

# **Deepsick's Group Project**

2025-12-14

## **Declaration of Authorship**

We, Deepsick, pledge our honour that the work presented in this assessment is our own. Where information has been derived from other sources, we confirm that this has been indicated in the work. Where a Large Language Model such as ChatGPT has been used we confirm that we have made its contribution to the final submission clear.

Date: 13/12/2025

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## **Priorities for Feedback**

We would particularly value feedback on the logical flow of the report. Specifically, we would like to know if the structure is coherent and if the research question is comprehensively addressed.

## **1 Background**

### **1.1 From Strict Control to Deregulation**

Historically, London government restricted short-term lets in response to the shortage of affordable housing in the capital since 1973 (Ferreri and Sanyal, 2018). This changed decisively with the introduction of the Deregulation Act 2015. To encourage the growth of the sharing economy, the 90-day rule was introduced, which allows residents to rent out their spare rooms or entire houses on a short-term basis lawfully without planning permission. The government believed that it would enable Londoners to participate in the sharing economy and get financial benefits, boosting London's economy in turn.

### **1.2 The Rise of Professional Landlords**

Airbnb, as a typical representative of the sharing economy, has successfully expanded from 14,000 listings in June 2015 to around 49,000 listings in October 2016 following this policy shift. However, as the scales increased rapidly, Airbnb gradually deviated from its original purpose, from the idea of casual home-sharing to commercial operations. The emergence of a growing number of professional landlords who utilize entire properties as full-time hotels is exerting a significant negative influence on the stability of the London housing market (Gyódi, 2024).

### **1.3 Current Challenges**

There is a conflict between the commercialization of home-sharing and the original housing goals. Therefore, the opposition argued that Airbnb in London is “out of control” and proposed to force all professional landlords to register their properties and receive higher Council Tax rates. To inform future decisions, this report analyzes the current state of London Airbnb market and evaluates the likely impacts of the opposition’s proposal. It also explores how we can turn this challenge into a positive narrative to strengthen public trust.

## **2 Data Pre-processing**

### **Data sources**

This analysis is based on data from **Inside Airbnb**, a widely used open dataset derived from publicly available information on the Airbnb platform. Although the data are not produced by an official government body, they are extensively used in academic research and policy analysis. The dataset is maintained by the Inside Airbnb Network, a mission-driven initiative that seeks to facilitate transparent public discussion about short-term rentals and their effects on local communities. Its open methodology and consistent use across peer-reviewed studies support its credibility as a data source.

### **Scope and coverage of the dataset**

We use the London listings dataset scraped in 2025, which originally contains 96,871 listings across 79 variables, represented as geocoded point data with detailed attribute information. From this, we selected 26 variables relevant to policy concerns, covering property characteristics, host activity, availability patterns, and review activity. This

ensured the analysis focused on indicators most relevant to housing pressure and professional short-term letting.

### **Data cleaning and preparation**

Several data cleaning steps were undertaken to improve reliability. Listings with missing values in critical fields (such as price) were removed. Key variables were standardised, including converting prices from text to numeric format. We excluded implausible or inactive listings, such as those with minimum stay requirements exceeding 365 days, which likely indicate non-operational or “ghost” listings. Extremely high review rates (over 31 reviews per month) were also removed, as these are inconsistent with residential letting and likely reflect hotels or data artefacts. Similarly, extreme price outliers (above \$3,000 per night) were excluded to remove clear errors while retaining high-end but plausible listings.

### **Treatment of professional hosts**

Notably, we did not exclude hosts with very large portfolios (e.g. host listings counts exceeding 1,000). While extreme, these values likely represent large property management companies and are central to assessing claims that Airbnb activity in London has become increasingly commercialised.

### **Final analytical dataset and reliability**

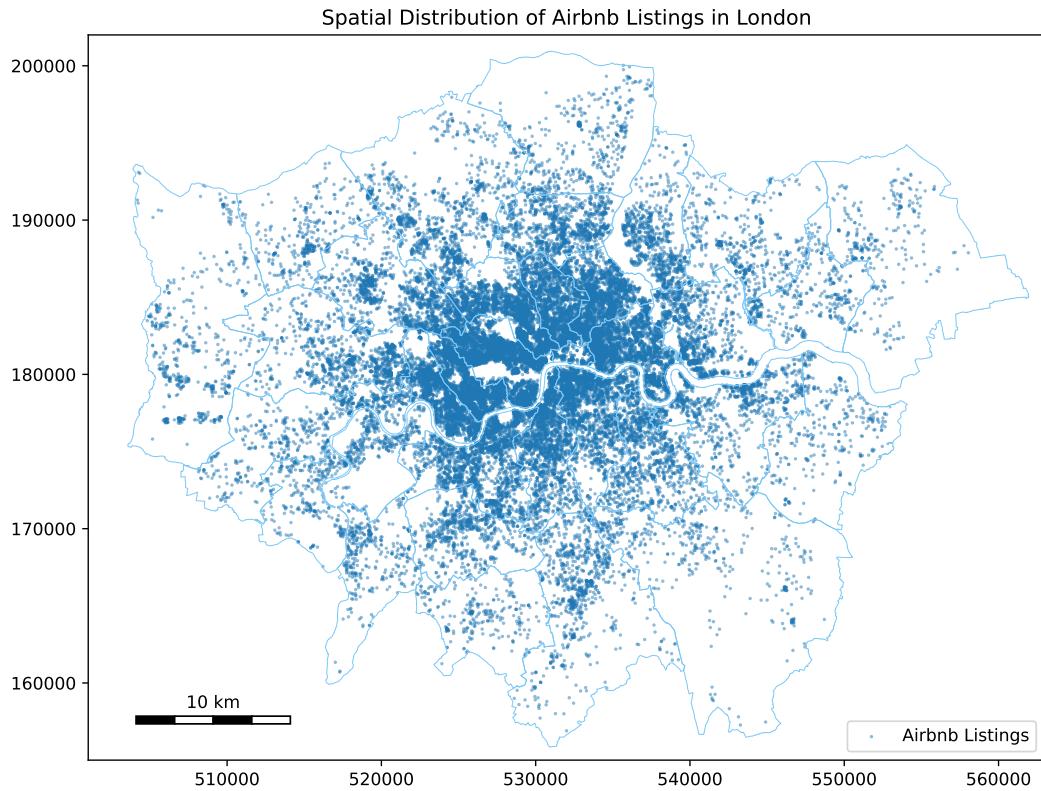
After cleaning, the final analytical dataset contains 47,971 listings across 26 variables. While some uncertainty remains—particularly due to the absence of official administrative records—the resulting dataset provides a robust and policy-relevant representation of Airbnb activity in London, suitable for assessing scale, spatial concentration, and the role of professional hosts.

## **3 Overview of the London Airbnb Market**

### **3.1 The Scale of Airbnb listings**

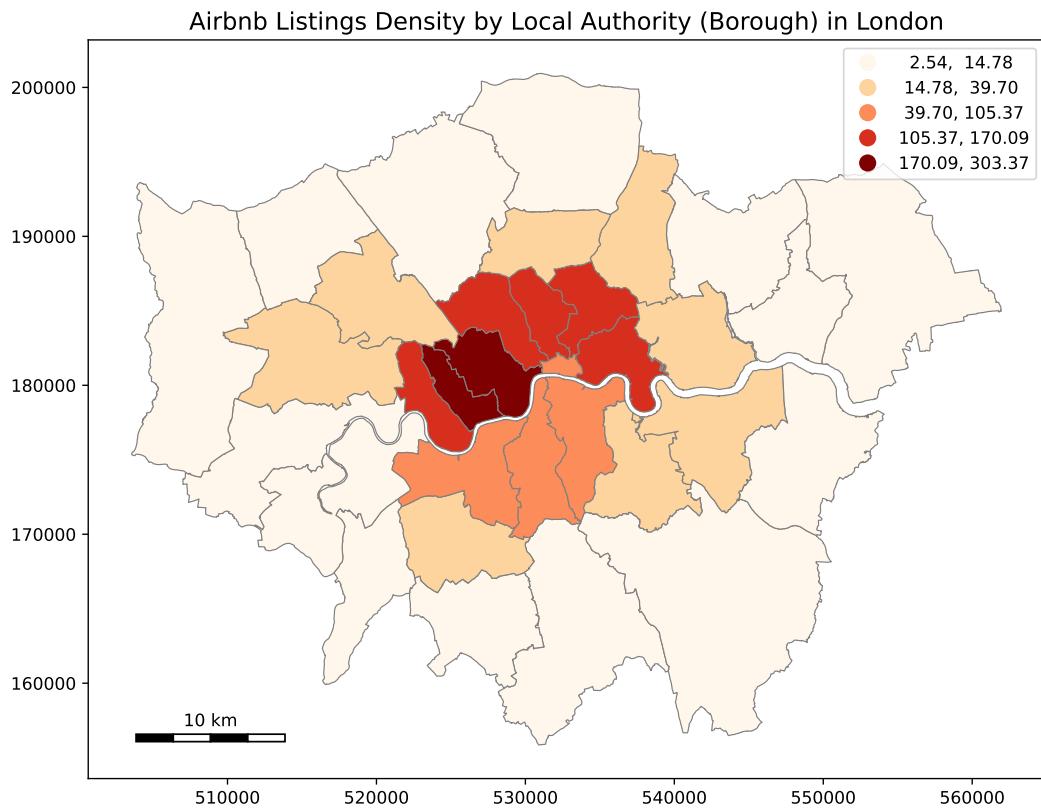
As of the 2025 scrape, London hosts 47971 active Airbnb listings. When compared with the city’s total housing stock, this represents approximately 1.29% of all dwellings. This should not be interpreted as marginal. In a supply-constrained housing market, the removal of over 47,000 dwellings from long-term residential use represents a substantial reallocation of housing, particularly given the strong concentration of listings in central boroughs.

### 3.2 The Spatial Distribution of Airbnb Listings



The scatter map reveals the distinct **core-periphery pattern** of Airbnb listings in London. Listings are unevenly distributed, **forming a high-density cluster in inner London**, particularly along the River Thames, which is the core tourist and commercial area. By contrast, the distribution in outer London appears much sparser. This pattern suggests that **the short-term rental market is primarily driven by tourism demand**, creating disproportionate pressure on housing stock in the city center.

Next, we analyzed the spatial density distribution of Airbnb listings across all boroughs.



As shown in the map, the Airbnb market is not evenly distributed. The highest density of listings is found in **Kensington and Chelsea** and **Westminster**, where the density is significantly higher than in other boroughs. A second tier of high density covers **Hammersmith and Fulham**, **Camden**, **Islington**, **Hackney** and **Tower Hamlets**-all located north of the River Thames. These boroughs represent London's core tourism and commercial hubs. The high densities reflect strong visitor demand but also highlight where the conflict between residential housing needs and short-term tourism accommodation is likely most acute.

## 4 Is Airbnb in London out of control?

### 4.1 How to define “out of control”

Defining an “out of control” Airbnb market is challenging as it is a qualitative description rather than a quantitative metric. There are no universal benchmarks-such as a specific price threshold or listing count-that can definitively describe a city’s housing market status.

To solve this problem, we introduced “**Airbnb Misuse**” as a quantifiable proxy, drawing on the framework by Shabrina, Arcaute and Batty (2022). We defined the Airbnb misuse as “**entire property listings available for more than 180 days accumulatively in one year (assuming the occupancy rate is 50%), hosted by landlords with 2 or more listings**”. Unlike the abstract macro-concept, “misuse” shifts the focus to the micro-level, assessing whether an individual listing is operating in compliance with local regulations, especially the 90-day rule, which makes it much easier to implement.

## 4.2 How many properties are misused?

First, we determined the listings count of each host. To ensure accuracy following our data cleaning process, we recalculated the listing count for each unique host\_id rather than relying on the pre-existing host\_listings\_count column.

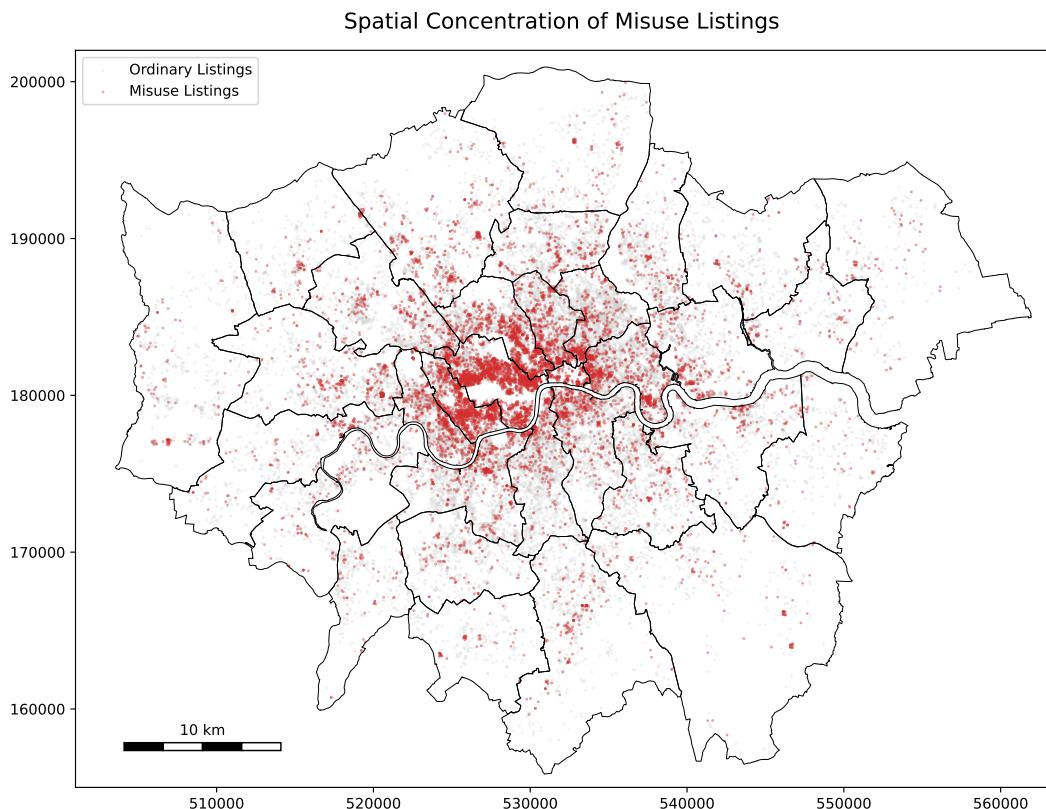
Then we filtered the misuse listings in London based on our operational definition:

1. room\_type = Entire house/apt
2. availability\_365 > 180
3. n\_listings >= 2

Number of houses that meet the definition of misused properties: 12407

Proportion of total housing: 25.86%

## 4.3 The distribution patterns of misused properties



Similar to the general distribution of the Airbnb listings, the misuse listings in London also reveal a distinct **core-periphery pattern**. They are highly concentrated in inner London, particularly along the River Thames, while activity in outer London remains relatively sparse.

We identified a cluster of intense commercialization in City of London, Westminster, Kensington and Chelsea and Camden. In these boroughs, the density of misuse listings is much higher than the city average, effectively turning residential zones into unregulated hotel districts. Furthermore, a significant spillover effect is observed in Hackney. As noted by Shabrina, Arcaute and Batty (2022), attention should be paid

to the high concentration in middle-income areas like Hackney, as it might correlate with the surge in housing prices.

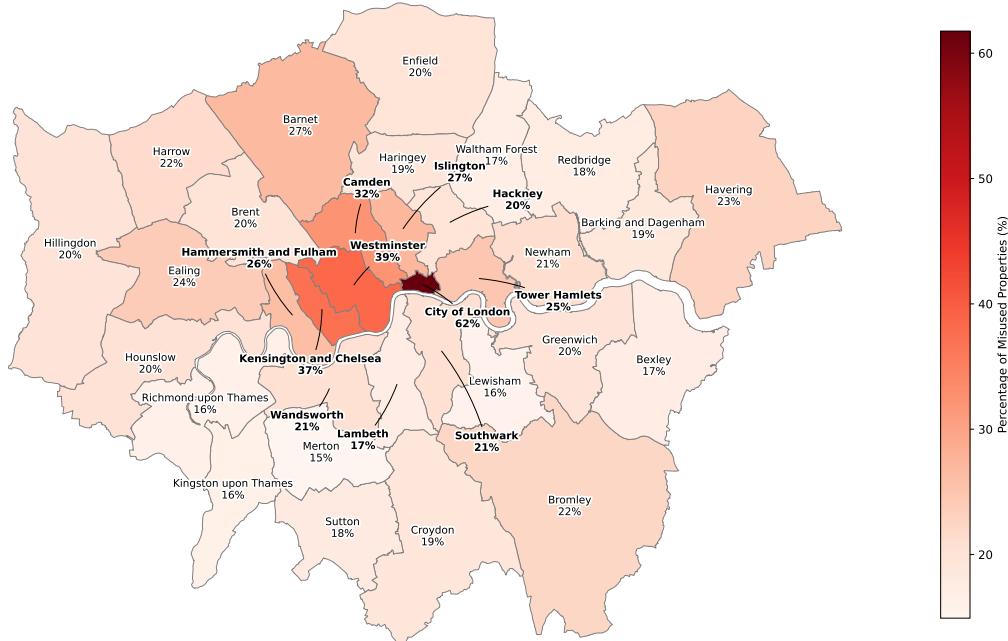
#### 4.4 The influence of Airbnb misuses

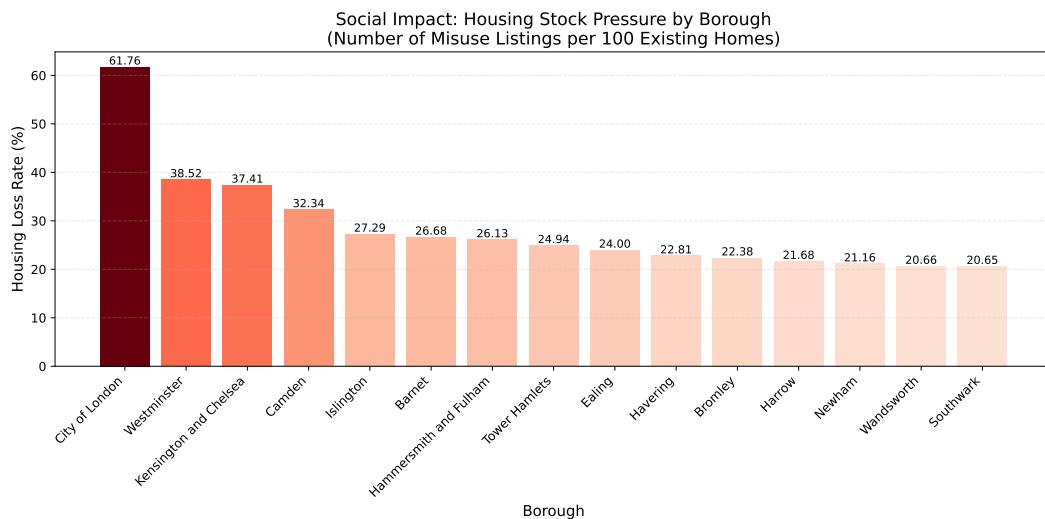
To evaluate pressures that the misused listings place on London housing stock, we introduced the concept of **Housing Loss Rate** (calculated as the number of misuse listings per 1000 dwellings per borough), which quantifying the properties of residential stock that have been diverted from long-term housing to short-term misused rentals. It serves as a critical indicator of housing displacement and housing squeeze experienced by local communities.

--- Top 10 Areas with Housing Pressure ---

	NAME	Misuse_Count	n_listings	Housing_Loss_Rate_Per_100
	City of London	189	306	61.764706
	Westminster	2507	6509	38.515901
	Kensington and Chelsea	1376	3678	37.411637
	Camden	1149	3553	32.338869
	Islington	617	2261	27.288810
	Barnet	342	1282	26.677067
	Hammersmith and Fulham	561	2147	26.129483
	Tower Hamlets	839	3364	24.940547
	Ealing	299	1246	23.996790
	Havering	65	285	22.807018

Percentage distribution of Airbnb Misuse Listings by Borough  
(Entire Home/Apt + Avail>180 + Multi-Host)





The calculated housing loss rate reveals disparities in how Airbnb misuse affects different boroughs. City of London stands out with a rate of **61.76%**, indicating a severe displacement of residential stock. It is followed by a high-pressure tier: Westminster, Kensington and Chelsea, and Camden, all with rates **exceeding 30%**. A drop in intensity is observed after Camden, suggesting the pressure on housing stock begins to ease in other boroughs.

Based on the data, rather than focusing on the entire London, **we selected the top 4 boroughs-City of London, Westminster, Kensington and Chelsea, and Camden-as priority “target boroughs”**, since they represent the core of commercial misuse. Additionally, we also include **Hackney** as a “target borough”. While falling outside the top 10 in housing loss rate, it remains a critical borough where Airbnb misuse density strongly correlates with aggressive gentrification and rental price surge (Shabrina, Arcaute and Batty, 2022).

## 5 How many professional landlords are there?

### 5.1 How to define professional landlords

Consistent with our definition of “misuse” and aligning with the methodology of Shabrina, Arcaute and Batty (2022), we define the Professional Landlords as **hosts possessing 2 or more listings**.

### 5.2 How many professional landlords in London

Number of people identified as ‘professional landlords’: 1174

The total number of landlords: 24,567

The proportion of professional landlords: 4.78%

Our analysis identified **1174** professional landlords in London. This group represents merely **4.78%** of the total host population. This confirms that the vast majority of Airbnb hosts in London remain casual home-sharers, aligning with the platform’s original purpose.

This finding proves that the opposition's proposal, if adopted, would not affect the **95%** of ordinary hosts who participate in the sharing economy. The target group is small, distinct and manageable, ensuring the policy is administratively viable.

## **6 How many properties would be affected by the opposition's proposal?**

Based on our descriptive statistic and spatial distribution analysis, we conclude that **the Airbnb market in London is partially out of control**. This localized instability threatens both the housing market and social mobility.

To address that, **we support the core mechanism of the opposition's proposal: mandating the professional landlords register their properties and pay higher Council Tax rates**. However, rather than a blanket implementation on Airbnb across London, which would be administratively burdensome and unnecessary in low-density boroughs, we suggest a targeted approach **focusing on the “target boroughs”**: **City of London, Westminster, Kensington and Chelsea, Camden and Hackney**.

### **6.1 What kind of properties would be affected?**

Based on our targeted strategy, the policy would target properties that are:

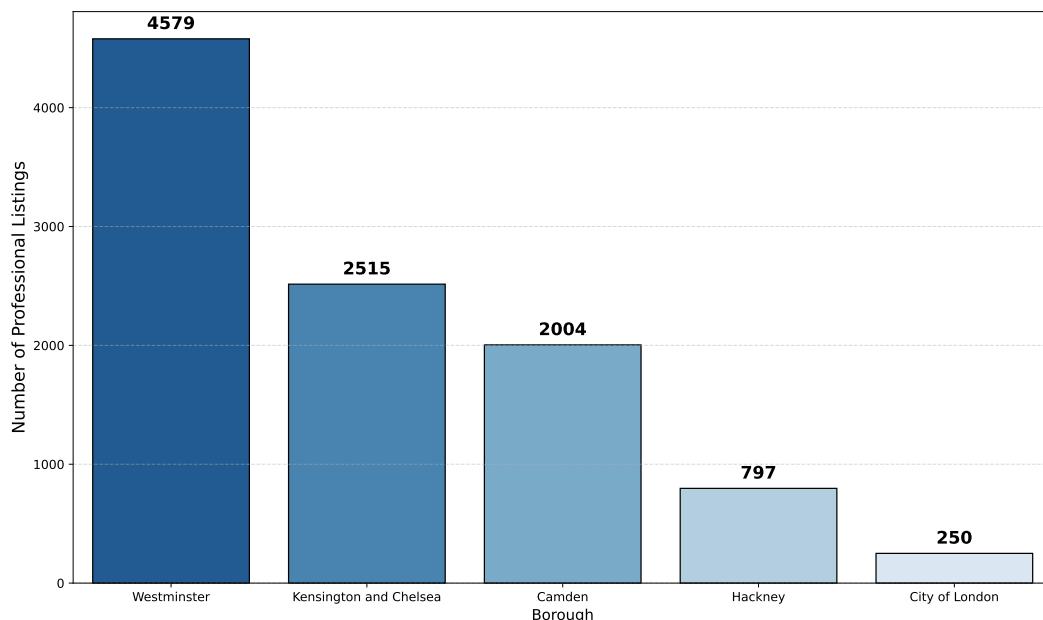
- 1. Classified as misused**
- 2. Located within the “target boroughs”**

### **6.2 How many properties would be affected in London**

Total number of properties affected by the opposition proposal in the target area: 10145

These five districts have concentrated 81.8% of the misused Airbnb listings in London.

## Professional Properties in the Target Area



Based on our targeted strategy, **10,145** properties would be affected. Crucially, these five boroughs alone account for **81.8%** of all misuse properties in London. This concentration confirms the rationality of our targeted approach: **we can address the bulk of the “out of control” phenomenon by concentrating resources on just five boroughs**, maximizing impact while minimizing administrative costs.

## 7 What are the likely pros and cons of the opposition’s proposal?

### 7.1 For the Mayor

The proposal offers the Mayor a chance to **demonstrate targeted, evidence-based leadership**. By focusing on the five “target boroughs”, the policy directly addresses areas containing 81.8% of London’s misused listings, tackling the core problem without imposing excessive citywide restrictions.

Politically, the proposal is defensible as it targets a narrow and clearly defined group. With only 4.8% of hosts qualifying as professional landlords, over 95% remain unaffected, framing the intervention as proportionate.

However, risks remain. The targeted boroughs are highly visible, tourist-intensive areas, and policy changes there are more likely to attract media scrutiny. **Critics may still portray the proposal as harmful to entrepreneurship or tourism, particularly if its purpose is not communicated clearly**. The Mayor would therefore face reputational risks if enforcement appears inconsistent or if messaging fails to emphasise the limited scope of the policy.

### 7.2 For the Residents

For residents, especially in targeted boroughs, benefits are substantial. These areas experience the highest housing loss linked to Airbnb misuse. By discouraging professional short-term letting, the policy can help **return a meaningful number**

**of properties to the long-term housing market, easing pressure on rents and improving residential stability.**

Residents may also benefit from **reduced neighbourhood disruption**. Lower concentrations of short-term visitors can enhance safety, reduce nuisance, and strengthen community cohesion in areas that currently experience high turnover.

However, **administrative spillover risks affect genuine home-sharers**. Casual hosts (e.g., those renting a spare room) might face confusion or increased bureaucracy if the verification process is complex. They may fear inadvertently breaching rules, leading to the result that responsible citizens stop hosting due to uncertainty. Therefore, clear communication and a simplified exemption process for single-listing hosts are vital to prevent backlash.

### **7.3 For the City**

At the city level, the key advantage lies in **stabilising housing markets without undermining London's overall tourism economy**. By concentrating on boroughs where misuse is most intense, the policy avoids unnecessary intervention in low-pressure areas.

Conversely, a reduction in Airbnb supply may **temporarily affect the tourism market** by raising accommodation prices. However, this may redirect demand toward regulated hotels, which contribute more reliably to tax revenues or encourage visitors to stay in outer areas, supporting broader urban goals. With careful implementation, the policy can balance a vibrant visitor economy while prioritising housing for Londoners.

## **8 Can the story be reframed as a positive one about social mobility or housing opportunity?**

-Yes

### **8.1 Housing Opportunity**

Our data show that around 95% of Airbnb hosts in London are not professional landlords, but casual home-sharers. This aligns closely with Airbnb's original "sharing economy" model, in which underused housing space is temporarily made available rather than permanently removed from the residential market. In this sense, Airbnb can **improve the efficiency of housing use** by allowing spare rooms or temporarily vacant homes to be utilised.

From the demand side, short-term rentals also **expand accommodation options for visitors** who might otherwise be priced out of traditional hotels. This can be particularly important for lower-budget travellers, students, or people visiting family, supporting London's role as an open and accessible global city. When limited to genuine home-sharing, Airbnb can therefore complement, rather than undermine, the wider housing system.

Crucially, our findings suggest that housing harm is not evenly distributed across the city. It is driven by a relatively small number of misused entire-home listings, concentrated in a few central boroughs. **This means the positive housing functions**

**of Airbnb can be preserved while addressing its most damaging forms through targeted regulation.**

## 8.2 Social Mobility

From a social mobility perspective, Airbnb can **provide flexible income opportunities for ordinary residents**. Hosting allows homeowners to earn additional income by sharing space they already have, often with minimal upfront costs. For many middle- or lower-income households, this income can help cover mortgages, rent, or rising living expenses.

The low barriers to entry mean that participation is not limited to wealthy investors, but is accessible to people from diverse backgrounds. Airbnb itself reports that in 2023, hosts in the United States earned **\$22 billion** in supplemental income, much of which was used to meet essential household costs (AirbnbNewsroom, 2023). While this figure is not directly transferable to London, it illustrates the broader potential of home-sharing to support household resilience.

## **References**

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