SANTA CRUZ

Tech Sector & Ecosystem

SANTA CRUZ COUNTY WORKFORCE DEVELOPMENT

SANTA CRUZ WORKS

The Santa Cruz Tech Sector and Ecosystem

Prepared by
Beacon Economics

Founded in 2007, Beacon Economics, an LLC and certified Small Business Enterprise (SBE) with the state of California, is an independent research and consulting firm dedicated to delivering accurate, insightful, and objectively-based economic analysis. Leveraging unique proprietary models, vast databases, and sophisticated data processing, the company specializes in services like industry analysis, economic policy analysis, economic impact analysis, and real estate market analysis. Beacon Economics equips its clients with both the data and analysis required to understand the significance of on-the-ground realities and make informed business and policy decisions.

BEACON ECONOMICS

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Workforce Santa Cruz County is a fully integrated workforce development system that maximizes human and business capital by promoting a well-trained workforce for Santa Cruz County employers, insuring individual economic security and community vitality. Led by a dynamic Board that is empowered to effect change, WFSCC is committed to customer satisfaction and standards of performance in meeting the needs of job seekers, incumbent workers and local business alike.

SANTA CRUZ COUNTY
WORKFORCE
DEVELOPMENT

In Collaboration with
Santa Cruz Works

Santa Cruz Works is a California 501(c)(6) nonprofit mutual benefit corporation whose mission is to make Santa Cruz County a great place to start, sustain, and grow a science & technology company. The organization's objectives and direction are managed by a board drawn from emerging and established tech companies, local government, academia and the investment community.

SANTA CRUZ
WORKS

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Executive Summary

Santa Cruz County's Tech Industry expanded in the late 1990's,

peaking at around 9,000 jobs. Today, tech jobs total about half of this, having sustained major setbacks in the dot-com bubble and the housing crash of 2008.

Although total tech employment is down in absolute terms,

the subsectors that formed the bulk of tech jobs in the 1990s are the job leaders today. These include Software Publishers, Computer and Electronic Manufacturing, Computer Systems Design and Related Services and Management, and Technical Consulting Services.

Santa Cruz County tech wages reached $117,200

in the second quarter of 2017, according to the Bureau of Labor Statistics.

Software Publisher salaries, among the highest

in Santa Cruz County, averaged about $134,200 in the second quarter of 2017, which was very close to San Francisco's average wage for this subsector — about $147,900. But Santa Clara County had an average wage of $311,800 for workers in this subsector, more than double Santa Cruz County's.

Venture capital reached a high in Santa Cruz County in 2017

$192.9 million among 14 deals.

Since 2008, nearly all venture capital funding in the County has gone to

companies in the cities of Santa Cruz and Scotts Valley.

Introduction

Why is tech so important for workforce development?

With digital innovation at the heart of the major transformations reshaping the global economy over the past half century, nurturing local tech ecosystems is a high priority for many U.S. cities and counties.

In terms of direct impact and job creation, the tech sector -- defined differently depending on the study -- often demands higher than average wages and sought-after, evolving skillsets. In November 2017, a Brookings Institute study found that occupations requiring high levels of digital and computer skills earn more on average and benefit from faster wage growth than occupations with low digital skills.[1] This has lent the tech sector both an association with generally higher multiplier effects than other industries on average, and a reputation for resilience in the face of economic downturns.

[1] https://www.brookings.edu/wp-content/uploads/2017/11/mpp_2017nov15_digitalization_full_report.pdf#page=38

Strong tech sectors can also have positive spillover effects on other traditionally non-tech industries of the economy. With a robust, local tech labor pool, a region's propensity for digitalization across other industries is increased and thus its competitiveness often improved, as firms learn to leverage the newest technologies for increased productivity and efficiency. Additionally, strong tech sectors have been closely linked with innovation and the birth of new emerging industries as new markets for, and new applications of, evolving technologies are identified.

Strong tech sectors also have associated risks. While earnings tend to be higher in tech, tech sectors often contribute to a "hollowing out" of wages, helping to grow more high-pay and low-pay occupations than those in the middle. Automation is another frequently discussed risk that has led to widespread paranoia in some regions and occupations. In December 2016, the White House published an extensive report (one part of a two-part technology-focused study) that examined the progress and potential effect of artificial intelligence technologies on the economy in the years ahead.[2] The authors found that current estimates of jobs at risk of being automated in the next two decades range from 9% to 47%.[3] While the degree and pace of automation will vary by region, occupation, and industry, there is no doubt that technological innovation is redefining workforce needs across the U.S. and globe.

Equipping today's workforce with the skills and experience demanded by tomorrow's tech industry requires collaboration across sectors. Leaders in government, education, and the private sector must work together to identify and prioritize the tech industry's needs as they evolve, in addition to the investments in talent required to meet them. In this context and with these trends in mind, the following report was undertaken. This analysis aims to equip key stakeholders of the Santa Cruz County tech sector -- chief among them, the County's Workforce Development Board -- with the objective data and insight required to champion effective collaboration and coordination on behalf of both the sector and the County's local workforce.

This Report

This report examines the inputs and health of the Santa Cruz County tech sector and its broader ecosystem. While the tech sector is defined by the industries that comprise it based on the definition articulated in Appendix 1, the ecosystem includes a more comprehensive set of inputs and actors. This report addresses the following ecosystem attributes:

Firms
(or, the "sector")

Capital

Talent

Other attributes addressed include high-priority issues for Santa Cruz County such as the housing market which is presumed to significantly impact the future growth and the workforce dynamics of the County's tech sector.

Finally, this report offers commentary on the supportive infrastructure the ecosystem enjoys including the presence of field-building institutions, thought leaders, public funding, and support networks. Recommendations for the Workforce Development Board are also put forward in the final section of this report.

[2] https://obamawhitehouse.archives.gov/sites/whitehouse.gov/files/documents/Artificial-Intelligence-Automation-Economy.PDF
[3] https://obamawhitehouse.archives.gov/sites/whitehouse.gov/files/documents/Artificial-Intelligence-Automation-Economy.PDF

At a Glance:

The Santa Cruz County Tech Sector and Ecosystem

Located on the Central Coast of California, Santa Cruz County is known for its moderate climate, picturesque coastline, large forested areas, and socially progressive culture. Although only 30 miles from San Jose and 80 miles from San Francisco, Santa Cruz is in contrast set apart by its laid-back culture and relatively slower pace resultant of its smaller size. Santa Cruz enthusiasts extol the County's trove of easily-accessed outdoor recreational activities and a work culture that allows for their balanced integration with work life. Similarly, the Santa Cruz tech space, while productively linked to Silicon Valley, is its own, independent, growing ecosystem. While appreciating the opportunity that close proximity to Silicon Valley represents for Santa Cruz, leaders of the County's tech sector have voiced a need to focus on the local ecosystem distinct from Silicon Valley's sphere of influence. Tech industry growth in Santa Cruz faces a set of opportunities and challenges unique to the County and the following analysis aims to analyze that landscape, drawing out localized insights for actionable next steps.

The Good News: **Opportunities & Wins**

VENTURE CAPITAL

Objectively, the data around venture capital in Santa Cruz tells a very positive story. Hitting a historical high in 2017 at just shy of $200M, venture capital is flowing into Santa Cruz County. As it does, it can help to catalyze a series of downstream effects including increased tech employment as many startups expand their ranks with new venture funding.

QUALITY OF LIFE DIFFERENTIATOR

Stakeholders repeatedly noted their employees' and their own appreciation for the quality of life Santa Cruz offers. Recruiters in the tech sector have said that it is Santa Cruz' most unique differentiator and its greatest strength for those seeking a change of pace, a reduction in stress, and often a decrease in commute time. While more difficult to quantify, Santa Cruz' high quality of life clearly stands out as a highlight for those who choose to live and work there.

"It is very attractive to a specific talent looking for this type of location or a change of pace. I understand why people choose to live in Santa Cruz and I think that's our ability here, to offer people the opportunity to work where they live, and not have to spend all of that time everyday commuting. It's an amazing opportunity, and we use that very broadly, I would say, in our recruitment strategy."

"I can actually walk to work from my house. There's a huge afternoon and nightlife scene, restaurants and shops, and all that stuff. So, it's very different than a suburban industrial park. Those are all parts of a lifestyle that has brought creative types to life here. And that's a major selling point for all of us."

GROWING ECOSYSTEM

Stakeholders' commentary on the Santa Cruz County tech ecosystem was broadly hopeful and representative of an excitement about what is to come for the space at large. With a cast of legacy companies of the Dotcom era still in Santa Cruz, the recent, significant entrance of a select set of big players and the resources they bring with them, and a burgeoning startup space, the Santa Cruz tech ecosystem is heating up and its stakeholders are investing in its growing community.

"There's absolutely a tech ecosystem here, and it's budding. And it is, in my opinion, the single best upside opportunity for the community economically."

AVAILABLE TALENT

Generally, stakeholders in the tech sector say they are able to acquire new talent relatively easy. With both locally cultivated talent and the broader region's labor pool as feeders, Santa Cruz is well-positioned with regard to a high-skilled talent pipeline in relative close proximity. This does not imply there is not significant, untapped opportunity in cultivating more local talent but in general, stakeholders cited talent as an ecosystem merit in Santa Cruz.

"So, we are competing for the same talent, yes, but we have enough variety and diversity of it that we're not really stepping on each other's toes."

RELEVANCE TO SILICON VALLEY JOURNEY

Not only does proximity to Silicon Valley provide access to a large, highly skilled talent pool, it also positions Santa Cruz for relevance in the way that talent enters the Valley's network of firms and communities. Increasingly, firms in Santa Cruz have direct relationships in the Valley either through a second office or funding. Stakeholders from the Santa Cruz tech space highlighted the opportunity for Santa Cruz to more actively position itself as a stepping stone for talent en route to the Valley, and to reflect that positioning in the way the County thinks of and markets itself as an independent but well-connected tech ecosystem.

"So, Santa Cruz is just the sort of place where you could come, it's manageable, and work in tech and still be making your way to the Valley or San Francisco, but you've got a stop along the way."

Myth-busting: **Relationship with Silicon Valley**

Inevitably, given its proximity to the nation's leading tech hub, the tech scene in Santa Cruz has strong historical and current links to Silicon Valley. Though never at a level comparable to that of Silicon Valley or San Francisco, Santa Cruz County once had many thousands of tech jobs during the Dotcom boom. However, the bursting of the Dotcom bubble hit Santa Cruz tech hard and the subsequent housing and financial crisis of 2008 further injured the sector. In the wake of these two economic events, Santa Cruz tech employment was cut in half and the sector has struggled to recover at least insofar as that recovery would be traditionally measured.

This analysis will examine a set of those traditional indicators but it is important to highlight that those indicators are not the whole story, particularly from the perspective of future growth and workforce development. As data is by design retrospective, this analysis includes qualitative inputs to capture how the Santa Cruz tech ecosystem is changing and growing now. A truncated list of technology firms and educational institutions based in Santa Cruz County and recommended for inclusion in this analysis is included below. Reflecting on the opportunities enumerated above, the Santa Cruz tech sector clearly possesses many of the inputs to a strong tech ecosystem. Further, this report serves as evidence that the ecosystem's stakeholders are working together to identify actionable next steps and empower the sector for locally-enabled growth.

In setting the ecosystem and its stakeholders up for success, relevant and feasible goals should be set. While there are a number of ways in which Santa Cruz County may choose to leverage its proximity to and relationship with Silicon Valley, goal-setting independent of Silicon Valley-oriented benchmarks is strongly recommended. This analysis does draw comparisons to nearby regions that are included under the Silicon Valley umbrella where for example the differential between wages may affect Santa Cruz' ability to attract and retain nearby talent. Comparisons to Silicon Valley should be used to identify anticipated challenges early and design interventions best positioned for success. However, in broader terms, this report envisions Silicon Valley more as an asset to be leveraged rather than a benchmark for success. That distinction is important as many communities around the country and world strive to recreate the success of Silicon Valley. Drawing from the perspective of the Santa Cruz County Workforce Development Board, the goal of this report is to conduct a data-driven analysis of the unique inputs to Santa Cruz County's tech ecosystem as part of a larger effort to support its independent, locally enabled growth.

TECH FIRMS:

- ProductOps
- SupplyShift
- Looker
- Nantomics
- Amazon
- Plantronics
- Buoy Labs
- Zero Motorcycles

Educational institutions

CABRILLO COLLEGE
Technical Education and Workforce Development

CABRILLO COLLEGE
Computer Information Systems

UNIVERSITY OF CALIFORNIA, SANTA CRUZ

DIGITAL NEST

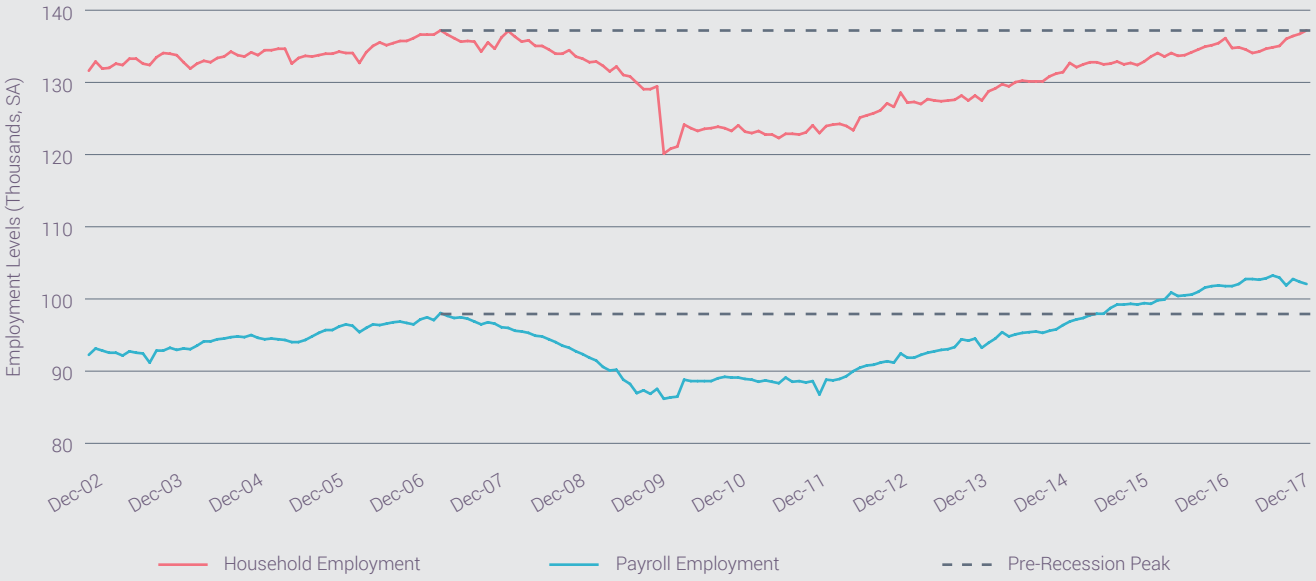
The Tech Industry

Employment and Wages

By almost every measure, the Santa Cruz County labor market is doing exceptionally well. At more than 137,000 jobs in December 2017, household employment is back on par with prerecession levels. Payroll employment, meanwhile, has exceeded its 2007 peak and reached a record 103,000 jobs in 2017. Although in recent months payroll employment has slightly declined, this has to do with the labor market reaching its capacity rather than an impending downturn. Similarly, the County's unemployment rate has dropped to its lowest level since before the Great Recession, reaching 5.8% in December 2017.

EMPLOYMENT GROWTH

Santa Cruz County, December 2002 to December 2017

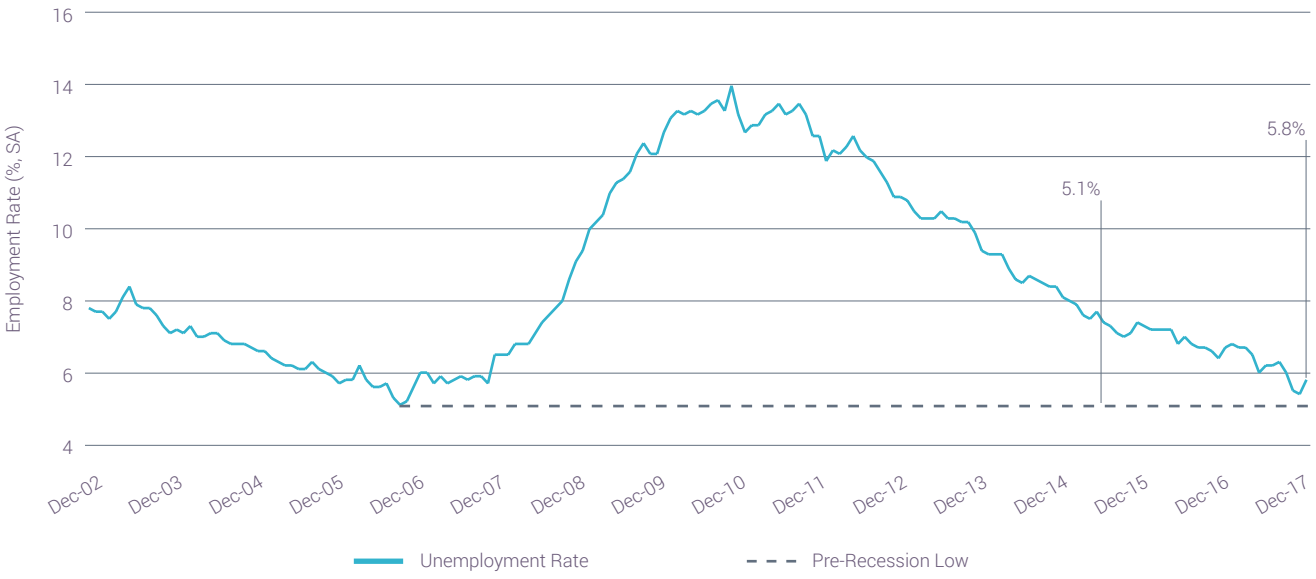


Source: California EDD, Analysis by Beacon Economics

UNEMPLOYMENT RATE

Santa Cruz County

December 2002 to December 2017



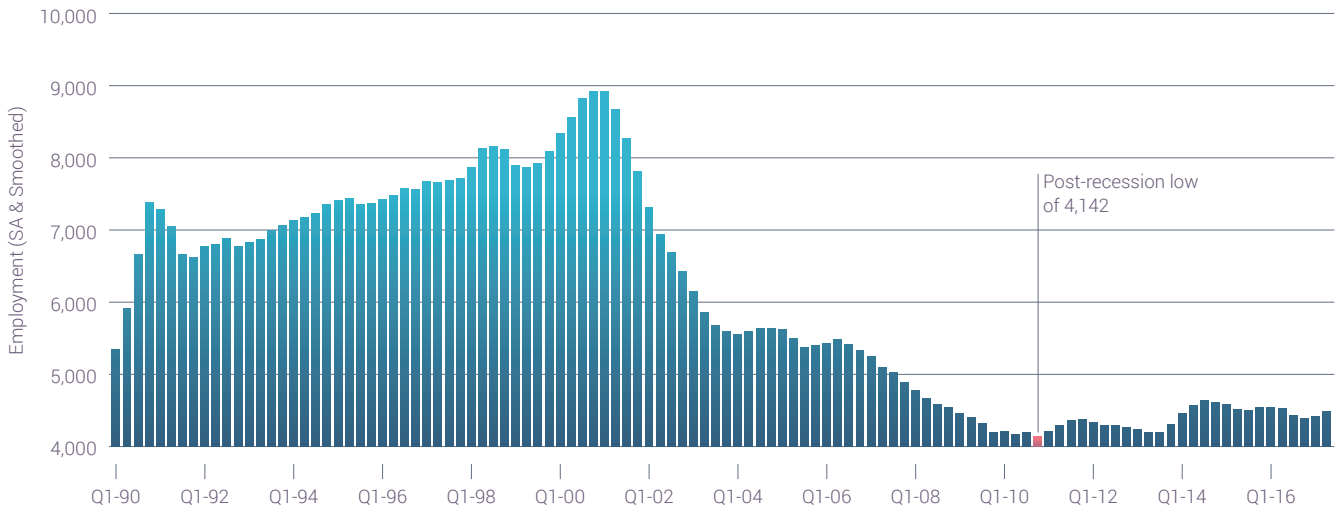
Source: California EDD, Analysis by Beacon Economics

Tech Employment

At nearly 9,000 jobs in 2000, Santa Cruz County tech employment reached its zenith amid the dot-com boom. But once the Internet bubble burst, the Tech Sector began an almost ceaseless downward trend — leveling off slightly before the 2008 housing crash before continuing its descent. Today, the County's Tech Sector comprises just over 4,500 jobs — half of the early-2000s level.

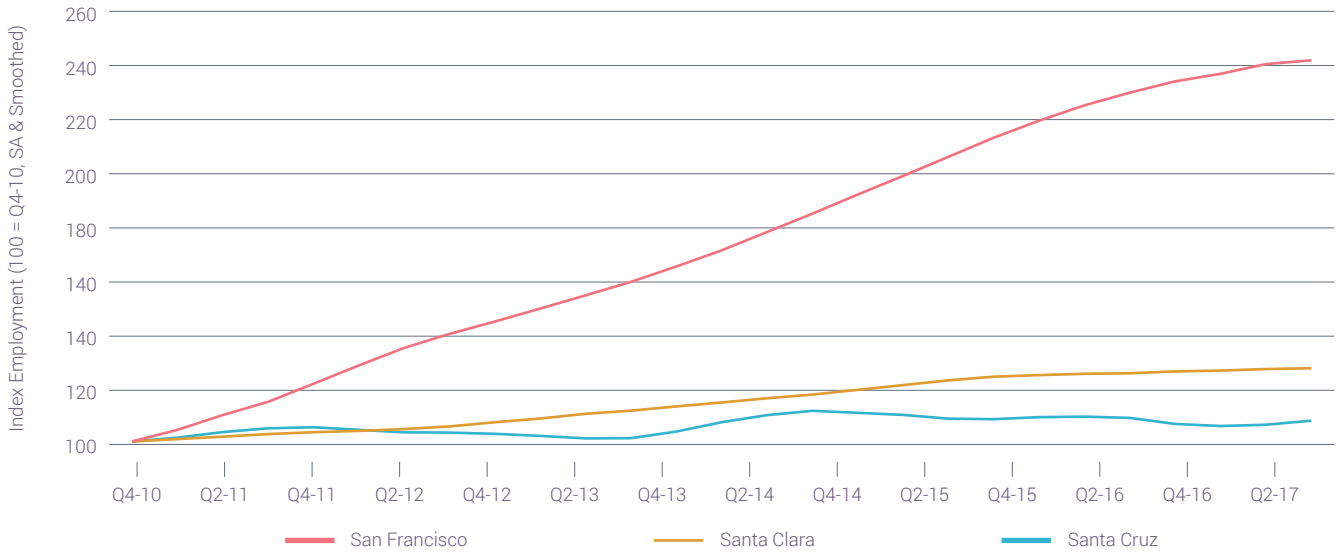
Since the post-2008 recession, Santa Cruz County tech employment has grown. From the fourth quarter of 2010 (the postrecession low) to the second quarter of 2017 (the latest available data), tech employment grew by 340 jobs in Santa Cruz County. In contrast, Santa Clara County added nearly 71,000 jobs, while San Francisco added more than 73,000 jobs. In percentage terms, Santa Cruz County grew 8.2%, while Santa Clara County grew 27.8% and San Francisco grew a towering 141.4%.

TOTAL, ALL TECH INDUSTRIES
Santa Cruz County
Q1-90 to Q2-17



Source: Quarterly Census of Employment and Wages (BLS), Analysis by Beacon Economics

TOTAL TECH EMPLOYMENT
Regional Comparison
Q1-10 to Q2-17



Source: Quarterly Census of Employment and Wages (BLS), Analysis by Beacon Economics

Tech Subsectors in Santa Cruz County

The top tech subsectors in Santa Cruz County were and continue to be Software Publishers, Computer and Electronic Manufacturing, Computer Systems Design and Related Services, and Management and Technical Consulting Services. Before the dot-com bubble, these subsectors comprised about two-thirds of the tech jobs in the county, and they maintain this ratio today, although at a much lower absolute level. At the start of 2001 (before the dot-com bust), these sectors accounted for nearly 6,400 tech jobs, while today they have just over 3,000.

These subsectors appear to have a promising future. For example, establishments in the Computer and Electronic Manufacturing subsector typically create computers and peripheral equipment used with printers or various kinds of communication technologies.

This subsector accounts for some 1,300 jobs in Santa Cruz County, over a quarter of all tech jobs in the County. This subsector is also the highest-paid tech subsector, with the average worker earning about $176,900 per year. The growing importance of these types of jobs is reflected in the 32.3% growth in wages in this subsector over the past five years. As the so-called Internet of Things continues to expand and more devices become embedded in and connected to the Internet, the demand for these manufactured products will grow.[4] The occupations in this subsector are mainly computer hardware and electrical engineers and technicians, which typically require an associate or bachelor's degree.

Jobs in the Software Publishers subsector are in demand. According to the Bureau of Labor Statistics, there were 89 jobs in this subsector in Santa Cruz County in the second quarter of 2017. The average worker earned about $135,600 per year, one of the highest salaries in the County. Jobs in this subsector are a bit nontraditional in their educational requirements. This is because employers typically value experience just as much as, or sometime more than, educational attainment. A coder with several years' experience building software applications and with expertise in highly sought-after programming languages has good job prospects. Job seekers with degrees in computer science or other engineering-related or data-centric fields are also typically valued candidates.

Computer Systems Design and Related Services is the second-largest tech subsector in Santa Cruz County by both employment count and wages, with about 836 jobs and average pay of $149,300 in the second quarter of 2017. These jobs closely align with the work Software Publishers do, but include helping clients integrate entire hardware and software systems. They can also be involved in the data processing and recovery aspect of computer

SANTA CRUZ COUNTY TECH EMPLOYMENT
By Subsector
Q2-17

Industry Code	Industry Name	Q2-17	5-Year Absolute Change
-	Total, All Industries	104,146	11,550
-	**Total, All Tech Industries**	**4,525**	**242**
334	Computer & Electronic Product Mfg.	1,308	65
3391	Medical Equip. & Supplies Mfg.	125	-15
423430	Computer & Computer Peripheral Equip. & Software Merchant Whls.	22	-35
4251	Electronic Markets & Agents & Brokers	171	-51
45411	Electronic Shopping & Mail-Order Houses	91	31
5112	Software Publishers	89	14
517	Telecommunications	187	-25
518	Data Processing, Hosting & Related Svcs.	39	22
51913	Internet Publishing & Web Search Portals	39	18
5414	Specialized Design Svcs.	152	44
5415	Computer Systems Design & Related Svcs.	836	399
5416	Management & Technical Consulting Svcs.	821	-162
5417	Scientific Research & Development Svcs.	645	59

Source: Quarterly Census of Employment and Wages (BLS), Analysis by Beacon Economics

[4] The Internet of Things (also known as IoT) is a term used to describe the connection of digital devices to the Internet. The devices include watches, refrigerators and intelligent home assistance devices. For more on the IoT, see: http://www.businessinsider.com/what-is-the-internet-of-things-definition-2016-8

systems. Although employment in this subsector in Santa Cruz County peaked in the dot-com era, it has been posting steady growth in recent years. Over the past five years, for example, this subsector has added about 400 jobs, almost doubling in size. Wages have increased about 55% since the second quarter of 2012, the strongest gain among subsectors.

The Management and Technical Consulting Services subsector also has a sizable portion of total tech employment in Santa Cruz County, with 821 jobs in the second quarter of 2017. Wages were about $76,400 during this period, representing a 3.2% increase over five years. Workers in this industry typically provide assistance and advice to clients on scientific and technical issues. This subsector, although down from its housing bubble peak, is one of the stronger in the county.

Although these subsectors constitute the bulk of tech employment and command the highest wages in Santa Cruz County, they are outshined by those in Santa Clara County and San Francisco. For example, in Santa Cruz County, the average worker in the Computer and Electronic Product Manufacturing subsector makes 93% of the average salary in this category. That worker earns only 68% of what the average worker in this subsector earns in Santa Clara County. Workers in the Software Publishers subsector have an even larger wage disparity; the average worker earns 83% of those in San Francisco and just 38% of those in Santa Clara County. On average, tech workers in Santa Cruz County earn 62% of what the average tech worker makes in San Francisco, and 47% of what tech workers in Santa Clara County earn.

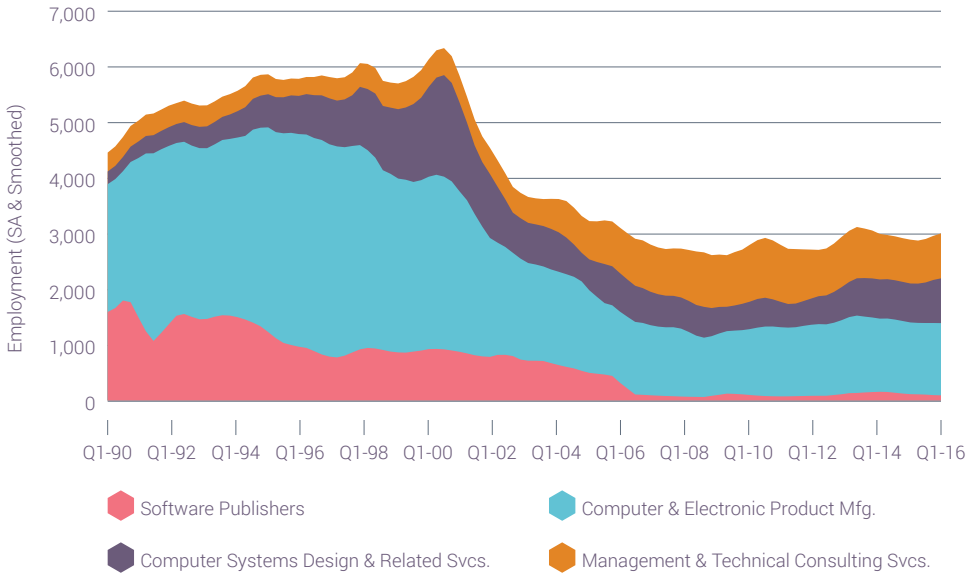
Clearly, the average tech worker can get more pay for his or her skillset in one of these neighboring regions than in Santa Cruz County. This reality, in conjunction with high housing costs, helps explain why Santa Cruz County has seen a shifting environment when it comes to tech.

"Right now, we are suffering from a pretty considerable brain drain. An employee with a really strong skill set can just go and make a lot more money over the hill."

– Tech Stakeholder

TOP TECH SECTORS

Santa Cruz County
Q1-1990 to Q2-2017



Source: Quarterly Census of Employment and Wages (BLS), Analysis by Beacon Economics

SANTA CRUZ COUNTY TECH WAGES

As Share of Neighboring Regions' Wages
Q2-17

Industry Code	Industry Name	Santa Cruz Average Wage ($)	Santa Cruz Wages as Share	
			Santa Clara	San Francisco
-	Total, All Industries	50,800	40.0%	46.9%
-	**Total, All Tech Industries**	**117,200**	**46.9%**	**62.4%**
334	Computer & Electronic Product Mfg.	176,900	68.1%	93.3%
423430	Computer & Peripheral Equip.	55,700	29.4%	26.7%
4251	Electronic Markets & Agents & Brokers	78,400	74.9%	36.5%
45411	Electronic Shopping & Mail-Order Houses	47,400	19.2%	57.0%
5112	Software Publishers	135,600	37.8%	83.4%
517	Telecommunications	70,900	42.1%	54.5%
518	Data Processing, Hosting & Related Svcs.	63,200	25.1%	34.2%
51913	Internet Publishing & Web Search Portals	57,700	13.5%	23.4%
5414	Specialized Design Svcs.	54,000	50.1%	54.5%
5415	Computer Systems Design & Related Svcs.	149,300	78.3%	74.9%
5416	Management & Technical Consulting Svcs.	76,400	60.1%	51.2%
5417	Scientific Research & Development Svcs.	76,100	41.8%	28.2%

Source: Quarterly Census of Employment and Wages (BLS), Analysis by Beacon Economics

Big Players

In an area filled with startups and ambitious small companies, a handful of major tech employers exist in Santa Cruz County. Three firms stand out from the rest by workforce size. The largest is Plantronics, a headset manufacturer founded in 1961. With more than 3,000 employees worldwide, Plantronics employs roughly 500 at its headquarters in Santa Cruz County. Amazon, which established a development office in Santa Cruz County, has up to 250 people in its Santa Cruz office. Looker, a business intelligence software and analytics platform, has around 200 tech-related employees. With a total of roughly 950 employees, these three companies have 21% of the tech workers in the County.

Plantronics began as a startup in a garage and has expanded to become a massive multimillion-dollar company that sent a headset with Neil Armstrong to the moon. Its current operations involve developers, engineers and some high-level management. Amazon's local office for development works mainly on web services with a focus on the Amazon Echo. One of the Amazon departments works on mobile marketplace app development.

Aside from the three big employers in the Santa Cruz area, other tech companies include Zero Motorcycles, which makes electric and environmentally clean motorcycles. SupplyShift is a small but growing startup in downtown Santa Cruz that provides business intelligence and a cloud-based platform. ProductOps, specializing in software development for businesses needing technical assistance, has been growing noticeably as well. With roughly 45 people, it aims to double in size within the next few years.

The Tech industry in Santa Cruz County finds itself uniquely poised to take advantage of many opportunities. The University of California, Santa Cruz has a computer science program that is nationally renowned and has fed talent locally to firms like Amazon. The Amazon development office in downtown Santa Cruz is a large player, employing between 200-250 individuals and is one of three tech employers with a talent pool of that size.

Plantronics and Looker are the other big players in town in the tech space. Looker is building an entirely new company from the ground up whereas Amazon is not. Looker needs to employ HR people, they need software developers, they need marketers, and they need sales people. While Amazon and Looker may compete for the same software development talent, Looker faces a very different challenge. Where needs do overlap in the talent space, these organizations have avoided stepping on each other's toes, thanks in part to the variety and diversity of talent in the broader region. Looker serves as a friendly competitor to Amazon in terms of talent recruitment in Santa Cruz.

In addition to Plantronics, Looker and Amazon, there are a handful of startups in Santa Cruz that provide excitement and tremendous professional satisfaction to the talent they employ. However, these startup firms carry a larger risk profile and lower salary structure that makes it difficult for midlevel career individuals to relocate a family when considering housing affordability issues.

Clearly, there is a budding tech community in Santa Cruz and agreement that the community is stronger as a whole when firms are not battling for talent. One stakeholder summarized, "Our objective is to take people off the Google bus, and the Yahoo bus, and the Apple bus, and bring them here. People are still opening their eyes to the opportunity that exists here." Today, when a new crop of engineers graduates from UC Santa Cruz, they have a chance to circulate their resumes to friends and neighbors, and possibly find a job in the town where they graduated. Less than five years ago that was not the case.

"We have two floors in the downtown building, part of that is because the downtown is the cool place to be. I can actually walk to work from my house from the West Side. I used to live on the East Side, I could walk it here or ride a bike. There's a parking garage in the corner. There's a huge afternoon nightlife scene, these restaurants and shops, and all that stuff. So, it's kind of... It's very different than in suburban industrial park, so we say.

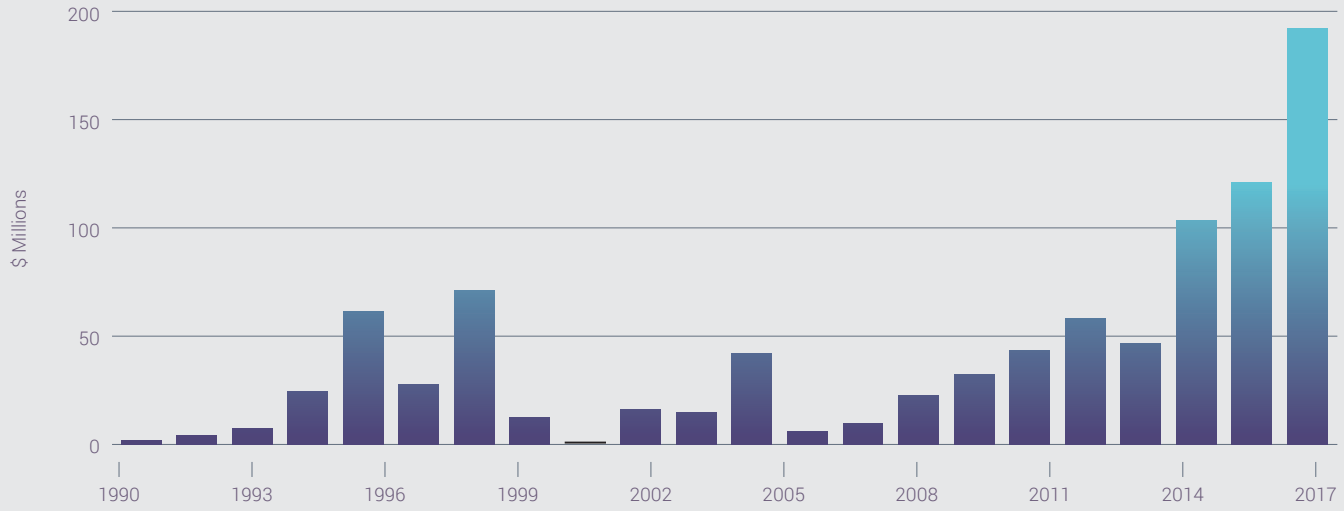
– Tech Stakeholder

Capital

One of the many bright spots of the Santa Cruz County tech economy is the venture capital scene. In recent years, venture capital funding has grown significantly, with 2017 a record year for the County. Although the amount of funding is not comparable to what Silicon Valley and San Francisco experience, it indicates a promising future.

In 2017, venture funding reached nearly $193 million, an all-time high for Santa Cruz County. Overlooking the slight drop-off from 2013 to 2014, venture funding has been steadily growing since 2008. This consistent growth suggests that founders and investors are finding the County a worthwhile place to start a tech venture.

VENTURE CAPITAL, TOTAL
Santa Cruz County
1990 to 2017



Source: PitchBook, Inc., Analysis by Beacon Economics

The total number of deals completed has also generally increased. For example, in 2000, Santa Cruz County had only six venture capital deals spread out across five companies. In 2017, this reached 14 deals across 14 companies. The absolute highest number of deals was in 2015, when 26 deals were made across 20 companies. Although 2017 represents a bit of a drop-off from this high, the trend is clear: The number of venture capital deals is growing.

"For a long time, I think people didn't take the tech community very seriously here. It was just a bedroom community for Silicon Valley. It has changed a lot in the last 10 years. And much more in the last 5, where there's a lot of new start-up activity. There's a lot of bold new innovation going on, and local startups are getting funding. They're taken seriously.

– Tech Stakeholder

Since 2000, most venture capital in Santa Cruz County has gone to early- and late-stage companies, which received 44% and 42%, respectively. Although these kinds of deals also make up most venture capital funding in San Francisco and Santa Clara Counties, these counties put a much higher proportion of funding into late-stage companies. For instance, from 2000 to 2017, Santa Clara County put 61% of its funding into late-stage deals. San Francisco put 64% of its funding toward deals of this type.

Late-stage companies have more leverage to hire tech employees. They receive more funding, have greatly improved their business processes and products, and often have started generating revenue and even profits. Obviously, San Francisco and Santa Clara Counties are home to some of the largest, most successful tech firms in the world, which accounts for the high share of venture capital funding going toward companies in this stage.

This does not imply that Santa Cruz County has nothing to offer in terms of big firms or deals. Indeed, late-stage funding has recently dominated the scene, with $122 million spread across three companies. At $81.5 million, Looker raised the most for late-stage deals, and or all deals during 2017.[5] According to PitchBook, the company had an estimated valuation of $850 million at that time.

Although Looker was by far the largest venture-backed company in Santa Cruz County in 2017, other companies brought in sizable deals. Two Pore Guys, for example, raised $24.5 million in April, putting its valuation at $122.5 million. This company develops a compact, digital molecule tester that can be used for monitoring anything in fluidic form.[6] Zero Motorcycles was the third late-stage company receiving funding in 2017, raising $16 million in December for its fully electric motorcycles.[7] This company, in Scotts Valley, has raised over $143 million to date.

SANTA CRUZ COUNTY VENTURE CAPITAL ACTIVITY

by Deal Type
2000 to 2017

Deal Type	No. of Deals Made	Total Venture Capital Invested ($ Millions)
Total	**175**	**885.4**
Pre/Accelerator/Incubator	22	3.27
Angel	33	22.86
Seed	12	21.73
Early stage VC	50	390.19
Late stage VC	37	371.67
Grants	21	75.68

Source: PitchBook, Inc., Analysis by Beacon Economics

SANTA CRUZ COUNTY VENTURE CAPITAL DEALS

in 2017

Company Name	Deal Date	Deal Type	Deal Size ($ Millions)	Industry	Location
Looker	March	Later Stage VC	81.50	Database Software	Santa Cruz
Bastille Networks	August	Early Stage VC	26.98	Network Management Software	Santa Cruz
SomaGenics	May	Grant	25.00	Biotechnology	Santa Cruz
Two Pore Guys	April	Later Stage VC	24.50	Biotechnology	Santa Cruz
Zero Motorcycles	December	Later Stage VC	16.00	Automotive	Scotts Valley
Inboard Technology	November	Early Stage VC	8.00	Recreational Goods	Soquel
PayStand	November	Early Stage VC	6.00	Financial Software	Scotts Valley
Broadband Discovery Systems	April	Angel	3.60	Other Business Products and Services	Scotts Valle
Buoy Labs	October	Accelerator/ Incubator	1.00	Electronics (B2C)	Santa Cruz
Watchman Systems	July	Seed Round	0.19	Other Business Products and Services	Santa Cruz
Nucleos (Student Learning)	May	Accelerator/ Incubator	0.10	Educational and Training Services (B2C)	Santa Cruz
Outsite	February	Accelerator/ Incubator	0.04	Other Commercial Services	Santa Cruz

Source: PitchBook, Inc., Analysis by Beacon Economics

[5] https://looker.com/
[6] http://www.twoporeguys.com/home/
[7] http://www.zeromotorcycles.com/

SHARE OF VENTURE CAPITAL FUNDING

by Deal Type
2000 to 2017

Deal Type	San Francisco	Santa Clara	Santa Cruz
Pre/Accelerator/Incubator	**0.3%**	**0.1%**	**0.4%**
Angel	1.4%	1.0%	2.6%
Seed	3.8%	1.7%	2.5%
Early stage VC	29.5%	36.1%	44.1%
Late stage VC	63.7%	60.6%	42.0%
Grants	1.2%	0.5%	8.5%

Source: PitchBook, Inc., Analysis by Beacon Economics

SANTA CRUZ COUNTY VENTURE CAPITAL

by Company Headquarters
2008 to 2017

Headquarters	Total Venture Capital Invested ($ Millions)	Share of Total
Santa Cruz, CA	372.74	58.5%
Scotts Valley, CA	240.32	37.7%
Soquel, CA	10.59	1.7%
Watsonville, CA	9.80	1.5%
Capitola, CA	2.24	0.4%
Freedom, CA	2.00	0.3%

Source: PitchBook, Inc., Analysis by Beacon Economics

Talent

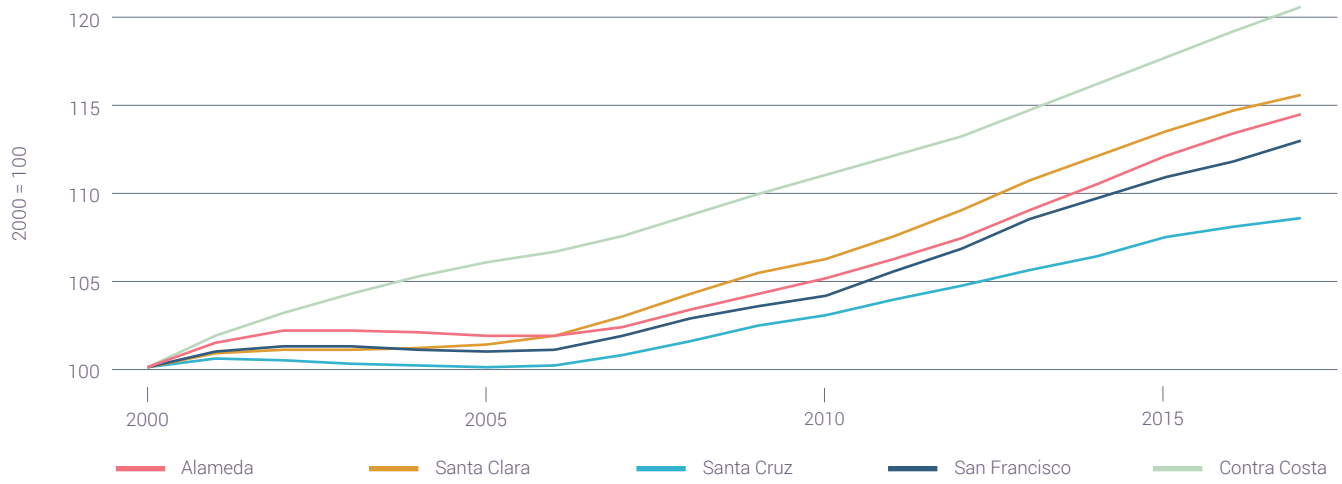
Demographics

Santa Cruz County has a growing population, albeit one that is growing more slowly than populations in neighboring counties. Recent estimates of population growth from the California Department of Finance show that the County increased its population base 0.4% in 2017, the lowest annual rate over the last decade. During the 1990s, the County had higher rates of growth in its population, averaging roughly 1.15% from 1990 to 1999, with considerable growth in the latter half of the decade from positive net migration. But migration has been countercyclical — declining during economic recessions and expanding during the expansions that follow.

Populations grow through natural increase or net positive migration. Natural increase is the difference between deaths and births, assuming the latter exceeds the former. Over the past decade, the rate of natural increase has slowly declined in Santa Cruz County. In contrast, net migration has been mixed. Following the dot-com bubble, the County had seven consecutive years of negative net migration, that is more people moved out of than into the County. In the aftermath of the Great Recession, net migration has been more positive, with significant increases in 2013 and 2015. Within the County's boundaries, the City of Santa Cruz has consistently outpaced all other cities in population growth. The City increased its population base 0.8% in 2017, double that of the County with a net gain of 508 residents.

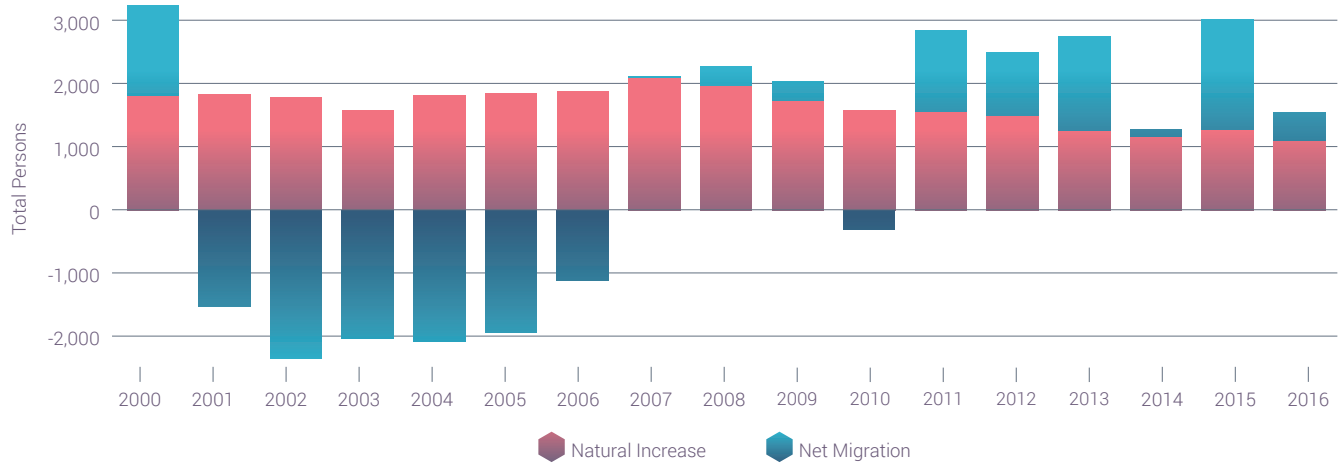
Santa Cruz County's demographics have continued to be shaped by an increasingly competitive job market locally and in surrounding counties, contributing to a surge in incomes, and as a result, a surge in the cost of living. In a very positive context, this dynamic can be seen in the increasing number of advanced degrees in the County overall. From 2012 to 2016, the share of Santa Cruz County residents 25 or older with a graduate or professional degree increased 2.2 percentage points to 17.5%. Meanwhile, the percentage of the population holding less than a bachelor's degree has decreased, with noticeable declines in residents without a high school diploma. The most common degrees pursued in Santa Cruz County are Psychology, Engineering, and Sociology. Engineering also tops the list of the most-common degrees in San Francisco, Santa Clara County, and the East Bay. But unlike those three regions, Santa Cruz County does not have a high prevalence of Computer Science and Business Management degrees.

INDEX POPULATION GROWTH COMPARISON
Select Counties in California
2000 to 2017



Source: California Department of Finance, Analysis by Beacon Economics

POPULATION COMPONENT OF CHANGE
Santa Cruz County
2000 to 2016

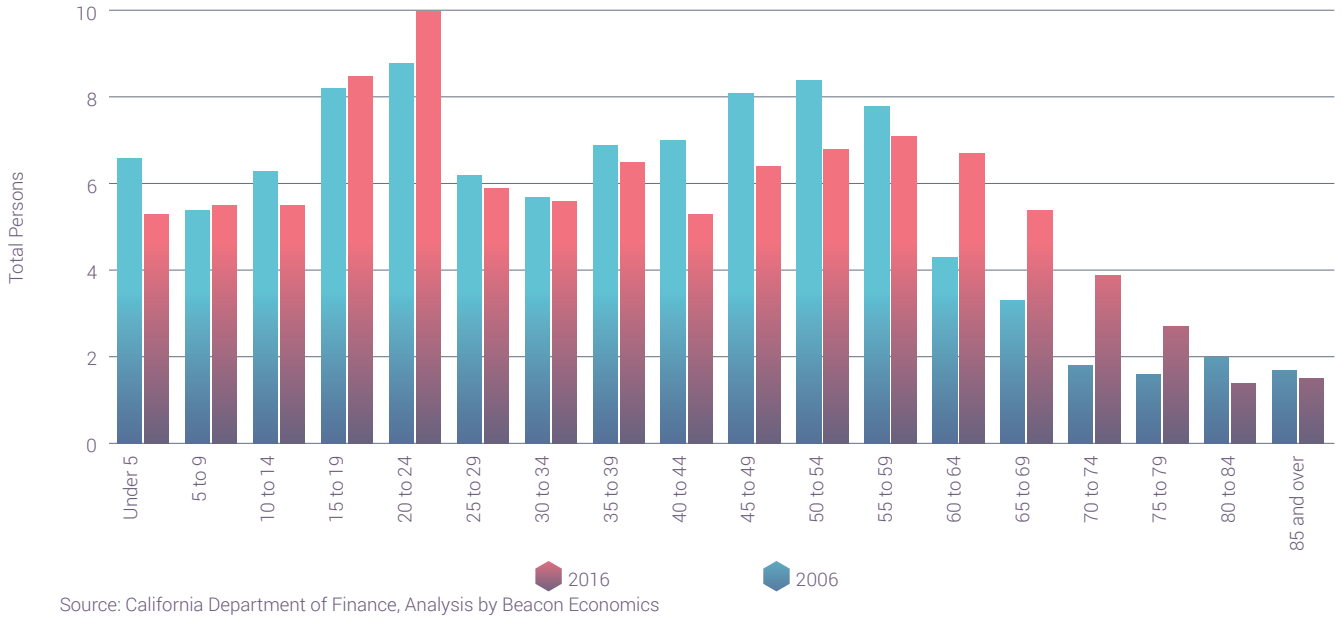


Source: California Department of Finance, Analysis by Beacon Economics

Demographic shifts in age have also occurred because population growth has been uneven across age groups. The County's population growth over the last decade has been driven by those 50 years of age and older. In 2016, the median resident was 37.4 years old, a 1.1% increase from 2012. Santa Cruz County has a marginally lower median age than those counties of the East Bay (Alameda and Contra Costa) and San Francisco, all which count among their economic assets thriving tech sectors. Regionally, the youngest in terms of median age is Santa Clara County, at 37.0. But apart from San Francisco, all of the aforementioned counties including Santa Cruz had growth in their older age cohorts from 2012 to 2016, reflected in the increase in median age from 2012 to 2016. Unique to Santa Cruz County has been the increase in the retirement-age cohort. The share of residents over 65 increased by 2.7 percentage points, considerably more than in neighboring counties.

In Santa Cruz County, the number of young children has fallen, with a slight drop in residents under age 5. In part, this is the result of an aging population but it is also a result of young couples' delaying plans to start a family amid high homeownership costs.

AGE DISTRIBUTION COMPARISON
Santa Cruz County
2006 to 2016



Source: California Department of Finance, Analysis by Beacon Economics

Resident Characteristics of Santa Cruz County

Household employment gains have been substantial in recent years, and in the face of ongoing job creation, local labor markets have been tightening. Unsurprisingly, most residents in Santa Cruz County, San Francisco, and the East Bay are in the Education or Health Care Services industries. Health care is one of the largest industries in practically every urban area across the U.S., and in Santa Cruz County, nearly 1 in 4 residents is employed in the industry. The only regional outlier is Santa Clara County where the largest share of resident employment is in Professional and Business Services.

San Francisco, Santa Clara County, and the East Bay all have an above-average tech presence and resident employment counts reflect that. The local tech sector, which primarily comprises Manufacturing, Professional and Business Services, and Information subsectors, represented more than 25% of residents' industry employment in 2016.[8] By comparison, 8.1% of household employment in Santa Cruz County was in the tech sector. Generally speaking, workers in the Tech industry earn among the highest wages of any sector, second only to Wholesale Trade. The average wage in the tech sector was roughly $126,000 in Santa Cruz County in 2016, lower than the average in Santa Clara County and in San Francisco, but higher than the East Bay.

Regarding an occupational breakdown, 2.2% of residents' occupations fall under engineering in Santa Cruz County, while in Santa Clara County, 5.7% of residents are employed in some form of Engineering occupation, and in San Francisco, 3.0% are. Science occupations are more evenly distributed across those three counties, with Santa Cruz County employing 1.6% of its working residents in science, Santa Clara County 1.5%, and San Francisco 1.9%, respectively. Computer and math occupations employ 3.7% of residents in Santa Cruz County, considerably fewer than in Santa Clara County, where 11.9% of residents are in those occupations. San Francisco falls in between with 7.4% of residents in computer and math occupations.

Generally and across the region, the Tech Industry has become more diversified, employing people of various backgrounds and ethnicities. In Santa Clara County for example, 32.8% of the employees are white, with a majority of employees identifying as Asian. Santa Cruz County, however, goes against the trend. Roughly 80% of the workers in the Tech Industry in Santa Cruz County are white. Hispanic tech workers in Santa Cruz County constitute 11.2% of total workers. Black workers are the least-represented in tech industries, with the highest representation in the East Bay at 3.1% of total tech workers. In Santa Cruz County, 2.3% of total tech workers identify as black, making it the smallest represented minority.

[8] No hard and fast rules determine which subsectors constitute the Tech Sector. For this reason, the definition of tech can change along with the associated statistics that are derived from the sector.

Commuters

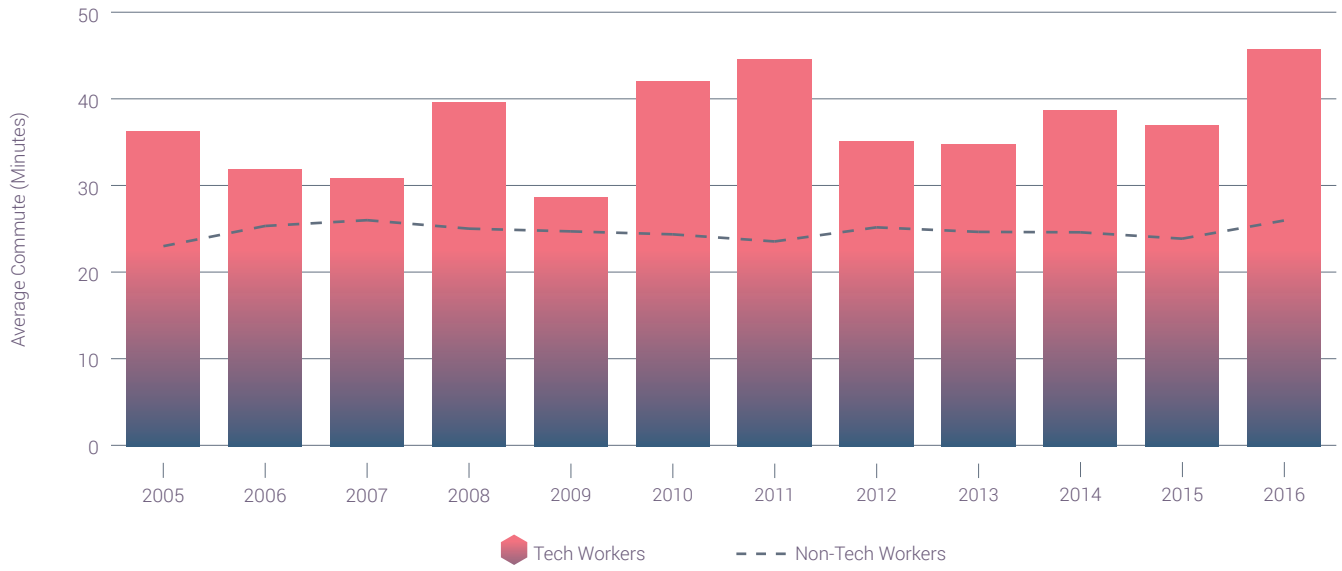
Although 73.6% of Santa Cruz County residents work in the County, some commute to nearby areas. Despite the many opportunities for tech-related occupations in neighboring counties, the number of people commuting from Santa Cruz County in those fields is not significant. Of Santa Cruz residents commuting for work outside of Santa Cruz County, only 4.9% work in the Tech Industry. By contrast, in Santa Clara County 23.4% of resident commuters work in the Tech Industry.

Those Santa Cruz County residents who do work in the Tech Industry and commute outside the County for work face long commutes. In 2016, the average commute for tech industry workers from Santa Cruz County who commute to locations outside the County was 45.8 minutes. Comparatively, non-tech workers from Santa Cruz County commuted only an average of 26.1 minutes outside the County

"The reason we built the facility here is people want to live in a nice place, and we want that. We believe that we can scrape a little bit of the talent that's commuting over the hill and enduring the drive to come over here to work."

– Tech Stakeholder

AVERAGE COMMUTES: TECH VS. NON-TECH WORKERS
Santa Cruz County
2005 to 2016



Source: American Community Survey, Analysis by Beacon Economics

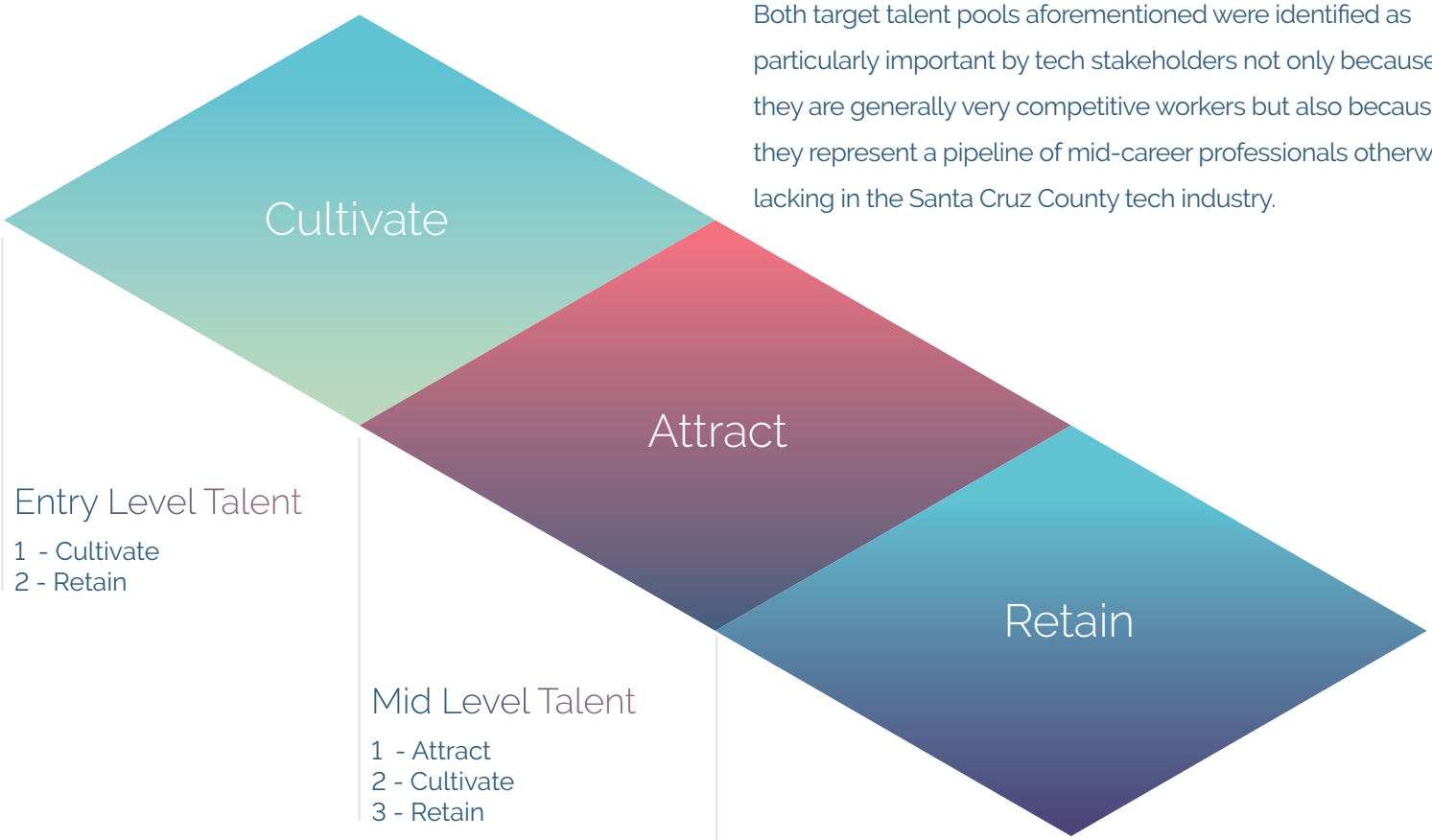
Tech stakeholders interviewed for this report identified this group, commuting tech workers who reside in Santa Cruz County, as a primary target for tech talent attraction in Santa Cruz. As one tech stakeholder remarked, "My focus is attracting the local tech workers who are not here right now, meaning they live here and want to work here but they are commuting over the hill. That is my focus. Those are the people who are by design interested in working at a tech company here in Santa Cruz. And trying to help them stay here so they can live where they work and avoid a two hour each way commute, that's what I'm trying to do."

While the percentage of Santa Cruz County residents who are commuting tech workers is not high, the operating assumption of tech recruiters in Santa Cruz is that a majority of them (if not all of them) would be interested in working in Santa Cruz County. Similar strategies were articulated by Santa Cruz tech firm representatives regarding tech workers who commute to Silicon Valley and may not live in Santa Cruz County but live within its broader worker shed. These workers, recruiters reason, may easily be enticed by the reverse, and presumably much shorter, commute, all other inputs kept relatively equal.

Relative parity of opportunity becomes the focus for recruiters concentrating efforts on these specific talent pools, as both of these strategies rely on the ability of Santa Cruz-based firms to compete for talent at comparable wages, allowing workers to maintain their positioning within very expensive housing markets. Tech firm representatives indicated that they themselves and their employees were in most cases happy to make trade-offs, namely smaller salaries or less appealing stock options for shorter commutes and better quality of life; but, wages must be high enough to sustain workers in extraordinarily expensive housing markets, Santa Cruz County being one of the highest among them.

Talent Pipeline

Both target talent pools aforementioned were identified as particularly important by tech stakeholders not only because they are generally very competitive workers but also because they represent a pipeline of mid-career professionals otherwise lacking in the Santa Cruz County tech industry.



Entry Level Talent

1 - Cultivate
2 - Retain

Mid Level Talent

1 - Attract
2 - Cultivate
3 - Retain

Senior Level Talent

1 - Retrain
2 - Attract

"It's easier to identify entry level talent here, because you've got UC Santa Cruz, you've got groups of kids locally who would like to stay. And then, senior people are also a little easier because they can afford to move here or they may live here already, and either way they have the economic freedom to make that choice. This is a very difficult place to attract mid-career folks, which is where the bulk of most companies is built, right? So, finding that level of talent because of this location is, I would say, a really tough one."

– Tech Stakeholder

The visual above helps indicate how these prospective talent pools based on their level may align with the goals of intervening actors interested in strengthening the County's local tech talent pipeline. On the spectrum of intervention from cultivating talent and attracting new talent to retaining talent that's already in Santa Cruz, all three tactics may be effectively applied to mid-career professionals with a logical focus on cultivation and attraction. Other feeders for mid-career professionals identified by tech stakeholders included the technically skilled alumni of the University of California, Santa Cruz as well as university graduates in cities of a size and culture similar to that of Santa Cruz but with relatively fewer tech employment opportunities. The attraction of Santa Cruz for university graduates willing to relocate is, recruiters hope, amplified by its proximity to Silicon Valley and its potential to serve as a connective vector to the Silicon Valley community.

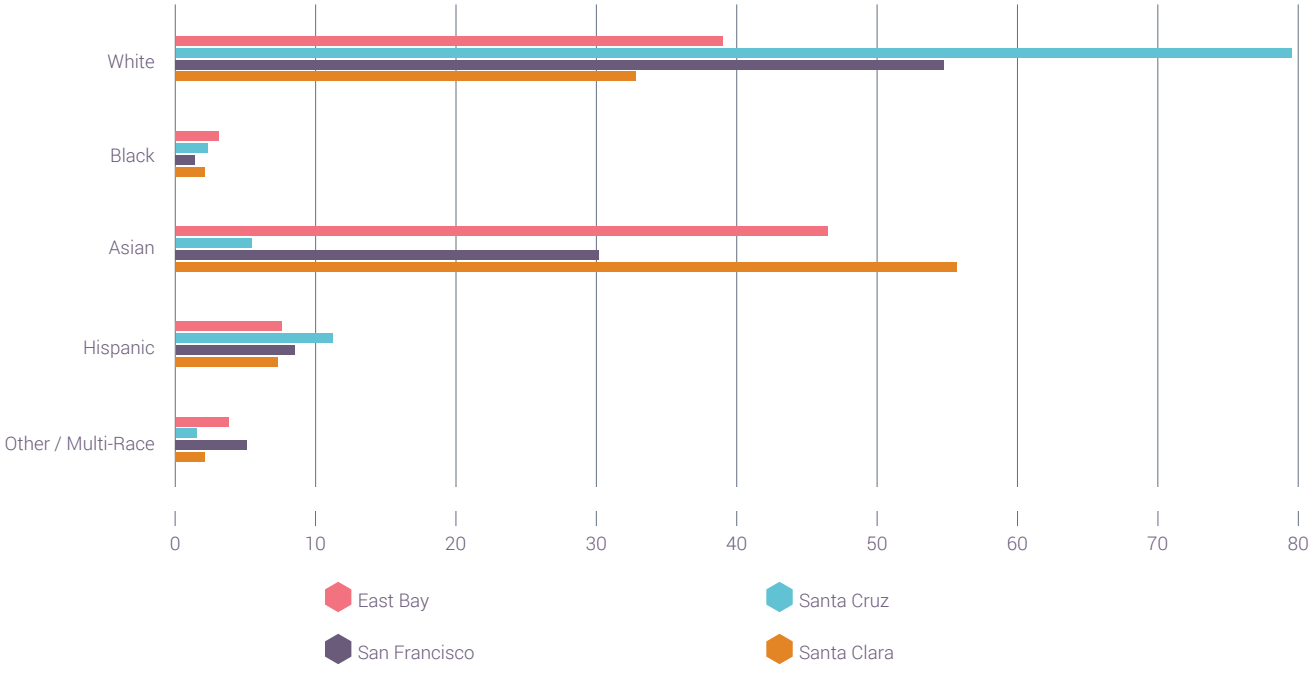
For all four of these mid-career professional talent pools, awareness was identified as a key challenge to more effectively attracting mid-level talent to Santa Cruz. Tech stakeholders highlighted the need to more actively publicize tech employment opportunities in Santa Cruz, not only on a firm level but on an ecosystem level. The intentional coherence and unity of that message was also underlined as increasingly important, as Santa Cruz' tech space approaches a critical mass such that relocating workers feel comfortable with their level of assumed risk.

The sentiment articulated above regarding the ease of finding entry level talent was echoed across a range of stakeholders from a variety of tech firms. However, both tech firm representatives and educators discussed a lack of basic coordination in better preparing local talent for entry level positions in the tech industry with opportunity for growth. Coordinating curriculum with private sector needs and communicating skillset needs as they evolve or the current shortcomings of inbound talent were identified as untapped opportunities for educators and tech leaders to collaborate. Ultimately, a general shortage of the marginal resources and incentive required to form strategic partnerships was reiterated, even while stakeholders on all sides acknowledge the clear, mutual long-term benefit of such collaboration. More insight around the question of mandate and intervention is included in the Recommendations section of this report.

"In terms of talent recruitment, we all agree that there's a community here and the community is stronger as a whole if we are fighting together for it. And so, our shared objective is to take people off the Google bus and off the Apple bus, and bring them here. Then they can walk back and forth across the street."

– Tech Stakeholder

TECH WORKERS
Race / Ethnicity Composition
2016



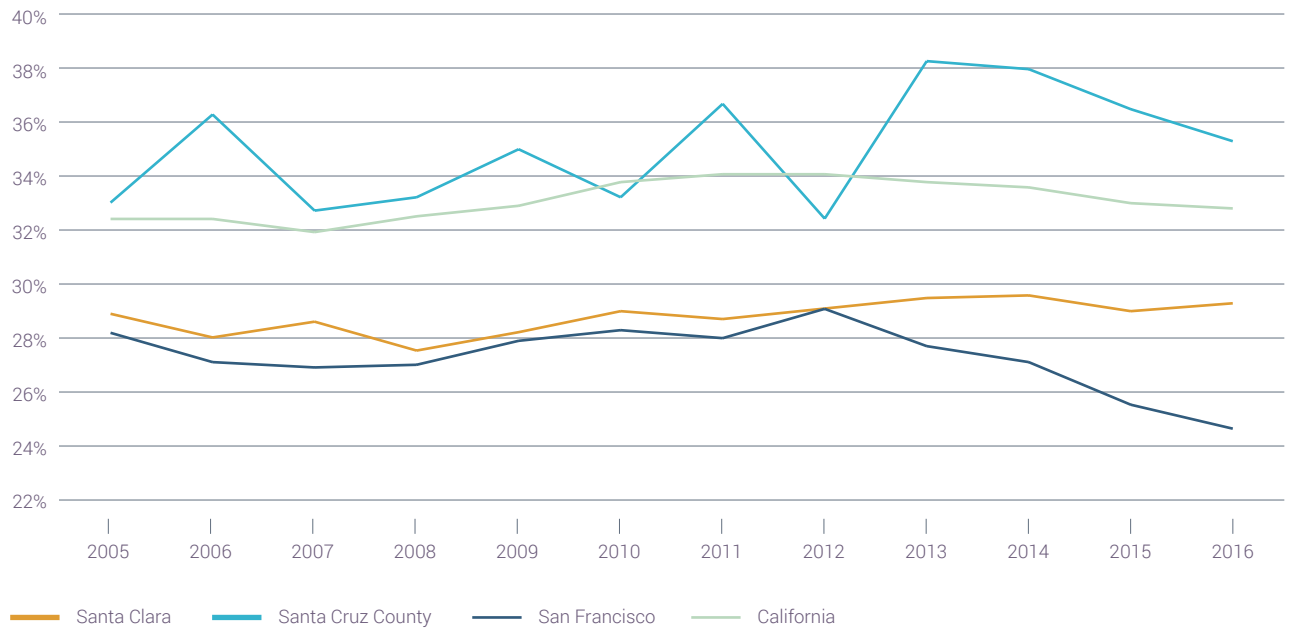
Source: American Community Survey, Analysis by Beacon Economics

Other Attributes

Housing Market

The well-publicized housing crisis of the Bay Area has bled into Santa Cruz County, where purchase and rental costs have been escalating. In the County's neighbor to the north, San Jose, home prices and rents have also soared. Since the recession, San Jose has experienced significant yearly rent growth, at times reaching double digits; however, in recent years rent growth has slowed, in part because of the increase in housing stock from new developments. Economists have also reasoned that rents may be reaching the market's limit due to years of unchecked rent growth. Consequently, renters are increasingly flooding markets farther from Silicon Valley in search of housing, including that of Santa Cruz County. With the uptick in demand, rents in Santa Cruz County are rapidly rising. In the second quarter of 2016, yearly rent growth outpaced San Jose (8% vs. 5%) for the first time in years. Since then, rents in Santa Cruz County have risen faster than in San Jose. As of the third quarter of 2017, the average rent in Santa Cruz County was $1,992 per month, and in San Jose it was $2,586 per month.

MEDIAN GROSS RENT
As a Percentage of Household Income
2005 to 2016



Source: American Community Survey (ACS), Analysis by Beacon Economics

Though rents in Santa Cruz County remain more than 20% lower than in San Jose, recent rent increases have had a greater effect on Santa Cruz County households. Wages and household incomes in Santa Clara County where San Jose is located are among the highest in the nation. On the other hand, wages in Santa Cruz County are significantly lower than in Santa Clara County, thus causing Santa Cruz County residents to be significantly more rent burdened. In 2016, median rent as a percentage of household income was 35.3% in Santa Cruz County compared with 29.3% in Santa Clara County.

Similarly, Santa Cruz County home purchase prices have been driven by the same market forces affecting rents. From 2012 to 2017, the median price of a single-family home in Santa Cruz County grew 47%, to $735,985. Behind this steep price increase is a limited supply amid increased demand from buyers priced out of the Bay Area. Although prices have risen almost 50% in the past five years, the average number of home sales per quarter has increased only 20.1% — a clear indication that supply has not kept up with demand.

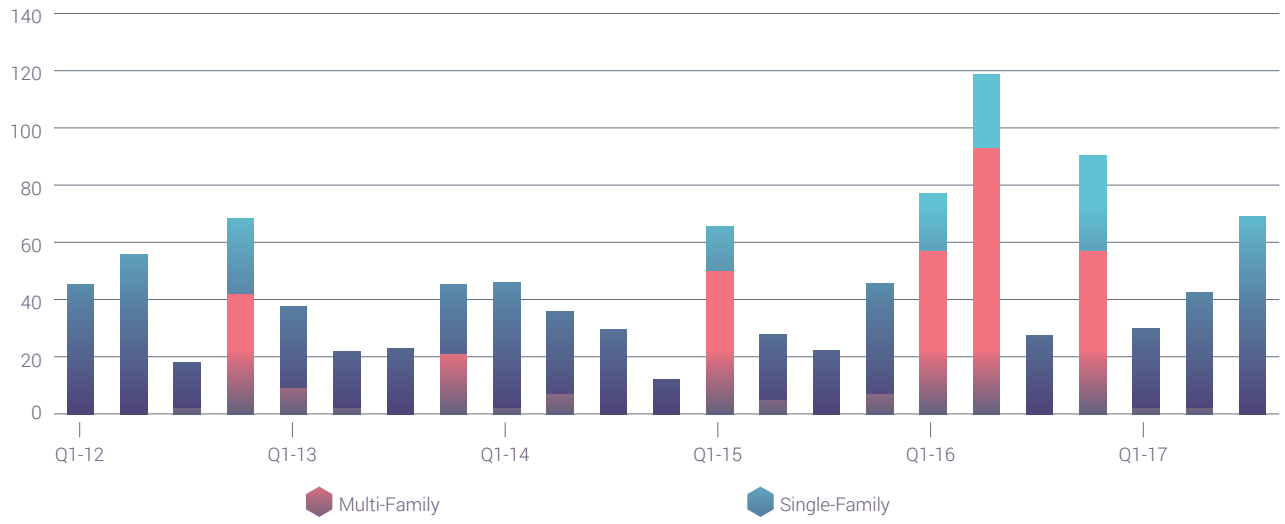
Rising home prices can be less of a challenge if wage levels rise in accordance. But of all the counties in California, Santa Cruz had the second-highest ratio of home price to average wage. In other words, although San Francisco is more expensive by a sizable margin, buoyant wages offset some of that cost. The increase in home prices have pushed many Santa Cruz residents who would otherwise presumably prefer to buy homes into the rental market. According to data compiled from REIS, the average asking rent per month for an apartment in the East Bay was $2,088 in the third quarter of 2017 — $174 more than the average rent in Santa Cruz County. But again, there is a large differential in terms of wages. On average, tech workers in Santa Cruz County earn 62% of what the average tech worker makes in San Francisco, and 47% of what tech workers in Santa Clara County earn.

Santa Cruz County's slow growth policies have also contributed to the housing shortage. Of California's metros,[9] Santa Cruz County had the highest ratio of new nonfarm jobs to permits.

[9] Metropolitan Statistical Areas and Metropolitan Divisions.

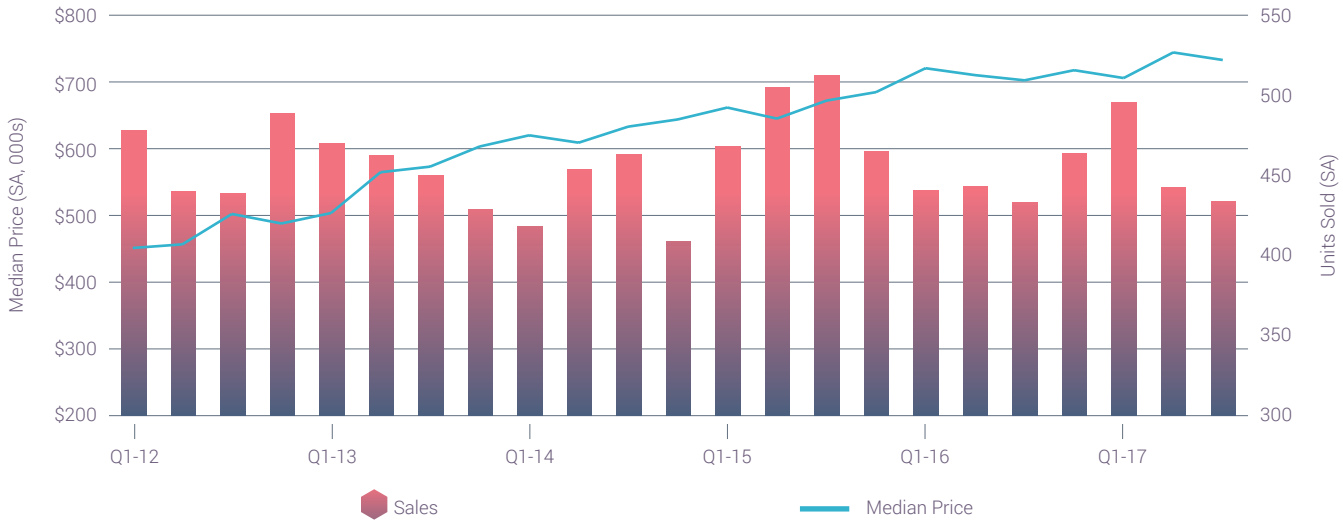
Specifically, the County is adding roughly one housing unit for every 13 jobs added. For years, local government pursued policies aimed at preserving the County's open space. These policies culminated in a 1994 zoning update to the land-use policy that left only 17.6 acres designated for high-density development.[10] Moreover, new residential development has not alleviated the County's long-term housing shortage. In the years since the recession, residential permitting has been modest and steady even as home prices have skyrocketed. Only since 2016 has there been a noticeable increase in residential permitting. In 2016, 207 multiunit building permits were issued, a 234% increase from the year before. But years of minimal multifamily development have led to one of the lowest apartment vacancy rates in the region. As of the third quarter of 2017, Santa Cruz County's apartment vacancy rate was around 1.8%, 3 percentage points lower than San Jose's 4.8% rate. Before the 2016 surge in new development, Santa Cruz County's vacancy rates were even lower, around 1% for most of 2015 and 2016. However, recent increases in development have been associated positively with a modest 1.1% increase in multifamily and single-family housing units from 2011 to 2016, according to the American Community Survey.

HOUSING PERMITS
Santa Cruz County
Q1-12 to Q1-17



Source: Construction Industry Research Board (CIRB), Analysis by Beacon Economics

SINGLE FAMILY RESIDENCES
Santa Cruz County
Q1-12 to Q3-17



Source: DataQuick, Analysis by Beacon Economics

[10] https://voicesofmontereybay.org/2017/11/14/raising-the-roof/

Resources and Support Organizations

Equipping the Santa Cruz workforce with the skills and experience demanded by tomorrow's tech industry requires collaboration across sectors with leaders in government, education, and the private sector working together to identify and prioritize the tech sector's needs as they evolve.

"I mean, it's all here. All the little pieces are around, but nobody sort of patches the whole thing into a tapestry. And so, I would ask that resources including public monies be dedicated in that direction because we need help to make it happen."

– Tech Stakeholder

As a growing tech ecosystem, the tech industry of Santa Cruz County benefits from a growing community of field-builders and support institutions around it, dedicated to cultivating its linkages and navigating long-term challenges and opportunities. The Santa Cruz Tech Beat is a good example of a community-curated hub offering a catalog of important actors and resources as well as a job posting hub and a news blog. Nevertheless, tech stakeholders reiterated the need for increased awareness and beyond awareness, publicity. Curated and collaborative campaigns to publicly call attention to opportunities in Santa Cruz tech were requested by recruiters. The need for publicity was especially highlighted in discussing efforts to attract Silicon Valley-bound talent living in Santa Cruz or in nearby, reverse-commute territory.

With regard to the educational space, Cabrillo College's Department of Labor grant for over $500,000 to develop the Silicon Valley High Tech Apprenticeship Initiative is an illustrative example of how educational institutions and private companies can work together toward shared goals. The initiative bridges the gap between recent graduates' skillsets and tech opportunity in Santa Cruz County. With federal funding, Cabrillo has been able to launch its first apprenticeship with Cloud Brigade, through which Cabrillo students who have completed required coursework in the Computer and Information Systems Program may apply for a 2,000-hour extended training program as IT Support in the company. "This apprenticeship is an extended boot camp of sorts, that bridges the gap between where college classes leave off and where job requirements start," said Chris Miller, President of Cloud Brigade.[11]

Tech industry stakeholders interviewed for this report also remarked on frequently confronted differences between the nature of student work and realities of working in tech. Many tech firm representatives noted the individual, self-contained nature of student work which stands in contrast with the team-based, systematic, and phasal nature of work in the tech industry, where workers are often held responsible for maintaining systems over time usually not of their own original creation. Partnerships like the Cabrillo-Cloud Brigade one draw lines from local companies to local educational institutions and by extension to local talent, democratizing opportunity. The importance of those direct connections cannot be understated. Stakeholders from both the tech industry and from educational institutions indicated an interest in more programmatic, formal exchange or matchmaking, for example in the form of adjunct positions at local educational institutions for tech leaders so curriculum can be updated and molded more dynamically to meet evolving private sector needs.

Bootcamps to quickly sharpen local skillsets for demanding tech industry environments were cited as a general ecosystem need. Tech recruiters in Santa Cruz said opportunity to locally partner was already on their radar, particularly recruiters from firms that specialize in complex products and consequently, highly value familiarity with their product in the hiring process. Commenting on local recruitment, one tech firm representative said, "When we run short on talent, we'll tap into the community and say, 'Hey, we're going to host a recruiting event and if you know anybody who's a developer and looking for a job, come.' But it's all very ad-hoc. We don't contribute on a regular basis to a standing series of events or community-wide goals." Intermediary, support institutions can help act as connective tissue between firms and the pipeline of local talent, equipping the ecosystem to navigate long-term opportunities and challenges. There are various and creative long-term funding models for field-building intermediary institutions, including state funding like the Employment Training Panel,[12] but often leadership from an effective, local convener is necessary to catalyze their establishment.

[11] http://www.santacruztechbeat.com/2017/11/14/cabrillo-college-awarded-silicon-valley-high-tech-apprenticeship-initiative-grant-launches-first-apprenticeship-cloud-brigade/
[12] https://etp.ca.gov/

Recommendations

"There is a lot local institutions could do to better position the local talent. The problem is that nobody owns that charter."

– Tech Stakeholder

As the tech ecosystem in Santa Cruz County grows, it demands resources for continued maturation. The Workforce Development Board of Santa Cruz County is well-positioned to convene a strong network of local leaders in both the tech industry and educational space, and to champion a clear set of shared challenges and actionable solutions, offering returns for all parties. Working to make tech employment accessible to all students of Santa Cruz County is an important part of ensuring those efforts are sustainable over the long-term. The Digital Nest is a praiseworthy local example of locating tech opportunity directly in local communities, equipping young talent with the exposure, skills, and training to not only work in tech but explore and ultimately innovate in tech.

The key stakeholders of Santa Cruz County's tech ecosystem are excited about the future of tech in Santa Cruz and they have good reason to be. The Santa Cruz tech ecosystem is at an important inflection point in its growth and stakeholders across the industry are looking to conveners like the Workforce Development Board to resource the process of collaboration and shared action. A partial list of recommendations that came out of the analysis done for this report is included below.

Challenge

- Awareness of tech opportunity in Santa Cruz, especially for tech workers living in Santa Cruz or around Santa Cruz commuting to Silicon Valley
- Recent graduates aren't prepared for the nature of tech work

Recommendation

- Fund or coordinate publicity campaign highlighting opportunity in Santa Cruz tech
- Create adjunct professor positions for tech leaders in local institutions so they can inform curriculum and increase network connectivity
- Resource or facilitate the creation of local Bootcamp programs

Opportunity

- Firms creating specialized products in Santa Cruz increasingly value familiarity with their product in the hiring process
- Tech companies in Santa Cruz are willing to play more of a role as curators of the ecosystem

Recommendation

- Institute matchmaking programs whereby educational institutions partner with firms to create programming directed specifically at specialized local products
- Resource the coordination of specific opportunities for programmatic intervention