

# Predicting Service Demand in a City

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# Questions

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- ☐ Can we predict service demand using Foursquare data?
- ☐ Can we distill insights on what cities are potential locations for specific businesses?

# Motivation

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- ❑ Help entrepreneurs decide what businesses to establish and where
- ❑ Help government in
  - ❑ identifying cities that need improvement in infrastructure
  - ❑ and for those that did well, identify what characteristics motivated positive outcomes

# Methodology

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## Data Preparation

- Foursquare data, city population and location data

## Modeling and Evaluation

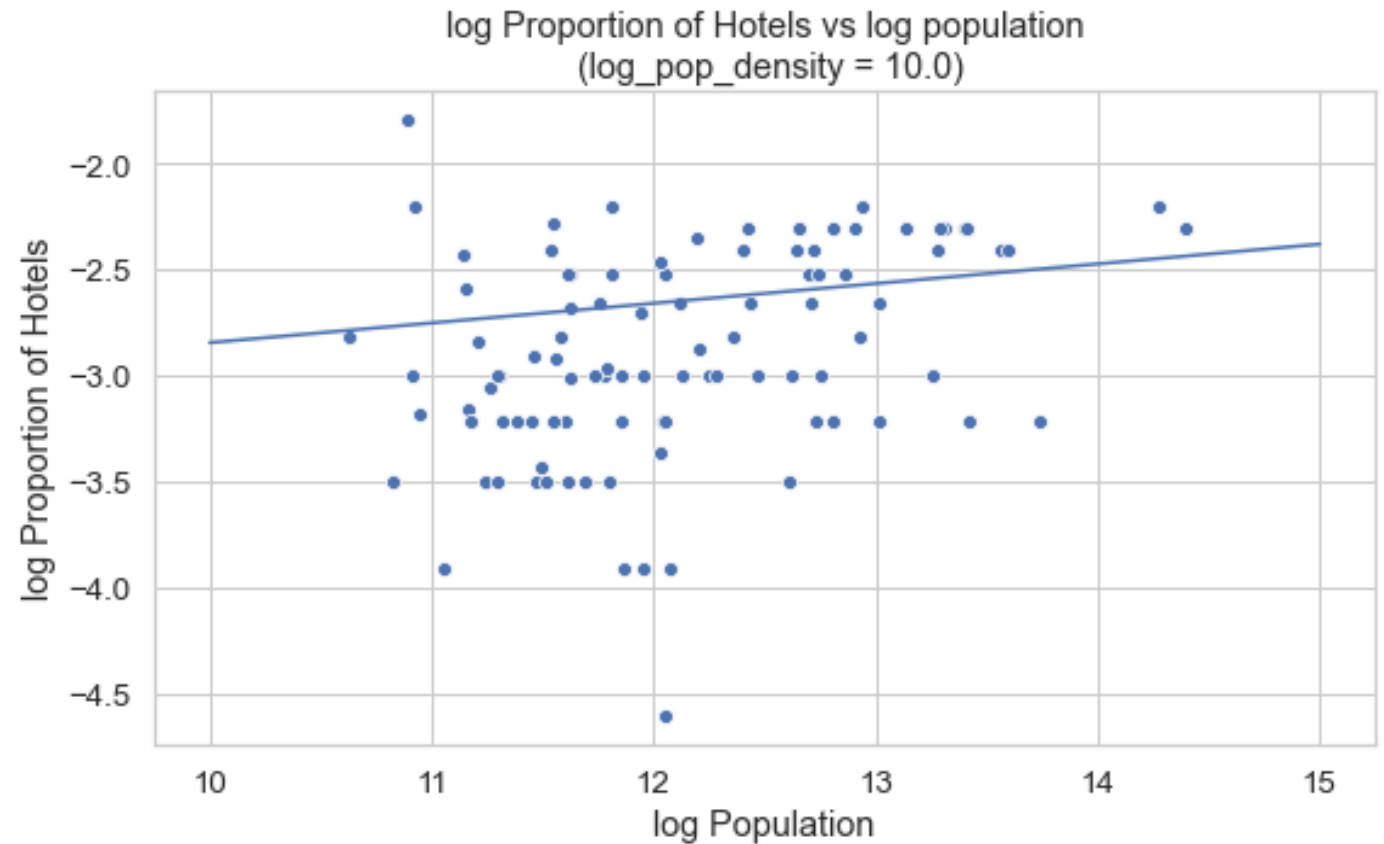
- Linear modeling

## Inference

# Results

(modeling of log proportion of hotels in a city)

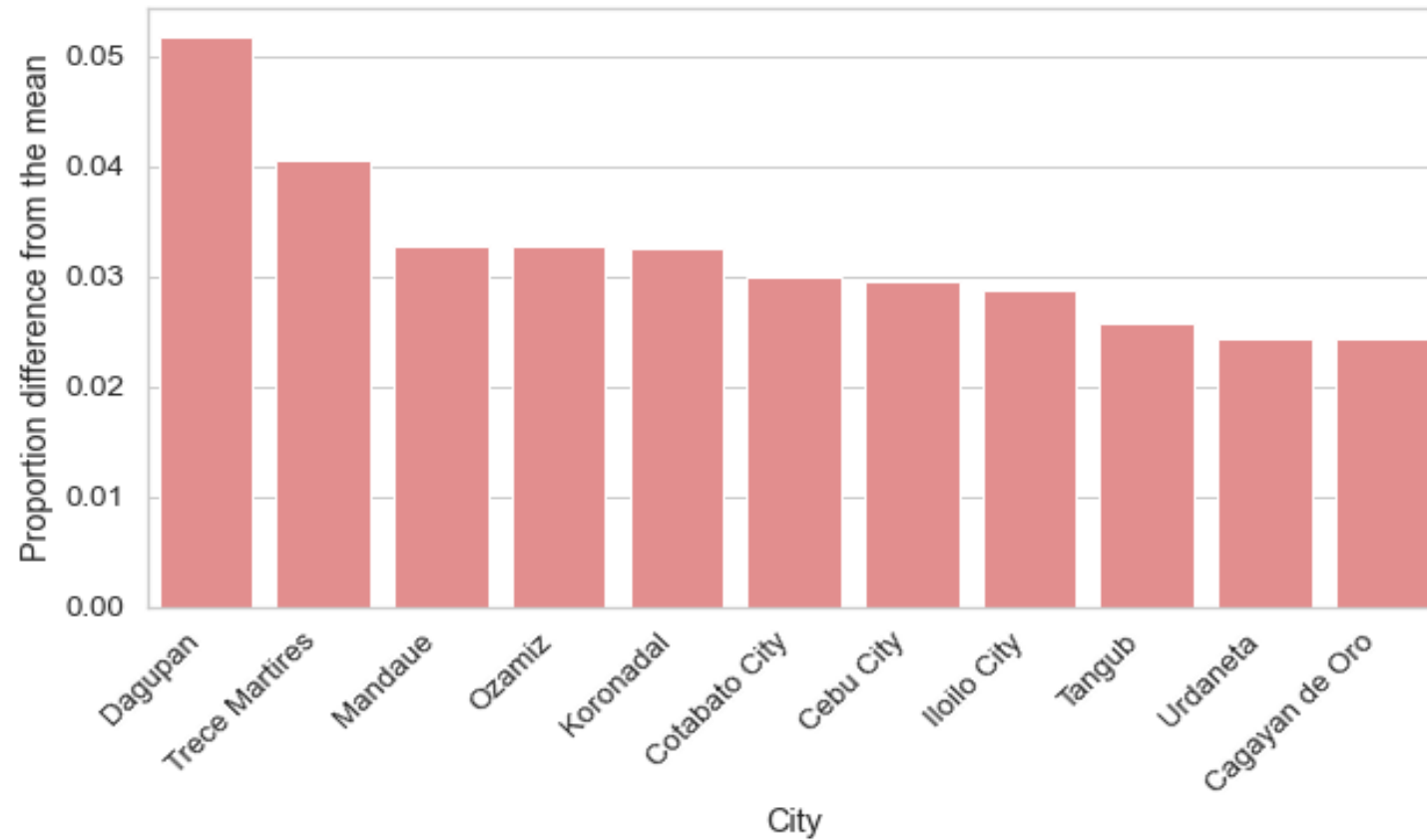
Model	Root mean squared error
Multiple Linear Regression (no transformation)	0.457
Log-population	0.455
Log-population; log-density	0.447



# Results

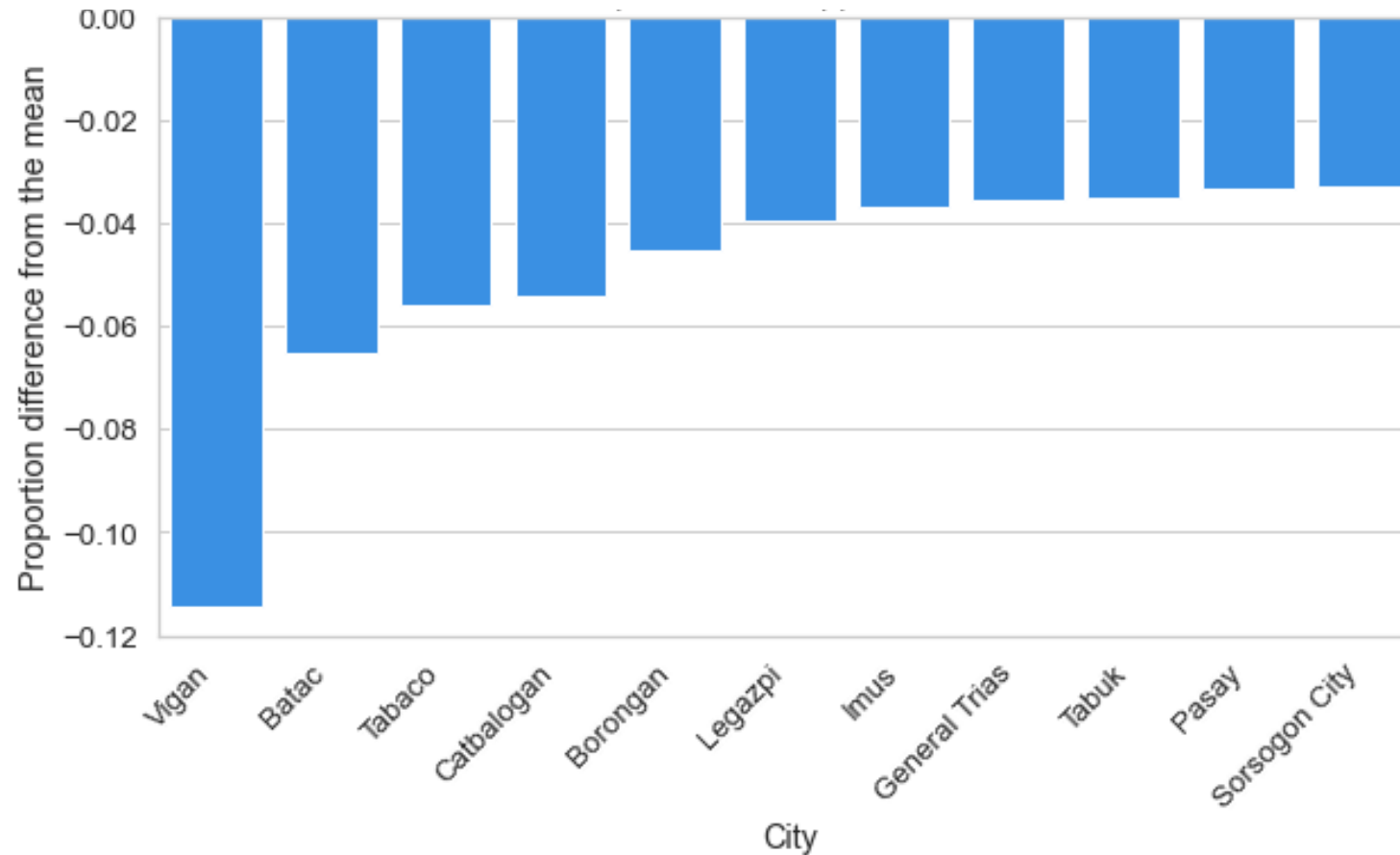
(Top 10 cities with hotel oversupply)

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# Results

(Top 10 cities with hotel undersupply)



# Takeaways

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- ❑ An oversupplied city may mean:
  - ❑ not a good location to start a business
  - ❑ Cities that can support establishments well above the expected
- ❑ An undersupplied city may mean:
  - ❑ A good location to start a business
  - ❑ Cities cannot support the type of establishment



# Recommendation

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- ❑ Incorporate more venue data, work at a more granular-level to improve model accuracy and utility
- ❑ Include descriptors of transport and road networks
- ❑ Repeat analysis on another establishment category