

A Geography of the UK Commercial Property Market

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Abstract

This paper revisits some ideas that were first raised seriously in the mid-90s; that it should be possible to establish linkages (in spatial terms) between local economic factors and sector performance in commercial real estate markets. There have been a number of developments in the quality and quantity of relevant data over the intervening period that make it appropriate to return to have another look at some of these ideas in a more 'modern' technological context.

Using data from several sources this exploratory paper seeks therefore to look at some of the spatial patterns that can be derived from the data. It examines the extent to which it is possible to make linkages and visualise the geographical structure of those markets and their change over time. Naturally there remain strong limitations on the extent to which it is possible to achieve 'good' results in this kind of analysis, and one major intention of the paper is to encourage a debate about how data sets can be developed and improved to allow these methods to be taken further.

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1. Introduction

We now know a lot about the structure of the UK commercial property market, or we like to think that we do! Over the last ten to fifteen years many researchers have examined the structure of the commercial property market in the UK, paying particular attention to the extent to which diversification is possible in the market and in attempting to devise rules that allow fund managers to decide 'where' (and when) they should invest. This paper takes a rather different view of the market, by making use of several different datasets and a GIS system to map the patterns that the data contain. The intention is to consider some issues that become apparent as the data is discussed and to examine the extent to which we can use such systems to learn even more about the UK commercial market.

2. Previous Research

Almost all of the work done on real estate markets that has some spatial component is carried out using existing administrative areas, or by constructing 'new' spaces using various kinds of aggregations and statistical measures. The intention is usually to try to develop structures which will optimise geographical diversification in real estate portfolios. Very often clustering methods have been favoured (see for example, Goetzmann and Wachter, 1995; Hoesli *et al.*, 1997; Nelson and Nelson, 2003 and Smith, *et al.*, 2004). In the UK, even though McNamara and Morrell (1994) highlighted the need to link the performance of economic regions with real estate performance over a decade ago, little work has been done. Jones and Orr, (1997) used econometric analysis to examine the spatial dynamics of Office rental trends, and found various levels of interaction taking place, especially around London. In an important if preliminary study which attempted to relate economic drivers to real estate performance across the IPD 'space', Key *et al.*, (1998) found some evidence of demand led factors albeit at a rather weak level.

In a related area, there has been a renewed interest in the shape and form of town centres and the activity that takes place in them. This has in turn led to a review of the availability of data to allow these kinds of analyses to take place. This work relies heavily on the use of Geographical Information Systems (GIS). This is an area which has received almost no attention in commercial real estate analysis, and certainly not in the UK. Possibly uniquely, Wyatt, (1999) used a GIS system to help examine relationship between property values and business location decisions in Bristol. More recently, in the context of planning and urban form, work funded by government through the Office of The Deputy Prime Minister, has been taking place at the Bartlett School to model the performance of town centres and to delineate their boundaries in a truly spatial way. This work is on-going and has as part of the process sought to tackle issues associated with the major data requirements of the project (Thurstain-Goodwin and Unwin, 2000; CASA, 2002; ODPM, 2002; Vickers and Thurstain-Goodwin, 2002). On a wider scale, Longley (2003) offers an excellent review of the progress that is being made, mostly by geographers, in relating spatially based datasets using GIS, to give new and deeper insights into the ways that urban systems work.

3. Data and Analysis Issues

The data used to illustrate this study are taken from two/three UK sources: The first is the datasets published by the Office of the Deputy Prime Minister (ODPM), on its own behalf and also on behalf of the Valuation Office Agency (VOA) in the UK (ODPM, 2004a). The other dataset comes from the IPD (IPD, 2004).

First however, Exhibits 1 and 2 show two representations of data as they might appear in a typical paper. Exhibit 1 shows the total annual returns to Standard Retail in England, taken from IPDs Local Market Report (2004). Of course we can immediately say that this presentation is confused, and this is deliberate, but even so it has value. First, in spite of, or perhaps even reinforced by the clutter, it shows a general trend in returns, and it shows that, in general, what applied to one rather small location, a town like Basingstoke for instance, happened more or less across the entire set, although perhaps at varying levels year by year. It also shows the problems that these kinds of data are prone to, and which need to be managed. Two data items are marked. The first is - obviously - Luton. One of the characteristics of the Local Market set is that although the IPD universe of properties is rather large, individual locations may have rather small numbers of properties. This causes some places to drop below the confidentiality threshold and it causes 'weak' statistics for others in at least some periods where the number is still small, for example, Luton. The second labelled dataset is for the Craven District, which is in the North of England, and is known principally for its scenery, as opposed to its retail investment potential! Here, because of the shape of institutional investment (see more below) it is not until 1993 that the area enters the Local Market series. This is also true, less obviously, for some other areas, at different points, Basingstoke in 1982 for example. So, the appearance of data in this series in any one period may well be function of either small sample size or investment 'strategy' or both.

National government in the UK has recently taken a renewed interest in collecting and collating data on real property after a period, in 80's and 90's, when it was felt to be both too expensive and unnecessary to collect such statistics. This rethink is clearly a positive move.

The data relate to floorspace and rateable value statistics for the so called 'bulk groups' of commercial property in local authorities down to the district level. (ODPM, 2004a) Rateable values are the basis for the commercial real estate tax in the UK, called the 'Business Rate'. The tax is based on an assessment of 'rateable value', (RV). The RV is based on a hypothetical gross rental valuation, often close to the open market value at the time of valuation of a unit of real estate known as a 'hereditament'. This assessment is carried out at regular intervals of five years. The latest relate to values in 2003, and came into legal force in 2005, but were unavailable for this study. The data used in this paper are from the previous re-assessment carried out in 1998, which actually came into force for the determination of the Business Rate in 2000. These tax re-valuations are always a source of criticism from the business community as there are often increases and geographical re-alignments in RV, and fears (usually groundless) of an increased tax burden on individual businesses and 'the community'. The rateable value of any hereditament in England and Wales is a public statistic, and can be obtained online or from the relevant local authority. The VOA, which undertakes this task and administers the tax for the Revenue service, does not publish these statistics itself, but does produce useful material using its own data resources at regular intervals (e.g. VOA,

2005). The bulk data are compiled by the Government through the ODPM (ODPM, 2004a). The data are broken down by sector, and within the retail sector into the principal types of retail, but the data exemplified here are for the Office sector. There are several significant features of these data. First they are, with some qualifications, a strong proxy for rental value, at least at points in time. Second, and perhaps more important in this context, the data are defined spatially and provide complete coverage at District level. Indeed for some studies particular data could be abstracted and aggregated up from the individual hereditament level in a variety of ways as has been the case with the Bartlett Town Centre studies (ODPM, 2004b).

The District level coverage can be seen in Exhibits 3 and 4, which map the total Office RV in each District in Exhibit 3 and the Office RV per square metre in Exhibit 4.

These maps, generated using the ArcGIS system, are coloured according to the values in each district. The numerical key has been excluded for simplicity, but essentially the deeper the colour the higher the value of the variable in that cell (District). The most significant feature of these images is that most of the cells are the same colour. Obviously this could be adjusted by increasing the number of classes into which the data is split, as in the case of frequency distributions in statistics. Here the default is five classes, but these maps have been made with seven, so the level of differentiation that is possible is quite high. But, as is apparent, with exceptions, those differences are not really there. There is a large difference between the highest and lowest values. In Exhibit 3 for example, it is more than £1bn. The frequency is spread across the range, but is concentrated in the lower parts of the distribution and this is reflected in the map.

Exhibit 4 shows more differentiation, indicating areas where there are for example high values with relatively low numbers of properties. This is of course especially true of the large urban centres, which stand out clearly on this map.

These data offer other possibilities. Published annually they allow for change patterns to be 'blinked' by directly comparing successive years. Although normally the RV on an individual hereditament will not change through the period between valuations unless there are major structural changes to the property; stock and floorspace will vary the images in ways which would otherwise be invisible in tabulated or even graphed series such as Exhibits 1 and 2.

In addition, the ODPM is collecting information - of limited coverage and reliability thus far - on commercial vacancy rates. Attempts have also been made, especially in respect of retail in its Town Centre studies, to develop figures for turnover. These have however been subject to severe accuracy (and confidentiality) problems (ODPM, 2004b) and may never appear in a useable form.

Exhibits 5 and 6 show the locations in England, used by IPD for their Local Markets and Key Centres material (IPD, 2003, 2004). Wales and Scotland have been excluded. Exhibit 5 shows the total annual returns to Offices for the latest available year - 2003. Notice first how the office rental map in Exhibit 4 maps very closely onto the IPD local market locations in Exhibit 5. Notice also the empty space. Either institution investment in offices does not take place in these locations, or the number of properties of interest is below (about four) the

level of confidentiality. In this map, red represents a very good return, brown is good, orange equates to average and blue is poor. 2003 was a weak year generally for Offices according to Exhibit 5, with a mean return across the 91 Local Market Districts of 6.41%, but with negative returns in some areas, (Hackney -8.02%) but high positives in others; 20.2% (Salford).

In Exhibit 6 the IPD data for Retail show that institutional interest in this sector is more geographically diverse, with nearly half as many more locations giving return figures for Standard Retail. There is still a good deal of empty space. Statistically, 2003 was a good year for Retail, with an average return across the 137 Local Market areas of 17.1%. All the Districts in Exhibit 6 had positive returns ranging from 29.2% (Stockton on Tees) to 7.1% (Basingstoke and Deane).

Exhibits 7 and 8 change the boundary dataset; the level of data aggregation and the type of map and the time period. Once the data tables are established correctly, the process of mapping successive periods is relatively straightforward.

These maps are constructed from the so-called County/unitary data tables in the Local Markets dataset. The variables are the same as in Exhibits 5 and 6; the Annual Returns to Offices and Retail, but the year is 2001. The coverage is as before, incomplete for both Offices and Retail, but areas which have no coverage at District level do now appear in these maps. Obviously this is attributable to the increased level of statistical 'smoothing' in the data and consequent spatial generalisation in these maps but there are some areas that still show blank. London is a notable example where, because of the way that IPD identify sub-areas in Greater London, it is not possible, at least with returns data, to aggregate these in a meaningful way for the whole area. A number of similar data issues are discussed further below.

These maps are, as will be seen, showing the differences from the overall national mean value of returns for each sector, measured in half standard deviation units. In these maps yellow indicates average performance, with shading through green to dark blue for above average performance and to dark brown at the end of the down-side. In both Exhibits good performance is seen in 'peripheral' areas and there is also some evidence of spatial continuity in performance - at this level of aggregation.

While the production of Exhibits 3 and 4 was relatively straightforward, Exhibits 5, 6, 7 and 8, built with the IPD data, were not. There were several 'technical' difficulties, one of which, the sub-divisions within Greater London, was discussed earlier. Each of the maps is built up in layers, with the base map being the boundary data for the appropriate level of interest, in these examples, districts, unitary authorities and counties. The assumption is that the database tables that form the data layers of each map are linked to the base layer by fields that match! Unfortunately the field labels for locations in the IPD data tables are often different to those used officially. This is especially true of Wales, where the IPD data, where it exists, especially at the county level, is still labelled using names that, although they may be familiar and recognisable, were abandoned officially in the 1990s. Thus, in Exhibit 8, the county data for Retail in Wales has been adjusted to approximate to the new named areas as they appear on the map. In addition, standard labelling now indicates whether a location is a Unitary Authority, (a sort of super district), such as Reading, or Swindon (which IPD continue to label as Thamesdown, another name which

disappeared some ten years ago). There are also some labels which are misspelt. In a sense these issues may appear rather trivial, but they become important in considering whether the resultant picture does give an adequate representation of 'ground truth'. Because the software generates a database query-type table for each data layer, any mislabelled field will not be joined to the base layer of the map, and it requires a strong familiarity with the data sets to be able to notice that some of the locations that are blank on maps like this should actually have data in them and hence make the necessary corrections.

4. Conclusions and Further Applications

This experimental paper has reconsidered some issues relating to the data that are often used for studies of real estate performance in the UK. It has suggested that by using GIS we can develop a different way of looking and a new understanding of the patterns that exist in the data. It has also shown clearly the spatial limitations of the example datasets. These are not absolute limits, but can only be overcome by an extension of data collection activity on a fairly massive scale. If this can be done, then the capabilities of the system demonstrated here can be tested much further. The system offers the possibility, for example of true statistical mapping and the development of 'trend surface' representations of any of the datasets that are of interest to real estate researcher.

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Exhibit 1: IPD: Local Markets: Standard Retail:Annual Total Returns:1981-2003

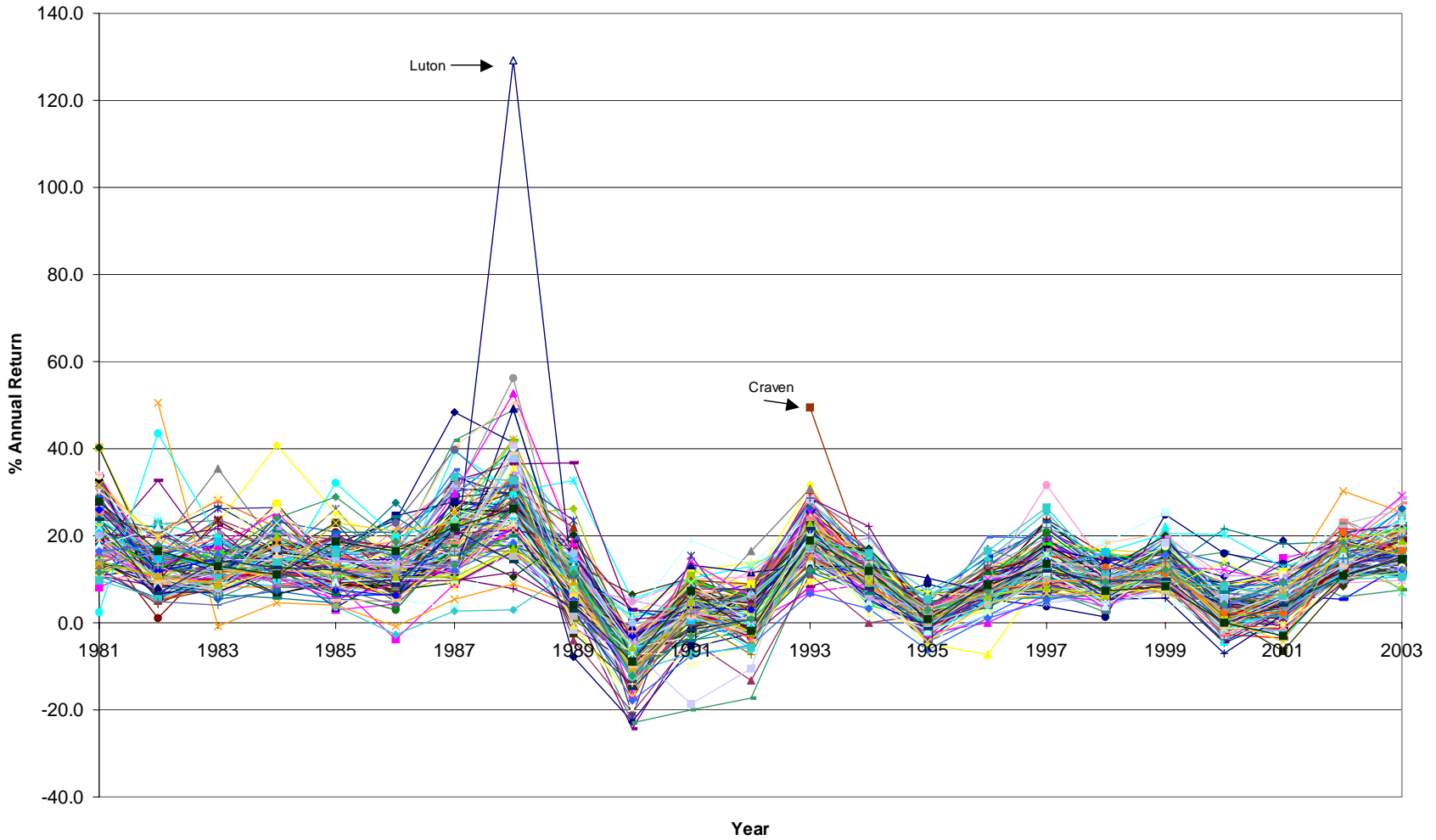


Exhibit 2: IPD Local Markets: Offices: Annual Returns: 1981-2003

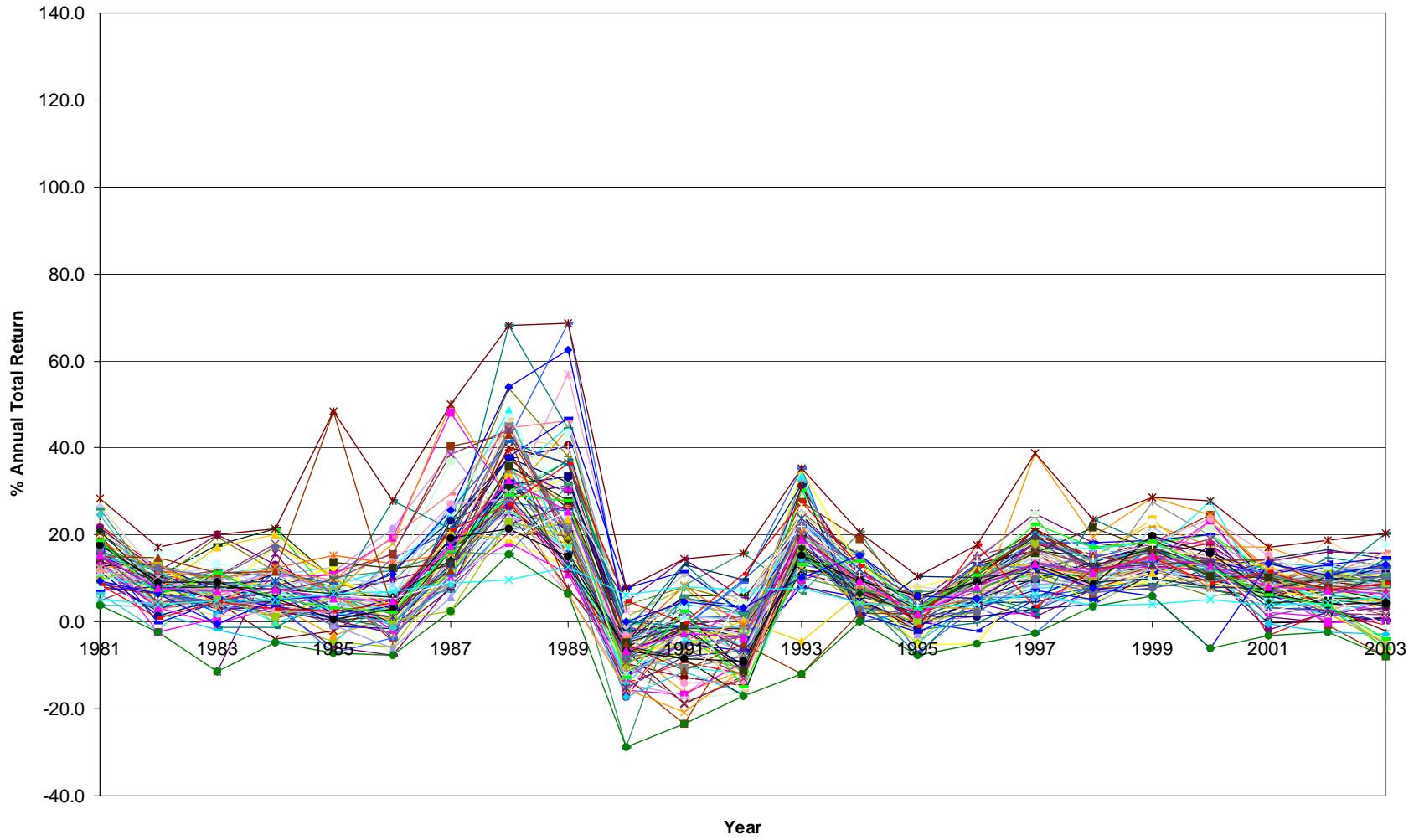


Exhibit 3

**Disticts: England and Wales
Offices: Rateable Value: 1998 (2000)
Source: VOA and ODPM**

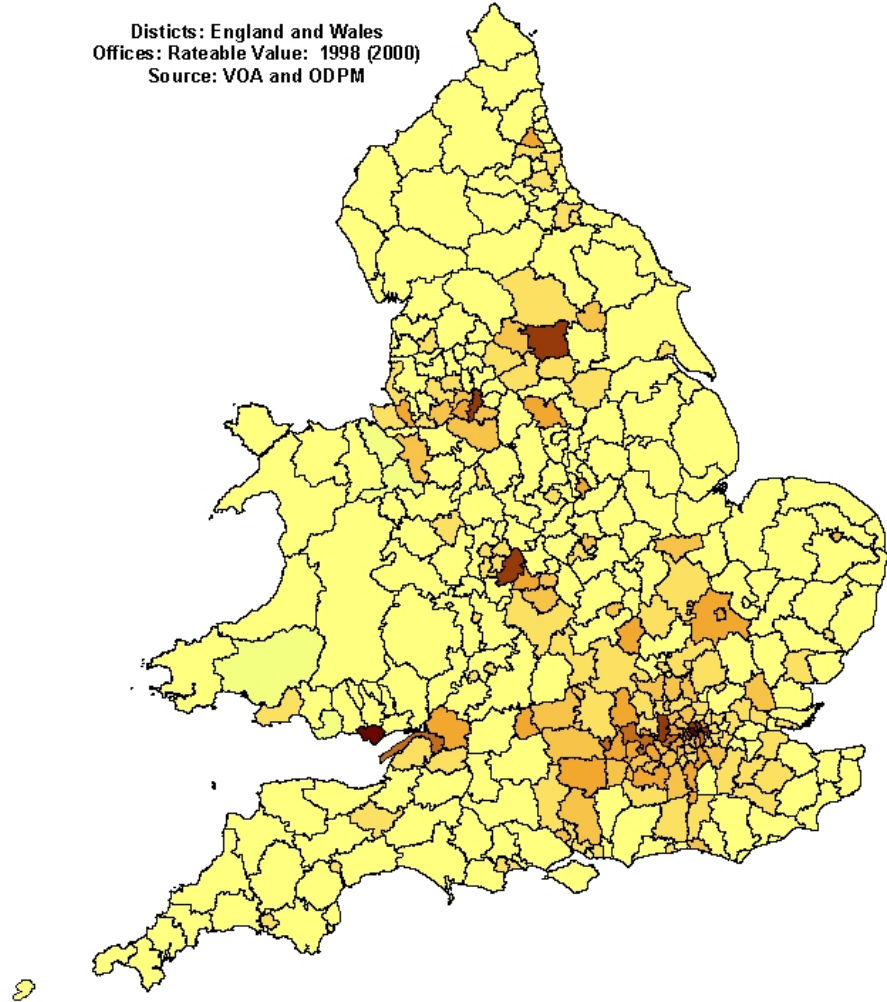


Exhibit 4

Disticts: England and Wales
Offices: Rateable Value per sq. mtr.: 1998 (2000)
Source: VOA and ODPM

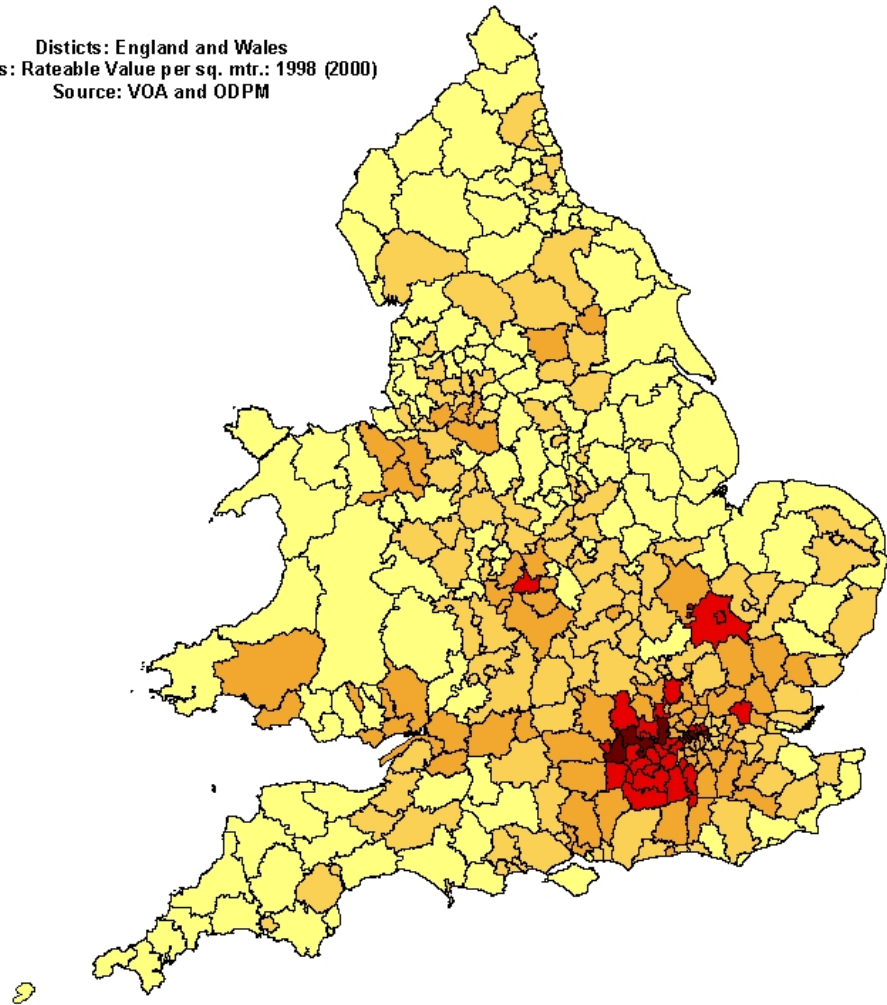


Exhibit 5

Disticts: England and Wales
Offices: Annual Return 2003
Source: IPD

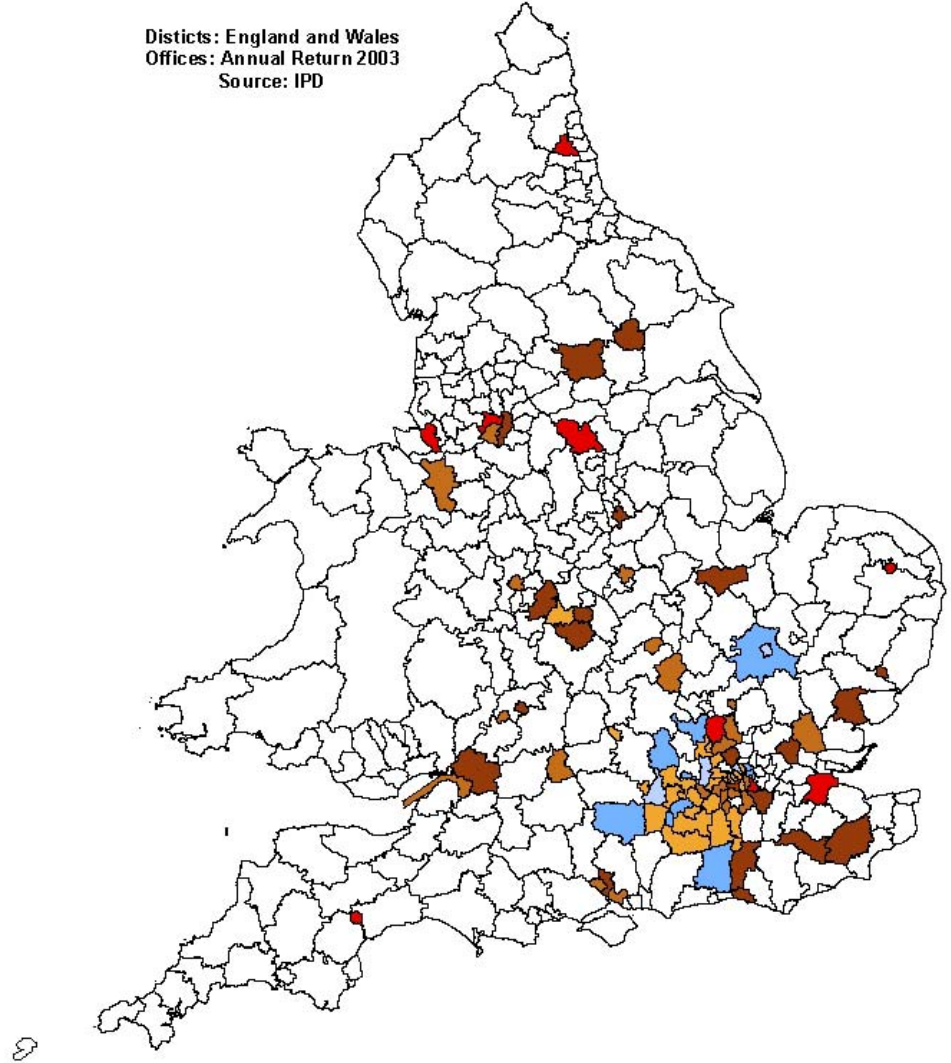


Exhibit 6

Disticts: England and Wales
All Retail: Annual Return 2003
Source: IPD

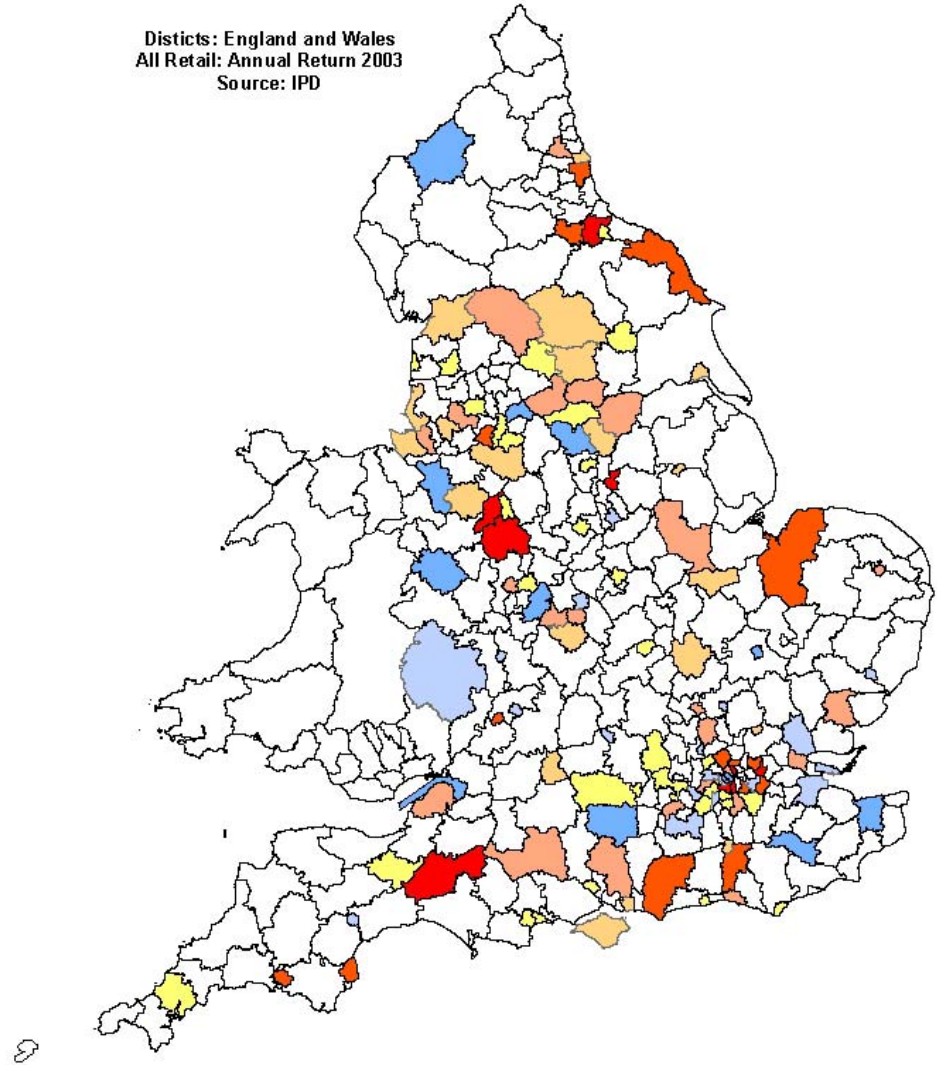


Exhibit 7

2001: England Counties: Office Annual Returns:
Standard Deviation Map
Darkest Blue: +2.25 SD: Darkest Brown: -2.25 SD
Source :IPD

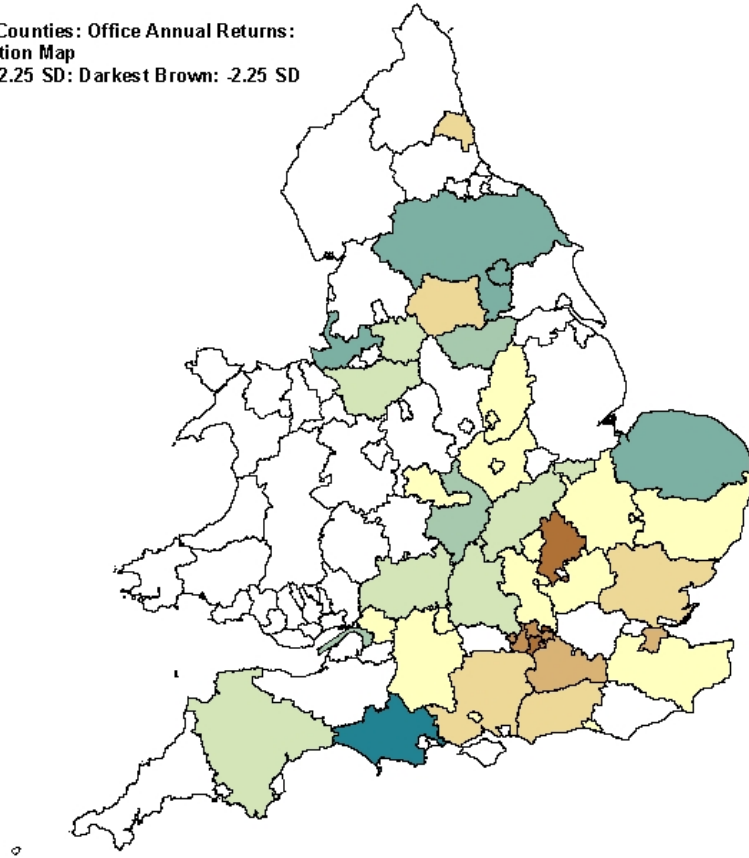


Exhibit 8

**2001: England and Wales Counties: All Retail Annual Returns:
Standard Deviation Map
Darkest Blue: +2.3 SD: Darkest Brown: -2.3 SD
Source :IPD**

