

Analysis of Land Prices and Venues in Berlin



Alexander Strom
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Background and problem description

- Berlin, the capital of Germany has a total population of 3.6 Million and an area of around 890 km²
- "skyrocketing" property prices
- up to the year 2030 the population in Berlin will approximately grow by 4.7% (177,000 inhabitants)
- average age will rise only relatively gently because of the continuing immigration of young people from 42.7 years in 2018 to 42,9 years in 2030

—> social and economic dynamics in the city can be expected to rise

—> knowledge of state and development of the city structure (e. g. venues) is important

Background and problem description

- Potential negative effects for the inhabitants of the city include, e. g.
 - increasing housing prices,
 - increasing prices in food places and bars or
 - a higher number of tourists potentially leading to discomfort for some people.

—> Relevance for policy makers

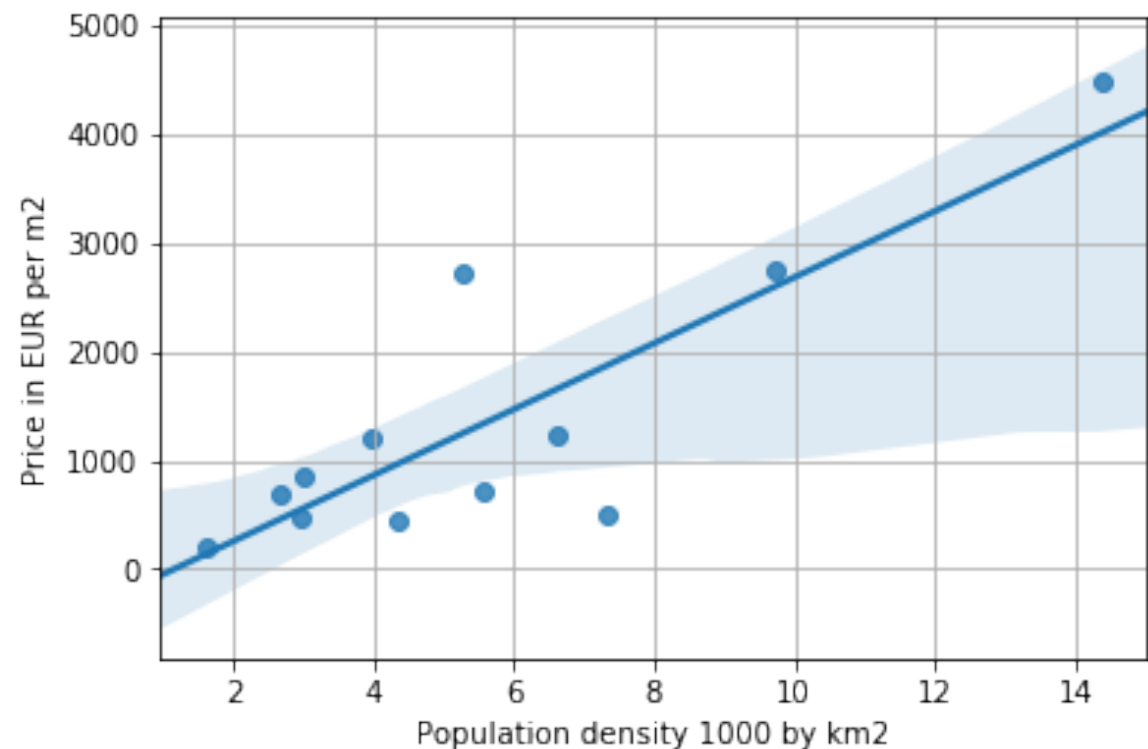
Background and problem description

- What are characteristic venues in certain boroughs in the city of Berlin
- How are the characteristic venues related to housing or land prices?

—> Analysis of venue data

Data description and methodology

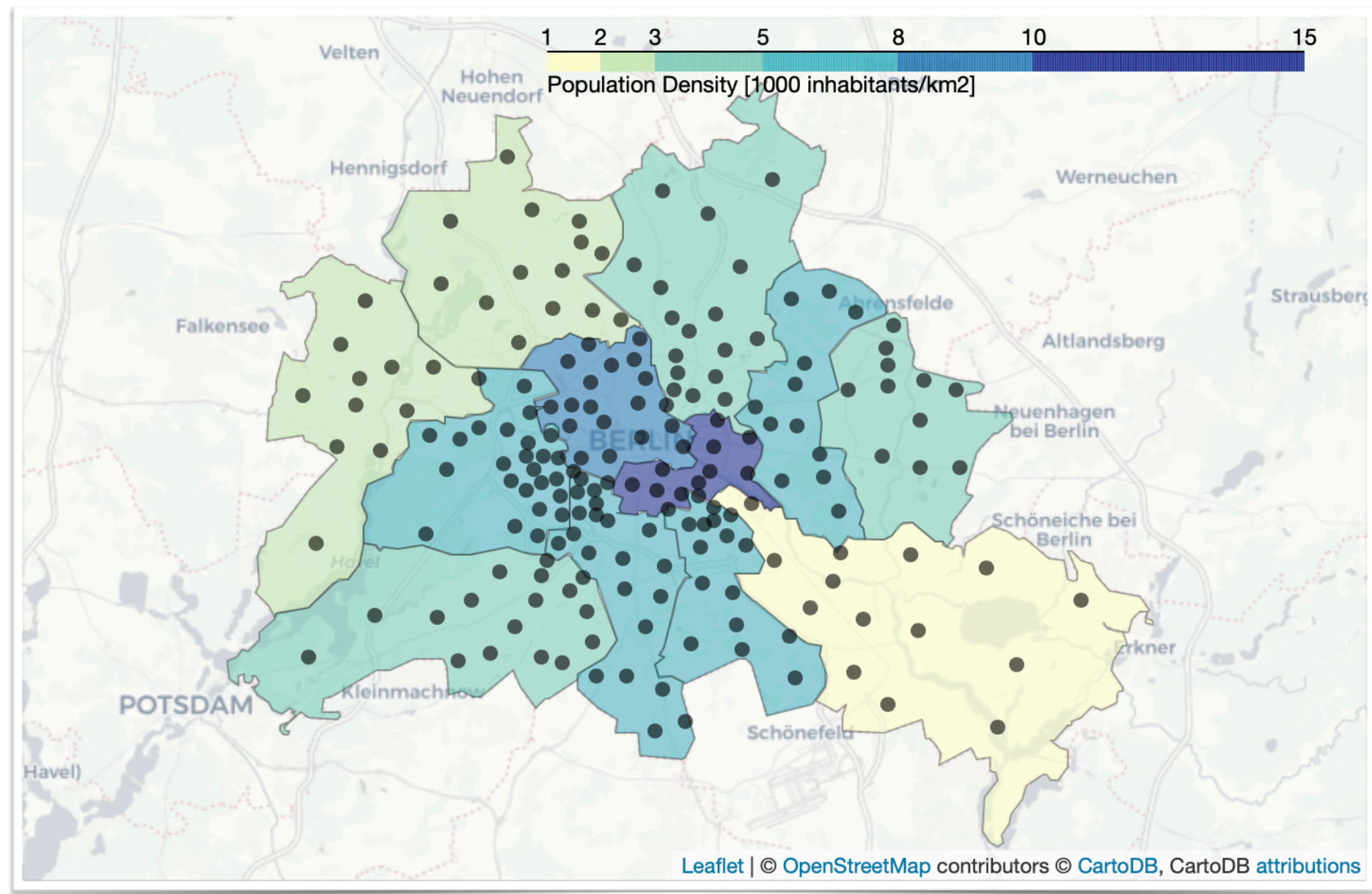
- Analysis of statistical data
 - Distribution of population density over boroughs in Berlin
- Land prices in Berlin



- the higher the population density the higher the land prices

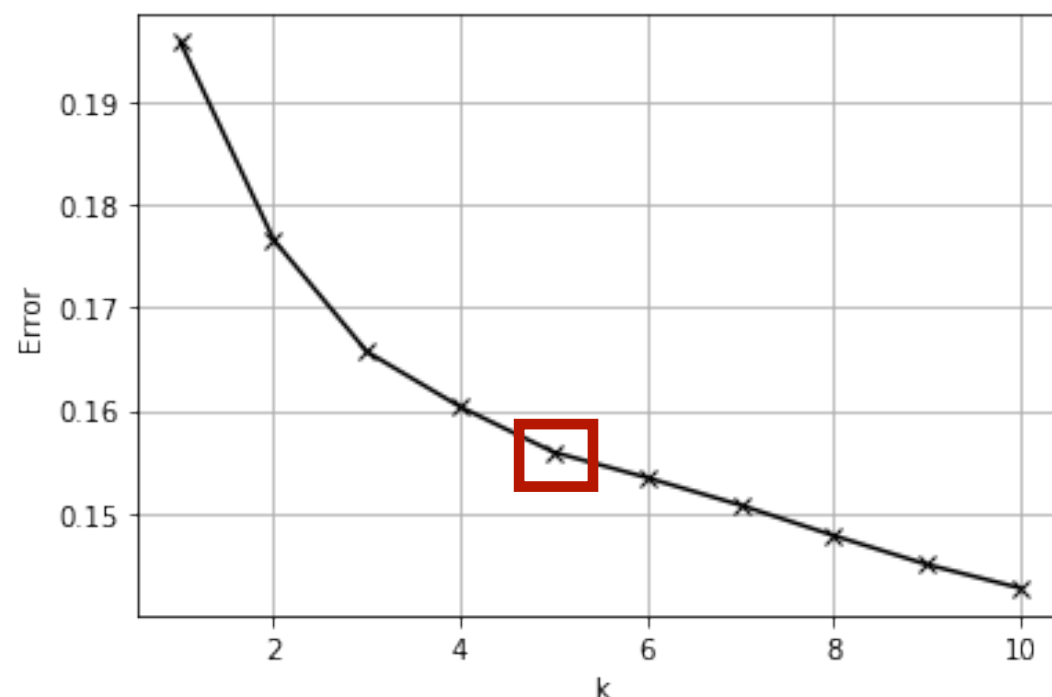
Data description and methodology

- Analysis of venue data
 - 190 postal codes of Berlin will be used as local centers
 - Foursquare API provides venue data



Data description and methodology

- Clustering with K-Means algorithm

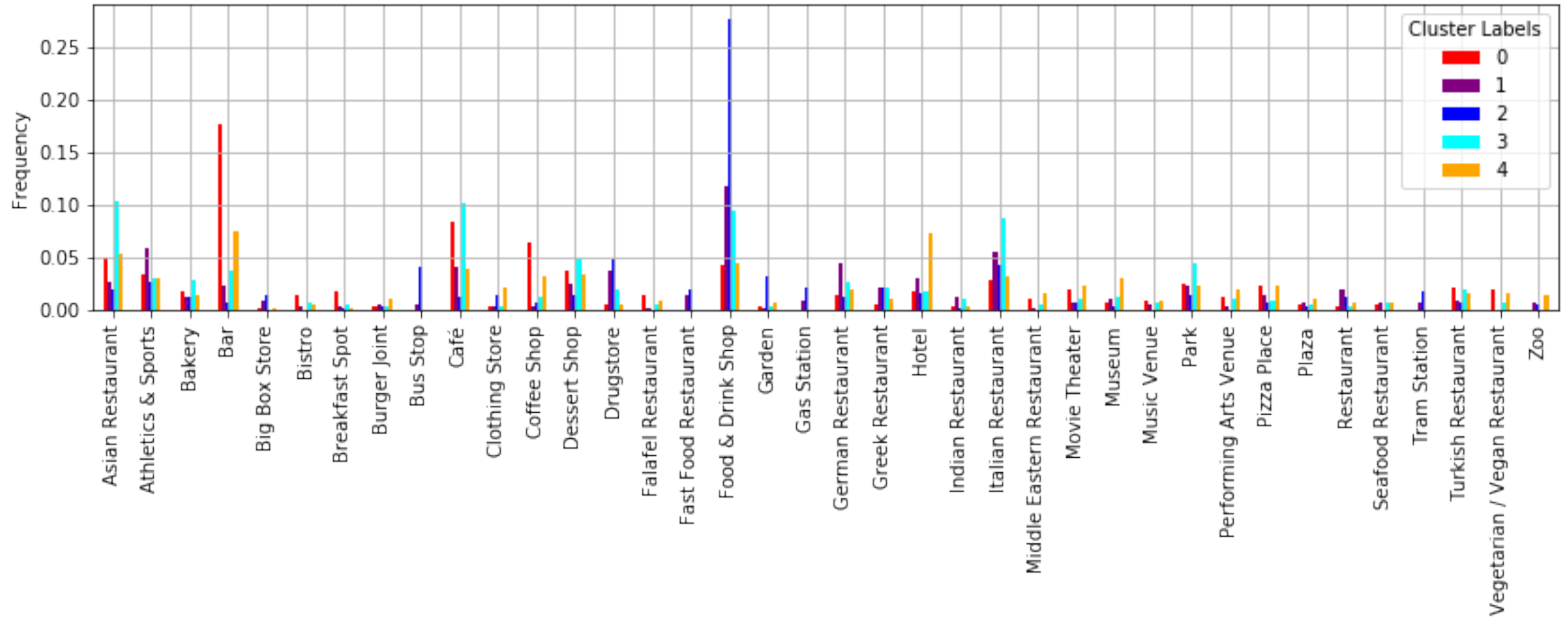


„Elbow Method“

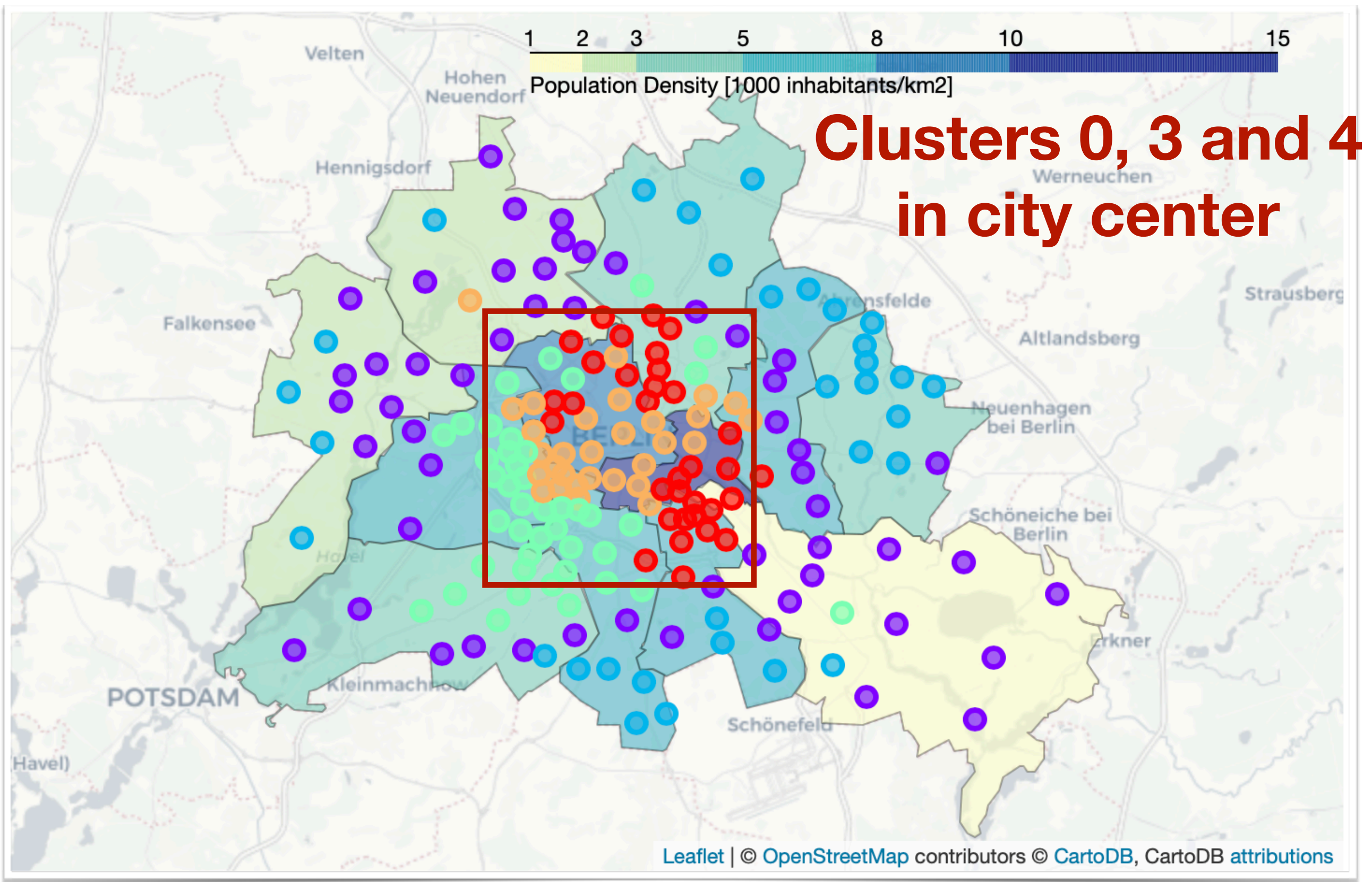
- no obvious optimum number of clusters, so **k=5** will be chosen to be a reasonable number to perform analysis

Results

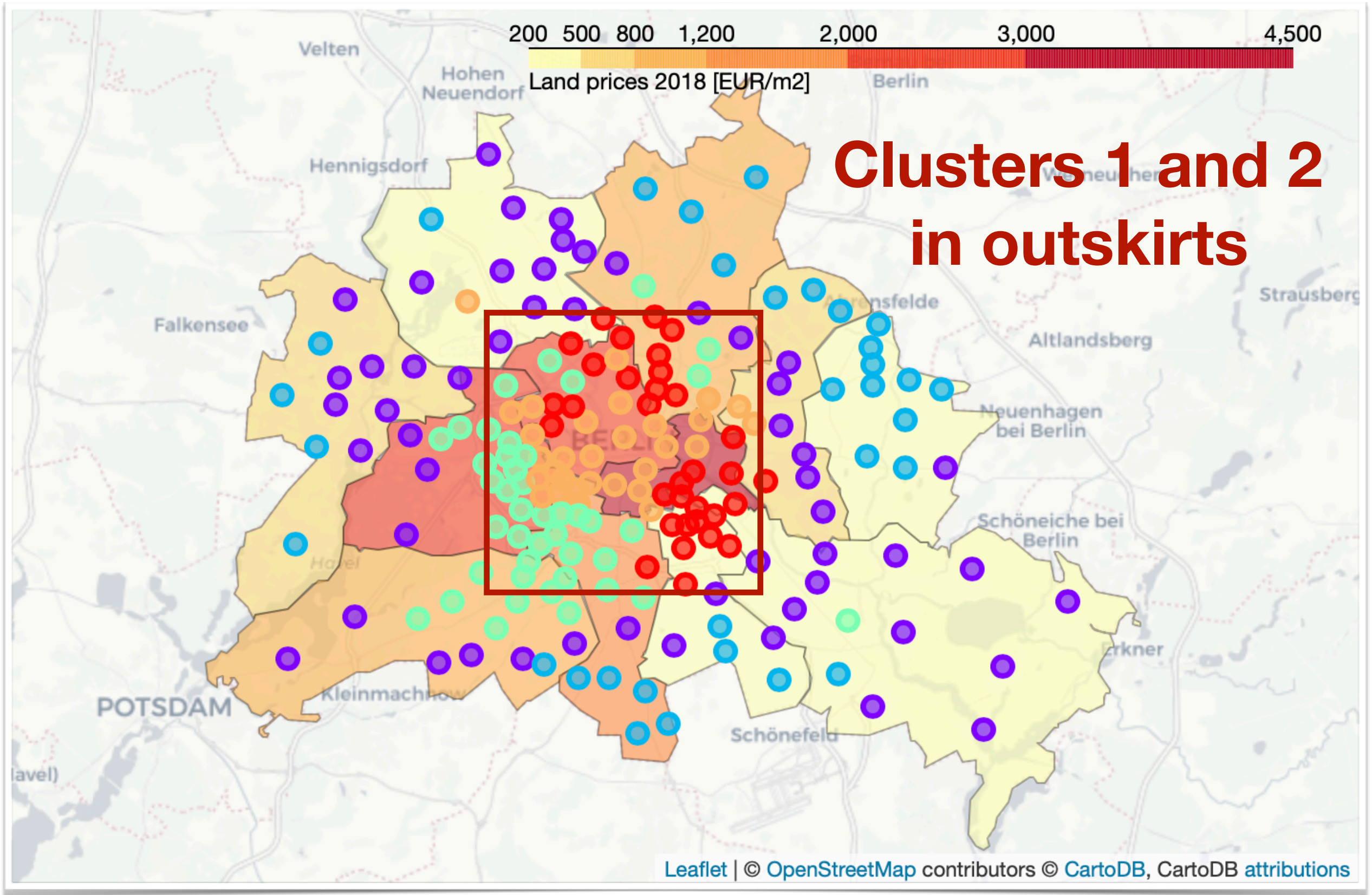
- Cluster characteristics



Results



Results



Discussion

- Central part of the city is dominated by cluster categories with dominating venues like bars, cafés, restaurants and hotels
- Differences within those clusters, e. g. higher numbers of hotels in one than another cluster or cluster 4 being characterized by the Berlin Zoo
- Clusters are linked to higher population densities (5,000 to 15,000 inhabitants per square kilometer) and also higher land prices (2,000 to 4,500 EUR per square meter).

Discussion

- Clusters in outskirts show a low density of cafés and have peripheric characteristics, such as bus stops and gardens.
- Population densities and land prices are moderate with 1,000 to 8,000 inhabitants per square kilometer and land prices from 200 to up to around 2,000 EUR per square meter.
- The need of touristic infrastructures is rather little compared to the boroughs in the city center, which is reflected in the characteristics of the cluster categories.
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Conclusions

- Population densities and land prices are up to 20 times lower in the outskirts offering good opportunities for people to live cheaply or for business people to open bars and restaurants
- ...but low population densities —> case-dependent detailed analysis necessary
- Based on the results, the following recommendations can be made for policy-makers:
 - Make outskirts more attractive for people, e. g. intensify and modernize infrastructure
 - Facilitate the settlement of companies or other economic structures to vivify the boroughs outside the city center

—> Open statistical data from local authorities combined with venue data from the Foursquare API are **powerful tools to analyze local centers of cities with respect to economic and touristic infrastructure**