

DOES PARKING PROVISION AFFECT THE VITALITY OF HIGH STREETS IN LONDON?

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1 INTRODUCTION

Recent trends in national transport policy has seen a softening in attitudes to parking restrictions, for example, with the proposed return to minimum rather than maximum parking standards. The former DCLG Secretary of State, Eric Pickles observed that:

“We are ending the war on drivers who simply want to go about their daily business. For too long parking rules have made law-abiding motorists feel like criminals, and caused enormous damage to shops and businesses.”.....
“Over-zealous parking enforcement undermines our town centres and costs councils more in the long-term. Our measures not only bring big benefits for high streets, motorists and local authorities - they put common sense back into parking.”

On 6th March 2015, following consultation, DCLG and DfT introduced a new parking regulation that gives drivers a 10 minute grace period when parked in a pay-for-parking bay; and the user of CCTV ‘spy cars’ for enforcement has been banned in the majority of circumstances.

Apart from ‘righting a wrong’ in the eyes of Mr Pickles (who reported having once been given a PCN while he was walking back from the machine, for not displaying a parking ticket), widespread concern has been expressed by shopkeepers and some politicians that parking restrictions discourage shoppers from visiting traditional high streets and town centres. In particular, the Portas Review has highlighted the lack of parking as a contributory factor in high street decline - but without supporting empirical evidence.

Overall, the empirical evidence is weak and contradictory:

- While the Portas Review advocates free parking, Bates and Leibling (2012) found that these free spaces were in fact often taken up by shopkeepers and their staff, rather than by shoppers.
- A survey reported in Deloitte (2014) found that the five most important factors affecting destination choice were: free parking, choice of stores, independent stores, grocery specialist shops and parking spaces (in that order).
- Some academic research indicates that parking is not the dominant factor in town centre vitality (Marsden, 2006); and that more parking does not necessarily lead to greater economic success in town centres (Tyler et al., 2012).

- Studies show that retailers tend to underestimate the number and spend of customers who travel on foot and overestimate the contribution of car users (Sustrans, 2006).
- McDonald (2013) finds that towns with higher footfall have more parking spaces.

This paper sets out to partly fill this gap by examining the factors associated with high street vitality across London (measured in terms of vacancy rates), including the provision of parking spaces. The key hypothesis which is examined is that:

H: There is significant negative relationship between parking provision and high street vacancy rates

Section 2 first summarises the research methods used, the variables and the data, and introduces the case study sites. Section 3 presents the main analysis and section 4 looks in more detail at one case study. Some conclusions are drawn in section 5.

2 RESEARCH METHODS AND DATA

2.1 Overview of Research Methods

Figure 1 summarises the research methodology. The key dependent variable is the percentage of vacant units. This is a straightforward indicator of the well-being of a high street, and using a percentage rather than an absolute value controls for the effect of varying size and strategic significance (compared to absolute measures such as footfall or sales).

The variables that might account for differences in vacancy rates are grouped into three components: High Street Characteristics, Social and Economic Characteristics, and Transport Variables. Each group is considered in turn.

2.2 High Street Characteristics

Vacancy rates

The primary source of data on vacancy rates was kindly provided by the Local Data Company. Their data has been quoted by various studies including the Grimsby Review and by Mary Portas, in Portas (2014). In addition, four centres were included that were not in the database, by drawing on various reports by Westminster City Council and the London Town Centre Health Check Report 2013.

Data on vacancy rates can be expressed either in terms of units or floor space. In this study, vacancy rates have been calculated for units. Two vacancy rates are used as dependent variables:

- Retail vacancy rate and
- Total vacancy rate.

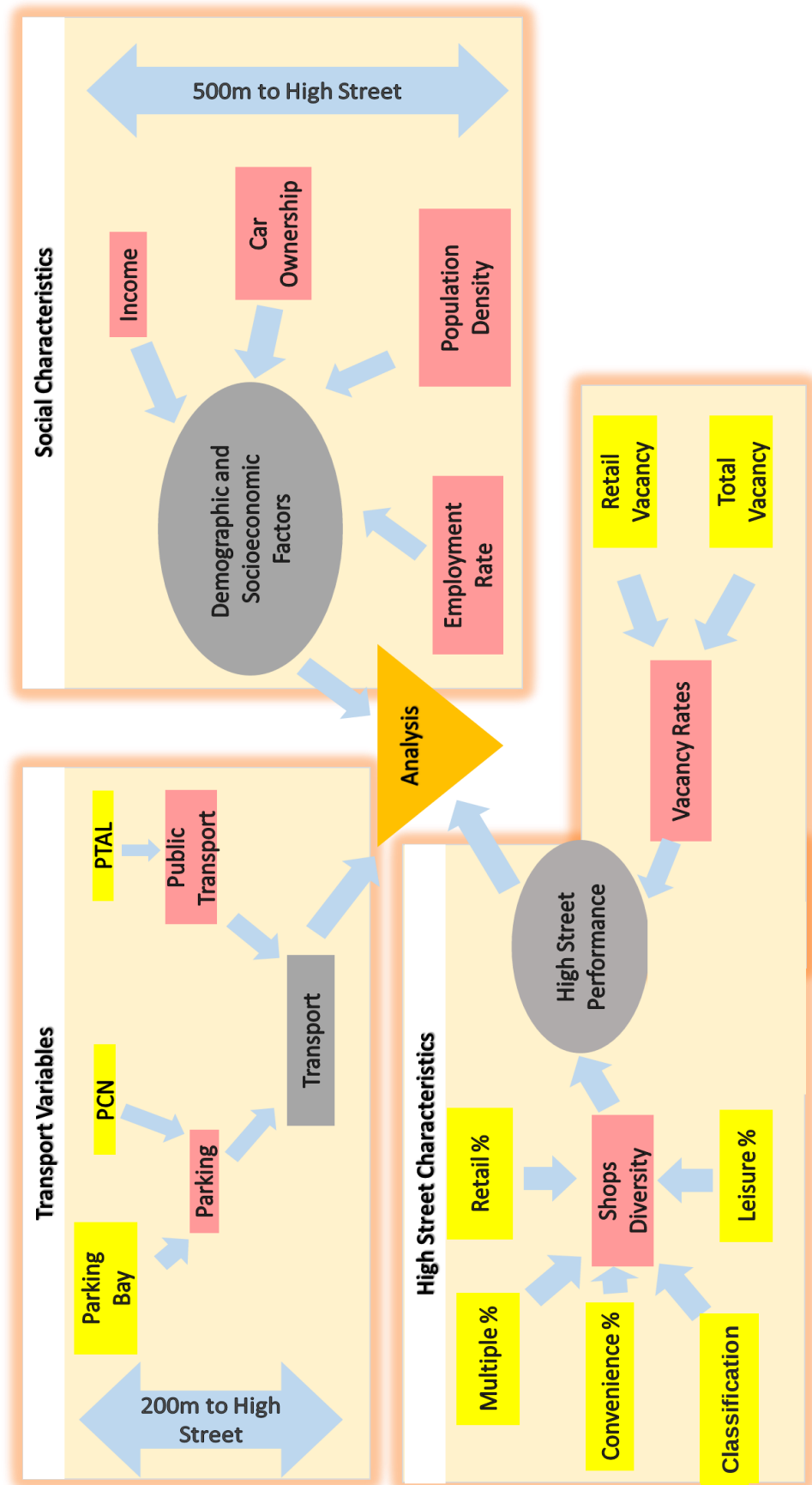


Figure 1. Research methodology

Note that there may be differences between the boundaries of the high street study areas in the different datasets, which this research has tried to minimise. There are two types of boundaries relevant to this study, in addition to the location of high street shops provided by the LDC database:

- Development Plan town centre boundaries, adopted from boroughs' development plans
- GLA town centre boundary proxies, developed by GLA

In this analysis, the average retail vacancy rates for the calendar year 2013 have been used. They may have been collected at different times of the year, but are broadly comparable.

High street size

Two variables that define the size of the high street are:

- Retail units and
- Total units.

High street diversity

Diversity is measured in terms of the proportion of four types of outlets to be found at each site, namely

- Percentage Leisure Units
- Percentage Retail Units
- Percentage Multiple Shops
- Percentage Convenience Shops

High street classification

In recognition that larger, strategically significant high streets, may be disproportionately attractive to shoppers, a dummy variable is added for these centres. This definition comes from the London Town Centre Health Check Report 2013.

2.3 Social and Economic Characteristics

Output areas

There are three levels of output areas used in this part of the analysis (from the smallest to the largest), comprising Output Areas (OA), Lower Layer Super Output Areas (LSOA) and Middle Layer Super Output Areas (MSOA).

Four socio-economic explanatory variables have been used: employment rate, income, car ownership and population density. In this analysis the Census of Population 2011 for England Wales has been used. On average, each shopping catchment area contains up to 30 Super Output Areas.

Employment rate

This is sourced from Census map 2.1 'Economic Activity: Employee 16-74 population (%)' at LSOA level.

Income

Income is detailed at the MSOA level from the Census 2011 Small Area Income Estimates. The Estimated Average Weekly Household Income (Equivalent after Housing Costs) for 2007/2008 is selected.

Car ownership

Car ownership data comes from 2011 Census, using information on the percentage households with no/one/two/three/four or more cars or vans. From this is derived the variable 'Percentage of car-owning households'. It is provided as detailed at LSOA level.

Population density

Population density is sourced from Census 2011 at LSOA level.

2.4 Transport

PTALs

Accessibility is one of the town centre health check indicators. It measures the local provision of tube, bus, metro, tram and rail services in proximity to the high street shops. In this study the accessibility measurement which has been used is PTALs (Public Transport Accessibility Levels).

A point in the centre of each of the case study high streets is selected and the PTAL Start Point Selector calculates and generate a summary report which sums up accessibility scores for each type of public transport provided within easy reach from the Start Point. An AI (Accessibility Index) Score is then calculated, and may be categorised into 1-6 levels, 6 is the most accessible.

Parking

Two measures of parking provision have been used in this study:

- a) **Level of parking provision.** Defined as the number of parking spaces (on and off street) within approximately 200m of each case study high street. This information is not always readily available and so the information was either estimated from Google Maps, or (in the case of Westminster and Lambeth) provided by local council. Where Google was used, the kerb length of parking provision was estimated using Google satellite view and then converted into notional spaces using 5 metres as the standard length for a single space (Bates & Leibling, 2012). So, in Figure 2, the length of 35.5m is recorded as five parking spaces.



Figure 2. Google Map Satellite View taken on 30 August 2014

Note that sections of kerb reserved for residents parking only (as identified via Google street view) were excluded from the count.

- b) **Pressure on parking provision.** The number of parking-related PCNs (Parking Control Notices) in the vicinity of each case study high street was obtained from the relevant local authority; 16 councils were approached across Greater London, from which 10 replied with information on the number of PCNs at the level of detail required. This determined how many high streets could be included in the study (see section 2.5).

An enforcement rate was estimated, as:

$$\text{Enforcement Rate} = \frac{\text{Number of PCNs}}{\text{Number of Parking Spaces}}$$

2.5 High Street Selection

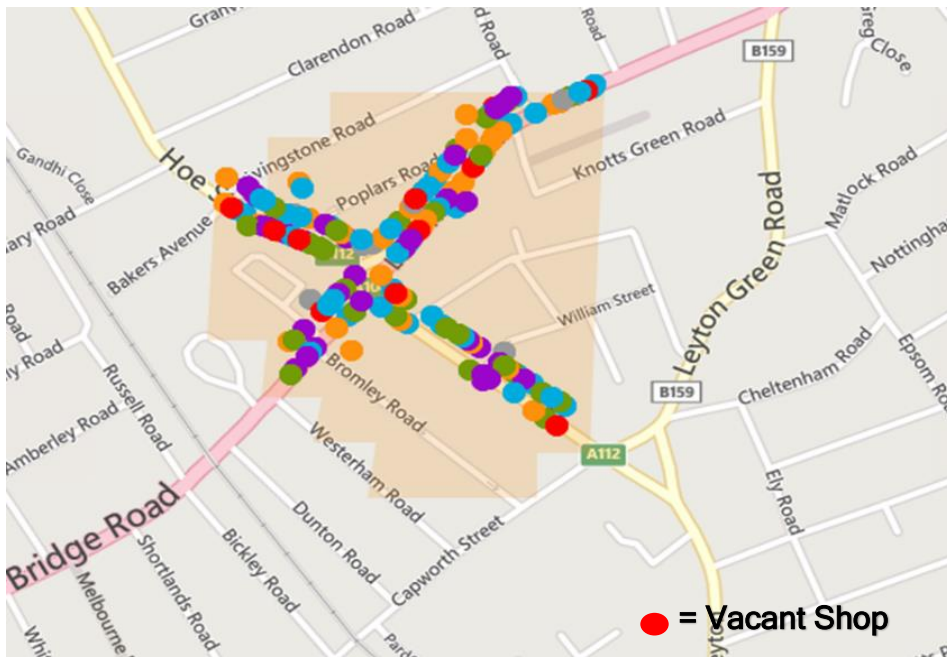
Case study sites

30 sites were finally used for data analysis. This is less than had been hoped, and unfortunately limits the statistical significance of the data analysis. The sample includes four Major high streets; the others are either District high streets or unclassified. They cover parts of Central, Inner and Outer London. The list of case study high streets is shown in Table 1.

Bakers Arms	Harrow Road
Chingford	Balaam Street, Plaistow
Chingford Mount	East Ham
Leytonstone	Forest Gate
Walthamstow	Upton Park
Crouch End	Brixton
Green Lanes, Harringay	West Norwood
High Road, Tottenham	Balham
Tottenham	Battersea
Dalston	Clapham Junction
Hackney	Putney
Stoke Newington	Southfields
Praed Street/Paddington	St. John's Hill, Battersea
Edgware Road/Church Street	Upper Tooting
St John's Wood	Harlesden

Table 1. Case study High Streets

The spatial extent of each high street was determined by plotting the precise location of each of the premises using data provided by the Local Data Company, as shown in Figure 3, and then drawing an envelope around the outer edge of the area.



Then two catchment areas were defined around each high street (see Figure 4):

- 200m: used as the area for measuring on and off street parking provision and quality of public transport services, and
- 500m: defined as the local catchment area for residents, and the use of the Census of Population data.



3 DATA ANALYSIS

3.1 Retail Vacancy Rates

Figure 5 shows the annual retail vacancy rates across the 26 high streets used in the study where data was provided by the Local Data Company (excluding Praed Street/ Paddington, Edgware Road/ Church Street, Harrow Road and St. John's Wood) for the years 2009-2013. It was not possible to look at trends for total vacancy rates, as this information has only been collected since 2013.

The average vacancy rate across the 26 sites peaked in 2010 to 2011 and decreased afterwards until falling below the average of 2009 in 2013. The rates are 8.40%, 9.49%, 9.58%, 8.87% and 8.03% for the years from 2009 to 2013 respectively. These average rates are produced by adjusting with respect to the up-to-date number of retail units. The worst performing high streets in terms of retail vacancy rates over this period have been: Tottenham High Road, Chingford Mount, Battersea, Brixton and Balaam Street.

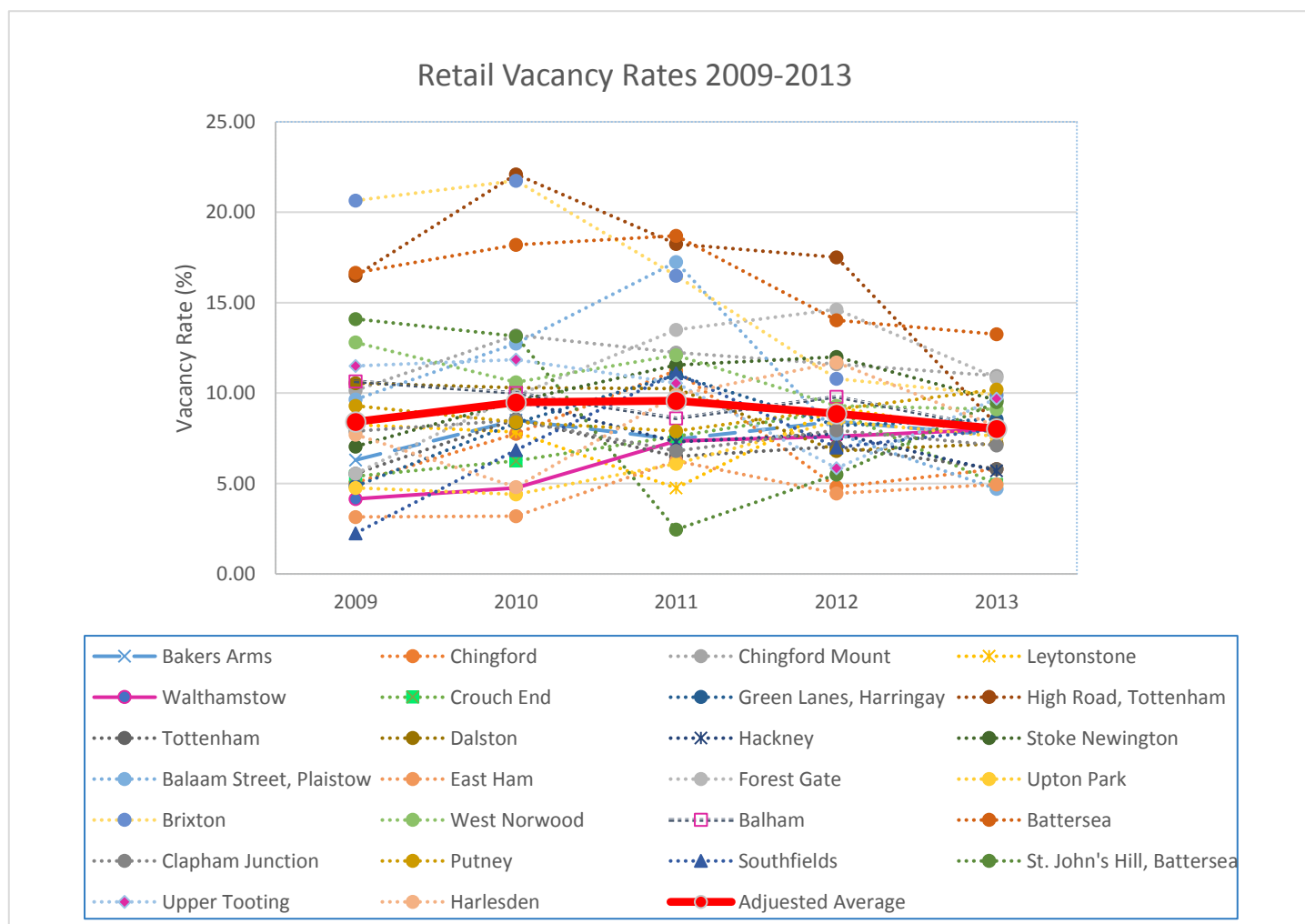


Figure 5. Annual retail vacancy rates for 26 high streets
Source: Local data Company

3.2 Correlations between Pairs of Explanatory and Response Variables

First of all, a simple correlation analysis is presented in Table 2 between each pair of variables. Some of the most significant results include:

- Not surprisingly, parking availability is positively related to the size of the high street (coefficient: retail units 0.475, total units 0.491); and more parking-related PCNs are issued on and around the bigger high streets and those with a higher proportion of retail shops. Size also correlates positively with the PTAL scores.
- Parking provision is negatively correlated with presence of convenience types of shops (-0.448), where it is likely that most customers are local residents who are able to access the stores on foot or by cycle.
- There is a smaller percentage of convenience shops in areas with lower income (-0.370), which might suggest that such shops rely more on higher income groups to survive against larger competitors.
- Interestingly, employment rates among residents are also positively related to the size of the local high street, whether measured in retail units or total units. This might suggest that employed people prefer to live close to major high streets (and help to sustain/expand them), or that high streets provide more job opportunities for local residents and hence drive up the local employment rate.
- Car ownership is lower in areas with better provision of public transport (despite higher levels of employment); these areas tend to have a higher residential density, and a higher rate of PCNs being issued.
- There is no apparent correlation between vacancy rates and parking provision or rates of PCNs.

3.3 A Closer Examination of the Influence of Parking Provision

The second part of the analysis controls for statistical effects of the potential confounding variables listed below, to investigate solely the influence of parking provision on vacancy rates, taking into account:

- Density
- Dummy variables for classifications
- Convenience %
- Leisure %
- Multiple Shops %
- Total Units
- Retail %
- Number of PCNs
- PTAL score
- Car Ownership
- Employment Rate %
- Income Equivalent after Housing

Correlations																		
	Classification	Convenience %	Leisure %	Retail Vacancy Rate	Total Vacancy Rate	Multiple Shops %	Retail Units	Retail %	Total Units	# PCN	PTAL Score	Car Ownership	Total Parking	Employment Rate (%)	Income Eqv. After Housing (?)	Enforcement rate	Space per (total) unit	Density
	Classification	1																
	Convenience %	-0.313	1															
	Leisure %	0.103	-0.371	1														
	Retail Vacancy Rate	-0.18	0.072	0.346	1													
	Total Vacancy Rate	-0.03	0.112	0.216	0.547	1												
	Multiple Shops %	0.35	-0.102	-0.199	-0.278	-0.09	1											
	Retail Units	0.835	-0.291	0.07	-0.218	0.027	0.298	1										
	Retail %	0.102	0.174	-0.571***	-0.537	0.127	0.17	0.17	1									
	Total Units	0.831	-0.315	0.139	-0.151	0.019	0.294	0.991	0.046	1								
	# PCN	0.417	-0.175	-0.112	-0.091	-0.044	0.144	0.521	0.141	0.505	1							
	PTAL Score	0.509	-0.194	0.166	0.033	-0.204	0.101	0.477	-0.305	0.534	0.32	1						
	Car Ownership	-0.13	0.149	-0.215	0	0.199	0.073	-0.156	0.279	-0.189	-0.406**	-0.416	1					
	Total Parking	0.388	-0.448	0.29	-0.083	0.053	0.346	0.475	0.01	0.491	0.194	0.315	-0.21					
	Employment Rate (%)	0.269	-0.291	-0.111	-0.145	0.043	0.26	0.461	0.175	0.457	0.221	0.301	0.091	0.111	1			
	Income Eqv. After Housing (?)	0.002	-0.37	0.033	0.183	0.05	0.165	0.021	-0.249	0.074	-0.103	0.295	-0.098	0.074	0.365	1		
	Enforcement rate	-0.107	0.124	0.07	-0.2	-0.148	-0.231	-0.151	-0.027	-0.152	0.1	-0.06	-0.219	-0.387	0.061	-0.241	1	
	Space per (total) unit	-0.104	-0.233	0.244	0.109	0.212	0.133	-0.172	0.027	-0.174	-0.096	-0.02	-0.158	0.654	-0.27	0.055	-0.403	1
	Density	0.161	-0.088	-0.168	-0.007	-0.228	-0.105	0.176	0.029	0.18	0.443	0.363	-0.338	0.239	-0.021	-0.026	0.115	0.124
Correlation is significant at the 0.01 level (2-tailed). Correlation is significant at the 0.05 level (2-tailed). Correlation is significant at the 0.10 level (or close to) (2-tailed).																		

Table 2. Correlation between Explanatory and Dependent Variables

Table 3 shows the partial correlations between (i) enforcement rates and (ii) rate of parking provision against vacancy rates.

Result of Partial Correlation		Retail 2013 Avg. Vacancy Rate	2013 All Avg. Vacancy Rate
Enforcement Rate	Correlation	-0.426	-0.214
	Significance (2-tailed)	0.078	0.393
Parking Space/ Total Unit	Correlation	0.338	0.379
	Significance (2-tailed)	0.17	0.121

Table 3. Partial correlations between vacancy rates and enforcement rate and rate of parking provision

Neither of the vacancy rates is strongly significantly correlated with either parking variable. There is a very weak positive relationship between the relative amount of parking provision and the vacancy rate, suggesting that more parking is associated with a weaker high street.

Similarly, surprisingly, the rate of issuing of PCNs is negatively correlated with the retail vacancy rate, at a significance level of 7.8%. The implication is that high streets with less vacant shops tend to have more PCNs issued. This suggests that on more successful high streets there is more demand for parking spaces than is provided [but not on less successful ones] - but it does not prevent them being 'successful' overall.

3.4 Factors Affecting Vacancy Rates

This section using regression analyses to look directly at the factors which seem to relate to differences in vacancy rates, first overall and then just for retail units. In both cases, the explanatory variables are limited to:

- % retail
- Income
- Total units
- PTAL score
- Enforcement rate
- Parking spaces per (total) unit, and
- Density

Total vacancy rates

A linear regression was conducted on explanatory variables against total vacancy rate. None of the variables came close to being significant (including parking provision and PCN enforcement rate), so the results are not presented in this paper.

Retail vacancy rates

Here two analyses are presented. The first regression includes percentage retail units, total units, PTAL score, income, enforcement rate, parking spaces per (total) unit and density. As seen in Table 4, only the percentage of retail units is statistically significant and shows that the higher proportion of retail in the high street, the lower the retail vacancy rate.

Regression Statistics					
Multiple R	0.614492				
R Square	0.3776				
Adjusted R Square	0.179563				
Standard Error	2.585962				
Observations	30				
ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	
Regression	7	89.25429	12.75061	1.90672	
Residual	22	147.1184	6.687198		
Total	29	236.3726			
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	
Intercept	25.5343	5.970975	4.276404	0.000307	
Retail %	-22.5638	7.288799	-3.09569	0.005278	
Total Units	-0.00224	0.004589	-0.48876	0.629847	
PTAL Score	-0.03302	0.051099	-0.64621	0.524827	
Income Eqv. after Housing (£)	0.000679	0.003593	0.188957	0.851859	
Enforcement rate	-0.01885	0.015047	-1.25269	0.22347	
Space per (total) unit	-0.00603	0.080389	-0.07501	0.940882	
Density	0.006901	0.011247	0.613571	0.545791	

Table 4. 1st Linear Regression of Explanatory Variables against Retail Vacancy Rates

In the second regression, the retail vacancy rate is related to just three explanatory variables: the percentage of leisure units, total number of parking spaces and the PCN enforcement rate. Table 5 shows the results, with significance levels being much higher.

What this suggests is that retail vacancy rates are:

- Higher in high streets with a greater percentage of leisure units - perhaps reflecting their lack of attractiveness to retailers?
- Lower in cases where parking provision is less and enforcement rates are higher - suggesting sites that attract shoppers.

Regression Statistics				
Multiple R	0.52079			
R Square	0.271222			
Adjusted R Square	0.187132			
Standard Error	2.574006			
Observations	30			
ANOVA				
	df	SS	MS	F
Regression	3	64.10948	21.36983	3.225388
Residual	26	172.2632	6.625506	
Total	29	236.3726		
	Coefficients	Standard Error	t Stat	P-value
Intercept	4.83966	2.050435	2.360309	0.026042
Leisure %	26.34797	9.841047	2.677354	0.012683
Total Parking	-0.00075	0.000395	-1.90007	0.068569
Enforcement rate	-0.02811	0.013878	-2.02561	0.053182

Table 5. Simplified Linear Regression of Explanatory Variables against Retail Vacancy Rates

A comparison between the observed retail vacancy rates and an estimate of the expected outcomes using the model in Table 5 is shown in Figure 6.

As can be seen, there are four outliers (i.e. high streets where the observed and expected values diverge by more than 3 percentage points:

- Praed Street Paddington and Harrow Road both have higher vacancy rates than forecast, while
- Chingford and Hackney have lower retail vacancy rates than forecast

The former might, in part, be due to the effect of the A40 Westway and the Regents Canal on restricting the local pedestrian networks.

4 CASE STUDY - DALSTON

To give a more detailed flavour of the case study sites and the types of data used in the analysis reported in this paper, this section provides an overview of the Dalston high street case study.

The study area of Dalston is a narrow corridor running mostly north-south (see Figure 7). From the south, it runs from the north section of Kingsland Road, then Kingsland High Street and on through to the southeast of Stoke Newington Road; east-west bound, it runs from Dalston Lane to Balls Pond Road.

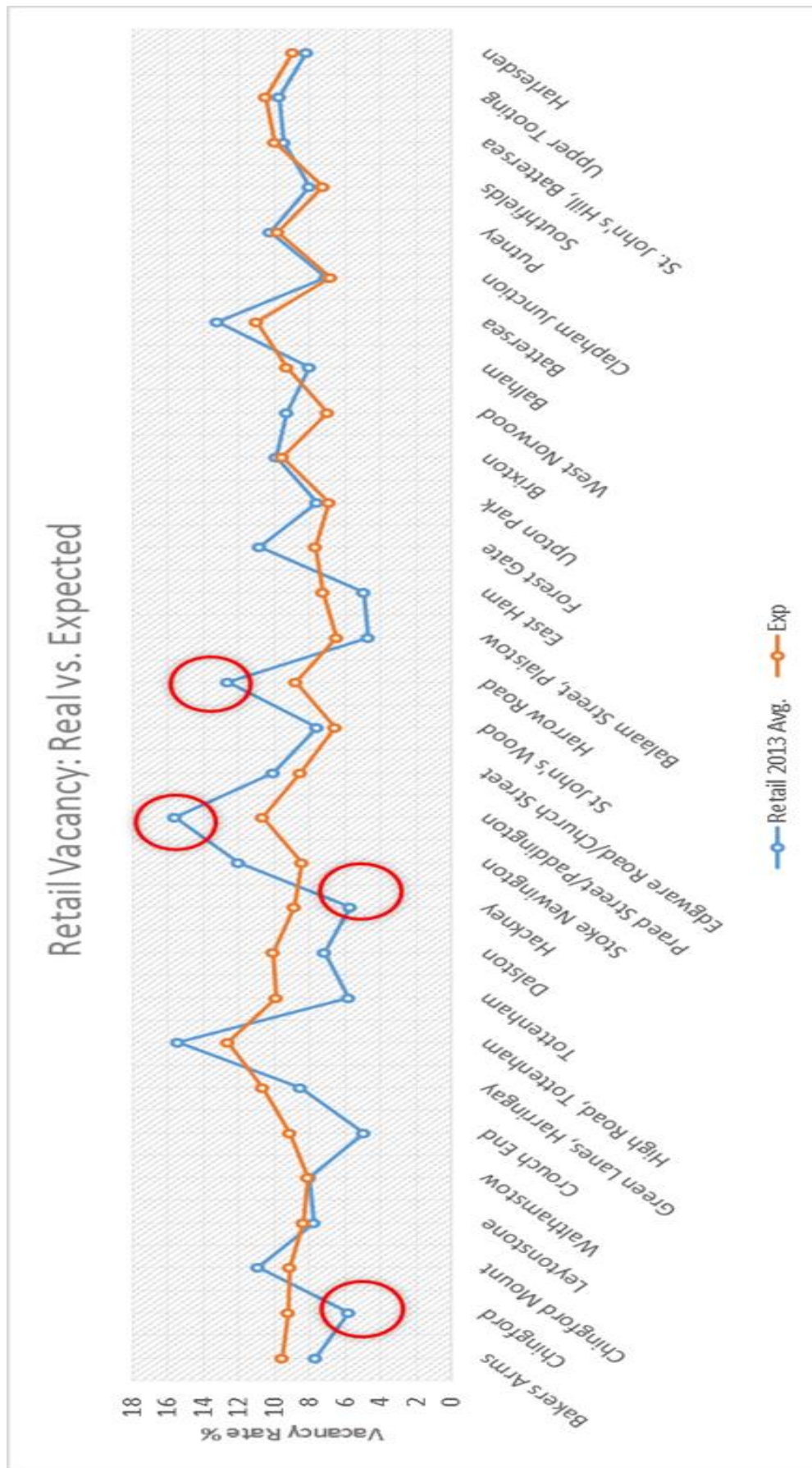


Figure 6. A comparison of observed and forecast retail vacancy rates

This area is managed by the Hackney Council. It is known to be a vibrant and trendy area. It is characterised by its Vietnamese dining scene, independent shops and well-known nightlife.

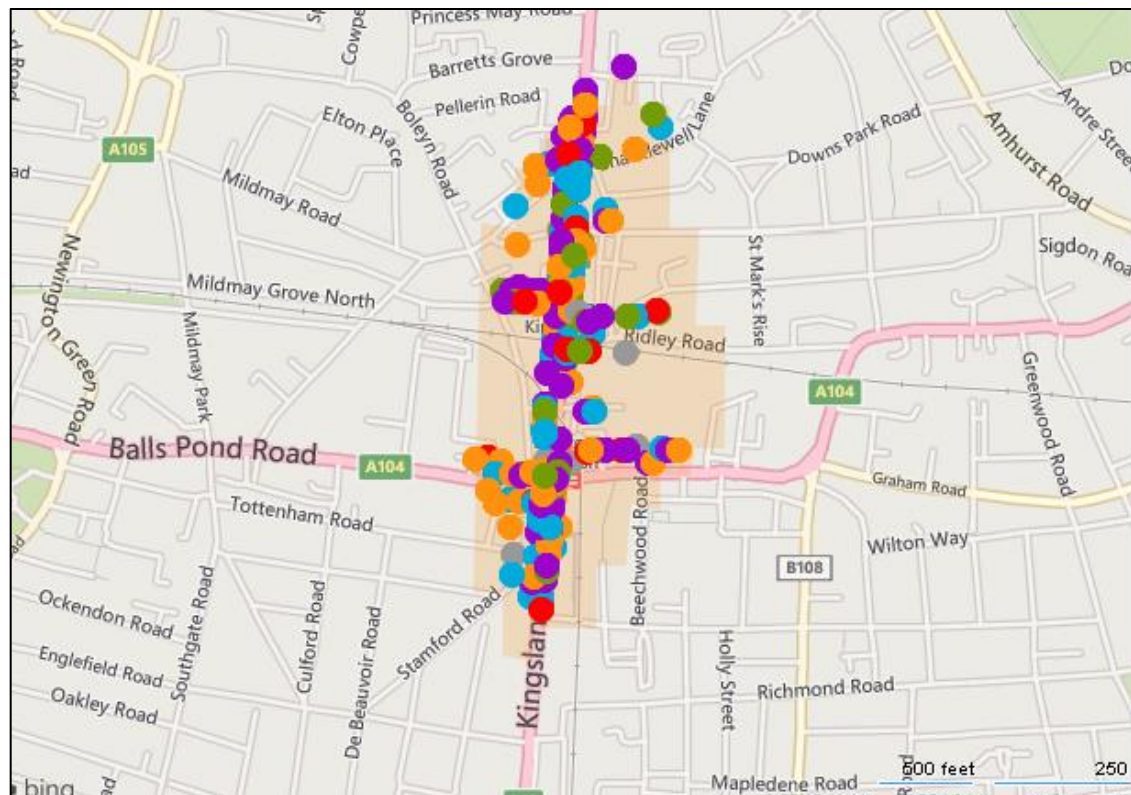


Figure 7. Commercial units in the Dalston area

The study area consists of 315 units in total - including 215 in retail and 84 in leisure respectively (July 2013, varies between surveys at different points of time). In terms of vacancy rates, this area out performs many London competitors. Its leisure vacancy rates in July 2013 (LDC) is reported to be 2.5%, with retail vacancy rates of 6.0% and overall 5.1%. In the meantime, the rental values of its primary commercial zone is only lower than some of the most central areas.

In terms of the local population characteristics, the employment rate and income level has been relatively low historically, although has improved in the recent years due to an influx of younger and wealthier people.

It is served by several high quality transport links, including buses feeding to all parts of London and the Overground stations of Dalston Junction and Dalston Kingsland. In the future, the opening of Crossrail 2 will enable an even more significant improvement of public transport accessibility to the population from South and North East London. Its PTAL Access Index is at a moderate level for such centres in London (with an overall score of 39), due to the lack of local underground stations.

It is provided with substantial on-street parking spaces in the vicinity of the high street (see Figure 8), consisting of a mix of Resident Permit Holders Bay (shaded in green) and supplemented by Shared Use Bay (Permit/4 h max stay Pay & Display). Other types of parking provided are: Car Club Bay, Cycle Stand, Disabled Bay, Doctors Bay, Loading Bay, Motorcycle Bay, Permit Holders Bay (Business/ Resident), Shared Use Bay (Permit/10 h max stay Pay & Display).

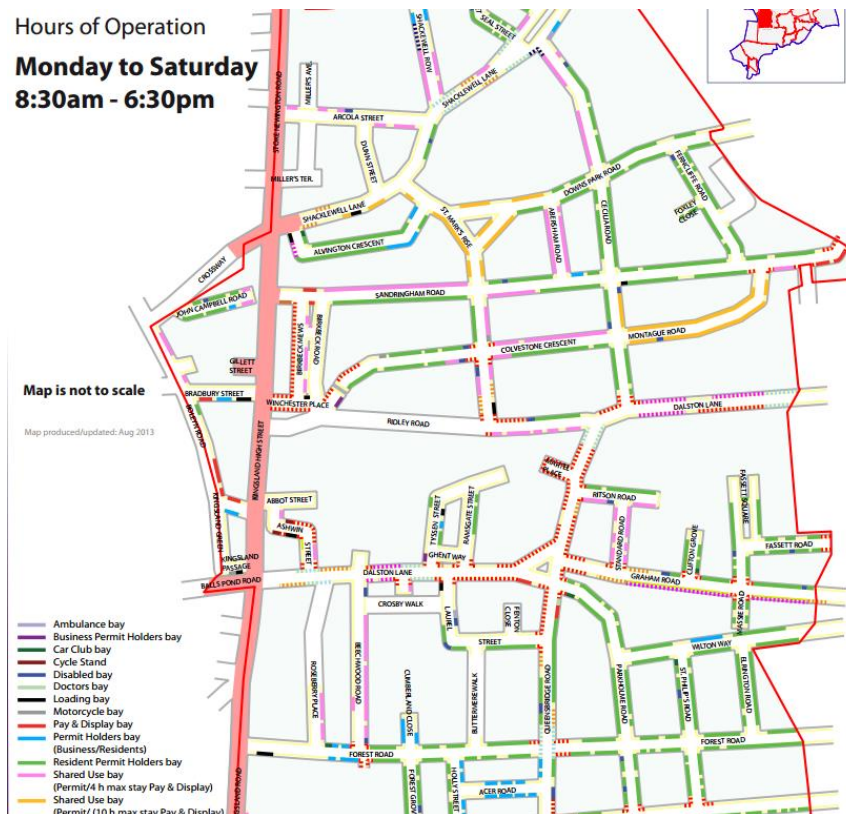


Figure 8. Local on-street parking provision

Accordingly to the ONS 2011 Census ('A Profile of Hackney, its People and Place'), less than 15% of Hackney residents travel to work by car and the proportion of cycling to employment ranks the highest in London.

The observed vacancy rate of Dalston Lane is lower than the predicted vacancy rates resulted by the regression model.

5 CONCLUSIONS

This study reviewed the existing academic and grey literature on high street performance and parking policies. It identified a lack of evidence on the relationships between parking provision and high street vitality, despite increasing political, business and community concerns about these issues.

The study then set out to remedy, in part, this deficiency by examining a number of high streets in the Greater London area. The limited sample size has constrained the statistical significance of the findings, but there are no

indications among this London sample of high streets, that limited parking supply is depressing the vitality of the streets. To the contrary, high streets with lower retail vacancy rates tend to have less parking provision and higher rates of PCNs - suggesting a suppressed demand for parking, but not one which is damaging the centre.

Of course, London may well be a special case, with generally low levels of car ownership, relatively high incomes, local authority investment in public realm, large population catchment areas, good public transport provision and limited competition from out-of-town shopping areas. Were this study to be replicated outside London, the conclusions might be very different.

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