

Visualizing Property Assessments and Taxation: A Danish Case Study

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Introduction

The Danish Property Assessment Agency (DPAA) determines property valuations for tax purposes. The 2023 assessments led to media debates, with homeowners questioning the alignment with market values. To address this, an interactive visualization with property assessments and 11 features was created, proving to be a valid data exploration tool with six interconnected plots and various filtering options. Future plans will be discussed within the agency's Process Optimization and Automation team.

Data

The dataset, sourced from 2.9 million property assessments with 171 attributes from DPAA, was preprocessed, resulting in a data frame with 915,806 rows and 11 attributes. The features are accessible through toggle switches in the visualization.

Due to privacy concerns, we aggregate our data to visualize the features, either with respect to municipality or postal code. Thus, we also get *count* as a feature. All the selectable features are numerical.

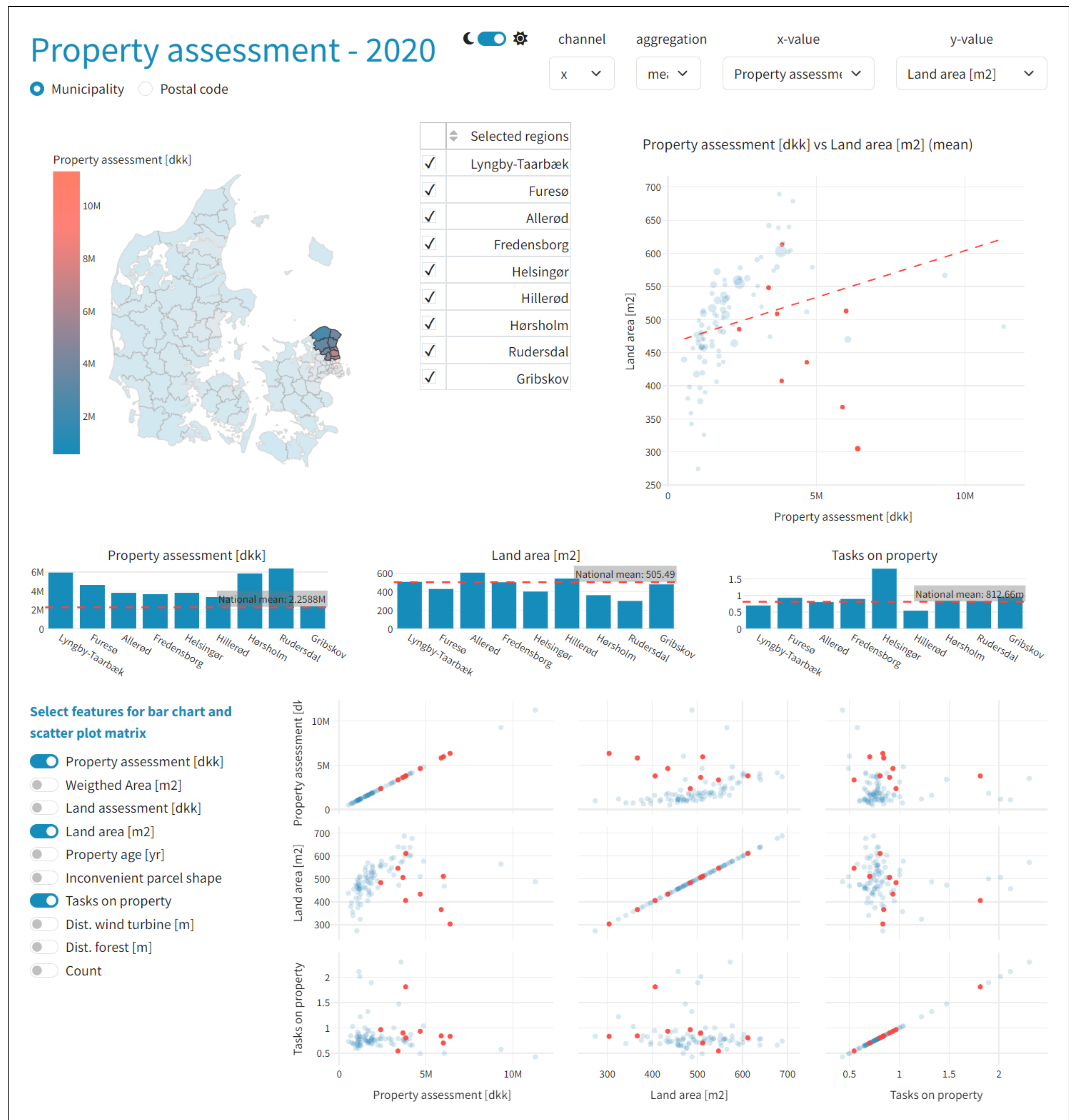
Methods

The data from DPAA was cleaned, and we enriched it with GeoJSON data. This enables smooth communication between the spatial information and the data from DPAA.

To filter the information, seven different components are presented alongside the visualization themselves. This creates a powerful tool for exploring and presenting the data.

Conclusion

The interactive visualization has proven to be valid for data exploration. Correlations and distributions are easily visualized in both choropleth map and related plots.



Discussion

The correlation depicted above reveals a clear positive linear correlation between the two features selected. Each dot on the graph represents a municipality in Denmark, with the size of the dot indicating the number of properties in that municipality.

The choropleth map depicts the ratio between land and property assessments for municipalities. The color scale ranges from dark blue for low values to orange for high values, with both hue and saturation influencing the visual representation. In this visualization two hues were utilized for a better visual representation. The color scheme follows a predefined scale inherent to the Bootstrap template used in this project.