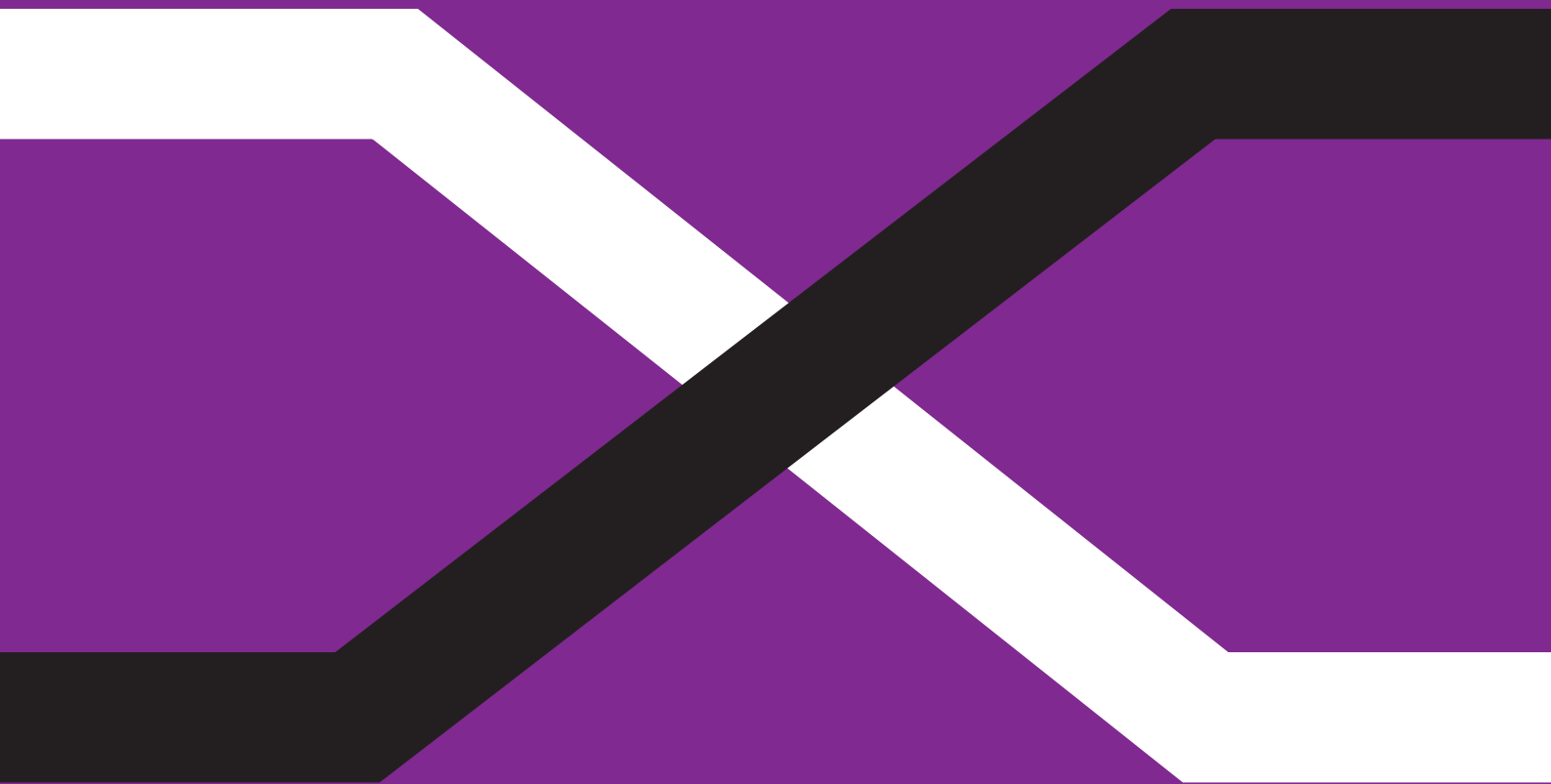


# THE CROSSRAIL EFFECT

The Impact of the Arrival on Crossrail on  
Central London Commercial Property Prices

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At a cost of £14.8 billion Crossrail which is due to open 2018/2019 will deliver over 70 miles of new track through 37 stations considerably reducing journey times and increasing London's rail based capacity by 10%. Not only is Crossrail a story of improving accessibility it is also one of regeneration and public realm improvement given that Crossrail have pledged approximately £90 million to enhance the physical urban environment around each of the stations along the route.

Given the transformative impact of Crossrail this research seeks to examine its influence on the surrounding commercial property market. Using the most robust statistical techniques available to date, this work seeks to quantify how this major infrastructure project has impacted commercial real estate in Central London by comparing properties that are proximate to the locations where Crossrail stations will open with properties away from Crossrail connections. The key indicator used to assess the impact on the commercial property market is price PSqFt (capital value).

The data used for this study comes from The Property Archive. The dataset contains information on 3,464 Central London<sup>1</sup> commercial property transactions between January 2000 and February 2013. In the context of this investigation commercial property largely refers to predominately office assets though one should note that the dataset also contains office assets with a significant element of retail. Some distinction is drawn between these two types of space at the end of the analysis.

In order to assess the impact of Crossrail on the commercial property market two steps were taken: firstly the Crossrail "catchment areas" were established, and second key dates in Crossrail's timeline were determined so that changes in price trends in response to Crossrail-related events could be isolated.

A property was deemed to be within the catchment area ("sphere of influence") of Crossrail if it lay within a half-mile radius of a Central London Crossrail Station (Paddington to Canary Wharf)<sup>2</sup>. A half-mile stretch was deemed appropriate given that it is approximately the distance that an individual can walk in ten minutes and so it is most likely to be influenced by the new travel facilities serving office commuters. Over the time period examined 1678 properties lay within this half-mile Crossrail catchment area with the majority being located around the stations of Bond Street, Tottenham Court Road, Farringdon and Liverpool Street.

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<sup>1</sup> Central London postcodes included: E1, E14, EC1, EC2, EC3, EC4, N1, N3, N7, NW1, NW2, NW3, NW6, SE1, SW1, SW3, SW5, SW6, SW7, SW8, SW10, SW11, SW14, W1, W2, W5, W6, W8, W10, W11, W14, WC1 and WC2.

<sup>2</sup> Central London Crossrail stations: Paddington, Bond Street, Tottenham Court Road, Farringdon, Liverpool Street, Whitechapel and Canary Wharf.

Two key dates in Crossrail’s timeline were used as “break-dates” to examine changes in price trends. The first date chosen was the first reading of the Crossrail Bill in Parliament (February 2005) as this can effectively be seen as the “announcement” date. The second date chosen was the start date of “construction” (May 2009) when the first spade hit soil at Canary Wharf station. 2222 properties were bought-sold post the reading of the Crossrail Bill and 952 post the commencement of Crossrail construction with 1089 and 478 occurring within the half-mile Crossrail catchment respectively.

Following the most recent academic literature that evaluates the impact of transport improvements on real estate values, this work identifies the effect of Crossrail on office prices PSqFt by comparing price trends in the half-mile Crossrail catchment area to the rest of Central London both before and after the “announcement” of Crossrail and subsequent “construction”. One should note that given the nature of the dataset the “announcement” impact is the aggregate impact for the 8 years post-announcement (early 2005 to February 2013) and the “construction” impact is the aggregate impact for the 3.75 years post-construction (May 2009 to February 2013).

This analysis finds a significant impact of the arrival of Crossrail on the proximate commercial property market with properties within Crossrail’s sphere of influence experiencing an increase in price PSqFt above that of an already rising Central London baseline. Table 1 below shows simplistically the additional uplift value that Crossrail has had on proximate Central London commercial property.

	Average Price PSqFt		Percentage Uplift (1)	Average Price PSqFt		Percentage Uplift (2)
	Before Crossrail Bill 2005	After Crossrail Bill 2005		Before Crossrail Construction 2009	After Crossrail construction 2009	
Within half-mile	£471.96	£725.69	54%	£594.92	£741.33	25%
Outside half-mile	£447.95	£621.57	39%	£533.09	£626.92	18%
<b>Difference<sup>3</sup></b>	<b>£24.01</b>	<b>£104.12</b>	<b>15%</b>	<b>£61.83</b>	<b>£114.40</b>	<b>7%</b>

Referring to the percentage uplift (1) column it is possible to see that the average price PSqFt of properties within a half-mile radius of a Crossrail station were 54%

<sup>3</sup> Difference = Within half-mile – Outside half-mile

higher after the “announcement” of Crossrail than before. However, this is not the strict increase attributable to being within half-mile catchment as properties outside of this sphere of influence (half-mile radius) also experienced a capital uplift of 39%. Using both these uplift values one can crudely state that post the reading of the Crossrail Bill, “announcement” of Crossrail properties located in a half-mile radius of a Crossrail station experienced an additional increase in price PSqFt of 15% above those outside the half-mile catchment.

Using a similar logic in reference to Percentage Uplift (2) column one can crudely state that properties within a half-mile radius of a Crossrail station experienced a 7% increase in price PSqFt compared to those outside this catchment after the commencement of construction on the Crossrail project.

Although this simplistic analysis is enlightening this paper also uses complex statistical analysis to more readily isolate the relationship. Using a difference-in-difference methodology and controlling for property specific characteristics including postcode-location, rent PSqFt, tenancy (i.e. multi-let vs. single let), office-retail mix and purchaser type.

Using this aforementioned methodology the results are as follows (see Appendix 1 for detailed results table): Post the first reading of the Crossrail Bill – which was identified as the “announcement” of Crossrail – properties within a half-mile radius experienced an increase in price PSqFt of approximately 8-15% above that seen in properties outside the half-mile catchment. Similarly, post the commencement of “construction”, commercial properties within a half-mile catchment experienced an increase in price PSqFt of 6-9% above that seen in properties outside this sphere of influence.

As previously noted these capital uplift values are the aggregate values over 8 years post-announcement (early 2005 to February 2013) and 3.75 years post-construction (May 2009 to February 2013). In order to make the results easier to interpret, these values can annualised. Taken on an average annualised basis the increase in price PSqFt is approximately 1-2% p.a. for properties within the half-mile catchment after the first reading of the Bill and 1.5-2.5% p.a. post the commencement of Crossrail construction (above the baseline). The results indicate that construction had an additional “pick-up” effect on the rate of growth in price PSqFt of properties within Crossrail’s sphere of influence.

Furthermore, in splitting the dataset into assets with and without a significant retail element, this work finds that office properties that also comprise retail have traded at a premium to their predominately office counterparts within the half-mile Crossrail

catchment area. This premium has seen office assets with a retail element grow at between 0.5-1.0% p.a. faster than those without a substantial retail element.

Future work will study whether these effects can be attributed solely to productivity effects brought about by increased accessibility and accruing to workers and commercial ventures located in the Crossrail catchment areas, or whether more general “regeneration effects” increased commercial property values.

## Appendix 1

Dependant Variable = log (Price PSqFt)

Variable	Model I	Model II	Model III	Model IV
<b><u>Panel A</u></b>				
Within ½-mile X Crossrail Bill 2005 (Robust Standard Error) [Clustered Standard Error]	0.0867 ** (0.3809) [0.0724]	0.1457 *** (0.0338) [0.0804]	0.1004 *** (0.0376) [0.0627]	0.0827 *** (0.0318) [0.0460]
<b><u>Panel B</u></b>				
Within ½-mile X Crossrail Construction Start 2009 (Robust Standard Error) [Clustered Standard Error]	0.0583 (0.0450) [0.0715]	0.0899 ** (0.0377) [0.0744]	0.0834 ** (0.0407) [0.0500]	0.0779 ** (0.0337) [0.0423]
<b><u>Panel C</u></b>				
Within ½-mile X Crossrail Bill 2005 (Robust Standard Error) [Clustered Standard Error]	0.0767 * (0.0431) [0.0689]	0.1358 *** (0.0383) [0.0689]	0.0799 * (0.0425) [0.0608]	0.0607 (0.0382) [0.0441]
Within ½-mile X Crossrail Construction Start 2009 (Robust Standard Error) [Clustered Standard Error]	0.0229 (0.0502) [0.0642]	0.0231 (0.0427) [0.0549]	0.0452 (0.0460) [0.0410]	0.0483 (0.0405) [0.0376]
Area Fixed Effects	x	✓	✓	✓
Year Fixed Effects	x	✓	✓	✓
Commercial Property Controls	x	x	x	✓
Observations	3464	3464	1937	1937
R-Squared (Panel A)	0.0917	0.3337	0.3535	0.5276
R-Squared (Panel B)	0.0917	0.3310	0.3519	0.5274
R-Squared (Panel C)	0.0306	0.3338	0.3539	0.5281

### Notes:

1. \*\*\* = significant at 1% level, \*\* = significant at 5% level, \* = significant at 10% level (Significance levels shown for robust standard errors)
2. x = variables excluded, ✓ - variables included
3. Clustered standard errors refer to clustering of standard errors at the area level
4. Area Fixed Effects at the postcode level
5. Commercial Property Controls include: property specific characteristics including postcode-location, rent PSqFt, tenancy (i.e. multi-let vs. single let), office-retail mix and purchaser type.