

Analysis of the impact of Covid-19 on London's short-term and long-term rental markets

Student ID: 22076982, 21191895, 22197341, 22078043

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1 Executive Summary

This article analyzes the impact of Covid-19 on Airbnb's short-term and long-term rental businesses in London in terms of two dimensions: neighbourhood and the quality of hosts. For each dimension discussed next, there are three periods which are before Covid-19, during Covid-19, and after Covid-19 according to UK's government measures toward to covid pandemic.

It can be concluded from the analysis based on neighbourhood that the number of listings is the lowest during Covid-19. And the number after Covid-19 is far more than before Covid-19, which means a fully recovery and sustainable growth of the Airbnb's rental business in London.

For analysis of the quality of hosts, the results of the review scores show there is no significant change in the short-term rental market, but the review scores show that Covid-19 had a negative impact on long-term rental market. As for the analysis result of comments, the percentage of positive comments increased significantly during Covid-19.

2 Introduction

2.1 Background

Rental companies like Airbnb expanded rapidly due to the development of tourism. The expansion which caused some negative effects in city boroughs forced local governments to take necessary measures to improve this situation (Dolnicar and Zare, 2020). The governments have issued a series of restrictive policies in order to maintain the stable development of the rental market. Since the Covid-19 severely hit the rental market, the local governments adjusted measures and policies according to the actual situation.

2.2 Research Gap and Research Question

The British government announced the end of the last pandemic blockade in July 2022, marking the full opening of the rental market. In order to adjust relevant measures for the rental market, it is necessary to analyze the impact of the Covid on the rental market

Airbnb is one of the biggest companies in rental market with the large number of public and completed data (2023). As a result, Airbnb is chosen to be the research sample in this article. We can reflect the changes in the London's entire rental market by analyzing the impact of the Covid-19 on the Airbnb's rental market in London. Thus, the research question in this article is what impact the Covid-19 has on the Airbnb's rental market in London.

2.3 Methodology

This article uses quantitative methods to analyse Airbnb's short-term and long-term rental business. We collect the public Airbnb's data from InsideAirbnb and split them in different dataset. They will be visualised in different dimensions to analyse the proposed question.

2.4 Research Assumption and Research Aim

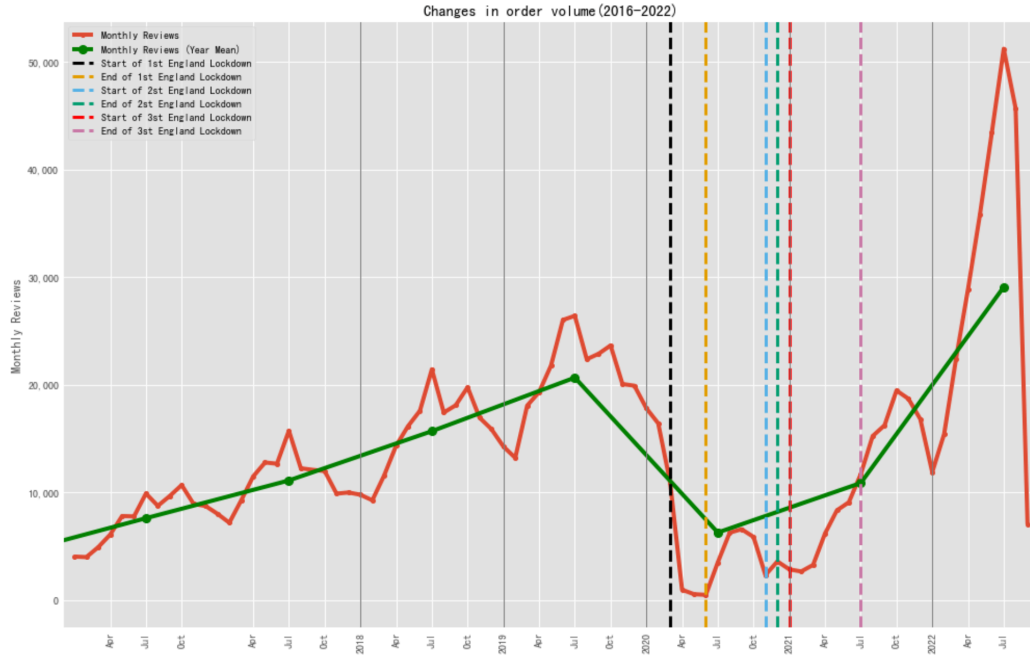
The research assumption of this article is that the Covid-19 is the only factor that influences the short-term and long-term rental markets for the three periods.

The research aim of this article is to find the impact of covid for short-term and long-term rental markets and dig out deep reasons for the rental market changes.

3 Covid-19 Timeline

Here follows a general trend of the number of Airbnb occupancy rates on different time, which shows during Covid-19, the number of orders decreased, but after Covid-19, the number of order expanded a lot, which is far more than that before Covid-19.

Figure 1: Changes in order volume



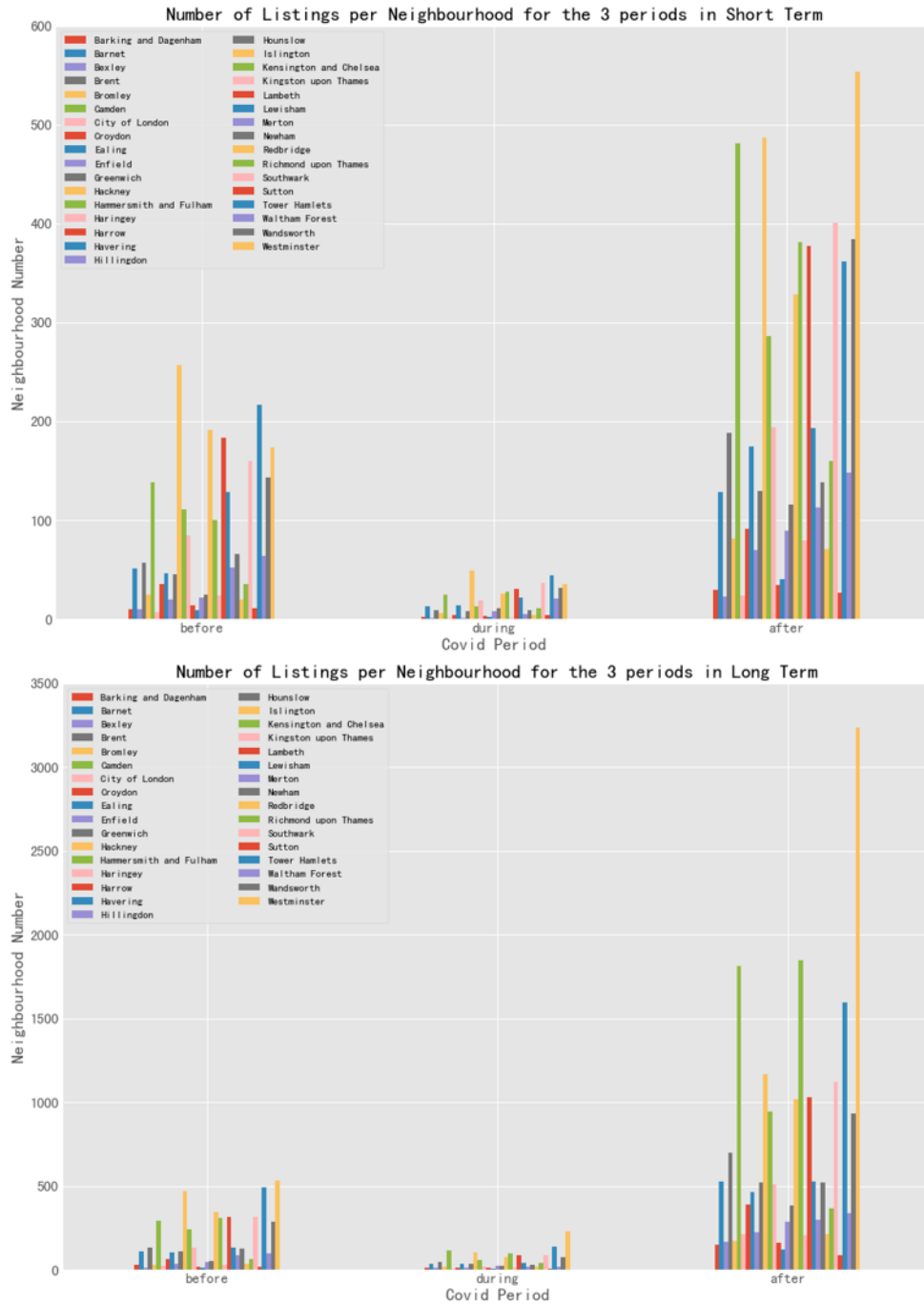
4 Neighbourhood Analysis

Investigating the impact of the Covid-19 on the Airbnb market according to neighbourhood, we quantification the impact on neighbourhoods by the attribute of listings.

Based on the total number of listings in 3 periods, we can find that the number of Airbnb listings in London varied similarly in before, during and after the covid period, regardless of whether they are short-term rentals or long-term tents. The comparison of the three periods shows the recovery of the Airbnb market in the after period of the Covid-19. The market share of long-term tents increased in the during period of the Covid-19 compared to the before period, while the market share of short-term tents decreased.

The total number of listings per neighbourhood is an important indicator of the impact on neighbourhoods. Considering different neighbourhoods, we analyse and visualize the number of listings per neighbourhood for the three periods, then compare them. We use bar charts to compare the differences between neighbourhoods over the three periods. The increase from the during to the after period of the Covid-19 is more than the decrease from the before to the during period of the Covid-19, especially in the neighbourhoods “Westminster” and “Camden”. The number of listings in almost all areas increased significantly in the after period of the Covid-19 compared to the before period, suggesting that not only has the Airbnb market now fully recovered from the harmful effects of Covid-19, but that the overall size of the market is also expanding rapidly. The number of long-term rent listings on the market is significantly higher than the number of short-term rent listings, indicating a higher demand for short term rentals.

Figure 2: Number of Listings per Neighbourhood for the 3 periods



5 Host Service Quality Analysis

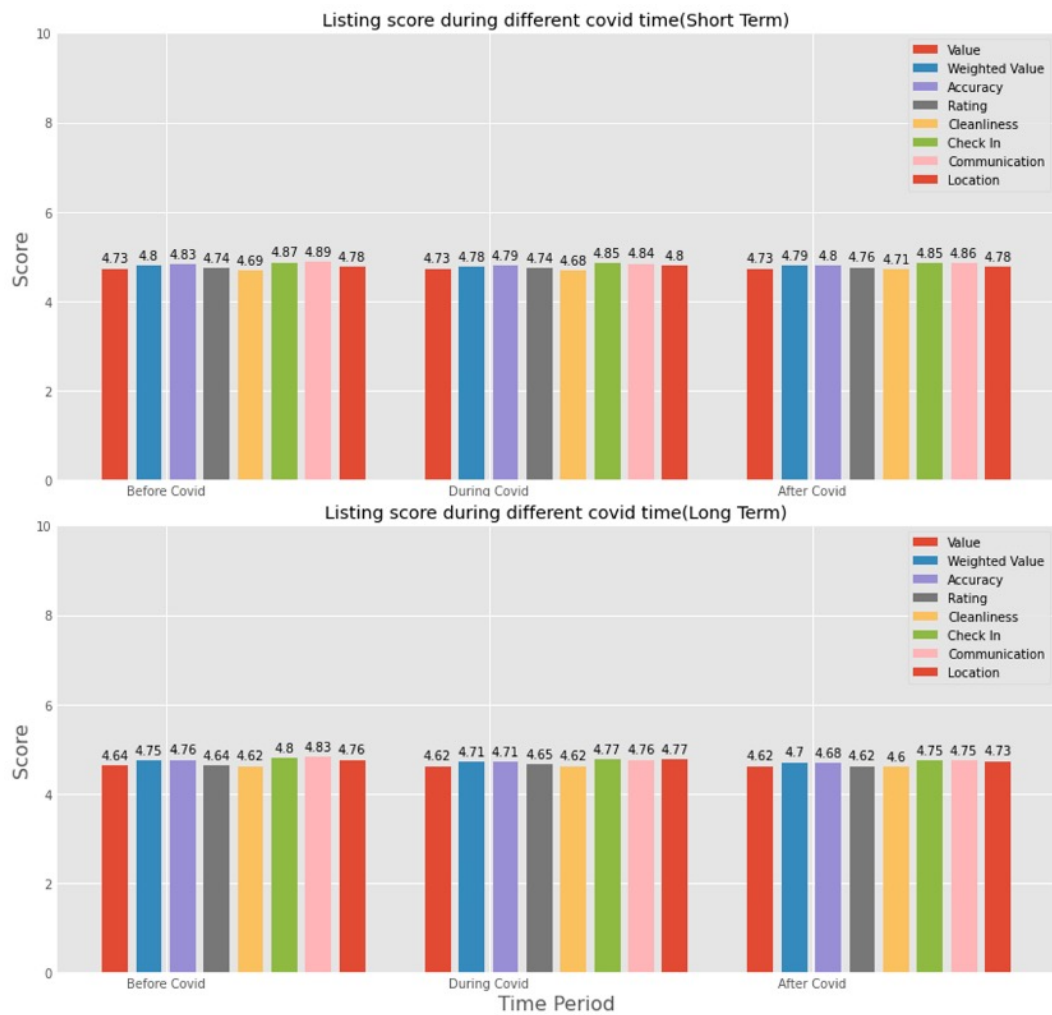
5.1 Score Analysis

In this part, we calculate the listing scores in the collected data set to represent the quality of the host's service. It is particularly pointed out that in addition to the scores that Airbnb directly shows to us, we calculated another indicator which is a kind of weighted average score based on other literature. This score can reflect the

overall service quality of the landlord. Likewise, we divide listings into short-term and long-term rentals.

In Figure 3, the scores of values, accuracy, rating, cleanliness, check in, communication and location are directly collected. Here defined weighted value according to a formula. Among the short-term rental listings, the value and weighted value before, during, and after the Covid-19 basically remained unchanged. It shows that the overall impact of the Covid-19 on short-term rental is not significant. In long-term rental listings, the value and weighted value have declined, indicating that the Covid-19 has a negative impact on long-term rental. We subdivide the listings into other scores. In short-term rental listings, the scores about accuracy, cleanliness and communication show a trend of decreasing firstly and then rising. The scores about check in show a downward trend overall, while the scores about location showed a trend of rising first and then falling. It can be seen from this that the Covid-19 has a certain negative impact on short-term rentals. During the Covid-19, tenants would pay more attention to the location information of the house. In the listing information for long-term rentals, except for the scores about location, which is consistent with the trend of short-term rentals, the other scores show a downward trend, indicating that the Covid-19 has a more profound impact on long-term rental listings.

Figure 3: Listing score during different covid times



5.2 Sentiment Analysis

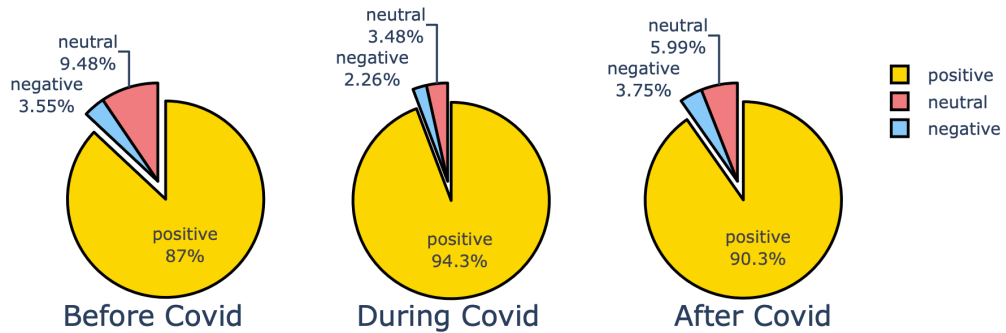
Customer reviews arranged according to covid time series can reflect the service quality of landlords during different epidemic periods. Therefore, this study collected review data from Inside Airbnb. This dataset contains the corresponding listing, household id, comment time, and content. The dataset is divided into three sub-datasets according to covid time points.

To analyse the user's evaluation of the listing and the service quality level of the host. This part applies Valence Aware Dictionary and sentiment Reasoner (VADER), a dictionary and simple rule-based model for sentiment analysis. The analysis results in categories containing positive, neutral, and negative comments. The analysis results show three apparent patterns: 1. Among the three types of comments, positive comments accounted for the most, followed by neutral comments, and negative comments were the least. 2. With the change in the covid time series, the proportion of positive comments increased during and decreased after the epidemic. Conversely, neutral and negative comments showed that during the epidemic, the proportion decreased and increased after the epidemic. 3. the proportion of positive comments after the epidemic was more significant. Meanwhile, the proportion of neutral/negative comments after the epidemic was smaller than before.

Previous statistical results show that the epidemic has increased the market share of long-term listings in the total listings (reduced in the short term). Furthermore, the proportion of positive comments before and after the epidemic also demonstrates the same change trend. Therefore, we infer that long-term listings are more likely to receive positive reviews than short-term listings.

Figure 4: Comments Sentiment Distribution During Different Covid Period

Comments Sentiment Distribution During Different Covid Period



6 Conclusion

In this research, we analysed the Airbnb's short-term and long-term rental market for different periods of Covid-19 in two dimensions: neighbourhood and host service quality. We find that the short-term rent market shrunk during and after Covid-19. Another significant finding is that the long-term rental market shrunk during Covid-19, but recovered rapidly and even expanded a lot after Covid-19.

Reference

(2023). Available at: <http://insideairbnb.com>.

Dolnicar, S. and Zare, S. (2020) 'COVID19 and airbnb-disrupting the disruptor', *Annals of tourism research*, 83, p. 102961.