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Is California Losing Its Mojo?

Kenneth Murphy, Ph.D. and Marshall Toplansky

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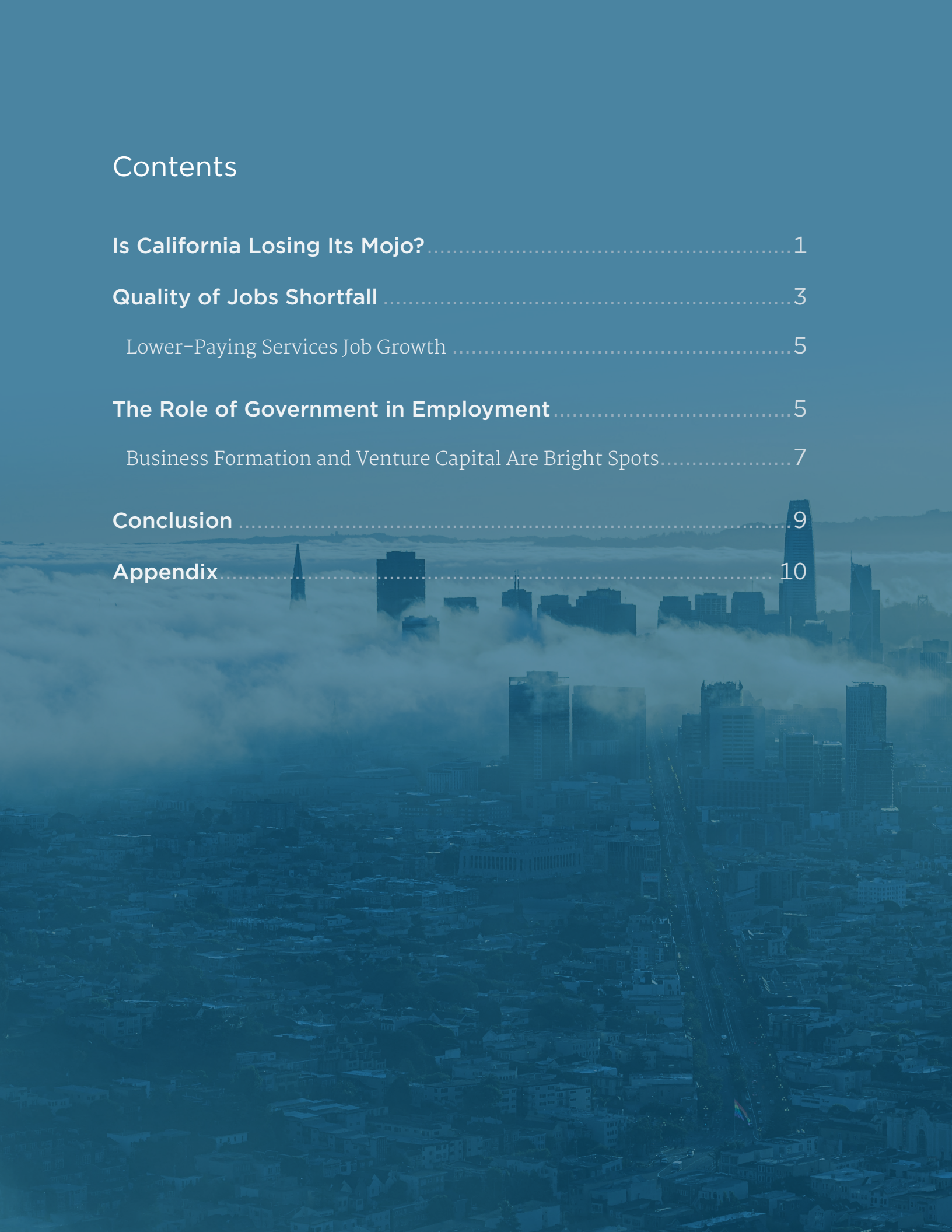


IS CALIFORNIA LOSING ITS MOJO?

In popular myth, California has been America's land of opportunity since its founding. In 1849, California built its reputation around its rich vein of gold in Sierra Nevada. From precious metals, California pivoted its focus towards innovation, initially in agriculture, oil and later in the new business of motion pictures.

In the post-WWII era, California shifted its focus once again, this time leading the country, and the world, in aerospace innovation. More recently, the state's reputation has been enhanced by its domination of information and digital technologies, becoming home to four of the world's seven most valued tech firms.

The supercharged economy attracted a steady flow of migrants, both from within the United States and from foreign countries. The state's population grew from 92,597 in 1850 and 10 million in 1950 to 38,889,800 in 2024. But along with population growth has come over-crowded highways, unaffordable housing, and a highly regulated business climate. For the first time in the state's history, as measured by the last census, California, after suffering a decade or more of domestic out-migration, actually lost population.

We conducted a study of the state's economy identifying clear problems with the creation of high wage jobs, particularly outside of Silicon Valley. California's economy is creating a bifurcated society, divided by wealth and region, that threatens the social fabric of our state, as our landmark study, *Beyond Feudalism: A Strategy to Restore California's Middle Class*, has clearly shown.

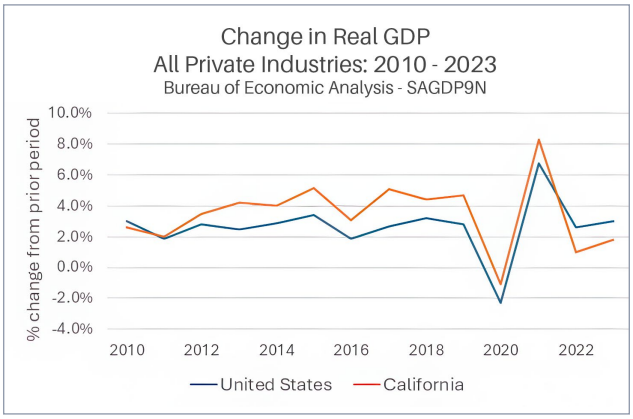
Key questions we consider:

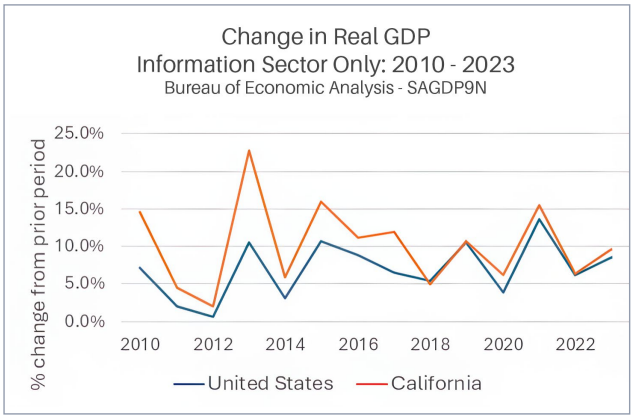
- Is the loss of population the "canary in the coal mine" for the decline of California's economic dominance?
- Are we on the cusp of becoming the next "rust belt," where jobs, growth and prosperity move to other parts of the country or the world?
- Is there a next "new thing" that California will pivot towards that will, once again remake its identity?
- Or is the state losing its repute for re-invention to other areas of the country?

We will examine the economic facts, starting with what California produces as a state. Although we are still growing our gross domestic output (GDP), in large part due to high real estate and tech stock prices, information services continues to expand, but outside of the Bay Area, at shockingly low rates. Instead, much of the growth comes from lower-wage services, such as restaurants and hospitality. At the same time, higher wage jobs outside of information, such as business and professional services, have been stagnant over the past decade or more.

We start our analysis by looking at California's Gross Domestic Product. Historically, California has outpaced the rest of the country in terms of the value of goods and services it has delivered to the market. However, as the chart below shows, the pace of GDP growth in

California has dropped significantly since 2022, with the state now lagging in GDP growth when compared to the rest of the country.





Information services historically have grown in this field more than in the rest of the country. Information services include publishing industries, including software publishing, and both traditional publishing and publishing exclusively on the Internet; the motion picture and sound recording industries; the broadcasting industries, including traditional broadcasting and broadcasting exclusively over the Internet; the telecommunications industries; and Web search portals, data processing industries, and the information services industries. Since 2018 the state's advantage has receded dramatically compared to the growth rate of the rest of the country, as the chart above right shows.

In trying to understand what is happening in California, and how economic trends impact Californians, we study these three factors :

1. Employment levels – the number of people who are working to produce both goods and services.

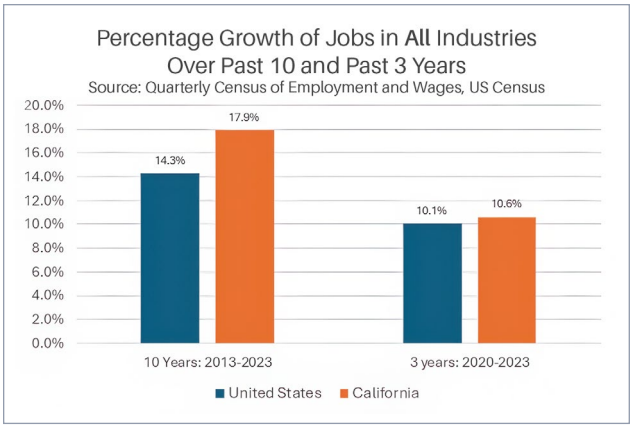
2. Wages – how much people get paid, compared to people elsewhere, which enables people to spend money on their own lifestyle.

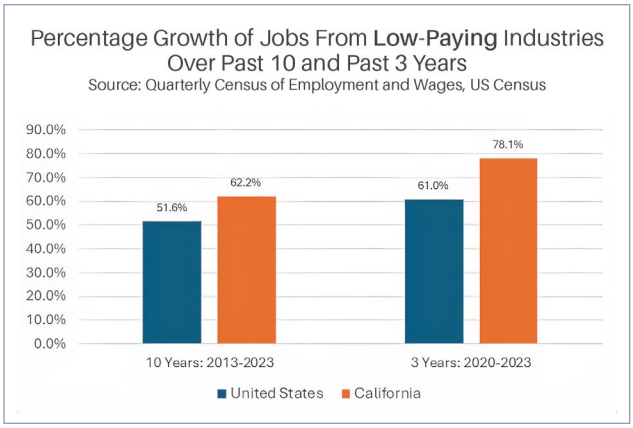
3. Establishments – the number of businesses that actually employ people.

The key issue is, how can Californian's find "prosperity"? To our way of thinking, prosperity means making more than a basic living. Prosperous people seek "good" jobs that provide above-average pay and suggest some kind of a future for themselves and their families. They use their earnings to buy a level of comfort and security for themselves, including homes, cars, college education and savings accounts. People are not prosperous if their cost of living matches their wage, as they feel no better off. Ultimately, people who cannot become prosperous in California may move elsewhere if they think they CAN become prosperous in another part of the country.

QUALITY OF JOBS SHORTFALL

California has experienced enough job growth to keep unemployment levels low. However, the relative quality of the growth has been troubling. Most new jobs in California have been concentrated in the lower wage service sectors than in the higher paying "advanced" industries. Over the past 10 years, 62% of the jobs added in California were in lower than average paying industries versus 51.6% for the nation as a whole. In the past 3 years, the situation worsened, with 78.1% of all jobs added in California being from lower-than-average paying industries versus 61% for the nation as a whole.





Lower wage growth has come as, with the exception of Silicon Valley and San Francisco, employment in advanced industries, has stagnated for the past 10 years. What do we mean by "advanced industries"? The Brookings Institution defines a class of industry sectors as "advanced" if they have either or both of the following characteristics:

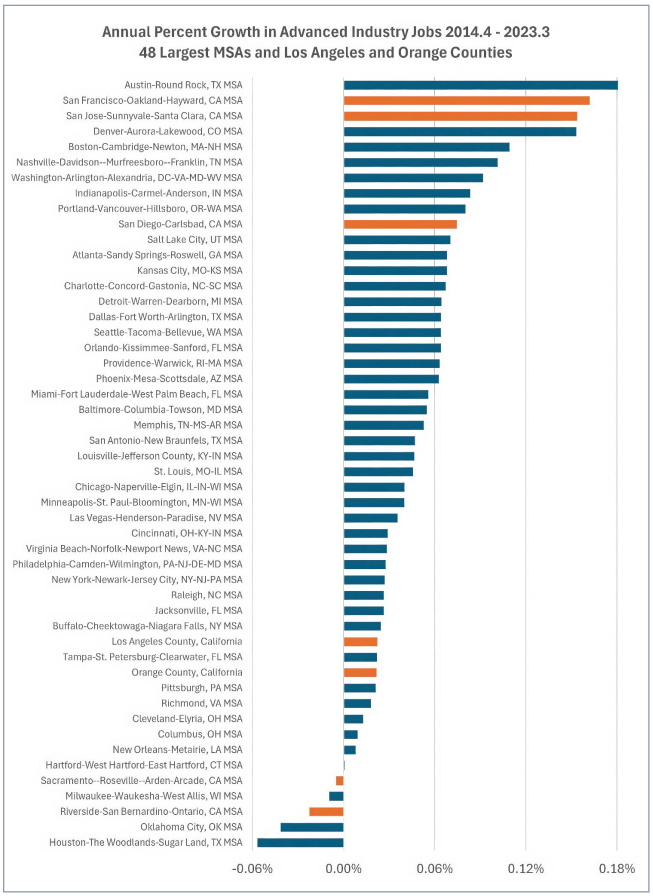
- High R&D spending/worker AND/OR
- High percentage of workforce in STEM-based roles

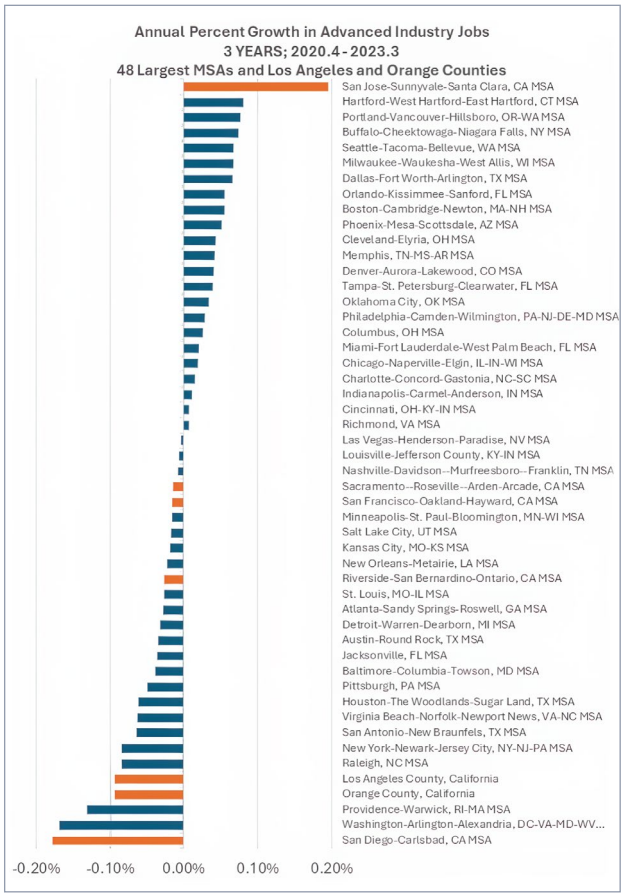
Brookings has identified 50 industry sectors. The list of them, along with their R&D spending per worker in 2016 and their STEM worker share from 2018 is in the appendix.

We have tracked the performance of these 50 sectors in the top 50 metropolitan area of the United States since 2006. Employment levels, wages and number of establishments have been tracked quarterly, using data from the Bureau of Labor Statistics Quarterly Census of Employment and Wages.

We look at jobs first. The following two charts tell a story of the decline in California. Over the decade, California metro areas captured three of the top 10 slots for growth in employment in advanced industries — San Francisco, San Jose, and San Diego MSAs. But since 2020, only the San Jose MSA remains in the top 10. Los Angeles and Orange Counties and the San Diego MSA, formerly hubs for aerospace, semi-conductor, and biotechnology employment, did not even make it into the top 25 metro areas for advanced industry employment growth. All three MSAs have seen a decline in growth.

In place of California's fading metros, Nashville, Indianapolis, Salt Lake City, Phoenix and even Detroit have surged ahead of all California metros outside Silicon Valley. The future, at least outside Silicon Valley, has shifted out of state.





Clearly, California is losing its momentum in advanced industries. Silicon Valley still continues to lead the nation in advanced industry performance, the rest of the state's metro areas are in relative decline — particularly in the last three years — in sectors associated with innovation AND well-above average wages. While growth in advanced industries is much more robust in key metro areas such as Nashville, Charlotte, Austin, and Raleigh, growth is flat or significantly down in Los Angeles, Orange County, Sacramento, San Diego, and Riverside/San Bernardino.

So, what does losing steam in advanced industry growth mean for California?

The state's is becoming more dependent on lower-wage service sectors.

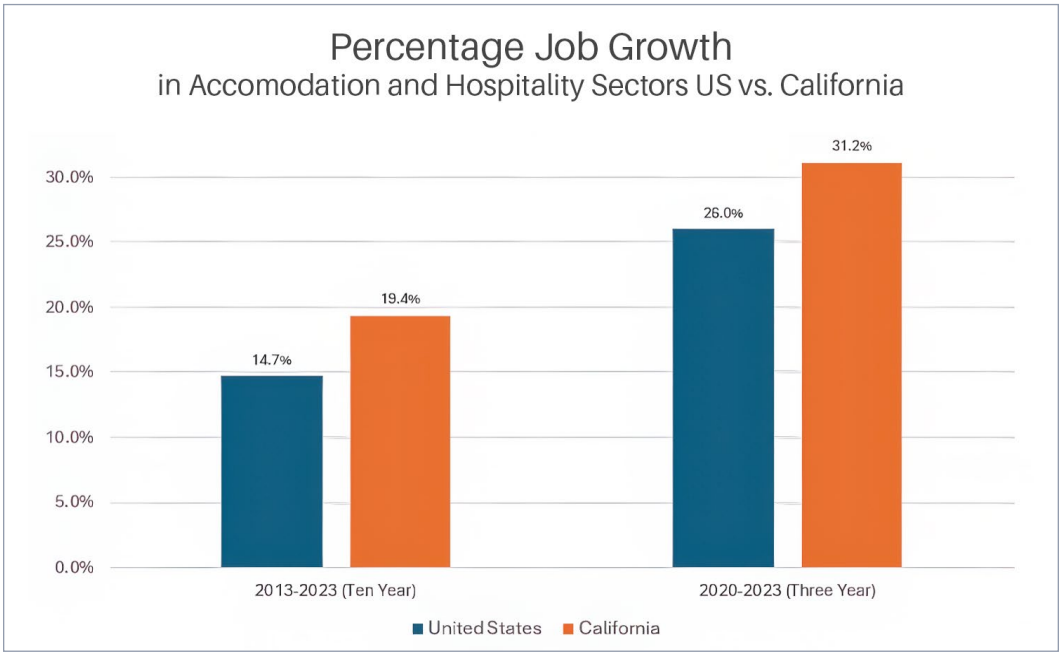
It is likely that the state will see continued population stagnation or even declines, particularly among young, educated citizens as they chase advanced industry jobs elsewhere.

Paired with the characterization of an "over-regulated" business environment in the state, California remains vulnerable to a stagnation in the number of companies employing people.

As AI starts to automate certain coding and technical support functions, it may mean that employment in California's advanced industries may drop faster than the national average, given the state's concentration in those sectors.

Lower-Paying Services Job Growth

In contrast to the slowing growth in advanced industries, California has seen the reverse trend in lower-paying job growth, particularly in the hospitality and personal service sectors. Hospitality and Accommodation jobs are growing faster in California than in the US as the chart below shows. These are largely jobs that pay below the national average annual pay rate — and are particularly burdened by cost of living in California which is overall 35% higher national average, with housing 97% higher than the national average.



THE ROLE OF GOVERNMENT IN EMPLOYMENT

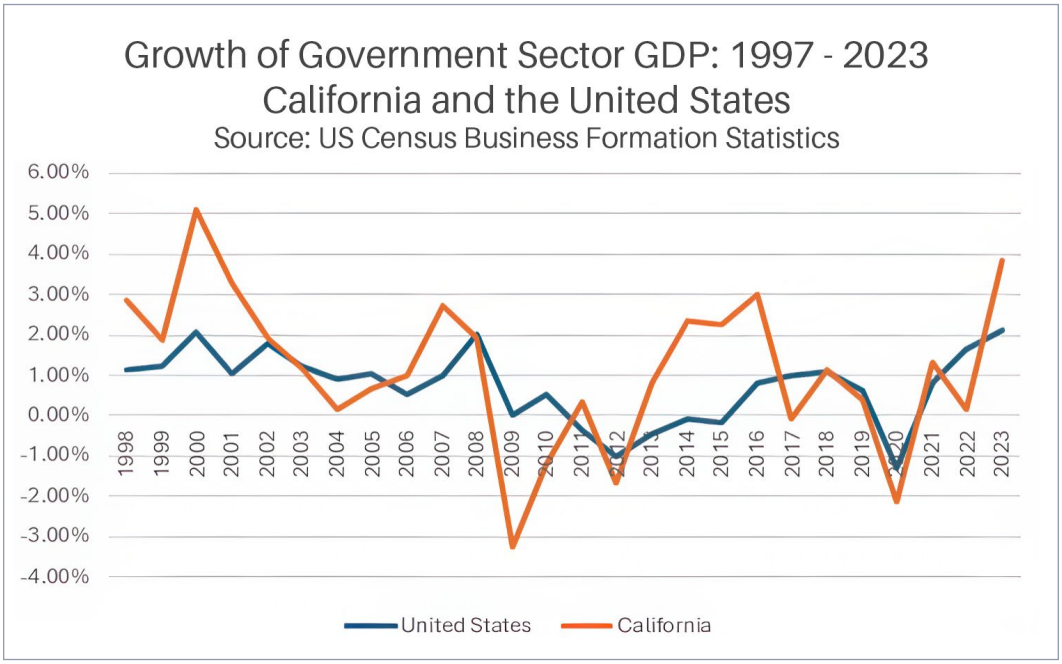
The private sector job market in California has generated new employment from lower-paying services industries, but much of the job growth has occurred in the government sector, which does not generate wealth on its own, but is based on tax receipts from the private sector.

The table below shows that California public sector job growth over the past decade has been at more than double the pace of the country as a whole. Most of California's public sector employment growth has been at the state and local levels, rather than at the federal level. To be fair, public-sector jobs grew at about the same pace as private industry jobs in California. However, the average annual pay for those public sector government jobs was almost double

that of private sector jobs. In addition, state and local governments incur pension obligations in government jobs, which increases the value of a government job even more.

		2013		2023		Change from 2013 to 2023	
		Employment	Average Annual Pay	Employment	Average Annual Pay	Change in Employment	Change in Wages
California statewide	Federal Government	136,330	$80,702	138,597	$110,669	2%	37%
California statewide	State Government	198,864	$66,585	220,025	$95,919	11%	44%
California statewide	Local Government	467,396	$70,803	512,213	$101,492	10%	43%
U.S. Total	Federal Government	1,531,836	$80,737	1,622,221	$108,812	6%	35%
U.S. Total	State Government	1,785,885	$52,849	1,801,029	$76,942	1%	46%
U.S. Total	Local Government	3,914,476	$49,670	4,168,270	$70,750	6%	42%
U.S. Total	Private Industry	112,958,334	$49,701	131,289,681	$72,608	16%	46%
California statewide	Private Industry	13,104,595	$56,577	15,459,871	$87,366	18%	54%

Source: U.S. Census Bureau, Quarterly Census of Employment and Wages, 2013 and 2023 Annual Estimates

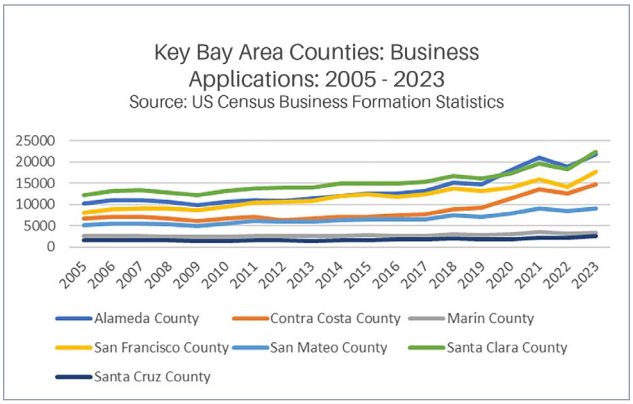


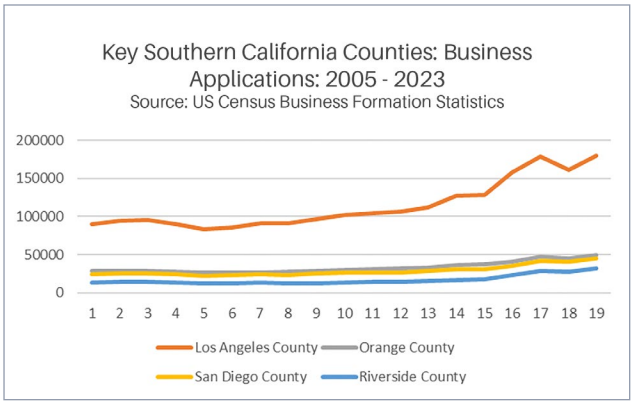
Looking at the economic output of the government sector, California has seen its governmental enterprises increase their output at a faster pace than the country as a whole over the past 25 years. Output from the government sector includes not only salaries paid, but the value of infrastructure such as roads and bridges and what it spends on goods and services it uses in its work.

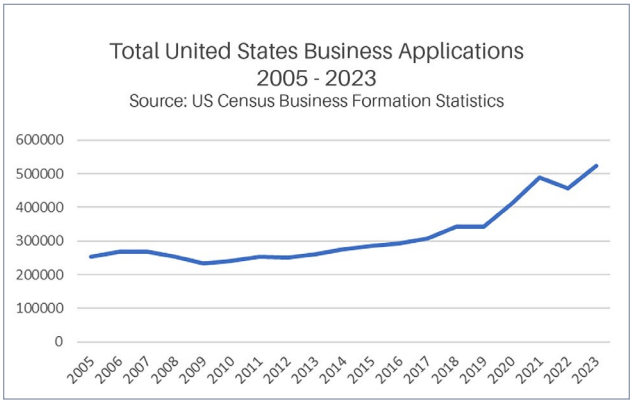
Business Formation and Venture Capital Are Bright Spots

One area that defines innovation is business formation. Entrepreneurs, whether they are food truck owners or AI software developers, express their confidence in growing their own future through creating businesses. The three charts below show the growth in business applications from 2005 to 2023 by year. The first shows growth in the Bay Area counties, whose economy continues to grow faster than the rest of the state. The second shows growth in key Southern California counties, whose economic output and job growth lag both the rest of the state and key metro areas in the country. And the third shows total business application growth for the nation.

As you can see, the shape of the curves (chart below left) shows Santa Clara, Alameda, San Francisco, and Contra Costa counties in the Bay Area are keeping up with the rest of the country's growth, while the other counties lag.

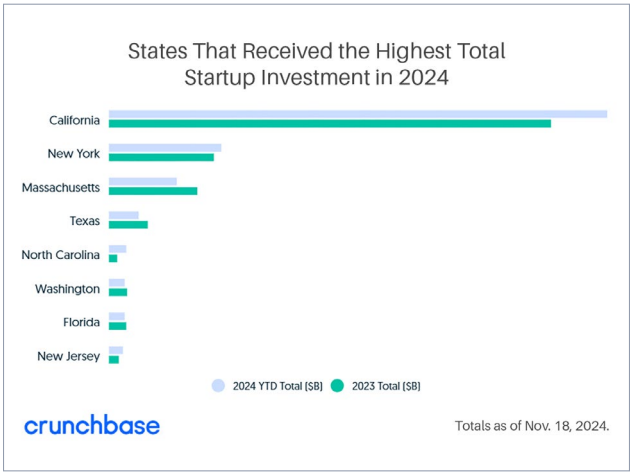






It also shows Los Angeles County growing at the national pace, while the other Southern California counties are creating businesses at a slower pace. With slower growth in job creation outside of the Bay area, it is encouraging to see business formation growing at or above the national pace, especially in LA. The key question may be the over concentration in low wage industries.

Over the past three years, the main California metro areas have slightly outpaced the national rate of growth in business formation by 1%.



Obtaining financing for new ventures, especially technology ventures, has been a historic strength for California. The venture capital industry was basically invented here, and the state continues to dominate the country as a source for venture capital. The AI revolution is driving this trend today. As these early-stage firms progress, it will be interesting to see whether they become drivers of new jobs or not. At the core of Artificial Intelligence is the drive to automate. It is not clear how many jobs are created in the industry.

CONCLUSION

The current trajectory of California is not sustainable, particularly outside the Bay Area. The vast majority of the state lags in most of the key high-wage sectors, particularly in the private sector. This pattern has intrinsic dangers as people move elsewhere for higher paid jobs in lower cost environments. Government employment is no solution to this, and also faces severe limitations given the state's long-term fiscal issues.

Yet there are still some positives that California could benefit from, notably but not exclusively in the Bay Area. Promising high-tech sectors remain in place, such as space and drone manufacture and development, largely in southern California, biotechnology, and artificial intelligence. The positive numbers on start-ups prove the state's legendary entrepreneurial spirit is far from dead. What we need to focus on now is how to get more of these companies in fields that pay decent wages capable of supporting families in what is likely to remain a high-cost environment.

California seems to be losing its pre-eminent position as the fastest growing, most innovative state in the country. Silicon Valley continues to grow and thrive, but other areas of the country are catching up to its growth rates in GDP, jobs, wages, and business formation.

What are the underlying factors driving this trend?

As we have previously identified in other reports Restoring the California Dream, California Jobs: A Multi-Dimensional Problem and Beyond Feudalism: A Strategy to Restore California's Middle Class, California is dealing with several structural challenges that it has not yet solved:

- Extraordinarily high housing costs
- Growing income inequality
- Underperforming educational attainment in public K-12 schools
- A business environment that is restrictive and challenging to growth

These issues translate into making California less attractive to live in and for businesses to grow.

If innovation is to remain the hallmark of the California brand, the state and its business leaders need to be better aligned to address these issues. If that does not happen, the trends we see emerging in the data will continue in the wrong direction.

APPENDIX

List of Advanced Industries labeled "Advanced" by Brookings Institution, R&D per worker and STEM worker share.

Advanced Industries			
NAICS	Industry name	R&D per worker, 2016	STEM worker share, 2018
2111	Oil and Gas Extraction	$4,955.75	43.00%
2131	Support Activities for Mining	$5,971.90	36.30%
3122	Tobacco Manufacturing	$11,999.95	21.40%
3133	Textile and Fabric Finishing and Fabric Coating Mills	$3,210.45	41.50%
3241	Petroleum and Coal Products Manufacturing	$7,498.30	43.00%
3251	Basic Chemical Manufacturing	$19,108.96	56.20%
3252	Resin, Synthetic Rubber, and Artificial and Synthetic Fibers and Filaments Manufacturing	$10,002.09	56.20%
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	$53,412.08	56.20%
3254	Pharmaceutical and Medicine Manufacturing	$219,661.01	46.70%
3255	Paint, Coating, and Adhesive Manufacturing	$11,481.20	38.80%
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	$24,097.40	38.80%
3259	Other Chemical Product and Preparation Manufacturing	$11,481.20	56.20%
3261	Plastics Product Manufacturing	$4,856.33	21.30%
3262	Rubber Product Manufacturing	$4,856.33	21.10%
3331	Agriculture, Construction, and Mining Machinery Manufacturing	$17,039.28	32.40%
3332	Industrial Machinery Manufacturing	$38,394.50	32.40%
3333	Commercial and Service Industry Machinery Manufacturing	$24,496.90	31.30%
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	$3,748.55	32.40%
3335	Metalworking Machinery Manufacturing	$3,748.55	51.90%
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	$24,323.45	44.30%
3339	Other General Purpose Machinery Manufacturing	$3,748.55	32.40%
3341	Computer and Peripheral Equipment Manufacturing	$102,238.87	59.70%
3342	Communications Equipment Manufacturing	$138,431.46	44.60%
3343	Audio and Video Equipment Manufacturing	$49,764.44	39.20%
3344	Semiconductor and Other Electronic Component Manufacturing	$85,954.81	41.50%
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	$40,484.44	46.00%
3346	Manufacturing and Reproducing Magnetic and Optical Media	$102,238.87	22.10%
3351	Electric Lighting Equipment Manufacturing	$12,664.24	20.50%
3353	Electrical Equipment Manufacturing	$12,664.24	34.10%
3359	Other Electrical Equipment and Component Manufacturing	$12,664.24	25.50%

Advanced Industries (contd.)			
NAICS	Industry name	R&D per worker, 2016	STEM worker share, 2018
3361	Motor Vehicle Manufacturing	$70,062.73	21.80%
3363	Motor Vehicle Parts Manufacturing	$11,387.62	27.80%
3364	Aerospace Product and Parts Manufacturing	$42,366.65	53.50%
3365	Railroad Rolling Stock Manufacturing	$7,194.66	26.20%
3366	Ship and Boat Building	$4,290.81	33.70%
3369	Other Transportation Equipment Manufacturing	$31,185.15	26.50%
3391	Medical Equipment and Supplies Manufacturing	$38,241.53	36.50%
3399	Other Miscellaneous Manufacturing	$9,217.76	20.30%
5112	Software Publishers	$75,675.30	62.40%
5173	Wired and Wireless Telecommunications Carriers	$3,568.75	48.10%
5174	Satellite Telecommunications	$89,190.69	48.10%
5179	Other Telecommunications	$5,701.26	48.10%
5182	Data Processing, Hosting, and Related Services	$20,351.52	49.10%
5191	Other Information Services	$91,634.82	41.60%
5415	Computer Systems Design and Related Services	$7,298.41	65.50%
5417	Scientific Research and Development Services	$21,405.70	59.40%
6215	Medical and Diagnostic Laboratories	$4,831.26	42.70%

Source: Brookings analysis of ONET, OES, and NSF data

Authors

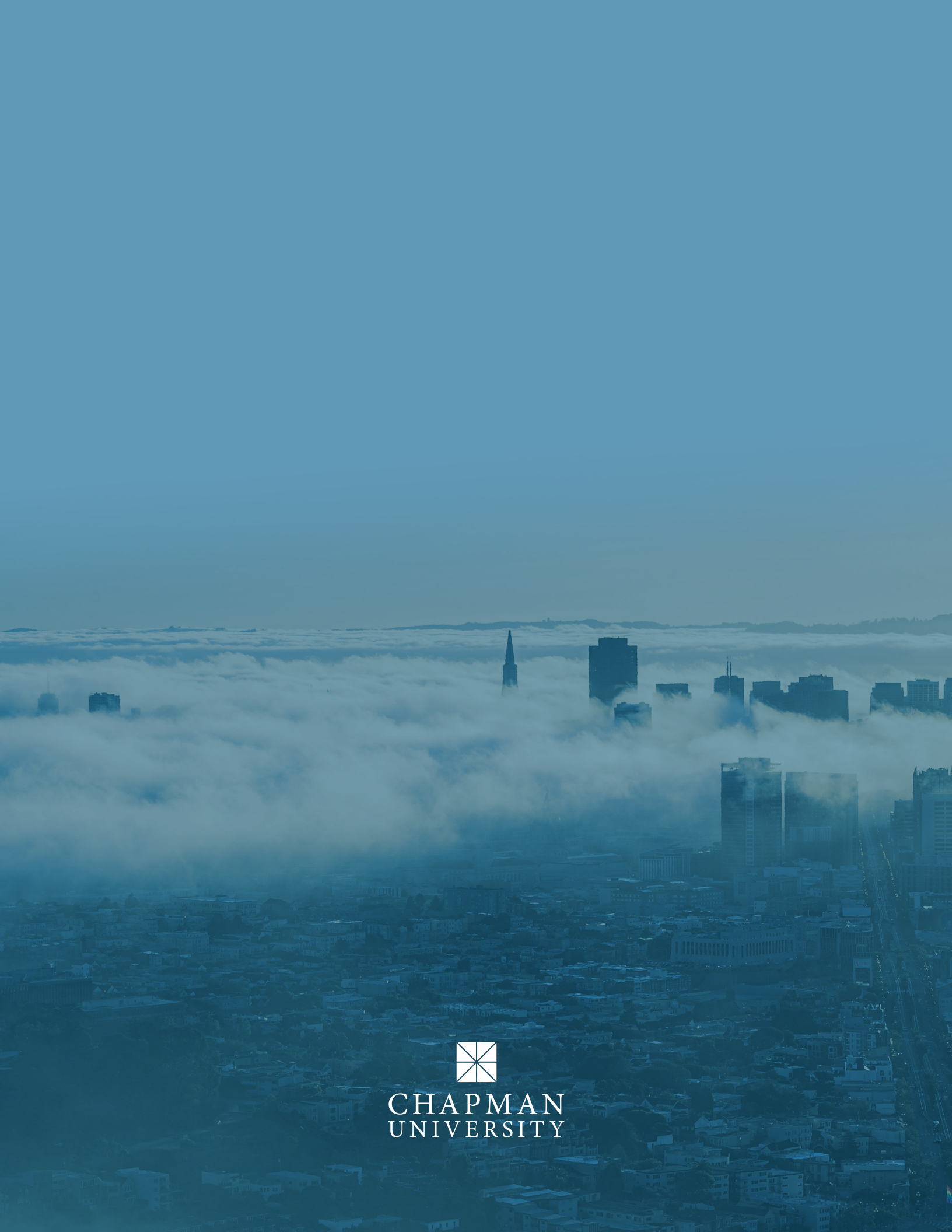
Kenneth (Ken) Murphy, PhD is an Assistant Professor of Teaching at the Merage School of Business, University of California Irvine. He teaches predictive analytics, operations management, and management science courses in executive, MBA, MS, and undergraduate programs. He has published in scheduling, technology implementation, and organizational effectiveness, in leading operations and systems journals. Along with his colleagues, he created an innovation index, which measures the degree to which an economy is engaged in advanced industrial and service activity. His current interests include digital transformation in higher education, equity in STEM education, and the measurement of economic activity with respect to jobs of the future.

Marshall Toplansky is an award-winning Innovation Professor of Management Science at the Argyros School of Business and Economics at Chapman University. He is senior research fellow at the Center for Demographics and Policy and is director of the school's Analytics Accelerator program. He and co-author Joel Kotkin recently published an economic and social policy brief entitled, "Nurturing California Industries", which discusses the issues the state faces in maintaining home ownership for the middle class and rebuilding a positive business climate. Marshall is also co-host of "The Feudal Future Podcast", which is seen twice monthly by viewers around the world.

Co-Founder and former Managing Director of KPMG's national center of excellence in Data & Analytics, Marshall also co-founded the machine learning company Wise Window, a pioneer in analyzing social media, blogs and news stories to track business trends and predict elections, which was acquired by KPMG in 2012. Marshall was Chairman and CEO of Core Strategies, a technology industry marketing research and strategy consulting firm and formerly head of marketing for U.S. Robotics. Prior to entering the technology industry, Marshall was Senior Vice President at Ogilvy & Mather advertising.

Marshall advises companies in the strategic use of marketing technologies and in using data to craft winning business strategies. He earned an MBA from Harvard Business School and is a Director of the Harvard Business School Association of Orange County. He is also a board member of FinTech company Double Check Solutions. He is a past board member of global NGO CWS. In 2020, he was given a Global Humanitarian award from CWS for his work with the organization addressing the global refugee crisis.

Marshall was elected to the Computing Industry Hall of Fame in 2011 for his role in creating the industry's largest technical service certification program, A+, which has certified more than 3 million computer technicians worldwide.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