promising jobs for sub-baccalaureate workers. Compared to other occupation groups that provide near or above-average opportunity to both sub-baccalaureate and baccalaureate workers, health care practice is relatively large, comprising 5 percent of all good or promising jobs for sub-baccalaureate workers

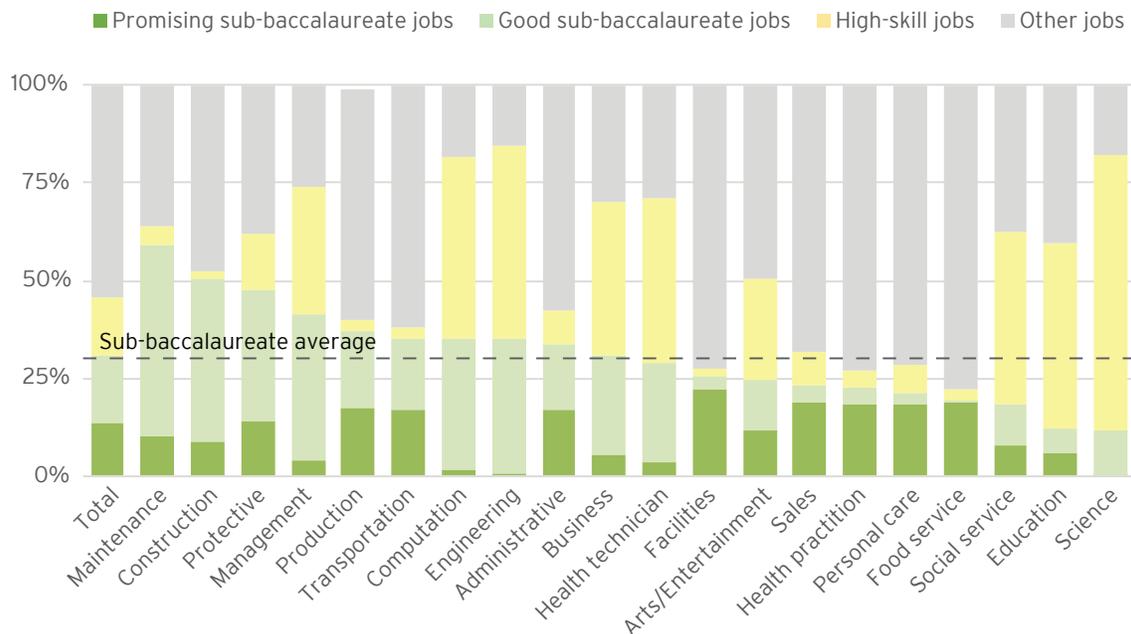
and 15 percent of all opportunity jobs for baccalaureate workers. Technologist and technician roles in health care practice, including those in radiology, emergency medicine, and pharmacy among others, and licensed vocational and practical nurses all contain an above-average share of opportunity jobs for sub-baccalaureate workers. Sub-baccalaureate workers also held more of the jobs in these occupations than baccalaureate workers.

- Business occupations** are also near the regional average in their share of good and promising jobs for sub-baccalaureate workers. These occupations hold 3 percent of all good or promising jobs for sub-baccalaureate workers and 9 percent of all opportunity jobs for baccalaureate workers. Business occupations relating to cost estimation, purchasing, and claims adjustment, as well as

FIGURE 14

The Inland Empire’s good and promising jobs are concentrated in select occupation groups

Concentration of good and promising jobs by occupation group, 2017



Source: Authors’ analysis of U.S. Census Bureau public-use microdata and EMSI estimates

specialist roles in human resources all offer above-average chances of holding a good or promising job for sub-baccalaureate workers. Each of these occupations offers either an equal or greater number of jobs for sub-baccalaureate workers than baccalaureate workers.

However, a few of the occupation groups that concentrate opportunity for baccalaureate workers offer few jobs for sub-baccalaureate workers, such as those in **life science, education, and social services**. These offer 9 percent of the region’s jobs.

TABLE 2

Some major occupation groups that concentrate opportunity provide relatively few jobs

Occupation groups listed by share of region’s good sub-baccalaureate jobs

Occupation Group (SOC)	Total Jobs	Good sub-baccalaureate jobs		Promising sub-baccalaureate jobs		High-skill jobs		Other jobs	
	Number	Number	Share	Number	Share	Number	Share	Number	Share
Total*:	1,444,943	245,627	100%	199,089	100%	215,003	100%	783,856	100%
Administrative (43)	225,696	37,854	15%	37,900	19%	20,236	9%	129,706	17%
Construction (47)	75,675	31,588	13%	6,473	3%	1,693	1%	35,921	5%
Maintenance (49)	58,470	28,716	12%	5,950	3%	2,577	1%	21,227	3%
Transportation (53)	155,461	28,680	12%	26,330	13%	4,121	2%	96,331	12%
Management (11)	63,520	23,742	10%	2,441	1%	20,814	10%	16,432	2%
Health practition (29)	75,875	19,183	8%	2,737	1%	32,077	15%	21,878	3%
Production (51)	84,206	16,692	7%	14,582	7%	2,326	1%	49,555	6%
Protective (33)	39,255	13,113	5%	5,499	3%	5,710	3%	14,932	2%
Business (13)	49,152	12,445	5%	2,756	1%	19,391	9%	14,561	2%
Sales (41)	148,763	6,371	3%	27,877	14%	13,281	6%	101,234	13%
Education (25)	98,100	5,989	2%	5,768	3%	46,748	22%	39,594	5%
Computation (15)	16,059	5,432	2%	230	0%	7,466	3%	2,931	0%
Engineering (17)	13,106	4,471	2%	111	0%	6,492	3%	2,032	0%
Social service (21)	22,989	2,332	1%	1,846	1%	10,213	5%	8,599	1%
Facilities (37)	52,786	1,851	1%	11,679	6%	910	0%	38,347	5%
Arts/Entertainment (27)	12,024	1,608	1%	1,373	1%	3,086	1%	5,957	1%
Health technician (31)	35,543	1,500	1%	6,518	3%	1,629	1%	25,896	3%
Personal care (39)	48,903	1,329	1%	9,029	5%	3,480	2%	35,065	4%
Science (19)	8,163	928	0%	21	0%	5,741	3%	1,473	0%
Food service (35)	143,042	531	0%	27,168	14%	3,958	2%	111,384	14%

*Table excludes agriculture and legal occupations; columns may not sum to total.

Source: Authors’ analysis of U.S. Census Bureau public-use microdata and EMSI estimates

3B. A MAJORITY OF SUB-BACCALAUREATE WORKERS WILL SWITCH CAREERS TO GET A GOOD JOB

The estimates of occupational mobility that underlie the identification of the Inland Empire's promising jobs reveal just how important occupational mobility is to most promising career pathways for the region's sub-baccalaureate workers. For workers who have only a high school diploma, 81 percent will switch to a different major occupation group from the one in which they currently work as they advance toward better-paying jobs over the next 10 years.

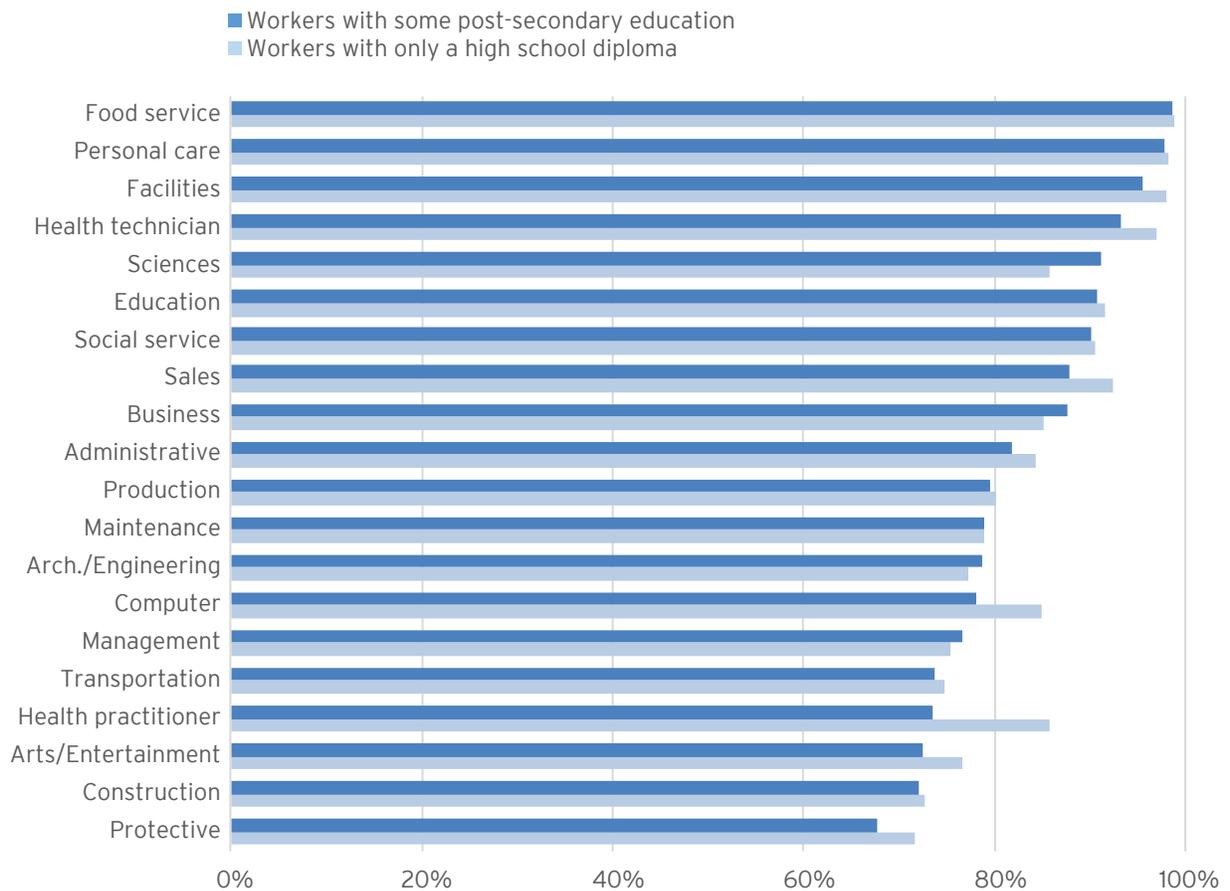
Among workers who have some post-secondary education, including some college experience, a certificate, or an associate degree, 79 percent of those who will eventually obtain a good job will do so by switching to a job in a different major occupation group.

Rates of switching vary across major occupation groups, as shown in Figure 15. Nearly 99 percent of the region's sub-baccalaureate workers who start out in food service occupations will switch to a different occupation in order to get a good job. Likewise, nearly all sub-baccalaureate workers in personal care or facilities maintenance

FIGURE 15

Workers with higher levels of education are less likely to switch occupations

Share of workers in good and promising jobs that will make a career switch* by major occupation group



*Defined as a move between occupations in two different major occupation groups.

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

occupations, like janitors and groundskeepers, will switch occupations to get a good job. For the most part, however, the share of jobs in these occupation groups that appear promising represent those workers' rather slim chances of ever obtaining a good job.

Mobility rates tend to be lower in highly-paid or skilled occupations that provide larger shares of good jobs, indicating there may be better career ladders within these occupations or other reasons to remain in them. A smaller portion of workers who start in protective services, construction, health care practitioner, and transportation occupations switch to different occupation groups. This may be because some of the occupations within these groups require more extensive training and experience, and so retain workers who have more specific knowledge and skills. For example, in health practitioner occupations, workers with some post-secondary education are far less likely to switch to a different occupation group than workers with jobs in the same occupation group who have no post-secondary training.

The distribution of good and promising jobs across occupation groups and the mobility patterns between them strongly suggest that sub-baccalaureate workers' best chances of getting a good job are not necessarily in occupations or industries that provide the most jobs. Food service and sales jobs are plentiful, but workers' chances of obtaining a good job from these starting points without more education are slim. In contrast, Opportunity Industries appear to provide fewer starting points but better ladders to good jobs within or among certain skilled occupations, if workers can get a foothold.

3C. THE SKILLS ASSOCIATED WITH WAGE INCREASES FOR SUB-BACCALAUREATE WORKERS ARE LARGELY COGNITIVE

Workers appear to move between quite different types of work as they navigate the Inland Empire's

labor market in search of better jobs. Workers in promising career pathways typically move from entry-level jobs towards those that involve higher levels and more specific types of knowledge, skills, and abilities. As workers advance through promising pathways, the acquisition of some types of knowledge, skills, and abilities appear to be more closely related to larger earnings gains than others.³⁸ This suggests that some types of knowledge, skills, and abilities are more prized in the jobs that offer family-sustaining wages in the Inland Empire.

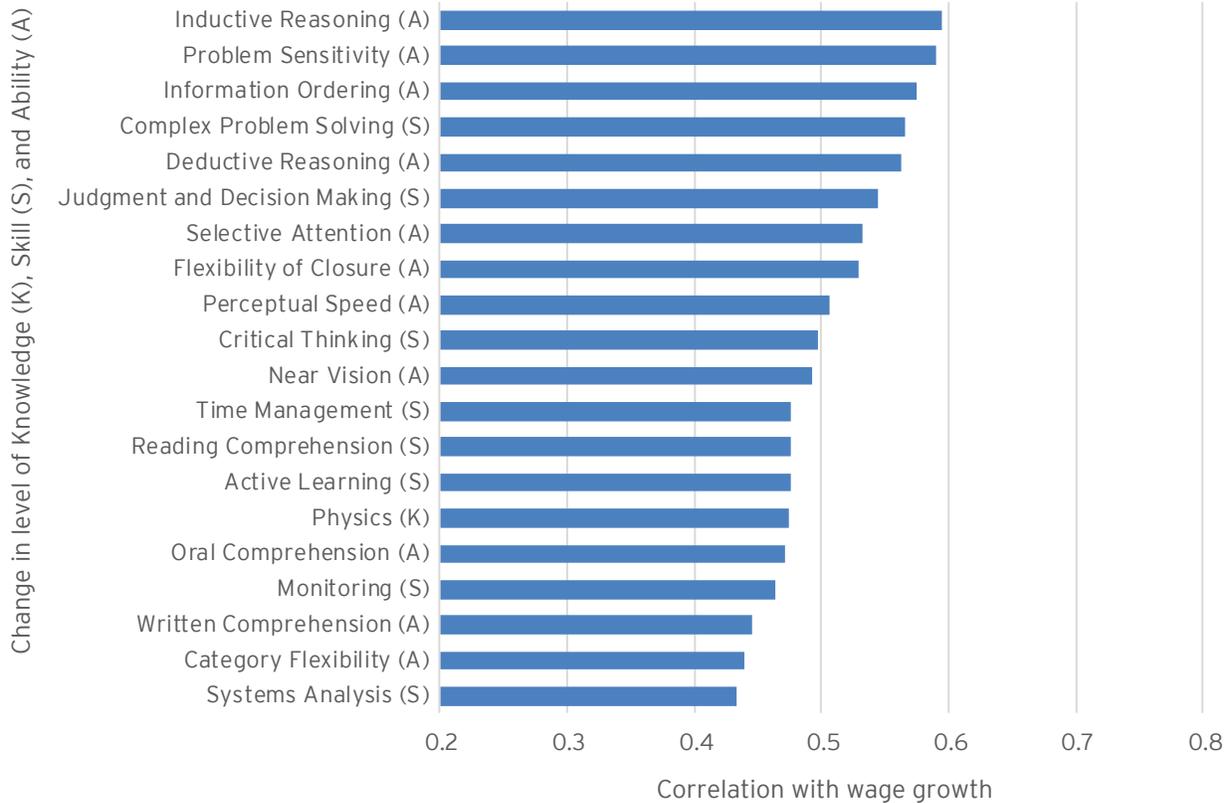
Overall, the skills revealed to be most closely correlated to career advancement for both baccalaureate and sub-baccalaureate workers in the Inland Empire are almost all cognitive. Skills such as inductive reasoning, complex problem-solving, and judgment and decision-making are correlated to wage growth for all workers, and especially baccalaureate workers, as shown in Figures 16 and 17. Apart from these cognitive skills, sub-baccalaureate workers' wage growth is associated with a wider array of skills than their baccalaureate counterparts. Taken together, an examination of the skills, knowledge, and abilities suggests how workers in the Inland Empire get ahead, the most effective areas of focus for educators, and the resilience of these pathways of advancement to potentially disruptive forces in the future labor market.

Reasoning and critical thinking skills, uniformly associated with earnings growth for both sub-baccalaureate and baccalaureate workers, indicate that workers in promising pathways progress toward jobs that require increasing levels of cognitively demanding work. However, sub-baccalaureate workers' comparatively looser correlation to these skills compared to their baccalaureate peers and wider array of skills, knowledge, and abilities related to career progression indicate that pathways to good jobs for these workers lead through a more diverse set of occupations. Skills important in certain blue-collar occupations in the construction and logistics sectors, such as selective attention,

FIGURE 16

Reasoning skills and those important to certain blue-collar occupations correlate to sub-baccalaureate workers' wage growth

Correlation of wage growth to changes in the content of work in the Inland Empire for sub-baccalaureate workers in career pathways to good jobs



Source: Authors' analysis of U.S. Census Bureau microdata, EMSI estimates, and O*NET data

perceptual speed, knowledge of physics, and near vision appear correlated to earnings growth for sub-baccalaureate workers. These skills indicate the varied avenues and contexts in which sub-baccalaureate workers may be able to climb the pay scale.

In contrast, the skills secondarily associated with baccalaureate workers' wage gains are variations on reasoning abilities or social skills. The narrower scope of these skills and the stronger correlation of each to wage growth reflects the

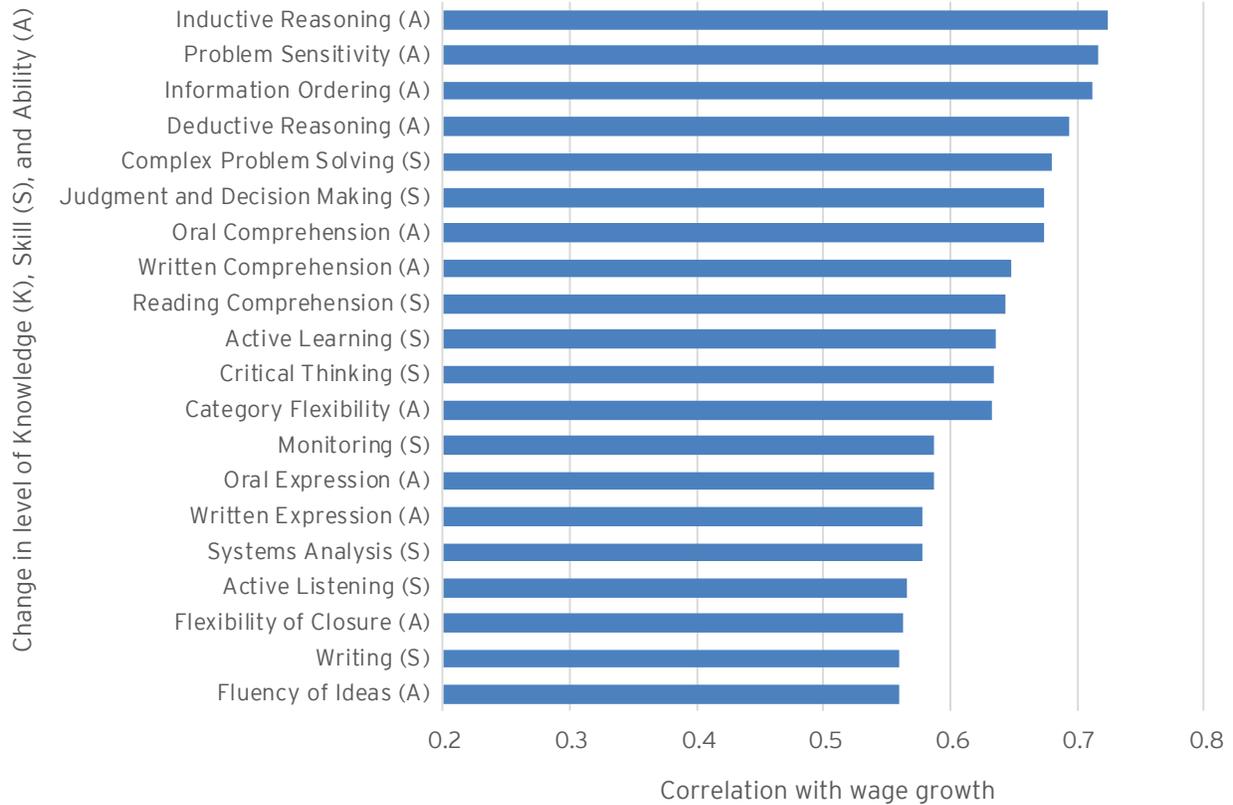
roles in which baccalaureate workers find high-quality jobs in the Inland Empire, which are largely in white-collar occupations.

Further, the knowledge, skills, and abilities either negatively correlated or only weakly correlated with earnings growth also suggest more diverse pathways to good jobs for sub-baccalaureate workers than their baccalaureate peers. Several skills and abilities associated with strength, physical coordination, and dexterity are weakly negatively correlated with earnings growth for

FIGURE 17

Reasoning and communication skills are strongly related to baccalaureate workers' earnings growth

Correlation of wage growth to changes in the content of work in the Inland Empire for baccalaureate workers in career pathways to good jobs



Source: Authors' analysis of U.S. Census Bureau microdata, EMSI estimates, and O*NET data

baccalaureate workers but are either uncorrelated or weakly positively correlated with sub-baccalaureate workers' earnings growth. These findings suggest that for baccalaureate workers, moving into occupations requiring these skills is more likely to lead to forgone earnings. For sub-baccalaureate workers, in contrast, the weakly positive correlation of these skills to wage growth indicates that transitioning into occupations which demand them may not necessarily result in diminished earnings. However, they are also not as likely to launch upward mobility.

Second, the particularly close association of reasoning skills and writing and reading comprehension to baccalaureate workers' wage gains suggest that the value of a bachelor's degree likely comes from training in these skills, rather than credential-based signaling. For both baccalaureate and sub-baccalaureate workers, skills traditionally taught by four-year institutions are important in progression toward higher-paying jobs. For baccalaureate workers, these findings affirm that both institutions and majors that provide these skills and occupations offer an advantage in the labor market.

Third, the generalist nature of the skills that align with career advancement also presents opportunities for all education institutions and training programs – not just those conferring baccalaureate degrees – and the workers who enroll in them. Skills such as inductive reasoning or complex problem-solving are among those that are most resilient to automation and are also among those easier to integrate into existing education programs. Many studies have identified these types of cognitive and social skills and abilities as being increasingly important to work in the future as technology takes the place of routine tasks and takes on more complex problems of pattern recognition and learning.³⁹ Workers who decide to invest in sub-baccalaureate skill training that emphasizes these abilities can do so with less risk than enrolling in highly specialized training programs. Similarly, educators and trainers can offer students skills that would both aid in career advancement in the near term and more security in the long run at relatively low cost.

4. Addressing race and gender gaps is crucial to securing the region's economic future

The Inland Empire's shortage of good and promising jobs affects some workers more than others, which may further compound the region's long-term challenges around growth and opportunity. Workers face quite different chances of obtaining a good job based on several factors, including not only their educational attainment but also their race and gender. These differences may undermine the economic mobility of increasing numbers of workers and their families as the Inland Empire continues to grow more diverse.

As the findings above suggest, education is a key determinant of whether someone will obtain a good job in the next 10 years. A worker in the Inland Empire who has no more than a high school diploma has a 38 percent chance of

holding a good or promising job, while a worker with some post-secondary education has a 50 percent chance. A worker with an associate degree has a 62 percent chance of holding a good or promising job, while one with a bachelor's degree has 77 percent chance. Each additional level of education considerably improves workers' odds of holding a good or promising job.

Although education improves the chances that people of color will obtain good jobs, a smaller portion of blacks and Hispanics have post-secondary degrees. As a result, black and Hispanic workers are only 84 and 65 percent as likely to hold a good or promising job, respectively, compared to their non-black, non-Hispanic counterparts.

However, other factors that have no relation to people's education or labor market experience also appear to play a role in workers' chances of reaching the middle class. People of color and women are far less likely to hold opportunity jobs than their white or male counterparts. These disparities exist even after adjusting for differences in average age and educational attainment, as shown in Figure 18.

- Among workers with a high school diploma, 42 percent of black men hold a good or promising job while 56 percent of non-Hispanic men of all other races hold a good or promising job.
- Among workers with an associate degree, 50 percent of Hispanic women hold a good or promising job while 74 percent of non-Hispanic men of all other races hold a good or promising job.
- Among workers with a bachelor's degree, 70 percent of Hispanic women hold a good or promising job while 81 percent non-Hispanic men of all other races hold a good or promising job.

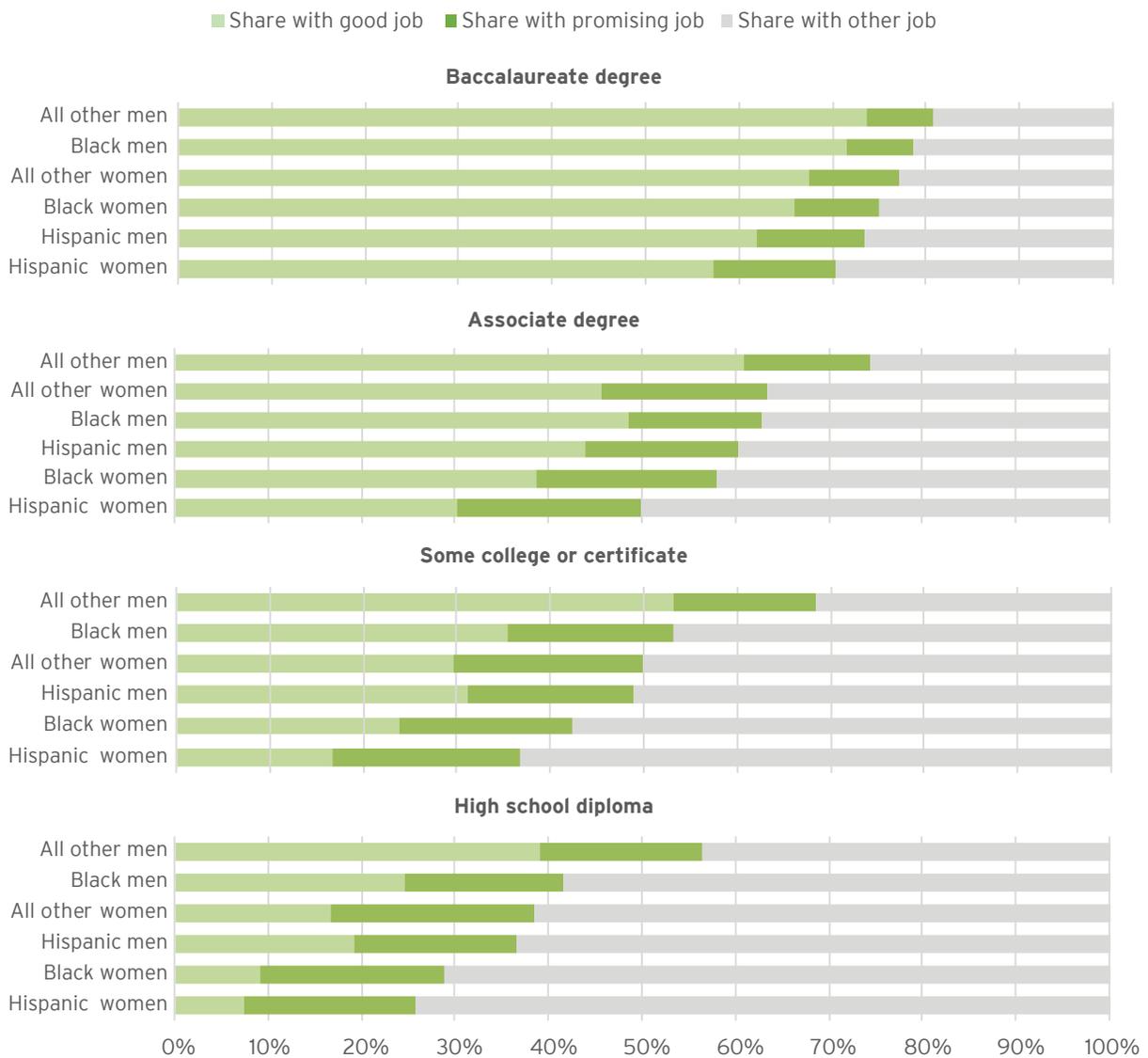
Such disparities mean that many people of color and women must attain higher levels of education to have similar chances of holding a good or promising job as less-educated peers.

For example, a Hispanic woman with an associate degree has roughly the same chance of obtaining a good job as a man with only a high school diploma who is not black or Hispanic.

FIGURE 18

Workers in the Inland Empire face different chances of holding good or promising jobs based on their education, race, and gender

Share of Inland Empire workers who hold a good or promising job by educational attainment, race, and gender



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

Some of these disparities are explained by women and people of color's lack of representation in occupations that contain most of the Inland Empire's good and promising jobs:

- Compared to whites, a smaller share of black and Hispanic workers are employed in occupation groups that offer good or promising jobs, and a larger share are employed in occupations that contain high concentrations of other jobs.⁴⁰ Four of the five major occupational groups that make up the largest portion of white employment (administrative support, management, sales, education, and health care practice) are those in which the share of good or promising jobs is near or above the regional average. In contrast, of the five groups that make up the largest share of Hispanic employment (administrative support, transportation, sales, construction, and production), only two are above- or near-average in their share of good or promising jobs. The same is true of three of the five largest occupation groups for black workers.
- Men hold at least two-thirds of all jobs in construction, installation, protective services, transport, and administrative support occupations—which offer among the highest concentrations of good and promising jobs. The disparity in the construction, installation, protective services sectors is especially stark: Men hold 95 percent of all jobs in

these occupations. Meanwhile, women hold the majority of jobs in occupation groups where less than 30 percent of jobs qualify as good jobs, including food service, health care support, maintenance, and personal care. Fifty-seven (57) percent of all jobs in these occupations are held by women.

Clearly, the Inland Empire must do more to ensure that women and people of color have access to the education, information, and networks that connect workers to quality job opportunities in the region. It may not be easy to increase women's representation in many of the construction, installation, and protective service occupations that concentrate the region's good jobs, which may make education and training an especially important pathway to good jobs for women. Designing or expanding flexible career training and degree programs that accommodate the schedules of working and single mothers may help. Connecting people of color to job opportunities in industries and occupations that concentrate opportunity must also be a priority. This could mean creating career pathway or counseling programs that help workers in administrative, logistics, and retail sales positions move to better jobs in other occupations or industries. No matter the tactic, addressing these disparities is crucial to ensure that the region's working families—who represent this region's present and future—have the access to opportunity that they need to get ahead economically.



IMPLICATIONS

The challenges revealed through this report can only be addressed through the coordinated action of multiple local systems and institutions. The Inland Empire faces a deficit of 347,500 good and promising jobs, which leaves tens of thousands of families struggling to make ends meet. Though the region can begin to close this gap through a more concerted focus on supporting the growth of those Opportunity Industries that concentrate good jobs, it will also need complementary strategies that upgrade the quality of jobs in other parts of the economy and that better prepare and connect people to opportunity. Together, these strategies require the involvement and coordination of a number of local institutions, including economic development, workforce development, higher education, local government, and especially employers.

Though this challenge may seem daunting, it presents a crucial opportunity for this region to begin to reposition itself both civically and economically in the service of a more inclusive and therefore more sustainable growth model. The region's reliance on a small set of tradable industries to drive its economy, some of which are struggling to remain competitive amid stiff economic headwinds, has led to booms and busts that have left many people and families behind. This status quo reliance on these same industries and growth drivers will, at best, deliver more of the same. Going forward, the Inland Empire must build from the strength this small set of industries offers and diversify into a broader set of tradable, opportunity-rich industries that can power more inclusive economic growth and opportunity.

The findings and insights revealed through this report lead to three high-level implications for how the region's leaders can proceed to foster opportunity.

ADVANCE

The Inland Empire should advance the capabilities and competitiveness of local firms in its opportunity-rich manufacturing and logistics industries. Retaining these tradable portions of its economy is crucial for the Inland Empire to maintain its economic strength. Unfortunately, the continued competitiveness and growth of firms in these industries is not assured. They face several pressures, including shifting global trade flows, new competition from other transportation modes and ports, and rising local land, labor, and production costs. In order to continue to thrive in the Inland Empire, firms in these industries may require new local resources that enable them to develop innovative new products and services and to implement more efficient processes that reduce costs and improve the speed of product and service delivery.

Advancing the capabilities and competitiveness of such industries may require more centralized knowledge and expertise for firms as well as a

more knowledgeable workforce. For the former, other regions have achieved success with cluster initiatives that physically centralize knowledge, expertise, and equipment to help firms in select industry clusters or technology niches better innovate. In a separate Brookings study, experts found that such initiatives provide information and research to educate firms and other stakeholders about opportunities and priorities for shared action.⁴¹ Externally, evidence-based promotion of clusters can address information failures among firms and investors outside the cluster that may benefit from cluster dynamics. These cluster initiatives can also assist with commercialization of new research and products. Additionally, the most successful cluster initiatives take a physical form, which provides a shared space for firms to access specialized equipment and machinery and reflects a region's investment in the brand and success of local industry.

However, in order to advance, firms also require the in-house knowledge and expertise to innovate and deliver their new products and services. Talent development is therefore a crucial component to improving the productivity and the competitiveness of firms. Talent development also helps ensure that firms' investments in process improvements and efficiency ultimately benefit workers, too, since skilled workers can take responsibility for implementing such improvements and maximizing these investments. In this respect, workforce development and higher education institutions in the Inland Empire are already leaders in implementing cluster-based talent development strategies, having introduced nationally recognized training programs like the InTech Center and Growing Inland Achievement, two local industry-led training programs. However, to successfully advance the region's logistics and manufacturing industries, these programs and others need to reach a greater scale.

Advancing the capabilities and competitiveness of these industries is not only necessary to maintain the region's tradable economy, but

also to maintain its good and promising jobs. Manufacturing and logistics, including wholesale, are leading providers of good jobs for sub-baccalaureate workers in the Inland Empire. Improving their competitiveness by making them more innovative, efficient, and nimble, could ensure that these become even better providers of such jobs by upgrading job quality as workers become more productive and creating more promising internal career pathways in order to retain skilled workers.

DIVERSIFY

The Inland Empire must also build from its strength in logistics and manufacturing by diversifying into new specializations in other tradable industries. The region's continued reliance on a small set of tradable industries leaves its entire economy vulnerable to idiosyncratic downturns or declines in the competitiveness of these industries, which could have devastating effects on local labor market opportunity. Yet as these industries themselves begin to advance into new products and services, the Inland Empire can encourage existing firms to branch out into new areas or even attempt to encourage the emergence of new complementary industries.

Historically, this region has punched below its weight in opportunity-rich industry sectors such as information, professional services, and corporate headquarters, but these are prime targets for the region's diversification. In many ways, the industries in these sectors represent the future: They concentrate many of the people who hold science, technology, engineering, and mathematics (STEM) degrees or work in STEM occupations, are responsible for much of the nation's innovation and productivity improvements and are powering the growth of many of the nation's most prosperous regions. Firms in these industries also tend to concentrate the expertise and provide the sorts of services that enhance the competitiveness of other firms.

Although these industries tend to provide many good and promising jobs for high-skill workers, many are leading providers of good jobs for sub-baccalaureate workers as well. As noted above, support for such industries is often seen as subsidizing jobs for workers who need it least. However, without them, the region is less likely to build the more advanced and diversified economy that promotes and upholds opportunity.

Diversifying into other industries can be achieved through entrepreneurship and active recruitment of firms to the Inland Empire, which may make it a gradual but nonetheless important objective. The region continues to make strides in becoming a more attractive and dynamic place for firms in these industries. Its research universities—University of Riverside, California State San Bernardino, and University of Redlands—contain and produce valuable talent and expertise that can be useful for creating and attracting new specializations. These institutions, as well as other research centers and natural assets in the region, can also help make the Inland Empire a locus for new industries that have yet to emerge around clean energy, resource efficiency, and innovative medical procedures. The challenge is to identify and leverage these assets in smart ways that position the region for the future. The availability of risk capital and speculative work spaces that can be responsibly deployed to advance promising ideas and recruit fast-growing, innovative firms can help.

CONNECT

Ultimately, to advance and diversify its economy, the Inland Empire needs talented people, and talented people must benefit from the region's economic progress in order to sustain it. As in many regions, the Inland Empire faces deep challenges around ensuring that men and women and people of different races and ethnicities enjoy the same access to labor market opportunity: Blacks and Hispanics are far less likely to hold a good or promising job compared

to their non-black, non-Hispanic counterparts, as are women. Unlike most regions, the Inland Empire's challenges in this area could quickly and seriously undermine its economic progress given the diversity of its population: People of color comprise 68 percent of the Inland Empire's population, and an even larger portion of young people.

Therefore, connecting people to opportunity, especially women and people of color, is paramount to extend and sustain this region's economic progress. Connecting people to opportunity may require new or revised approaches in three key areas:

- First, it may merit an expansion of non-baccalaureate education opportunities. This research adds to the existing body of evidence that a bachelor's degree greatly and universally improves a person's chances of obtaining a good job. Yet many people will never earn a bachelor's degree, especially those already in the labor market. Improving access to formal and informal non-baccalaureate education and training platforms is therefore crucial to preparing more people for good jobs. Apprenticeships and other work-based learning opportunities can provide workers with much of the same knowledge needed for jobs of the future. The expansion of these programs, especially those targeted to women and people of color, can also narrow the stark differences in access to opportunity jobs across race and gender lines.
- Second, it may require revised thinking about models of career training and advancement. This research reveals that many of the Inland Empire's sub-baccalaureate workers pursue career pathways from low-paying jobs to

good jobs that cross industries and span very different types of occupations. These non-traditional cross-industry career pathways may provide an opportunity to promote sub-baccalaureate workers' career advancement. Programs that counsel incumbent workers about their advancement opportunities in their current industry or occupation might encourage workers in industries with little opportunity to pursue education or job prospects in other industries that provide more reliable pathways to good jobs.

- Third, it may entail a closer look at how the region's education systems and institutions prepare people for the future of work. The findings revealed through this report suggest that the labor market and upward earnings mobility increasingly prize abstract cognitive abilities (reasoning, ingenuity, problem solving) and social skills. Specific subject matter knowledge and skills remain vital, but must be paired with lessons that prepare people to learn, think, and navigate a more fast-changing economy and labor market by themselves throughout their lives.

The upshot of the findings presented throughout the report is that the labor market is in fact far more dynamic than experts and policymakers often imagine it to be. People switch between industries and occupations often, and these switches are sometimes drastic, between jobs involving very different types of knowledge and skills. This provides many opportunities for systems and institutions to intercede with counseling, advice, and training that prepare people to advance to a better job rather than shuffle to a similar or worse one, a challenge these systems understand and are positioned to act upon.



CONCLUSION

Today, the Inland Empire region and its leaders stand at a crossroads. Recent economic and social trends and the dynamics of labor market opportunity in the Inland Empire suggest this region is growing without prospering. Years of swift growth have provided jobs to tens of thousands of workers, yet wages for many have declined and a large portion of the region's workers and families struggle to make ends meet. If the region continues on this path, it can likely count on more growth, but growth that provides too few opportunities for its residents to get ahead economically.

Fortunately, the Inland Empire's current advantages and economic momentum afford its leaders the opportunity to chart a new path for the region's future—one that fosters inclusive and sustainable economic growth. But leaders must act quickly.

The findings in this report suggest that persistently elevated numbers of economically insecure workers and families could further undermine the region's economic and fiscal stability and, over time, constrain local institutions' capacity to address the region's economic direction or ameliorate social and economic issues. Furthermore, the Inland Empire's current challenges are likely to grow worse, not better, despite its projected future growth. On its current path, the region's future job growth may bring more of the same—the region is projected to add a far greater number of other jobs than good ones. Meanwhile, many good jobs the region currently hosts may come under threat from automation or trade pressures.

Simply put, the Inland Empire's leaders must take bold steps if they want to see a future for the region that is better than the present. This report lays out three strategic objectives to advance economic opportunity for more workers and families:

- First, the region must advance the competitiveness of those industries that have historically powered its growth and prosperity by centralizing knowledge and expertise that firms can use to enhance their operations.
- Second, it must build from the strength of its existing industries and diversify into new ones by leveraging the promise of its universities and prioritizing opportunity-rich industries in its recruitment and development strategies.
- Third, it must continue to invest in efforts to better prepare and connect residents to the good and promising jobs its growth creates.

Achieving these objectives will require new multi-dimensional approaches that marshal the tools, resources, and expertise of actors from many different systems and institutions. Such approaches often entail difficult shifts in focus and resources—shifts that demand real commitment and coordination from leaders at the highest levels across institutions and systems. Making progress towards these goals also requires the commitment of the private sector. Despite the pressures of today's economy, talent remains the biggest competitive advantage for most businesses. Employers must find the motivation to work with civic leaders on regional and internal initiatives that upgrade the skills and pay of workers.

Thankfully, the Inland Empire's leaders recognize the urgency of the region's challenges around opportunity and have indicated their willingness to act. This region's capacity to foster inclusive growth and opportunity and the benefits of doing so are clear. Investing in strategies that expand labor market opportunity can grow the region's middle class, allowing for more working families to achieve economic independence and securing a more stable and prosperous economic future for the region. This report provides new information and insights to enhance the impact of the region's new and ongoing efforts.

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APPENDICES

APPENDIX A. THE INLAND EMPIRE'S EXPECTED VERSUS ACTUAL JOB AND EARNINGS GROWTH

Findings on the Inland Empire's actual versus "expected" job and earnings growth come from shift-share analyses. Shift-share analysis decomposes regional growth into national, industry, and local factors to reveal how local growth rates and patterns are distinguished from the nation. These three factors are derived as follows:

- The **national factor** reveals how the region would have grown if each of its industry had added jobs or increased average annual earnings at the same rate as the nation. For each of the Inland Empire's industries, jobs or average annual earnings in the base year are multiplied by the nation's year-over-year growth rate for the reference measure to derive the expected change in the measure in that year.
- The **industry factor** reveals how the region's industry mix—the distribution of its jobs by industry—contributed to the region's job and average annual earnings growth. For each of the Inland Empire's industries, jobs or average annual earnings in the base year are multiplied by the respective national

industry's year-over-year growth rate minus the national growth rate in that measure to derive the industry's expected rate of growth relative to the nation's overall rate of growth.

- The **local factor** reveals the difference between local and national rates of job and average annual earnings growth in each industry and in total. This is effectively the difference between local growth rates in each industry and the national growth rate in that industry for each reference measure on a year-to-year basis.

"Expected" growth refers to sum of the national and industry factors, which together reveal how the Inland Empire's industries would have added jobs or increased average wages if they had followed national growth patterns in each year. Expected average annual earnings growth assumes that both jobs and average annual earnings in the industry would have grown in step with the national industry.

The findings presented in this report come from a *dynamic* shift-share analysis that measures these factors between years, which makes the analysis less sensitive to the choice of start and end years. The analysis is done at the most detailed level of industry disaggregation (six-digit NAICS industries) for each county. Results of the analysis are summarized at higher levels of industry and geographic aggregations.

APPENDIX B. THE INLAND EMPIRE'S STRUGGLING FAMILIES

Findings on the Inland Empire's struggling families come from a detailed accounting of families' basic expenses and an analysis of data from federally administered household surveys. Estimates of families' basic expenses comes from a Brookings analysis of the Self-Sufficiency Standard, developed by Diana Pearce of the University of Washington Center for Women's Welfare. The standard provides estimates of the income required for a family to maintain a "minimally adequate" standard of living.⁴² The standard accounts for differences in a family's county of residence, its size, and the age of its children in determining food, housing, childcare, transportation, medical care, and miscellaneous household expenses.

The Center for Women's Welfare developed California's Self-Sufficiency Standard in 2003 for Californians for Family Economic Self-Sufficiency, a project of the National Economic Development and Law Center, and updated it in 2008, 2011, 2014, and 2018 in collaboration with the Insight Center for Community Economic Development.

Expenses

The Self-Sufficiency Standard provides estimated expenses for each family type using data sourced from federal agencies and public, private, and non-profit surveys. A brief description of the data sources and methodology for each category follows; additional detail concerning the calculation of expenses in each category can be found in the Center for Women's Welfare's Self-Sufficiency report for California in 2014.

- Housing:** Housing expenses are based on the U.S. Department of Housing and Urban Development (HUD) Fair Market Rents (FMR) and are adjusted from metropolitan area-wide estimates to county-specific levels using median gross rent ratios derived from the American Community Survey. The Brookings analysis assumes that if a respondent owns their own home without a mortgage, their monthly housing expense for property tax, homeowner's insurance, utilities, and maintenance is 0.058% of the value of their home plus \$66, derived based on an annual property tax rate of 0.7% and annual insurance and ownership-associated fees of \$800.⁴³
- Child Care:** Childcare expenses are calculated from data from the 2012 California Regional Market Rate Survey and inflated using the Bureau of Labor Statistics Consumer Price Index. Expenses include the cost of full-time care for infants and preschoolers and part-time care for school-age children. The Brookings analysis assumes that non-working adults in families with children provide childcare and therefore these families have no child care expenses.
- Food:** Food expenses are based on the U. S. Department of Agriculture Low-Cost Food Plan, which does not allow for any take-out, fast food, or restaurant meals. Food expenses are adjusted to county-specific levels using the ACCRA Cost of Living Index by the Council for Community and Economic Research and data from the U.S. Department of Agriculture Economic Research Service based on the Quality Food-at-Home Price Database.
- Transportation:** Transportation expenses include expenses associated with car ownership, insurance, fixed, and per-mile costs. Data come from the American Automobile Association, the National Household Transportation Survey, the National Association of Insurance Commissioners, and the Consumer Expenditure Survey, and are adjusted from state- to county-specific levels using sample premiums from State Farm, Allstate, and Mercury - the three top auto insurance companies by market share in the state -

from the California Department of Insurance. The standard calculates cost estimates using public, rather than personal, transportation only when more than 7% of the county's workers use public transportation to get to and from work. Neither Riverside nor San Bernardino county meet this threshold.

- **Health Care:** Health care premiums and out-of-pocket costs are estimated from the Medical Expenditure Panel Survey from the Agency for Health care Research and Quality and assume employer insurance coverage. The 2016 standard adjusts state-level premiums to the intra-state regional level using sample quotes from the most commonly purchased PPO plan in each of nine regions within California from Health Net. Riverside and San Bernardino counties are grouped with Santa Barbara and Ventura counties to form one of these regions.
- **Miscellaneous:** Miscellaneous expenses are estimated as 10 percent of all other costs and cover clothing, shoes, cleaning products, household items, and other essentials.

Taxes and Tax Credits: Taxes include payroll, federal, and state income taxes. Tax expenses also include credits, including the Earned Income Tax Credit (EITC), Child Care Tax Credit, and Child Tax Credit for qualifying families.

- **Emergency Expenses:** The Brookings analysis includes an alternative expense-based savings fund in lieu of the savings figures provided by the University of Washington. The Brookings savings measure is equivalent to the amount a family would have to save in order to amass three months of expenses (as determined by the sum of all other costs in the standard) over nine years, which is the average period of unemployment after the average period between involuntary layoffs according to Brookings analysis of the Current Population Survey.

- **Mortgage Savings:** The Brookings analysis adds an additional savings sum for individuals who report renting their home. This amount is equivalent to the closing costs and down payment for a home for each family, calculated as roughly 8 percent of the price of a median home of the relevant size in the county, saved over 10 years.

Family compositions

Each of these expense categories is estimated for 156 family compositions in 2014, 2011, and 2008 and 70 family compositions in 2003 for each county in California.⁴⁴ Brookings interpolates the Self-Sufficiency Standard for the years between 2003, 2008, 2011, and 2014 by assuming a constant compound annual growth between years for matched family compositions. Because the 2003 iteration of the standard contains fewer family compositions than 2008, expenses for these missing compositions are estimated using the mean of the compound annual growth rates of the 70 matched compositions. Brookings applies these interpolated expenses for each cost category except for housing. To more closely reflect the trends in housing prices in the years between releases of the standard, Brookings uses the most recent year-specific FMR estimates available from the HUD website.

Application to household survey data

Brookings applies the Self-Sufficiency Standard to American Community Survey (ACS) 1-year microdata, gathered from the University of Minnesota's Integrated Public Use Microdata Series (IPUMS) for each year from 2006 to 2016.⁴⁵

Geography

Each observation in the microdata from the ACS is assigned to a unit of geography called a Public Use Microdata Area (PUMA). PUMAs represent the smallest, most detailed level of geography available in the public-use files, with each PUMA

covering an area of at least 100,000 people to preserve survey respondents' anonymity. PUMAs do not overlap; they fully partition each state into contiguous areas. Depending on the population in a region, PUMAs can encompass entire counties and groups of counties or cover part of a county. As such, PUMAs can be grouped into near (but not always perfect) approximations of counties. Brookings uses PUMA-to-county crosswalks from the Missouri Census Data Center's Geographic Correspondence Engine, which match both the 2000 and 2013 PUMA delineations to current county borders.⁴⁶ If a PUMA covers more than one county, Brookings assigns the Self-Sufficiency Standard of the county with the greatest share of the PUMA's 2010 population to all the residents of the PUMA.

Family definition

Families are identified within the ACS microdata by a distinct combination of family subunit number (an IPUMS-generated variable), household serial number, and survey year. Brookings limits the ACS microdata to all families residing in PUMAs entirely or partially within the Riverside-San Bernardino metro area, except those in which all employed adults are in the armed forces or self-employed, and those in which all members are between 18 and 24 years old and enrolled in school (and are therefore likely entirely composed of college students). Brookings assigns the appropriate self-sufficiency threshold to each family based on its size, the labor force statuses of its adult members, the ages of its children, and household tenure. Children aged zero to three years are classified as infants; three to five years as preschoolers; six to 12 years as school-age children; and 13 to 18-year-olds as teenagers. All individuals 25 years or older are considered adults, as well as those individuals from 18 to 24 years old who are not enrolled in school.

The University of Washington does not provide exact estimates of the standard for certain large and rare family compositions; for these families, Brookings applies the standard associated with the closest available composition. For example, Brookings assigns a family with three adults and four infants (a composition not provided by the Center) the average standard of families with three adults and four children of any age class, a composition that is among the 156 provided by the 2014 standard. Brookings assigns families with compositions for which the Self-Sufficiency Standard is not provided and cannot be extrapolated a living wage estimate equal to twice the federal poverty line, adjusted using the consumer price index for the census division in the corresponding year. This modified threshold applies to approximately 6 percent of all records in the time series from 2006 to 2016.

Income

Brookings calculates each family's total annual income by summing each member's non-transfer sources of income, including wage income, retirement income, rental/investment income, and business income. Brookings includes income from the Social Security and Supplemental Security Programs for individuals with disabilities and Social Security income for individuals over the age of 65 or those who report being retired. Brookings defines "struggling families" or "families that struggling to make ends meet" as individuals in families whose total non-transfer family income (as described above) is lower than their corresponding Self-Sufficiency Standard. Brookings uses household weights to calculate the number of families below the Self-Sufficiency Standard and replicate weights provided by the ACS to calculate standard errors.⁴⁷ Brookings assumes that adults living in the same family as children provide support for the children.

APPENDIX C. IDENTIFYING THE INLAND EMPIRE'S GOOD AND PROMISING JOBS

Findings on the Inland Empire's Opportunity Industries, including the number and share of good and promising jobs, come from a series of analyses on job quality and mobility among occupations done as part of a forthcoming national report from Brookings. This appendix describes the major pieces of these analyses and how they are applied in this report. Interested readers may want to consult the national report for a more thorough account of the methodology, assumptions, and sources.

Data on occupational mobility and wages

As the report mentions, the analysis of occupational mobility is built upon records of real workers' labor market behavior and occupational transitions. This analysis, and predictions of workers' hours and wages, are built on the monthly version of the Current Population Survey (CPS), which is administered jointly by the U.S. Bureau of Labor Statistics (BLS) and the U.S. Census Bureau.

The CPS is a monthly survey of roughly 60,000 dwelling units throughout the United States. The survey uses a unique panel design that yields month-to-month observations of the same dwelling units and their occupants over two four-month periods one year apart. These month-to-month observations form the basis for identifying occupational transitions and non-transitions among employed occupants.

In the final month of a dwelling unit's two four-month survey rotations, employed occupants are interviewed about their hours and earnings. Observations for dwellings and occupants in the final month of these rotations, called the Outgoing Rotation Groups (ORG), form the basis for identifying the typical hours worked and earnings per hour for workers in different occupations and industries.

Although the CPS is designed as a nationally representative survey and is not large enough to yield robust sub-state findings, it is the most detailed and appropriate source the authors could identify for this type of study. Other sources of data on occupational mobility likely miss important job and occupation transitions due to their frequency and/or do not provide accompanying information on occupation, demography, hours, and earnings. The authors took steps in the analyses described below to extend the CPS's applicability to local circumstances.

Data on employer-sponsored health care insurance

Although the CPS does provide information survey subjects' health insurance coverage, the authors instead used the American Community Survey (ACS) for these data. Panel data like those needed to identify occupational transitions were not necessary for identifying workers who receive employer-sponsored health insurance. As a cross-sectional survey, the ACS can provide a much larger sample that is more representative of sub-state patterns. The ACS is used again in later steps of the analysis for similar reasons.

Data on job openings by occupation

Data on job openings provide a basis for predicting the likelihood of an occupational transition and, relatedly, for extend the applicability of the nationally representative CPS data on occupational mobility to sub-state areas. Unfortunately, data on monthly occupational job openings for sub-state areas are not readily available. Instead, the authors assimilated data and projections from several data sources and methods.

There are three sources of job openings. First, a job opening is created when a business decides to hire for a position that did not previously exist. This is the job growth source. Second, a job

opening is created when an incumbent worker moves to a different job or occupation. This is the turnover source. Third, a job opening is created when an incumbent worker permanently leaves the labor force, for example, to begin retirement. This is the labor force exit source.

Data for the job growth source were generated by transforming county-level annual occupational employment data from Economic Modeling Specialists, Inc., a private data provider, into a monthly series and then subtracting the previous month's number of jobs from the current months. These data were then projected out to 2027 using Moody's Analytics industry job growth projections and BLS Occupational Employment Projections. Data for job openings from the other two sources were generated from the authors' analysis of the CPS data described above. Following methods developed by BLS researchers, the authors developed statistical models of CPS data to derive the probabilities that incumbent workers would leave their occupation or exit the labor force. The CPS data were pooled over different time periods to provide average rates of turnover and exiting by month. These probabilities were also projected into the future.

The authors then summed these estimates of monthly occupational job openings across these sources at the national level and compared them to data on national rates of job openings provided through the BLS's Job Openings and Labor Turnover Survey (JOLTS). The authors' estimates closely matched the estimates provided by JOLTS. As there is no source for sub-state occupational job openings, the authors are unable to validate their estimates for those areas.

Modeling local career pathways from data on occupational mobility

With the data described above in hand, the authors then began a three-step process of modeling career pathways for workers within the metropolitan area.

1. ESTIMATING THE PROBABILITY OF SWITCHING BETWEEN TWO GIVEN OCCUPATIONS

The authors used regression analysis to estimate the probability that an incumbent worker would switch from his or her present occupation to another. This was done for each pair of transitions observed in the CPS data on occupation mobility. In each regression, the universe was any respondent who reported working in the origin occupation in the prior month. The dependent variable indicated whether the respondent worked in the destination occupation in question during the current month. The authors used logistic regressions that condition the probability of switching between the two occupations on the destination occupation's share of job openings near the respondent in the current month and the respondent's personal characteristics, including age in years, sex, race, and level of education. In the authors view, this is the best approach to estimating the probability of occupational switching given the task at hand: using national data to develop localized estimates of the probability of occupational switching. For this purpose, the authors were not concerned with explanatory power or statistical significance. Instead, the concern was predictive power. Somewhat surprisingly, most of the successful regressions have reasonable explanatory power. Based on the authors' review of literature, most also have better predictive power than regressions conditioned on occupational similarity. However, models for some pairs of occupations had too few observations to produce valid results. These models were omitted from further steps.

2. CONSTRUCTING OCCUPATIONAL TRANSITION MATRICES

The results of these regressions were then applied against data on the metropolitan area's workforce characteristics and projected future job openings to derive monthly persona-specific occupational transition matrices. In these matrices, each cell

contains the probability that a person meeting the characteristics of that persona would switch from a given origin occupation (the row) to a given destination occupation (the column) at a given month in the future in the metropolitan area.

This process began by defining a universe of personas. Each persona is defined by the personal characteristics included in the occupational transition regressions. There is one persona for every combination of age, sex, race, and education included in the regressions, resulting in many thousands of personas. For example, one persona represents a 35-year-old black non-Hispanic male with a bachelor's degree. Another represents a 50-year-old Hispanic female with some college experience. The authors calculate a person weight for each row each persona's matrix using data from the ACS to represent the number of workers that belong to each persona that report working in the origin occupation in the metropolitan area.

Using the successful occupational transition regressions from above, the authors determined the probability that a persona will transition between a given pair of occupations given the personal characteristics it represents and a destination occupation's projected share of job openings in a given future month in the metro area. For pairs of occupational transitions where regressions were unsuccessful, the authors simply assigned the observed rate of transitions from the CPS data rather than a probability estimated from a regression. For pairs of occupations where no transitions can be observed from the CPS data, a transition probability of zero was assigned. Finally, the probability of not transitioning from a given occupation to another (contained in the cells on the matrix's diagonal) was set equal to one minus the sum of the other cells in the row.

This process was done for every persona and for every month from 2017 to 2027, resulting in several hundred thousand matrices, each conveying transition probabilities for every pair of more than 500 occupations that describe

every job in the metropolitan area. Each matrix conveys the likelihoods that a person fitting the characteristics of that persona will switch between any two occupations in a given month in the metropolitan area, and each persona's matrix is weighted by the currently number of actual workers who fit the persona's definition in the metropolitan area.

3. ESTIMATING OCCUPATIONAL TRANSITIONS IN CAREER PATHWAYS

Finally, to estimate the cumulative conditional probability of that a worker represented in a persona who begins in any one occupation at the end of 2016 will end up in any other by the end of 2027, these monthly persona-specific matrices are multiplied against each other in what is known as a Markov Chain. This begins by multiplying the matrix for January 2017 against the matrix for February 2017. The matrix product of this multiplication indicates the probability that a worker starting in each occupation in December 2016 will transition to any other occupation come February 2017. This matrix product is then multiplied against the matrix for the month of March 2017, whose product is multiplied against the matrix for April 2017, and so on until December 2027.

The final matrix product that results from this process, and the person weight assigned to the original matrices, as described above, forms the basis for this report's analysis of local career pathways.

This approach cannot perfectly describe career pathways. It rests on an assumption that a worker's probability of transitioning into another occupation depends only on the worker's occupation in the prior month (along with the variables factored into the regressions, of course). Transitions likely also depend on the worker's tenure in his or her occupation and may also depend on the worker's prior occupations or job. Basically, this approach cannot capture the importance of a person's resume in predicting his

or her future occupational transitions. However, such information is at least partially factored into the analysis given that the real workers and transitions represented in the underlying CPS data were in fact able to obtain those jobs and make those transitions. This approach seems reasonable in the absence of data that truly represent actual careers.

Estimating earnings and benefits

In the final phase of this analysis, hours, wages, and benefits were estimated for all starting and ending occupations for each persona. Estimates for each these measures were derived from regression analyses of the CPS ORG data or ACS data described above. Each of these regressions are premised on the Mincerian earnings function, a model developed by economist Jacob Mincer that labor economists commonly use to explain wages. In Mincer's model, education and work experience explain wages.

The regressions used in the present set of analyses build from Mincer's relatively simple model. Age is substituted as a proxy for work experience. Additionally, regressions for each measure include variables indicating sex, race, and sector of employment since labor market outcomes like wages are known to vary along these lines, even for workers in the same

occupation. For the wage and benefit regressions, full- or part-time status is also used as an explanatory variable. For the benefit regressions, state fixed effects are included. (Benefit regressions only include data from years after the implementation of the Affordable Care Act). All regressions were carried out for each occupation.

Estimating each measure involved a different model specification. To estimate hours, the authors used an ordered logistic regression. To estimate probability of receiving employer-sponsored health care insurance—a proxy for other employment benefits—the authors used a logistic regression. To estimate hourly wage, the authors used a generalized linear model where the wage is modeled as its logarithm. Additionally, the authors estimated workers' exempt or non-exempt status to determine their overtime eligibility. This logistic regression excluded demographic factors besides age and included state fixed effects.

The results of all these estimates—occupational transitions, hours worked, wages earned, overtime eligibility, and benefits—were evaluated together to determine whether the average worker in a given persona, given current occupation, and given future occupation has a good, promising, or other job.

ENDNOTES

1. In this report, the Inland Empire region refers to the two-county Riverside-San Bernardino-Ontario, CA metropolitan statistical area (MSA) as defined by the U.S. Office of Management and Budget.
2. Authors' analysis of U.S. Census Bureau 2017 U.S. Gazetteer Files and 2017 1-year American Community Survey (ACS) estimates.
3. Authors' analysis of 2017 1-year American Community Survey estimates.
4. 1990 U.S. Decennial Census and 2017 1-year ACS estimates.
5. 2017 1-year ACS estimates.
6. 2006 to 2017 1-year ACS estimates.
7. Chad Shearer and others, "Metro Monitor 2018," Brookings, 2018.
8. Authors' analysis of Economic Modeling Specialists, Inc. (Emsi) estimates.
9. Ibid.
10. Ibid.
11. Ibid.
12. Ibid.
13. Authors' analysis of American Community Survey public-use microdata.
14. Ibid.
15. The U.S. Office of Management and Budget designated the first federal poverty threshold in 1969 as the government's official statistical definition of poverty. Mollie Orshansky, the author of the threshold, intended it to be an estimate of the cost associated with a "minimal but adequate" standard of living for a family of four. Orshansky based the threshold on the cost of the U.S. Department of Agriculture's Economy Food Plan in 1961 and the 1955 Household Food Consumption Survey, which found that one-third of after-tax household expenditures went toward purchasing food. Although the cost of the federal government has adjusted economy food plan for inflation since its establishment, the "multiplier" (the inverse of the share of post-tax income that families spend on food) remains three. Since the establishment of the threshold, the food share of after-tax household expenditures has dropped from drastically (from 33% in 1955 to 12.8% in 2008) and the price of other necessities such as housing have increased, resulting in a threshold that is widely considered out-of-date with modern prices and spending patterns. For more information, see "The Development of the Orshansky Poverty Thresholds and Their Subsequent History as the Official U.S. Poverty Measure." <https://www.census.gov/content/dam/Census/library/working-papers/1997/demo/orshansky.pdf>; and "Why the United States Needs an Improved Measure of Poverty", Testimony to the Subcommittee on Income Security and Family Support House Ways and Means Committee by Rebecca M. Blank. https://www.brookings.edu/wp-content/uploads/2016/06/0717_poverty_blank-1.pdf.
16. U.S. Census Bureau, 2005 and 2016 American Community Survey.
17. U.S. Census Bureau, "Poverty Thresholds for 2016 by Size of Family and Number of Related Children Under 18 Years," 2016. For more information, see note (15).
18. Diana Pearce, Center for Women's Welfare, University of Washington, "Self-Sufficiency Standard" <http://selfsufficiencystandard.org>; Department of Housing and Urban Development "Fair Market Rents" <https://www.huduser.gov/portal/datasets/fmr.html>.

- 19.** A counterfactual analysis holding the region's cost of living at its 2006 level shows that the share of people living in struggling families would in fact be 0.1 percentage point higher if the cost of housing, food, childcare, and all the other expenses in the Self-Sufficiency Standard remained the same.
- 20.** Authors' analysis of ACS public-use microdata.
- 21.** Ibid.
- 22.** Authors' analysis of University of Washington Center for Women's Welfare County-Based Sufficiency Standard and American Community Survey public-use microdata.
- 23.** Raj Chetty and others, "Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States," *Quarterly Journal of Economics* 129, No. 4 (2014): 1553-1623.
- 24.** World Trade Organization, "Trade and tariff data: Merchandise trade," 2018. Available at: www.stat.wto.org (accessed June, 2018).
- 25.** Edna Bonacich and Jake B. Wilson, *Getting the Goods: Ports, Labor, and the Logistics Revolution* (Ithaca, NY: Cornell University Press, 2008), 123-156.
- 26.** Mark Muro and others, "Digitalization and the American workforce," Brookings, 2017.
- 27.** U.S. Department of Transportation, "Panama Canal Expansion Study: Phase I report," Maritime Administration, 2013; Jennifer Bratton and others, "Wide Open: how the Panama Canal Expansion is Redrawing the Logistics Map," Boston Consulting Group and C.H. Robinson, 2015.
- 28.** Authors' analysis of University of Washington Center for Women's Welfare County-Based Sufficiency Standard and American Community Survey public-use microdata.
- 29.** This choice of wage and salary threshold for good jobs was informed by discussions with professionals from local social service organizations, government, and business groups in the Inland Empire. As other findings in this report reveal, this threshold would provide a majority of workers and about half of all people in struggling families in the Inland Empire with the income they need to achieve economic security and independence.
- 30.** These anticipated trends take into account recent regional growth patterns, macroeconomic projections, and modest estimates of labor automation. A description of the underlying data and methods of analysis is available in an appendix.
- 31.** U.S. Office of Management and Budget, "2012 North American Industry Classification System," 2012. See: <https://www.census.gov/eos/www/naics/>.
- 32.** U.S. Bureau of Labor Statistics, "2010 Standard Occupational Classification System," 2010. See: <https://www.bls.gov/soc/>.
- 33.** About 0.3 percent of the region's jobs are in occupations for which job quality characteristics cannot be determined. Most of these are occupations held by highly-skilled workers, such as mathematicians and statisticians, or blue collar jobs in transportation or mining industries, such as ship-captains or derrick riggers. Postal service workers also do not appear in the job-quality analysis. Although most of the jobs in these occupations are very likely to be good ones, since their quality cannot be determined they are set aside from this analysis. Their exclusion does not meaningfully affect the findings or implications.
- 34.** Nearly 60 percent of these "other" jobs provide benefits but provide insufficient wages or hours to qualify as good jobs. About 8 percent provide sufficient wages and hours but no benefits.

- 35.** Why doesn't the Inland Empire need enough good or promising jobs for every single worker? This analysis of families' economic circumstances finds that many workers meet all their family's basic needs without a good job. Some workers' needs amount to less than the \$37,440 per year threshold for good jobs applied here. Other workers may have a higher-earning partner or sources of unearned income which, together with their earnings, meet all their family's needs.
- 36.** Authors' analysis of EMSI estimates.
- 37.** The scarcity of good and promising jobs for sub-baccalaureate workers in these sectors may be related to their occupational composition; sub-baccalaureate workers hold many more of the occupations that require less education within these sectors, such as janitors and health care aides and technicians, which are less likely to offer family-sustaining wages and employer-sponsored health insurance.
- 38.** This analysis builds on the career pathways analysis covered here by including information about the content of good and promising jobs. The U.S. Department of Labor's O*NET program provides detailed information about the content of jobs in different occupations, including the specific types of knowledge, skills, and abilities required in the occupation. These attributes were measured for workers' starting and ending occupations in career pathways that lead to good jobs. The difference in the level of these attributes between these starting and ending points in workers' career pathways reveals the change in level associated with the workers' career mobility. These changes were then correlated with changes in workers' estimated earnings at starting and ending points to reveal the types of knowledge, skills, and abilities that are most closely associated with larger earnings gains.
- 39.** James Manyika and others, "Harnessing automation for a future that works;" McKinsey and Company, 2017; Hasan Bakhshi and others, "The future of skills: Employment in 2030," 2017.
- 40.** Authors' analysis of American Community Survey public-use microdata.
- 41.** Ryan Donahue, Joseph Parilla, and Brad McDearman, "Rethinking Cluster Initiatives," Brookings, 2018.
- 42.** Diana Pearce, "Self-Sufficiency Standard," Center for Women's Welfare, University of Washington. <http://selfsufficiencystandard.org>.
- 43.** Zillow Research, "Riverside-San Bernardino Metro Home Prices and Values," accessed May 2018.
- 44.** Other region-specific measures of living expenses, including the MIT Living Wage Calculator and the Economic Policy Institute's Family Budget Calculator, provide expense estimates for only 2-3 family compositions for each family size. As childcare expenses make up a significant and growing share of family expenditures, the greater specificity of the Standard in calculating the costs associated with care for children of different ages allows for a more nuanced measure of what it takes to make ends meet for each family. The Self-Sufficiency Standard also provides more precise accounting of the child tax credit, child care tax credit, and Earned Income Tax Credit associated with each family type.
- 45.** Steven Ruggles and others, Integrated Public Use Microdata Series: Version 7.0 American Community Survey 1-year data, 2006 to 2016. Minneapolis, MN: University of Minnesota, 2017.
- 46.** Missouri Census Data Center MABLE/ Geocorr14 Geographic Correspondence Engine. <http://mcdc.missouri.edu/websas/geocorr14.html>.
- 47.** For a detailed description of the replicate weights methodology, see pp. 25-32 in https://www2.census.gov/programs-surveys/acs/tech_docs/accuracy/ACS_Accuracy_of_Data_2016.pdf.



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