Original Paper

Appraising the Likely Gentrification Impacts of a Mega Transport Project—The Case of Crossrail

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Abstract

Megaprojects are defined as projects that cost a billion US dollars or more at 1990 prices. Mega transport infrastructure projects have the potential to affect important socioeconomic and territorial changes. They are often perceived as critical to the "success" of major metropolitan, regional and national development. The redevelopment of neighbourhoods offers many opportunities for regional regeneration, yet there remain concerns regarding the potential gentrification of areas leading to the displacement of existing populations and local businesses. This research applies multi-criteria analysis, a tool that is widely used in mega infrastructure project appraisal using the UK's Crossrail as a case to explore the likelihood of gentrification and the displacement impacts of the project. This paper finds both positive and negative impacts. Different stakeholders express noticeably differing opinions regarding the project.

Keywords

gentrification, multi-criteria analysis, Crossrail

1. Introduction

The study of gentrification spans several decades. The process of gentrification has gone global. This concept refers to a process by which newly entering upper-middle-class residents displace original working-class residents. Gentrification has both positive and negative impacts (Lee, L. et al., 2008). In most cases, transit infrastructure development can result in gentrification (Revington, 2015). This research will focus on transit-induced gentrification in addition to demonstrating that the impacts of gentrification can be assessed by applying multi-criteria analysis appraisal methodologies, using the UK Crossrail as a case study to examine the likely impacts of this project.

The term gentrification was initially coined by British sociologist Ruth Glass in 1964. Her definition of gentrification is widely considered to be a classical characterisation. The classical definition of gentrification is "disinvested inner-city neighbourhoods are upgraded by pioneer gentrifiers and the indigenous residents are displaced. Working-class housing becomes middle-class housing" (Lee et al., 2013). The meaning of this term has evolved over time (Lee et al., 2008, p. 9). Revington (2015) noted that gentrification could occur through "new build" development on former industrial land. Davidson and Lees (2010) posited that such "new build" development in inner cities could also be regarded as gentrification. Lee et al. (2008) noted that although some researchers believe new build development cannot be considered gentrification, newly built gentrification is now a widely acknowledged aspect of gentrification studies. New build gentrification should not be misunderstood as urbanisation, which can also lead to displacement (Davidson & Lee, 2010). Gaining access to transit infrastructure may alter surrounding neighbourhoods through gentrification, as it alters the social and spatial distribution of accessibility benefits throughout the city, thereby influencing how urban land is used and by whom. This is transit-induced gentrification (Revington, 2015, p. 153).

The rent gap theory asserts that long-term disinvestment in urban cores creates a gap between sites' potential ground rent (its optimal, highest and best use) and current capitalised ground rent (the actual economic return from land use). Gentrification is a process that closes this gap (Revington, 2015 and Lee et al., 2008). Revington (2015) postulated that access to transit has a positive impact on surrounding house prices, rather than an insignificant or even negative impact on surrounding house prices. These house price increases make homes less affordable for original residents (Lee, L. et al., 2008). Gentrification can attract a large number of middle-class residents to previously deprived neighbourhoods, contribute to social mixing, and displace pre-existing lower-income residents. Gentrification can also increase the viability of further development, with the rise in the number of residents who can pay taxes, purchase goods and services and increased local fiscal revenue (Lee, L. et al., 2008). Gentrification tends to result in the tectonic juxtaposition of polarised socioeconomic groups rather than in socially cohesive communities. In the long term, gentrification can result in rich ghettos (Lee et al., 2008, p. 217). Lee et al. (2011) and Salter (2011) asserted that the outcome inequities of gentrification would eventually lead to class conflict. "Failure to attend to the information and concerns of stakeholders clearly is a kind of flaw in thinking or action that too often and too predictably leads to poor performance, outright failure or even disaster" (Bryson, 2004, p. 23).

2. Method

The UK's Crossrail project involved the development of 10 new stations and 42 kilometres of new tunnels. The project links 41 stations over 100 km from Reading and Heathrow in the west, through central London, to Shenfield and Abbey Wood in the east (Crossrail, 2019). The Crossrail Bill 2008 launched the project and construction began in 2009. The project was estimated to cost more than £18 bn (The Guardian, 2019).

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The multi-criteria analysis contains several steps, which include defining alternatives, identifying and analysing stakeholders, defining criteria and weights, establishing criteria indicators and measurement methods, overall analyses and ranking, reporting results and implementation (Department for Communities and Local Government, 2009). This research asserts that the impacts of gentrification can be included in the multi-criteria analysis of the project to appraise different alternatives. Some impacts of gentrification criteria can be added, and these related criteria will influence the outcome of the appraisal of alternatives. In addition, this research assumes that the impacts of gentrification can be appraised directly by applying multi-criteria analysis to the investigation.

3. Result

3.1 Impacts of Gentrification

3.1.1 House Price Increase

The first likely positive impact of gentrification is a property price increase. "Knight Frank found that average increase in house prices near stations along the Elizabeth line route outperform the Greater London average by 7% between 2008 and 2016" (Crossrail and Future of London, 2018). All locations around the Crossrail have experienced a positive impact on residential value. "Residential capital values were predicted to increase immediately around Crossrail stations in central London by 25 per cent and by 20 % in the suburbs" (Crossrail, 2012). Figures 1, 2 and 3 present the projected precipitous house price increases within a 1000m zone of influence of different stations in three sections of Crossrail.
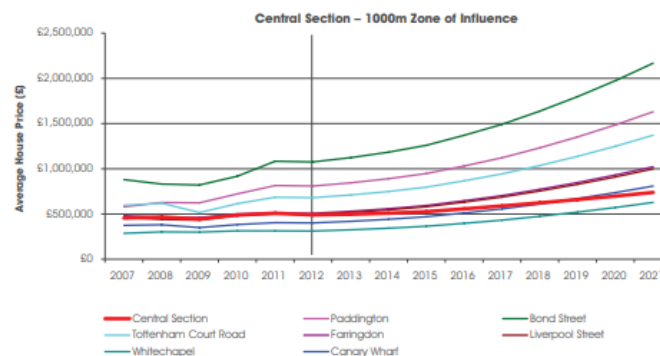

Figure 1. Residential Market Impacts of Crossrail on the Central Section of the Line
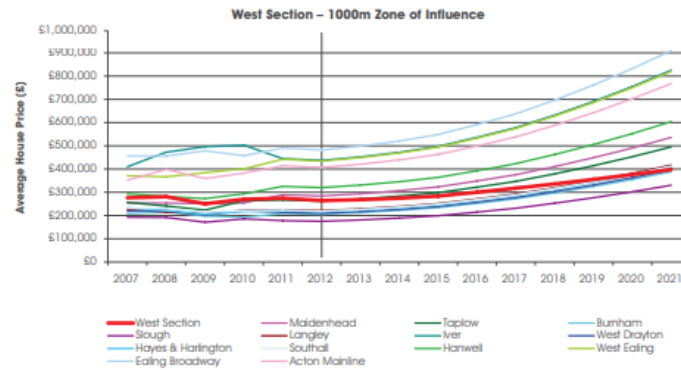
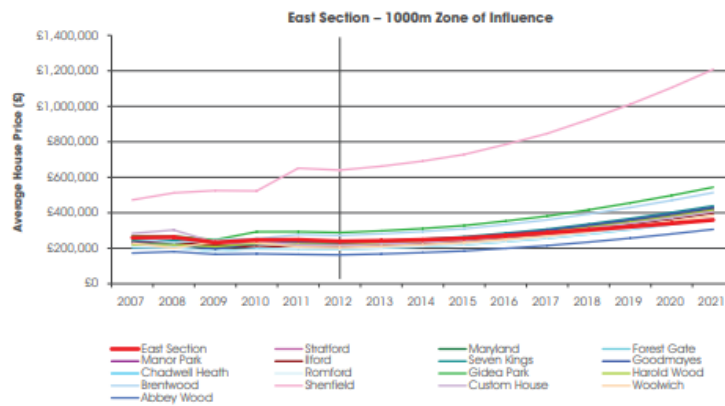**Figure 2. The Impact of the Crossrail on the Residential Market in the Western Section of the Line**

Figure 3. The Impact of the Crossrail on the Residential Market in the Eastern Section of the Line

3.1.2 Less Affordable Houses

Although in the west, permits on the Elizabeth line can get an average of 26% affordable housing, while the average in the borough was 19%. In the east, permits on the Elizabeth line locations have achieved an average of 20% affordable housing, while in the borough, the average was 17%. The proportion of affordable housing delivered along the route is lower than the borough-wide average (Crossrail and Future of London, 2018). The rapid rise in housing prices and the relatively low supply of affordable housing has made houses along the Crossrail line less economical. Loss of affordable housing is likely to have a negative impact on the project.

Houses becoming less affordable also means many poor people cannot afford the high rents. Displacement is likely an influence of Crossrail, and the number of the affluent middle class in this area will increase.

3.1.3 Increased Social Mix

Figure 4 is made based on IMD 2015 income deprivation data in London's Lower Layer Super Output Areas (neighbourhoods). The income deprivation ranks of these neighbourhoods are divided into five equal sections. The darkest colour shows the most deprived neighbourhoods; the darker the colour, the lower the average income. The black dots indicate the locations of the Crossrail stations. This shows many Crossrail stations are located in neighbourhoods with very poor income, showing that many poor working classes live in these neighbourhoods. The increase in the social mix may be accompanied by a rapid rise in housing prices in this area. Therefore, housing prices are expected to rise rapidly, and the new houses will attract many new upper-class buyers.
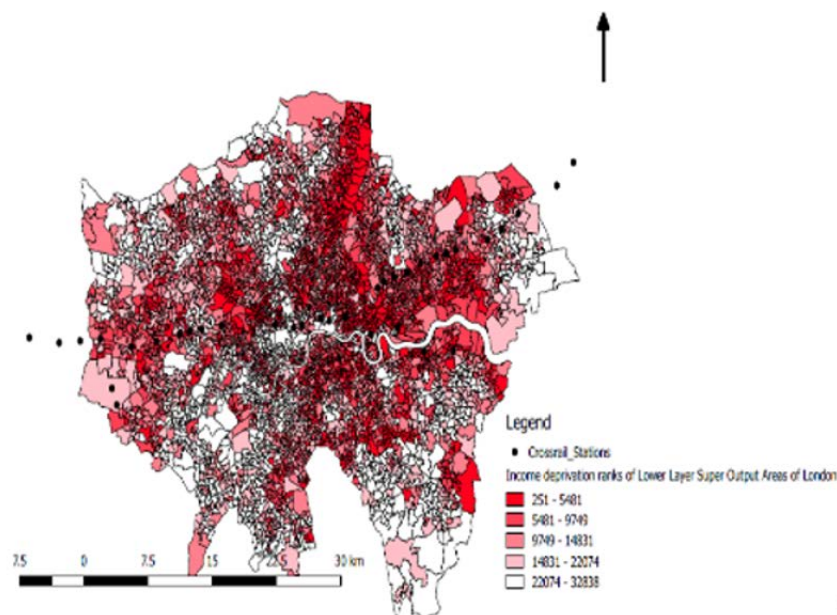

Figure 4. The Income Deprivation Ranking Index of London's Lower Layer Super Output Areas of London in 2015

3.1.4 Displacement of the Low-Income Working Class

Rising housing prices and increasing demand for housing will make houses close to the Crossrail less affordable. This will attract many wealthy homebuyers from the middle class or higher. The rapid rise in housing prices and housing demand will displace some low-income residents.

3.1.5 Increase Local Fiscal Revenue

This report points out that newly-built gentrification is a form of gentrification generally considered in the introduction. It is predicted that the new line will support the delivery of more than 57,000 new houses. Nearly half of the planning applications within one kilometre of an Elizabeth line station cited the new railway as a reason for the development process (Crossrail, 2019). Since the housing prices of the new houses are quite high, these new houses have attracted many middle and upper-class buyers. The high housing prices make the working class feel unaffordable, and this rapidly increases the

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number of middle classes in these areas, increasing the proportion of the middle class. This also has increased the number of residents who pay taxes, purchase goods and services, and thus, increase local fiscal revenue.

3.1.6 Further Development Opportunities

This report shows that gentrification is likely to increase the proportion of the middle class in the area around different Crossrail stations. The new-built gentrification will bring many wealthy middle-class homebuyers. Local social infrastructure such as hospitals and schools will be built to meet the needs of the population growth while more commercial and office space may be developed to meet the needs of the affluent middle class. These indicate that gentrification contributes to opportunities for further development.

3.1.7 Loss of Social Diversity

This report shows the predicted trend of a rapid rise in housing prices. The number of wealthy residents in this area will increase rapidly. However, the working class may not be able to buy expensive houses in this area. This report believes that this will allow the area to accumulate a large number of wealthy people. This report also indicates that the displacement effect is very likely to occur. These will lead to the loss of social diversity in these areas, and these areas will become an affluent ghetto.

3.1.8 Community Resentment and Conflict

The local residents have no distinct objections to this project. This report believes that although much literature thinks that gentrification will cause local resentment and opposition, this will be less obvious due to the low local opposition level to this project that can be found.

3.2 Multi-criteria Appraisal Result

Crossrail will be used as an example. The previous part of the report analysed the many effects of gentrification. Hence, the appraisal criteria will be generated based on the impacts of gentrification analysis of the report. The table 1 and 2 below show the appraisal criteria.

The basis for measuring the effect of gentrification is the evidence found in the analysis. According to the analysis result, the measurement score will be determined from 1 to 5. Since gentrification can have both positive and negative effects, this method will appraise the positive and negative effects separately. 1 represents a very weak impact, 2 represents a weak impact, 3 represents a moderate impact, 4 represents a strong impact, and 5 represents a very strong impact. Scores are given based on previous evidence analysis.

Table 1. The Positive Effects of Gentrification

Criteria	Score
Increase housing prices	4
Increase social mix	3
Increase local fiscal revenue	3
Further development opportunities	2
Total	12

Table 2. The Negative Effects of Gentrification

Criteria	Score
Displacement of the working classes	3
Less affordable housing	4
Loss of social diversity	2
Community resentment and conflict	2
Total	11

Assembly member	Government	Professional Body
Business	Heritage Group	Rail Business
Business Group	Inclusivity Group	Religious Organisation
Community Group	Individual	Statutory Agency
Diplomatic	Local Authority	TfL
Education	Media	Trade Union
Emergency Services	Member of Parliament	Transport User Group
Environment Group	Peer	Utility

Figure 5. Stakeholders' Categories Diagram

The introduction part of this report points out that stakeholders need to be clearly identified. Figure 5 is a list of stakeholders compiled by the Crossrail Corporation. This report attempts to use some of the stakeholders in the list to assess the impacts of gentrification. One limitation of this report is that it does not conduct a comprehensive review of all stakeholders. This report uses 3 stakeholder groups for analysis; which are the means of transportation in London, local residents within 1000 km of Crossrail stations, and the borough councils in which Crossrail stations are located. This report attempts to measure the criteria from a standard point of view.

The role-play is made by imagining how the stakeholders will measure each criterion based on the author's understanding of their opinions through extensive reading of relevant documents. Under the influence of these stakeholders, the author of this report has given weight to each criterion. This report will use 1 to 5 to represent the weighted scale. 5 represents very important, 4 represents important, 3 represents important to some extent, 2 represents less important, and 1 represents not important.

Table 3. The Weight of Stakeholders' Positive Effect on Gentrification

	Local residents	Borough councils	Transportation in London
Increase housing prices	4	4	3
Increase social mix	3	4	2
Increase local fiscal revenue	2	4	2
Further development opportunities	3	4	3
Total	12	16	10

Table 4. The Weight of Stakeholders' Negative Effect on Gentrification

	Local residents	Borough councils	Transportation in London
Displacement of the working classes	4	4	3
Less affordable housing	4	3	3
Loss of social diversity	3	3	2
Community resentment and conflict	3	4	2
Total	14	14	10

Table 5. Total Weighted Scores for Each Stakeholder Group

	Local residents	Borough councils	Transport for London
Positive	144	192	120
Negative	154	154	110

4. Discussion

Gentrification has both positive and negative effects on the surrounding neighbourhoods. The impacts of gentrification can be appraised through multi-criteria analysis. Since gentrification can cause both positive and negative effects, this report believes their positive and negative effects can be appraised separately. Using multi-criteria analysis to explore the positive and negative effects of gentrification and incorporating the views of different stakeholders can help planners and developers to better

understand the potential effects of gentrification, the impact of gentrification on different stakeholders, and how different stakeholders think about gentrification and its impacts.

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