Property market in Paris

Comparing prices vs neighborhood's services

1   Introduction

The property market is one of the most speculative markets today.

Although housing is considered a basic necessity, it's also seen as one of the most profitable investments, making it difficult for most people to buy or even rent property in cities' center.

Paris is one of the most expensive cities in the world when it comes to buying or renting properties. According to the Global Property Guide's website [1], Paris is the 7th most expensive city in the world to buy property and the 10th when it comes to renting. For someone who want's to rent a property in Paris, a question that frequently arises is "Am I paying this much because this neighborhood offers a good range of services or is it just due to speculation?". The intent of this study is to provide some insights to help a future tenant answering this question.

There are numerous factors that influence property price and it's not possible to consider it all in this study, so I will try to focus on relevant services for neighborhood's inhabitants (for instance, the existence of hotels is not relevant, but the existence of banking services may be).

For this study I will map the concept of neighborhood to Paris' *arrondissements*, which are administrative divisions inside the city of Paris. This concept makes it easier to retrieve data already confined to a particular neighborhood from official sources.

By the end of this report, someone with the intent of buying/renting a property in Paris, will be able to choose between one of the twenty neighborhoods (*arrondissements*) according to the density of services available and the type of services.

2   Data

When acquiring data for solving a given problem, there are two main characteristics that are crucial for the project's success:

- Data accuracy
- Data freshness

Data accuracy is most probably guaranteed by obtaining data from reliable and official sources. Freshness it's not always possible but it's desirable, otherwise there's the risk of trying to address a problem with outdated data.

For this study I tried to guarantee these characteristics when researching for potential sources.

From the beginning of this study, it was my intention to display means of visualizing the neighborhoods on a map and to achieve that I would need geographic information to help me establish the boundaries of each neighborhood. I managed to obtain a GeoJSON file from https://www.data.gouv.fr [2], a governmental source with data provided by Paris City Hall (data from 2019).

Since the GeoJSON file only defines boundaries but not the coordinates of a central point of the neighborhood, I obtained a second data set from https://opendata.paris.fr [3] with data also provided by the Paris City Hall (data from 2013, since there were no changes since then). Besides the coordinates of the central point, this source also provided the name and number of each neighborhood (each *arrondissement* has a number that administratively identifies it).

The above data sources allowed me to have identification, borders and coordinates of Paris' neighborhoods:

1. Louvre
2. Bourse
3. Temple
4. Hôtel-de-Ville
5. Panthéon
6. Luxembourg
7. Palais-Bourbon
8. Élysée
9. Opéra
10. Entrepôt

11. Popincourt

12. Reuilly

13. Gobelins

14. Observatoire

15. Vaugirard

16. Passy

17. Batignolles-Monceau

18. Buttes-Montmartre

19. Buttes-Chaumont

20. Ménilmontant

To retrieve information about the services provided in each neighborhood, the FourSquare API was used. I defined a radius around a central point of each neighborhood and explored the services provided within that radius for some specific categories (the ones that might bring most value to a prospective buyer/renter):

1. Arts & Entertainment

2. College & Univerity

3. Food

4. Nightlife Spot

5. Outdoors & Recreation

6. School

7. Police Station

8. Fire Station

9. Post Office

10. Parking

11. Medical Center

12. Shop & Service

13. Travel & Transport (manipulated after extraction to eliminate the *Travel* component)

14. Spiritual Center

Finally I needed property price data per Paris' neighborhood. Since I was unable to find a reliable and updated source for rental prices, I had to work with sale prices per m^2 of used properties, which is still reliable for this purpose since rental prices tend to be proportional to sale prices.

This data was scrapped (there was no file available for download) from https://droit-finances.commentcamarche.com [4], with data provided by Paris Chamber of Notaries as a result of effective property sales on 2019 third quarter.

Sources:

[1] https://www.globalpropertyguide.com/most-expensive-cities

[2] https://www.data.gouv.fr/en/datasets/r/4765fe48-35fd-4536-b029-4727380ce23c

[3] https://opendata.paris.fr/explore/dataset/arrondissements/download/?format=csv&timezone=Europe/London&lang=fr&use_labels_for_header=true&csv_separator=%3B

[4] https://droit-finances.commentcamarche.com/faq/7409-immobilier-a-paris-prix-au-m2-des-arrondissements