

# Caste-based and religious segregation in the Mumbai Metropolitan Region - a spatial model

Aaditya Warriar

## 1. Introduction

Mumbai, India's most populous city and its financial and commercial capital, is both its wealthiest city and its most diverse. The capital of the erstwhile Bombay Presidency, which at its peak extended as far as present-day Sindh in Pakistan, the city had long been home to large ethnic minority communities from various parts of the province, but was dominated by Maharashtrians and Gujaratis, who comprised a bulk

Post-independence, however, the city was (and continues to be) shaped by waves of immigration from all over the country, exponentially growing its population and consequently its land area to accomo

Mumbai is no stranger to expansion - indeed, th

With these rapid changes have come

The existence of widespread discrimination in Mumbai's housing market has been well-established in the literature [], despite recent laws that have attempted to curb the practice. However, little analysis has been conducted on segregation in the wider metropolitan region, outside the boundaries of the city proper. The

Often s

## 2. Data

The data used in this study comes from The Socioeconomic High-resolution Rural-Urban Geographic Platform for India Project (abbrv. SHRUG). SHRUG is the first s

Into 576,158 shrids

(see Bharathi, Malghan, and Rahman 2023)

## 2.1 Data Cleaning

As SHRUG stores district/sub-district data separately from shrid-level data, with no linking variables between the two, finding the specific regions that comprised the MMR outside of the city proper proved a challenge. This was compounded by the fact that the MMR is defined by the Municipal Corporation and Councils that comprise it, the exact boundaries for which occasionally span multiple state-level districts or include very small portions of specific sub-districts. To solve this problem

As a result, some shrids are missing

the area of analysis may not perfectly correspond to every area of the MMR s

note that all of the city proper is a single shrid - this s

## 2.2 Exploration

Table 1 presents a number of summary statistics for

```
mmr_shrid <- readRDS("data/cleaned/mmr_shrid.rds")

mmr_shrid |>
  summarize(sc_pop = sum(pc11_pca_p_sc) / sum(pc11_pca_tot_p),
            st_pop = sum(pc11_pca_p_st) / sum(pc11_pca_tot_p))
```

Simple feature collection with 1 feature and 2 fields

Geometry type: MULTIPOLYGON

Dimension: XY

Bounding box: xmin: 72.72794 ymin: 18.45749 xmax: 73.61932 ymax: 19.62364

Geodetic CRS: WGS 84

	sc_pop	st_pop	geometry
1	0.0676378	0.03126615	MULTIPOLYGON (((72.96112 18...

```
mmr_shrid |>
  ggplot(aes(x = pc11_pca_p_st / pc11_pca_tot_p)) +
  geom_histogram(bins = 50)
```

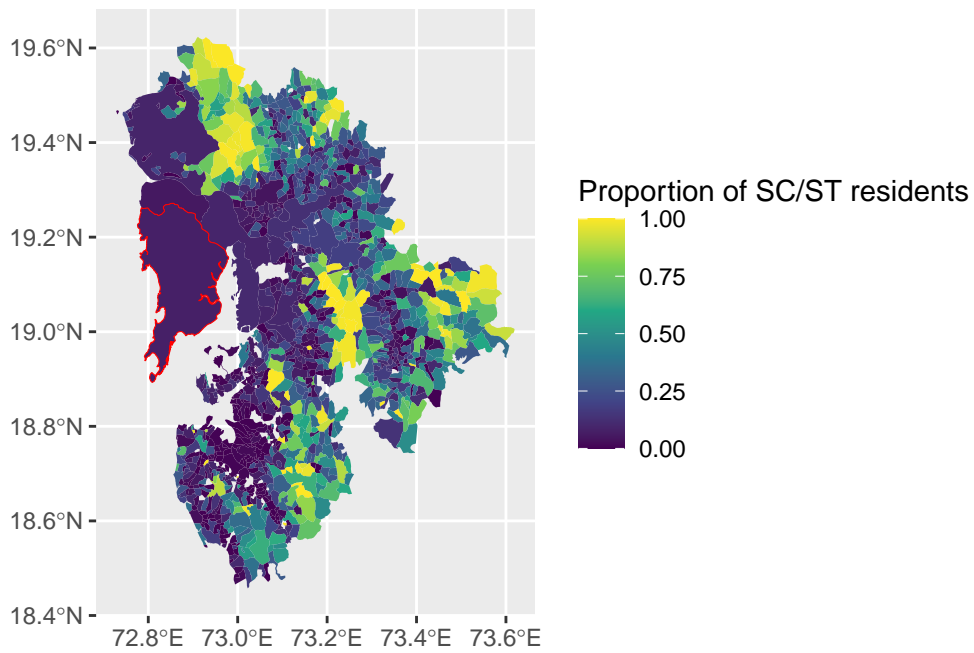
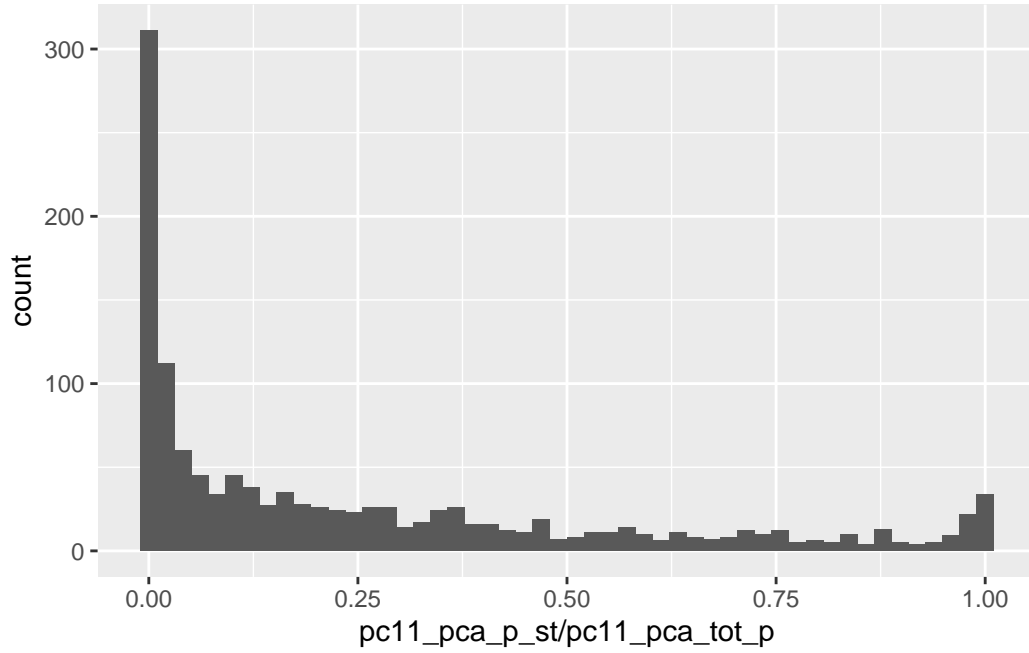


Figure 1 displays a choropleth-map of all regions of the MMR (including Mumbai City/Suburban districts). As before, note that all of the city proper is a single, large shrid, outlined in red on the map. We observe a pattern of increasing SC/ST percentages as we

move further from the city proper,  
This indicates

### 3. Methodology

#### 3.1 Primary Outcome

The primary outcome of this study is the global spatial dissimilarity index, as first formulated in (Feitosa et al. 2007)

### 4. Results

### 5. Discussion and Evaluation

### Appendix

<https://www.freepressjournal.in/analysis/mumbai-naama-politicians-and-law-do-not-have-answers-to-mumbais-housing-discrimination>

[https://link.springer.com/chapter/10.1007/978-3-030-64569-4\\_8#:~:text=The%20city%20is%20pervaded%20b](https://link.springer.com/chapter/10.1007/978-3-030-64569-4_8#:~:text=The%20city%20is%20pervaded%20b)

### References

- Bharathi, Naveen, Deepak Malghan, and Andaleeb Rahman. 2023. “Ethnic Diversity and Economic Development with Spatial Segregation.” *Economics Letters* 222: 110951. <https://doi.org/https://doi.org/10.1016/j.econlet.2022.110951>.
- Feitosa, Flávia, Gilberto Câmara, Antonio Monteiro, Thomas Koschitzki, and Marcelino Silva. 2007. “Global and Local Spatial Indices of Urban Segregation.” *International Journal of Geographical Information Science* 21 (March): 299–323. <https://doi.org/10.1080/13658810600911903>.