Methods

Housing characteristics were aggregated at the neighborhood level. As they do not threaten the long-term rental market, by decreasing the long-term housing stock, Airbnb has the ability to increase housing prices and harm housing affordability. In reaction, many cities like Los Angeles, New York City, have found extreme cases in certain neighborhoods. Discussion and Results

Looking at percent of multi-listing owners, the results show that the neighborhoods of Beacon Hill, the Back Bay, Downtown, and the South End have 52% to 85% percent of their listings by hosts listing multiple homes. Those numbers are surprisingly high, with the whole of Boston having 26% of listings by hosts with multiple homes. These findings suggest a hidden trend of real estate firms or individuals making Airbnb a commercial operation.

The results indicating the number of nights needed to earn more renting on Airbnb than renting to long-term tenants is also compelling. Listings in three neighborhoods, Charlestown, South Boston and Roxbury would make the same amount of money renting on Airbnb for 60 days or less than on the long-term market. Nine other neighborhoods are more cost effective renting for anywhere between 61 and 90 days.

The OLS regression predicting variable influence on listing price (results in Table 1), found the variables used predicted 19% of the nightly price. Four variables, number of bedrooms, age of housing structure, distance from Park Street subway station, and % of foreign born individuals were found to be significant at the 0.01 level. Two of those predictions, number of bedrooms and distance from Park Street station had coefficients that were notable, with price decreasing by $24.90 (sd. error $3.03) for every mile farther away from Park Street station, and an increase of $69.34 (sd. Error $3.51) for every additional bedroom.

Discussion and Results

These results generated average prices by neighborhood as shown in Fig. 2, and along with excel analysis, percent of owners with multiple listings by neighborhood shown in Fig. 3.

To find the number of days it would take for an apartment to make more money listing on Airbnb than on the long-term market, data on average long-term apartment rentals was needed. This was found through the American Community Survey (2011-2015), and was aggregated from census tracts to the neighborhood level. Fig. 4 and Table 2 illustrate the findings by neighborhood.

To create a predictive model to inform how Airbnb prices might change due to shifting neighborhood characteristics, an OLS Regression controlling for Spatial Error was used. Airbnb price per listing was the dependent variable, and using hedonic home pricing methods as a model, independent variables included neighborhood characteristics: Median Household Income, % Foreign Born, % Non-Family Households, Accessibility: Distance from Downtown and Distance to Nearest Subway Station, and, Structural Housing Characteristics: Year House/Apartment was Built and Number of Bedrooms.

Discussion and Results

These results provide a look inside Boston’s Airbnb entire home and apartment market. With surprisingly high percentages of homes listed by owners with multiple listings in the city at large, and extreme cases in certain neighborhoods, there is compelling evidence that regulation for Airbnb is needed. Especially as San Francisco banned multiple listing hosts once the city discovered 20% of their Airbnb listings were from multi-listing owners.

Table 1. Regression Analysis for Predicting Airbnb Listing Price

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>OLS Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Bedrooms</td>
<td>0.34*** (1.85)</td>
</tr>
<tr>
<td>Age of Housing Structure</td>
<td>-0.01*** (1.01)</td>
</tr>
<tr>
<td>Dist. from Park St. Station</td>
<td>-2.24*** (1.03)</td>
</tr>
<tr>
<td>Dist. to Nearest Subway Station</td>
<td>-0.21</td>
</tr>
<tr>
<td>% Foreign Born</td>
<td>-1.00*** (1.01)</td>
</tr>
<tr>
<td>% Non-Family Household</td>
<td>0.02 (0.01)</td>
</tr>
<tr>
<td>Med. Household Income (USD)</td>
<td>0.02 (0.01)</td>
</tr>
<tr>
<td>Lambda</td>
<td>0.12*** (1.04)</td>
</tr>
<tr>
<td>Constant</td>
<td>2.15***</td>
</tr>
<tr>
<td>Observations</td>
<td>2004</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.19</td>
</tr>
</tbody>
</table>

These results indicate the number of nights needed to earn more renting on Airbnb than renting to long-term tenants is also compelling. Listings in three neighborhoods, Charlestown, South Boston and Roxbury would make the same amount of money renting on Airbnb for 60 days or less than on the long-term market. Nine other neighborhoods are more cost effective renting for anywhere between 61 and 90 days.

Conclusion

These results indicate the number of nights needed to earn more renting on Airbnb than renting to long-term tenants is also compelling. Listings in three neighborhoods, Charlestown, South Boston and Roxbury would make the same amount of money renting on Airbnb for 60 days or less than on the long-term market. Nine other neighborhoods are more cost effective renting for anywhere between 61 and 90 days.

These results provide a look inside Boston’s Airbnb entire home and apartment market. With surprisingly high percentages of homes listed by owners with multiple listings in the city at large, and extreme cases in certain neighborhoods, there is compelling evidence that regulation for Airbnb is needed. Especially as San Francisco banned multiple listing hosts once the city discovered 20% of their Airbnb listings were from multi-listing owners.

Regulating listings to be rented a minimum number of days, currently 30 days, seems periphrastic, as the majority of listings by neighborhood are able to make more money renting for far less than half the year than to year-long leased tenants. Considering Los Angeles’s regulation precedence, where the city limited Airbnb listings to a maximum of 60 days, Boston might be advised to follow.

Conclusively, Airbnb seems to be more than a peer-to-peer network that helps homeowners earn extra income. These results show Airbnb is being used as commercial operations, and harms housing affordability by converting long-term market listings to short-term. Policy makers should use these findings to inform policy decisions and regulate Airbnb in Boston.