Airbnb Listings in Paris, France*

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1 Introduction

In this case study we look at Airbnb listings in Paris, France, as of 12 December 2023. We use the same data from the textbook (Alexander 2023) in R (R Core Team 2022) and the packages `tidyverse` (Wickham et al. 2019), `knitr` (Xie 2023), `arrow` (Richardson et al. 2024), `naniar` (Tierney and Cook 2023), and `modelsummary` (Arel-Bundock 2022).

*Code and data are available at: https://github.com/atn-ly/airbnb_paris_eda

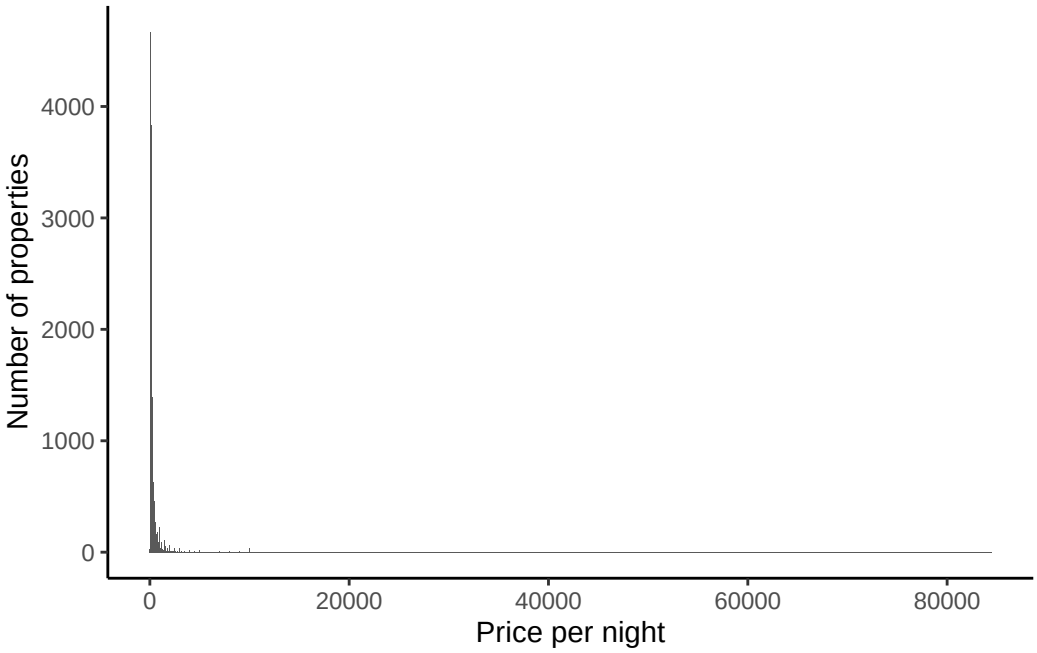
2 Distribution and properties of individual variables

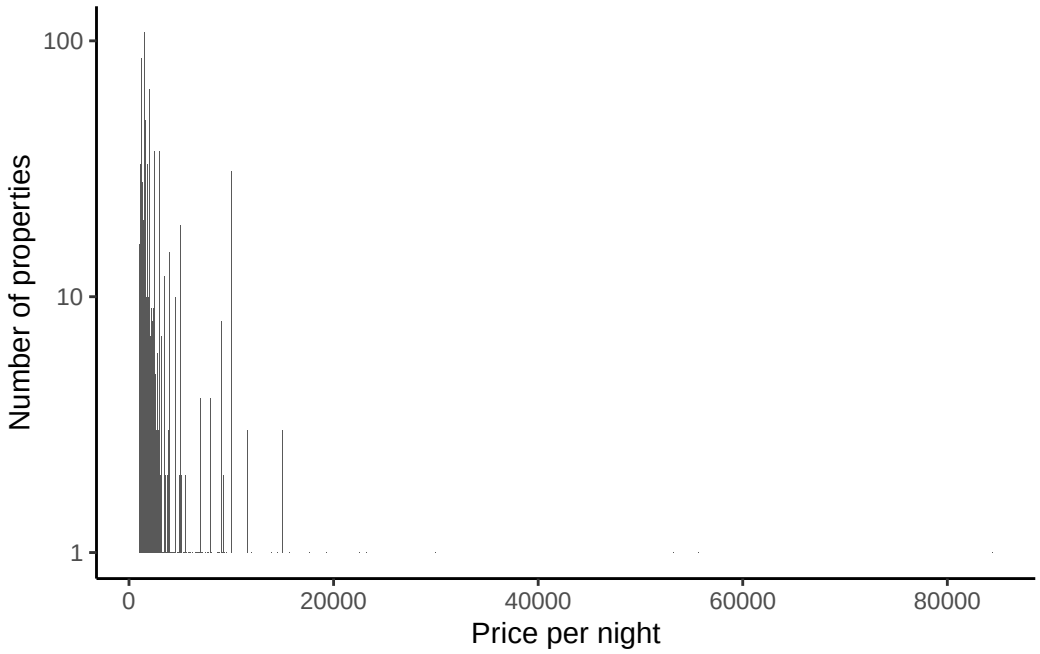
2.1 Distribution of prices of Paris Airbnb rentals in December 2023

We need to convert the variable from character to numeric:

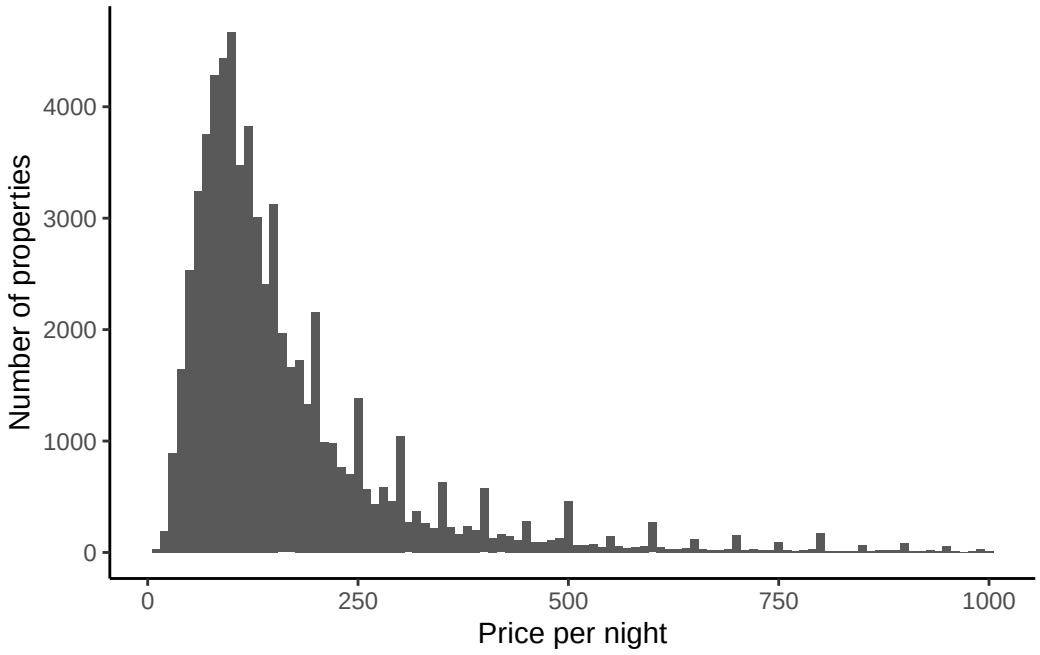
x
150
146
110
140
180
71

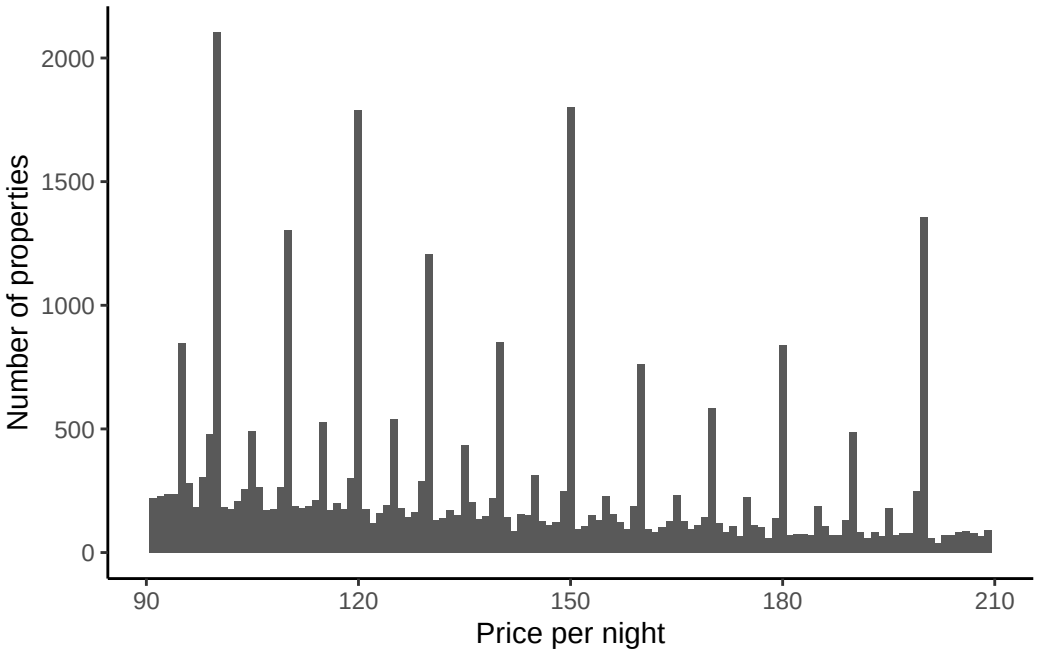
Now we can look at the distribution of prices:





Changing the bins to be smaller:

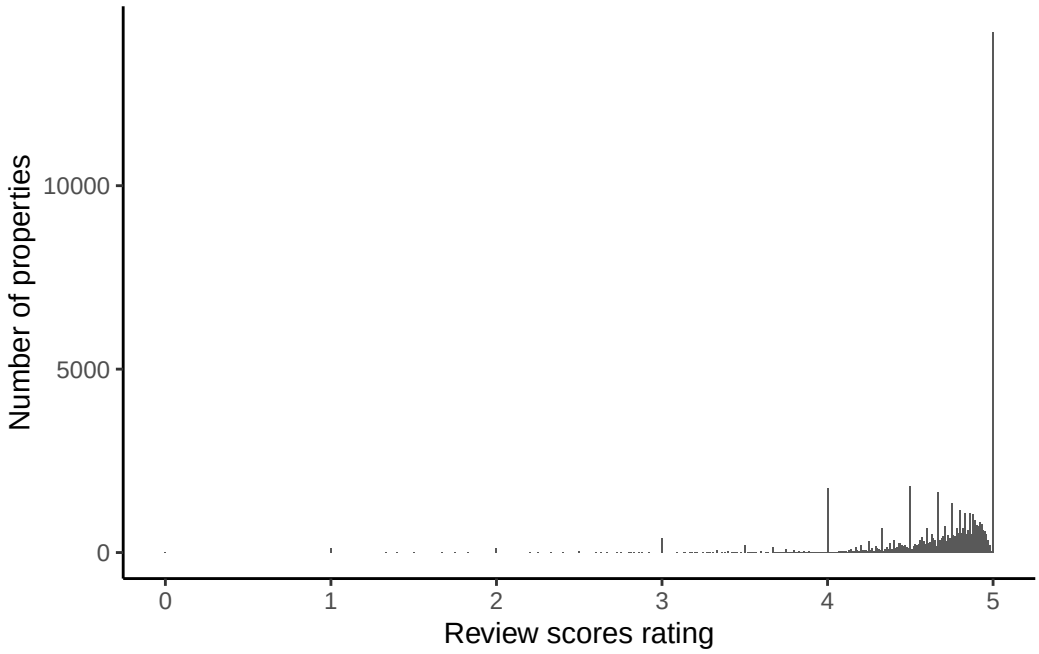


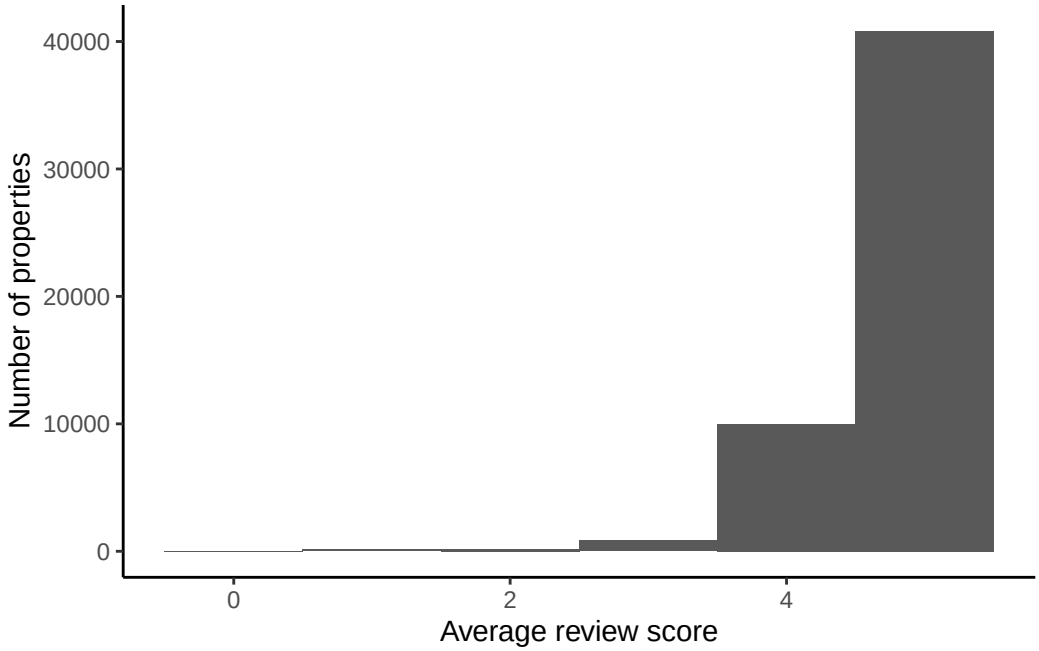


2.2 Distribution of review scores for Paris Airbnb rentals in December 2023

We will remove prices that are more than $999 and remove anyone with a NA for whether they are a superhost.

Now we can look at the distribution of reviews:



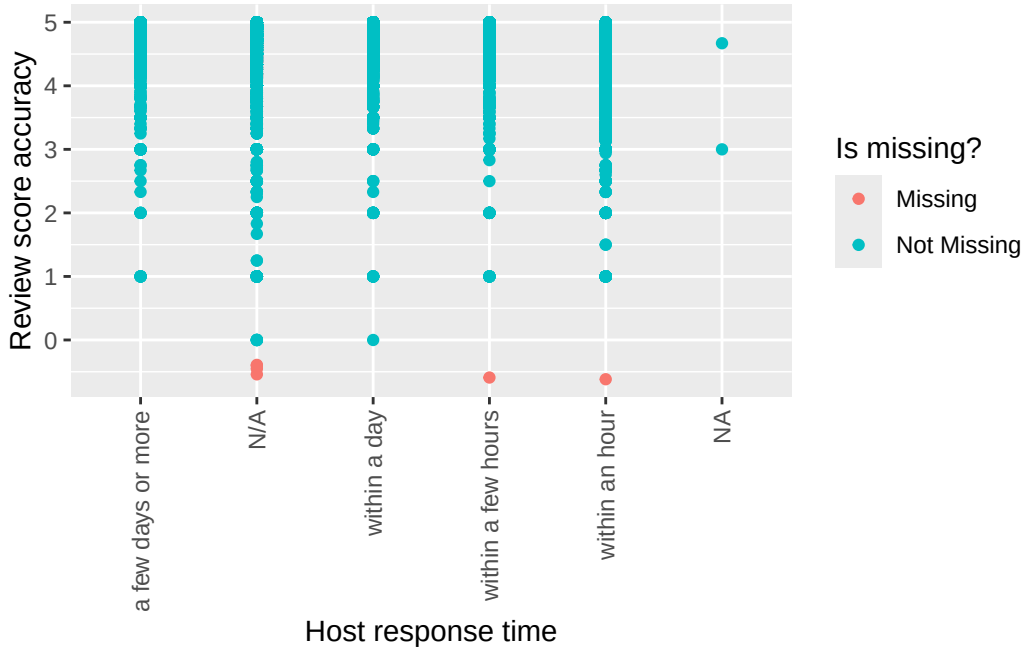


2.3 Missing values in host response time

We see that the variable host_response_time has NAs:

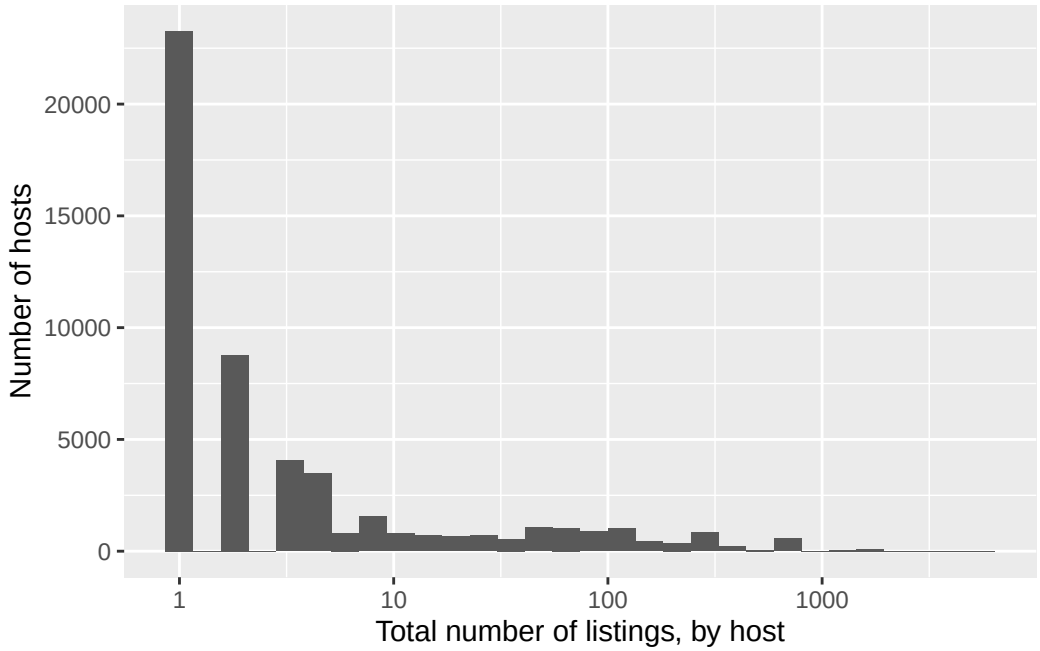
host_response_time	n
N/A	16531
a few days or more	1243
within a day	5297
within a few hours	6811
within an hour	22094
NA	2

When we include NAs in the graph:



We remove NAs in response time.

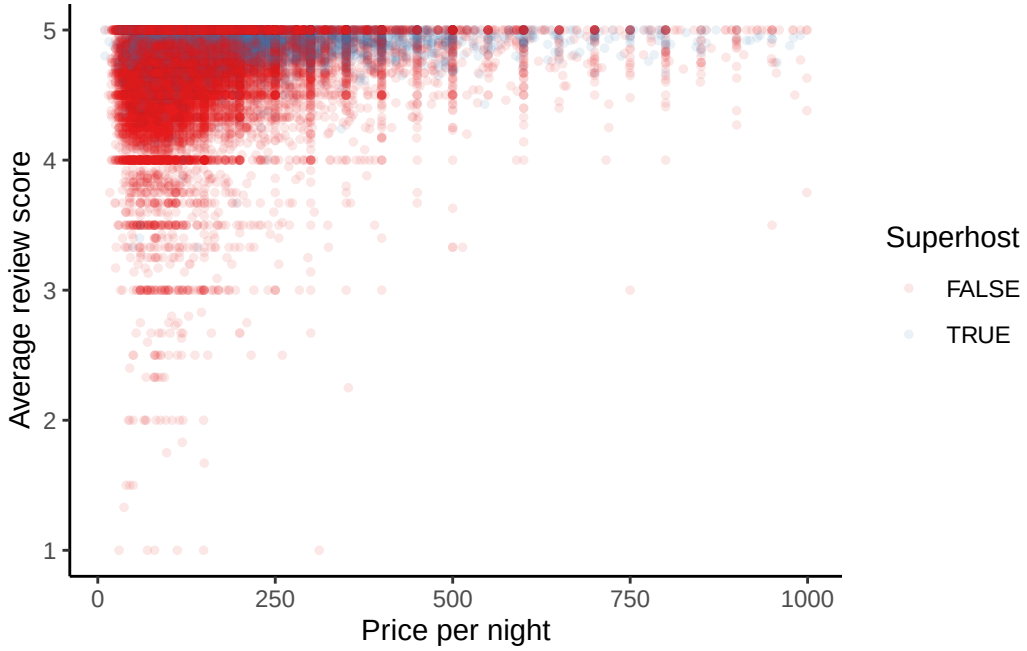
2.4 Distribution of the number of properties a host has on Airbnb, for Paris Airbnb rentals in December 2023



We focus on only those with one property for simplicity.

3 Relationships between variables

3.1 Relationship between price and review and whether a host is a superhost, for Paris Airbnb rentals in December 2023



3.2 Model explaining whether a host is a superhost based on their response time

	(1)
(Intercept)	−16.354
	(0.448)
host_response_timeN/A	0.877
	(0.211)
host_response_timewithin a day	2.019
	(0.211)
host_response_timewithin a few hours	2.695
	(0.210)
host_response_timewithin an hour	2.973
	(0.209)
review_scores_rating	2.643
	(0.082)
Num.Obs.	35 652
AIC	29 972.7
BIC	30 023.6
Log.Lik.	−14 980.357
RMSE	0.37

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