

What Contributes to the Increase in Homelessness? Does Housing drive Homelessness in California?

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Abstract High housing prices in China are the main reason for the lack of home ownership in urban areas. This article researches that housing is contributing to the increase in homelessness in California. Desmond found that house price is a critical factor in explaining the rise in homelessness in the United States. Huang found high housing costs were a major factor in the homelessness crisis. Data from Zillow and the [18] Department of Housing and Urban Development present during 2008-2022, California house prices are highly correlated with the number of homeless people. This study finds that unemployment and GDP per capita are more highly correlated and statically significant with homelessness than housing prices, meanwhile, data from the [2] Bureau of Labor Statistics indicate the non-farm manufacturing labor force appears to be a significant predictor of homelessness in California. Data from the Bureau of Economic Analysis evidenced state personal income and state disposable income are not explicitly related to the homeless population.

Keywords- Housing, homelessness in California, income inequality, unemployment population, homelessness.

1. INTRODUCTION

High housing prices are the reason why most of the urban population cannot own a home in China. Over the past decade, homelessness has become a pressing issue in California. California, as the state with the largest population in the United States, had an estimated 161,000 homeless population in 2020 [8]. According to the State of Homelessness in America 2020 release, the homeless population has increased 23% since 2015. Many factors contribute to the rise in homelessness, such as high housing costs, income inequality, mental illness, substance abuse, and systemic issues such as racism and discrimination [14]. The impact of homelessness on individuals and communities is significant and multifaceted. People experiencing homelessness are at higher risk for health problems and violence, while they lack access to medical services such as health care and sanitation [9]. Homeless encampments also affect communities, creating public health and safety issues, reducing property values and straining local resources. The costs of homelessness are solidly borne by taxpayers, as taxpayers pay for law enforcement and other public expenditures related to homelessness [9]. **[Fig. 1. California Homeless Population from 2008 to 2022.]** The homeless population in California has persistently increased since 2015. Before the 2008 financial crisis, the homeless population in California was estimated to be around 134,000 individuals. In the years following the financial crisis, the homeless population in California fell to 120,000 by 2012. The year 2019 is a meaningful research point for the homeless population; static of the year 2019 homeless population reports this group has the

largest increase during recent decades, an addition 16% compared to the previous year; in 2019 the homeless population in California hit a record high with 150,000 homeless individuals reported in the state. The number of homeless people continued to grow since then, rising to 170,000 in 2022.

Some studies suggest the 2021 data of the 57468 homeless population may be significantly undervalued; according to the National Alliance to End Homelessness (2022) [13], pandemic-related health concerns disrupted counts of unsheltered people in 2021, while homelessness organizations made such data available for that year, the nationwide count will not be fully updated until late 2022 or early 2023, Volunteers or trained professionals might have difficulty accessing these places. Because of the existence of data problems during the COVID-19 pandemic in 2021, this research adjusted the evaluation of the estimated data for 2021 by the growing trend of 2019 and 2018 as the estimate for 2021 data. The reason this research chooses this method is considered sufficient: the growing homeless population trend starts in 2015, and there are no significant factors during the COVID-19 homeless population will decrease. Meanwhile, the average of 2020 and 2022 will reinforce the weight of 2020 and 2022 in the dataset, while this research only has matched and limited data from 2008-2022. This research considers this method will better help analysis and provide more accuracy in analyzing data than a simple obtained estimator from the average 2020 and 2022 homeless population.

Below Graph illustrate the Mathematical technique: [Fig. 2. Estimate technique on 2021 Homeless Population]

Estimated growth for 2021 of homeless population based on the previous year's flattening increasing rate; that is, the research obtained the estimator of 2021 population growth from a flattening increase rate from 2018-2019 to 2019-2020 to estimate the real 2021 homeless growth, 2021 estimate factor is equal to -0.517976157 , by adding 2020 homeless population the author gets 166498 for estimator of 2021 homeless population. In 2020, the homeless population in California remained a significant issue, with an estimated 161,000 individuals experiencing homelessness. Research also shows that income inequality can significantly impact homelessness. Corman and Mocan [5] found that higher levels of income inequality were associated with higher rates of homelessness across all states in the U.S. Corman and Mocan [5] revealed that higher levels of income inequality could lead to more significant disparities in access to affordable housing, as lower income individuals are priced out of the market. Desmond [6] supports a similar idea; Desmond's research found that the affordability of housing is a critical factor in explaining the rise in homelessness in the United States, his research stands for the point that the combination of rising housing costs and stagnant incomes for low wage workers, which led to a situation where many individuals and families cannot afford to pay for necessities such as housing, leading to homelessness [7].

California's efforts to address homelessness are complex and uneven, such as Government organizations and community. However, despite the significant resources the government has invested in the issue, progress has been slow [1]. The official report from the California government, *California's High Housing Costs: Causes and Consequences* (2015), announced that "High Housing Costs Problematic for Households and the State's Economy." This 2015 research suggests that between 190,000 units per year and 230,000 units per year were needed to keep California's housing cost growth in line with cost escalations elsewhere in the U.S. [12], while this research also points out High Housing Costs Contribute to Poverty in California, state

“Primarily because of California’s high housing costs, the state’s alternative poverty level is 23.4 percent, the highest in the nation and almost nine percentage points higher than average.” [12]

According to the 2021 Annual Homelessness Assessment Report to Congress, high housing costs are the leading cause of homelessness in the United States [11], with 78% of cities citing this as a contributing factor.

Literature Review: This article research on whether housing affect the homelessness and discusses the unemployed population and Per capital GDP addressing in terms of the homeless population. This paper follows previous paper from the California housing partnership. California housing partnership’s research introduced the trend of homelessness and the current government contribution to the homelessness. Kimberlin’s research (2019) conducts research on the homeless population and found it hard to afford housing in California. Huang (2019) found high housing costs were a major factor in the homelessness crisis, Huang [10] suggests a link between housing affordability and homelessness. Zillow’s data [19] support the perspectives that house price is correlated with homeless population. California Budget and Policy Center [4] announced cost of housing is caused by a paucity of affordable housing options, an increased demand for housing, and restricted land availability.

2. THE COST OF HOUSING AFFECTS HOMELESSNESS

The exorbitant cost of housing in California is a crucial determinant in the emergence of homelessness within the state. The multifaceted nature of this issue is evidenced by several factors, including a paucity of affordable housing options, an increased demand for housing, and restricted land availability, all of which contribute to the elevated cost of housing. [3] As of January 2021, California had a shortage of approximately 1.8 million affordable homes for low-income renters, which California state government has set a goal of building 3.5 million new housing units by 2025, including 1.3 million affordable housing units. This research did not spot reliable data on overall affordable homes in California. Also, Housing costs have been increasing faster than wages, making it difficult for individuals and families to keep up with the rising cost of life. As per a report published by the Public Policy Institute of California, California's housing expenditures have grown 113% since 1980, whereas median earnings have only increased by 26% over the same period. The corresponding interval has seen a growth of merely 26% in median earnings. [1] The study procured housing price data from Zillow, an American real estate marketplace that was introduced by the New York Times and has benefited from online advertising, sharing its search engine with newspapers in the United States [16]. Zillow [19] is providing 2006-2022 monthly housing data. Due to the housing prices in California have been rising sharply, the study averages monthly data in a year to obtain an estimate of the yearly estimator by adding up twelve months and dividing by 12 to get the estimator for a single year. This research also expects the housing price may vary from the rental price. Based on data from Zillow [19] and rentdata.org, rental price and housing price is generally correlated [15]. **[Fig. 3. California housing price from 2008 to 2022]**

According to data from Zillow [19], the sales price of existing family homes in California was \$367,746 in 2008, before dropping to a low of \$297,839 in 2012. The housing market in California was hit hard by the 2008 financial crisis, with the state experiencing some of the

largest declines in housing prices in the country. Since the government adjusted statistical techniques to point-in-estimate for evaluating the homeless population since 2007, by matching the most accurate data purpose, this research started the data researching on 2008. According to data from Zillow, since 2013, housing prices in California have rebounded significantly; the median sales price of existing single-family homes in California reached a peak of \$643,135 in May 2021, this represents a 135% increase from the 2012 low.

According to data from Zillow [19] and rentdata.org [15], house price is correlated with rental price in California. This research predicts that the house prices would have a correlation with the homeless population; hypothesis predicts that when housing prices rise, homeownership becomes more expensive and unaffordable for individuals or families.

Conversely, when housing prices decrease, it can become more affordable for people to buy homes, reducing the demand for house purchases and rental properties. As a result, landlords may need to lower the house price or rental rates in order to attract buyers or tenants, leading to a decrease in house prices.

The data shows that the homeless population in California has increased from 136,531 in 2008 to 171,521 in 2022. On the other hand, house prices in California, based on the Zillow [19] data, have also increased from \$367,746.6436 in 2008 to 731,296.6899 in 2022, it appears that there is a positive correlation of 0.86 between California's homeless population and house pricing. Kimberlin (2019) examined the affordability of housing in California and found that rising housing prices have made it increasingly difficult for middle-class families to afford housing in the state's major metropolitan areas. Sara (2019) suggested that policies aimed at increasing the supply of affordable housing, such as relaxing zoning restrictions and increasing public investment in housing, could help to address this issue. Huang [10] investigated the relationship between housing costs and homelessness. Huang found that high housing costs were a major factor in the state's homelessness crisis, people who cannot afford housing costs were exposed to a greater risk of being homeless. Huang's study suggests a clear link between housing affordability and homelessness, and policies aimed at increasing housing affordability may benefit in reducing homelessness.

In terms of policy responses to homelessness in California, a study by the California Budget and Policy Center [4] points out that providing housing subsidies and supportive services to homeless individuals can be an effective way to reduce homelessness. Researchers from the Budget and Policy Center also found that providing housing subsidies and supportive services can lead to long-term improvements in housing stability and reduce the likelihood of returning to homelessness. [Table.1. California Data Table]

Table 1--DATA table of 2008-2022

	min	avg	max	Std	IQR
California Homeless population	113952	133,843	171521	19391.55173	24579.5
California house pricing from Zillow	273629.252	430620.19	731296.69	139180.427	206871.925
California unemployment population	794764	1455518.36	2285548.08	532546.445	946436.125
California GDP	1890165.9	2545638.09	3598102.7	546299.779	890388.85
California Per capital GDP	63703	73196.6286	88971.4286	8164.22039	12769
California Personal Disposable Income	37319	48263.2	64579	9320.3558	13139

California Manufacturing labor	1249.39167	1300.55778	1431.04167	45.83074	54.1375
California Below Poverty Population	480060.9	5128259.86	6328824	1429217.55	1171524
California Death Population	8480	10485	14234	1777.37674	1990
Healthcare spending per capita	601.800	650	760	47.68259965	48.9

3. UNEMPLOYEEMENT IN CALIFORNIA

[Fig. 4. California Unemployed Population from 2008 to 2022] This research predicts the unemployment rate will be correlated with the homeless population. Reasoning Predicts that, while regular people lose their job, people lose their income, and the homeless population increase. The 2008 financial crisis is a peak for analyzing the unemployed population. California's unemployment rate started to decrease after the financial crisis, while remaining above the United States national average; in 2016, the unemployment rate in California fell to 5.5%, which was higher than the United States' national average of 4.7% [17]. In 2020, the COVID-19 pandemic led to a surge in unemployment rates across the country, including in California; the unemployment rate in California reached a high in the middle of 2020 [17]. The unemployment rate in California has since improved, falling to 7.9% as of December 2020 [17]. The data sourced from the US Census Bureau indicate that the Gini coefficient has demonstrated fluctuations between the ranges of 0.471 and 0.4924 over the specified period, with a slight upward trend in evidence. Notably, the highest observed value of the Gini coefficient was in the year 2021, which is 0.4924; this observation suggests California's income disparity levels reached a new high; the highest value in the given data set indicates relatively high income inequality in California compared to other developed countries.

This research found house pricing is highly correlated with the homeless population, per capita GDP has a correlation of 0.98 with House pricing; otherwise, per capita GDP is also highly correlated with disposable income, which has a correlation of 0.97. Besides, personal disposable income has a correlation of 0.95 with house price; this research consider personal disposable income might related to the housing investment decision of California resident to a certain extent. This research also finds the rental price of the metropolitan city is highly correlated with the homeless program: Continuum of Care (COC), but in counties such as the rental price of Fresno has a correlation with Modera Counties COC: 0.16600486, Mendocino County has the correlation with Mendocino County COC: -0.729297174. In contrast, San Francisco has a correlation with San Francisco Counties COC: 0.864300705, rental price and California house price mainly impact the metropolitical city; this statement is also supported by data from Seattle, Washington, which has a correlation with its Seattle-King County COC: 0.94768357.

4. ECONOMETRICS

CA Homeless Population

$$\begin{aligned}
 &= \alpha + \beta_1 \text{Housing Cost} + \beta_2 \text{unemployee population} \\
 &+ \beta_3 \text{Per capital GDP} + \beta_4 \text{California Below Poverty level Population} \\
 &+ \beta_5 \text{California Manufacturing labo} \\
 &+ \beta_6 \text{California Personal Disposable Income} \\
 &+ \beta_7 \text{California Death Population} \\
 &+ \beta_8 \text{California Healthcare spending per capital} + \varepsilon
 \end{aligned}$$

CA homeless population is the analyzing outcome variable of this research, which is also the dependent variable in this research's model. β_1 (Housing Cost): It is expected to have a positive sign since higher housing costs may lead to homelessness by making it difficult for individuals to afford a place to live. β_2 (Unemployment Population): It is expected to have a positive sign since high unemployment rates may increase the risk of homelessness due to a lack of income to afford housing, β_3 (Per capital GDP): It is expected to have a negative sign since per capital GDP increase means economy as a set is better off. β_4 (California Below Poverty Level Population): It is expected to increase within the homeless population, the author expected this to have a positive sign. β_6 (California Personal Disposable Income): Personal disposable income indicates the level of residents are willing to spend their expenditure on spending or investment decision; this research expected this has a negative sign, β_7 (California Death Population): California Death Population indicates the death rate in California that is adjusted by age; this is expected to have a positive sign in the model, β_8 (California Healthcare spending per capita): spending per capital indicates healthcare spending per capita in California, which has been inflation-adjusted, this expected to have a positive sign in the model because health expenses are expected to lead a financial constrain and caused the financial exposure, which is contributing to the increase of homelessness.

This model suggests that higher housing costs are the independent variable, while unemployment population and Per capita GDP were considered as control variables in this model.

Table 2—Liner regression model results

	Estimate	St. Error	t-value	Pr(> t)	
(Intercept)	-487662.72	151571.151	-3.217	0.0182	*
California House Pricing	-0.137702	0.075018	-1.836	0.1161	
California Unemployed Population	0.030073	0.013544	2.22	0.0682	.
California Per capital GDP	7.352071	1.789717	4.108	0.0063	**
California Manufacturing labor	110.235169	119.439654	0.923	0.3916	
California Below Poverty Population	-0.002955	0.002497	-1.183	0.2814	
California personal disposable Income	-0.083386	1.16607	-0.072	0.9453	
California Death Population	-12.47177	9.655777	-1.292	0.2440	
Healthcare spending per capita	162.269911	139.907265	1.16	0.2902	

Residual standard error: 3437 on 6 degrees of freedom
Multiple R-squared: 0.9865, Adjusted R-squared: 0.9686
F-statistic: 54.95 on 8 and 6 DF, value:0.00004736

In the result of the regression model, Housing price is above 0.05 significant level, while the unemployed population and per Capital GDP are statistically significant in the model [**Table.2. Liner regression model table**]; Intuition and historical evidence suggest when individuals experience a loss of employment and are unable to find new job opportunities, they may face difficulties in paying rent and mortgage payments, which resulted to homelessness eventually. Per capita GDP indicates overall economic output; in theory, high Per capita GDP suggests better access to resources and housing options, which reduces the risk of homelessness, but this hypothetical mechanism is affected by various factors, such as income inequality, housing affordability and government policies. Otherwise, California Manufacturing Labor shows a close relationship in predicting the homeless population. The potential reason can be that the low barriers to entry in the manufacturing industry will lead to the absorption of all laborers into this industry if other industries generate available labor in the economy; research also compared the death population and healthcare spending per capita, the research found that California Death population and Healthcare spending per capita is not statistically significant with the homeless population.

5. CONCLUSION

In Conclusion, housing prices and the homeless population are correlated; the increase in housing prices may increase homelessness and state poverty, while unemployment and per-capital GDP are more statically significant with the homeless population. This research concluded unemployment and overall economic indicators such as per capita GDP determine the homeless population. Meanwhile, the research also found that manufacturing can be related to homelessness if other variables change, such as California's death population, which means the increase in manufacturing labor may have a causality within the homeless population. This research mainly found California house prices are impacting the low-income population in metropolitan cities; empirical research points out that low-income individuals in metropolitan are more likely to become homeless people. Otherwise, in other smaller counties like Fresno or Mendocino, there appears to be no correlation between housing prices and the surveyed local homeless population.

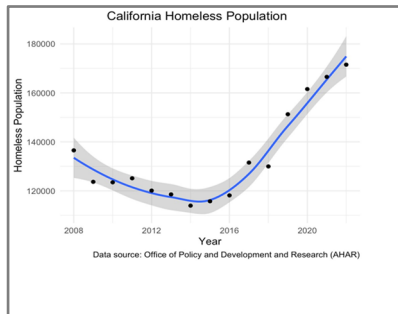


Fig. 1. California Homeless Population from 2008 to 2022

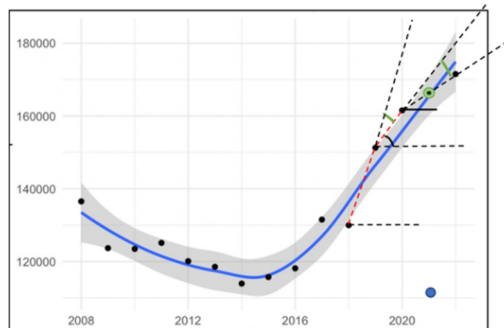


Fig. 2. Estimate technique on 2021 Homeless Population

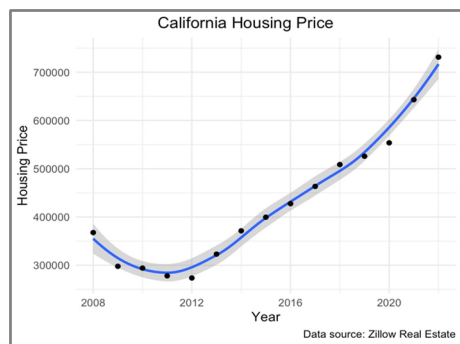


Fig. 3. California Housing price from 2008 to 2022

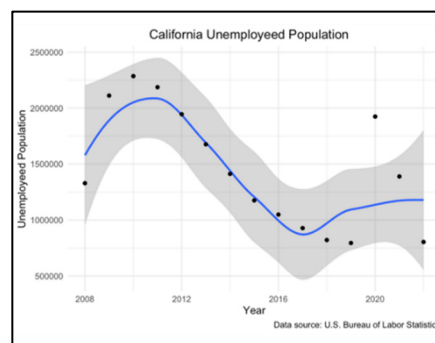


Fig. 4. California unemployed population from 2008 to 2022

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