

Report on Affordable Housing in US

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Financial Analysis report submitted in partial fulfilment of the requirements
for the Degree of B.Tech. in Computer Science & Engineering with specialization in AI ML on
02/05/2024

Course: Domain Specific Predictive Analysis
Project Advisor Prof. Aninda Kundu

Student Declaration

I hereby declare that the work presented in the report entitled ”**Report on Affordable Housing in US** ” submitted by me for the partial fulfilment of the requirements for the degree of *B.tech in Computer Science Engineering with specialization in AI ML* at Adamas University, Kolkata is an authentic record of my work carried out under the guidance of **Prof. Aninda Kundu**. Due acknowledgements have been given in the report for all material used. This work has not been submitted elsewhere for the reward of any other degree.

Mainak Ghosh

Date: 02/05/2024

Certificate

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

Prof. Aninda Kundu

Date: 02/05/2024

Abstract

This report provides a comprehensive analysis of the landscape of affordable housing in the United States, examining key trends, challenges, and policy implications. With a growing demand for affordable housing amidst rising costs and income inequality, understanding the dynamics of this crucial sector is paramount. Utilizing a combination of data analysis and literature review, this study investigates various aspects of affordable housing, including its availability, affordability, and accessibility across different regions and demographic groups.

The findings reveal significant disparities in affordable housing access, with low-income households disproportionately affected. Factors such as stagnant wages, escalating housing costs, and limited government subsidies contribute to the widening gap between housing supply and demand. Moreover, the report highlights the impact of systemic issues such as racial segregation and urban sprawl on exacerbating housing inequalities.

In light of these challenges, the report discusses potential policy interventions aimed at promoting greater affordability and inclusivity in the housing market. These include increasing funding for affordable housing programs, implementing zoning reforms to encourage mixed-income developments, and addressing regulatory barriers to housing construction.

Overall, this report underscores the pressing need for coordinated efforts from policymakers, stakeholders, and communities to address the complex issues surrounding affordable housing and ensure equitable access to safe and affordable housing for all residents of the United States.

Keywords: (e.g. Affordable Housing, Policy Implications, Urban Development, Housing Policy, Housing Accessibility, Data Analysis, EDA, Data cleaning, Data Visualization)

Acknowledgment

I would like to express my sincere appreciation to all those who contributed to the completion of this report on affordable housing analysis in the United States. First and foremost, I extend my gratitude to **Prof. Aninda Kundu** , whose invaluable guidance and expertise were instrumental in shaping the direction of this research. His insights provided critical perspectives that enriched our understanding of the complex issues surrounding affordable housing. I am also thankful to the **US Govt.** for providing access to the necessary resources and data needed to conduct our analysis. Their support facilitated our research efforts and enhanced the quality of our findings. Last but not least, we would like to thank my families, friends for their unwavering support and encouragement throughout the duration of this project. Their patience, understanding, and encouragement were essential in overcoming the various challenges encountered along the way. This report would not have been possible without the collective efforts and support of all those mentioned above. While any errors or omissions remain my own, their contributions have been invaluable in shaping the final outcome.

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Chapter 1

Introduction

1.1 Background

The provision of affordable housing stands as a cornerstone of societal well-being, ensuring that individuals and families have access to safe, secure, and affordable shelter. In the United States, the issue of affordable housing has garnered increasing attention in recent years, driven by a confluence of factors including rising housing costs, stagnant wages, and widening income inequality. Against this backdrop, this report aims to provide a comprehensive analysis of the state of affordable housing in the United States. By examining key trends, challenges, and policy implications, this study seeks to shed light on the complex dynamics that shape the availability, affordability, and accessibility of housing across different regions and demographic groups. In the following sections of this report, we delve into the various dimensions of affordable housing in the United States, examining trends in housing affordability, disparities in access, and the policy landscape governing housing provision. By critically analyzing the existing literature, empirical evidence, and policy frameworks, we aim to offer insights that can inform the development of more effective and equitable housing policies and strategies.

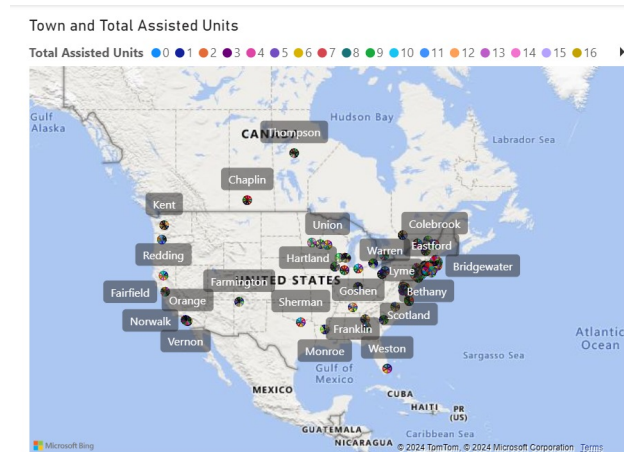


Figure 1.1: Town and Total Assisted units

Chapter 2

Literature Review

The literature review examines existing research and scholarly works related to affordable housing in the United States. It provides a comprehensive overview of key themes, trends, and findings from a range of sources, including academic journals, government reports, and think tank publications.

1. **Annual Government or Non Government assistance to citizen :** From the data provided by US Government we, find a trend in assistance provided by Government, Semi Government institution or Non Government institution to citizen to citizen to afford a house in different states. The value has a drop in 2016 but then it regained its height.
2. **Assistance to citizen based on town code :** Out of 169 US towns, not all towns are not fully affordable by the citizen. Towns like Hartford , New Haven have higher assistance numbers whereas towns like Burlington, Canaan, Salisbury have extremely low assistance numbers meaning they are easily affordable to live.
3. **Government Assisted :** These are loans given by government through schemes or banks to citizen to afford a living. This contributed to around 54 Percent of total assistance.
4. **CHFA / USDA Mortgages :** These are low interest montages where the property is itself colateral. This contributed to around 16 Percent of total assistance.
5. **Tenant Rental Assistance :** These are loans given by non profit government organizations that contributed to around 27 Percent of total assistance.
6. **Deed Restrictions :** loans in return of restrictions imposed by housing authority on deed that determines the number of occupancy and other factors. This sum upto around 3 percent.

Chapter 3

Methodology

The methodology section outlines the approach used to conduct the analysis of affordable housing in the United States. It provides a detailed description of the research methods, data sources, and analytical techniques employed in this study.

1. **Research Design:** This study adopts a mixed-methods approach, combining quantitative analysis of secondary data with qualitative insights obtained through literature review and expert interviews. This approach allows for a comprehensive examination of affordable housing trends, challenges, and policy implications from multiple perspectives.
2. **Data Collection:** The primary data sources for this analysis include publicly available datasets from US Government agencies under states section. <https://data.gov/>
3. **Data Analysis:** Quantitative data analysis involves descriptive statistics, trend analysis, and spatial mapping techniques to identify patterns and trends in housing affordability across different geographic regions and with time. Statistical software Python is used to conduct data processing. For analysis I used Power BI. Qualitative data from literature review and expert interviews are thematically analyzed to identify key themes, perspectives, and policy implications related to affordable housing.
4. **Limitations and Assumptions:** It's important to acknowledge the limitations and assumptions inherent in the methodology, including potential data constraints, sampling biases, and limitations of secondary data sources. Sensitivity analyses and robustness checks are conducted to assess the robustness of findings and mitigate potential biases.

Chapter 4

Results

Based on Analysis of the dataset we can note down the following inferences.

- Target Number of Towns : 169
- Types of Assistance provided : 4
- Total Government Assisted : 1182825
- Total Tenant Rental Assistance : 583309
- Total Single Family CHFA/ USDA Mortgages : 361265
- Total Deed Restricted Units : 71852
- Highest Percent of affordable housing town : Hartford (11.9 Percent on average)
- Lowest Percent of affordable housing town : Durham (0.03 Percent on average)

Sum of CHFA, Sum of Tenant Rental Assistance, Sum of Deed Restricted Units and Sum of Government Assisted by Town Code

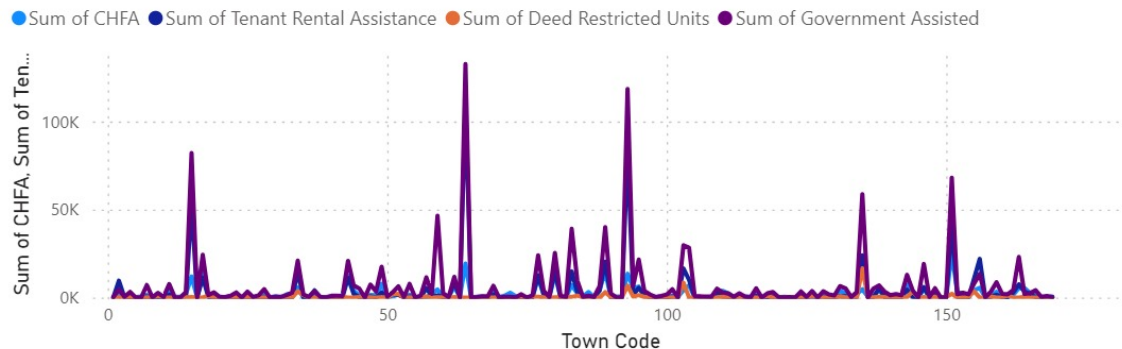


Figure 4.1: All type of assist per town

Affordable living per town codes by Town Code

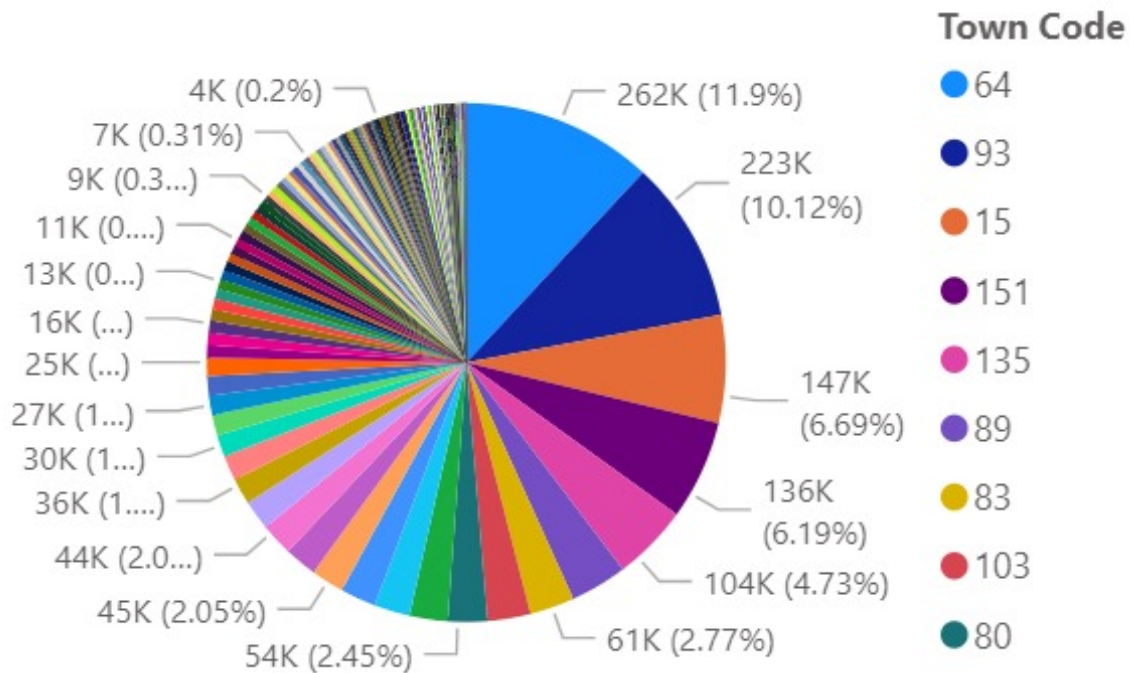


Figure 4.2: Affordable living per town

Percent Affordable by Year

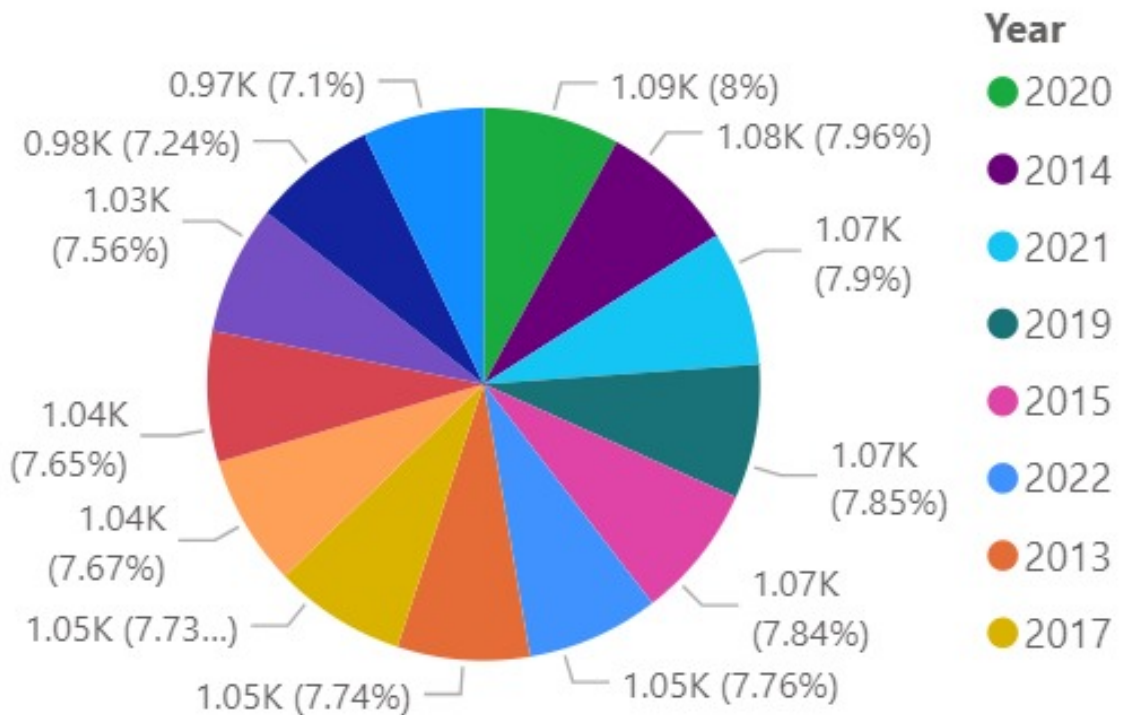


Figure 4.3: Affordable percentage per year

Total Assisted Units by Town Code by Town Code

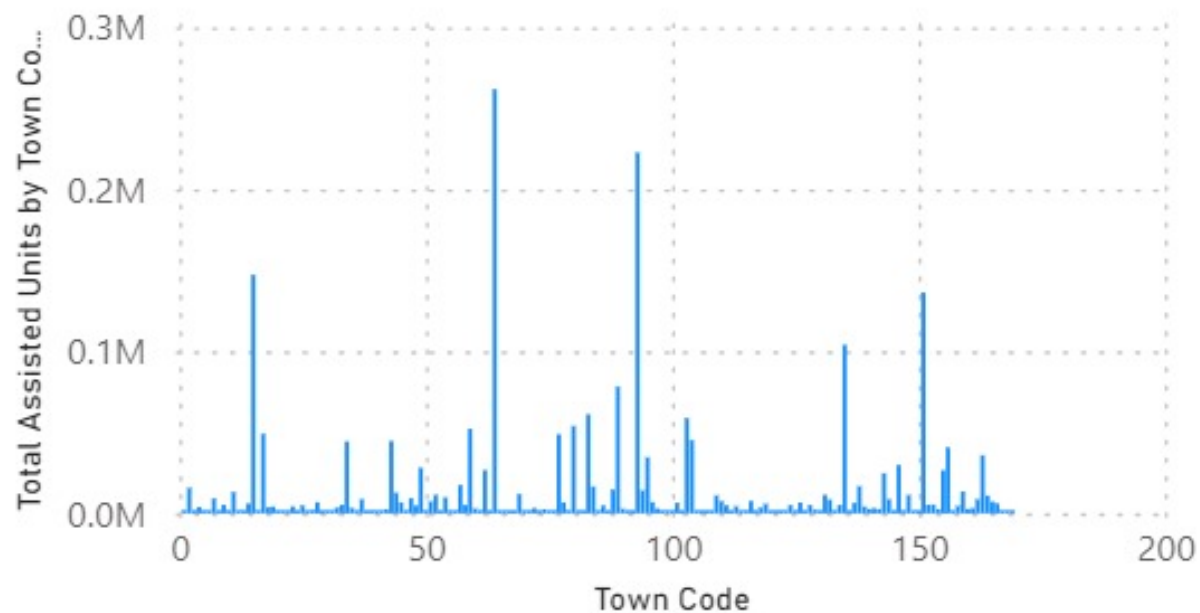


Figure 4.4: Total Assist by town

Annually Total Assisted by Town Code

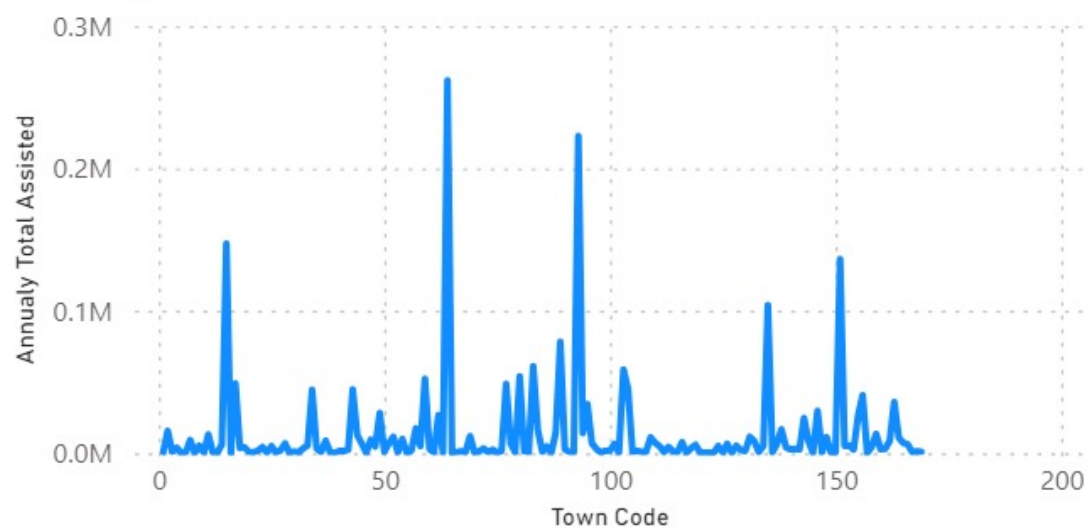


Figure 4.5: Annual Help by town

Chapter 5

Conclusion

After drawing all the inferences we found out -

- Maximum people availed for government assisted loans to afford a living. This highlights their trust on Government Organizations and Banking sectors.
- Hatford, New Haven receives maximum assistance which means these towns provide a good atmosphere to live as well as to work.
- Towns of Cannan, Salisbury have low assistance rates meaning they are easily affordable or is mostly inhabited by locals. This can also mean they are might be far from a metropolitan city.
- People tend to take loans or financial help mostly from Government organizations , in this case authorities can take actions that help them to maintain the trust and retention rate.
- Highest affordability had happened in 2014 , 2020(may be for quarantine purpose) but after COVID pandemic we find there is a significant drop in affordability rates. Somehow, it is again taking shape in recent year.

Chapter 6

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5. **Dashboard :** [Drive](#)