

Chicago Airbnb

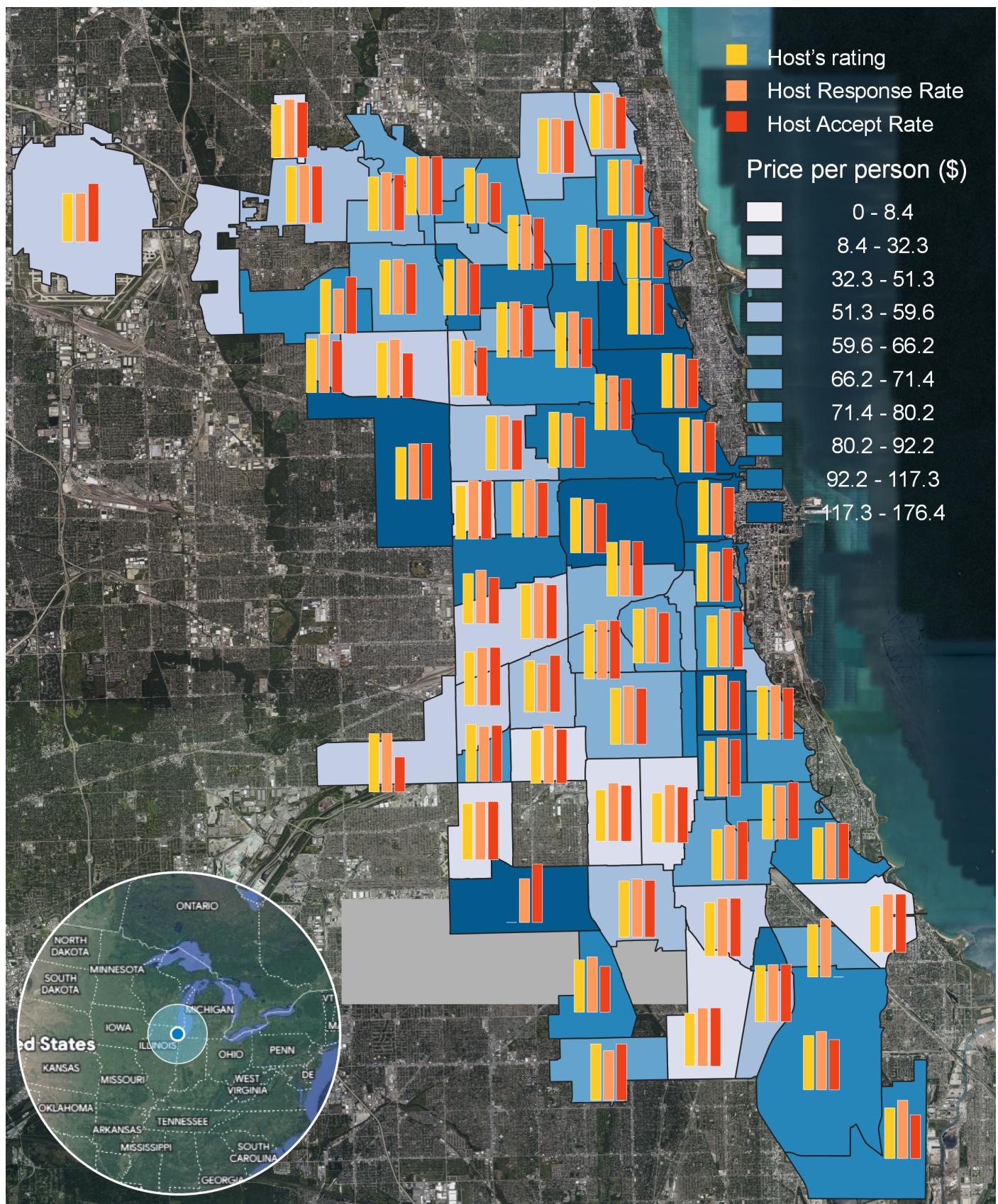
2015 business conditions
brief analysis report



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Current situation analysis



Accommodation costs and host performance comparison in Chicago

Data Source:
Airbnb data Inside Airbnb – only public available data were used. The data were collected on October 3rd, 2015.

Current situation analysis

1.1 Map Contents

As demonstrated by the map on the preceding page, except for regions where data is unavailable, the response and acceptance rates of Hosts in Chicago remain high and close to each other, regardless of the range of prices per person. This suggests that Hosts are promptly addressing the requirements of their tenants.

The rating ratios, which also remain high along with the other two, suggest that the hosts generally provide good service or that the rooms are in satisfactory condition. However, it is difficult to draw further conclusions without more disaggregated data.

To sum up, the data implies a balanced supply and demand in the Chicago Airbnb market in 2015, with high customer satisfaction regardless of cost per person.

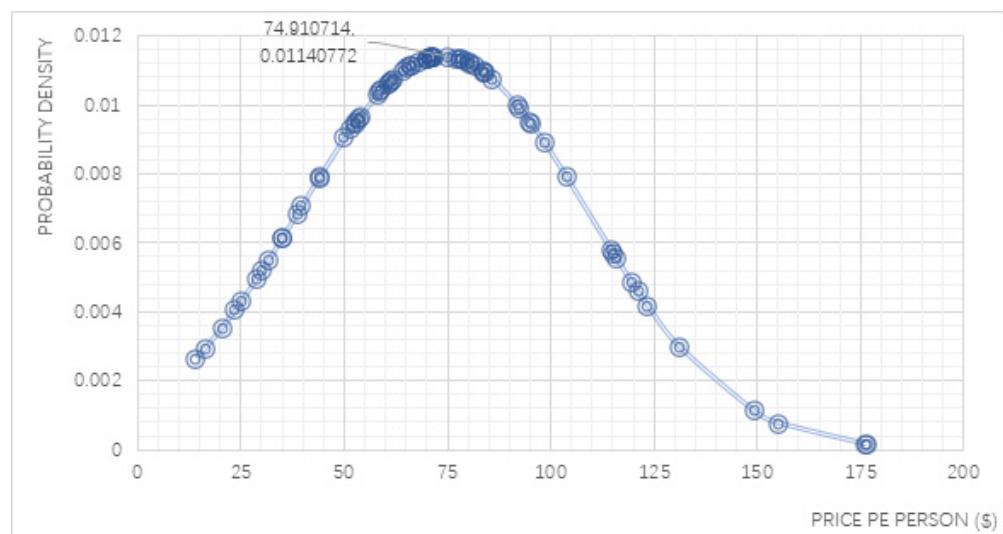
1.2 Symbology choices

Regional price differences are shown through the use of choropleth map, which display the distribution and extent of these differences.

Host ratings, response rates, and acceptance rates are indicators that can describe business conditions, and bar charts provide a visual comparison of these indicators and their level of excellence.

Based on the data provided, we can see that the price per person approximates a normal distribution of $N(73.86352, 34.95557)$. The standard deviation is 5.9 and $73.9 + 5.9 = 79.8$.

Therefore, in Chicago we can consider Airbnb prices with a per person cost $> \$80$ to be expensive.



Current situation analysis

The housing type in the attribute table is not defined as an integer according to categories. It is speculated that the variable was obtained by averaging the housing types in the region after summing them up by category. In this analysis, I rounded the housing type data through the “round” function to standardize it. Add a new variable to classify the house explicitly according to the rounded integer.

Here is an issue of the average of the sum of 1+3 being 2. However, due to the small differences in the defined values of the housing type variable and the low probability of 1 and 3 being balanced exactly, the average of the sum can actually reflect the central tendency of the housing types in the region, i.e. the majority of the housing types. Thus, rounding might be an appropriate method of data processing.

1.3 Map Content

According to the map on the following page, these expensive areas are composed of entire homes/apartments and private rooms. Meanwhile, the more expensive areas generally have lower levels of crowding, but there are also a few private rooms that are both expensive and crowded, such as Austin, Dunning, etc.

The third type of housing is relatively low in proportion and has a smaller number, so it will not be discussed in this analysis.

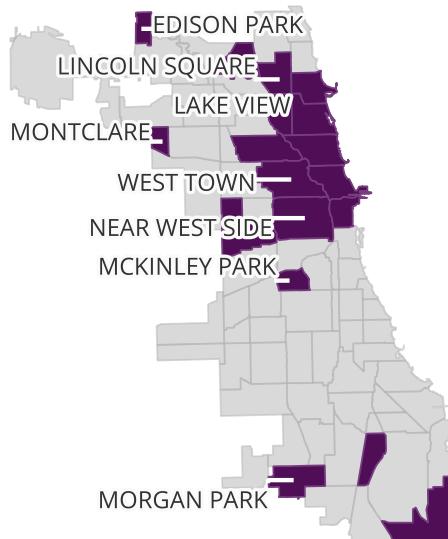
1.4 Symbology choices

The choropleth map can clearly show how different indicators are distributed in a specific area. Placing them side by side helps with comparing them horizontally. A 3D explosion diagram might be more intuitive, but because of perspective issues and difficulties in choosing a scale, 2D maps are still used.

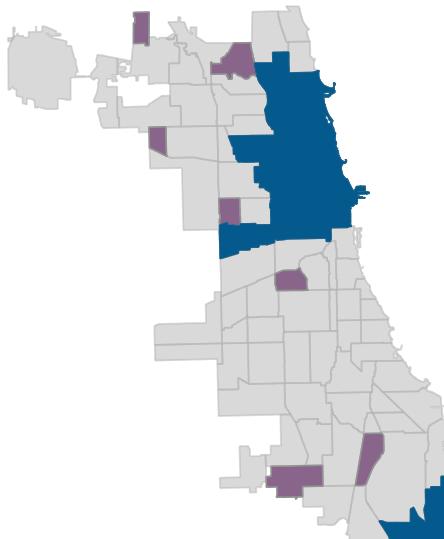
1.5 Analysis

We can see that a few private rooms have high prices. Due to the lack of data on the housing itself, I considered explaining this issue from a socio-economic perspective.

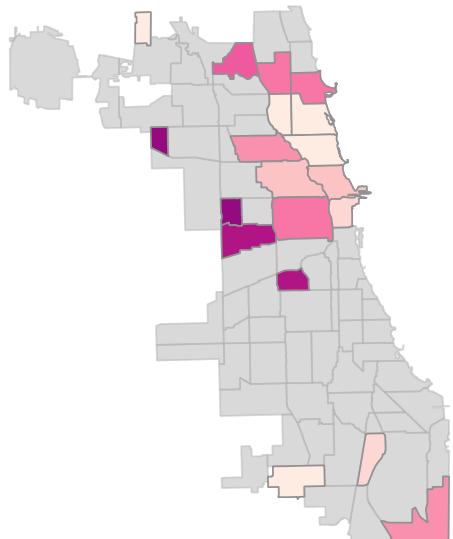
Current situation analysis



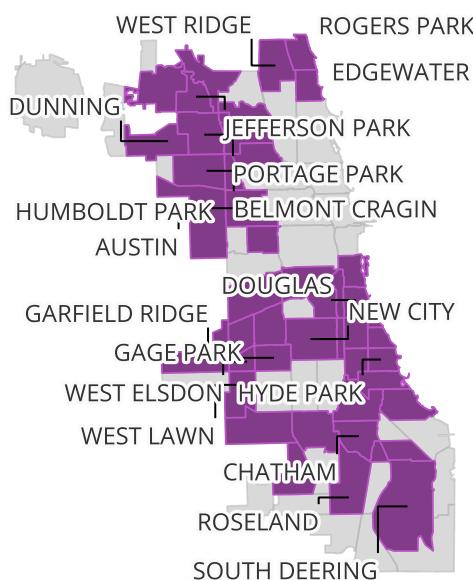
Distribution of entire homes/apartments



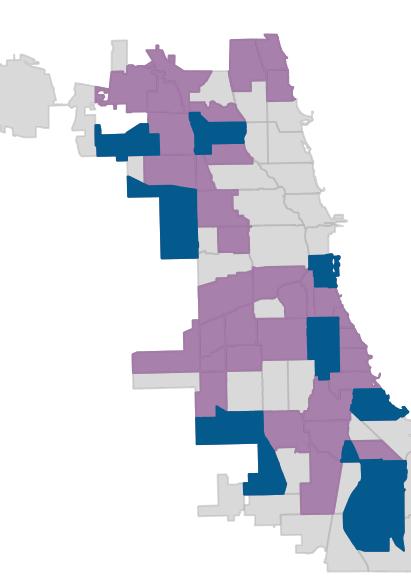
High Price Areas



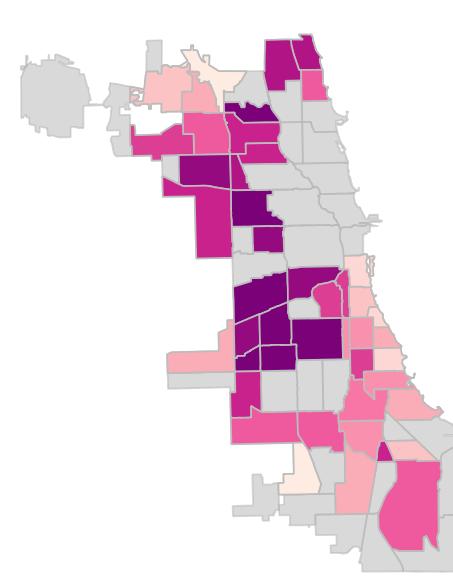
Crowding level



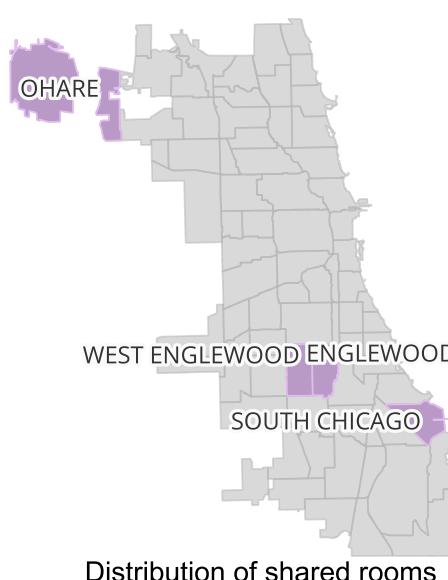
Distribution of private rooms



High Price Areas

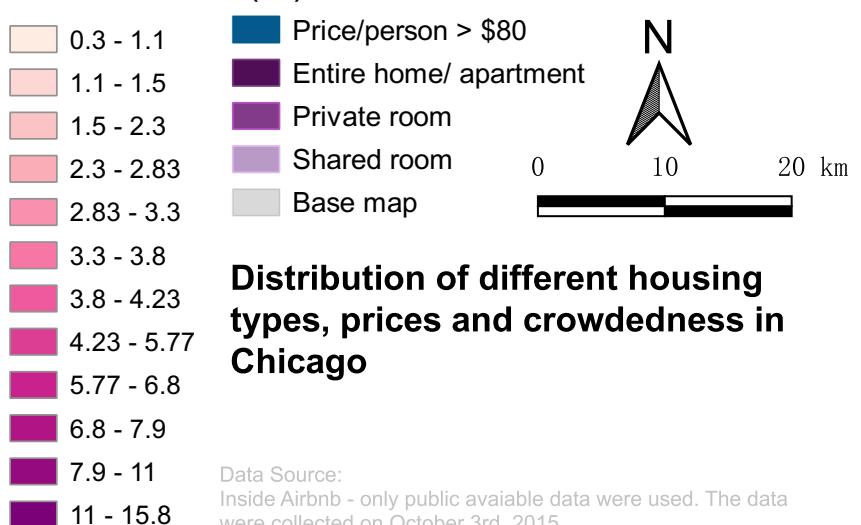


Crowding level

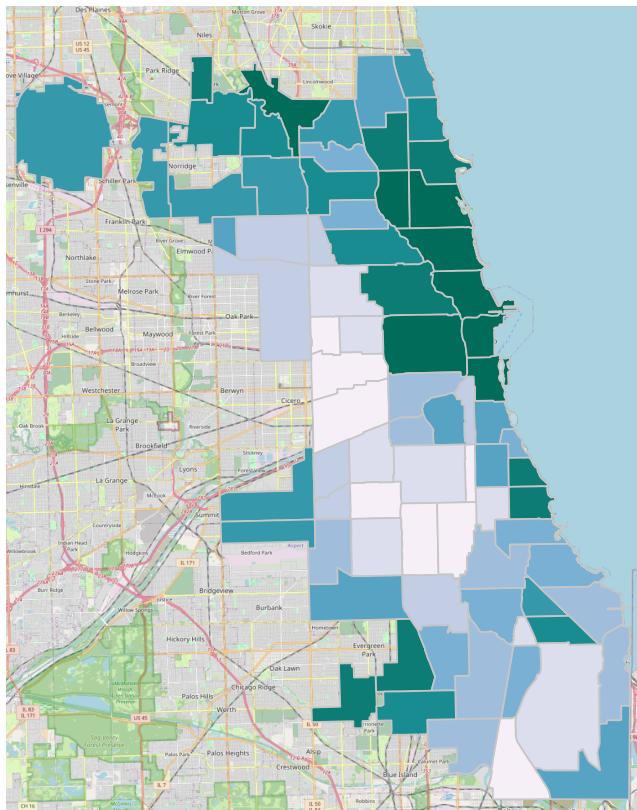


Distribution of shared rooms

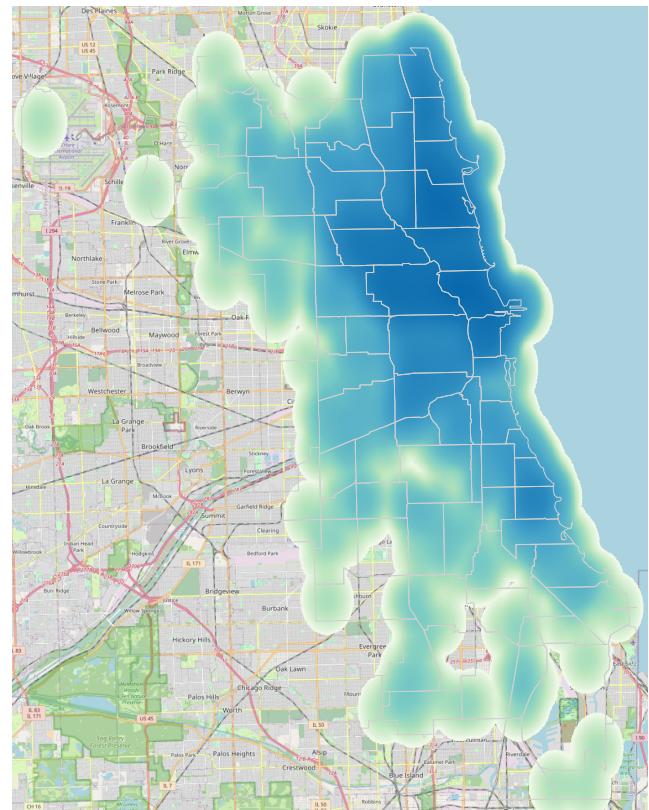
Crowdedness (%)



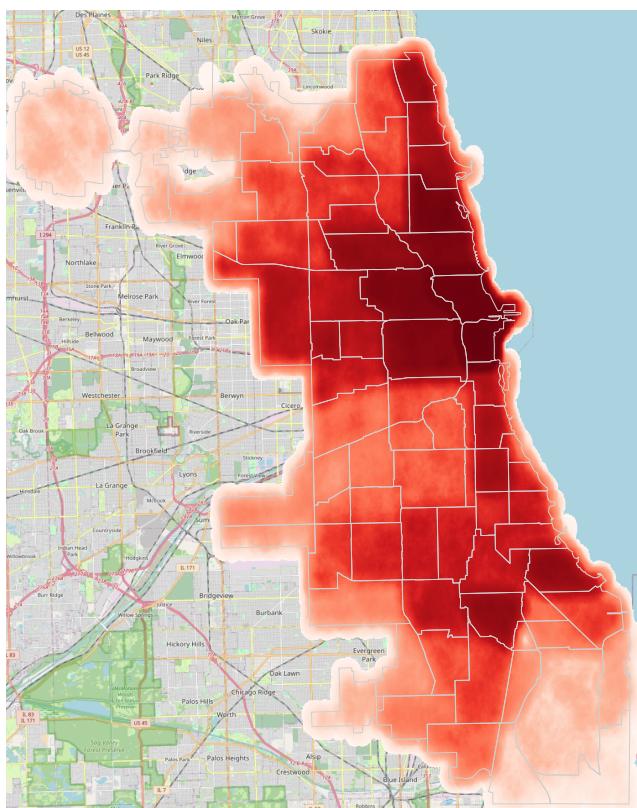
Correlation analysis of influencing factors



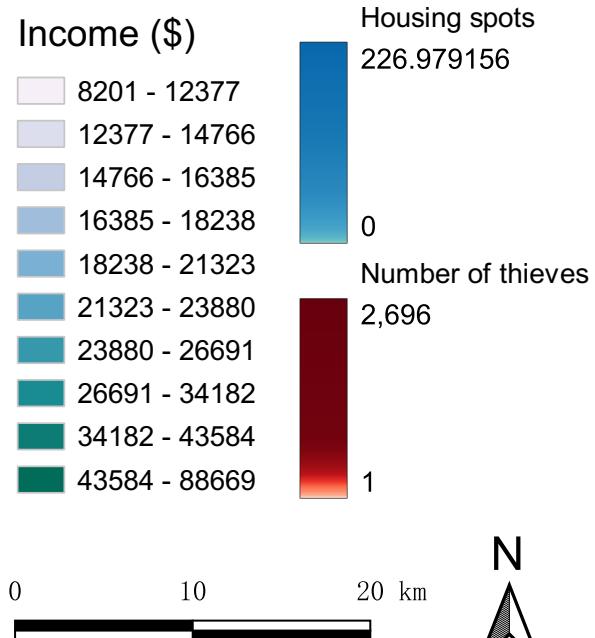
Income distribution



Housing spots distribution



Number of thieves severity



Distribution map of income, house spots and thief numbers

Data Source:
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Correlation analysis of influencing factors

	price	room_type	num_spots
price	1.00		
room_type	-0.50	1.00	
num_spots	0.54	-0.29	1.00
poverty	-0.17	0.29	-0.22
crowded	-0.35	0.18	-0.24
dependency	-0.54	0.27	-0.73
without_hs	-0.49	0.35	-0.36
unemployed	-0.33	0.39	-0.43
income_pc	0.65	-0.37	0.66
harship_in	-0.48	0.41	-0.50
num_crimes	0.28	0.15	0.30
num_theft	0.61	-0.13	0.72
population	0.28	0.05	0.59

By calculating the correlation coefficient, we can see that "price" is strongly positively correlated with "num_spots" (0.54), "income_pc" (0.65), and "num_theft" (0.61).

2.1 Map Content

From the above graph, we can see that the income and housing spots in Austin and Dunning are not high, but the number of thieves is substantial.

Overall, its pricing does not follow the conclusion obtained from the correlation. Therefore, we can assume that the pricing in these areas are unreasonable.

2.2 Symbology choices

The choropleth map is used to show the distribution of income. The heat map is used to more visually show the housing spots and the amount of theft.

3 Conclusion

Overall, the operation of Airbnb in Chicago was good in 2015, but the pricing in some individual areas may not be appropriate.