Evaluating Green Gentrification in London

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Abstract. In this paper, we discuss the green land in the cities as a potential solution to the greenhouse effect. By discussion on this important issue, the governments are able to understand the relationship between societies and green land, thus improving urban development. Therefore, the government is able to have a better plan of urban green land, and promote social equality.

Keywords: Green land, urban heat island effect, pollution.

1. Introduction

With the accelerating pace of modern life and the rapid innovation of technology, the environment is continuous deteriorating. In order to save our home planet, many countries begin to produce green land in cities to purify the environment with following benefits. First of all, green spaces are able to mitigate the effects of pollution and can reduce a phenomenon known as the urban heat island effect. [1]. Moreover, green spaces could lower our stress level and help us concentrate on our work [1]. Furthermore, urban green spaces are capable of increasing citizens' attachment to place, level of cooperation, and positive social interactions. [2]

Green gentrification would bring a series of consequence. In general, the new green land will improve the value of an area, so it would improve an area's attractiveness, which would cause an increase in living cost. Consequently, since many vulnerable groups, including low-income residents and minorities, could not afford the high cost, so they will become displaced [3]. For instance, the Boston waterfront could effectively help to improve air and water condition. However, it also drove up housing costs, which priced out existing residents [4]. Similar things also happened in Britain. A growing number of people are pointing out just how much of British housing and public space is not built for weather extremes in a warming world. The most notable example of this is the Olympic Park in London. Because of the new green land, the population there decreased dramatically [5]. In conclusion, the green gentrification will have negative impact on the people who lived in the neighborhood.

In 1964, a British sociologist Ruth Glass first popularized a key term- gentrification. This term means the transformation of a city neighborhood from low value to high value [6]. Indeed, gentrification usually leads to negative impacts such as forced displacement, a fostering of discriminatory behavior by people in power, and a focus on spaces that exclude low-income individuals and people of color. In the environmental field, there is a basic term called Green Gentrification, which is defines as the new green infrastructure has brought real estate speculation, rising housing costs and community displacement [4]. Thus, it is necessary for us to consider this issue.

Green gentrification exacerbates social inequality, minority groups and working-class residents are displaced or forced to pay higher rents and higher priced amenities attached to the neighborhood after redevelopment [7]. For instance, from 1939 to 2015, the population in London decreases for 10%.

Social justice is the view that everyone deserves equal economic, political and social rights and opportunities. Social workers aim to open the doors of access and opportunity for everyone, particularly those in greatest need [8]. In Fact, green gentrification is one of an expression of social justice. Green Gentrification would exacerbate the inequality of social space, which may interfere low-income residents' life [3]. On the contrary, green gentrification also could bring some benefits. For instance, kids could enjoy better education since the society's living standard improves [9].

Based on the literature, the existing essay does not use quantitative method to evaluate the impact with the green gentrification. Therefore, this study uses quantitative method to solve following two questions: Would urban green land lead to green gentrification in cities? How to make policy to target the negative impacts brought by green gentrification?

2. Methodology

2.1. Study Area

The green land develops rapidly in London. In July 2019, London was declared the world's first national park city. By 2050, about 3 million more people will live in London. A well planned green infrastructure network will be extremely important to bear the high density city. These green land will be able to mitigate the effects of pollution and reduce the temperature in the downtown. Therefore, London constructed over 3,000 parks and public open spaces cover 18% of the city [10].

However, with the increase of the green land area in London, gentrification becomes more serious there. With the increasing of the green land, the house price in London increased. Therefore, citizens' income and employment rate decreased dramatically. Consequently, the population decreases. Because of green gentrification, social injustice happened in London, which interfered people's life.

2.2. Data source

This paper collect data from https://data.london.gov.uk/dataset. This dataset contains the green space and social welfare indicators, including income, unemployment rate, transport accessibility, house price and percent green.

3. Result

The first figure showing that the house price is positively correlated with the proportion of green land. It demonstrates that high income people are more able to enjoy the benefit from the urban green land.

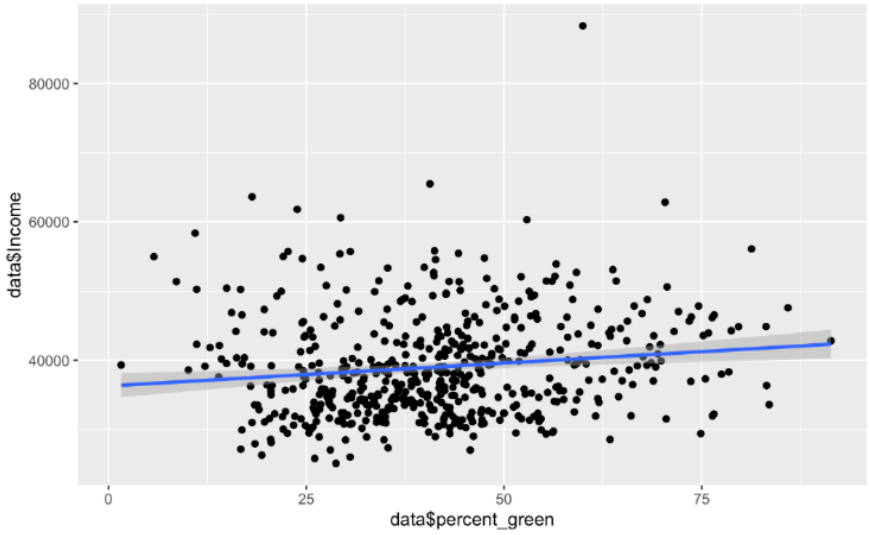


Figure 1. The relationship between percent green and income

Figure 2 shows that the unemployment rate is negatively correlated with the proportion of green land. It demonstrates that the low social economical profile residents are less likely to enjoy the benefit from the urban green land.

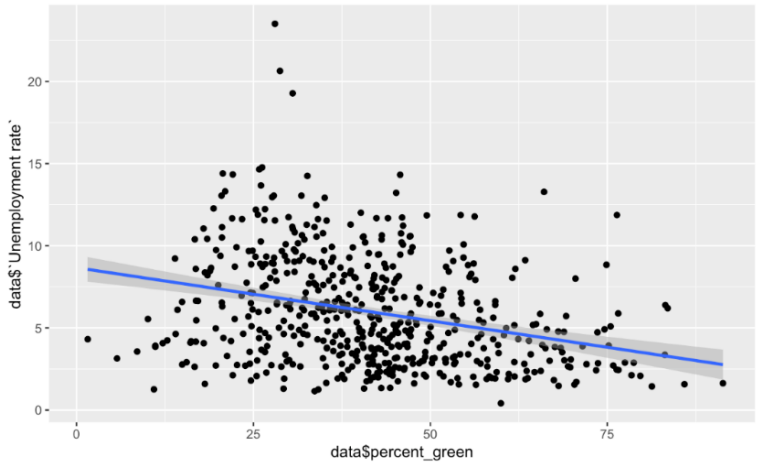


Figure 2. The relationship between percent green and unemployment rate

Figure 3 shows that the transport accessibility is negatively correlated with the proportion of green land. It also demonstrates that low social economical profile citizens are less likely to be benefited from the urban green land.

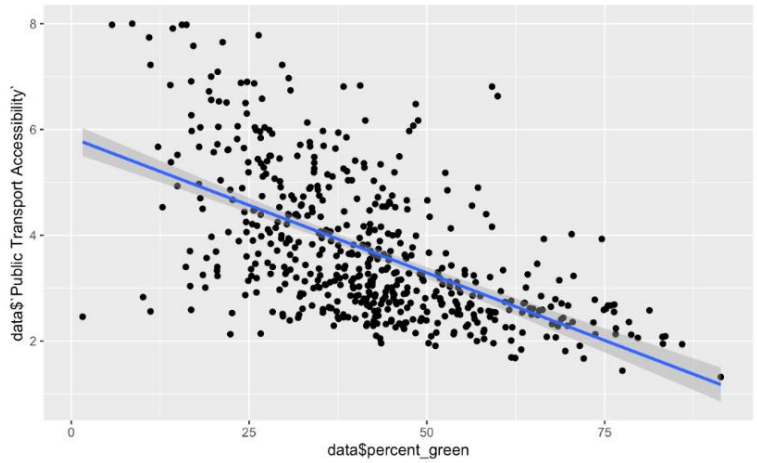


Figure 3. The relationship between percent green and transport accessibility

Figure 4 shows that the house price is slight negatively correlated with the proportion of green land. It demonstrates that less green land is in urban area, which has on positive impact on house price. However, more green land is in suburban area, so it has a negative impact on house price. Therefore, the impact from green land to house price is relatively slight.

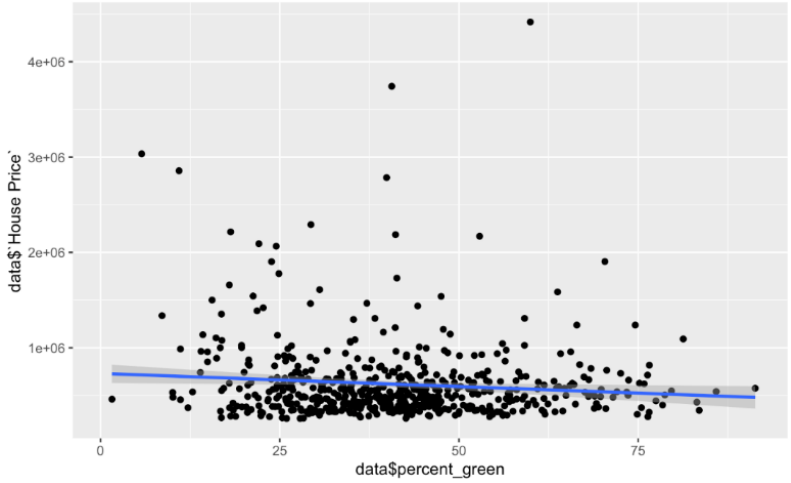


Figure 4. The relationship between percent green and house price

To better understanding the impact on house price, Multiple linear regression (MLR) is used to determine a mathematical relationship among percent green, income, and public transport accessibility to the house price.

Table 1 shows the significant correlation among those variables, which indicates that public transport accessibility, income and green land area have a positive impact on the house price. Moreover, the public transport accessibility has the largest lifting impact on the house prce, then is percent green and income.

Table 1. The output of linear regression

Variable	Estimate	Std. Error	t value	Pr(>t)
(Intercept)	-1.30E+06	6.91E+04	-18.765	< 2e-16 ***
percent_green	2.00E+02	8.50E+02	0.235	0.814
Income	3.85E+01	1.48E+00	26.015	< 2e-16 ***
Public Transport Accessibility	1.09E+05	9.59E+03	11.368	< 2e-16 ***

Since more green land are produced in London, the living cost increases in these areas, and fewer transport accessibility is needed for people. Therefore, only high-income citizens are able to stay in the green land area, and the average income increases with the increase in the proportion of the green land. With the decrease of the lower-income population, the unemployment rate decreases. Consequently, green gentrification is happened in London. However, this phenomenon is different in different areas. For instance, the house price will increase with the increase in the proportion of green land in urban area, but it will decrease in suburb area.

4. Policy solution

To deal with the green gentrification, the government has to make some policy. The most significant aspect is the transportation. The green gentrification will lead the spend on the transportation to be higher, which will cause distress to the residents. Therefore, some cities construct new transportation systems to help citizens to avoid them to be excluded from the cities. For instance, Medellín opened an aerial tram system known as Metrocable, which linked the remote hillside neighborhoods to the center of the cities. Thus, it offers the opportunities of jobs, schools for lower income population [11].

Since the green land area increases, the house price will increase. Consequently, many people are not able to afford the house, so they have to move to other places. To avoid this phenomenon, the government could make some housing policy. For example, a new project in Bozeman helped set aside a plot adjacent to the 60-acre Story Mill Park for 62 additional units of affordable housing. Therefore, people are able to buy the house near the green land, and not to be excluded from the city [4].

5. Conclusion

According to the result, urban green land is able to deal with the environmental issues effectively, while it may cause green gentrification. Consequently, social injustice will happen, and many lower incomes people will be excluded from the city. Finally, this study proposes several solutions to address social injustice brought by green gentrification, including offer transportation and housing support. The study also has some limitation. The data that the study used is relatively old, it could not best reflect the current situation.

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