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Abstract

In contrast to London's image as a global city and its position as the most affluent region in Europe, the formally established empirical evidence assembled in this paper suggests that spatial inequality in the capital is a key economic and social problem that is unlikely to be resolved by the prevailing localism doctrine of the 'big society'. Isolated from an initial and non-discriminate England-wide clustering analysis of 73 Audit Commission-defined quality of life indicators, the results of our study reveal that pivotal to London's prevailing quality of life distribution is the influence of deprivation, health and educational inequalities, all of which are masked at a pure 'inner' and 'outer' London comparison, capable only of distinguishing the city's borough-level transport and community safety diversity. The policy implications of our study are duly considered and several methodological insights are advanced for future research.

Keywords

Sustainable quality of life, global city, London, clustering analysis, spatial diversity

Introduction

Although London is able to deliver significant economic and cultural opportunities through its role as a centre of headquarter locations for advanced producer services, as well as providing other political and business possibilities (Sassen, 1991; Taylor et al., 2010), its quality of living experience has, until recently, been largely sidelined in the capital's spatial development strategising, despite the city being home to a population of approximately 8 million people. The watershed occurred in October 2009 when London Mayor¹ Boris Johnson placed sustainable quality of life (QOL) at the heart of the draft replacement London Plan, the Greater London Authority

(GLA)'s strategic planning document (GLA, 2009a). Accordingly, visions of inevitable growth and global cities contestation have been downplayed in the city's overall planning prioritisation in favour of QOL, 'place-making' and the promise of more autonomy for the boroughs (Gordon and Travers, 2010). The overarching aim of Mayor Johnson's prevailing plan

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for the city is designed to ensure that all Londoners can enjoy a good, improving and sustainable QOL now, over the period to 2031 and into the future:

The quality of life that Londoners experience when living, working, visiting and moving around London is fundamental to how they feel about the city – and to how the capital is perceived from outside. The decisions we make about our city now will shape the quality of life of those who come after us and their view of how successful we have been in our stewardship of the city. This is a fundamental theme that runs through all the chapters and policies of this Plan.

(GLA, 2009a: 27).

However, despite the more humble connotations associated with the deployment of the QOL concept as an organising principle for London's spatial development strategy, this paper argues that its 'strong' sustainability formation could form part of an even less viable proposition than the more flamboyant 'global city' soundings of its predecessor. One reason for expressing this view relates to the sharp methodological differences that exist between the 'QOL' and 'global city' concepts, which have formed the two major approaches to the GLA's strategic planning prioritisation since it was established in 2000 (Holman, 2010). At the heart of the distinction is the fact that whereas global cities studies tend to be built on extending the characteristics of only parts of cities to the whole city, and specifically by generalising 'the successful locales of high finance and corporate city life' to the broader population (Robinson, 2002: 540), QOL studies tend to involve seeing localities through the far more numerous eyes of their day-to-day residents (Leitmann, 1999). Perrons' (2012) regional development analysis of the UK lends strong empirical support to this methodological distinction by revealing that London's superior gross value-added per capita performance does not translate into a similarly high level of overall well-being. Instead, London is characterised less as a successful region and more as a region where prosperous people and firms reside in the context of high levels of interpersonal inequality (Perrons, 2012).

At the level of individual indicator conceptualisation, what the shift in London's planning emphasis to

a QOL orientation could mean in the case of, say, the reportage of economic conditions is that prioritisation is given to such collectivist residential conditions as 'the percentage of the working-age population that is in employment (+)' and 'the proportion of the population living in the most deprived super output areas in the country (-)'. This, then, involves a different set of evaluation preferences than those reserved for ascertaining global city status, such as the presence of global accounting or law firms (Taylor et al. 2010) or the value of a city's capital markets and the number of Fortune Global 500 firms headquartered there (Foreign Policy, 2010). In essence, while QOL and global cities studies both tend to measure the dynamics of economic forces as part of their broader consideration, they do so from quite different perspectives and with distinct frameworks of accountability in mind.

The results of Mercer's (2010) 39-factor 'Quality of Living Survey' deployed amongst 420 cities worldwide helps to illuminate the magnitude of this methodological distinction by revealing that London fails to reinforce its otherwise eminent global economic and business prowess (usually second only to New York) by taking a more reticent 39th position on the global QOL ladder. The top five positions on the Mercer (2010) study are instead taken by Vienna, Zurich, Geneva, Vancouver and Auckland, none of which, incidentally, simultaneously breaks into the top 10 of any major global cities ranking. However, as per much of the extant global cities research (Foreign Policy, 2010; Knight Frank, 2010; Sassen, 1991; Taylor et al., 2010), average figures account for only part of the situation, and what matters in the context of the Mayor's spatial development planning is the need to tackle the prevailing inequalities across London – an agenda which could gain heightened urgency in the light of the spate of riots in the summer of 2011 throughout the city and other parts of the country more generally. As the Mayor's foreword to the draft replacement London Plan (GLA, 2009a: 6–7) prognosticates: 'We need to bridge the gap between rich and poor, to fight illiteracy and youthful poverty of ambition – not just because they are evil in themselves, but because they lead to the criminal disorder that affects everyone'.

Despite these strong words of intention, however, the centralising logic of redistribution that permeates

Mayor Johnson's draft replacement London Plan has not been particularly backed up with policy mechanisms designed to address spatial inequity, although the 2012 Olympics Park legacy is expected to produce some positive externalities in the form of job creation and the redevelopment of affected land. Instead, the draft replacement London Plan is positioned largely adjacent to the prevailing localism stance of the national Conservative–Liberal Democrat coalition government, whose austerity-driven 'big society' agenda (HM Government, 2010) is grounded in the micro principles of choice, opportunity and place-making. As the coalition government's policy document 'Localism Explained' (HM Government, 2010: 5) maintains:

Decentralisation will allow different communities to do different things in different ways to meet their different needs. This will certainly increase variety in service provision. But far from being random – as the word 'lottery' implies – such variation will reflect the conscious choices made by local people. The real lottery is what we have now, where one-size-fits-all policies are imposed by the centre whether or not they work locally.

Although it is not articulated explicitly in the Mayor's planning documentation, one danger with the boroughs, as local planning authorities, being encouraged to adapt service provision to fit local circumstances is that the greater degree of localism, the greater the degree of diversity in service provision, which may indicate a failure on the part of the authorities to ensure universal public services (Bogdanor, 2010). While socio-spatial variations in urban environmental quality and human well-being are an established characteristic of city life (Pacione, 2003), it remains questionable whether such choice and diversity should be allowed to affect fundamentals (Bogdanor, 2010). Boasting access to the world's finest sporting, theatrical and cultural activities while simultaneously failing to maintain a proportionate life expectancy would hardly amount to a politically acceptable set of circumstances.

Accordingly, Syrett and Sepulveda's (2011) discursive examination of London's prevailing urban governance and cultural diversity challenges recommends that a combination of reformed national-level policies (such as on pay and working conditions) with more localised service delivery routes should be used

to bridge the dual-accountability gap that most seriously impacts those residents working at the bottom end of the UK labour market. At present, the major danger posed by the coalition government's big society agenda is that 'the local' appears to be driving out 'the national', especially with respect to notions of universal entitlement and citizenship.

Moreover, even though the spatial equity dimension of the draft replacement London Plan is pitched primarily around the city's official inner and outer demarcation, with the headlining document outlining separate strategies and visions for each (GLA, 2009a: 35–42), this distinction seems to have been driven in part by the fact that Mayor Johnson owes his 2008 election success to being able to attract votes in outer London, whereas Ken Livingstone was popularly considered to be more of a 'Zone 1' mayor (Travers, 2010). Accordingly, Mayor Johnson's dedicated establishment of an Outer London Commission to identify the extent to which this part of the capital has unrealised potential to contribute to the city's *overall* social and economic improvement seems to have been driven, at least in part, by electoral need. Yet, despite this commitment, the draft replacement London Plan continues to acknowledge that:

outer London is where 60 per cent of Londoners live and over 40 per cent of London's jobs are located. In general it is greener, and its people healthier and wealthier and enjoying a higher quality of life, than in more central areas.

(GLA, 2009a: 35)

But one important empirical question that arises in this context is whether London's official inner and outer distinction, arranged originally for the purposes of local government finance (Local Government Act 1963), *best* represents the prevailing QOL conditions of the city? As the draft replacement London Plan also notes 'parts of inner London have outer characteristics and vice versa' (GLA, 2009a: 37). Therefore, in adding a detailed empirical insight to this important methodological and policy consideration, this paper deploys an emergent rather than an imposed framework of analysis, known as data mining, which does not necessarily entail a direct comparison of any particular part of London, such as inner versus outer, but which allows underlying patterns of QOL

homogeneity to emerge freely from the data. The resulting clusters of shared QOL circumstance can then be explored at different levels of configuration – overall composite, thematic and individual indicators – to derive further insights and implications.

Aside from the obvious policy implications of this approach, a spatial analysis of London's QOL diversity offers a much needed methodological counterpart to the homogenising tendency of extant global studies research, and its emerging quality of living variants (Hudson, 2008; Mercer, 2010). As Amin and Graham (1997: 417) maintain in the context of their global cities study:

what should be a debate on variety and specificity quickly reduces to the assumption that some degree of interurban homogeneity can be assumed, either in the nature of the sectors leading urban transformation or in the processes of urban change.

Before conducting a spatial QOL analysis of London, however, it is first important to delve a little more deeply into the concept of QOL whose specific interpretation lays the philosophical basis behind this research and its distinction from global cities evaluation more generally.

Conceptualising London's quality of life

Although the notion of QOL remains politically alluring (Conservative Party 2010; GLA, 2009a; ONS, 2010) and QOL metrics are used internationally (Stiglitz et al., 2009), the underlying concepts involved in their determination remain notoriously difficult to pin down and measure (Nussbaum and Sen, 1993). Disputes concerning the issues of indicator selection, definition and weighting, for example, are all renowned for being irreconcilable in the QOL (Akranavičiūtė and Ruževičius, 2007) domain. However, by limiting the scope of the QOL concept to some collective 'public-based' understanding (Leitmann, 1999), the term is able to be theorised in terms of its facilitation of legitimating governing, what Landhauber and Ziegler (2005) refer to as normative 'social-cultural-political issues'.

Within this collectivist framework of reference, most territorial social indicators research embodies a conceptualisation of QOL concerned with the quality of living conditions surrounding an agent rather than how well an individual's life is going (Megone, 1990 in Leitmann, 1999). The dataset of QOL indicators used in this research adopts this type of collectivising approach by deploying a range of predominantly objective measures² which have been compiled by the audit and evaluation body for England and Wales, the Audit Commission. Comprising 45 core indicators, which expand to 73 indicators once secondary indicators have been included and data cleansing has been undertaken, the conceptual reach of the Audit Commission dataset spans 10 distinct QOL themes, nine of which are numeric and therefore analysable: community safety, health/social well-being, environment, economic well-being, community cohesion, housing, education/life-long learning, culture and leisure, transport, and people and place. Appendix 1 provides a summary of the indicators used in this research, their thematic breakdown and data treatment.

Although the precise future of the Audit Commission for England and Wales remains in doubt (Parry and Sear, 2010), this should in no sense divert attention away from the fact that what is at the heart of this paper is the concept of QOL, a term which along with 'well-being' and 'happiness' continues to fascinate policy makers around the globe (Stiglitz et al., 2009). The UK represents no exception to this methodological trend, with the Office for National Statistics currently embroiled in a consultation project designed to establish new measures of national well-being and progress (ONS, 2010). However, because this process is not expected to conclude until 2013 (ONS, 2010), the Audit Commission (2005) dataset continues to provide some of the most up-to-date (2008–2009 figures) and publicly available QOL data available for England while also complementing recent research of London's 55 urban sustainability indicators (GLA, 2009b; Keirstead and Leach, 2008).

In fact, one of the most important contributions of the Audit Commission dataset in this regard is that it exemplifies more the QOL component of sustainability, which therefore better matches the recent

Table 1. An assessment of the Audit Commission local quality of life indicators against Haughton's (1999) equity principles for sustainable development.

Sustainability principle	Coverage	Notes
Inter-generational equity	Implicit	Indicators are comparable to previous years to monitor change and assess and evaluate progress over time
Intra-generational equity	Explicit	Example measures of social justice include child poverty, income inequality, unemployment by ethnic group, gender pay gap and economic activity rate for disabled persons
Geographical equity	Explicit	Dataset includes a variety of deprivation (e.g. 'proportion of population living in the most deprived super output areas in the country') and consumption measures (of, for example, water, electricity and gas) along with a variety of production issues, air pollutants and carbon dioxide emissions, and is designed to 'facilitate comparisons of performance between different areas'. However, it contains no ecological footprint measures. Regional issues are implied in the fact that the data are collected across the whole of England
Procedural equity	Implicit	The indicators were selected following consultation with local authorities, a pilot programme, and research and public surveys, although explicit details of this process are not provided. Related measures such as election turnout are also included
Inter-species equity	Excluded	Generally missing with the exception of 'area of land designated as a local nature reserve per 1000 population'

shift in London's planning emphasis from sustainable world city visioning to residential QOL enhancement (Holman, 2010). Consequently, the Audit Commission's QOL indicators dataset is, as per Keirstead and Leach's (2008) theoretical analysis of London's urban sustainability indicators, perfectly amenable to conceptual examination by reference to Haughton's (1999) five equity principles for sustainable development, namely inter-generational equity, intra-generational equity, geographical equity, procedural equity and inter-species equity. Moreover, it can be seen from the results of a conceptual matching exercise presented in Table 1 that, as in the case of London's urban sustainability indicators (Keirstead and Leach, 2008), most of Haughton's equity principles are addressed implicitly in the Audit Commission dataset, that is touching upon relevant issues without making a clear statement of intention.

However, it is when operational consideration needs to be given to the accommodation of the various equity principles that their methodological implications really begin to materialise. Central here is the need for one to demonstrate sensitivity

to the polarity of each indicator in terms of what is considered to be a 'good' or 'bad' QOL outcome. For example, while high consumption of electricity might be facilitative of an individual's enhanced QOL experience, it tends to have negative connotations when pitched in more collectivist intra/inter-generational sustainability terms (i.e. depletion of such non-renewable resources as oil and lingering pollution). To more fully illustrate the methodological implications of this particular equity principle, attention can be drawn to the five Audit Commission indicators listed below whose individualist, and potentially insatiable, QOL connotations conflict with collectivist sustainability ones and, therefore, had to be reversed – positive becoming negative – so as to capture the inter-generational sustainability spirit of the draft replacement London Plan:

- average annual domestic consumption of (a) gas [–] and (b) electricity (kW h) [–];
- carbon dioxide emissions by sector and per capita emissions: (a) domestic [–] and (b) total [–];

- daily domestic water use (per capita consumption) [-];
- the volume of household waste collected per head [-];
- the percentage of the resident population who travel to work (a) by private motor vehicle [-]; (b) by public transport [+]; (c) on foot or cycle [+].

It is also possible to find examples of indicators in the dataset where individualistic, collectivist and futurity dimensions of sustainable QOL move in tandem. For instance, both the indicators measuring ‘the percentage of the resident population travelling over 20 km to work (-)’ and ‘estimated traffic flows for all vehicle types (million vehicle kilometres) (-)’ have combined deleterious consequences for individualistic and collectivist notions of QOL. For society, long car journeys and high traffic flow results in idling engines, pollution and the depletion of non-renewable resources. For an individual, a long commute time is inversely related to the time that one could have otherwise been spent engaged in more meaningful activities.

Another important equity principle associated with the Audit Commission dataset is geographical equity, which derives from the fact that the dataset contains borough-level information collected from across the whole of England. This is an important feature of the dataset because it allows one to demonstrate sensitivity to the fact that the QOL one experiences is influenced greatly by the events and interactions between citizens, such as through transportation and the flow of goods and services. In other words, the QOL conditions of London do not emerge solely from the city’s inner recesses but are also firmly embedded within the activities of the surrounding environment, and especially the east and the south-east of England. In fact, London’s spatial development document explicitly stresses the importance of the city working with the east and south-east of England, where an estimated 30% of its markets are located (Gordon and Travers, 2010):

London exerts a substantial effect over South East England. It is inextricably linked with this wider region, whether looked at in terms of patterns of

employment, skills and education, housing markets, airport policy, patterns of commuting, responding to environmental challenges like climate change, management of resources like water and power or the handling of waste.

(GLA, 2009a: 32)

Having made reference to these various spatial factors, we nonetheless appreciate that our chosen unit of analysis – at the overall level of district councils in rural areas and metropolitan districts and London boroughs in urban areas – still represents a fairly large geographical area, which has the disadvantage of ‘smoothing’ out the underlying variability that might be identified at a coarser level of resolution (Huby et al., 2009). Having said that, the remit of the core London part of our study still represents a 1/32 magnification on a typical city-level London analysis (GLA, 2009b) and represents the ‘local’ and ‘neighbourhood’ aspirations of the city’s people (Travers, 2010). Indeed, from a policy perspective, the London boroughs provide the major administrative counterpart to the GLA’s overall strategic focus while also facing the likelihood of being tasked with a greater responsibility to enact local policy decisions as part of the national government’s broader localism agenda.

Clustering London’s quality of life within the English scenario

It was noted above that one important feature of the Audit Commission’s (2005) QOL indicators dataset is that it provides country-wide information. This makes it possible to situate the QOL position of London within the English scenario and to compare its borough-level conditions with the rest of the country. Moreover, whereas an analysis of London in isolation would produce a composite QOL range between 0.00 (minimum) and 1.00 (maximum), in the English scenario it ranges from 0.17 (Barking and Dagenham) to 0.84 (Richmond-upon-Thames), taking into account that all indicators have been previously rescaled and resorted to mean low/weak (0.00) and high/strong (1.00) performance. Such contextualisation thus allows one to gain a more detailed impression of the London situation.

Table 2. The thematic composition of England's quality of life (QOL) at country, clustered and London level ordered by *F*-statistic theme significance.

Geography	Theme ^a	Total ^{b,c}	Hea ^c	Tra ^c	Eco ^c	Edu ^c	Saf ^c	Com ^d	Env ^d	Cul ^d	Hou ^d
England	England	0.64	0.59	0.41	0.63	0.57	0.67	0.58	0.46	0.50	0.59
	Standard deviation	0.19	0.21	0.20	0.20	0.18	0.18	0.20	0.19	0.21	0.16
	QOL-0	0.36	0.30	0.72	0.30	0.29	0.41	0.41	0.45	0.44	0.52
England's Defining Clusters	QOL-1	0.59	0.63	0.55	0.52	0.56	0.56	0.42	0.52	0.43	0.43
	QOL-2	0.48	0.42	0.45	0.51	0.49	0.55	0.50	0.31	0.35	0.62
	QOL-3	0.70	0.74	0.14	0.73	0.68	0.75	0.59	0.41	0.53	0.65
	QOL-4	0.64	0.53	0.39	0.66	0.58	0.74	0.63	0.44	0.46	0.63
	QOL-5	0.83	0.72	0.35	0.80	0.67	0.82	0.77	0.55	0.62	0.64
London	LBs in QOL-0	0.37	0.41	0.88	0.18	0.39	0.24	0.30	0.49	0.49	0.42
	LBs in QOL-1	0.58	0.68	0.70	0.36	0.61	0.39	0.37	0.39	0.43	0.48
	Richmond	0.84	0.87	0.71	0.52	0.76	0.54	0.80	0.36	0.45	0.63

^aTheme QOL indices: Hea: health and social well-being; Tra: transport; Eco: economic well-being; Edu: education and life-long learning; Saf: community safety; Com: community cohesion and involvement; Env: environment; Cul: culture and leisure; Hou: housing.

^bOrdered by composite QOL index.

^cStatistically significant differences between LBQOL-0 and LBQOL-1 at $p < 0.001$.

^dNo statistically significant differences between LBQOL-0 and LBQOL-1 at $p < 0.001$.

LB: London borough.

However, it is not only the overall composite QOL index and thematic indices for each of the London boroughs that are of interest to this study, but also the spatial patterns of QOL homogeneity embedded therein because it is this which provides meaning to their underlying commonality. To capture this dynamic, a k-means clustering analysis of the dataset was previously conducted to reduce the voluminous data to manageable proportions that bring into vision the key underlying QOL patterns (Campanera and Higgins, 2011). A key strength of deploying the clustering technique for this purpose is that it is not discriminating in terms of which elements of a group (here local authorities) are found to share similar QOL conditions according to the indicators utilised. The optimal solution that emerged from the consideration of three profiling variables – urban/rural, type of district and region – resulted in six clusters of homogeneous QOL conditions, each containing between 42 and 91 authorities (Campanera and Higgins, 2011).

Table 2 builds upon this earlier analysis by presenting details of the QOL performance of three distinct geographies: (a) the England average and standard deviation; (b) the overall and thematic QOL scores for the six optimal English QOL clusters

arising; and (c) the isolated results for the groups of London authorities that belong to the same original English-wide cluster. Beginning with the last of these, it can be seen that with the exception of Richmond-upon-Thames (0.84), whose QOL conditions fall into a cluster described as 'village' life (labelled QOL-5, see Figure 1), the rest of the London boroughs fall into two of the other five clusters, namely QOL-0 (comprising seven inner London and four outer London boroughs plus 13 metropolitan districts, 12 unitary authorities and one non-metropolitan district council) and QOL-1 (comprising three inner London and 14 outer London boroughs, plus one metropolitan district, 20 unitary authorities and 17 non-metropolitan districts). The other three clusters contain no London boroughs and comprise QOL-2 (formed by northern cities) (0.48), QOL-3 (formed by districts surrounding London) (0.70) and QOL-4 (formed by peripheral towns) (0.64).

In supplementing this initial piece of clustering information, which will be referred to again later, Figure 1 maps³ the district-level location of the six English QOL clusters. It can be seen that whereas the more inwardly London boroughs of the QOL-0 cluster share similar QOL conditions with such predominantly northern and central cities as Liverpool,

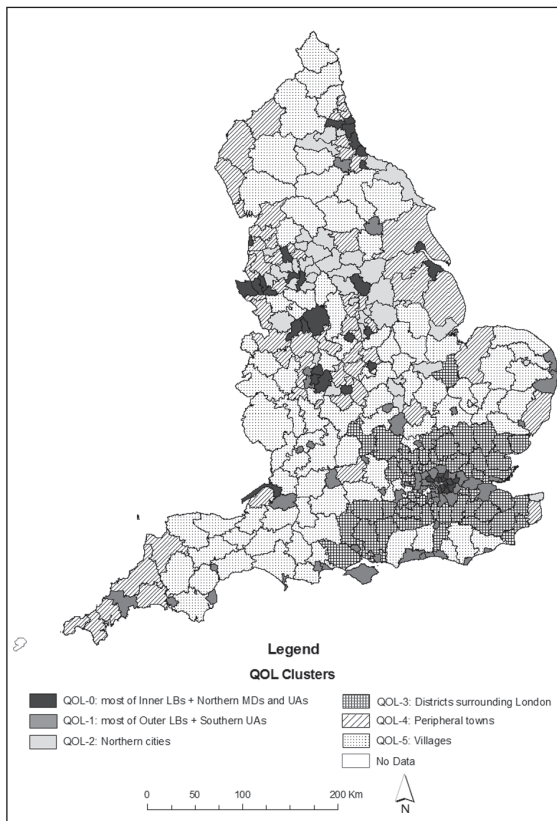


Figure 1. English district map of quality of life clusters.

Wirral, Knowsley, Manchester, Salford, Sunderland, Middlesbrough, Stoke and Birmingham, the more outwardly London ones tend to have a southern English city appeal (i.e. Southend, Brighton, Plymouth and Torbay). The three-tone sharpness of the refined inner London, outer London and ‘districts surrounding London’ geographies is another striking feature of the English QOL map and, in many respects, reflects the close economic interconnectedness between these distinct parts of the country (GLA, 2009a) which then dissipates as one moves further away from the capital.

However, in terms of respective QOL profiles, the reported conditions between these three areas differ markedly with residents of ‘districts surrounding London’ (QOL-3) experiencing better QOL conditions (0.70) than the isolated London boroughs of QOL-0, renamed LBQOL-0 (0.37), and the isolated



Figure 2. London's clustered quality of life profile within the English scenario.

London boroughs of QOL-1, renamed LBQOL-1 (0.58); see Table 2. This is especially true of the QOL themes of economic well-being, community safety, community cohesion and housing. In contrast, the transport profile of ‘districts surrounding London’ (QOL-3) is the worst in the country (0.14), achieving far less in collectivist sustainability terms than the two sets of isolated London boroughs. On this last point, not only do a substantial proportion of residents from ‘districts surrounding London’ (QOL-3) ‘privately commute to work’, but they do so ‘over fairly large distances (over 20 km)’ while sustaining ‘extremely high traffic flow’. The clustering analysis also reveals that residents of QOL-3 generate an ‘estimated traffic flow for all vehicle types’ of 12,763 million vehicle kilometres compared with say 1556 million vehicle kilometres for QOL-0 and 2766 million vehicle kilometres for QOL-1. If it were not for these deleterious travelling aspects, then the registered QOL of residents living ‘districts surrounding London’ would be even higher than their London counterparts.

Mapping and profiling London's quality of life at isolated cluster level

Having made an initial clustering distinction of London's borough-level QOL dynamics, Figure 2 provides a composite QOL map for London which is



Figure 3. Official inner and outer London demarcation.

compared with the official inner and outer London demarcation (Figure 3). What is particularly fascinating about the QOL map for London is that, compared with its official demarcation, it has the geographical effect of shifting the inner segment of the city in a north-easterly direction. This outcome occurs owing to the exchange of the three official and westerly inner London boroughs of Kensington and Chelsea, Hammersmith and Fulham, and Wandsworth with the four predominantly northern east ones of Greenwich, Barking and Dagenham, Waltham Forest and Brent. According to the indicators and methods utilised, then, London's prevailing inner and outer demarcation does not best depict the spatial distribution of the city's QOL as contextualised within the English scenario.

London's clustered quality of life profile within the English scenario

In fact, when one directly compares the overall reported composite QOL conditions of London's *official* inner and outer boroughs, no statistically significant (at $p < 0.001$) difference emerges between them (inner: 0.439, outer 0.537, F -value 3.28). Instead, officially classified inner and outer London differ on only two of nine QOL themes, namely transport (inner: 0.922, outer 0.686, F -value 83.19) and community safety (inner: 0.244, outer 0.389, F -value 14.71). It is at this point, then, that we would

ask readers who are familiar with London whether they can identify with the spatial patterns of QOL depicted by our clustering analysis. For instance, are they surprised to learn that Richmond-upon-Thames is conceptualised in QOL terms as a 'borough of its own' and that it is the original inner boroughs of Kensington and Chelsea, Hammersmith and Fulham, and Wandsworth, rather than say Hackney, Tower Hamlets and Southwark, that emerge to form the reconfigured outer London cluster?

In terms of detailing precisely how the QOL profiles of these two isolated groups of London differ, one can revert back to the information contained in Table 2, which shows that the composite QOL index for the LBQOL-1 cluster is statistically higher than the LBQOL-0 cluster (0.58 compared with 0.37, respectively, F -value 31.94), with both nonetheless lower than the England average (0.64). Thereafter, statistically significant differences ($p < 0.001$) emerge in favour of LBQOL-1 compared with LBQOL-0 by F -value rank on health (0.68 compared with 0.41, F -value 31.46), economy (0.36 compared with 0.18, F -value 22.92), education (0.61 compared with 0.39, F -value 19.71) and community safety (0.39 compared with 0.24, F -value 17.07). In contrast, LBQOL-0 outperforms LBQOL-1 on the theme of transport (0.70 compared with 0.88, F -value 23.41). Thereafter, no statistically significant differences are identified for the QOL themes of community cohesion, environment, culture and housing, which at level of analysis and indicators considered remain statistically uniform at the borough level. Richmond-upon-Thames appears to do much better on community cohesion and housing, however.

In further supplementing this thematic information, Table 3 provides the average values of the 15 most important indicators that distinguish the two sets of clustered London data (ranked by F -value) and their minimum and maximum values. Here, it can be seen that the LBQOL-0 and LBQOL-1 clusters are most differentiated by a range of economic (six in total and five of the top six) indicators. Of these, there are major differences in the proportion of eligible 'people claiming benefits' and 'gaining employment' as well as 'living in the most deprived households of the country', which, as noted earlier, are all essentially concerned with intra-generational

Table 3. Average, minimum and maximum values for the 15 most important indicators that differentiate London boroughs in quality of life (QOL)-0 and QOL-1.

Indicator	Average QOL-0	Average QOL-1	Min.	Authority	Max.	Authority
% job claimants of working age	4.49	2.44	1.7	Kingston-upon-Thames	5.5	Hackney
% key benefits claimants of working age	18.11	10.96	7.4	Kingston-upon-Thames	22.9	Hackney
Violent offences per 1000 population	35.20	21.68	14.43	Harrow	47.09	Westminster
% living in most deprived super output area	50.57	9.24	1	Kingston-upon-Thames	83	Hackney
% children living in income-deprived household	40.62	22.02	13.0	Kingston-upon-Thames	58.7	Tower Hamlets
% working age population in employment	62.85	74.09	52.4	Newham	79.9	Havering
Male life expectancy at birth	74.11	76.78	72.7	Tower Hamlets	78.9	Kensington and Chelsea
% over 60s living in income-deprived household	27.44	15.26	9.9	Bromley	42.5	Tower Hamlets
Domestic electricity consumption	4009	4517	3662	Islington	5031	Barnet
% election turnout	34.61	38.83	30.53	Barking and Dagenham	43.62	Kingston-upon-Thames
Teenage pregnancies per 1000 females	64.86	40.50	26.9	Harrow	104.9	Lambeth
Sexual offences per 1000 population	1.92	1.15	0.71	Havering	3.48	Westminster
Perception traffic congestion not worsened	41.58	26.41	22.06	Redbridge	67.33	Newham
% travel to work by public transport	49.75	36.89	21.6	Hillingdon	58.6	Lambeth
Domestic gas consumption	17,726	20826	14,814	Tower Hamlets	24313	Barnet

equity considerations (Haughton, 1999). Thereafter, the two community safety indicators of violent and sexual offences are listed as major distinguishing factors, with some quite striking differences being registered between inner London Westminster and outer London Harrow and Havering, respectively. It is also noteworthy that the male life expectancy figures for London range from 72.7 in Tower Hamlets to 78.9 in Kensington and Chelsea, a difference of some 6 years, according to 2008–2009 figures.

Meanwhile, in terms of environmental factors, households in the outer London borough of Barnet are found to consume the most electricity and gas, while residents of inner London Islington consume the least electricity and residents of Tower Hamlets

the least gas. At the same time, the lowest proportion of residents travelling to work by public transport resides in the outer London borough of Hillingdon, and the highest proportion in Lambeth. In fact, in sustainable QOL terms (intra-generational equity), not only do the overall results suggest that the LBQOL-0 cluster makes much greater use of public transport, but it also uses less private transport (28.5 compared with 44.32, F -value 16.91) and consumes a lower level of domestic gas and electricity (Table 4). At the same time, the refined inner London cluster recycles a lower proportion of waste (11.53 compared with 15.26, F -value 8.18).

On balance, then, the results of our analysis suggest that inner Londoners are living more sustainably

Table 4. Overall composite quality of life (QOL) ranks for London, outer London and inner London.

London boroughs in QOL-1			London boroughs in QOL-0		
Rank (overall)	Name	QOL	Rank (overall)	Name	QOL
(1)	Richmond	0.84	1 (=12)	Westminster	0.53
1 (2)	Kingston-upon-Thames	0.73	2 (=15)	Camden	0.51
2 (=3)	Bromley	0.70	3 (=15)	Newham	0.51
2 (=3)	Kensington and Chelsea	0.70	4 (=22)	Lewisham	0.41
3 (=5)	Merton	0.69	5 (=22)	Brent	0.41
4 (=5)	Sutton	0.69	6 (=24)	Greenwich	0.39
5 (=7)	Barnet	0.62	7 (=24)	Waltham Forest	0.39
6 (=7)	Bexley	0.62	8 (26)	Lambeth	0.38
7 (9)	Wandsworth	0.61	9 (27)	Tower Hamlets	0.36
8 (10)	Harrow	0.57	10 (28)	Southwark	0.35
9 (11)	Hammersmith and Fulham	0.54	11 (29)	Haringey	0.33
10 (=12)	Hounslow	0.53	12 (30)	Islington	0.29
11 (14)	Ealing	0.52	13 (31)	Hackney	0.19
12 (17)	Enfield	0.50	14 (32)	Barking and Dagenham	0.17
13 (18)	Croydon	0.49			
14 (19)	Hillingdon	0.47			
15 (20)	Redbridge	0.46			
16 (21)	Havering	0.43			

than their outer counterparts, especially when the original inner London boroughs of Kensington and Chelsea, Hammersmith and Fulham, and Wandsworth are reclassified. However, as the figures from Table 2 also demonstrate, this apparently less extravagant lifestyle (less energy and private transport consumption) is not then reflected in statistically superior environmental outcomes, which remain broadly the same across London. Another interesting finding to emerge from the environmental/transport nexus is that according to the 'percentage of residents who think that for their area the level of traffic congestion over the past three years has got better or stayed the same', refined inner London outperforms refined outer London by 13% (49.75% compared with 36.89% respectively, F -value 22.26). In sustainable QOL terms, then, it is possible that former Mayor Ken Livingstone's central London congestion charge had both a demonstrable material *and* perceived

impact which, to some extent, would also appear to discredit his successor's decision to scrap the 2007 western extension of the congestion charge in late 2010.

Finally, no statistically significant difference emerges between the two groups of London authorities in terms of 'the amount of land assessed as having combined deposits of litter or detritus', with LBQOL-0 registering a score of 26.314 compared with 23.811 for LB-QOL-1 (F -value 0.68). One possible explanation for this finding could be that this particular activity is governed by the Environmental Protection Act 1990, which may encourage universal borough-level compliance. Although this finding lends support to the notion that institutional targets/standards matter, it is also probable that the actions necessary to ensure that a particular area passes a street cleansing inspection are less onerous than those required to ensure that the same streets are *safe*.

Overall composite and thematic borough-level analysis of London's quality of life

Another way to dissect the results of our London analysis is to consider them at the borough level. At the broadest level of investigation this procedure involves calculating the overall composite QOL index for each of the boroughs considered (see Table 4.) To begin with, Table 4 shows that the separately clustered borough of Richmond-upon-Thames has the highest composite QOL index of all the London boroughs, some 11% higher than second-placed Kingston-upon-Thames. Thereafter, Kensington and Chelsea has the highest composite QOL index of the original inner-London boroughs with a score equivalent to the third-placed outer London borough of Bromley (0.7), some 9% higher than the second-placed original inner London borough of Wandsworth, which is ninth overall for London. At the other end of the table, the lowest overall composite QOL index is taken by Barking and Dagenham at 0.17, some 22% lower than the next lowest outer London borough, Waltham Forest (0.39), which forms part of the same LBQOL-0 cluster, and five times lower than Richmond-upon-Thames. Scattered between these two positions are Hackney (0.19), Islington (0.29), Haringey (0.33), Southwark (0.35), Tower Hamlets (0.36) and Lambeth (0.38).

Aside from comparing the absolute performance of the London boroughs in composite QOL index terms, it is also possible to consider their indexed thematic spatial distribution. Here, Figures 4–8 provide borough-level maps for each of the themes that statistically demarcate the two original London clusters (as per Table 2): health, transport, economic well-being, education and community safety. What these maps show, then, is the thematic QOL index for each individual borough rather than necessarily the underlying commonality of conditions between them. Nonetheless, assuming equivalence of indicator importance, the maps provide a fairly good approximation of each borough's thematic QOL attainment along with London's overall spatial distribution.

Thus, taking each of the statistically significant cluster themes in turn, the health map depicted in Figure 4 shows that the inner east London

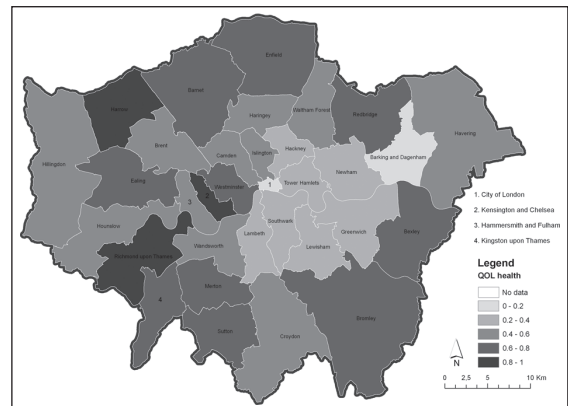


Figure 4. London's borough-level health map.

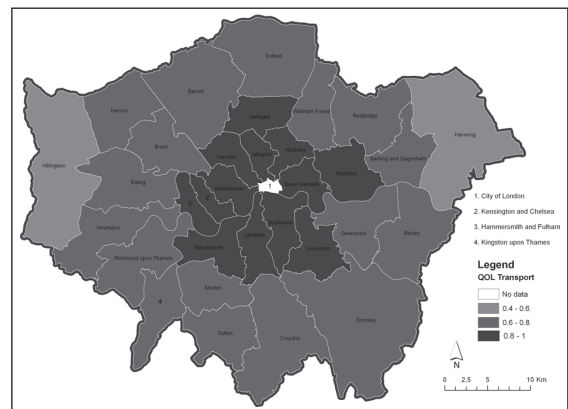


Figure 5. London's borough-level transport map.

boroughs, plus Barking and Dagenham (the city's worst scoring 'health' borough 0.20), report the lowest health conditions, whereas the boroughs to the west of London and the outer regions generally tend to perform much better. The transport map (Figure 5) is particularly revealing for its strong official inner and outer London demarcation, albeit with slightly inferior scores being reported for the outer London boroughs of Havering (0.46) and Hillingdon (0.54). In contrast, Tower Hamlets performs the highest in the whole of England on the transport measures (1.00).

Meanwhile, it can be seen that the distribution of the city's economic well-being (Figure 6) largely

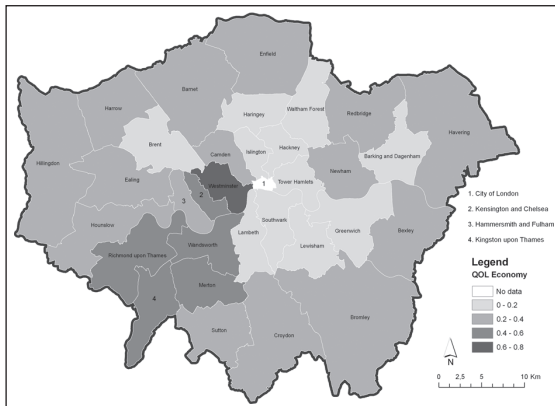


Figure 6. London's borough-level economic well-being map.

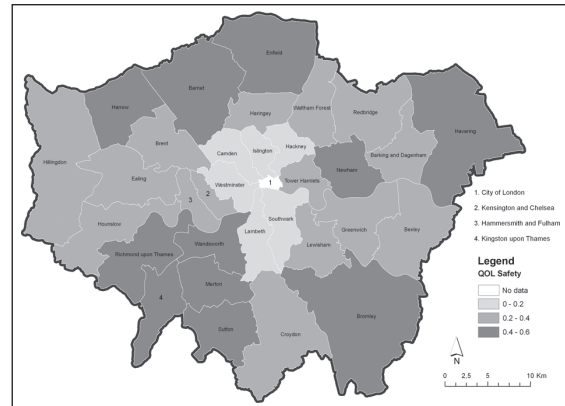


Figure 8. London's borough-level community safety map.

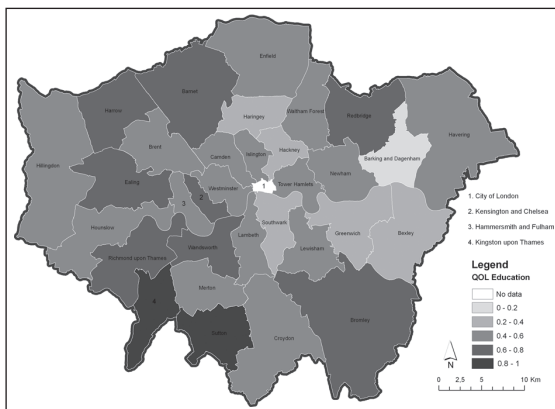


Figure 7. London's borough-level education map.

resembles London's overall QOL clustering (Figure 2), which is a function of the fact that this particular theme contains five of the six most important indicators that distinguish the two sets of clustered data (Table 4). At borough level, the worst overall economic well-being conditions for London, and England too, are registered for Haringey (0.00), followed closely by Hackney (0.03) and Southwark (0.07). In contrast, the highest economic well-being conditions are found in the London borough of Westminster (achieving 0.63, compared with second-placed Richmond's 0.52). Although it is difficult to decipher such a striking spatial pattern for the education index (Figure 7), the London borough of Kingston-upon-Thames (0.93) outperforms

second-placed Sutton by 11%, while at the other end of the table the borough of Barking and Dagenham produces an index of only 0.18, some 75% lower than Kingston-upon-Thames.

At the same time as producing London's highest, but still somewhat modest, economic well-being score, the borough of Westminster also manages to perform worst in the country on community safety (0.00) (see Figure 8 for the London map). This finding may, in part, be attributable to the fact that many of the crimes reported in Westminster are committed by people coming into the borough from outside, which therefore raises the thorny issue of outcome ownership and the extent to which individual boroughs can be held accountable for circumstances beyond their control. More generally, while it is recognised that the night-time economy forms an important part of London's overall economy (GLA, 2009a), it also produces negative externalities which could conflict with other dimensions of the QOL index, such as 'community safety'. Such interaction thus raises the question of 'trade-offs', and one challenge for future policy makers might be to consider how to devise indicators of well-being that reconcile different dimensions of sustainable QOL so that individuals and communities are incentivised to produce robust, sustainable outcomes. For instance, is it possible to develop indicators that encourage the fostering of a night-time economy that is not only safe and sociable but also financially and environmentally sustainable too? Currently, on average,

London does about half as well as England on community safety.

Discussion and conclusions

This paper has conducted a borough-level analysis of London's public-based QOL conditions according to 73 expanded Audit Commission indicators pitched within the English scenario. The results of our analysis lend strong empirical support to the relevance of this research endeavour by revealing that London's official inner and outer London classification does not best reflect the Audit Commission-defined QOL patterns of the city. Instead, our findings reveal that the location of London's spatially distributed QOL conditions at the macro clustering level have the subtle but intriguing affect of shifting the official inner classification of the city in a north-easterly direction. This outcome occurs owing to the exchange of the three official and westerly inner London boroughs of Kensington and Chelsea, Hammersmith and Fulham, and Wandsworth with the four predominantly northern east ones of Greenwich, Barking and Dagenham, Waltham Forest and Brent. Whether an alternative public-based QOL indicators dataset, such as London's urban sustainability indicators, would reveal substantially different spatial results from those presented here provides one interesting avenue for future research.

More particularly, the London QOL map presented in Figure 2 arises because of the magnitude of the differences identified between the two distinct London clusters on the themes of health, transport, economy, education and community safety, with refined outer LBQOL-1 outperforming its refined inner LBQOL-0 counterpart on all of them bar transport. Moreover, while health is the most statistically varied theme across England and London, it is also the case that six of the 15 *most* significant indicators distinguishing the two refined London clusters derive from the economic well-being dimension of the dataset. This is intriguing in as much that it chimes with Robinson's (2002: 534, emphasis added) review of global cities research, which concludes that while status within the world city hierarchy has 'traditionally been based on a range of criteria, including national standing, location of state

and interstate agencies and cultural functions, the primary determination of status is considered to be *economic*'. In both established global cities studies and our own QOL research, then, it seems that economic factors bear the most powerful influence in determining reported outcomes, albeit from different conceptualisations of the economy.

Thus, while London appears to stand up comparatively well on established global cities metrics (Sassen, 1991; Taylor et al., 2010), the assumed benefits of these underlying qualities do not then appear to be trickling down to day-to-day residents in a way amenable to improved well-being. Although we accept that this present study is confined to the scope of the Audit Commission's choice of indicators which, as per global cities metrics, have their own particular conceptual and methodological limitations, its results still suggest that other parts of England are doing much better than 'global' London in sustainable QOL terms. This, then, begs the question of what contribution is London's global city prowess making to the overall well-being of its day-to-day residents and England more generally? Are the effects of London's global interactions actually filtering down to the local populace, and, if so, how? What would the QOL situation of London and England be if it were not for London's 'global city' interconnectedness? Of course, while it is practically impossible to answer these types of questions as London is either acting or not acting as a global city (Ertürk et al., 2011), one would hesitantly suggest that in the terms of sheer population numbers, Mayor Johnson has correctly shifted the focus of London's planning emphasis away from sustainable world city visioning to residential QOL enhancement, particularly when it is found that the economic well-being conditions of refined inner and outer London are only approximately one-quarter (0.18) and one-half (0.36) of the country average (0.63), respectively.

Despite all of London's wealth and business prowess, then, the results of our study suggest that spatial inequality in the capital is a key economic and social problem whose multi-dimensional impacts coalesce mostly around the pertinent themes of health, education and community safety. One particularly interesting observation that arises in this context concerns the situation of housing whose

QOL index produces no statistically significant difference between the two main London clusters (see Table 2). This is intriguing in as much as it suggests that in contrast to economic well-being, which exerts something of a causal influence on the nature of spatially derived QOL demarcations, housing decisions appear to be more of a product of the prevailing QOL circumstance of local areas. In other words, ones 'choice' of where to live seems to depend not only on, say, the physical quality of the building within which they reside, but also on the types of 'public-based' QOL conditions that surround it, such as proximity to decent schools and hospitals and areas with low crime rates. As such, it is possible that the housing metrics of 'house price to income ratio' and 'affordable dwellings completed as a percentage of all new housing completions' provide an indication of gentrification pressure when they move in a collectivist unsustainable direction (i.e. unaffordable housing) and an indication of the relative QOL of each local area when they are considered in raw absolute terms (i.e. actual house price).

Finally, and of policy relevance to the coalition government's big society agenda, what does not appear to emerge from our findings is that the worst performing parts of London (especially the refined inner London cluster, LBQOL-0) contain the social and economic capital necessary to produce desirable localism outcomes as its three worst-scoring QOL indices, compared with the national average, are economic well-being, community safety and community cohesion. Tantamount to a 'big society' proxy of resources, security and co-ordination, the magnitude of these measures would appear to make it incumbent on the Mayor to explore how different communities are interacting 'across different spaces in relation to work, education and everyday life' (Syrett and Sepulveda, 2011: 3) because these dynamics could prove crucial in terms of London residents being able to overcome prevailing austerity.

Here it is also important to reiterate that the data analysed for this study were collected on the cusp of the global financial crisis, and therefore it would be interesting to see how the reported conditions have subsequently altered. For instance, has London's relative QOL position improved vis-à-vis the rest of the country, given its comparatively lower share of

public employment and its propensity to attract investment and produce private sector jobs (Ertürk et al., 2011), or are the cuts associated with big society simply driving out those members of the community living on the fringes of society? In order to make this type of longitudinal judgement, however, it remains imperative that reliable QOL indicators are collected, and some indicators are more robust than others in this respect. Hence, it will be interesting to see what emerges out of the coalition's decision to create new national well-being and happiness indicators (ONS, 2010) and also whether community cohesion and safety, plus economic well-being, is a precursor to a good collectivist QOL or merely a product of it.

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Notes

1. The Mayor of London is responsible for the strategic development of London and holds the executive power of the Greater London Authority, which has overall powers of transport, policing, economic development, fire and emergency planning.
2. In fact, 38 of the core QOL indicators are 'objective' and seven are 'subjective'. The subjective indicators measure the extent to which residents 'think' or 'feel' about some aspect of life. For example, whether residents think that for their local area community activities have got better or stayed the same, or whether residents feel 'fairly safe' or 'very safe' outside during the day or after dark. The objective indicators capture situations that can be obtained without directly surveying the individuals concerned. They tend to measure the extent to which people's physical, economic and social needs are met, such as 'life expectancy', 'employment status' and 'educational attainment'.
3. All maps presented in this paper were produced using Arc View.

References

- Akranavičiūtė D and Ruževičius J (2007) Quality of life and its components' measurement. *Engineering Economics* 2(52): 44–49.

- Amin A and Graham S (1997) The ordinary city. *Transactions of the Institute of British Geographers* 22(4): 411–429.
- Audit Commission (2005) *Local Quality of Life Indicators: Supporting Local Communities to Become Sustainable*. London: Audit Commission.
- Bogdanor V (2010) *On Forms of Accountability*. London: Public Services Trust.
- Campanera J and Higgins P (2011) The quality of life in English local authority areas. *Local Government Studies* 37(2): 145–169.
- Conservative Party (2010) *Modern Conservatism Our Quality of Life Agenda*. London: Conservative Party.
- Ertürk I, Froud J, Johal S, et al. (2011) *City State against National Settlement UK Economic Policy and Politics after the Financial Crisis*. Manchester: Centre for Research on Socio-Cultural Change.
- Foreign Policy (2010) The global cities index. Available at: <http://www.foreignpolicy.com/node/373401> (accessed 12 June 2011).
- Gordon I and Travers T (2010) London-planning the ungovernable city. *City, Culture and Society* 1(2): 49–55.
- Greater London Authority (GLA) (2009a) *The London Plan: Consultation Draft Replacement London Plan*. London: GLA.
- Greater London Authority (GLA) (2009b) *London's Quality of Life Indicators 2008–09 Report*. London: GLA.
- Haughton G (1999) Environmental justice and the sustainable city. *Journal of Planning Education and Research* 18(3): 233–243.
- HM Government (2010) *Decentralism and the Localism Bill: An Essential Guide*. London: Crown Copyright.
- Holman N (2010) The changing nature of the London plan. In: Scalón K and Kochan B (eds) *London: Coping with Austerity*. London: London School of Economics, pp.29–40.
- Huby M, Cinderby S, White P, et al. (2009) Measuring inequality in rural England: the effects of changing spatial resolution. *Environment and Planning A* 41(12): 3023–3037.
- Hudson R (2008) Editorial: geographies of health and well-being in Europe. *European Urban and Regional Studies* 15(4): 291–292.
- Keirstead J and Leach M (2008) Bridging the gaps between theory and practice: a service niche approach to urban sustainability indicators. *Sustainable Development* 16(5): 329–340.
- Knight Frank (2010) The Wealth Report 2010. Available at: http://www.knightfrank.com.hk/content/upload/files/The_Wealth_Report_2010_-_Knight_Frank_and_Citi_Private_Bank.pdf (accessed 3 June 2011).
- Landhauber S and Ziegler H (2005) Social work and the quality of life politics – a critical assessment. *Social Work and Society* 3(1): 30–58.
- Leitmann J (1999) Can city QOL indicators be objective and relevant? Towards a participatory tool for sustaining urban development. *Local Environment* 4(2): 169–180.
- Megone C (1990) The quality of life starting from Aristotle. In: Baldwin S, Godfrey C and Popper C (eds) *Quality of Life: Perspectives and Policies*. London: Routledge, pp.28–41.
- Mercer (2010) Quality of living report 2010 version. Available at: http://www.mercer.com/press-releases/quality-of-living-report-2010#City_Ranking_Tables (accessed 3 June 2011).
- Nussbaum M and Sen A (1993) *The Quality of Life*. Oxford: Clarendon Press.
- Office for National Statistics (ONS) (2010) National well-being: the debate. Available at: <http://www.ons.gov.uk/ons/guide-method/user-guidance/well-being/about-the-programme/index.html> (accessed 3 August 2011).
- Pacione M (2003) Urban environmental quality and human wellbeing – a social geographical perspective. *Landscape and Urban Planning* 65(1–2): 19–30.
- Parry K and Sear C (2010) *Audit Commission Abolition*. London: House of Commons Library.
- Perrons D (2012) Regional performance and inequality: linking economic and social development through a capabilities approach. *Cambridge Journal of Regions, Economy and Society* 5 (1): 15–29.
- Robinson J (2002) Global and world cities: a view from the off the map. *International Journal of Urban and Regional Research* 26(3): 531–554.
- Sassen S (1991) *The Global City: New York, London, Tokyo*. Princeton, NJ: Princeton University Press.
- Stiglitz JE, Sen A and Fitoussi J-P (2009) *Report by the Commission on the Measurement of Economic Performance and Social Progress*. Paris: Commission on the Measurement of Economic Performance and Social Progress.
- Syrett S and Sepulveda L (2011) Urban governance and economic development in the diverse city. *European Urban and Regional Studies* 1–16, DOI: 10.1177/0969776411430287.
- Taylor P, Ni P, Derudder B, et al. (2010) *Global Urban Analysis*. London: Earthscan.
- Travers T (2010) The role of the boroughs in the new regime. In: Scalón K and Kochan B (eds) *London: Coping with Austerity*. London: London School of Economics, pp.13–28.

Appendix I

Definition and data-cleansing outcomes of the local quality of life indicators in England 2005, contracted and expanded

People and place

QOL1 Priorities for improvement in the local area, as defined by local residents: (a) first; (b) second; (c) third. [NOM]

Community cohesion and involvement

QOL2 The percentage of residents who think that people being attacked because of their skin colour, ethnic origin or religion is a very big or fairly big problem in their local area [–*]

QOL3 The percentage of residents who think that for their local area, over the past three years, community activities have got better or stayed the same [–]

QOL4 Election turnout [–]

Community safety

QOL5 The percentage of residents surveyed who said they feel ‘fairly safe’ or ‘very safe’ outside a) during the day [–*]; b) after dark [–*]

QOL6 (a) Domestic burglaries per 1000 households [–*]; (b) violent offences committed per 1000 population [–*]; (c) Theft of a vehicle per 1000 population [–*]; (d) Sexual offences per 1000 population [–*]

QOL7 The percentage of residents who think that (a) vandalism, graffiti and other deliberate damage to property or vehicles [–]; (b) people using or dealing drugs [–]; (c) people being rowdy or drunk in public places is a very big or fairly big problem in their local area [–]

QOL8 The number of (a) pedestrian [–*]; (b) cyclist road accident casualties per 100,000 population [–*]

Culture and leisure

QOL9 The percentage of the population within 20 minutes travel time (urban – walking, rural – by car) of different sports facility types [–*]

QOL10 The percentage of residents who think that for their local area, over the past 3 years, the following have got better or stayed the same: (a) activities for teenagers [–*]; (b) cultural facilities (for example, cinemas, museums) [–*]; (c) facilities for young children [–*]; (d) sport and leisure facilities [–*]; (e) parks and open spaces [–*]

Economic well-being

QOL11 The percentage of the working-age population that is in employment [–]

QOL12 (a) The number of Job Seekers Allowance claimants as a percentage of the resident working age population [–*]; (b) percentage of these who have been out of work for more than a year [–]

QOL13 (a) The total number of VAT registered businesses in the area at the end of the year [–, NBP]; (b) the percentage change in the number of VAT registered businesses [–]

QOL14 Job density (number of jobs filled to working-age population) [–]

QOL15 The proportion of the population living in the most deprived super output areas in the country [–*]

QOL16 The percentage of the population of working age that is claiming key benefits [–*]

QOL17 The percentage of (a) children [–]; (b) population aged over 60 years that live in households that are income deprived [–*]

Education and life-long learning

QOL18 The percentage of half days missed owing to total absence in (a) primary [–*] and (b) secondary schools maintained by the local education authority [–*]

QOL19 The proportion of young people (16–24 year olds) in full-time education or employment [–, MISS]

QOL20 The proportion of working-age population qualified to (a) NVQ2 or equivalent [–]; (b) NVQ4 or equivalent [–]

QOL21 The percentage of 15-year-old pupils in schools maintained by the local authority achieving five or more GCSEs at grades A*–C or equivalent [–*]

Environment

QOL22 The proportion of developed land that is derelict [–]

QOL23 The proportion of relevant land and highways that is assessed as having combined deposits of litter and detritus [–]

(Continued)

Appendix I. (Continued)

QOL24 Levels of key air pollutants [–, NTP]

QOL25 Carbon dioxide emissions by sector and per capita emissions: (a) domestic [–,*]; (b) total [–,*]

QOL26 Average annual domestic consumption of (a) gas [–]; (b) electricity (kwh) [–]

QOL27 Daily domestic water use (per capita consumption) [–]

QOL28 The percentage of river length assessed as (a) good biological quality [+,*]; (b) good chemical quality [–]

QOL29 The volume of household waste (a) collected per head [–]; (b) the proportion recycled [+,*]; (c) composted [+,*]; (d) used to recover heat, power and other energy sources [+, MISS]

QOL30 (a) The percentage area of land designated as sites of special scientific interest within the local authority area in favourable condition [+,*]; (b) the area of land designated as a local nature reserve per 1000 population [+, NTP]

Health and social well-being

QOL31 Age standardised mortality rates for all cancers: (a1) male [–] & (a2) female [–]; circulatory diseases: (b1) male [–] & (b2) female [–,*]; respiratory diseases: (c1) male [–] & (c2) female [–]; stroke: (d1) male [–] & (d2) female [–]

QOL32 Infant mortality: (a) male [+,*]; (b) female [+, NTP]

QOL33 Life expectancy at birth: (a) male [+,*]; (b) female [+,*]

QOL34 The percentage of households with one or more person with a limiting long-term illness [–]

QOL35 Teenage pregnancy, conceptions under 18 years, per 1000 females aged 15–17 years [–,*]

Housing

QOL36 The total number of new housing completions [+, NBP,*]

QOL37 Affordable dwellings completed as a percentage of all new housing completions [+,*]

QOL38 Household accommodation without central heating [–,*]

QOL39 The percentage of residents who think that people sleeping rough on the streets or in other public places is a very big or fairly big problem in their local area [–,*]

QOL40 The percentage of all housing that is unfit [–, NTP]

QOL41 House price to income ratio [–]

Transport and access

QOL42 The percentage of the resident population who travel to work (a) by private motor vehicle [–,*]; (b) by public transport [+,*]; (c) on foot or cycle [+,*]

QOL43 The percentage of the resident population travelling over 20 km to work [–]

QOL44 The percentage of residents who think that for their local area, over the past 3 years, (a) public transport has got better or stayed the same [+,*]; (b) the level of traffic congestion has got better or stayed the same [+,*]

QOL45 Estimated traffic flows for all vehicle types (million vehicle km) [–,*]

Source: Audit Commission (2005).

General pre-treatment: NTP: not provided, so not included; NOM: nominal, so excluded; MISS: percentage of missing values higher than 10%, so excluded; NBP: normalised by 1000 population.

Pre-treatment for QOL indices calculations: –: inverted; +: not modified.

Statistics: * indicates non-normal distribution of the indicator according to the Kolmogorov–Smirnov test, 49% of indicators.