

**CITY AND COUNTY OF SAN FRANCISCO
BOARD OF SUPERVISORS
BUDGET AND LEGISLATIVE ANALYST**

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Policy Analysis Report

To: Supervisor Gordon Mar
From: Budget and Legislative Analyst's Office
Re: Initial Public Offerings and Income Inequality
Date: April 23, 2019



Summary of Requested Action

Your office requested that we review initial public offerings (IPOs) in San Francisco and the Bay Area over the last ten years along with trends in gentrification and income inequality during that time. You asked that we provide details and assess the potential impact of anticipated IPOs in 2019 on housing prices, gentrification, and income inequality in San Francisco, relying on third party studies recently completed on this topic.

For further information about this report, contact Fred Brousseau, Director of Policy Analysis, at the Budget and Legislative Analyst's Office.

Project Staff: Fred Brousseau, Linden Bairey, Elizabeth Brousseau

Executive Summary

- At least six high visibility initial public offerings, or IPOs, of San Francisco companies have occurred or are expected to take place in 2019. IPOs can generate significant infusions of cash for growing companies and new wealth in a compressed time frame for IPO company founders, initial investors, and employees. However, this wealth does not necessarily benefit the entire community. Population, job, and income data show that income inequality persists in San Francisco even as the City continues to experience a sustained period of population, job, and wage growth, particularly for highly-paid technical occupations.
- While not the sole cause of income inequality in San Francisco, the occurrence of up to six IPOs in 2019 will not improve San Francisco's situation by adding a one-time injection of wealth to many well-paid workers, investors, and founders and likely experiencing some level of increase in housing prices.

Initial Public Offerings

- An initial public offering (IPO) is the process of offering shares in a private company to the public for the first time. Going public is a costly and time consuming process but can provide companies with a significant source of capital to expand their business. IPOs

may also generate significant wealth for a company's founders and early private investors.

- The following companies have or are expected to execute IPOs in 2019. Although estimated numbers of employees in San Francisco are not available for every company, the information that is available shows that an estimated 7,990 employees work in San Francisco. Depending on companies' equity compensation practices, many of these employees could be eligible to exercise stock options over the next one to two years.

Exhibit A: San Francisco Companies with Expected or Actual IPOs in 2019

Company	Valuation	Estimated # employees in SF
Airbnb	\$35 bn.	2,300
Lyft*	\$24 bn.	1,600
Pinterest*	\$12.7 bn.	<i>unknown.</i>
Postmates	\$1.85 bn.	340
Slack	\$7.1 bn.	750
Uber	\$100 bn.	3,000
Total		7,990

*IPO has occurred; valuation at IPO. Others estimated by various sources and reported in media.

Sources: Number of employees reported directly in SF Business Times or indirectly through other information about leases or facilities.

- Private companies do not disclose the number or percent of shares that employees are awarded through stock options or restricted stock units. However, industry practice and company valuations suggest that some of the employees at the subject companies have or will receive stock options or other equity-based compensation that will, in some cases, provide them with sufficient cash to make purchases such as housing in San Francisco.
- At least three recent studies by academics and real estate economists have found that real estate prices increase in areas near IPO company headquarters, after accounting for increases that would have occurred absent the IPO.
- We applied the most conservative average increase per IPO found in the three studies (1.8 percent) to San Francisco's \$1.3 million median sale price for a home to estimate the possible impact of up to six high visibility IPOs that have occurred or could occur in 2019.
- Applying the average 1.8 percent increase, we conclude that the impact on sale prices for a home in San Francisco could range from \$23,476 if only one IPO occurs to \$147,346 if all six occur, as shown in Exhibit B. The higher estimate would represent a 11.3 percent increase in the median sale price for a home in San Francisco. This increase would be spread over one to two years, depending on when employees would be

allowed to exercise their options (the lock-up period) and choose to cash out their shares.

Exhibit B: Impact of Six Expected IPOs on Median Housing Sale Price in San Francisco

	Median Value	\$ change	% change
Actual: Feb. 2019	\$ 1,304,200		
after 1st IPO	1,327,676	\$23,476	1.8%
after 2nd IPO	1,351,574	23,898	3.6%
after 3rd IPO	1,375,902	24,328	5.5%
after 4th IPO	1,400,668	24,766	7.4%
after 5th IPO	1,425,880	25,212	9.3%
after 6th IPO	1,451,546	25,666	11.3%
Total		\$ 147,346	11.3%

- The rate of increase applied in Exhibit B is an average and, therefore, the actual impact could vary depending on which companies go public. The full impact shown depends on all six companies going public, with the impact of the smaller companies balancing out the impact of the larger ones to arrive at the average 1.8 percent impact each.
- Companies with larger valuations, more employees, and higher share prices would likely have a larger impact than the 1.8 percent rate applied. Conversely, the impact of smaller companies with fewer employees and lower share prices could have an impact of less than 1.8 percent.

Income Inequality in San Francisco

- Data on jobs, income, housing, and related measures shows that San Francisco and the Bay Area region is experiencing an increase in income inequality. The Brookings Institution reports that San Francisco had the sixth highest income inequality rating of the largest 100 cities in the country. Their ranking is based on the fact that the \$567,824 household income at the 95th percentile of all San Francisco households is 15.9 times greater than the \$41,820 San Francisco household income at the 20th percentile. As shown in Exhibit C, this multiple worsened between 2014 and 2016, increasing to 15.9 from the 14.5 in 2014.¹

¹ The 20th percentile represents the income amount that 20 percent of all San Francisco households earn less than, and 80 percent of all San Francisco households earn more than. The 95th percentile represents the income amount that 95 percent of all San Francisco households earn less than, and five percent of all San Francisco households earn more.

Exhibit C: Differences between 20th and 95th Percentile San Francisco Household Income, 2014 and 2016

Household Income	20 th percentile	95 th percentile	Multiple
2016	\$31,840	\$567,824	15.9
2014	\$26,730	\$388,491	14.5
% increase	19.1%	46.2%	

Source: Brookings Institution

- A more recent 2019 analysis of inequality prepared by Bloomberg of the 100 largest metropolitan areas in the United States found that San Francisco has the widest gap between extremely high earners and “middle-class” earners based on 2017 Census data.² Bloomberg’s analysis found that the top 5 percent of San Francisco households earned \$632,310 in 2017, compared with \$102,785 for middle-class households.
- As shown in Exhibit D, the number of housing units did not keep up with population and job increases in San Francisco between 2010 and 2017. Median house sale prices increased by 60.7 percent during the same time period.

Exhibit D: Changes in San Francisco Population, Jobs, Housing Units and Median Home Price, 2010-2017

	2010	2017	Change	% Change
Population	805,235	884,263	79,028	9.8%
Civilian employed population	444,628	504,914	60,286	13.6%
Housing units	376,942	390,376	13,434	3.6%
Median house price	\$697,700	\$1,120,900	\$423,200	60.7%

- Between 2012 and 2017, jobs and wages increased in San Francisco at both the high and low ends of the wage scale. However, there were more jobs added at the high end and the rate of wage increase was higher for those earning over \$40 an hour than those earning \$25 or less per hour, as shown in Exhibit E.

Exhibit E: Differences in job and wage growth in San Francisco based on hourly wages, 2012-2017

	Employment Estimate May '12	Employment Estimate May '17	% Chg.	Mean Hourly Wage '12	Mean Hourly Wage '17	% Chg.
Occupations \$25/hr & under in 2017	329,410	376,100	14%	\$ 18.27	\$ 21.08	15%
Occupations over \$40/hr. in 2017	267,280	336,910	26%	\$ 49.05	\$ 59.02	20%
Multiple: highest:lowest				4.2	5.2	
Total Jobs	1,000,430	1,116,390	12%			

² Middle-class earners are defined as the middle 20 percent of earners, or third quintile.

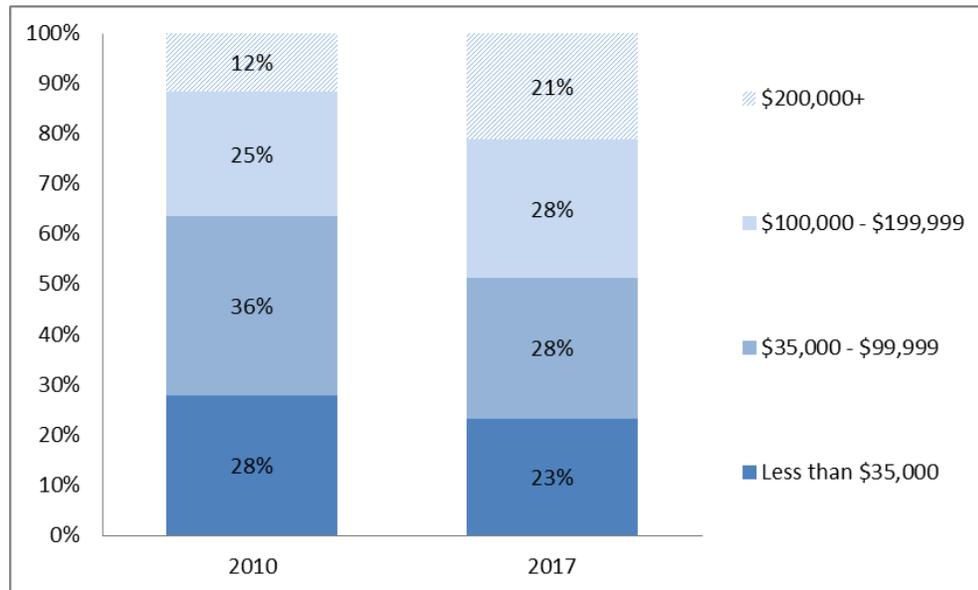
- The two fastest growing occupation categories in the San Francisco-Redwood City-South San Francisco area between 2012 and 2017 are the relatively high paid Computer and Mathematical occupations (e.g., software developers, systems analysts, etc.) and the lowest-paid Personal Care and Service occupations (e.g., personal care aides, childcare workers, etc.), in which the number of jobs increased by 107 percent. Employment increased by 48 percent for Computer and Mathematical occupations and by 107 percent for Personal Care and Service occupations. However, as shown in Exhibit F, wages increased by 24 percent for Computer and Mathematical occupations but decreased for Personal Care and Service occupations by six percent.

Exhibit F: Differential in Mean Wages: Computer and Mathematical vs. Personal Care and Service Occupations, 2012 and 2017: San Francisco-Redwood City-South San Francisco

	2012	2017	% Change
Mean Annual Wages			
Computer and Mathematical Occupations	\$102,096	\$126,812	24%
Personal Care and Service Occupations	\$33,942	\$31,743	-6%
Multiple: difference in wages	3.0	4.0	

- One of the results of the changes discussed above in San Francisco appears to be displacement of lower income households. As shown in Exhibit F, households earning less than \$100,000 per year made up 63 percent of all San Francisco households in 2010. By 2017, these households had decreased to 51 percent of all households. The largest increase in households were those with incomes of \$200,000 or more, which nearly doubled from 12 percent of all households in 2010 to 21 percent in 2017.

Exhibit G: Household Income Groups in San Francisco, 2010 and 2017



Source: 2006-2010 American Community Survey 5-Year Estimates and 2013-2017 American Community Survey 5-Year Estimates

- Research by Karen Chapple, et al. found that in the Bay Area, housing price appreciation has a strong relationship to the location of start-up jobs, particularly those that provide information-intensive services.³ Chapple et al. argue that because the occupational patterns of information-intensive services are skewed toward the high end of wages, prices that employees can pay for housing are inflated, and expansion of these firms therefore creates a disproportionate share of highly skilled, highly paid workers into the local housing markets.
- This pattern identified by Chapple et al. has occurred in San Francisco, as presented above, with relatively faster growth in recent years of more highly paid workers in San Francisco’s information-intensive businesses. Though San Francisco real estate can still be costly for these highly paid workers, they are better positioned to buy real estate in the San Francisco market based on their higher salaries, and become even more able if they have stock options to exercise if and when their employers go through an IPO.

Policy Options

While not the sole cause of income inequality in San Francisco, the occurrence of up to six IPOs in 2019 will add a one-time injection of wealth to many well-paid workers, investors, and founders further increasing the wealth gap and likely causing some

³ Karen Chapple, John V. Thomas, Dena Belter, and Gerald Autler, “Fueling the fire: Information technology and housing price appreciation in the San Francisco Bay area and the Twin Cities,” 2004, Housing Policy Debate 15(2): 347-383.

increase in housing prices. Some policy approaches the Board of Supervisors could consider to address and mitigate the effects of income inequality are to:

1. Enhance funding for existing City workforce development, economic development, affordable housing, and subsidized childcare programs, particularly those aimed at the low and moderate income workforce.
2. Enhance City programs aimed at financial empowerment, such as those administered by the Treasurer-Tax Collector including Kindergarten to College, Bank on SF, and Smart Money Coaching.
3. Enhance taxes such as the City's payroll or gross receipts tax for companies above a certain size and/or gross receipts level, with the proceeds used for programs and services designed to minimize the impacts of income inequality.
4. Establish a gross receipts surtax on companies with differentials between CEO and average worker pay above a certain level, with the proceeds used for programs and services designed to minimize the impacts of income inequality.
 - i. The City of Portland, Oregon has established such a surtax.
5. Establish other taxes on large or high-value companies in San Francisco, with the proceeds used for programs and services designed to minimize the impacts of income inequality. Some examples could include:
 - i. In November 2018, East Palo Alto voters approved an annual parcel tax of \$2.50 per square foot on commercial office property over 25,000 square feet, with tax revenue reserved for spending on affordable and supportive housing programs and programs that facilitate residents' access to jobs in the science, technology, engineering, and mathematics sectors and the building trades.
 - ii. Also in November 2018, Mountain View voters approved an annual per-employee business license tax, with larger companies paying more per employee. (Revenue from this tax is considered unrestricted general revenue.)
 - iii. In 2018, the Seattle City Council passed a "head tax" ordinance that would have levied a \$275 per full-time employee⁴ tax on Seattle businesses that have at least \$20 million in annual taxable gross revenue. Tax revenue would have been spent on affordable housing and services for Seattle's homeless population. The Seattle City Council later repealed the head tax legislation.

⁴ The proposed tax, formally an Employee Hours Tax, would have applied to all Seattle employees at a rate of 26 cents per hour for 2019 and 2020, with the annual tax per employee capped at \$275.

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6. Provide incentives or assistance to households under a certain income level to enroll in retirement plans.
7. Lobby for changes to federal and state tax policies.

Background on Initial Public Offerings and Equity Compensation

Initial Public Offerings

An initial public offering (IPO) is the process of offering shares in a private company to the public for the first time. IPOs are used to raise money for the company, to monetize the investments of the company's early investors and founders, and to facilitate trading of existing holdings. IPOs are underwritten by investment banks, such as Morgan Stanley and Goldman Sachs; these banks also help determine the value of the company's shares and assist the company in establishing a public market for shares.

Before an IPO, the company drafts an initial prospectus, also known as an S-1, and files it confidentially with the U.S. Securities and Exchange Commission (SEC). Once the SEC and the company agree on any necessary edits to the S-1 and disclosures that need to be added, the preliminary registration statement is made public; however, at that point, the prospectus only contains a potential range for the amount and pricing of the offering.

After meeting with potential investors, the investment banks and the company formally set the price at which shares will be offered and the total number of shares that will be made available for purchase. The company then files a final registration statement with the SEC, usually the evening before shares can officially be traded. The following morning, the SEC approves the final terms of the offering, and shares are formally offered for sale and the company becomes public.

Once a company is public, employee-owned shares are typically restricted from being sold for the first three to six months from a company's IPO date, in order to prevent individuals who already have company stock or stock options from flooding the market with shares and depressing the company's post-IPO share price. This period of time is also called the employee lock-up period.

Stock Compensation in the Technology Industry

After a technology startup company is founded, a number of the company's shares are commonly reserved for an employee equity incentive plan. A technology company employee may be allocated equity-based compensation from the plan as part of his or her compensation package. Generally speaking, the amount of equity allocated to an employee will depend on his or her role in the company as well as when he or she was hired, with early and more senior employees allocated proportionally larger percentages.

The form of equity compensation depends on the company, and can vary significantly. Stock options or restricted stock units, defined below, are two of the

most common ways technology companies grant equity to employees. Awards of stock options, restricted stock units, and other equity compensation are almost always subject to a vesting schedule⁵ and other restrictions imposed by the company.

- Stock options are contracts that allow employees to buy a specified number of shares in the company at a fixed price (also known as the strike price or exercise price).⁶ For example, as part of a compensation offer, a company might offer a potential employee the option to purchase 50,000 shares at \$4 per share.
- Restricted stock units, or RSUs, are an agreement by a company to issue an employee shares or stock or the cash value of shares of stock at a future date (the settlement date). Each unit represents one share of stock or the cash value of one share of stock that the employee will receive on the settlement date, which may be the time-based vesting date or a later date based on, for example, the date of the company's IPO.

History of IPOs in the Bay Area and San Francisco

Initial public offerings have been an important aspect of the Bay Area business climate for decades and have been associated with some dramatic waves of wealth creation and economic growth. However, income and job data for San Francisco and the region, detailed further below, show that not all residents have benefitted from the wealth creation during this period. While IPOs are not the sole cause of such problems, increases in San Francisco's housing costs, congestion, and income disparity have occurred simultaneously with significant gains for some of San Francisco's residents who have benefitted greatly from economic growth.

IPOs can provide a major supply of capital to growing companies, but they are looked upon unfavorably by some entrepreneurs because becoming a public company is very costly, involves complying with more public reporting and regulatory requirements, and, some believe, requires founders to give up control of aspects of their company. Other sources of capital for startup and private companies include private venture capital investing and selling company ownership to another firm. These approaches can also generate wealth for company founders and employees.

IPOs have gone in and out of favor for Silicon Valley companies and nationally over the last few decades. Between 2016 and 2018, the number of IPOs in the United

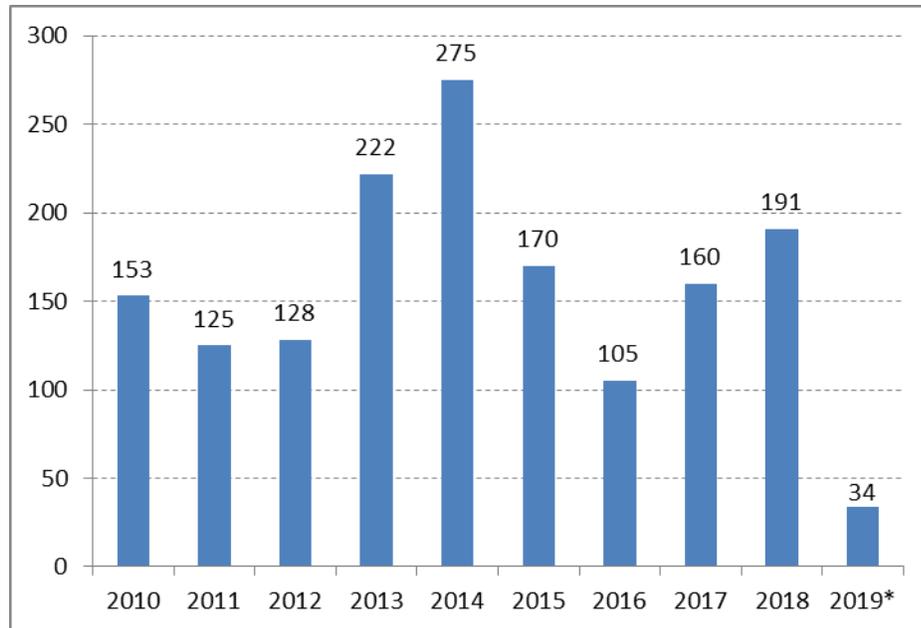
⁵ Under a vesting schedule, employees gain rights to their award of equity incrementally over time.

⁶ Stock options are only exercisable during the exercise window, or the period of time during which an individual can buy the shares at the strike price.

States increased and, for 2019, the number of high visibility IPOs expected in San Francisco has increased.

The exact number of IPOs that have taken place in the Bay Area over time is not readily available from government sources, but national and statewide level statistics are available from private sources for approximations. According to Renaissance Capital, a private IPO tracking firm, there were 1,372 IPOs between 2010 and 2019 (year-to-date) nationally, for an average of 167 per year (excluding the partial year data for 2019). As shown in Exhibit 1, the most IPOs occurred in 2014 between 2010 and 2019, though the trend has also been upward for three successive years starting in 2016.

Exhibit 1: Number of IPOs in U.S.: 2010-2019



Source: Renaissance Capital

*2019 data as of April 2019

For California, a study by three business and finance professors who analyzed the impact of IPOs on housing prices, discussed further below, obtained IPO data from a private financial services research firm for their analysis. They report that that were 1,987 IPOs in California between 1970 and 2017, or an average of 45 per year.⁷ It is reasonable to assume that a high proportion of those IPOs would have been companies in the Bay Area and the Los Angeles area, the state's two major population centers. In 1999, geographer Richard Walker reports that approximately

⁷ Barney Hartman-Glaser, Mark Thibodeau, Jiro Yoshida, "Cash to Spend: IPO Wealth and House Prices", November 30, 2018. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3329651

one fourth of all IPOs nationwide were for Bay Area companies.⁸ Applying Walker's estimate to Renaissance Capital's reported average of 167 IPOs per year nationally results in an estimated average of 42 IPOs per year for Bay Area companies between 2010 and 2018.

A unique feature of growth and wealth creation in Silicon Valley in the 1960s and 1970s was the establishment of local funding sources particularly aimed at serving electronics and high technology company startups. The establishment of venture capital firms and investment bankers located primarily in the Bay Area brought funding to a number of startup companies. The local presence of the venture capital firms and investment banks, along with their familiarity with the industry, represented a departure from the traditional New York-focused investment and financial services industry and fueled significant growth of Bay Area companies. By the end of the 1990s, 800 venture capital firms were established in the Bay Area, mostly oriented to the high technology industry including its then current iteration: the dot.com boom.⁹

Three investment banking firms were established in San Francisco in the 1980s that specialized in assisting high technology and other companies in Silicon Valley grow and, in some cases, go public: Robertson & Stephens, Hambrecht & Quist, and Montgomery Securities. All three firms were eventually purchased by large international banking firms, making even more resources available for Bay Area company IPOs. Total venture capital investment in the U.S. in 2000 was valued at approximately \$100 billion, of which approximately one-third, or \$33 billion, was invested in Bay Area companies.¹⁰

Dot.com boom

The late 1990s was a significant period for IPOs in Silicon Valley. Netscape, creator of an early web browser, went public in 1995, and its IPO is considered a key development in the history of Silicon Valley IPOs and an inspiration to many technology company startups and entrepreneurs. Only one year old at the time and at no point having achieved profitability, the company offered shares at \$28 before its IPO, but on its opening day, the stock price closed at \$58.25 after rising to a high of \$74.75 earlier in the day. Its per-share price was \$175 by the end of 1995. While it was unusual at the time to go public before achieving profitability, this practice would become more common in future years, particularly for the technology industry.¹¹

⁸ Richard Walker, "Boom and Bombshell: New Economy Bubble and the Bay Area". Found SF.org. Originally written for *The Changing Economic Geography of Globalization*, Ed., Giovanna Vertova, Routledge 2005.

⁹ *Ibid.*

¹⁰ *Ibid.*

¹¹ *Netscape: Web Browser*, Wikipedia.com

Netscape started a wave of IPOs and wealth creation through the late 1990s. Like many technology companies, Netscape listed on the NASDAQ exchange rather than the New York or American stock exchanges. NASDAQ grew significantly during the late 1990s: its index grew from approximately 500 in 1990, to 1,000 in 1995, to more than 5,000 by the year 2000. Many of the companies listed on NASDAQ were Bay Area companies.¹²

During the second half of the 1990s, commercial and residential real estate prices and vacancy rates in the Bay Area reflected the wealth creation of Silicon Valley, fueled in part by venture capital and IPOs. Commercial and residential real estate prices climbed, becoming among the most costly in the nation.

Dot.com decline

The expansion of the dot.com era came to a halt in the early 2000s, with a sharp drop in the stock market, an exodus of people from the Bay Area who had come to start or work in dot.com companies, and a decline in real estate prices and rents. After the markets recovered, the Great Recession occurred starting in approximately 2008. However, within a few years of the recession, trends of the 1990s reemerged, with extensive job and wealth growth in the technology industry, fueled in part by venture capital and IPOs. This wave of growth affected San Francisco as well as the traditional Silicon Valley communities in Santa Clara and San Mateo counties.

Income Inequality in San Francisco: Changes in Jobs, Population, and Housing Costs after 2010

The post-recession years in San Francisco have seen strong growth in population, jobs, and housing prices, and strong but unequal growth in income. As shown in Exhibit 2, population and jobs grew in San Francisco between 2010 and 2017 (most recent year available for all data). During the same period, however, housing production did not keep up with population growth, adding upward pressure to already high housing costs. Reflecting this, the median home values grew by 60.7 percent between 2010 and 2017, and have continued to increase in 2018 and 2019.

¹² *Ibid.*, Walker, R.

Exhibit 2: Changes in San Francisco Population, Jobs, Housing units and Median Home Price, 2010-2017

	2010	2017	Change	% Change
Population	805,235	884,263	79,028	9.8%
Civilian employed population	444,628	504,914	60,286	13.6%
Housing units	376,942	390,376	13,434	3.6%
Median house price*	\$697,700	\$1,120,900	\$423,200	60.7%

Sources: United States Census and American Community Survey 5-Year Estimates.

*Median house price: Zillow.com, San Francisco Median Sale Price (all homes): January 2010 and January 2017

As discussed further below, jobs and wages have increased in recent years for high-income earners in San Francisco, but middle- and low-income earners have not experienced wage increases and opportunities at the same rate. When combined with increased housing costs and changes in income distribution in San Francisco during this period, with a greater share of households in the top quintile of income distribution and more able to afford high priced housing, the City has become much less affordable for those in lower income brackets.

High visibility IPOs occurred for companies such as Facebook, Twitter, and Square between 2010 and 2017 when median housing prices increased by 60.7 percent. While IPOs are not the sole cause of housing price increases, which depend on a number of complex factors in the real estate market, at least three recent studies have found that IPOs have impact on housing prices near IPO company headquarters. These studies are discussed in more detail later in this report.

Household Income

Between 2010 and 2017, the number of households in San Francisco with incomes less than \$100,000 declined, despite an increase of 7 percent in total households in San Francisco. During the same time period, the number of households with incomes between \$100,000 and \$199,999 increased by 18 percent and the number of households with incomes over \$200,000 nearly doubled, as shown in Exhibit 3 below. The growth in higher income households has meant that there are more residents better able to buy San Francisco's high-priced real estate, making it more difficult to do so for remaining lower income residents. The decrease in households making less than \$99,000 per year suggests that some of these households may have been displaced between 2010 and 2017.

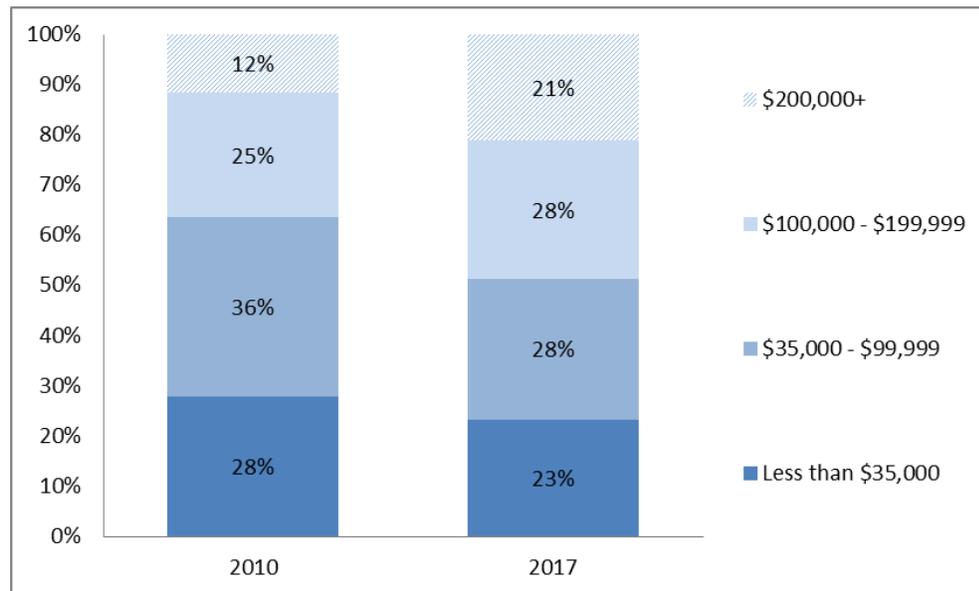
Exhibit 3: Changes in Household Income in San Francisco, 2010 and 2017

Households earning:	2010	2017	Pct. Chg
Less than \$35,000	93,487	83,489	-11%
\$35,000 - \$99,999	119,691	100,396	-16%
\$100,000 - \$199,999	83,504	98,812	18%
\$200,000+	39,274	76,075	94%
Total households	335,956	358,772	7%
Median income (\$)	\$ 71,304	\$ 96,265	35%

Source: 2006-2010 American Community Survey 5-Year Estimates and 2013-2017 American Community Survey 5-Year Estimates

As shown in Exhibit 4 below, households earning less than \$100,000 made up approximately 63 percent of San Francisco households in 2010. By 2017, these households decreased to approximately 51 percent of all San Francisco households. Again, the largest increase occurred in households earning more than \$200,000: these households made up 21 percent of San Francisco households in 2017, up from 12 percent in 2010.

Exhibit 4: Household Income Groups in San Francisco, 2010 and 2017



Source: 2006-2010 American Community Survey 5-Year Estimates and 2013-2017 American Community Survey 5-Year Estimates

The Brookings Institution tracks income inequality trends for the 100 largest metropolitan areas in the U.S., including the City of San Francisco and the Bay Area. In its 2018 reporting on this topic, San Francisco was reported to have the sixth highest income inequality level of the largest 100 cities in the country in 2016. San

Francisco's 95th percentile household income of \$507,824 was 15.9 times greater than the \$31,840 household income at the 20th percentile.¹³ San Francisco's 2016 differential of 15.9 reflects an increase from the 2014 differential of 14.5, as shown in Exhibit 5, indicating a worsening of income inequality in San Francisco over the two-year period.

Exhibit 5 also shows that the rate of increase in household income at the 95th percentile between 2014 and 2016 (46.2 percent) was substantially greater than the growth in household income at the 20th percentile (19.1 percent).

Exhibit 5: Differences between 20th and 95th Percentile San Francisco Household Income, 2014 and 2016

Household Income	20 th percentile	95 th percentile	Multiple
2016	\$31,840	\$507,824	15.9
2014	\$26,730	\$388,491	14.5
% increase	19.1%	46.2%	

Source: Alan Berube, *City and Metropolitan Income Inequality Data Reveal Ups and Downs through 2016*. Brookings Institution: brookings.edu. February 5, 2018.

According to a Bloomberg analysis of 2017 Census data,¹⁴ of the 100 largest metropolitan areas in the United States, San Francisco has the widest gap between extremely high earners and "middle-class" earners.¹⁵ Bloomberg's analysis finds that the top 5 percent of San Francisco households earned \$632,310 in 2017, compared with \$102,785 for middle-class households. Bloomberg also found that San Francisco has the widest gap between the highest 20 percent income group and the lowest 20 percent income group.

Wages and Occupations

While the income distribution of San Francisco households has changed, skewing upwards over the past several years, there are still a substantial number of low-wage jobs in the City and adjacent communities. In fact, the fastest growing occupational classification between 2012 and 2017 reported for the San Francisco-Redwood City-South San Francisco area by the California Employment Development Department was Personal Care and Service occupations (e.g., personal care aides, childcare workers, etc.), with 54,850 jobs in 2017, an increase

¹³ The 20th percentile represents the income amount that 20 percent of all San Francisco households earn less than, and 80 percent of all San Francisco households earn more than. The 95th percentile represents the income amount that 95 percent of all San Francisco households earn less than, and five percent of all San Francisco households earn more,

¹⁴ Shelly Hagan and Wei Lu, "The Income Gap is Getting Worse in American Cities," Bloomberg, March 22, 2019. <https://www.bloomberg.com/news/articles/2019-03-22/from-boise-to-nyc-uber-rich-are-leaving-the-middle-class-behind>

¹⁵ Middle-class earners are defined as the middle 20 percent of earners, or third quintile.

of 107 percent since 2012. This occupation category also had the lowest annual mean wages reported for 2018, at \$31,743 annually, or \$15.26 per hour. The second fastest growing occupational group between 2012 and 2017 was Computer and Mathematical occupations (e.g., software developers, systems analysts, etc.), with 93,670 jobs in 2017 and one of the highest annual mean wages reported at \$126,812, or \$60.97 per hour.

Besides the gap in mean wages between the two fastest growing occupation groups, the differential in wages between the two groups also increased during the period reported. As shown in Exhibit 6, the difference between mean wages for Computer and Mathematical occupations and Personal Care and Service occupations increased from 3 times greater in 2012 to 4 times greater in 2017. Further, as can be seen in Exhibit 6, unlike all other occupation categories, mean annual wages for Personal Care and Service occupations decreased between 2012 and 2017 by six percent, whereas Computer and Mathematical occupation wages increased by 24 percent.

Exhibit 6: Differential in Mean Wages: Computer and Mathematical vs. Personal Care and Service Occupations, 2012 and 2017: San Francisco-Redwood City-South San Francisco

	2012	2017	% Change
Mean Annual Wages			
Computer and Mathematical Occupations	\$102,096	\$126,812	24%
Personal Care and Service Occupations	\$33,942	\$31,743	-6%
Multiple: difference in wages	3.0	4.0	

Source: California Employment Development Department

A report prepared for the Bay Area Regional Prosperity Plan Housing Working Group by Alex Karner and Chris Benner¹⁶ found that there was a close association between high-wage and low-wage job growth in San Francisco between 2008 and 2011. In fact, the study shows that San Francisco was responsible for the largest growth in low-wage jobs in the Bay Area, but there was no net increase in the number of affordable housing units, or the types of units that would be accessible to low-wage workers. The result for some workers has been displacement, as individuals who can no longer afford housing prices and rents are forced to move out their neighborhoods or the City as a whole. Others remain but in an increasingly unaffordable city and region.

SPUR's 2014 Economic Prosperity Strategy report¹⁷ states that income inequality has risen sharply in the past decade largely due to the decline in middle-wage jobs and the stagnation of wages for many workers, plus a rapid increase in wealth for workers and households at the top of the income spectrum. SPUR concludes that the Bay Area's driving economic sectors are increasingly split between high-skill, high-wage jobs (in industries like technical and professional services) and low-skill, low-wage jobs (in industries like hospitality, childcare, and retail).

The SPUR report's conclusions are supported by Economic Development Department data for the top 10 occupation categories by estimated employees in the San Francisco-Redwood City-South San Francisco area, presented in Exhibit 7. As can be seen, the top ten occupation categories contain a high number of jobs earning both the highest and lowest wages. Overall job growth and wage increases have occurred at both the high and low ends of the wage scale but both the increase in the number of jobs and rate of increase in wages was greater for high wage occupations.

Mean hourly wages in the top ten categories in 2017 ranged from \$15.29 for Personal Care and Service occupations at the low end to \$79.77 at the high end for Management occupations. Decreases in the number of jobs have occurred in the middle of the wage range including Office and Administrative Support occupations, Sales and Related occupations, and Education, Training and Library occupations.

¹⁶ Alex Karner and Chris Benner, "Job growth, housing affordability, and commuting in the Bay Area," prepared for the Bay Area Regional Prosperity Plan Housing Working Group, May 29, 2015.

¹⁷ SPUR, "Economic Prosperity Strategy," 2014.

<https://www.spur.org/publications/spur-report/2014-10-01/economic-prosperity-strategy>

Exhibit 7: Changes and Mean Hourly Wages for Top Five and Bottom Five Occupation Categories by Earnings, 2012-2017, San Francisco-Redwood City-South San Francisco

Occupation Categories	Employment Estimate			Mean Hourly Wage '12	Mean Hourly Wage '17	% Chg.
	Employment Estimate May '12	Employment Estimate May '17	% Chg.			
Management	74,790	90,630	21%	\$ 69.25	\$ 79.77	15%
Computer and Mathematical	63,470	93,670	48%	\$ 49.08	\$ 60.97	24%
Healthcare Practitioners and Technical	42,730	43,870	3%	\$ 49.02	\$ 57.07	16%
Business and Financial Operations	86,290	108,740	26%	\$ 44.55	\$ 49.85	12%
Education, Training, and Library	48,280	44,140	-9%	\$ 29.93	\$ 35.51	19%
Sales and Related	101,300	98,110	-3%	\$ 25.98	\$ 28.38	9%
Transportation and Material Moving	47,920	61,770	29%	\$ 20.22	\$ 25.26	25%
Office and Administrative Support	156,590	151,820	-3%	\$ 22.19	\$ 25.09	13%
Food Preparation and Serving-Related	98,410	107,660	9%	\$ 12.89	\$ 17.07	32%
Personal Care and Service	26,490	54,850	107%	\$ 16.32	\$ 15.26	-6%
Subtotal	746,270	855,260	15%			
Other occupations	254,160	261,130	3%			
Grand Total	1,000,430	1,116,390	12%			
Occupations \$25/hr & under 2017	329,410	376,100	14%	18.27	21.08	15%
Occupations over \$40/hr, 2017	267,280	336,910	26%	49.05	59.02	20%
Multiple: highest:lowest				4.2	5.2	

Source: California Employment Development Department, OES Employment and Wages Data Tables (2018 1st Quarter and 2013 1st Quarter)

Note: Minor changes in the geographic area boundaries occurred between the two years compared.

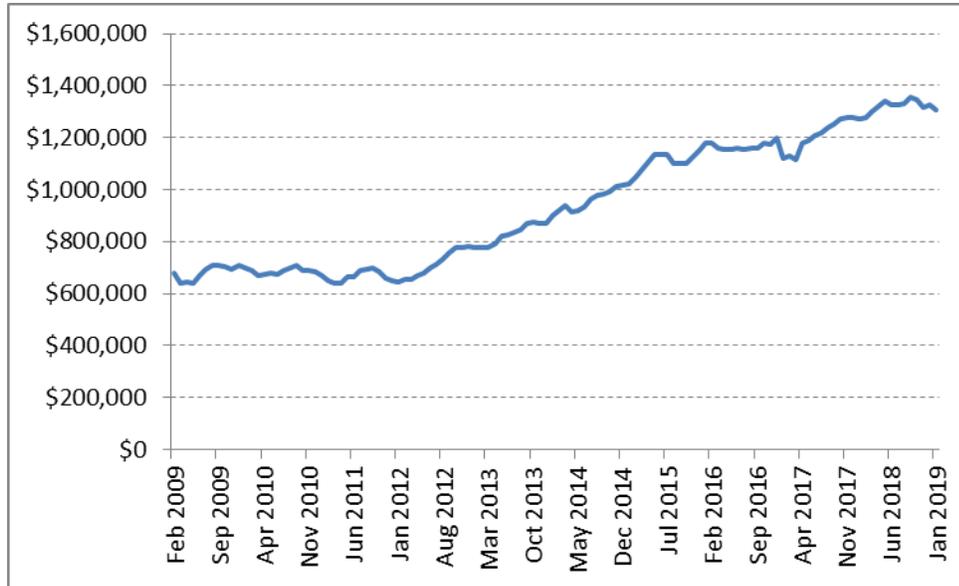
Indicators of growing income inequality in San Francisco between 2012 and 2017 can be seen in a variety of the measures presented in Exhibit 7. Growth in the number of jobs earning \$40 per hour or more was higher at 26 percent compared to 14 percent for those earning \$25 or less between 2012 and 2017. Wages increased for both of those groups, but at the rate of 20 percent for occupations earning \$40 per hour or more compared to a lower 15 percent increase in wages for occupations earning \$25 or less. Similar to the findings by the Brookings Institution reported above, the differential in wages between the highest and lowest paid occupations in the top ten categories increased from 4.2 times greater in 2012 to 5.2 times greater in 2017, also shown in Exhibit 7.

Housing Prices

Reflecting the growth in population, jobs, wealth for some residents, and occupations in San Francisco and the region and a relatively limited supply of housing, Zillow reports that the median sale price for homes in San Francisco increased from \$677,400 in February 2009 to \$1.3 million in January 2019, or by 93 percent. While this near doubling in the median home sales price outpaced wage growth for all occupations, it certainly made homeownership significantly less affordable for the many workers in San Francisco at the low end of the wage scale.

Exhibit 8 below displays monthly median house sale prices in San Francisco between 2009 and 2019.

Exhibit 8: Monthly Median Sale Price in San Francisco – All Homes



Source: Zillow.com, San Francisco Median Sale Price (all homes): February 2009 to January 2019

Zillow also reports that rent listings for a two-bedroom apartment have increased between 2010 and 2019 from \$3,300 to \$4,500, or by 36 percent.

In her article “Income Inequality and Urban Displacement: The New Gentrification” (2016),¹⁸ Karen Chapple argues that what is widely viewed as a housing crisis is actually an income crisis, because at the core of the urban displacement crisis is income inequality, driven by declining real wages. Chapple notes that housing prices have risen much faster than incomes, particularly in strong market regions, and in regions with high income inequality, low-income households find housing less affordable. Chapple argues for a multi-pronged policy response to the displacement crisis, with interventions to improve incomes and preserve housing affordability, in addition to building new supply.

This phenomenon affects not only San Francisco, but other urban centers of the Bay Area as well. A Silicon Valley Rising report¹⁹ found that between 2009 and 2015, the inflation-adjusted average rent in San Jose increased by 32 percent, while adjusted median incomes for renters decreased by almost 3 percent. Rents have

¹⁸ Karen Chapple, “Income Inequality and Urban Displacement: The New Gentrification,” December 9, 2019, New Labor Forum 2017, Vol. 26(l) 84-93, DOI: 10.1177/1095796016682018.

¹⁹ Silicon Valley Rising and Working Partnerships USA, “Soaring Rents, Falling Wages,” undated. <https://siliconvalleyrising.org/files/SoaringRentsFallingWages.pdf>

risen nearly four times faster than wages, and nearly five times faster than Social Security payments. According to the report, nearly 57 percent of families in San Jose earning less than \$50,000 spend more than half their income each month on rent, and the gap between wages and rent affordability is nearly three times what it was in 2009.

IPOs and the Technology Sector

Research by Karen Chapple, John V. Thomas, Dena Belzer, Gerald Autler found that in the Bay Area, housing price appreciation has a strong relationship to the location of start-up jobs, particularly those that provide information-intensive services²⁰ (urban livability factors, such as access to food stores and entertainment, also play a role). Chapple et al. argue that because the occupational patterns of information-intensive services are skewed toward the high end of wages, prices that employees can pay for housing are inflated, and expansion of these firms therefore creates a disproportionate share of highly skilled, highly paid workers into the local housing markets.

The data presented in Exhibits 6, 7, and 8 above support this pattern identified by Chapple et al. in San Francisco: in recent years, the City has seen relatively faster growth of more highly-paid workers in information-intensive businesses. Due to their higher salaries, these workers are better able to afford rent or to purchase real estate in the San Francisco market. These employees may also benefit from sudden cash windfalls when the technology companies they work for go public, are acquired, or have significant rounds of private equity and venture capital investment. As these events occur and high-earning employees are able to exercise stock options or take advantage of other equity compensation, they may become even wealthier and even more able to purchase expensive housing.

IPOs in San Francisco in 2019

Reflecting the resurgence of IPOs in recent years, the following San Francisco companies either have gone public or may be planning to do so in 2019, according to various company and media reports. Private companies do not disclose the number of employees who have received or will receive stock options or other equity-based compensation (who may experience cash windfalls or other benefits when their companies go public), nor do companies publicize the number of shares that employees have or will be granted. However, industry practices indicate that

²⁰ Karen Chapple, John V. Thomas, Dena Belter, and Gerald Autler, "Fueling the fire: Information technology and housing price appreciation in the San Francisco Bay area and the Twin Cities," 2004, Housing Policy Debate 15(2): 347-383.

many of the estimated 7,990 employees in San Francisco at these companies should be or have been awarded stock options, which would increase their wealth over a short timeframe and, according to research on IPOs cited below, make at least some of these employees eligible and motivated to purchase real estate in San Francisco.

Exhibit 9: San Francisco Companies with Expected or Actual IPOs in 2019

Company	Valuation	Estimated # employees in SF
Airbnb	\$35 bn.	2,300
Lyft*	\$24 bn.	1,600
Pinterest*	\$12.7 bn.	<i>unknown.</i>
Postmates	\$1.85 bn.	340
Slack	\$7.1 bn.	750
Uber	\$100 bn.	3,000
Total		7,990

Sources: San Francisco Business Times, July 2018, as of January 2018 (estimated number of employees in San Francisco). For private companies, valuations taken from recent media reports (including New York Times, Reuters, Recode, San Francisco Business Journal, Forbes, and the Wall Street Journal) and may be subject to change. For companies that have already gone public, valuation listed is the valuation at the date of IPO.

*Valuation at IPO

Estimated Impact of IPOs on Housing Prices

The median sale price of a home in San Francisco as of January 2019 was \$1,304,200 according to Zillow. Three recent studies have quantified the impact of IPOs on housing prices in areas adjacent to IPO company headquarters. The results of the three studies are:

1. Economists Barney Hartman-Glaser, Mark Thibodeau, and Jiro Yoshida, cited above, found that real estate prices increased within 10 miles of IPO company headquarters by 1.0 percent more than in the surrounding area after the company filed to go public, by 0.8 percent more after issuing, and by zero percent after the lock-up expiration, or the date when employees can exercise their options and sell their shares. This conclusion was based on the economists' analysis of 725 California company IPOs between 1970 and 2015 and 6.5 million real estate transactions.
2. An economist at Zillow analyzed the impact of IPOs on home values in census tracts that were home to many Facebook employees at the time of Facebook's IPO. He found that between March 2012 and March 2013,²¹ home values in

²¹ The Facebook IPO was in May 2012.

census tracts likely to be home to Facebook employees increased 21 percent, compared to a 17 percent increase in all other Bay Area census tracts.²²

3. A third study found that IPOs have spillover effects on real estate outcomes, including home prices and mortgage originations,²³ and found that home price growth increases by more than one third in zip codes located within two miles from the IPO headquarters, but only for expensive homes. The study also showed that home price growth accelerates after the expiration of the employee lockup period, which supports the hypothesis that some of the increase in housing prices is due to employees who see cash windfalls as a result of IPOs, especially because home price growth is higher for listings when the firm's stock market price increases after the IPO.

While there are differences in the details of the outcomes of these studies, the general conclusion is that IPOs affect real estate prices in areas close to IPO company headquarters. We applied the most conservative results of the three studies to San Francisco housing prices to provide an estimate of the potential impact of the IPOs believed likely to occur in 2019. As shown in Exhibit 10 below, applying the 1.8 percent average impact from the Hartman-Glaser et al. study to San Francisco's \$1.3 million median home price as of January 2019 could add between \$23,476 for a single IPO and up to \$147,346 to San Francisco's median housing price if all of the six anticipated IPOs occur. This impact would likely occur over a one- to two-year period, allowing for completion of all employee lock-up periods (often six months after IPO date). This impact is based on an average and would depend on all six anticipated IPOs occurring so that those with larger impacts balance out those with smaller impacts.

Limitations of this estimate include: 1) the study on which it is based focused on all IPOs in California, many of them in Silicon Valley, where housing characteristics and the real estate market is different than in San Francisco, and 2) there has been significant publicity about the likely and actual 2019 IPOs in San Francisco already, and some media reports indicate that sellers may be adjusting their timing and upward pricing of their properties in advance of the IPOs in anticipation of buyers with newly-liquid assets. If this is the case, some of the impact may already be incorporated in pre-IPO real estate prices.

While the San Francisco housing market is different than the market in Silicon Valley and other parts of California, we conclude that those differences would not affect buying behavior associated with an IPO. We would expect buyer behavior to be

²² Tucker, Jeff. *Post-IPO, Home Values Grew Faster in Areas Home to Lots of Facebook Employees*. February 4, 2019. www.zillow.com/research

²³ Alexander W. Butler, Larry Fauver, and Ioannis Spyridopoulos, "Local Economics Spillover Effects of Stock Market Listings," SSRN, December 5, 2018. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2695464

similar to what was observed in other studies: a certain number of employees at San Francisco companies would choose to buy a home close to work in San Francisco when given the resources to do so after an IPO. Regarding the second caveat, to the extent sellers are pricing their properties in anticipation of the IPOs, there is still an upward impact on prices due to the IPOs; it just may be occurring before the actual IPO event.

Exhibit 10: Impact of Six Expected IPOs on Median Housing Prices in San Francisco

	Median Value	\$ change	% change
Actual: Feb. 2019	\$ 1,304,200		
after 1st IPO	1,327,676	\$23,476	1.8%
after 2nd IPO	1,351,574	23,898	3.6%
after 3rd IPO	1,375,902	24,328	5.5%
after 4th IPO	1,400,668	24,766	7.4%
after 5th IPO	1,425,880	25,212	9.3%
after 6th IPO	1,451,546	25,666	11.3%
Total		\$ 147,346	11.3%

Source: Median value: Zillow.com, San Francisco Median Sale Price (all homes): January 2019. IPO impact factor: "Cash to Spend," Hartman-Glaser, Thibodeau, and Yoshida. November 30, 2018.

The results shown in Exhibit 10 assume that the increase would be at the average level for all IPOs reviewed in the Hartman-Glaser, et al. "Cash to Spend" study, or 1.8 percent per IPO. However, Hartman-Glaser et al. also report that:

"The impact on housing prices is larger when the wealth increase by IPO is larger: e.g., higher offer price, larger IPO proceeds, and larger share underpricing at filing. The impact is also larger for younger and smaller firms."

In other words, since some of the San Francisco companies' IPOs may be large and will likely have larger IPO proceeds than average (such as Uber), the impact on housing prices would likely be even larger, according to the analysis. Conversely, for companies that may have smaller IPOs, the impact of a particular IPO may be less than Hartman-Glaser et al.'s estimation of 1.8 percent. As mentioned above, the estimated impact shown in Exhibit 10 depends on all six companies going public, with the impact of the larger companies balancing out the lesser impacts of the smaller companies.

To the extent housing prices increase beyond their already high levels due to the impact of the IPOs, the pattern associated with gentrification in San Francisco will be exacerbated, making housing less affordable, particularly to lower income residents. While the IPOs may help workers in the companies that go public be

better able to purchase housing in San Francisco, these are generally well paid employees to begin with. As stated in the Zillow research cited above:²⁴

“Today home prices have never been higher though appreciation is slowing dramatically. Buyers often need exceptionally high incomes, or a sudden windfall that an IPO could provide, to break into the market.”

Policy Considerations

While not the sole cause of income inequality in San Francisco, the occurrence of up to six IPOs in 2019 will add a one-time injection of wealth to many well-paid workers, investors, and founders further increasing the wealth gap and likely causing some increase in housing prices. Some policy approaches the Board of Supervisors could consider to address and mitigate the effects of income inequality are to:

1. Enhance funding for existing City workforce development, economic development, affordable housing, and subsidized childcare programs, particularly those aimed at the low and moderate income workforce.
2. Enhance City programs aimed at financial empowerment, such as those administered by the Treasurer-Tax Collector including Kindergarten to College, Bank on SF, and Smart Money Coaching.
3. Enhance taxes such as the City’s payroll or gross receipts tax for companies above a certain size and/or gross receipts level, with the proceeds used for programs and services designed to minimize the impacts of income inequality.
4. Establish a gross receipts surtax on companies with differentials between CEO and average worker pay above a certain level, with the proceeds used for programs and services designed to minimize the impacts of income inequality.
 - a. The City of Portland, Oregon has established such a surtax.
5. Establish other taxes on large or high-value companies in San Francisco, with the proceeds used for programs and services designed to minimize the impacts of income inequality. Some examples could include:
 - a. In November 2018, East Palo Alto voters approved an annual parcel tax of \$2.50 per square foot on commercial office property over 25,000 square feet, with tax revenue reserved for spending on affordable and supportive housing programs and programs that facilitate residents’ access to jobs in the science, technology, engineering, and mathematics sectors and the building trades.

²⁴ *Ibid.*, Tucker.

- b. Also in November 2018, Mountain View voters approved an annual per-employee business license tax, with larger companies paying more per employee. (Revenue from this tax is considered unrestricted general revenue.)
 - c. In 2018, the Seattle City Council passed a “head tax” ordinance that would have levied a \$275 per full-time employee²⁵ tax on Seattle businesses that have at least \$20 million in annual taxable gross revenue. Tax revenue would have been spent on affordable housing and services for Seattle’s homeless population. The Seattle City Council later repealed the head tax legislation.
6. Provide incentives or assistance to households under a certain income level to enroll in retirement plans.
 7. Lobby for changes to federal and state tax policies.

²⁵ The proposed tax, formally an Employee Hours Tax, would have applied to all Seattle employees at a rate of 26 cents per hour for 2019 and 2020, with the annual tax per employee capped at \$275.