



H O R I Z O N

# The Future of Jobs

Perspective Paper #5 - Work to Date/Preview  
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# Perspective Paper 5: The Future of Jobs

## Purpose

Review key trends affecting the regional labor market and job prospects of Bay Area residents

Consider impacts on both what jobs entail as well as where they might be performed, and analyze emerging employment locational trends

Identify strategies on the state, regional, and local levels to address planning challenges associated with a changing regional economy

Continue the conversation related to the emerging economic development role of the regional agencies in preparation for *Plan Bay Area 2050*

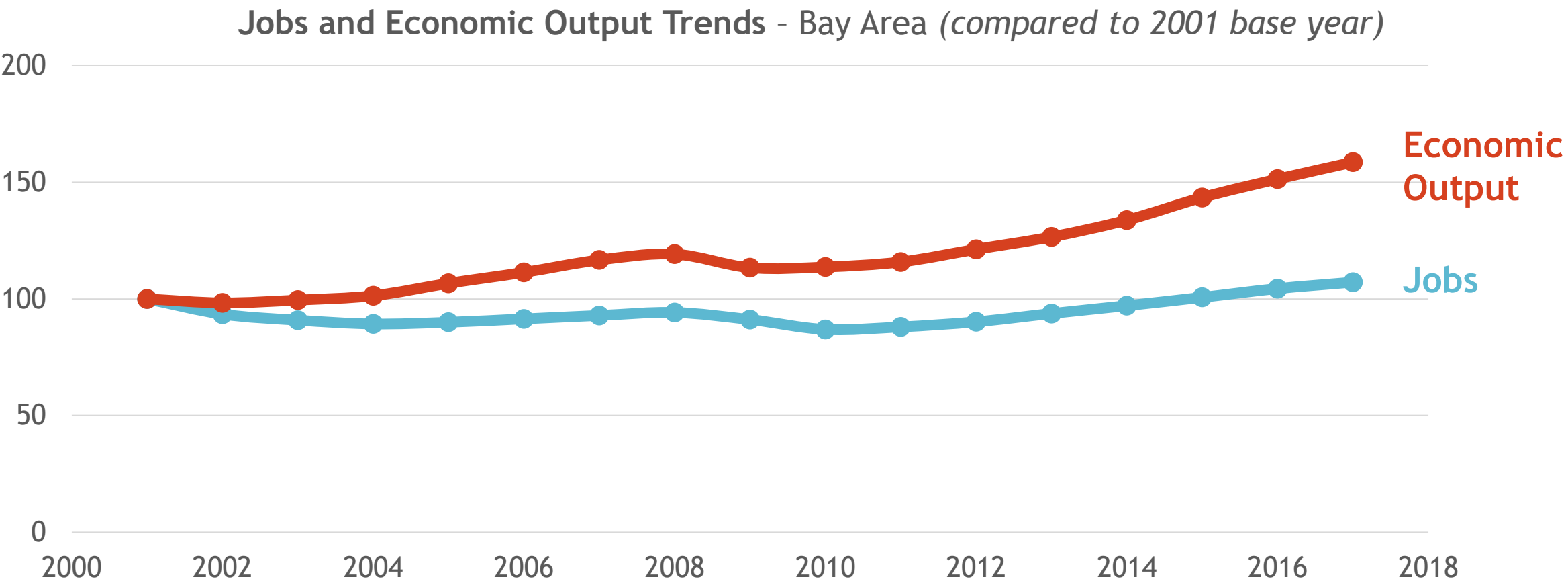


# Outline

- Economic Context and Background
- Four Focus Areas in the Paper
  - Technology
  - Organization
  - Compensation
  - Location
- Next Steps - Outreach and Strategies

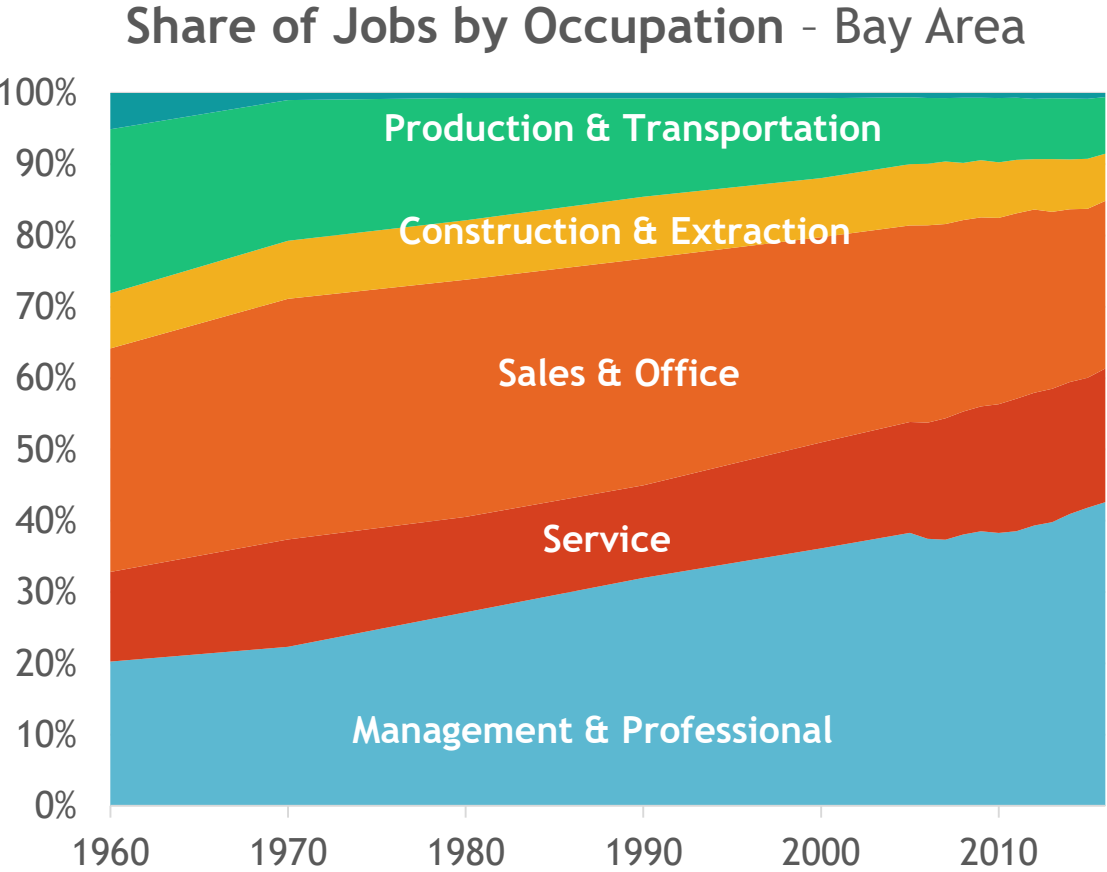


# Productivity Grows at Faster Rate than Jobs



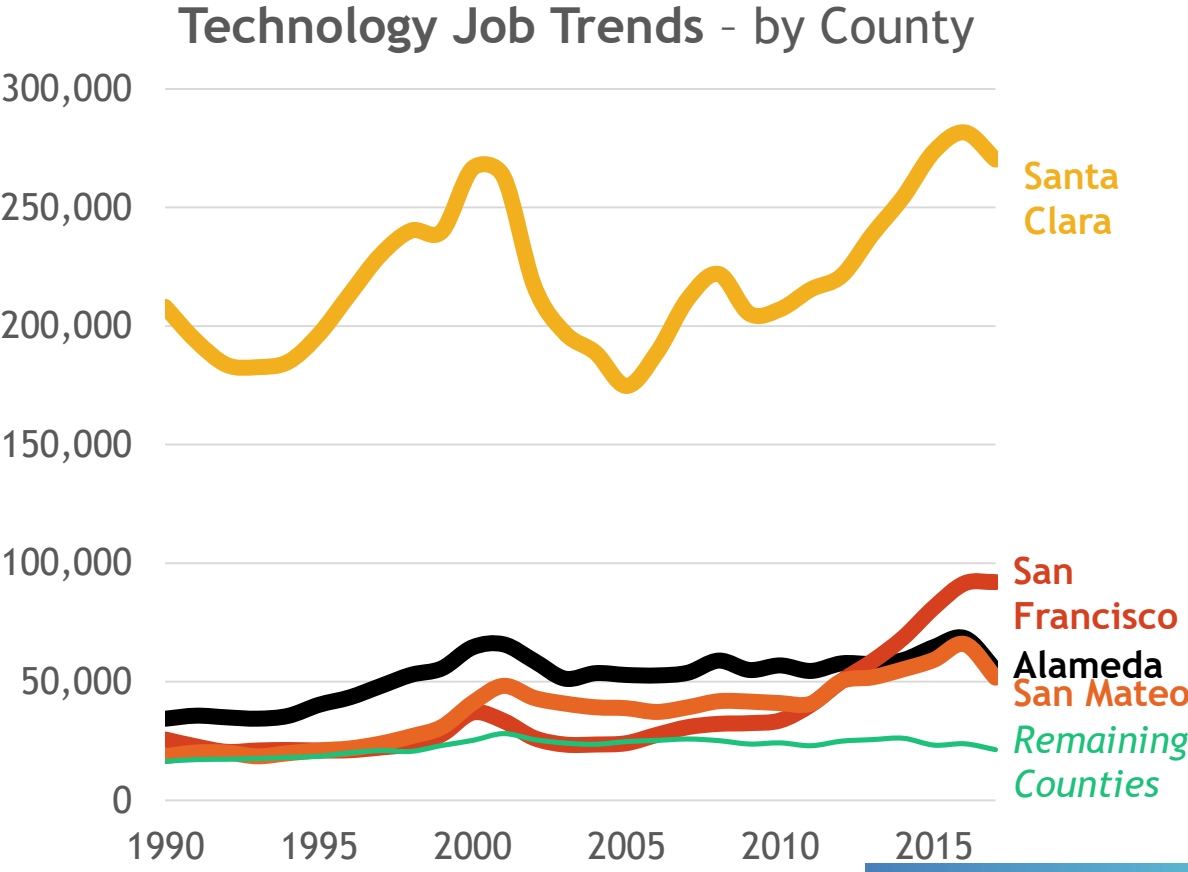
Sources: Bureau of Economic Analysis, 2001 to 2017

# Knowledge-Based Jobs Continue to Grow, Particularly in the Tech Sector...



Source: PUMS, 1960 to 2016

[Overview](#)




Source: QCEW, 1990 to 2017

## ... While Industrial and Manufacturing Jobs Continue to Decline.

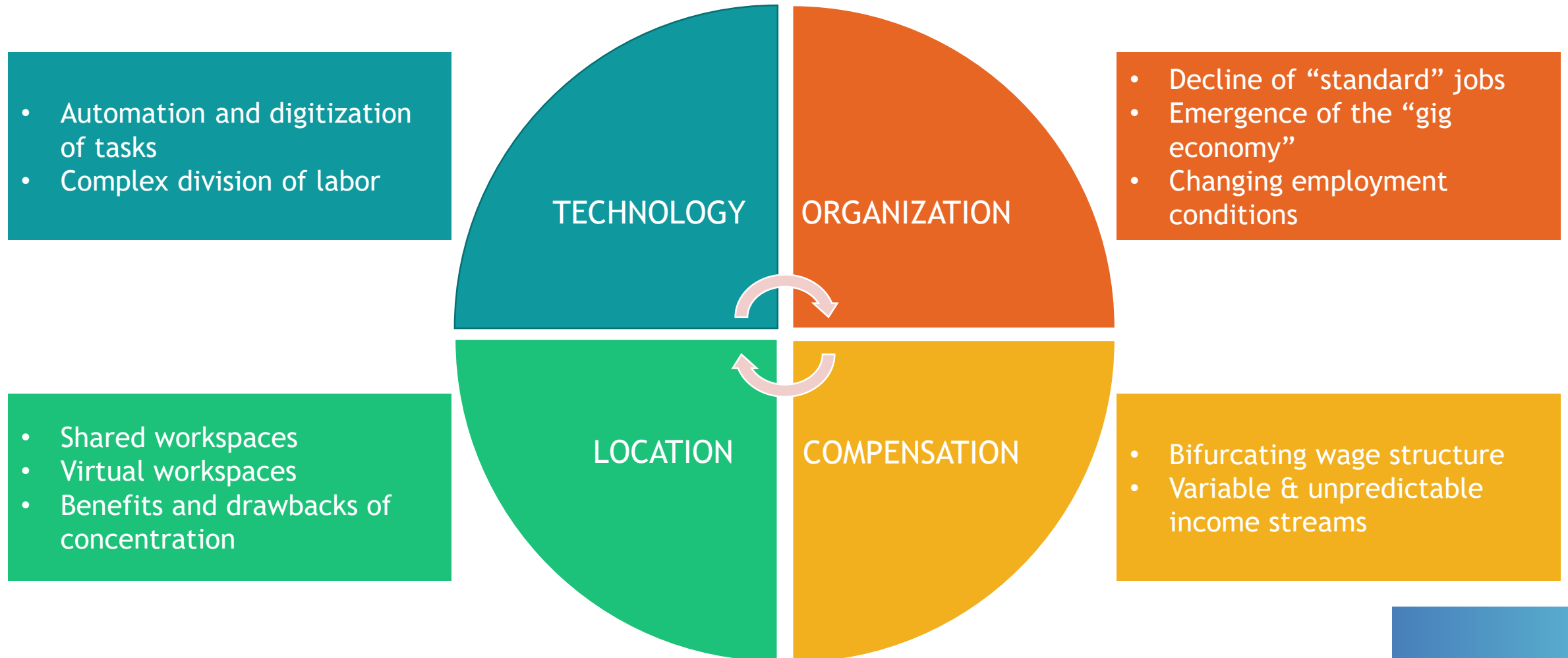
- **Jobs requiring physical labor have declined** in recent years, including industrial and construction jobs.
- In addition to the rise of knowledge-sector jobs, **service-sector jobs** (such as food preparation, healthcare, and personal care) have grown significantly.

### Highlighted Changes in Bay Area Jobs: 2009 to 2017

	+88,000	Food preparation & serving
	+47,000	Business & financial operations
	+42,000	Healthcare practitioners and technicians
	+27,000	Arts, design, sports entertainment & media
	+24,000	Personal care & service
	-16,000	Construction & extraction
	-16,000	Transportation & material moving
	-45,000	Office & administrative support
	-51,000	Production

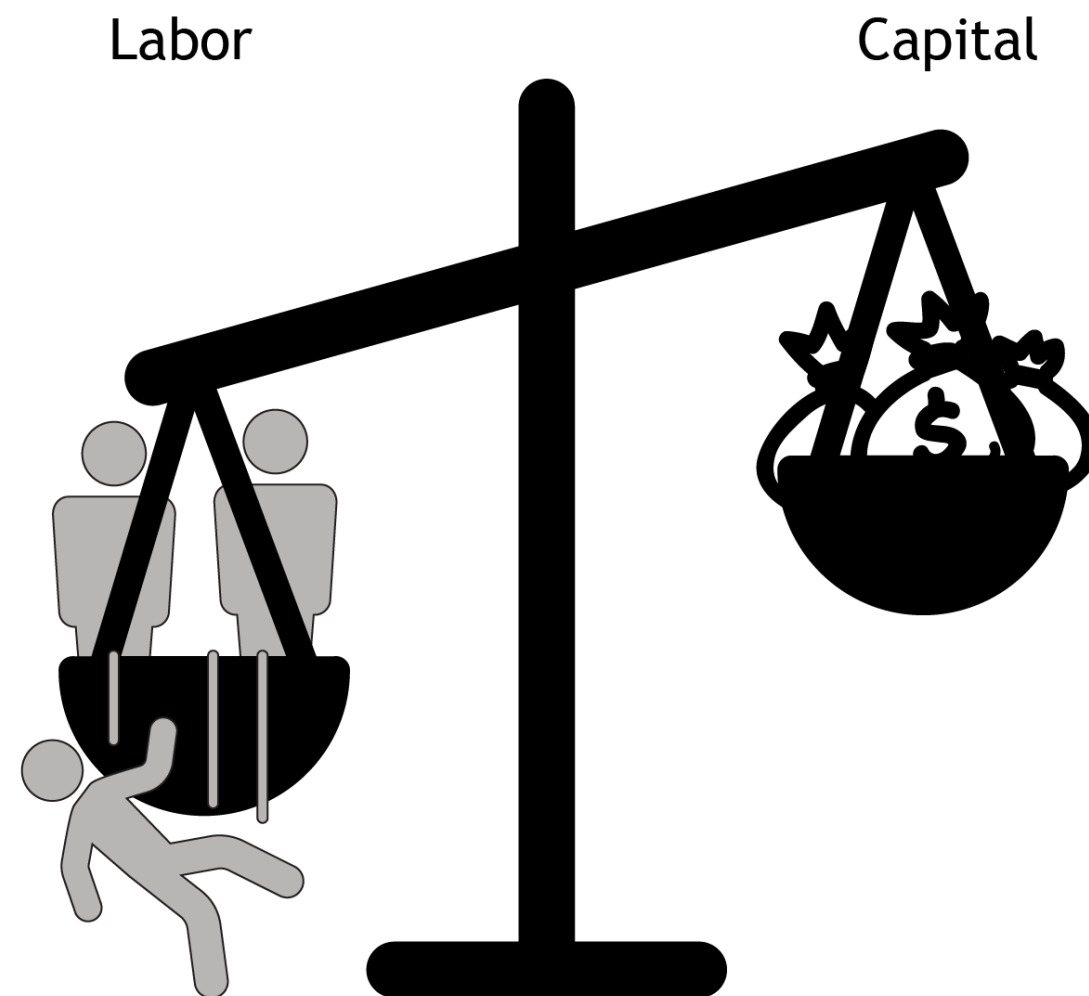
Source: BLS OES

# Jobs Are Changing in Several Ways...



# Automation Involves Tradeoffs between Labor and Capital

- Technology can boost productivity, but it may **displace workers temporarily**.
- Technology can **either substitute or complement** labor.
- **Public policy challenge:** to help address temporary impacts of automation

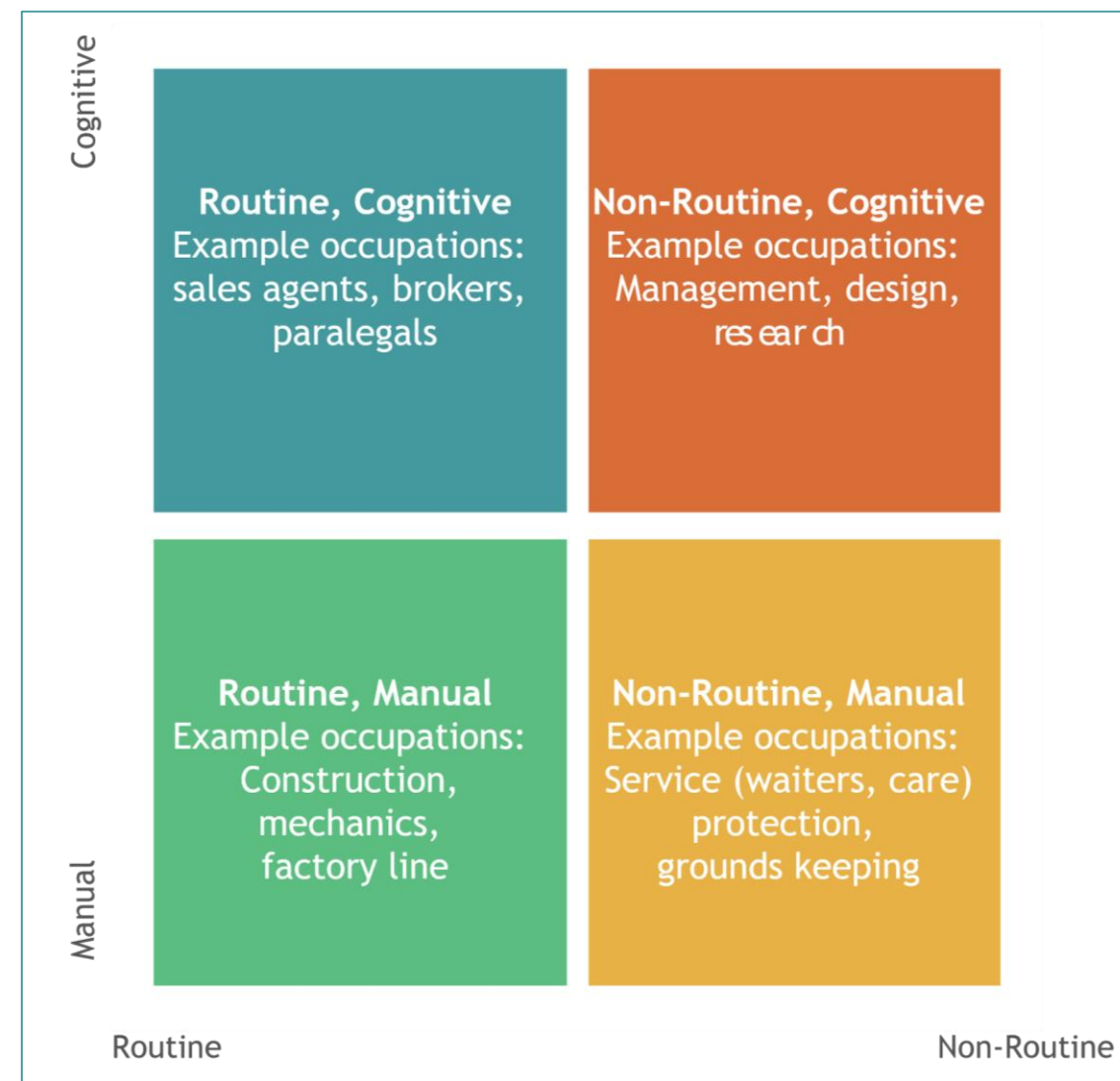


Adapted from The Noun Project



## Likelihood of Automation Highest in Routine Occupations

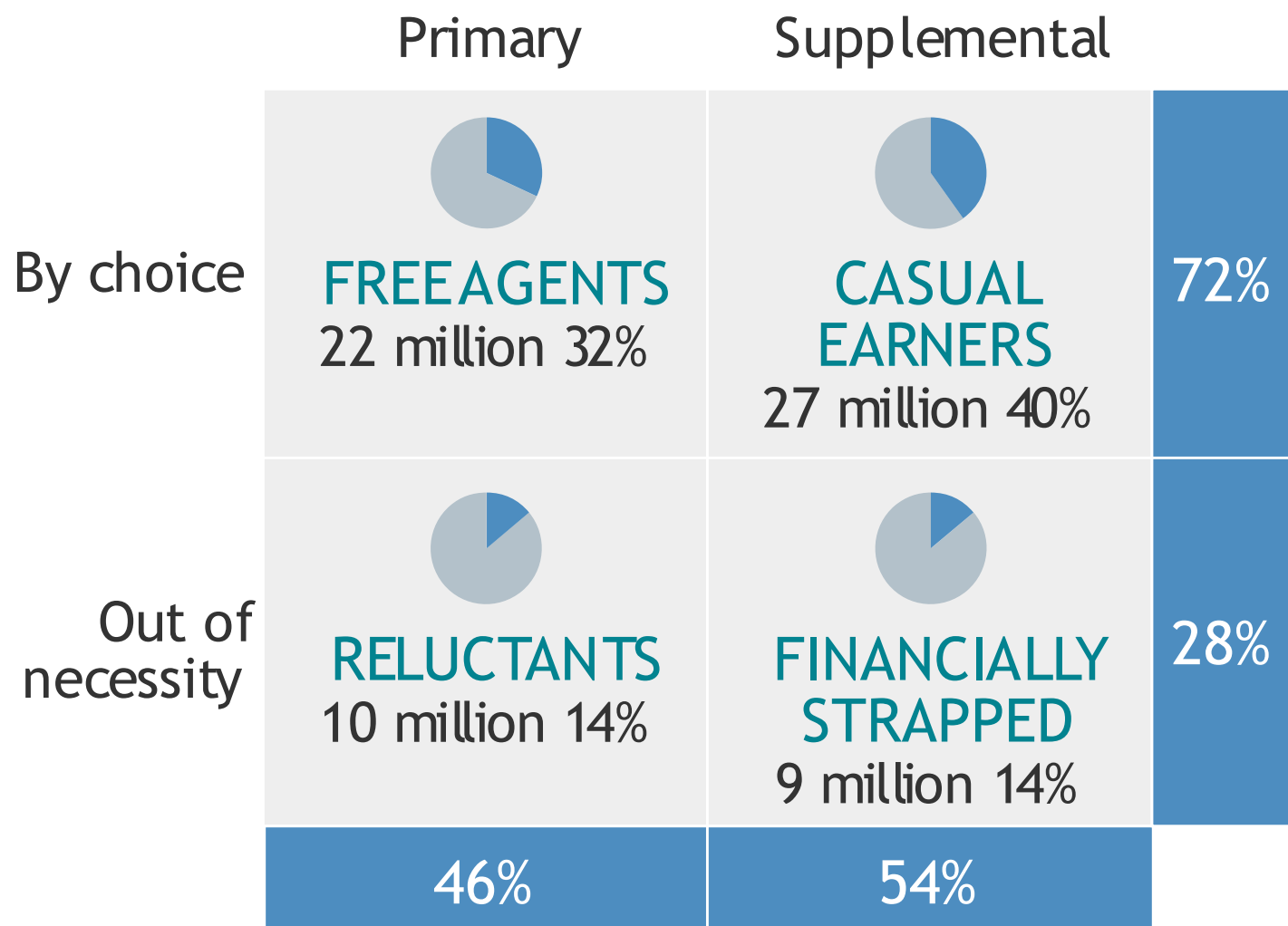
- **Non-routine** jobs are more unpredictable and require judgment - making them harder to standardize and automate.
- This means that **both manual routine jobs** (such as factory workers) as well as **cognitive routine jobs** (such as paralegals) are at risk.
- Jobs at risk: Estimates range widely, from 9 to 47% with existing technologies.



Adapted from Autor, Levy and Murnane (2003); Schwab (2018)

# Alternative Employment Arrangements on the rise

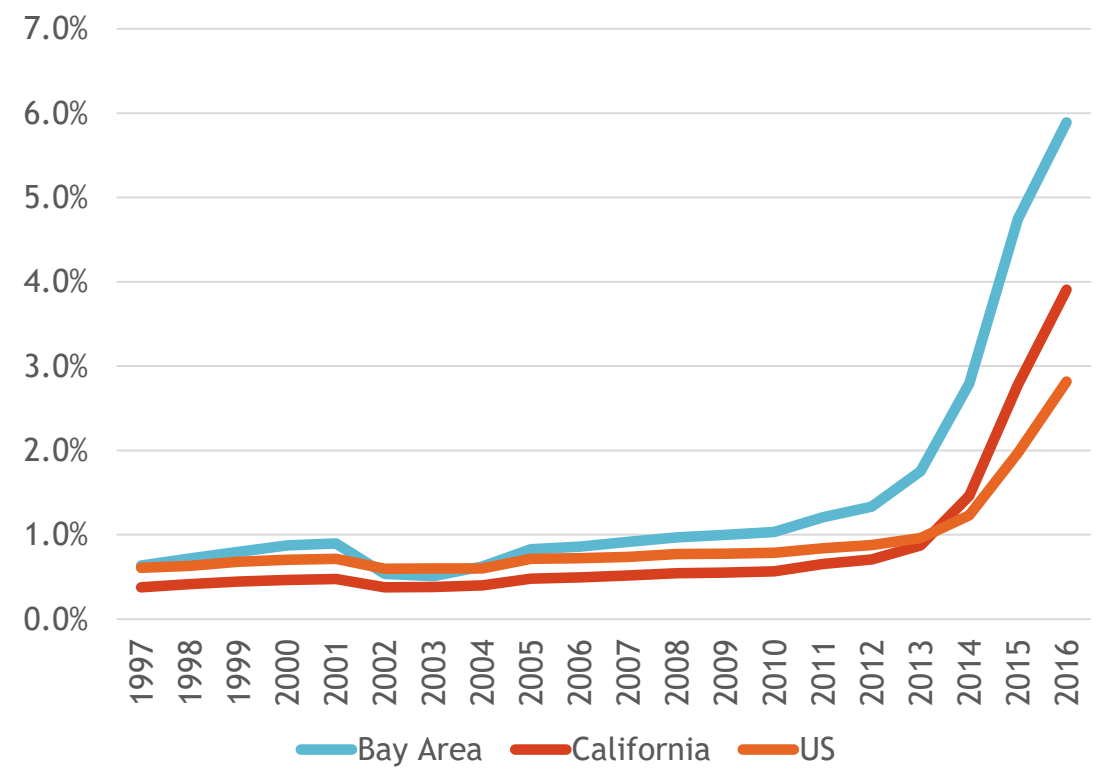
- Just under half of all “gig economy” workers are relying on this work as their **primary source of income**.
- “**Casual earners**” are the largest demographic, accounting for 4 in 10 workers.
- Bay Area 2016: ~675,000 sole proprietors



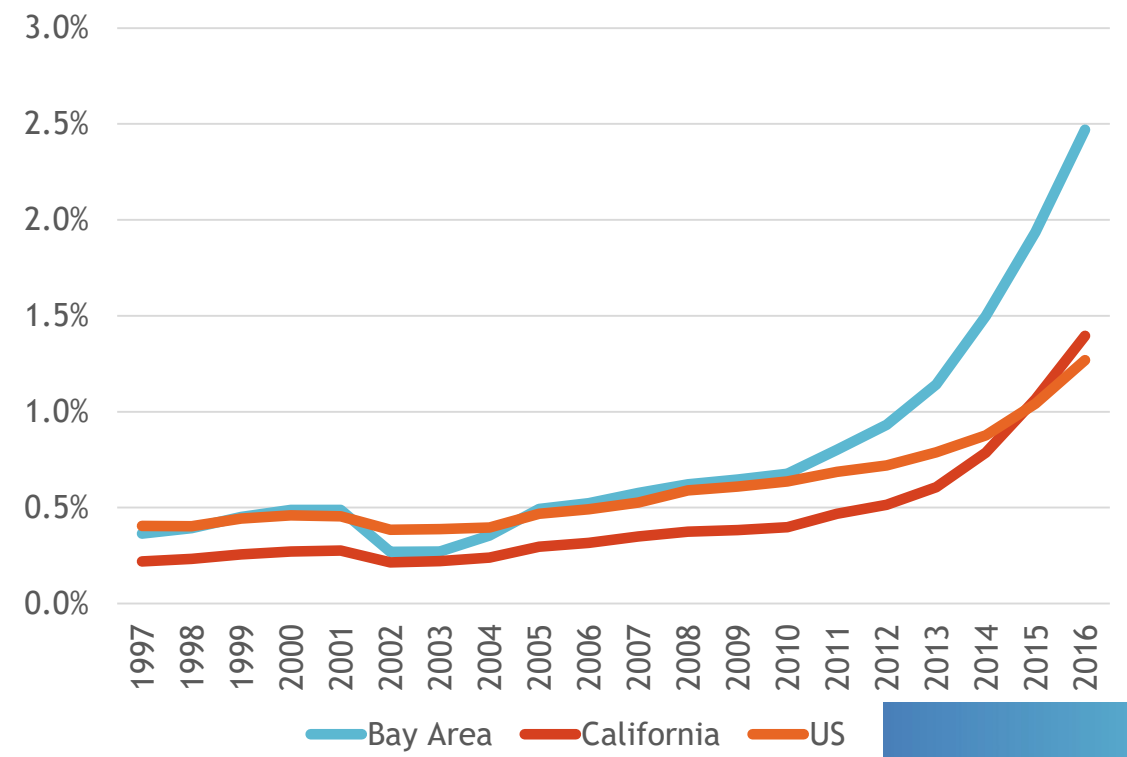
Source: US data, Manyika et al. (2016)

# Rising Rides...

Taxi and Limousine Service  
Share of Sole Proprietor  
Establishments

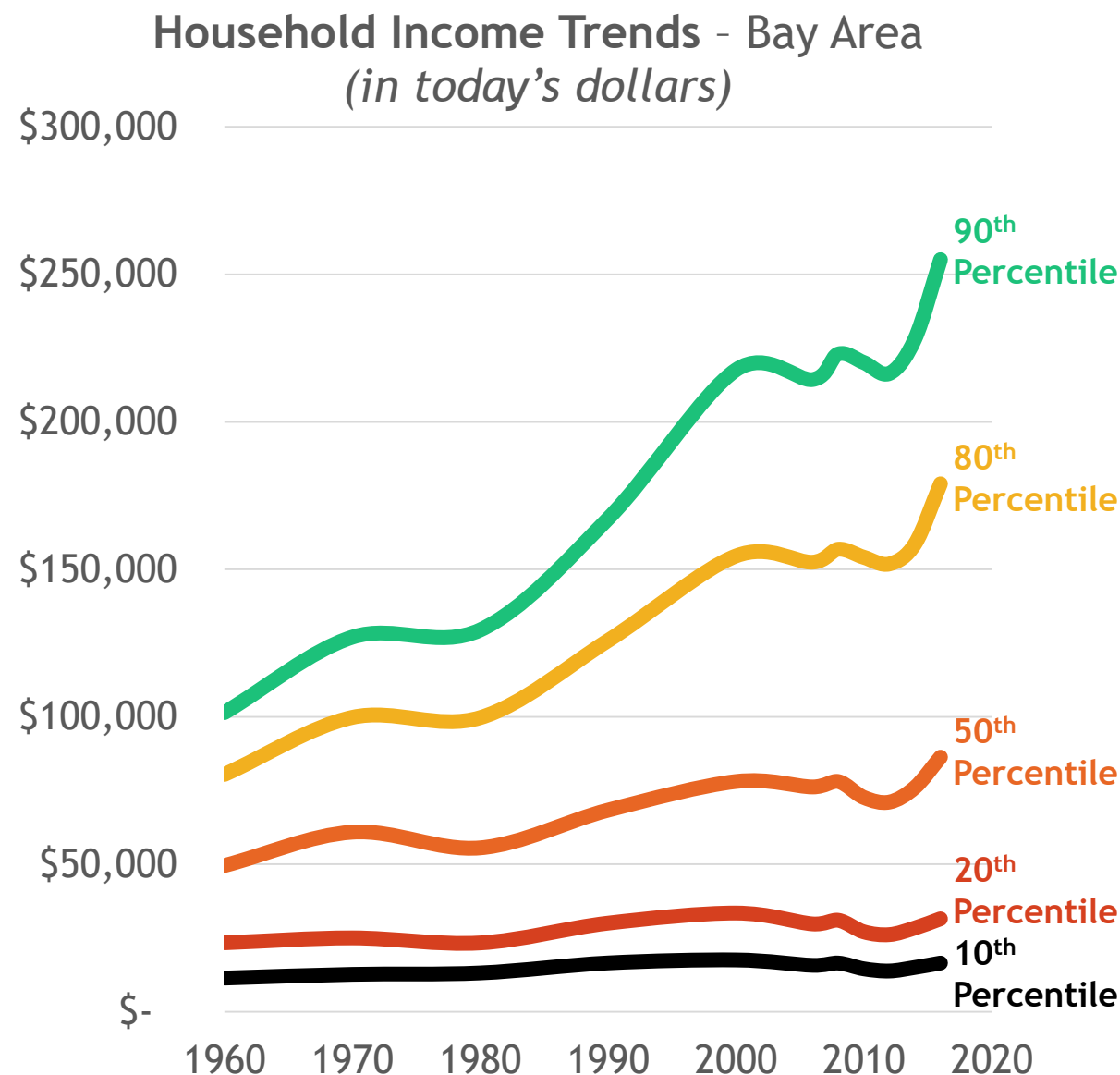


Taxi and Limousine Service  
Share of Sole Proprietor  
Revenue



# Incomes are Growing - but Not for Everyone

- **Wages are bifurcating**, with growing incomes for the wealthy while lower-income households' earnings remain relatively stagnant.
- **Income is becoming less predictable** at the same time as benefits have become more limited, especially for lower-income workers.
- **Income inequality has been rising since the 1970s**; just over 10 countries are more unequal than the Bay Area.



Source: iPUMS, 1960 to 2016

## Educational Attainment Plays a Major Role in Income

- Consistent with past decades, a higher level of educational attainment generally correlates with higher wages after graduation.
- Still, educational level is not the strongest predictor of wages - note the wide ranges, particularly for those with a bachelor's or postgraduate degree.

### 2017 Wages by Educational Attainment - Bay Area 25<sup>th</sup> Percentile to 75<sup>th</sup> Percentile

**\$6,700**  
to  
**\$40,400**      *High school or equivalent*

**\$21,200**  
to  
**\$109,200**      *Bachelor's degree*

**\$41,400**  
to  
**\$152,800**      *Postgraduate degree*

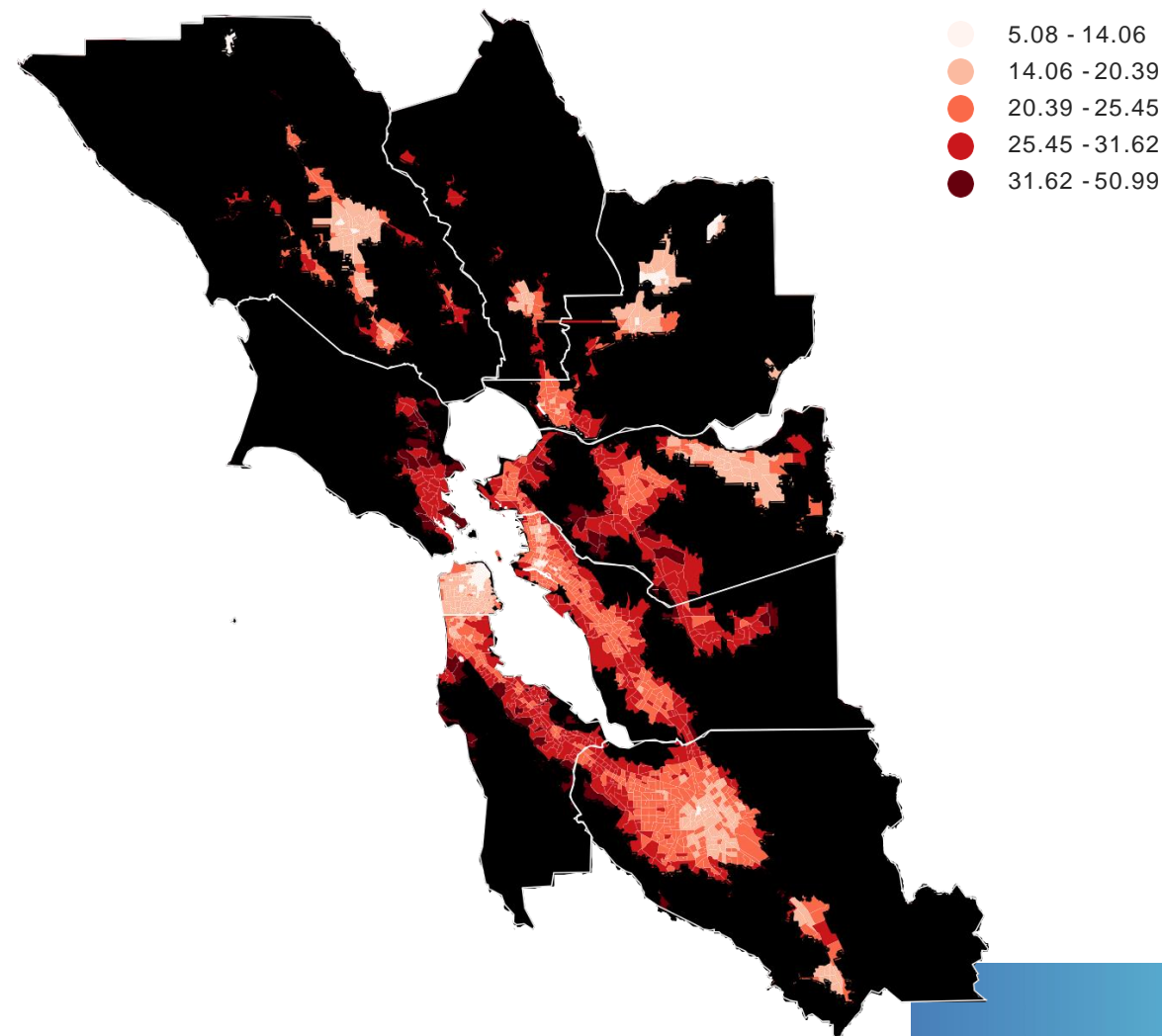
Source: PUMS (1-year), 2017



## Simultaneous Concentration and Decentralization, Job Sorting

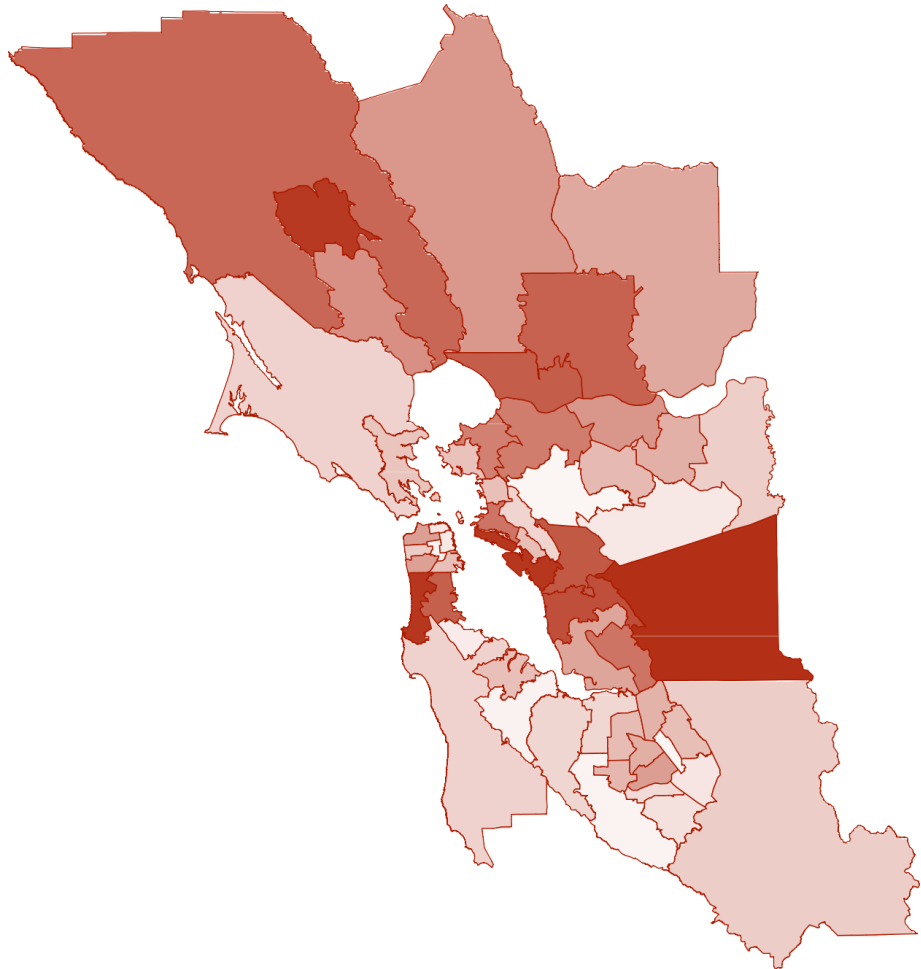
- Higher-wage jobs continue to concentrate in San Francisco and Silicon Valley - with lower-wage jobs moving to the East Bay and North Bay.
- Enhanced virtualization could allow for greater decentralization.
- At the same time, higher employment densities w/ hoteling may fit more workers in existing buildings.

Estimated VMT per Employee  
Urbanized Areas  
*by place of work (2020 est.)*



# Manufacturing Less Concentrated, Professional Svcs More So

Where are production workers living?



Share of Jobs within 1km of CBD



Source: (Left) US Census, ACS PUMS (Right) Census 1982 of Retail, LEHD LODES

# What's Next for The Future of Jobs Paper?

