Early Insights Report on the Impact of Remodeling and Zoning Conversions on Boston's Housing Market

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This report provides preliminary insights into the ongoing study of the effects of remodeling and zoning conversions on the availability of housing units in Boston, focusing on how these changes cater to higher-income individuals and potentially reduce housing stock. By analyzing permit data across various Boston communities, we aim to understand the dynamics of housing construction, loss, renovation, and their implications for housing availability and demographic shifts within the city.

Introduction

The city of Boston is experiencing significant changes in its housing landscape, driven by remodeling and zoning conversions. This transformation is influenced by the influx of higher-income individuals and the consequent conversion of multi-unit homes into larger, single-family units. This report examines the impact of these changes on the availability of housing units, spotlighting the communities most affected by these trends.

Methodological Framework

In addressing the initial inquiries, we identified three critical data dimensions for comprehensive analysis: community delineation, the temporal framework, and the volume of units. This approach set the stage for an in-depth evaluation of the available datasets.

Our investigation began with the "Approved Building Permits" dataset, which, while lacking a direct metric for unit enumeration, was refined through data cleansing methodologies for ancillary analyses. Our focus then shifted to the "Property Assessment" dataset, characterized by its chronological segmentation and annual data compilations. Zip codes were utilized as a proxy for community identification, and a "TOTAL_UNITS" metric was derived from RES_UNITS, COM_UNITS, and RC_UNITS counts.

Further examination exposed notable disparities in data terminology across temporal snapshots. Notably, the dataset for 2024 utilizes "ZIPCODE" as its nomenclature for zip codes, diverging from the "ZIP_CODE" used in the 2004 dataset. This discrepancy extends to the metrics for unit categorization, with the 2024 dataset favoring RES_UNITS, COM_UNITS, and RC_UNITS, as opposed to the S_UNIT_RES, S_UNIT_COM, and S_UNIT_RC designations found in the 2019 dataset. This variance necessitates the development of year-specific Python scripts, thereby

introducing a considerable degree of complexity and workload to the analytical endeavor.

Upon the successful execution of comprehensive data cleansing and reorganization protocols, the dataset has been transformed into a structured format comprising three pivotal attributes: zip code, num_unit, and year. Each record within this refined dataset is uniquely identified by a zip code, facilitating a nuanced analysis of housing unit trends across different communities.

Housing Units Construction Insights

Analysis of permit data reveals that certain communities are witnessing a boom in housing construction, indicating an expansion of the housing market. Dorchester leads with 1,267 permits, followed by South Boston (696), and East Boston (576). This growth is a positive sign of urban development and diversification of residential spaces to accommodate the city's increasing population and evolving needs.

Housing Units Loss Insights

The data also highlights areas where housing units are being lost, primarily through demolition or conversion. Dorchester is notably affected, with 304 instances, followed by Boston proper (222) and South Boston (134). This trend raises concerns about the displacement of existing communities and the reduction of available housing stock, signaling a shift towards housing solutions that may not meet the needs of the broader population.

Remodels and Renovations Insights

Remodeling and renovation activities are most prevalent in Boston, with 29,714 instances, followed by Dorchester and Roxbury. This high volume of renovations reflects a significant transformation in the city's housing character, potentially indicating a shift towards upscale, single-family units over affordable, multi-family options.

Analytical Approach and Graphical Representation

Leveraging this organized dataset, a graphical representation was constructed to elucidate the temporal progression of housing units. The graph is designed with the year delineated along the x-axis and the num_unit metric plotted on the y-axis. The dataset for 2014 is devoid of data, presenting a gap in the chronological analysis. Distinctive color-coded lines represent individual zip codes, enabling a visual comparison of housing unit trends across various communities.

Through meticulous analysis of the graphical output, it is possible to discern patterns of housing development and attrition within specific communities. Communities corresponding to zip codes represented by lines showing an upward trajectory on the graph : zip code 02128, 02135 are identified as experiencing an increase in housing units. Conversely, zip codes associated with downward-trending lines : zip code 02116, 02118 indicate communities where the number of housing units is diminishing.

Implications for Communities

The data suggests that while some communities are experiencing growth in new housing units, others face the reduction of available housing through demolitions and conversions. This trend could lead to a displacement of lower-income residents and alter the demographic and socio-economic composition of affected communities.

Preliminary Conclusions

The early insights from this report underscore the complex dynamics at play in Boston's housing market. The push towards remodeling and zoning conversions appears to cater to a wealthier demographic, potentially at the expense of housing availability and affordability for existing residents. Further analysis is needed to quantify the average number of housing units lost to remodels annually and to explore the long-term implications of these trends on Boston's communities.

Recommendations for Further Research

- Quantitative analysis to determine the average annual loss of housing units due to remodels.
- A deeper dive into the demographic shifts resulting from housing market changes, including the impact on low-income residents.
- Exploration of policy interventions to balance housing development with the preservation of affordable housing stock.

These early insights reports serve as a foundation for understanding the impact of housing market changes in Boston. The integration of methodological frameworks and data analysis techniques further enriches our understanding, paving the way for informed decisions and strategies to ensure the city's housing development meets the needs of all its residents, fostering inclusive growth and community stability.

Github link: https://github.com/BU-Spark/ds-boston-remodeling/tree/team-b

Questions:

What communities are building more housing units?

The communities building more housing units, based on the number of permits, are led by Dorchester with 1267 permits, followed by South Boston (696), East Boston (576), Boston (419), and Roxbury (404). Other notable communities include West Roxbury (387), Jamaica Plain (378), Brighton (338), Roslindale (272), and Hyde Park (225).
Dorchester leads in new housing unit construction with 1,267 permits, indicating a significant expansion and potential for attracting a diverse range of residents. South Boston and East Boston follow with 696 and 576 permits, respectively, showcasing these areas as key sites of residential development. This growth reflects the city's evolving housing landscape, catering to the demand for more living spaces amidst urbanization and population growth.

Which ones are losing housing units?

Communities experiencing a loss of housing units, indicated by demolition or similar work types, include Dorchester with 304 instances, Boston (222), South Boston (134), East Boston (119), and Roxbury (109). Other areas with notable losses are Jamaica Plain (86), Brighton (84), Roslindale (82), West Roxbury (76), and Hyde Park (56).
Dorchester again stands out, but this time for a concerning reason: it leads in the loss of housing units, with 304 instances of demolition or conversion that potentially reduce available housing. Boston proper and South Boston follow with 222 and 134 instances, respectively. These figures suggest significant changes in the housing stock, where older or multiple-unit homes might be replaced or converted into single-family units or otherwise that cater to a different demographic, potentially displacing existing communities.

Where are housing remodels and renovations happening?

The majority of housing remodels and renovations are happening in Boston, with 29,714 instances, indicating a significant amount of work being done to update or change existing housing. Following Boston, Dorchester (9445), Roxbury (6664), Jamaica Plain (4206), and South Boston (3754) are the communities with the highest number of remodels and renovations.
Remodels and renovations are most prevalent in Boston, with a staggering 29,714 instances. This high number reflects the city's dynamic real estate market and the desire to upgrade or repurpose existing structures. Dorchester and Roxbury follow with 9,445 and 6,664 instances, respectively, indicating these communities are also experiencing significant changes. This remodeling trend supports the notion of shifting housing markets towards higher-income individuals, affecting the availability and character of housing units.

How many housing units are lost to remodels on average, each year?

The provided summary does not directly answer the average number of housing units lost to remodels each year,