BPLN0039_TZYL0

by Sigrid Qin

Submission date: 04-Sep-2022 10:39PM (UTC+0100)
Submission ID: 185677821
File name: BPLN0039_TZYL0_3828312_1683019417.pdf (3.26M)
Word count: 18371
Character count: 101363

LONDON'S GLOBAL UNIVERSITY

University College London

Faculty of the Built Environment

The Bartlett School of Planning

Explore the Effect of Urban Green Spaces on Housing Prices in the Nearby Areas: A Case Study in Inner London

UCL Candidate Code: TZYL0

Date: 03/09/2022

	Word count
Main body of dissertation	9910
Appendices	4364

Being a dissertation submitted to the faculty of The Built Environment as part of the requirements for the award of ***MSc Spatial Planning*** at University College London:

I declare that this dissertation is entirely my own work and that ideas, data, and images, as well as direct quotations, drawn from elsewhere are identified and referenced.

Abstract

Public resources such as parks, transportation, and schools can be very important factors to housing prices nearby. Among these various factors, urban green spaces are especially essential since they can help approve the urban quality of living such as reducing traffic noise and air pollution, as well as being beneficial to human wellbeing. There are academic studies focused on cities all around the world indicating that the proximity to urban green spaces usually has a positive effect on housing prices in the surrounding areas, which is also part of the hedonic pricing analysis and called the proximity principle. However, relevant studies on the correlation between urban green spaces and housing prices have mainly concentrated on Global North, especially in the United States, Europe, and Asian cities. Few studies have mentioned the proximity principle in the United Kingdom context. Therefore, the objective of this research is to investigate the effect of urban green spaces on housing prices in nearby areas. London postcode system is being applied when designating particular areas including green spaces. Five renowned parks are being selected within Inner London and 5223 housing transactions raw data in total were collected within three parks to prove the proximity principle and make the results more general. Substantial evidence by quantitative data analysis through IBM SPSS Statistics 27 shows that the proximity to urban green spaces is positively correlated to housing prices nearby, regardless of the housing types. The conclusion of previous studies is still applicable in Inner London that the proximity principle is accepted in the Global North planning context. This research will shed light on the Inner London context in residential housing purchase decision-making, as well as for estate developers and governments to make reasonable planning development layouts with potential increased economic benefits.

Keywords: Urban Green Spaces (UGSs), housing prices, proximity principle, Inner London, hedonic pricing analysis

Acknowledgements

I would like to first sincerely thank my dissertation supervisor, Dr. Tse-Hui Teh, for her academic guidance and patient support during the whole research process, as well as her encouragement that motivated me to keep going all the time. I would also like to thank all my lecturers and tutors from the Bartlett School of Planning for the great modules they brought to me during this academic year.

A special thanks goes to my family especially my Dad for supporting me financially and emotionally, as well as all my friends, especially Sherry, Sunny, Eric, and Estelle, for their support and companion during the time.

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1 Introduction

Public resources such as transportation, parks, hospitals, and education facilities are really important to city residents. They can increase the convenience of urban living life and accordingly play an indispensable role in the housing market (Chin and Foong, 2006; Yang et al., 2018). Urban green spaces (UGSs) can especially provide multiple benefits including aesthetic enjoyment, recreational function as well as ecosystem services (Cho, Bowker and Park, 2006; Gómez et al., 2011; Maimaitiyiming et al., 2014). There are two general categories of ecosystem services (Cilliers and Timmermans, 2013; Cilliers and Timmermans, 2015), distinguishing between direct and indirect benefits. The former mostly refers to environmental and social benefits, while the latter is more about economic benefits. With the increase of urban population and the acceleration of urbanization, green land is gradually absorbed (Tanaś and Trojanek, 2014; Źróbek-Różańska and Zadworny, 2016). Green space is crucial to the quality of urban lives, thus such spaces need to be maintained and restored (Zhou & Parves Rana, 2012). Previous studies have focused on the urban environment and discovered that the UGSs have a positive effect on housing prices nearby in most circumstances according to Hedonic pricing analysis, but the cases are mainly located in Global North contexts such as the US (Anderson and Cordell, 1988; Crompton, 2005), Europe (Czembrowski and Kronenberg, 2016; Trojanek, Gluszak and Tanas, 2018) and China major cities (Kong, Yin and Nakagoshi, 2007; Biao et al., 2012; Wu et al., 2015). Relevant research on the UK context is rare. Thus, it is necessary to carry out such research to figure out the effect of UGSs on housing prices as well as to prove if the proximity principle is accepted in UK major cities. London, as the capital and one of the largest cities across the UK, can be a representative case to do further research. Also, by exploring the effect of UGSs on housing prices, the recommendation can be offered to future housing market development as well as urban planning processes, for possible social and economic benefits.

The terms ‘open space’ and ‘green space’ have been used without exact definitions and can be simply interchangeable in the planning field (Swanwick, Dunnett and Woolley, 2003). UGSs are defined in Tzoulas et al. (2007) and Wolch et al. (2014) as the piece of land in an urban area covered by vegetation, different in the plantation categories, sizes, facilities, and services. In the following research part, ‘Urban Green Spaces (UGSs)’ is used to avoid confusion and misunderstanding as this term is most compatible when discussing various types of green lands, and it is also been used as a fixed term in other previous studies (Cilliers et al., 2012; Cilliers

and Cilliers, 2015; Combrinck et al., 2020). Five renowned parks are being selected within Inner London and 5223 housing transactions among three parks were collected to prove the proximity principle and make the results more general.

The following research objectives will be focused:

1. To identify the current findings and gaps in exploring the correlation between residential housing prices and generic environmental elements.
2. To investigate whether the urban green spaces will affect housing prices in the nearby areas through quantitative analysis in Inner London context.
3. To explore how the different features of the parks or the different types of housing affect the housing prices in the vicinity areas.

This paper is organized as follows: First, it starts with the background of UGSs in the case study city London, before demonstrating the proximity principle and current findings of previous studies. The importance of carrying out such research at the spatial planning level is also considered. Second, the Methodology Section describes the study area, data collection, and statistical methods. Ethical consideration is included in the research. Third, in Data Analysis and Results Section, the quantitative approach is mainly used to prove the proximity principle and to investigate property valuations with distance to three chosen UGSs in Inner London, as well as qualitative analysis in comparations and some field research included. Finally, the conclusions are drawn with some ultimate recommendations provided.

2 Literature Review

2.1 Urban Green Spaces in London Context

Urban green spaces (UGSs) can bring many positive effects, which provide some functions for urban residents and many other benefits for the city (Sadeghian & Vardanyan, 2013). First, as a place for recreation, parks can improve people's health and psychological state and bring positive social benefits. Second, the park has ecological benefits. Green plants can reduce urban air pollution and traffic noise pollution, which decrease the impact of the heat island effect to ensure ecological balance and biodiversity; Third, UGSs can save energy as well as increase the attractiveness and characteristics of the city, which add to the value of surrounding real estate. Fourth, good park design can create a good urban environment and bring aesthetic value, which is an indispensable part of urban planning.

Urban Green Spaces (UGSs), as an integral part of urban development strategies, are important not only in providing multi-propose spaces to people but also for human wellbeing and beneficial for the ecosystem. They are located within the urban boundary and are mainly covered by permeable surfaces, soil or flora such as shrubs, grass and trees species (Girma et al., 2019). According to Wolch, Byrne and Newell (2014), the zoning classifications include various categories as recreational, residential or commercial to adopt different land uses. As for public green spaces, they contain parks and reserves, playgrounds or sports fields, street trees or greenways, and community gardens, as well as green walls or alleyways and such less conventional spaces (Roy, Byrne and Pickering, 2012). As for private green spaces, they mainly include private backyards or corporate campuses, and communal grounds of apartment buildings (Wolch, Byrne and Newell, 2014). The research is carried out on public green spaces. It has been studied extensively that the UGSs have made a wide range of contributions to the quality of urban living, as part of the green infrastructure (du Toit et al., 2018), and they also could help combat many urban diseases for city dwellers especially regarding to the health and wellbeing (Wolch, Byrne and Newell, 2014).

Most of the current studies have been conducted in the contexts of the Global North, especially in the United States (Anderson and Cordell, 1988; Crompton, 2005), Europe (Czembrowski and Kronenberg, 2016; Trojanek, Gluszak and Tanas, 2018) and Asian cities (Kong, Yin and Nakagoshi, 2007; Biao et al., 2012; Wu et al., 2015). However, empirical research is not that rich in represent of UK major cities. Current studies only mentioned that flat prices increase

with additional proximity to parks in Aberdeen (Dehring and Dunse, 2006), a 2.6% reduction in housing prices within a 3km radius of active landfill sites in Birmingham (Ham, Maddison and Elliott, 2013) and UGSs have a significant positive impact on proximate residential properties in Belfast (McCord et al., 2014). London, England, as the capital and the largest city of the UK, the significance of UGSs has been emphasised in government policy documents of various levels, from borough to region. There are 32 boroughs across the London area, including the City of London, which is the central business district managed by the City of London Corporation. Among these boroughs, twelve boroughs are designated as Inner London, with the other twenty are Outer London (Pan, Bardhan and Jin, 2021). According to Greater London Authority (2016), the importance of protecting, promoting and enhancing London's open spaces has been reinforced in London Plan 2016. Moreover, the designated public open spaces account for 17.99% of the Greater London area (Greenspace Information for Greater London CIC, GiGL, 2022), which are a total of 28,683 ha, including regional parks, metropolitan parks, linear open spaces and so on. The open spaces occupy an area of 62099 ha with 38.94% land in Greater London, which is a bit decreasing compared to the previous data of 67,541 ha occupying 42.36% land (GiGL, 2019, cited in Pan, Bardhan and Jin, 2021). 44% of Londoners live within a five minutes walking distance to the nearest park if playfields are included. And Figure 1 shows the public green spaces per 100,000 residents and lower density can be found in Inner London compared with Outer London (Office of National Statistics, 2022).

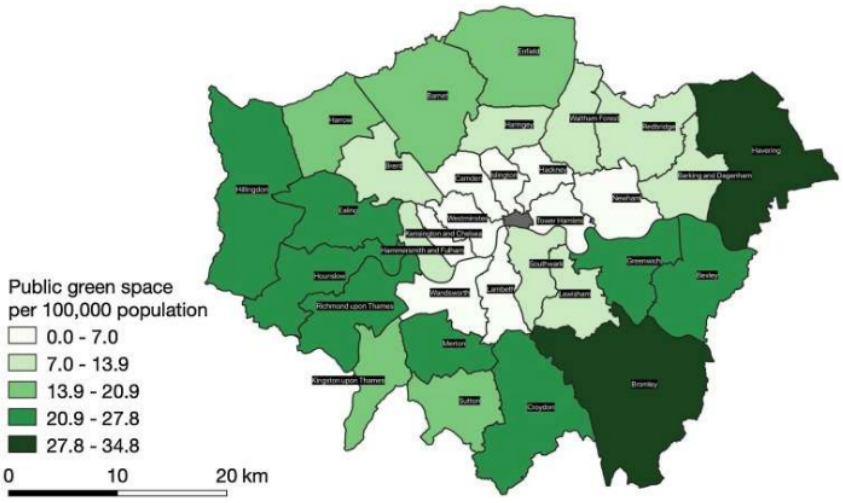

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Figure 1. Number of public green spaces per 100,000 population in London
(Source: Pan, Bardhan and Jin, 2021)

2.2 The Proximity Principle as A Hedonic Pricing Analysis Method

The proximity to UGSs can improve residential satisfaction and thus affect housing prices (Sadeghian & Vardanyan, 2013), which is in line with the hedonic pricing model. The proximity principle is also known as the proximate principle, it indicates the value of an amenity can be determined by the values of neighbouring residential properties. Based on Panduro and Veie (2013), the proximity principle reflects the residents' willingness to pay more for houses to enjoy a better use or view of amenities such as green spaces. Since they also pay more on property tax and the higher tax can contribute to local public municipalities planning directly, the quality and maintenance of such UGSs can be guaranteed in turn at the meanwhile (Cilliers, 2013, cited in Combrinck et al., 2020).

Hedonic Pricing Analysis is generally employed to identify the various factors and characteristics that affect property values in a quantitative way by using different regression models and regarding the housing price as a function of measurements related to the proximity to UGSs (Panduro and Veie, 2013; Daams, Sijtsma and van der Vlist, 2016). The residential properties are not homogeneous because different factors can influence the values to different extents according to the hedonic pricing model, such as the size, physical condition and accessibility to UGSs (Panduro and Veie, 2013). Relative studies have shown that the UGSs have a positive impact on housing prices nearby, therefore, the hedonic pricing analysis will be used to test the proximity principle (Biao et al., 2012). It assumes that a heterogeneous commodity (Houses) is defined by various attributes and the housing value is based on a combination of characteristics (Brasington and Hite, 2008). It can be generally expressed as:

$$P = y(a_1X_1, a_2X_2, a_3X_3, \dots, a_nX_n) + u_n$$

Where P stands for the commodity price and $X_1, X_2,$ and X_3 are its attributes. The value a_n is the estimated coefficient, and u_n is the error term. The hedonic pricing model had been applied for calculating the premium of environmental factors on property value, which is also known as environmental externalities, including air quality, wetlands as well as local amenities (Wu et al., 2015).

However, there are also exceptions. For example, according to Cilliers and Cilliers (2015), the proximity principle was rejected in a South African case study, with the testing of the principle in Potchefstroom to compare local findings with the results proven in other international literature. The results were a bit different as the proximity to the nearest UGSs led to a negative

impact on the residential property value nearby in Potchefstroom. Most properties located further away from UGSs suggested a much higher value in South African Rand per square meter compared to the properties located right adjacent to UGSs, which indicated that the proximity principle cannot be easily applied to all cities and contexts, with the consideration needed in specific planning context of UGSs (Combrinck et al., 2020). Though environmental management is regarded as an essential part of the urban planning process, the survey carried out by Combrinck et al. (2020) also showed nearly half of local planners in Potchefstroom admitted that environmental considerations are not prioritised compared to other material considerations. However, local residents still hold strong recognition of the importance of UGSs in environmental and social value and less extent to economic value (du Toit et al., 2018). People are willing to pay a higher price for housing that is adjacent to UGSs and neglect slightly the disservices and the potential of undermining in the ecosystem and economic development such as poor maintenance and crime hotspots (Combrinck et al., 2020).

2.3 Current findings between Urban Green Spaces and Housing Prices

The earliest study on the impact of landscapes on housing prices was an external benefit analysis based on three urban parks in California (Darling, 1973). The type and size of green spaces, as well as the categories of attributes, are the aspects that need to be considered in such research. Previous studies have generally shown that housing prices change with different types of green space, such as parks (Espey and Owusu-Edusei, 2001), wetlands (Earnhart, 2001), greenbelts (Herath, Choumert, & Maier, 2015) and so on. The degree of impact is related to the distance and accessibility between the house and the green space (Lutzenhiser and Netusil, 2001). In addition, Millward & Sabir (2011) also pointed out that the landscape design of the park and additional facilities can also have different attractions, thus affecting the price scope of the neighbourhood in which the house is located.

Some studies have already focused on the housing type and explored the influence of this factor on green space and housing price, which is mainly divided into the price of flats (Jim and Chen, 2010; Kolbe and Wustemann, 2014) and single-family houses (Bark et al,2011; Kim et al, 2016). In general, parks have a greater impact on the price of adjacent flats than single-family houses. The park elements are less likely to have a strong impact on the price of such houses if single-family houses are large in size, which means there is extra space as private gardens for leisure use (Trojanek, Gluszak and Tanas, 2018).

The basic assumption is that parks have a positive effect on housing price changes. However, this influence will decrease as the distance increases, so it may not linear and is related to the type of green space, accessibility and facilities (Panduro and Veie, 2013; McCord et al., 2014). In addition, greenspace premium is also affected by multiple factors, such as urban development density and lack of greenspace (Herath et al., 2015; Votsis, 2017). Negative externalities associated with green spaces also exist, including problems caused by crime and mismanagement (Troy and Grove, 2008). Generally speaking, the lack of maintenance and community engagement, as well as inefficient budgets are the main reasons why the UGSs planning approach cannot be achieved with the expected result (Combrinck et al., 2020). The table in Figure 2 summarised the descriptions and results of current findings between the UGSs and the impact on housing prices.

Current findings on Urban Green Spaces and housing prices (Sorted by time/year)

No.	Study Area	Authors	Housing Type	Sample Number	Main Findings
1	Ramsey County, Minnesota (USA)	Doss and Taff (1996)	Single-family houses	2976 transactions	Different wetlands have different influences on housing prices but all positive effect
2	Multnomah County, Oregon, Portland (USA)	Mahan et al. (2000)	Market-based residential properties	14485 transactions	Home values have a negative correlation to distance from wetlands but a positive correlation to wetland areas
3	Netherlands	Luttik (2000)	Terraced, semi-detached and detached house	Nearly 3000 transactions	Open green space can increase profits of residential property values by 6-12%
4	Aberdeen, Scotland (UK)	Dehring and Dunse (2006)	Detached housing, nondetached housing and flats	8521 property units	Flat prices increase with additional proximity to parks, but it did not find an effect for lower density type housing
5	Jinan, Shandong (China)	Kong, Yin and Nakagoshi (2007)	Housing clusters	124 sample properties	Positive amenity impact of proximate UGSs on housing prices
6	Hong Kong (China)	Jim and Chen (2010)	Apartments	1471 transactions	A significant positive effect of UGSs on housing prices, mainly for recreational availability, but also to view
7	Tokyo (Japan)	Hoshino and Kuriyama (2010)	Single room dwellings	2370 for rent	A positive effect of UGSs on apartment rents but also depends on park size, significant correlation mainly near medium-size parks

8	Belfast, Northern Ireland (UK)	McCord et al. (2014)	Terraced, semi-detached, detached houses and apartments	3854 transactions	A significant positive effect of UGSs on housing prices, depending on housing type, especially strongest impact in apartments
9	Cologne (Germany)	Kolbe and Wüstemann (2014)	Apartments	85046 transactions	A significant positive effect of UGSs on housing prices
10	Shenzhen, Guangdong (China)	Wu et al. (2015)	Secondary residential dwelling units	71 parks and 6473 transactions	Proximity to a park noticeably contributes to housing prices at 0.041%
11	Potchefstroom (South Africa)	Cilliers and Cilliers (2015)	Residential areas	5 areas	Green spaces were found to have a negative impact on site scale, but a positive impact on neighbourhood-scale
12	Austin, Texas (USA)	Kim et al. (2016)	Single-family houses	11326 transactions	A significant positive effect of UGSs on housing prices, depending on the size and structure of UGSs
13	Warsaw (Poland)	Trojanek, Gluszak and Tanas (2018)	Multi-family buildings/ apartments	43075 transactions	A significant positive effect of UGSs on housing prices, particularly high for post-transformation housing estate

Figure 2. Current findings on Urban Green Spaces and housing prices (Sorted by time/year)

(Source: own research)

2.4 The Importance of Research Context in Spatial Planning Level

Several studies already indicated the importance to consider the entire green infrastructure in spatial planning practical practice to increase city sustainability and resilience (Tzoulas et al., 2007, Cilliers et al., 2011, Ahern, Cilliers and Niemelä, 2014). The literature base which linked ecosystem services to spatial planning mainly concentrated on developed countries though it is not official and systematic (Cilliers and Cilliers, 2015). Berlin has some strategic documents referred to ecosystem services for planning purposes (Kabisch, 2015). In Melbourne and Stockholm, the ecosystem services approach had been considered once in strategic spatial plans but no quantitative valuations were ever done (Wilkinson et al., 2013). Though this is not new in spatial planning, the need for more research on a social-ecological basis and how to apply it in decision-making processes is still essential (Wilkinson et al., 2013). It should be acknowledged that the UGSs of local level study need to take specific context situations accounting for the regional or spatial planning process. One solution to deal with this is through public participation and stakeholder engagement to render valuable thought towards perceptions, experiences, potential benefits and downsides concerning UGSs (Haaland and van den Bosch, 2015).

Relevant studies have also shown the inequity of green spaces, with the results that residents in poorer rural areas have less public green space area than those who live in affluent areas, which leads to the low accessibility for the poor to use such spaces (du Toit et al., 2018). Relating to the socio-economic disparities in London's context, it can also be expressed spatially to the accessibility of public amenities and so on. Stakeholder engagement could consider various interests and views of residents when coming to the spatial planning and management of public green spaces as well as provide a comprehensive understanding of the impacts in recognition of general challenges. It is not necessary to conclude all the thoughts into decision making, but it can provide nuanced points that the citizens care about most like experience and shed the light on biodiversity, cultural recognition as well as recreational values which are easy to be overlooked in economic datasets and spreadsheets (Combrinck et al., 2020). Therefore, linking objectives of UGSs planning with spatial planning level entails a strategy for the integrated management of land, which can promote sustainable use of society in an equitable way as well as increase economic benefits.

3. Methodology

3.1 Study Area

London (51°30'26" N, 0°7'39"W) is the capital and the largest city of the UK, with 319 km^2 land area and residents numbered 8,982,256 in 2019 (EuroStat, 2019). London boroughs are the 32 local authority districts that counted together with the City of London make up the whole administrative area of Greater London. This paper will mainly focus on the UGSs in Inner London especially the central part as the case study area since the outer London is quite close to the boundary of the Green Belt, which will bring more uncontrollable variables to this quantitative research. Another reason is that the property density may vary a lot in central urban and remote rural areas, it's much clearer to collect housing transaction data and carry on analysis in the highly dense city centre. Inner London has two common definitions, the first is the statutory definition delineated in the London Government Act 1963 (See Figure 3), which contains twelve boroughs. The other one is the current definition used by the Office for National Statistics comprising eleven of the statutory Inner London boroughs (excluding Greenwich) plus two of the statutory Outer London boroughs (Haringey and Newham), and the City of London (See Figure 5).

As for the selection of parks, inspired by Bell, Montarzino and Travlou (2007) on the classification of green space, UGSs are divided into several specific types (park, lake, nature, cemetery and so on) and the classification criteria (accessibility, such as external, social, maintenance) are attached. Meanwhile, photos and observations from site visits have also been considered for the target selection. Some basic indicators or information, such as location, sizes, history ages and when the spaces open to the public, ownership, gated or not, utilities are set to make comparisons through tables. Current selected UGSs of the Inner London study area for further analysis are listed below: The Regent's Park, St James's park, Hampstead Heath, Battersea Park, and Russell Square.

Figure 3. Inner London Statutory Definition (Source: https://en.wikipedia.org/wiki/Inner_London#/media/File:LondonInner.png)

Figure 3. Inner London Statistical Definition (Source: https://en.wikipedia.org/wiki/Inner_London#/media/File:LondonInnerCensus.png)

3.2 Data Collection and Statistical Methods

In terms of research methods, quantitative analysis and controlled variables are mainly used and represented by a hedonic regression study of housing prices. The hedonic pricing model is to identify price factors based on the premise that the price is determined by both the internal characteristics of the goods sold and the external factors that affect it, in order to study the economic value of green spaces. The implicit assumption is that there is a functional correlation between house price and its location, structure types and various neighbourhood features (such as green space).

With regard to the data collection, relevant data related to UGSs is obtained from online open data resource platforms and the public information on official websites. The property-related data are mainly from HM Land Registry Open Data, with statistical reports of housing price data released by the government (mainly from London Datastore). Data and indicators are standardised, screened out and organized in Microsoft Excel worksheets, then import into analytical software, where the correlations are tested in IBM SPSS Statistics 27 for subsequent analysis.

The properties of the residential areas can be recognized through the layout and size of the buildings combined with Google satellite map and street view. The site visits can be seen as an

additional option if necessary when it is obfuscated to tell the building's real functions through online map toolkits. Transaction history and price data can be obtained from HM Land Registry Open Data, listed by detailed address and postcode. The data is downloaded and sorted, since some properties corresponding to postcodes had more than once transactions over the years. Two principles are set in the process of data standardisation as followed: First, ignore the transaction records before 2000, since the housing price level at that time was extremely low, which was far from the current housing price situation and was not analytically representative. Second, the housing transaction price data from 2000 to the present sometimes may fluctuate greatly for some practical reasons, so the highest and lowest prices in the historical transaction records over the past 20 years are ignored as well, while other transaction price data are averaged, representing the property price corresponding to a particular postcode address. Keep the integer part of these prices data and ignore complicated digits as appropriate. The independent variable is the proximity to UGSs, which indicates the distance and the specific straight line value can be measured through the Google Map, keeping the integer part. The dependent variable is the average house price.

3.3 Ethical Consideration

The research presents a low ethical risk. In accordance with University College London's Data Protection Principles, Research Ethics Committee and the General Data Protection Regulation, the methods of data collection related to the research topic are through the online open data resource platform. The project does not need to include the recruitment of human participants, thus no identity-related data will be used unless expressly given permission. Including but not limited to individual expression of opinion; Sensors, location and other visual data such as faces, addresses and postcodes; Name, date of birth, ethnicity, religion, health conditions and other personal information. In terms of quantitative data analysis, the research will follow the principles of honesty and transparency. Data access, production transparency and analytical transparency will all be incorporated to meet ethical standards (Lupia and Elman, 2013). The aims, objectives and results will not be exaggerated.

The completed Ethical Clearance form and Risk Assessment form have been included as part of the dissertation and will be presented in the appendices section.

4 Data Analysis and Results

4.1 Qualitative Analysis and Field Research Results

Name	Location	Size	Ages	When open to public	Ownership	Gated or not	Notes
The Regent's Park	NW1 4NR	400 acres	From the 1500s	1841	Royal Parks	5 am-closing times vary all year round depending on the seasons (vary from 4.30-9.30pm)	North-west Inner London, administratively split between the **City of Westminster** and the Borough of **Camden**- historically between Marylebone and Saint Pancras parishes. The **Crown Estate** owns the freehold of Regent's Park.
St James's Park	London SW1H 9AP	57 acres	From 1532, 490 years	1887	Royal Parks	5 am-midnight	Surrounded by **landmarks** such as Buckingham Palace, Clarence House and Whitehall.
Hampstead Heath	NW3 2QD- for Overground train station	800 acres	Over 200 years	1928	City of London	Not gated	Lies mostly within the London Borough of **Camden** with the adjoining Hampstead Heath Extension and Golders Hill Park in the London Borough of **Barnet**.
Battersea Park	London SW11 4NJ	200 acres	Built between 1854 and 1870, over 150 years	1854	Wandsworth Borough	Park gates are open from 6.30 am to 10.30 pm	Situated on the **south bank of the River Thames** opposite Chelsea and formally opened along with neighbouring Chelsea Bridge in 1858.
Russell Square	London WC1B 4JA	2.5 hectares = 6 acres	Built in 1806	1806/ early 19th century	Camden Borough	7.30am-10.00pm	In the heart of **Bloomsbury**, close to the British Museum and Bloomsbury Square.

Figure 4. Summary of five chosen UGSs in Inner London

(Source: own research)

Figure 5 summarised the relevant information within selected UGSs in Inner London. From preliminary research, it is notable that the ownership of residential properties in some large royal parks, such as The Regent's Park, is not owned by ordinary private landlords. Some properties have been owned by historical noble families for a long time, and regular housing transactions may hard to be carried out. Such data are not representative for the analysis, and these types of properties are considered to be ignored during the research progress. Furthermore, as St James's Park is more like a UGSs synthesis and is generally regarded together with Hyde Park and Green Park around it as a whole green space (See Figure 6, St James's Park is marked with a dashed circle), which means it may become perplexed when coming to derive the effect of a separate green space on the housing prices nearby through a unilateral factor. Therefore, the following data analysis on the proximity principle is mainly carried out on three remaining parks: Hampstead Heath, Battersea Park and Russell Square, followed by their size from small to large.

Figure 5. St James's Park with Nearby Parks
(Source: by author, https://www.openstreetmap.org/#map=15/51.5195/-0.1235&layers=H)

4.2 Postcode Research and Variable Selection

Housing transaction data collection is carried out through the postcode across selected spots (parks with the nearby areas). Since the postcode in London is systematic and can point to a specific property precisely with corresponding address. Each postcode consists of two parts with the first part called outward code for locating a town or district, and the second part called inward code (Postcode London, 2022). As for the postcode system, it was introduced during WWI and set a 'central' district, which was the main sorting office in history and ends with '1', such as W1, SW1, and N1. The numbering follows alphabetical order according to the initial letter of district names (Bonner, 2016), such as E5 for Clapton, E6 for East Ham and E7 for

Forest Gate, thus two postcodes with continuous numbers can be far away from each other due to this reason. Also, there are only N, W, WC, E, EC, SW, SE and NW used in the postcode system, as the E division subsumed the original NE division (defunct now) and the S division was split into SW and SE division.

In the process of variable selection, in order to determine whether there is a correlation between a dependent variable and the independent variable, correlation analysis is needed (See Figure 7). Pearson correlation (also known as Pearson product-moment correlation) is used to quantitatively describes the direction and closeness of linear correlation between two random and continuous variables. These two variables need to meet normal distribution, correlation coefficient γ is between -1 and +1, the closer the absolute value reaches 1 proving that the closer the correlation between two variables. In another word, Pearson's γ varies between +1 and -1, where +1 is a perfect positive correlation, and -1 is a perfect negative correlation. 0 means there is no linear correlation at all. A Spearman's correlation is applied to understand the relation between the dependent variable and independent variables as it evaluates the monotonic relationship, which is shown in the correlation coefficient that it is based on the ranked values rather than the raw data. The results matrices are also generated with a two-tailed test significance. Subsequential analysis methods in IBM SPSS Statistics 27 include linear regression analysis, logarithmic and exponential regression analysis, quadratic and cubic regression analysis and so on (See Figure 8). Specific adjustments and model fitting need to be made according to the subsequent research condition and data trend.

Figure 7. Bivariate Correlation Analysis Process (Source: by author)

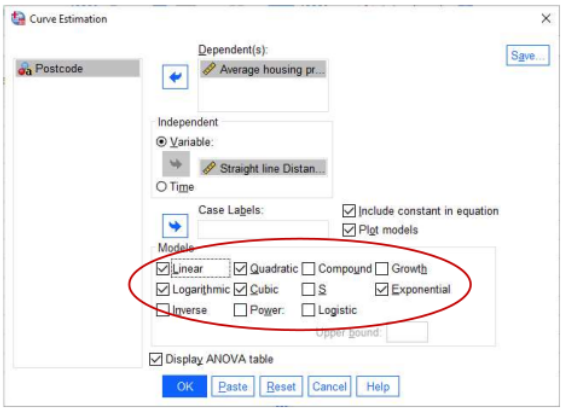

Figure 6. Regression Analysis Process (Source: by author)

4.3 Case Study A: Russell Square and surrounding properties (Postcode starts with WC1B)

4.3.1 Data Standardisation and Analysis

As for Russell Square, the first part in the postcode of this area is WC1B with the boundary shown in the map below (See Figure 9), it is noticeable that Bedford Square is also located in this area thus the two main UGSs will be considered together. Russell Square (London WC1B 4JA) is in the heart of Bloomsbury, close to the British Museum and Bloomsbury Square. While Bedford Square (London WC1B 3HH) are private green space with a key holder scheme, which means it is only available to people who paid the annual fee. The property types include detached, semi-detached, terraced and flat/maisonette. Property is either new-build or not with freehold or leasehold. The initial transaction data reaching is limited to earliest 01/01/2010 till up to date, as the data is too less, therefore expand the time range to 01/01/2000 till up to date. 397 raw data about transactions are for further data standandisation and analysis.

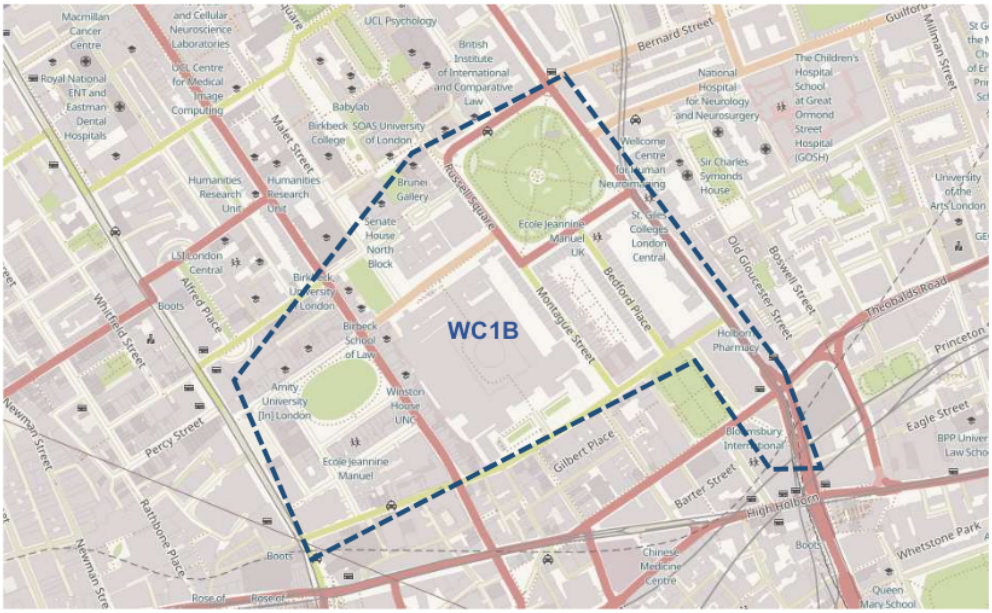

Figure 7. WC1B Area Boundary Map
(Source: by author, https://www.openstreetmap.org/#map=15/51.5195/-0.1235&layers=H)

4.3.2 Bivariate Correlation Analysis and Results

Based on the data sorted in Microsoft Excel worksheets, the analysis is carried on in IBM SPSS Statistics 27. As mentioned above, the Pearson correlation coefficient can take a range from +1 to -1. A value greater than 0 indicates a positive correlation, which means as the value of one variable increases, so does the value of the other variable. A value less than 0 shows a negative correlation. First is the preliminary judgement of two variables. Steps are shown as follows: Graphs-Chart Builder-Scatter/Dot-Scatter Plot, take Straight Line Distance (Unit: m) as the independent variable on X-axis and Average housing price (Unit: £) as the dependent variable on Y-axis. The intuitive scatter analysis between house prices and the distance to UGSs is obtained. As shown in Figure 10, with the increase of the value on the X-axis, the Y-axis has a gradual downward trend. A basic conclusion can be drawn from the data points fitting extent, the farther away from the park, the lower the property prices will be under the Russell Square (Postcode starts with WC1B area) circumstance.

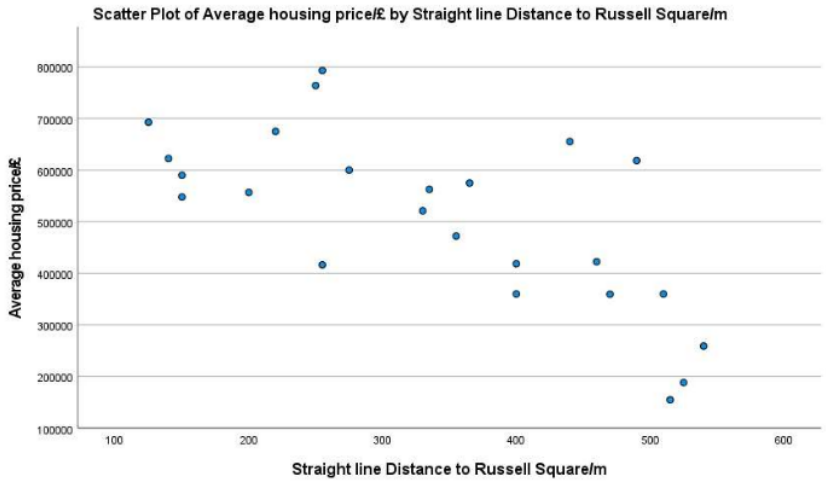

Figure 8. Scatter plot of Average housing price by Straight line Distance to Russell Square (WC1B Area)

(Source: by author)

The next step is Correlation Analysis, steps are shown as follows: Analyse-Correlate-Bivariate, take Straight Line Distance/m and Average housing price/£ as variables, choose Pearson and Spearman in correlation coefficients and Two-tailed in the test of significance with Flag significant correlations. There are proposed guidelines to interpret the coefficient and relate it

to the strength of correlation. A small value of .1 to .3 (Positive, or say -0.1 to -0.3 for negative) indicates no practically significant correlation, whereas a medium value of .3 to .5 (Positive, or say -0.3 to -0.5 for negative) indicates a practically visible correlation. A large value of .5 to 1.0 (Positive, or say -0.5 to -1.0 for negative) indicates a practically significant correlation. The table in Figure 11 shows there is a -.689 Pearson correlation between these two variables, which is highly correlated at a significant 0.01 level. With regard to Spearman's rho correlation, the correlation coefficient value -.674 (See Figure 12) is the actual correlation value denoting the magnitude and direction. The Sig. (2-tailed) in both result tables are the *p*-value interpreting that a statistically significant bivariate correlation is between two ordinal variables as it is less than .05. If the *p*-value is more than .05, then there is no evidence showing the correlation. N is the number of observations that were correlated.

Correlations

		Average housing price/£	Straight line Distance to Russell Square/m
Average housing price/£	Pearson Correlation	1	-.689**
	Sig. (2-tailed)		.000
	N	24	24
Straight line Distance to Russell Square/m	Pearson Correlation	**-.689****	1
	Sig. (2-tailed)	.000	
	N	24	24

****. Correlation is significant at the 0.01 level (2-tailed).**

Figure 9. Pearson Correlation Analysis Results (WC1B Area)

(Source: by author)

Therefore, the results all showed that in the case study of London Russell Square context, the housing prices and straight line distance towards UGSs are highly correlated, with the statistical analysis supporting the data showing a significant correlation. The proximity principle is thus accepted. However, the correlation coefficient value is slightly different as -.689 in Pearson while -.674 in Spearman's rho. The reason is that the Pearson correlation coefficient measures the linear relationship between the two variables with a constant rate while Spearman measures only monotonic relationships, which means the variables tend to move in the direction but not necessarily at a constant rate.

Nonparametric Correlations				
			Average housing price/£	Straight line Distance to Russell Square/m
Spearman's rho	Average housing price/£	Correlation Coefficient	1.000	-.674**
		Sig. (2-tailed)	.	.000
		N	24	24
	Straight line Distance to Russell Square/m	Correlation Coefficient	-.674**	1.000
		Sig. (2-tailed)	.000	.
		N	24	24
**. Correlation is significant at the 0.01 level (2-tailed).				

Figure 10. Spearman Correlation Analysis Results (WC1B Area)

(Source: by author)

4.3.3 Regression Analysis and Results

Ordinary least square (OLS) regression refers to the linear regression model applying linear least square methods to estimate the unknown parameters and provides a regression equation to predict the variables. Thus, it may provide possible clues when calculating the exact economic benefits between housing prices and distance to UGSs in future planning development. The sum of squared errors between the observed (independent variable) and predicted value (dependent variable) are minimised in this model. The results are supposed to be constant in the whole measured area, while OLS fails to identify the spatial features when coming to the variables with the spatial patterns. Given a function f which depends on parameters θ, the least squares estimates of θ are:

$$\hat{\theta} = \arg\min\left\{\sum_i \left(y_i - f(x_i;\theta)\right)^2\right\}, \qquad \theta \in \mathbb{R}^P$$

The optimization for linear regression is more like:

$$\hat{\beta} = \arg\min\left\{\sum_i (y_i - x_i^T\beta)^2\right\}, \qquad \beta \in \mathbb{R}^P$$

An important difference is that the function in linear regression is linear in its parameters, whereas f is not necessarily so, which could indicate that linear regression is fit through least squares. However, there may be some functions that applied to linear regression which not

apply to all functions fit via least squares. The assumption of linear regression permit inference via confidence intervals and hypothesis tests, including normality of residuals, independence, homogeneity of variance, and getting the functional form right. The data used to fit OLS should meet the above assumptions, or the inferences may not have the related properties. In this section, the main focus will be on linear regression analysis as it has wider applicability. It identifies the equation that produces the smallest difference between the observed values and fitted values with the smallest sum of squared residuals for the dataset as well.

As for Regression Analysis, the steps are shown as follows: Analyse-Regression-Curve Estimation. Set Average housing price as the dependent variable and Straight line distance as the independent variable, and run all the models type for further observations (See Figure 13). As the basic conclusion is already drawn out from the last section (See Section 4.3.2) that there is an acceptance of the proximity principle in the Russell Square context, some models thus can be deleted according to the result table since they have no reference implication for further analysis. R-squared is a goodness-of-fit measure for linear regression models, which indicates the percentage of the variance in the dependent variable that the independent variables explain collectively. In other words, it assesses the strength of the correlation between the model and the dependent variable on a convenient 0-100% scale. The larger the R square, the better the regression model fits the trend. It evaluates the scatter of the data points around the fitted regression line (also known as the coefficient of determination, or the coefficient of multiple determination for multiple regression) (Frost, 2018), which is calculated as followed: $R^2 = \frac{\text{Variance explained by the model}}{\text{Total variance}}$. With regard to Sig. (i.e. p-value), a value of .000 would be better to indicate a significant correlation. Therefore, the Inverse and S models can be deleted, while the Power (comparatively low R square value), Compound and Growth (with the same R square value as Exponential) could also be ignored since these models are not representative for regression analysis.

Model Summary and Parameter Estimates (10 models)									
Dependent Variable: Average housing price/£									
	Model Summary					Parameter Estimates			
Equation	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	.475	19.935	1	22	.000	800283.438	-860.904		
Logarithmic	.395	14.382	1	22	.001	1834636.351	-231313.739		
Inverse	.302	9.521	1	22	.005	325730.745	50593190.605		

Quadratic	.549	12.800	2	21	.000	512140.916	1188.878	-3.067	
Cubic	.554	8.271	3	20	.001	700522.132	-947.593	4.036	-.007
Compound	.472	19.696	1	22	.000	967279.719	.998		
Power	.382	13.576	1	22	.001	11563501.920	-.557		
S	.284	8.734	1	22	.007	12.635	120.306		
Growth	.472	19.696	1	22	.000	13.782	-.002		
Exponential	.472	19.696	1	22	.000	967279.719	-.002		
The independent variable is Straight line Distance to Russell Square/m.									

Figure 11. Linear Regression Analysis Model Summary and Parameter Estimates (10 models) (WC1B Area)

(Source: by author)

Thus, five models (Linear, logarithmic, quadratic, cubic and exponential) can be used for the display of function equations (See Figure 14). As shown in the table, quadratic and cubic can best depict the correlations between average housing prices/£ (y-axis) and the straight line distance to Russell Square/m (x-axis), and the function equations can be expressed as:

$$\text{Quadratic function: } f(x) = -3.067x^2 + 118.878x + 512140.916$$

$$\text{Cubic function: } f(x) = -0.007x^3 + 4.036x^2 - 947.593x + 700522.132$$

The function figures are shown as well (See Figure 15).

Model Summary and Parameter Estimates (5 models)									
Dependent Variable: Average housing price/£									
	Model Summary					Parameter Estimates			
Equation	R Square	F	df1	df2	Sig.	Constant	b1	b2	b3
Linear	.475	19.935	1	22	.000	800283.438	-860.904		
Logarithmic	.395	14.382	1	22	.001	1834636.351	-231313.739		
Quadratic	.549	12.800	2	21	.000	512140.916	1188.878	-3.067	
Cubic	.554	8.271	3	20	.001	700522.132	-947.593	4.036	-.007
Exponential	.472	19.696	1	22	.000	967279.719	-.002		
The independent variable is Straight line Distance to Russell Square/m.									

Figure 12. Model Summary and Parameter Estimates (5 models) (WC1B Area)

(Source: by author)

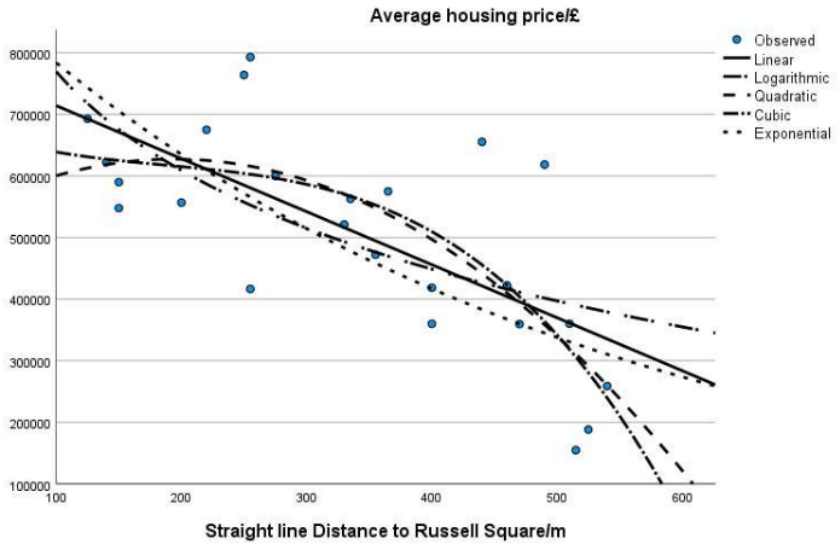

Figure 13. Linear Regression Function images (5 models) (WC1B Area)

(Source: by author)

4.4 Case Study B: Battersea Park and surrounding properties (Postcode starts with SW11)

4.4.1 Data Standardisation and Analysis

Battersea Park (Postcode: SW11 4NJ) is a large Victorian park in southwest London, and as one of the main public parks, there are thousands of residential housing around this area. Several searching settings were applied when collecting the relevant data. According to HM Land Registry (2022), there are a total of 3324 raw transaction data with the postcodes starting with SW11. These houses are located in the area of SW11, which is also the area where Battersea Park is located, with the boundary shown in Figure 16. Due to the large housing base and the large number of transactions in this area, in order to avoid the impact of the long period on housing prices change, the transaction date is limited to 01/01/2010 till up to date. The property types include detached, semi-detached, terraced and flat/maisonette. As the data standardisation process goes, the number of detached and semi-detached housing in this area is not too many as well as the terraced housing with an extremely high price. Therefore, the

flat type in this case study is the most representative data for further analysis on proving the proximity principle. All the data are collected with new-build housing to exclude historical and cultural preservation factors which may occur in not new-build housing and may affect the housing prices. As for estate type, the data mainly focused on leasehold, which means the property can be owned for a fixed time, such as 80 years; while the freehold means the land is owned by the landlord, thus it would be less complicated to get this type of data into consideration, which is also to control irrelevant variables and exclude the random effects on the dependent variable (housing prices). The straight line distance to Battersea Park is measured through Google Maps, regarding the Bandstand, the historical landmark in the park, as the geographical location centre to measure the distance to various postcode properties.

Figure 14. SW11 Area Boundary Map

(Source: by author, https://www.openstreetmap.org/#map=15/51.5195/-0.1235&layers=H)

4.4.2 Bivariate Correlation Analysis and Results

Scatter plot chart builder and bivariate correlation analysis are carried out following the same steps as mentioned before (See Section 4.3). As Figure 17 shows below, the average housing price has a descending trend with the distance to Battersea Park increasing. However, there are several data points that need to be noticed as they deviate significantly from this trend, such as the green dot in the 500-1000m range, where house transaction prices are extremely high, reaching around £1,800,000; the red dot around 1,000m indicates the house is not far away from the park, but the price is similar to that of the house in the area about 2500m away from the park. Combining the map and the surrounding environment of the house, there are some possible explanations as many other factors can also affect the housing prices, such as the influence of the appearance of the apartment and the facilities, as well as the noise caused by the proximity to the tube station or the railway track. Such factors could cause the housing price to be lower than average. On the other hand, according to bivariate correlation analysis, the Pearson coefficient is -.552 (See Figure 18), which indicates the correlation is significant at the 0.01 level (2-tailed).

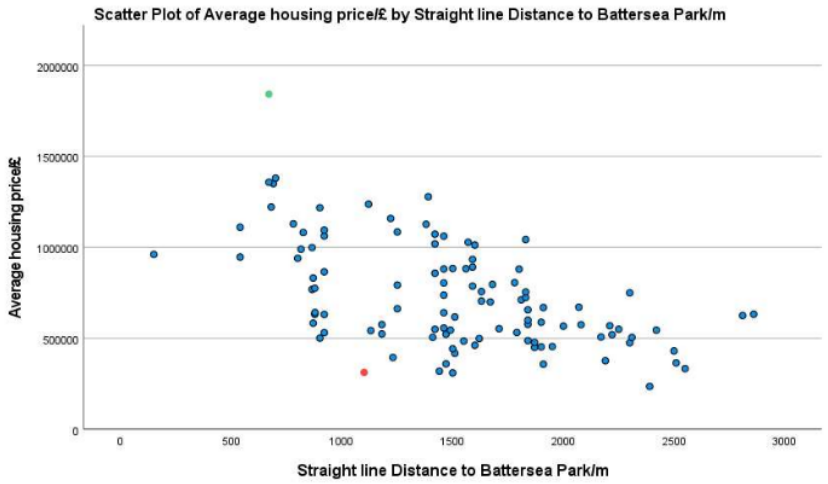

Figure 15. Scatter plot of Average housing price by Straight line Distance to Battersea Park (SW11 Area)

(Source: by author)

Correlations			
		Average housing price/£	Straight line Distance to Battersea Park/m
Average housing price/£	Pearson Correlation	1	-.552**
	Sig. (2-tailed)		.000
	N	108	108
Straight line Distance to Battersea Park/m	Pearson Correlation	**-.552****	1
	Sig. (2-tailed)	.000	
	N	108	108
****. Correlation is significant at the 0.01 level (2-tailed).**			

Figure 16. Pearson Correlation Analysis Results (SW11 Area)

(Source: by author)

In conclusion, the housing prices near Battersea Park are in line with the proximity principle, which indicated that housing prices have an ascending trend as the distances to parks increase. The results showed that in the case of the London SW11 area context, the average housing prices and distance toward UGSs are highly correlated. The proximity principle is thus accepted. However, as the data points are too scattered and the correlation is not a linear regression, it is unnecessary and meaningless to summarise an exact function equation to illustrate the trend, the regression analysis thus is omitted in this case study.

4.5 Case Study C: Hampstead Heath and surrounding properties (Postcode starts with NW3)

4.5.1 Data Standardisation and Analysis

Hampstead Heath (Postcode for the same name Overground train station as the area of the park is too huge: NW3 2QD) is a wild park of woodland and meadows, with over 800 acres in north London (Hampstead Heath, 2022). There are many delicate and exquisite houses along the roads within this area according to the site visits. This case study will mainly focus on detached and terraced residential building types. Most of the housing is not new-build as they have a relatively long history here with freehold estate type. The searching transactions are within the NW3 area, where Hampstead Heath is sited as well. 1502 raw data on housing transactions from 01/01/2010 till up to date is for further analysis in order to avoid the impact on housing prices during a long period. Straight line distance to Hampstead Heath is measured through Google Maps, regarding the red point in the middle part shown in Figure 19 below, as the geographical location centre to measure the distance to various postcode properties nearby.

Figure 17. NW3 Area Boundary Map

(Source: by author, https://www.openstreetmap.org/#map=15/51.5195/-0.1235&layers=H)

During the data standardisation, in order to limit the impact of external UGSs on the case study area, the properties with postcodes starting with 'NW3 3' are being omitted as they are closer to Primrose Hill (NW1 4NR) rather than Hampstead Heath.

4.5.2 Bivariate Correlation Analysis and Results

According to the charter builder, the scatter plot shows a more vague image in the change of housing price with distance to Hampstead Heath. As shown in Figure 20 below, all data points are more scattered than the analysis image in the previous case studies. Some reasons could be explained as the Hampstead Heath Area (NW3) has the most transaction data on properties among the three case studies, and thus there are more uncertain factors affecting housing prices, such as transportation facilities, land function (close to schools or hospitals) and so on. In addition, Hampstead Heath is large in size and many properties are located quite close to the edge of this green space, which could be more difficult to determine whether a property is near or far from UGSs by simply measuring the distance to an exact geographic centre point in it. However, it still can be seen as the distance to Hampstead Heath increases, the average housing price has a decreasing trend. The Pearson correlation analysis (See Figure 21) also indicates a negative correlation between variables, with the coefficient value being -.181 and the correlation is significant at the 0.01 level (two-tailed). Thus, the proximity principle is accepted in the Hampstead Heath context. The regression analysis is not necessary to be analysed as the data points are not in a linear regression correlation.

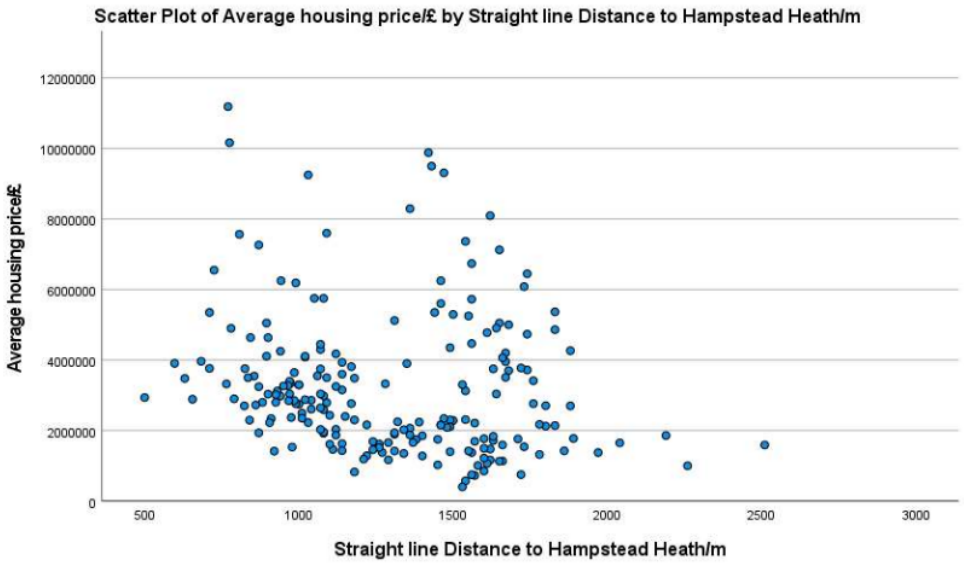

Figure 18. Scatter plot of Average housing price by Straight line Distance to Hampstead Heath (NW3 Area)

(Source: by author)

Correlations			
		Average housing price/£	Straight line Distance to Hampstead Heath/m
Average housing price/£	Pearson Correlation	1	-.181**
	Sig. (2-tailed)		.009
	N	209	209
Straight line Distance to Hampstead Heath/m	Pearson Correlation	**-.181****	1
	Sig. (2-tailed)	.009	
	N	209	209
**. Correlation is significant at the 0.01 level (2-tailed).			

Figure 19. Pearson Correlation Analysis Results (NW3 Area)

(Source: by author)

5 Conclusions

According to the literature review in Section 2, the proximity principle is accepted in cities all around the world. However, there is not enough academic research on the correlation between housing prices and the distance to UGSs in UK major cities. Based on the three case studies in the Inner London context, Russell Square (WC1B area), Battersea Park (SW11 area) and Hampstead Heath (NE3 area) all indicated strong evidence that the proximity to UGSs is positively correlated to housing prices nearby, regardless the housing type is detached, semi-detached, terraced or flat/maisonette. There are 5223 housing transactions raw data in total for verifying the proximity principle in the Inner London context and the conclusion is that the proximity principle is accepted and holds true with previous studies in the Global North planning context.

The correlation coefficient shows differences in value (See Figure 22) due to various factors, such as the newer residential building or not new-build, freehold or leasehold. The more the data is for correlation analysis, the lower the coefficient value will be. As for Russell Square with the coefficient -.689, it is obvious that the housing price in the surrounding area could be roughly predicted according to the function equations through linear regression analysis (See Section 4.3.3). However, though the correlation is still significant between distance to UGSs and housing price, it is not in line with a linear correlation as the data points are too scattered, thus the regression analysis is not suitable for Battersea Park (with coefficient -.552) and Hampstead Heath (with coefficient -.181) study case context. In addition, there is not enough evidence from the data analysis in the Inner London context to support which characteristic has the strongest impact on housing prices with its distance to UGSs. The reason is that in some designated areas, the residential housing type normally shares similar characteristics, and there is no considerable number of transactions to analyse the impact among different variables.

Based on qualitative analysis of the case studies, several factors will affect housing prices. Since the realistic condition is much more complicated than theoretical data analysis, it cannot be concluded easily that UGSs are the only reason affecting the housing prices nearby. London is known as a green city and was declared the world's first National Park City in 2019 (London City Hall, 2022), the UGSs of varying sizes are designated in many places. Field research also showed that around the chosen case parks above, there are always small-scale UGSs like gardens, pocket parks and so on for residents leisure use. These UGSs can all affect housing

prices to some extent. The land use function is another reason affecting housing prices. Traffic stations can bring convenience to residents' daily travelling but also comes with traffic noise; hospitals are usually more concerned with hygiene concerns; grocery shops and supermarkets are usually related to increasing housing prices if they can be accessed easily. However, the exact correlation with the mentioned factors needs further research to support as well as how exactly they can affect the housing prices, so that it will give relevant information to estate developers or governments for economic benefits concerns in future planning development.

Straight line Distance to UGSs	Pearson Correlation Coefficient with Average Housing Price Nearby	N
Russell Square (**WC1B** 4JA)	-.689**	24
Battersea Park (**SW11** 4NJ)	-.552**	108
Hampstead Heath (**NW3** 2QD for station)	-.181**	209
****. Correlation is significant at the 0.01 level (2-tailed).**		

Figure 20. Summary of Pearson Correlation Analysis of WC1B, SW11, and NW3 Area (Source: by author)

6 Recommendations

6.1 Future Research Based on the Preliminary Findings

This paper has confirmed through data that the correlation between the distance to UGSs and housing prices nearby is basically in line with the proximity principle in the Inner London case study context. Since there is no sufficient academic research support regarding the proximity principle in the UK context., thus it is recommended that wider research can be conducted in other areas of London or the UK to further reveal whether the generalizability of the research premise is also applicable to the rest of the UK. Further investigation could also consider the effect of various characteristics of specific UGSs as well as differentiation in socio-economic gradients (Lubbe, Siebert and Cilliers, 2010).

However, there are still some deficiencies in this paper. According to the data collection and analysis graphs shown above, it can be realized that deviations are existing in some particular data points, i.e. the housing prices can be extremely high or low even if they are far away from UGSs or close to UGSs. Here are several possible explanations based on these circumstances which could be considered in further research: First, the variables are unable to be technically strictly controlled due to the lack of data, such as the quality and housing type of flats (the number of bedrooms and bathrooms) to house, decoration (fully decorated or not at all), exact ages for buildings and so on. It is hard to get such relevant data in detail but the overall tendency of the proximity principle can be summarised. Second, other factors should be reviewed. Due to municipal valuations, various public facilities and traffic stations can all affect housing prices to some extent. This also varies from different functions around the properties, such as educational use, industrial use, hospitals and so on (GOV.UK, 2022). By investigating these factors specifically, the economic benefits of properties could be induced and estimated, thus making references for developers or local authorities for planning development. Third, the maintenance and safety conditions of parks have not been considered in this paper yet.

6.2 More Focus on Context-Based Planning

As environmental inequity has already become a reality (Lubbe, Siebert and Cilliers, 2010), further research may be conducted on the influence of UGSs on housing prices from a socio-economic perspective, which means the views of residents on the value of UGSs will also change (Combrinck et al., 2020). Current research findings already took the differences in the planning system of Global North and South countries into consideration, since the proximity principle is accepted in most of the Global North contexts such as Inner London but also have exceptions in Global South country such as Potchefstroom, South Africa (see Section 2.2). In order to do proper planning based on context, several approaches will be required to shift. Local boroughs should take a proactive part in planning with a high and empowering level as well as the municipalities' shift towards context-based planning in order to raise the importance of environmental planning. To evaluate the economic benefits of UGSs, Tekel and Akbarishahabi (2013) summarized six main aspects including market value (how green spaces impact the housing prices nearby), enhancement value, production value, natural system value, direct and indirect value, and intangible value, which could be useful for further value estimation.

As in the UK policy context, there are many chapters and paragraphs in the National Planning Policy Framework (NPPF) and National Planning Practice Guidance (NPPG) that mentioned open spaces and nature accessibility, which are regarded as major sources of maintaining the health of residents within urban areas. Meanwhile, it is widely accepted in the Local Development Frameworks (LDFs), which are guided by the NPPF and compiled by local authorities, that taking the "presumption in favour of sustainable development" as the central topic. Overall, the policy guidance related to sustainable development and natural green spaces is highly valued, which shows its significance in the spatial planning process. Local planning should follow the guidance and encourage the protection of UGSs as well as natural systems. Therefore, it is significant to ensure that green space and environmental planning are prioritised in the local context and reclaim nature in cities as it can provide benefits to the whole society in the long run.

6.3 A Broader Spatial Planning Development

As the importance of prioritising environmental consideration in mainstream urban planning, it thus should be part of the broader spatial planning development. Green space and environmental planning need to take local contexts into account, promote cooperation between professional planners and local authorities, and prioritize it in the planning and budgeting process. Enhancing public participation is also one of the approaches to achieving planning for UGSs. In addition, to realize and activate the important role that ecosystem services play in master planning, an interdisciplinary planning approach and monitoring of the quality of green space are required in order to increase overall economic benefits as well as positively impact future city development. According to Cilliers et al. (2015), implementing green planning initiatives can improve the quality of green spaces. Since the dense urban centres in London do not have enough available spaces for massive-scale development, the regeneration or revitalisation in particular places could be taken into consideration.

The quality, as well as quantity of UGSs, should be both enhanced. One of the methods to achieve this is to attempt an appropriate degree of mixed-use development on urban development land (Ferm and Jones, 2016), which can ensure that multiple functions such as residential, commercial and business, and green spaces are included in a development project, thus can also improve land use efficiency and developer's economic benefits (Coupland, 1997). Combrinck et al.(2020) also mentioned several methods including "willingness to pay" for civil amenities and public services, green spaces services and housing based on the distance to UGSs (stated preference approach); and the impact of UGSs on the housing prices nearby (revealed preference approach). It is used to investigate whether functional and good-quality UGSs can bring more economic benefits to the city. Moreover, further research could investigate the tenure of open spaces, such as private gardens and public green spaces, and compare the qualities and economic benefits respectively.

Appendices

Appendix 1. Ethical Clearance Form

Ethical Clearance Pro Forma

It is important for you to include all relevant information about your research in this form, so that your supervisor can give you the best advice on how to proceed with your research.

You are advised to read though the relevant sections of UCL's Research Integrity guidance to learn more about your ethical obligations.

Submission Details

1. **Name of programme of study:**
   Spatial Planning

2. **Please indicate the type of research work you are doing (Delete that which do not apply):**
   - Dissertation in Planning (MSc)

3. **Please provide the current working title of your research:**
   Explore the effect of urban green spaces on housing price in the nearby areas: a case study in Inner London

4. **Please indicate your supervisor's name:**
   Teh, Tse-Hui

Research Details

5. **Please indicate here which data collection methods you expect to use. (Tick all that apply/or delete those which do not apply.)**

   - Audio-visual recordings (including photographs)
   - Secondary data analysis

6. **Please indicate where your research will take place (delete that which does not apply):**
   - UK only

7. **Does your project involve the recruitment of participants?**
   'Participants' means human participants and their data (including sensor/locational data and observational notes/images.)

   No

Appropriate Safeguard, Data Storage and Security

8. Will your research involve the collection and/or use of personal data?

Personal data is data which relates to a living individual who can be identified from that data or from the data and other information that is either currently held, or will be held by the data controller (you, as the researcher).

This includes:

- Any expression of opinion about the individual and any intentions of the data controller or any other person toward the individual.
- Sensor, location or visual data which may reveal information that enables the identification of a face, address etc. (some post codes cover only one property).
- Combinations of data which may reveal identifiable data, such as names, email/postal addresses, date of birth, ethnicity, descriptions of health diagnosis or conditions, computer IP address (of relating to a device with a single user).

No

9. Is your research using or collecting:

- special category data as defined by the General Data Protection Regulation*, and/or
- data which might be considered sensitive in some countries, cultures or contexts?

*Examples of special category data are data:

- which reveals racial or ethnic origin, political opinions, religious or philosophical beliefs, trade union membership;
- concerning health (the physical or mental health of a person, including the provision of health care services);
- concerning sex life or sexual orientation;
- genetic or biometric data processed to uniquely identify a natural person.

No

10. Do you confrm that all personal data will be stored and processed in compliance with the General Data Protection Regulation (GDPR 2018)? (Choose one only, delete that which does not apply)

- I will not be working with any personal data

11. I confirm that:

- The information in this form is accurate to the best of my knowledge.
- I will continue to reflect on and update these ethical considerations in consultation with my supervisor.

Yes

Appendix 2. Risk Assessment Form

RISK ASSESSMENT FORM
FIELD / LOCATION WORK

DEPARTMENT/SECTION: BARTLETT SCHOOL OF PLANNING
LOCATION(S): LONDON, ENGLAND
PERSONS COVERED BY THE RISK ASSESSMENT: SIGRID QIN

BRIEF DESCRIPTION OF FIELDWORK (including geographic location): The geographical study area will focus on inner London and the green open space (parks) with the vicinity area.

COVID-19 RELATED GENERIC RISK ASSESSMENT STATEMENT:
Coronavirus disease (COVID-19) is an infectious disease caused by coronavirus SARS-CoV-2. The virus spreads primarily through droplets of saliva or discharge from the nose when an infected person coughs or sneezes. Droplets fall on people in the vicinity and can be directly inhaled or picked up on the hands and transferred when someone touches their face. This risk assessment documents key risks associated fieldwork during a pandemic, but it is not exhaustive and will not be able to cover all known risks, globally. This assessment outlines principles adopted by UCL at an institutional level and it is necessarily general. Please use the open text box 'Other' to indicate any contingent risk factors and control measures you might encounter during the course of your dissertation research and writing.
Please refer to the Dissertation in Planning Guidance Document (available on Moodle) to help you complete this form.

Hazard 1: Risk of Covid -19 infection during research related travel and research related interactions with others (when face-to-face is possible and/or unavoidable)
Risk Level - Medium /Moderate

Existing Advisable Control Measures: Do not travel if you are unwell, particularly if you have COVID-19 symptoms. Self-isolate in line with NHS (or country-specific) guidance.
Avoid travelling and face-to-face interactions; if you need to travel and meet with others:
- If possible, avoid using public transport and cycle or walk instead.
- If you need to use public transport travel in off-peak times and follow transport provider's and governmental guidelines.
- Maintain (2 metre) social distancing where possible and where 2 metre social distancing is not achievable, wear face covering.
- Wear face covering at all times in enclosed or indoor spaces.
- Use hand sanitiser prior to and after journey.
- Avoid consuming food or drinks, if possible, during journey.

- Avoid, if possible, interchanges when travelling - choose direct route.
- Face away from other persons. If you have to face a person ensure that the duration is as short as possible.
- Do not share any items i.e. stationary, tablets, laptops etc. If items need to be shared use disinfectant wipes to disinfect items prior to and after sharing.
- If meeting in a group for research purposes ensure you are following current country specific guidance on face-to-face meetings (i.e rule of 6 etc.)
- If and when possible meet outside and when not possible meet in venues with good ventilation (e.g. open a window)
- If you feel unwell during or after a meeting with others, inform others you have interacted with, self-isolate and get tested for Covid-19
- Avoid high noise areas as this mean the need to shout which increases risk of aerosol transmission of the virus.
- Follow one way circulation systems, if in place. Make sure to check before you visit a building.
- Always read and follow the visitors policy for the organisation you will be visiting.
- Flush toilets with toilet lid closed.
-'Other' Control Measures you will take (specify):

NOTE: The hazards and existing control measures above pertain to Covid-19 infection risks only. More generalised health and safety risk may exist due to remote field work activities and these are outlined in your Dissertation in Planning Guidance document. Please consider these as possible 'risk' factors in completing the remainder of this standard form. For more information also see: Guidance Framework for Fieldwork in Taught and MRes Programmes, 2021-22

Consider, in turn, each hazard (white on black). If **NO** hazard exists select **NO** and move to next hazard section.
If a hazard does exist select **YES** and assess the risks that could arise from that hazard in the risk assessment box.
Where risks are identified that are not adequately controlled they must be brought to the attention of your Departmental Management who should put temporary control measures in place or stop the work. Detail such risks in the final section.

ENVIRONMENT	**The environment always represents a safety hazard. Use space below to identify and assess any risks associated with this hazard**
e.g. location, climate, terrain, neighbourhood, in outside organizations, pollution, animals.	Examples of risk: adverse weather, illness, hypothermia, assault, getting lost. Is the risk high / medium / low ? Low Risk. The participant will carefully select the appropriate location, and fully consider the weather and terrain conditions before the site visits.

CONTROL MEASURES	**Indicate which procedures are in place to control the identified risk**
	work abroad incorporates Foreign Office advice

	only accredited centres are used for rural field work
√	participants will wear appropriate clothing and footwear for the specified environment
	refuge is available
	work in outside organisations is subject to their having satisfactory H&S procedures in place
	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

EMERGENCIES	**Where emergencies may arise use space below to identify and assess any risks**
e.g. fire, accidents	Examples of risk: loss of property, loss of life

Low Risk. The participant will take enough care of property loss, and has means of contacting emergency services.

CONTROL MEASURES	**Indicate which procedures are in place to control the identified risk**

	participants have registered with LOCATE at http://www.fco.gov.uk/en/travel-and-living-abroad/
	contact numbers for emergency services are known to all participants
√	participants have means of contacting emergency services
	a plan for rescue has been formulated, all parties understand the procedure
	the plan for rescue /emergency has a reciprocal element
	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

EQUIPMENT	Is equipment used?	NO	If 'No' move to next hazard If 'Yes' use space below to identify and assess any risks
e.g. clothing, outboard motors.	Examples of risk: inappropriate, failure, insufficient training to use or repair, injury. Is the risk high / medium / low ?		

Low risk. The use of specialized equipment was unnecessary during this research process.

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk
	the departmental written Arrangement for equipment is followed
	participants have been provided with any necessary equipment appropriate for the work
	all equipment has been inspected, before issue, by a competent person
	all users have been advised of correct use
	special equipment is only issued to persons trained in its use by a competent person
	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

LONE WORKING	Is lone working a possibility?	NO	If 'No' move to next hazard If 'Yes' use space below to identify and assess any risks
e.g. alone or in isolation *lone interviews.*	Examples of risk: difficult to summon help. Is the risk high / medium / low?		

Low risk. The participant will pay enough attention on lone working circumstance, and choose places depending on people movements during the daytime.

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk
	the departmental written Arrangement for lone/out of hours working for field work is followed
	lone or isolated working is not allowed
√	location, route and expected time of return of lone workers is logged daily before work commences
√	all workers have the means of raising an alarm in the event of an emergency, e.g. phone, flare, whistle
	all workers are fully familiar with emergency procedures
	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

ILL HEALTH	The possibility of ill health always represents a safety hazard. Use space below to identify and assess any risks associated with this Hazard.
e.g. accident, illness, personal attack, special personal considerations or vulnerabilities.	Examples of risk: injury, asthma, allergies. Is the risk high / medium / low? Low Risk. The participant is in good health status to conduct relevant research.

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk
√	all participants have had the necessary inoculations/ carry appropriate prophylactics
√	participants have been advised of the physical demands of the research and are deemed to be physically suited
	participants have been adequate advice on harmful plants, animals and substances they may encounter
	participants who require medication should carry sufficient medication for their needs
	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

TRANSPORT	Will transport be required	NO	√	Move to next hazard
		YES		Use space below to identify and assess any risks
e.g. hired vehicles	Examples of risk: accidents arising from lack of maintenance, suitability or training Is the risk high / medium / low? Low Risk. Only public transport will be used during the research process.			

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk
√	only public transport will be used
	the vehicle will be hired from a reputable supplier
	transport must be properly maintained in compliance with relevant national regulations
	drivers comply with UCL Policy on Drivers http://www.ucl.ac.uk/hr/docs/college_drivers.php
	drivers have been trained and hold the appropriate licence
	there will be more than one driver to prevent driver/operator fatigue, and there will be adequate rest periods
	sufficient spare parts carried to meet foreseeable emergencies
	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

DEALING WITH THE PUBLIC	Will people be dealing with public	NO	If 'No' move to next hazard If 'Yes' use space below to identify and assess any risks
e.g. interviews, observing	Examples of risk: personal attack, causing offence, being misinterpreted. Is the risk high / medium / low? Low Risk. The research has no need to include interactions with the public.		

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk
	all participants are trained in interviewing techniques
	advice and support from local groups has been sought
	participants do not wear clothes that might cause offence or attract unwanted attention
	interviews are conducted at neutral locations or where neither party could be at risk
	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

WORKING ON OR NEAR WATER	Will people work on or near water?	NO	If 'No' move to next hazard If 'Yes' use space below to identify and assess any risks
e.g. rivers, marshland, sea.	Examples of risk: drowning, malaria, hepatitis A, parasites. Is the risk high / medium / low?		

Low Risk. The research will not be near large rivers or marshlands and the participant has swimming skills.

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk

	lone working on or near water will not be allowed
	coastguard information is understood; all work takes place outside those times when tides could prove a threat
√	all participants are competent swimmers
	participants always wear adequate protective equipment, e.g. buoyancy aids, wellingtons
	boat is operated by a competent person
	all boats are equipped with an alternative means of propulsion e.g. oars
	participants have received any appropriate inoculations
	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

MANUAL HANDLING (MH)	Do MH activities take place?	NO	If 'No' move to next hazard If 'Yes' use space below to identify and assess any risks
e.g. lifting, carrying, moving large or heavy equipment, physical unsuitability for the task.	Examples of risk: strain, cuts, broken bones. Is the risk high / medium / low? Low Risk. Manual handling is not included during the research process.		

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk

☐	the departmental written Arrangement for MH is followed
☐	the supervisor has attended a MH risk assessment course
☐	all tasks are within reasonable limits, persons physically unsuited to the MH task are prohibited from such activities
☐	all persons performing MH tasks are adequately trained
☐	equipment components will be assembled on site
☐	any MH task outside the competence of staff will be done by contractors
☐	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

SUBSTANCES	Will participants work with substances	NO	If 'No' move to next hazard If 'Yes' use space below to identify and assess any risks
e.g. plants, chemical, biohazard, waste	Examples of risk: ill health - poisoning, infection, illness, burns, cuts. Is the risk high / medium / low? Low Risk. The participant has no obvious allergies, and there is no substances related to the research.		

CONTROL MEASURES	Indicate which procedures are in place to control the identified risk

	the departmental written Arrangements for dealing with hazardous substances and waste are followed
	all participants are given information, training and protective equipment for hazardous substances they may encounter
	participants who have allergies have advised the leader of this and carry sufficient medication for their needs
	waste is disposed of in a responsible manner
	suitable containers are provided for hazardous waste
	OTHER CONTROL MEASURES: please specify any other control measures you have implemented:

OTHER HAZARDS	Have you identified any other hazards?	NO	If 'No' move to next section If 'Yes' use space below to identify and assess any risks
i.e. any other hazards must be noted and assessed here.	Hazard: Risk: is the risk		

CONTROL MEASURES	Give details of control measures in place to control the identified risks

Have you identified any risks that are not adequately controlled?	NO	√	Move to Declaration
	YES		Use space below to identify the risk and what action was taken

DECLARATION

The work will be reassessed whenever there is a significant change and at least annually. Those participating in the work have read the assessment.

Select the appropriate statement:

√ I the undersigned have assessed the activity and associated risks and declare that there is no significant residual risk

☐ I the undersigned have assessed the activity and associated risks and declare that the risk will be controlled by the method(s) listed above

NAME OF SUPERVISOR

Appendix 3. Housing Transactions Data Spreadsheet

WC1B Area

Average housing price/£	Straight line Distance to Russell Square/m	Postcode
655375	440	WC1B 3AA
422500	460	WC1B 3AD
618500	490	WC1B 3AE
360000	510	WC1B 3AG
188250	525	WC1B 3AH
259000	540	WC1B 3AR
360000	400	WC1B 3BA
575000	365	WC1B 3BJ
562857	335	WC1B 3BN
418500	400	WC1B 3PA
359500	470	WC1B 3QA
521267	330	WC1B 3RE
472167	355	WC1B 4BA
600000	275	WC1B 4BJ
793000	255	WC1B 4BP
763990	250	WC1B 4BS
416500	255	WC1B 4HA
547870	150	WC1B 4HH
675000	220	WC1B 5AE
556750	200	WC1B 5AJ
590000	150	WC1B 5EH
692809	125	WC1B 5ER
622500	140	
154794	515	WC1B 5HA

SW11 Area

Average housing price/£	Straight line Distance to Battersea Park/m	Postcode
376601	2190	SW11 1AD
455000	1950	SW11 1DR
507167	2170	SW11 1EH
749950	2300	SW11 1EW
575000	2080	SW11 1HB
550000	2250	SW11 1HE
671245	2070	SW11 1HF
430928	2500	SW11 1HT
669439	1910	SW11 1PN
505000	2310	SW11 1RJ
545000	2420	SW11 1RQ
235500	2390	SW11 2AG
333427	2550	SW11 2BF
575714	1180	SW11 2BQ
566675	2000	SW11 2DE
395000	1230	SW11 2DR
588269	1900	SW11 2FR
312500	1100	SW11 2JB
462000	1600	SW11 2JS
792875	1250	SW11 2PR
475000	2300	SW11 2QY
522500	1470	SW11 2SS
365000	2510	SW11 2UE
524167	1180	SW11 3AZ
542466	1130	SW11 3DD
882776	1560	SW11 3FU
318767	1440	SW11 3GJ
359717	1470	SW11 3GL
1028170	1570	SW11 3GN
568958	2210	SW11 3GQ
599950	1840	SW11 3GR
576830	1840	SW11 3GS
656281	1840	SW11 3GU

450000	1870	SW11 3GW
477500	1870	SW11 3GX
452968	1900	SW11 3GY
487214	1840	SW11 3GZ
662847	1250	SW11 3JD
1084773	1250	SW11 3JE
498498	1620	SW11 3PG
556500	1460	SW11 3QA
520338	2220	SW11 3SE
500794	900	SW11 4BT
1110263	540	SW11 4DS
946951	540	SW11 4DT
1129714	780	SW11 4EJ
1081526	825	SW11 4FA
989504	815	SW11 4FP
940225	800	SW11 4FS
560139	530	SW11 4GA
475000	787	SW11 4LL
355375	625	SW11 4LT
1722375	656	SW11 4ND
2849250	574	SW11 4XW
299975	717	SW11 5BF
244380	750	SW11 5DF
1159167	1220	SW11 5EH
505625	1410	SW11 5ER
640900	1460	SW11 5ET
485000	1550	SW11 5GZ
442500	1500	SW11 5JH
310000	1500	SW11 5JJ
1127500	1380	SW11 5LJ
724129	1830	SW11 5NX
711500	1810	SW11 5PA
1237500	1120	SW11 5QS
617500	1510	SW11 5RG
417500	1510	SW11 5RL
705000	1630	SW11 5RW
531450	1790	SW11 5SQ
553000	1710	SW11 5ST
545000	1490	SW11 5TR

470000	1160	SW11 5UP
632500	2860	SW11 6SP
625000	2810	SW11 6SS
754956	1830	SW11 7AA
1042983	1830	SW11 7AB
891461	1590	SW11 7AE
805790	1780	SW11 7AH
880458	1800	SW11 7AJ
933777	1590	SW11 7AQ
787087	1590	SW11 7AR
1012900	1600	SW11 7AW
1166375	1950	SW11 7AY
357750	1910	SW11 7BE
796342	1680	SW11 7BX
699964	1670	SW11 7BY
757137	1630	SW11 7BZ
857737	1420	SW11 8AA
961108	150	SW11 8AU
883920	1500	SW11 8AW
737488	1460	SW11 8AY
1222059	680	SW11 8AZ
881500	1460	SW11 8BD
804030	1460	SW11 8BE
1061793	1460	SW11 8BF
1350571	690	SW11 8BW
1358055	670	SW11 8BY
1019027	1420	SW11 8DG
550000	1420	SW11 8DU
1072684	1420	SW11 8DW
1278581	1390	SW11 8DX
631250	920	SW11 8ED
530840	920	SW11 8EF
1218018	900	SW11 8EG
1095125	920	SW11 8EH
865287	920	SW11 8EJ
1062962	920	SW11 8EL
768729	865	SW11 8EN
999019	865	SW11 8EQ
1842168	670	SW11 8ER

641778	878	SW11 8ES
831332	870	SW11 8ET
583438	870	SW11 8EU
1380473	700	SW11 8EW
631807	877	SW11 8EX
774988	877	SW11 8EY

NW3 Area

Average housing price/£	Straight line Distance to Hampstead Heath/m	Postcode
2224500	905	NW3 1AA
7262500	870	NW3 1AB
10165000	775	NW3 1AD
3962500	683	NW3 1AJ
3477500	630	NW3 1AL
2737500	575	NW3 1AN
1949375	540	NW3 1AW
1474078	537	NW3 1AX
2936000	500	NW3 1AY
3905000	597	NW3 1AZ
2432178	566	NW3 1BA
7566667	807	NW3 1BJ
650000	690	NW3 1BT
3322500	765	NW3 1BX
2495833	1010	NW3 1DP
11187500	770	NW3 1EA
2450000	666	NW3 1ED
1993333	647	NW3 1EE
5350000	710	NW3 1EH
6550000	725	NW3 1EJ
2887500	655	NW3 1EL
3017500	925	NW3 1ET
1300000	942	NW3 1EU
2370000	975	NW3 1EX
1433200	980	NW3 1EY
4083000	1020	NW3 1HA

1957500	1080	NW3 1HE
1922000	1080	NW3 1HH
2030000	1070	NW3 1HL
1875000	1040	NW3 1HP
1531250	978	NW3 1HS
1260000	933	NW3 1HU
3031983	900	NW3 1JA
992750	915	NW3 1JD
3067667	763	NW3 1JL
1847000	805	NW3 1JR
2700000	823	NW3 1JS
1720759	1050	NW3 1JX
3545139	855	NW3 1JY
3500000	835	NW3 1LA
2900000	790	NW3 1LB
1934167	870	NW3 1LD
4900000	780	NW3 1LG
3762875	710	NW3 1LH
2295000	840	NW3 1LJ
1000000	893	NW3 1LN
1275000	875	NW3 1LP
2725000	860	NW3 1LR
2340000	910	NW3 1LS
7600000	1090	NW3 1NR
2850000	985	NW3 1NT
2350000	1010	NW3 1NU
1465000	1110	NW3 1NX
2300000	1180	NW3 1PA
1895000	1310	NW3 1PH
2400000	1150	NW3 1PX
1870000	1120	NW3 1PZ
1430000	1140	NW3 1QG
1286250	1220	NW3 1QS
1627125	1140	NW3 1QW
1455727	1240	NW3 1QY
2645017	1070	NW3 1RR
1869167	1050	NW3 1RS
2762500	990	NW3 1RT
4250000	940	NW3 1RU

3300000	1000	NW3 1RX
2606795	1040	NW3 1RY
2432000	1100	NW3 1SA
2035000	1120	NW3 1SD
3600000	1140	NW3 1SJ
3933333	1140	NW3 1SL
3292833	1000	NW3 1SN
3121000	930	NW3 1SS
2980000	940	NW3 1ST
2843750	967	NW3 1SU
2750000	1000	NW3 1SX
4300000	1070	NW3 1SY
1612583	1100	NW3 1TA
5050000	895	NW3 1TJ
4108333	895	NW3 1TL
1415167	920	NW3 1TN
2800000	882	NW3 1TP
2800000	925	NW3 1TS
3645500	985	NW3 1TT
2591071	1080	NW3 1TU
3036667	1070	NW3 1TX
3400000	970	NW3 1TY
1745000	953	NW3 1UA
3038750	970	NW3 1UB
3508000	1670	NW3 2AN
4733333	1740	NW3 2AP
3953333	1670	NW3 2AS
574000	1540	NW3 2AU
1858333	2190	NW3 2BD
1590000	2510	NW3 2BS
851000	1600	NW3 2BX
746667	1560	NW3 2BY
1000000	2260	NW3 2ET
1375000	1560	NW3 2HP
2341143	1470	NW3 2HR
2090929	1480	NW3 2HS
1007500	1580	NW3 2HT
1715000	1630	NW3 2HX
1693750	1570	NW3 2HY

1770000	1600	NW3 2JA
1130000	1650	NW3 2JB
750000	1720	NW3 2JD
2067857	1360	NW3 2JP
2285000	1500	NW3 2JR
2212500	1570	NW3 2JT
2110000	1490	NW3 2JX
1421167	1550	NW3 2JY
725000	1570	NW3 2JZ
2310000	1540	NW3 2LB
2162500	1460	NW3 2LD
2298000	1490	NW3 2LE
1875000	1360	NW3 2LG
1620357	1260	NW3 2LN
1688333	1240	NW3 2LP
1516250	1260	NW3 2LR
2022000	1340	NW3 2LT
2250000	1320	NW3 2LU
1936000	1310	NW3 2LY
1658333	1290	NW3 2NB
1377750	1270	NW3 2NE
1167795	1290	NW3 2NG
2151667	1460	NW3 2NL
1400000	1490	NW3 2NN
2239375	1390	NW3 2NP
1349000	1340	NW3 2NQ
1745558	1380	NW3 2NR
1659286	1370	NW3 2NS
1279714	1400	NW3 2PA
1420000	1310	NW3 2PD
2162475	1220	NW3 2PL
3326250	1280	NW3 2PN
1190326	1210	NW3 2PU
825214	1180	NW3 2QF
1025000	1450	NW3 2QT
3344545	973	NW3 2RJ
9250000	1030	NW3 2RN
2792500	1090	NW3 2RP
2227333	1030	NW3 2RS

5749975	1080	NW3 2RT
2765000	1170	NW3 2RU
3151667	1140	NW3 2RX
3745483	1070	NW3 2SB
499950	1070	NW3 2SE
3275000	965	NW3 2SJ
3755938	825	NW3 2SN
4636667	843	NW3 2SP
3262875	950	NW3 2SS
2875000	1020	NW3 2ST
2984500	1080	NW3 2SY
4106000	1020	NW3 2TA
4635785	900	NW3 2TD
3243750	870	NW3 2TG
6250000	942	NW3 2TJ
6187500	990	NW3 2TL
5750000	1050	NW3 2TN
2858333	1040	NW3 2TR
3500000	1090	NW3 2TU
3250000	1120	NW3 2TX
3485000	1180	NW3 2TY
4447500	1070	NW3 2UA
3550000	1060	NW3 2UB
4175000	1120	NW3 2UD
402500	1530	NW3 2UJ
1591500	1660	NW3 2UL
2705000	1800	NW3 2UN
2699220	1880	NW3 2UP
2141667	1830	NW3 2UT
1062500	1610	NW3 2UX
3412917	1760	NW3 2XB
1495000	1600	NW3 2XN
1834333	1630	NW3 2XR
6083333	1730	NW3 2XS
1165833	1620	NW3 2XY
1375000	1970	NW3 2YH
1649381	2040	NW3 2YJ
5500000	2040	NW3 2YN
4265000	1880	NW3 2YP

1320000	1780	NW3 2YR
1540748	1730	NW3 2YS
1423900	1860	NW3 2YU
1475000	1620	NW3 7QA
5725000	1560	NW3 7QB
3700000	1680	NW3 7QG
4200000	1670	NW3 7QH
4776587	1610	NW3 7QJ
3774556	1720	NW3 7QL
5050000	1650	NW3 7QN
5601409	1460	NW3 7QX
3303500	1530	NW3 7QY
6250000	1460	NW3 7RB
3038013	1640	NW3 7RD
8095000	1620	NW3 7RE
9310000	1470	NW3 7RG
7366667	1540	NW3 7RP
9883333	1420	NW3 7RR
1850000	1400	NW3 7RS
9500000	1430	NW3 7RX
1750000	1450	NW3 7SA
7125000	1650	NW3 7SB
5366667	1830	NW3 7SD
1775000	1890	NW3 7SF
6737500	1560	NW3 7SL
5000000	1680	NW3 7SN
2172500	1780	NW3 7SP
1762500	1710	NW3 7SR
3718333	1740	NW3 7SS
4862500	1830	NW3 7SX
4065000	1660	NW3 7TF
6447500	1740	NW3 7TN
2125000	1800	NW3 7TR
2762500	1760	NW3 7TT
1220000	1600	NW3 7TU
1135000	1660	NW3 7UA
4905767	1640	NW3 7UB
3125000	1540	NW3 7UE
4468750	1560	NW3 7UH

3750000	1630	NW3 7UJ
5250000	1550	NW3 7UL
5293750	1500	NW3 7UP
4350000	1490	NW3 7UR
5350000	1440	NW3 7UT
3900000	1350	NW3 7UU
5121902	1310	NW3 7UY
8293750	1360	NW3 7XA
3812500	1170	NW3 7XG

References

1. Ahern, J., Cilliers, S. and Niemelä, J. (2014). The Concept of Ecosystem Services in Adaptive Urban Planning and design: a Framework for Supporting Innovation. *Landscape and Urban Planning*, 125(2014), pp.254–259. doi:10.1016/j.landurbplan.2014.01.020.

2. Anderson, L.M. and Cordell, H.K. (1988). Influence of Trees on Residential Property Values in Athens, Georgia (U.S.A.): a Survey Based on Actual Sales Prices. *Landscape and Urban Planning*, [online] 15(1-2), pp.153–164. doi:10.1016/0169-2046(88)90023-0.

3. Bark, R.H., Osgood, D.E., Colby, B.G. and Halper, E.B. (2011). How Do Homebuyers Value Different Types of Green Space? *Journal of Agricultural and Resource Economics*, [online] 36(2), pp.395–415. Available at: https://www.jstor.org/stable/23243088?seq=1 [Accessed 24 Jun. 2022].

4. Bell, S., Montarzino, A. and Travlou, P. (2007). Mapping Research Priorities for Green and Public Urban Space in the UK. *Urban Forestry & Urban Greening*, 6(2), pp.103–115. doi:10.1016/j.ufug.2007.03.005.

5. Biao, Z., Gaodi, X., Bin, X. and Canqiang, Z. (2012). The Effects of Public Green Spaces on Residential Property Value in Beijing. *Journal of Resources and Ecology*, 3(3), pp.243–252. doi:10.5814/j.issn.1674-764x.2012.03.007.

6. Bonner, F.W. (2016). *Most Googled: How Do London Postcodes work?* [online] Time out London. Available at: https://www.timeout.com/london/blog/most-googled-how-do-london-postcodes-work-091616#:~:text=Basically%2C%20the%20current%20system%20(introduced [Accessed 24 Aug. 2022].

7. Brasington, D.M. and Hite, D. (2008). A Mixed Index Approach to Identifying Hedonic Price Models. *Regional Science and Urban Economics*, 38(3), pp.271–284. doi:10.1016/j.regsciurbeco.2008.03.002.

8. Chin, H.C. and Foong, K.W. (2006). Influence of School Accessibility on Housing

Values. *Journal of Urban Planning and Development*, 132(3), pp.120–129. doi:10.1061/(asce)0733-9488(2006)132:3(120).

9. Cho, S.-H., Bowker, J.M. and Park, W.M. (2006). Measuring the Contribution of Water and Green Space Amenities to Housing values: an Application and Comparison of Spatially Weighted Hedonic Models. *Journal of Agricultural and Resource Economics, Vol. 31(3): 485-507*, [online] 31(03). Available at: https://www.fs.usda.gov/treesearch/pubs/26380 [Accessed 28 Aug. 2022].

10. Cilliers, E.J. (2010). *Rethinking Sustainable Development : the Economic Value of Green Spaces*. [online] repository.nwu.ac.za. Available at: http://repository.nwu.ac.za/handle/10394/4567.

11. Cilliers, E.J., Diemont, E., Stobbelaar, D.J. and Timmermans, W. (2011). Enhancing Sustainable Development by Means of the Workbench Method. *Environment and Planning B: Planning and Design*, 38(4), pp.579–584. doi:10.1068/b37111.

12. Cilliers, E.J. and Timmermans, W. (2013). Approaching Value Added Planning in the Green Environment. *Journal of Place Management and Development*, 6(2), pp.144–154. doi:10.1108/jpmd-04-2012-0011a.

13. Cilliers, E.J. and Timmermans, W. (2015). An Integrative Approach to Value-Added Planning: from Community Needs to Local Authority Revenue. *Growth and Change*, 46(4), pp.675–687. doi:10.1111/grow.12111.

14. Cilliers, E.J., Timmermans, W., Van den Goorbergh, F. and Slijkhuis, J. (2015). Green Place-making in Practice: from Temporary Spaces to Permanent Places. *Journal of Urban Design*, 20(3), pp.349–366. doi:10.1080/13574809.2015.1031213.

15. Cilliers, J. and Cilliers, S. (2015). From Green to gold: a South African Example of Valuing Urban Green Spaces in Some Residential Areas in Potchefstroom. *Town and Regional Planning*, [online] 67(2015), pp.1–12. Available at: https://www.ajol.info/index.php/trp/article/view/130508 [Accessed 26 Jun. 2022].

16. Cilliers, S., Cilliers, J., Lubbe, R. and Siebert, S. (2012). Ecosystem Services of Urban Green Spaces in African Countries—perspectives and Challenges. *Urban Ecosystems*, [online] 16(4), pp.681–702. doi:10.1007/s11252-012-0254-3.

17. Colding, J. (2007). 'Ecological land-use Complementation' for Building Resilience in Urban Ecosystems. *Landscape and Urban Planning*, 81(1-2), pp.46–55. doi:10.1016/j.landurbplan.2006.10.016.

18. Combrinck, Z., Cilliers, E.J., Lategan, L. and Cilliers, S. (2020). Revisiting the Proximity Principle with Stakeholder Input: Investigating Property Values and Distance to Urban Green Space in Potchefstroom. *Land*, 9(7), p.235. doi:10.3390/land9070235.

19. Coupland, A. (1997). *Reclaiming the City : Mixed Use Development*. London: E & Fn Spon.

20. Crompton, J.L. (2005). The Impact of Parks on Property values: Empirical Evidence from the past Two Decades in the United States. *Managing Leisure*, 10(4), pp.203–218. doi:10.1080/13606710500348060.

21. Czembrowski, P. and Kronenberg, J. (2016). Hedonic Pricing and Different Urban Green Space Types and sizes: Insights into the Discussion on Valuing Ecosystem Services. *Landscape and Urban Planning*, 146(2016), pp.11–19. doi:10.1016/j.landurbplan.2015.10.005.

22. Daams, M.N., Sijtsma, F.J. and van der Vlist, A.J. (2016). The Effect of Natural Space on Nearby Property Prices: Accounting for Perceived Attractiveness. *Land Economics*, [online] 92(3), pp.389–410. Available at: https://muse.jhu.edu/article/624919 [Accessed 20 Jun. 2022].

23. Darling, A.H. (1973). Measuring Benefits Generated by Urban Water Parks. *Land Economics*, 49(1), p.22. doi:10.2307/3145326.

24. Dehring, C. and Dunse, N. (2006). Housing Density and the Effect of Proximity to Public Open Space in Aberdeen, Scotland. *Real Estate Economics*, 34(4), pp.553–566. doi:10.1111/j.1540-6229.2006.00178.x.

25. Doss, C.R. and Taff, S.J. (1996). The Influence of Wetland Type and Wetland Proximity on Residential Property Values. *Journal of Agricultural and Resource Economics*, [online] 21(1), pp.120–129. Available at: https://www.jstor.org/stable/40986902#metadata_info_tab_contents [Accessed 19

Aug. 2022].

26. du Toit, M.J., Cilliers, S.S., Dallimer, M., Goddard, M., Guenat, S. and Cornelius, S.F. (2018). Urban Green Infrastructure and Ecosystem Services in sub-Saharan Africa. *Landscape and Urban Planning*, [online] 180(2018), pp.249–261. doi:10.1016/j.landurbplan.2018.06.001.

27. Earnhart, D. (2001). Combining Revealed and Stated Preference Methods to Value Environmental Amenities at Residential Locations. *Land Economics*, 77(1), pp.12–29. doi:10.2307/3146977.

28. Espey, M. and Owusu-Edusei, K. (2001). Neighborhood Parks and Residential Property Values in Greenville, South Carolina. *Journal of Agricultural and Applied Economics*, 33(3), pp.487–492. doi:10.1017/s1074070800020952.

29. EuroStat (2019). *Database - Eurostat*. [online] Europa.eu. Available at: https://ec.europa.eu/eurostat/data/database.

30. Ferm, J. and Jones, E. (2016). Mixed-use 'regeneration' of Employment Land in the post-industrial city: Challenges and Realities in London. *European Planning Studies*, 24(10), pp.1913–1936. doi:10.1080/09654313.2016.1209465.

31. Frost, J. (2017). *How to Interpret P-values and Coefficients in Regression Analysis - Statistics by Jim*. [online] Statistics by Jim. Available at: https://statisticsbyjim.com/regression/interpret-coefficients-p-values-regression/.

32. Frost, J. (2018). *How to Interpret R-squared in Regression Analysis*. [online] Statistics by Jim. Available at: https://statisticsbyjim.com/regression/interpret-r-squared-regression/.

33. Girma, Y., Terefe, H., Pauleit, S. and Kindu, M. (2019). Urban Green Spaces Supply in Rapidly Urbanizing countries: the Case of Sebeta Town, Ethiopia. *Remote Sensing Applications: Society and Environment*, [online] 13(2019), pp.138–149. doi:10.1016/j.rsase.2018.10.019.

34. Gómez, F., Jabaloyes, J., Montero, L., De Vicente, V. and Valcuende, M. (2011). Green Areas, the Most Significant Indicator of the Sustainability of Cities: Research

on Their Utility for Urban Planning. *Journal of Urban Planning and Development*, 137(3), pp.311–328. doi:10.1061/(asce)up.1943-5444.0000060.

35. GOV.UK (2019). *HM Land Registry*. [online] GOV.UK. Available at: https://www.gov.uk/government/organisations/land-registry.

36. GOV.UK (2022). *National Land Use Database: Land Use and Land Cover Classification*. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/11493/144275.pdf.

37. Greenspace Information for Greater London CIC (2022). *Key London Figures*. [online] GiGL. Available at: https://www.gigl.org.uk/our-data-holdings/keyfigures/.

38. Haaland, C. and van den Bosch, C.K. (2015). Challenges and Strategies for Urban green-space Planning in Cities Undergoing densification: a Review. *Urban Forestry & Urban Greening*, 14(4), pp.760–771. doi:10.1016/j.ufug.2015.07.009.

39. Ham, Y.-J., Maddison, D.J. and Elliott, R.J.R. (2013). The Valuation of Landfill Disamenities in Birmingham. *Ecological Economics*, 85(2013), pp.116–129. doi:10.1016/j.ecolecon.2012.09.006.

40. Hampstead Heath (2022). *Hampstead Heath*. [online] Hampstead Heath. Available at: https://www.hampsteadheath.net/.

41. Herath, S., Choumert, J. and Maier, G. (2015). The Value of the Greenbelt in Vienna: a Spatial Hedonic Analysis. *The Annals of Regional Science*, [online] 54(2), pp.349–374. doi:10.1007/s00168-015-0657-1.

42. HM Land Registry (2022). *HM Land Registry House Price Data*. [online] landregistry.data.gov.uk. Available at: https://landregistry.data.gov.uk/app/ppd/.

43. Hoshino, T. and Kuriyama, K. (2009). Measuring the Benefits of Neighbourhood Park Amenities: Application and Comparison of Spatial Hedonic Approaches. *Environmental and Resource Economics*, 45(3), pp.429–444. doi:10.1007/s10640-009-9321-5.

44. Jim, C.Y. and Chen, W.Y. (2010). External Effects of Neighbourhood Parks and

Landscape Elements on high-rise Residential Value. *Land Use Policy*, 27(2), pp.662–670. doi:10.1016/j.landusepol.2009.08.027.

45. Kabisch, N. (2015). Ecosystem Service Implementation and Governance Challenges in Urban Green Space planning—The Case of Berlin, Germany. *Land Use Policy*, 42(2015), pp.557–567. doi:10.1016/j.landusepol.2014.09.005.

46. Kim, J.-H., Li, W., Newman, G., Kil, S.-H. and Park, S.Y. (2016). The Influence of Urban Landscape Spatial Patterns on single-family Housing Prices. *Environment and Planning B: Urban Analytics and City Science*, 45(1), pp.26–43. doi:10.1177/0265813516663932.

47. Kolbe, J. and Wüstemann, H. (2014). *Estimating the Value of Urban Green Space: a Hedonic Pricing Analysis of the Housing Market in Cologne, Germany*. [online] www.econstor.eu. Available at: https://www.econstor.eu/handle/10419/107911.

48. Kong, F., Yin, H. and Nakagoshi, N. (2007). Using GIS and Landscape Metrics in the Hedonic Price Modeling of the Amenity Value of Urban Green space: a Case Study in Jinan City, China. *Landscape and Urban Planning*, 79(3-4), pp.240–252. doi:10.1016/j.landurbplan.2006.02.013.

49. Laerd Statistics (2018). *Pearson Product-Moment Correlation - When You Should Run This test, the Range of Values the Coefficient Can Take and How to Measure Strength of association.* [online] Laerd.com. Available at: https://statistics.laerd.com/statistical-guides/pearson-correlation-coefficient-statistical-guide.php.

50. London City Hall (2022). *Parks, Green Spaces and Biodiversity*. [online] London City Hall. Available at: https://www.london.gov.uk/what-we-do/environment/parks-green-spaces-and-biodiversity [Accessed 26 Aug. 2022].

51. London Datastore (2011). *London Datastore–Greater London Authority*. [online] London.gov.uk. Available at: https://data.london.gov.uk/.

52. Lubbe, C.S., Siebert, S.J. and Cilliers, S.S. (2010). Plant Diversity in Urban Domestic Gardens along a Socioeconomic Gradient in the Tlokwe Municipal area, North-West Province. *South African Journal of Botany*, 76(2), p.412.

doi:10.1016/j.sajb.2010.02.071.

53. Lupia, A. and Elman, C. (2013). Openness in Political Science: Data Access and Research Transparency. *PS: Political Science & Politics*, 47(01), pp.19–42. doi:10.1017/s1049096513001716.

54. Luttik, J. (2000). The Value of trees, Water and Open Space as Reflected by House Prices in the Netherlands. *Landscape and Urban Planning*, 48(3-4), pp.161–167. doi:10.1016/s0169-2046(00)00039-6.

55. Lutzenhiser, M. and Netusil, N.R. (2001). THE EFFECT OF OPEN SPACES ON a HOME'S SALE PRICE. *Contemporary Economic Policy*, 19(3), pp.291–298. doi:10.1093/cep/19.3.291.

56. Mahan, B.L., Polasky, S. and Adams, R.M. (2000). Valuing Urban Wetlands: a Property Price Approach. *Land Economics*, 76(1), p.100. doi:10.2307/3147260.

57. Maimaitiyiming, M., Ghulam, A., Tiyip, T., Pla, F., Latorre-Carmona, P., Halik, Ü., Sawut, M. and Caetano, M. (2014). Effects of Green Space Spatial Pattern on Land Surface temperature: Implications for Sustainable Urban Planning and Climate Change Adaptation. *ISPRS Journal of Photogrammetry and Remote Sensing*, 89(2014), pp.59–66. doi:10.1016/j.isprsjprs.2013.12.010.

58. McCord, J., McCord, M., McCluskey, W., Davis, P.T., McIlhatton, D. and Haran, M. (2014). Effect of Public Green Space on Residential Property Values in Belfast Metropolitan Area. *Journal of Financial Management of Property and Construction*, 19(2), pp.117–137. doi:10.1108/jfmpc-04-2013-0008.

59. Millward, A.A. and Sabir, S. (2011). Benefits of a Forested Urban park: What Is the Value of Allan Gardens to the City of Toronto, Canada? *Landscape and Urban Planning*, 100(3), pp.177–188. doi:10.1016/j.landurbplan.2010.11.013.

60. Ministry of Housing, Communities & Local Government (2016). *Natural Environment*. [online] GOV.UK. Available at: https://www.gov.uk/guidance/natural-environment.

61. Ministry of Housing, Communities & Local Government (2021). *National Planning*

Policy Framework. [online] *GOV.UK*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf.

62. Munt, I. (1987). Economic Restructuring, Culture, and Gentrification: a Case Study in Battersea, London. *Environment and Planning A: Economy and Space*, 19(9), pp.1175–1197. doi:10.1068/a191175.

63. Office of National Statistics (2022). *Home - Office for National Statistics*. [online] Ons.gov.uk. Available at: https://www.ons.gov.uk/.

64. Pan, J., Bardhan, R. and Jin, Y. (2021). Spatial Distributive Effects of Public Green Space and COVID-19 Infection in London. *Urban Forestry & Urban Greening*, 62(2021), p.127182. doi:10.1016/j.ufug.2021.127182.

65. Panduro, T.E. and Veie, K.L. (2013). Classification and Valuation of Urban Green spaces—A Hedonic House Price Valuation. *Landscape and Urban Planning*, [online] 120(2013), pp.119–128. doi:10.1016/j.landurbplan.2013.08.009.

66. Postcode by address (2022). *London Postcode - Postcode by Address*. [online] Postcodebyaddress. Available at: https://postcodebyaddress.co.uk/place/london-39984 [Accessed 22 Aug. 2022].

67. Postcode London (2022). *Postcode London | postal-code.co.uk*. [online] postal-code.co.uk. Available at: https://postal-code.co.uk/postcode/London.

68. Roy, S., Byrne, J. and Pickering, C. (2012). A Systematic Quantitative Review of Urban Tree benefits, costs, and Assessment Methods across Cities in Different Climatic Zones. *Urban Forestry & Urban Greening*, [online] 11(4), pp.351–363. doi:10.1016/j.ufug.2012.06.006.

69. Sadeghian, M.M. and Vardanyan, Z. (2013). *The Benefits of Urban Parks , a Review of Urban Research*. [online] www.semanticscholar.org. Available at: https://www.semanticscholar.org/paper/The-Benefits-of-Urban-Parks-%2C-a-Review-of-Urban-Sadeghian-Vardanyan/536d5ef258b68ec84178eec219e4eb45a72a119e [Accessed 19 Jun. 2022].

70. Swanwick, C., Dunnett, N. and Woolley, H. (2003). Nature, Role and Value of Green Space in Towns and Cities: an Overview. *Built Environment*, 29(2), pp.94–106. doi:10.2148/benv.29.2.94.54467.

71. Tanaś, J. and Trojanek, M. (2014). Changes in Land Use Structure in Suburban Zones in Poland after the 90. *Journal of International Studies*, 7(3), pp.81–89. doi:10.14254/2071-8330.2014/7-3/7.

72. Tekel, A. and Akbarishahabi, L. (2013). Determination of Open-green Space's Effect on around House Prices by Means of Hedonic Price Model; in Example of Ankara/Botanik Park. *J Sci*, [online] 26(2), pp.347–360. Available at: https://dergipark.org.tr/en/download/article-file/83598.

73. Trojanek, R. and Gluszak, M. (2017). Spatial and Time Effect of Subway on Property Prices. *Journal of Housing and the Built Environment*, 33(2), pp.359–384. doi:10.1007/s10901-017-9569-y.

74. Trojanek, R., Gluszak, M. and Tanas, J. (2018). THE EFFECT OF URBAN GREEN SPACES ON HOUSE PRICES IN WARSAW. *International Journal of Strategic Property Management*, 22(5), pp.358–371. doi:10.3846/ijspm.2018.5220.

75. Troy, A. and Grove, J.M. (2008). Property values, parks, and crime: a Hedonic Analysis in Baltimore, MD. *Landscape and Urban Planning*, 87(3), pp.233–245. doi:10.1016/j.landurbplan.2008.06.005.

76. Tyrväinen, L. and Miettinen, A. (2000). Property Prices and Urban Forest Amenities. *Journal of Environmental Economics and Management*, 39(2), pp.205–223. doi:10.1006/jeem.1999.1097.

77. Tzoulas, K., Korpela, K., Venn, S., Yli-Pelkonen, V., Kaźmierczak, A., Niemela, J. and James, P. (2007). Promoting Ecosystem and Human Health in Urban Areas Using Green Infrastructure: a Literature Review. *Landscape and Urban Planning*, [online] 81(3), pp.167–178. doi:10.1016/j.landurbplan.2007.02.001.

78. Votsis, A. (2017). Planning for Green infrastructure: the Spatial Effects of parks, forests, and Fields on Helsinki's Apartment Prices. *Ecological Economics*, 132(2017), pp.279–289. doi:10.1016/j.ecolecon.2016.09.029.

79. Wilkinson, C., Saarne, T., Peterson, G.D. and Colding, J. (2013). Strategic Spatial Planning and the Ecosystem Services Concept– an Historical Exploration. *Ecology and Society*, [online] 18(1). Available at: https://www.jstor.org/stable/26269278#metadata_info_tab_contents [Accessed 21 Aug. 2022].

80. Wolch, J.R., Byrne, J. and Newell, J.P. (2014). Urban Green space, Public health, and Environmental Justice: the Challenge of Making Cities 'Just Green Enough'. *Landscape and Urban Planning*, [online] 125(125), pp.234–244. doi:10.1016/j.landurbplan.2014.01.017.

81. Wolf, K. (2007). *City Trees and Property Values*. [online] Available at: https://www.naturewithin.info/Policy/Hedonics_Citations.pdf [Accessed 19 Aug. 2022].

82. Wu, J., Wang, M., Li, W., Peng, J. and Huang, L. (2015). Impact of Urban Green Space on Residential Housing Prices: Case Study in Shenzhen. *Journal of Urban Planning and Development*, 141(4), p.05014023. doi:10.1061/(asce)up.1943-5444.0000241.

83. Yang, J., Bao, Y., Zhang, Y., Li, X. and Ge, Q. (2018). Impact of Accessibility on Housing Prices in Dalian City of China Based on a Geographically Weighted Regression Model. *Chinese Geographical Science*, 28(3), pp.505–515. doi:10.1007/s11769-018-0954-6.

84. Zhou, X. and Parves Rana, M. (2012). Social Benefits of Urban Green Space. *Management of Environmental Quality: an International Journal*, 23(2), pp.173–189. doi:10.1108/14777831211204921.

85. Źróbek-Różańska, A. and Zadworny, D. (2016). Can Urban Sprawl Lead to Urban People Governing Rural areas? Evidence from the Dywity Commune, Poland. *Cities*, 59(2016), pp.57–65. doi:10.1016/j.cities.2016.06.003.

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GRADEMARK REPORT

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