Do House Prices Affect Homelessness in London?

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Introduction

I set out to try to find a link between the price of housing and homelessness. It seemed a huge task and certainly proved to be a difficult issue to handle. Whether rising house prices have an effect on the number of homeless households is a very fascinating subject but collecting data and researching the subject took much longer than anticipated. However I <u>was able</u> to access such information. After much debating which areas to consider within the United Kingdom I focused on the 33 London Boroughs.

Description and Source of Collected Data

I used the most reliable sources possible, obtaining average house prices from HM Land Registry (<u>http://www.landreg.gov.uk</u>) where The <u>Residential Property Price Report</u> provides a detailed and authoritative insight into what is actually happening to average prices and sales volumes in the residential property market for England and Wales. The figures also incorporate average prices and number of sales within Greater London by individual London Boroughs. Sales in this context are taken to mean the transfer of ownership for value of freehold and long leasehold residential properties, whether or not the purchase was supported by a mortgage. No weighting or adjustment was applied to the information collected to reflect any seasonal or other factors. The price data can be said to be actual unadjusted averages, drawn from the great majority of all residential sales completed during the last quarter of 2002. All types of accommodation have been included in the numbers, whether detached, semi-detached, terraced houses or flats or maisonettes were sold. The averages also only contained data collected for post-code purchases, which meant that on average 20% less of sales have been included in the figures. However because of the number of sales per borough is quite high it would be unlikely that this fact would influence my findings. The next set of data, the other variable for the same area, came from an equally respected source. The Office of the Deputy Prime Minister has an extensive web site with a section about the issues of homelessness at <u>http://www.homelessness.odpm.gov.uk/index.htm</u>. The numbers I could obtain were the number of households in accommodation arranged by local authorities, which excluded 'Homeless at Home'. However the data was not perfect for the last quarter of 2002, which was the set I needed, to make a useful comparison. For 4 boroughs, Barnet, Haringey, Southwark and Tower Hamlets figures were missing, as local authorities did not report for that quarter. I then substituted the last available figure instead. I attached a copy of data collected and sorted in *Table 1*., which was the basis for all calculations.

London Borough of	House Price (£)	Homelessness
Barking and Dagenham	133230	736
Barnet	254479	2,110
Bexley	163266	230
Brent	227775	3,498
Bromley	226039	516
Camden	399660	1,901
City of London	308350	32
Westminster	449428	2,623
Croydon	182721	3,263
Ealing	238510	1,979
Enfield	193877	2,483
Greenwich	180966	268
Hackney	216311	2,285
Hammersmith and Fulham	344804	1,600
Haringey	238894	3,998
Harrow	236004	1,624
Havering	173511	314
Hillingdon	196750	1,845
Hounslow	218721	1,086
Islington	301589	1,364
Kensington and Chelsea	581561	968
Kingston upon Thames	242558	715
Lambeth	243162	2,021
Lewisham	170132	1,243
Merton	245540	175
Newham	160058	3,814
Redbridge	200031	1,837
Richmond upon Thames	337139	525
Southwark	223932	769
Sutton	186720	428
Tower Hamlets	231375	2,352
Waltham Forest	170269	1,032
Wandsworth	291467	1,442

Table 1. Average house prices in pound sterling and the numbers of homeless households in the 33 different London Boroughs, in the last quarter of 2002. Red highlights are the highest of figures while blue ones are the lowest.

The following two charts are visualisations of the independent (x axis) and the dependent variables, named *Chart 1.* and *Chart 2*. Central London has the most expensive boroughs, Kensington and Chelsea, Westminster and

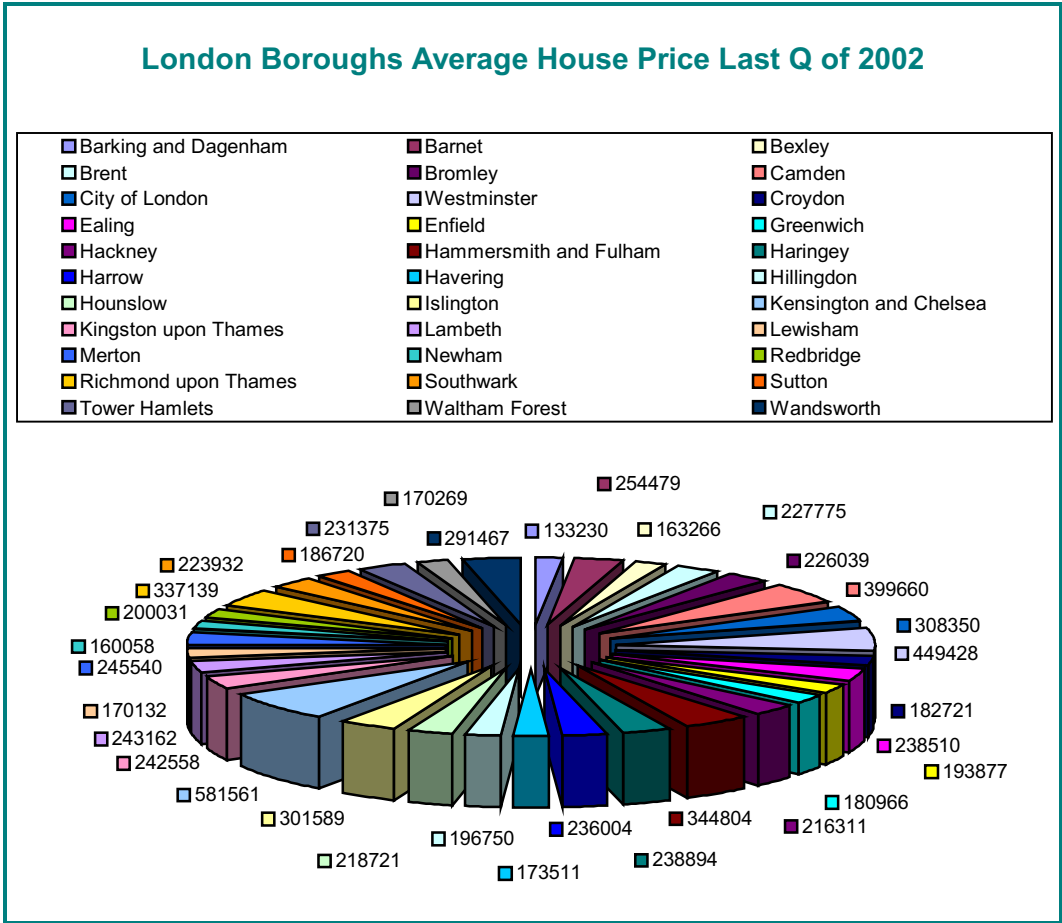**London Boroughs Average House Price Last Q of 2002**

Chart 1. Pie Chart Visualisation of Independent Variable

Camden. In these three boroughs the uncommon high pricing of housing stock is due to the location. This may have to be taken into account when looking at regression analysis, as these boroughs average house costs are much higher than usual. The highest numbers of homeless are found however in Haringey, Newham and Brent, which are situated on the outskirts of London. Which would not be in line with the theory that expensive housing cost links with high number of homeless. This is what I was trying to find but looking at the pie charts, the same coloured slices looked very different in size.

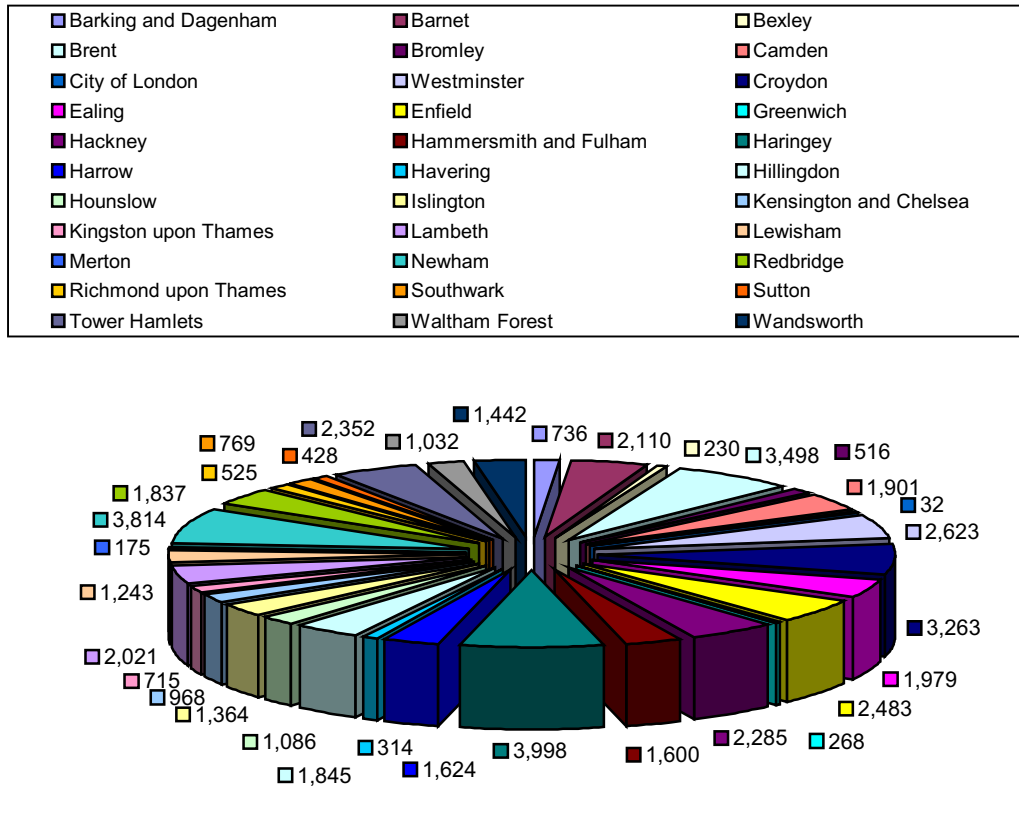**London Boroughs Homlessness (number of households) 2002 Last Q**

☐ Barking and Dagenham	■ Barnet	☐ Bexley
☐ Brent	■ Bromley	■ Camden
■ City of London	☐ Westminster	■ Croydon
■ Ealing	■ Enfield	■ Greenwich
■ Hackney	■ Hammersmith and Fulham	■ Haringey
■ Harrow	■ Havering	■ Hillingdon
■ Hounslow	■ Islington	■ Kensington and Chelsea
■ Kingston upon Thames	■ Lambeth	■ Lewisham
■ Merton	■ Newham	■ Redbridge
■ Richmond upon Thames	■ Southwark	■ Sutton
■ Tower Hamlets	■ Waltham Forest	■ Wandsworth

Chart 2. Pie Chart Visualisation of Dependent Variable

Variation in Data

Once the data was ready for analysis I used descriptive statistics methods. And because I had different measurement values in my calculations (pound sterling in house prices and number of households in homelessness figures) I could not make direct comparisons between the 2 sets of data. So first I calculated the means and standard deviations for both sets of values to then be able to compare the Coefficient of Variation for each set. The results of these are below in *Table 2.* and *3*, and show that there is considerably greater variation in the figures of homelessness.

Descriptive Statistics for House Prices	
Mean	247540.3
Standard Error	16010.28
Median	227775
Mode	#N/A
Standard Deviation	91972.04
Sample Variance	8.46E+09
Kurtosis	4.747562
Skewness	1.956357
Range	448331
Minimum	133230
Maximum	581561
Sum	8168829
Count	33
Coefficient of Variation	0.3715

Table 2. Descriptive Statistics: House Prices in the Last Quarter of 2002.

Descriptive Statistics for Homelessness	
Mean	1547.758
Standard Error	188.4257
Median	1442
Mode	#N/A
Standard Deviation	1082.423
Sample Variance	1171640
Kurtosis	-0.26181
Skewness	0.637407
Range	3966
Minimum	32
Maximum	3998
Sum	51076
Count	33
Coefficient of Variation	0.6993

Table 3. Descriptive Statistics: Homelessness in the Last Quarter of 2002.

I also made the histograms for both house prices and homelessness figures to establish the skewness, if any. *Chart 3.* illustrates that house prices data distribution is negatively skewed. While homelessness values are unevenly distributed, tailed both to left and right and so has a much higher levels of skewness *(Chart 4.)*. This is also apparent from the skewness value of 0.637 *(Table 3.)* that is much lower compared with the same value of 1.956.
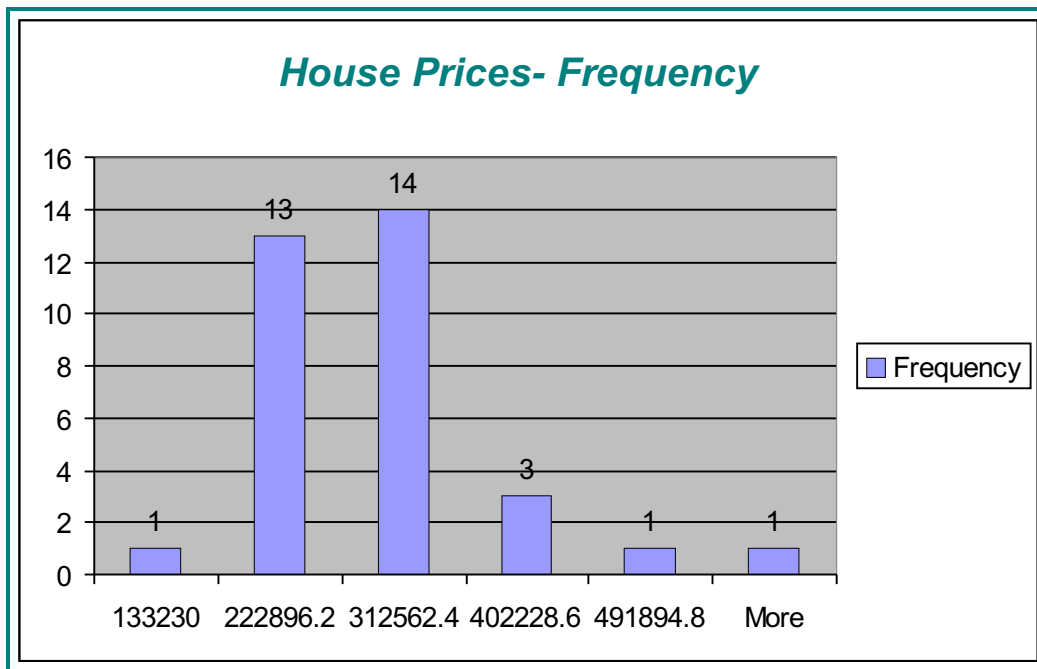
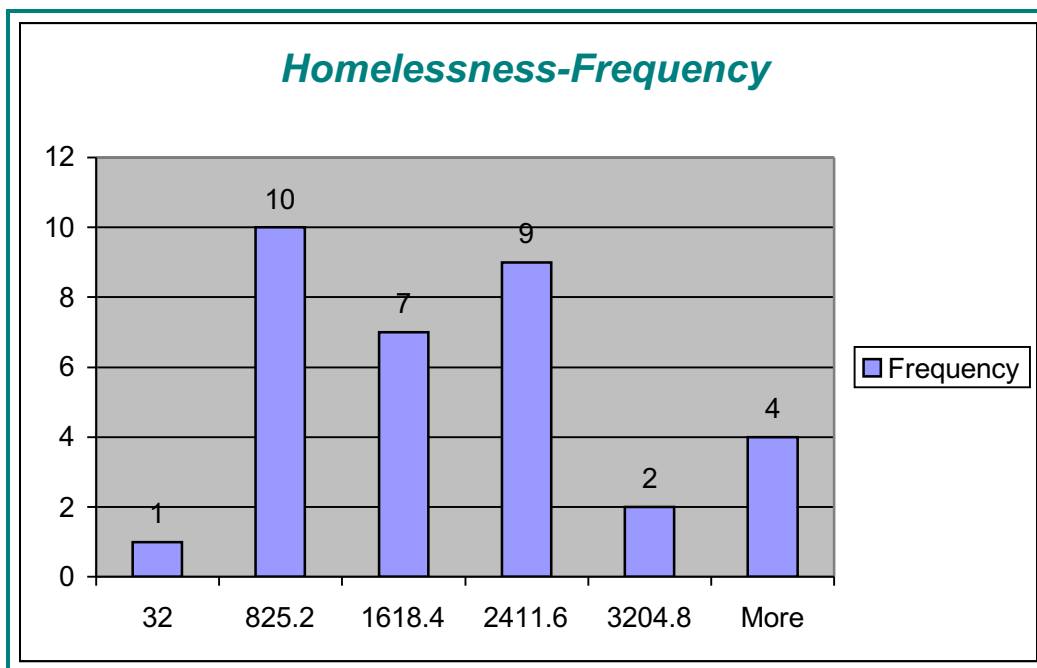**Chart 3.** Histogram of House Prices

Chart 4. Histogram of Homelessness

Null Hypothesis- Describing the Relationship- The Strength of Correlation

I went on trying to find a link between house prices and homelessness using inferential statistics. My null hypothesis was that there is no relationship between the levels of house prices and homelessness. If any, then the strength of this could be tested, and my hypothesis rejected. I felt it would probably be a "long shot " finding any kind of a link, as the factors of my dependent variable were so complicated. In *Table 4.* the regression statistics results are displayed. The key statistical measure to assess the strength of a correlation relationship is called the Product Moment Correlation Coefficient (' r '), it takes into account the amount by which each value differs from the mean of its own distribution, the standard deviation of the two distributions, and the number of pairs of values. If r were zero, there would be no correlation at all. The closer the correlation coefficient gets to +1 or -1 the stronger the correlation. The closer it gets to zero the weaker it is. A very low figure of the Multiple R value is equivalent to Product Moment Correlation Coefficient, which suggest a very weak, almost negligible relationship between the 2 variables. R-square in the second row of *Table 4*. represents the proportion of the variation in homelessness that is being explained by variation in the independent variable, house prices. In other words approximately 0.00009% of homelessness is caused by higher house prices in certain areas of London. Again a very tiny amount. The P-value for the X Variable is quite the opposite; it is a very high figure. Because this is the value indicating the probability of being wrong in rejecting my null-hypothesis, I could I argue that there is no relationship between higher numbers of homeless people and higher house prices.

Regression Statistics				
Multiple R				0.009609073
R Square				9.23343E-05
Adjusted R Square				-0.032162752
Standard Error				1099.692248
Observations				33
	Coefficients	Standard Error	t Stat	P-value
Intercept	1575.751812	557.1424559	2.828275	0.008130607
X Variable 1	-0.00011309	0.002113686	-0.0535	0.957674038

Table 4. Regression Analysis

Table 5. shows the residual values for each borough. Haringey, Newham and Brent stand out with very large positive value meanwhile City of London, Merton and Bexley has huge negative values. In the latter three boroughs homelessness was much lower than expected, in the case of City of London, the reasons for this are pretty obvious. Firstly it is the smallest borough and

has the lowest population. Therefore it has the lowest numbers of accommodation in "normal" housing, and so, much less chance for a household to become homeless. It is also the financial district of London and its image is important in economic terms so one would expect the local council to receive special instructions and finances from central government with regards to its homelessness and housing policies. At the other end of the spectrum, in Haringey, homelessness is much higher than expected. This is not a huge surprise as it ranks as one of the most deprived boroughs in the country, with 8.1 per cent of the population unemployed in January 2001, double the national average. Almost half of its 223,700 people come from ethnic minority backgrounds, which is probably part of the reason for the high number of homeless.

Observation	Predicted Y	Residuals
Barking and Dagenham	1560.684881	-824.6848813
Barnet	1546.972878	563.0271223
Bexley	1557.288121	-1327.288121
Brent	1549.992823	1948.007177
Bromley	1550.189147	-1034.189147
Camden	1530.554413	370.4455868
City of London	1540.880627	-1508.880627
Westminster	1524.926169	1098.073831
Croydon	1555.087963	1707.912037
Ealing	1548.778806	430.2211941
Enfield	1553.826335	929.173665
Greenwich	1555.286435	-1287.286435
Hackney	1551.289282	733.7107176
Hammersmith and Fulham	1536.758058	63.24194244
Haringey	1548.735379	2449.264621
Harrow	1549.062208	74.93779151
Havering	1556.129518	-1242.129518
Hillingdon	1553.501429	291.4985715
Hounslow	1551.016736	-465.0167364
Islington	1541.645226	-177.6452256
Kensington and Chelsea	1509.983298	-541.9832978
Kingston upon Thames	1548.321019	-833.3210191
Lambeth	1548.252713	472.747287
Lewisham	1556.511648	-313.5116481
Merton	1547.983786	-1372.983786
Newham	1557.650913	2256.349087
Redbridge	1553.130381	283.8696185
Richmond upon Thames	1537.62489	-1012.62489
Southwark	1550.427426	-781.4274264
Sutton	1554.635717	-1126.635717
Tower Hamlets	1549.5857	802.4142997
Waltham Forest	1556.496155	-524.4961548
Wandsworth	1542.789919	-100.7899188

Table 5. Residual Values- Highlighted in red is the highest values while lowest are in blue.

Meaning of the Results

A scatter-chart visualisation then helped me further to become absolutely aware of the no-relationship theory being right. *Chart 5.* indicates this clearly especially when the linear trend-line was inserted.
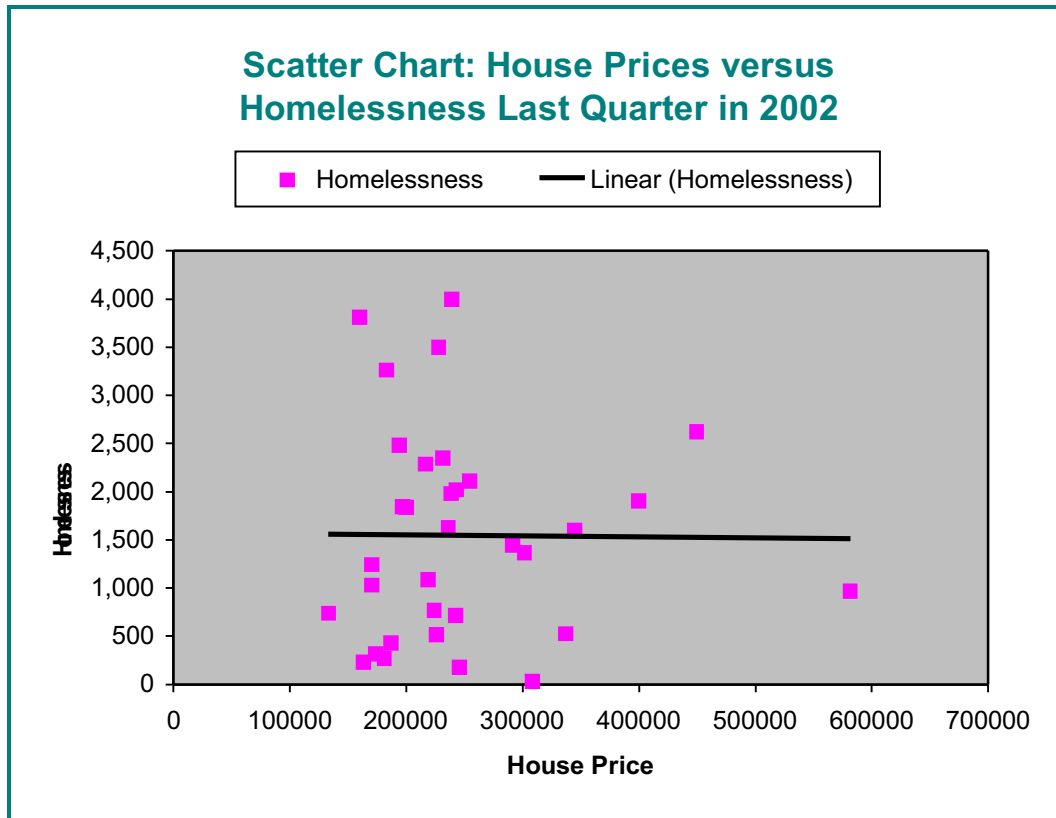

Chart 5. Scatter Diagram

Conclusion

Due to the nature of the project with its time and resource limitations, it is only a snapshot and I could hardly give a real and meaningful account about the link between house prices and homelessness. Firstly I had to pick out one particular quarter of one particular year, which in itself limits any other periods to be accounted for and therefore seriously affecting the end result. So my samples here were not truly representative of the population. It would have been very useful to compare growth rates of house prices versus growth rates of homelessness over a long period of time, such as a decade.

Finding house prices growth rates would have been easy as they are readily available and have a reliable source. However extracting the same data for the dependent variable is almost impossible and even if it were done it would be distorted. The main reason for this is how much the legislation changes affected data recording over the decades. There is also of course the issue of population growth in London, which would obviously have an effect on the number of homeless as the pressure on housing had been growing. Not to mention the periodic influx of refugees during conflicts in Balkans and from other war-stricken all over the world. The number of households re-housed after being classed homeless also does not include many hidden-homeless, who squat, rough-sleep or go on sleeping in friends' houses for a considerable length of time. Homelessness has been showing a steady growing trend in London for the last decade and the same growing trend is obvious with regards to house prices. To link them up I would have needed over 30 pairs of values to apply regression analysis and give an accurate picture about how strong the link was. The lack of data and time meant that this was not feasible. I would have also preferred to have worked with the number of homeless people per 1000 head population per borough as it would have been a much more representative figure and real comparison between boroughs would have been possible. These were again not readily available and calculating the values out myself, would have taken a great deal of time. So limitations to such a task are in abundance one just needs to learn to over-look certain aspects of the study.

References

1. **http://www.centrepoint.org.uk/** Centrepoint charity
2. **http://www.crisis.org.uk/** Crisis is the national charity for solitary homeless people
3. **http://www.shelter.org.uk** Shelter is the UK campaigning charity for homeless and badly housed people.
4. **http://www.neighbourhood.statistics.gov.uk/**
5. **http://www.housing.odpm.gov.uk/statistics/** Office of the Deputy Prime Minister's web-site
6. **http://www.landreg.gov.uk** The Land Registry in England and Wales.
7. **http://www.bbk.ac.uk/geog/study/courses.html** School of Geography
8. **http://www.homelesslondon.org.uk/** Resource Information Service
9. **http://sticerd.lse.ac.uk/case/** The ESRC Research Centre for Analysis of Social Exclusion (CASE)