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Working Papers in Real Estate & Planning 19/11

The Impact On Housing Supply In England Of Planning Delay And Uncertainty

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Abstract

The time taken to consider development proposals within the English planning system continues to provoke great policy concern despite a decade of inquiry and policy change. The results of an extensive site-based survey and hedonic modelling exercise across 45 local authorities are reported here. The analysis reveals a slow, uncertain system. It identifies planning delay as a serious problem for housing supply and its ability to respond to increases in demand. Only a relatively limited set of factors seem relevant in explaining differences in times and the results suggest that 80% of councils' performances are statistically indistinguishable from each other. These findings question the policy emphasis put on rankings of local authorities, though some influence from local politics is apparent. Development control is consistently a lengthy and uncertain process due to its complexity. Therefore, success in lowering planning delay is only likely through radical simplification.

Introduction

Housebuilding is the largest category of development evaluated within the English land-use planning system, with around half of all land built on annually used for residential purposes (CLG Planning Statistics). Planning control takes the form of a detailed evaluation of site plans and the buildings proposed in them. It is plan-led, "unless material considerations indicate otherwise." (ODPM, 2005, para 10). The fact that each development proposal has to be submitted for discretionary appraisal contrasts with planning processes in many other countries (Booth, 1996; Cullingworth and Nadin, 2006; Newman and Thornley, 1996).

Discretion encourages complex negotiation strategies and generates stochastic uncertainty (Mayo and Sheppard, 1992). Applicants can also appeal against decisions and may win, adding further time and uncertainty. The time taken in 'development control' is generally termed planning delay. Evaluation inevitably takes time but, for many years now, there has been substantial concern about excessive planning delay in the English system. It has been argued to be a major problem and a contributor to the poor price responsiveness of housebuilding (Barker, 2004a&b, 2006a&b; Audit Commission, 2006; Killian Pretty, 2008; CLG, 2009 & 2011a; Ball, 2011). Moreover, developers' costs are increased, development is discouraged, and developers have to hold higher stocks of land; all of which further dampens supply elasticities.

Some reforms have been put in place: for example, Planning Performance Agreements (PPAs) may be drawn up in relation to major developments. However, there has been little or no monitoring of the success of these reforms and concern must be raised over their effectiveness as delay is still identified as a major problem. The current Coalition Government has introduced a number of initiatives, part of the aim of which is to speed up the planning system. There are now financial incentives to encourage local authorities to permit more housebuilding, via a 'New Homes Bonus' (CLG 2011b); proposals to reform the planning system through a 'National Planning Policy Framework', which emphasises the localism but does not alter the general procedures through which local planning will take place (CLG, 2011c); and a consultation document proposing to offer a guarantee that development control will take no longer than one year (CLG, 2011d).

Even so, the measurement and causes of planning delay remain controversial. The Local Government Association (LGA), the representative body for local authorities, in conjunction with the Planning Officer's Society (POS) strongly contested the need for a one year guarantee, claiming it to be an unnecessary bureaucratic burden. They noted that 99% of decisions on applications were already made within a year and argued that the few applications taking longer were no fault of local government and its planning officers (LGA, 2011).

When discussing the hundreds of thousands of planning applications processed each year, severe problems of heterogeneity and comparability inevitably arise. Most planning applications relate to minor changes to existing buildings, so that the 10 dwellings or more 'major' applications that matter in terms of new housing supply are themselves a tiny percentage of the whole, only 1.6% in the peak housebuilding year of 2007/8. Data are presented in different ways to strengthen opposing arguments. The LGA/POS 'only 1% over 52 weeks' calculation uses the same information as central government does to voice concerns about thousands of schemes subject to lengthy delay.

Although development control involves a common set of procedures laid down by law, there are considerable disparities in practices and performance between local planning authorities (Audit Commission, 2006; OFT, 2008). Consequently, differences in performance may derive from the general characteristics of local authorities and their planning departments (Andrews et al., 2005; and Lord and Hicks, 2010).

Measurement and causality go hand-in-hand. Many potential causes of planning delay are either not recorded or are conceptually difficult to quantify on a comparable basis. This makes it difficult to evaluate specific views on the causes of delay, such as the significance of 'protracted negotiations' and 'complex issues', as highlighted by the LGA/POS document. Differences of interpretation occur. For example, it could be argued that a specific project was subject to planning delay because a developer failed to take account of local planning guidance, but that does not take account of whether the guidance was sufficient and appropriate. Furthermore, was the guidance clear and easily available? Such questioning could be extended to other contentious issues, such as the degree of public consultation undertaken by the developer and the extent to which that leads to rejections. Under the English planning system, ambiguity extends to whether proposals conform to a local 'plan', because local development plans are not generally detailed maps of proposed future land use but a body of documentation and guidance associated at the time of writing with a 'Local Development Framework' (ODPM, 2005; Cullingworth and Vadin, 2006).

A further complication is added by the widespread absences of approved plans under required spatial planning procedures. As late as 2009, only 11% (41) of local authorities in England had a core planning strategy and many are still being developed at the time of writing, according to CLG data. An absence of up-to-date plans clearly complicates both developer and planner decision-making. Reforms to the planning system likely to come in 2012 will enforce another round of plan-making, so that a lack of clear planning strategy seems set to continue.

These difficulties raise an over-arching point about the nature of the English approach to planning. A discretionary system by its nature continuously raises disputable issues that lead to uncertainty and delay, and to differences of option as to their cause.

Appeals are a central part of the English planning system. In 2006/7, the last year before a severe housing market downturn, the English planning inspectorate received around 1,650 major dwelling

appeals, of which it allowed 34% overall and 47% of them at inquiries, the most expensive form of appeal. With all forms of appeal, the outcomes uncertain but the rate at which the Planning Inspectorate overturns local planning decisions indicates that it would be unwise for applicants simply to follow local planning instructions. Appeals are also costly and lengthy. In 2007/8, for example, written appeals were averaging 21 weeks, hearings 37 weeks, and inquiries 35 weeks; with substantial variation in the time taken around those means (Planning Inspectorate, 2007-8 & 2010-11).

Despite the ambiguities and difficulties inherent in analysis of planning delay, light can be cast through statistical approaches which utilise relatively accessible and robust data. Moreover, that approach enables generalisation and the evaluation of the statistical significance of important potential influences (Ball, 2011; Ball et al, 2009).

This paper reports on such research, using information gathered from planning application documents and other sources on the time it took to progress over 900 sites through development control in 45 boroughs spread across England at the most recent peak in housebuilding activity in England in the mid-2000s. As the results indicate, the relationship between the time taken to evaluate an individual application and that for a site as a whole is weak, because many sites require multiple planning applications.

The methodology deliberately utilises only quantitative data and avoids the approach more commonly adopted in this area which relies on case study work related to the opinions of those with experience of development control from either the planner or developer perspective. (For analyses of that type, see Buitelaar (2007) and Killian Pretty (2008)). This is not to dismiss the case study approach. Anyone's experience of development control, from whatever perspective, provides a rich personal understanding. However, the sums of such experiences do not necessarily add up to a complete picture. Case studies are also subject to biases associated with interviewers' direct engagement in gathering information. Moreover, further biases may arise in interviewee perceptions of events (Hammersley, 1990).

Research strategy

1. Data sources

The research reported here collected in-depth information on the evaluation of planning applications with respect to major residential schemes. This is the core of the development control process but misses out several aspects, particularly the time spent in 'pre-application' discussion and in approving post-application 'conditions' imposed on development. So, it gives only a partial picture of the total time taken but provides a strong indication of the scale and variability of delay.

The research strategy was influenced by the fact that the easiest part of the development control process to measure is planning application determination, because there is a written, publically available record from when a planning application is received by a local authority to the time a letter with a decision is sent to the applicant. Data can be drawn from these sources and any single application can be linked to others which may have arisen with respect to the same proposed development.

This evidence was supplemented from other sources. The National Audit Office, Experian Ltd, a number of local authorities, and the Greater London Authority's Planning Monitoring Team all kindly made information available for this study. In addition, data was used from a study at Reading University funded by ESRC (Ball et al, 2009).

It is difficult to track down times for pre-application discussions, because not all authorities keep records of the relevant conversations and dates. The National Audit Office in its study of 100 sites suggested that such discussions took 30 weeks on average (NAO, 2008). It is also hard to obtain records of when conditions were accepted as being met. In addition, time schedules for Section 106 negotiations are not always easy to find (Crook et al, 2006) but those negotiations occur before notification of decisions and so do not need to be added to the total time measured.

Only projects that eventually gain planning permission are included in the analysis, because rejected proposals are likely to contain a wide range of atypical features. Local authorities also generally decide on rejected applications quicker than approvals. The National Audit Office study of 11 local authorities' applications during 2006 and earlier 2007 found that 98% of rejections were decided within 13 weeks, compared with only 49% of approvals (NAO, 2008).

All relevant planning permissions pertaining to a specific development proposal for a site were traced back through time to an initial first application. A variety of information about the nature of the development, the developer, the local area and the local authority was collected, enabling exploration of some key influences on the length of development control time. Development proposals may change in detail through the negotiation process between developer and planner but projects are easy to identify from planning records in their broad outlines. This approach provides a detailed micro-economic evaluation of development control times. It enables meaningful aggregation and generalisation, while allowing specific causalities to be explored. It avoids potential researcher bias inherent in a case study approach by collecting only consistent sources of pre-recorded data. However, the methodology cannot encompass all potential factors influencing development control time. So, there is a danger that missing variables may lead to biased results concerning the causes of delay. This suggests that when using the method it is preferable to keep to straightforward factors that most would agree are potential influences on planning delay, i.e. justifiable priors, and to be concerned about possible colinearities with potentially missing attributes.

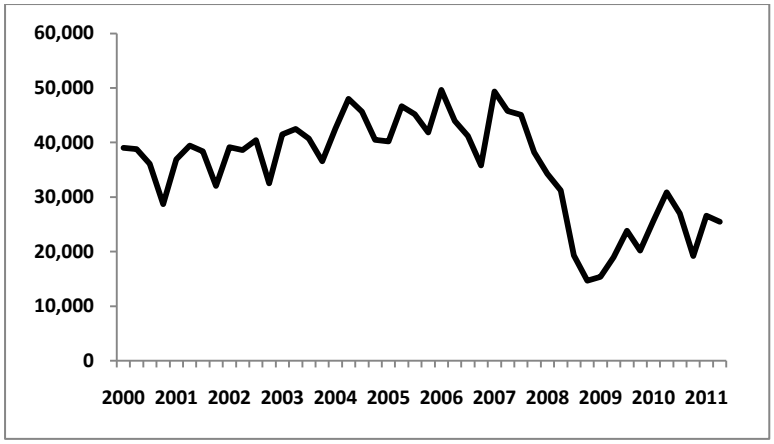
2. Focusing on sites

Sites generate housing output, so that if concern is with the impact of development control on housing supply it is more useful to look at the time it takes sites to progress through development control rather than at individual planning permissions. Some sites may be parts of wider schemes. Generally, the approach decided prior to data collection was to treat independent phases of developments as separate schemes. However, few schemes actually turned out to be sub-sections of wider projects, so this particular aspect of the research design had little impact on the final results.

Sites were identified on the basis that they were successful in achieving planning permission in a two-year period, 2005 and 2006. They were then traced back in time across a period that can span a number of years. The years chosen for the sampling of sites were near the peak of the last housing market boom, when all English regions were experiencing cyclically high housing output (Figure 1).

Consequently, it is a better period to measure development control time than at a later date. Planning departments were unlikely to have had under-used resources as they may well have done later following the onset of the credit crunch. Furthermore, the post-2007 collapse in housebuilding varied around the country and, so, affected local authorities and developers differentially. Therefore, a date prior to 2007 is more likely to reflect uniform market conditions across England, which is an important control when comparing local authority performance. Unfortunately, the choice of sampling dates means that the impacts of subsequent planning reforms are excluded. However, as argued earlier, their impact is unlikely to have been as great as was hoped for, although no rigorous post-implementation evaluation has taken place.

Figure 1: Housing starts in England, 2000 q1 – 2011 q2



Source: CLG

Two broad measures of development control time were estimated for each site and they were calibrated in days for the modelling work and scaled up to weeks for presentational purposes. The first measure, termed 'net planning days', identified the total amount of time a planning permission was pending i.e. the sum of the dates between when an initial application for a development on a site had been lodged and a decision sent out (overlapping dates were not double-counted). Appeals were included within this time frame. The second, termed 'gross planning days', identified the full period from the first planning application to the final approval of the last planning application made with respect to the development. This second measure includes the time when developers had no outstanding applications for sites but were either preparing resubmissions or strategically holding onto land for such reasons as current market conditions, land banking influences, or in the hope of changes in planning policies that would enhance the chance of a successful re-application. Where applications were reserved matters, both the initial outline planning application and the reserve matters application itself were included. A handful of sites were phases of particular large-scale schemes that were being built over a period of years. In these cases, the initial outline application and applications related to the phase itself were both included.

Analysis

The information collected in the research provides a wealth of relevant data and descriptive information about planning control and housing development. In addition, hedonic regressions are particularly suited to the problem of measuring influences on development control times, because

they enable the identification and quantification of specific characteristics that may affect that time (Sirmans, 2005). Such a modelling approach was adopted, with details of the model formulation and results given in a later section.

3. Selecting the sample of local authority areas

There are 374 different planning authorities in England, ranging from large cities, like Birmingham and Manchester, to small local district councils. So, wide variations in practice can be expected between them. The number of applications per authority varied greatly. Only 8 local authorities made more than a 100 major decisions in 2006, while 40% made 30 or fewer decisions throughout the whole year, according to CLG planning data.

The sampling methodology for local authorities was a structured one. Forty-five were involved with a total population of 9.3 million (Table 2). Several of the country's largest cities were included but also a range of areas with much smaller populations. The mix of areas gives a range of localities from inner-city regeneration ones through to rural places near to major conurbations with high degrees of planning constraint and strong pressures for further housing growth. The sample was deliberately biased towards areas of housing shortage, London and the south, because it is in those places that planning pressures are believed to be the greatest. However, as it transpired, regional factors did not feature strongly in the results.

Table 2: Local authorities in the sample[*]

1. Ashford	24. Rother
2. Basingstoke	25. Shepway
3. Birmingham	26. Slough
4. Bristol	27. Solihull
5. Bromsgrove	28. South Cambridge
6. Cambridge	29. Southwark
7. Canterbury	30. Stockport
8. East Hants	31. Stratford-upon-Avon
9. Eastleigh	32. Swale
10. Greenwich	33. Tameside
11. Guildford	34. Tonbridge and Malling
12. Hackney	35. Tower Hamlets
13. Hart	36. Trafford
14. Havering	37. Tunbridge Wells
15. Leeds	38. Wandsworth
16. Lewisham	39. Warwick
17. Macclesfield	40. West Berks
18. Maidstone	41. White Horse
19. Manchester	42. Wychavon
20. North Somerset	43. Winchester
21. Portsmouth	44. Wokingham
22. Reading	45. Woking
23. Redbridge	

* A map identifying each local authority can be found at http://www.statistics.gov.uk/geography/maps.asp.

The scale of residential activity varied substantially across local authorities, with the amount of housebuilding ranging from only 800 dwellings over the four year period 2004/5-2007/8 in Wychavon to over 12,500 in Leeds. The number of planning decisions made was generally closely correlated with housebuilding activity. The Pearson rank correlation coefficient between average

housing starts (2004/5-2007/8) and the number of major residential planning decisions (2005-2006) was 0.79.

A feature of interest is the political composition of the local authority. The US literature suggests that local political composition is significant in influencing pro- or anti-development attitudes (Saks, 2008). In 2006, 17% of the sampled local authorities were run by Labour; 46% by the Conservatives; 5% by the Liberals; and 32 had no overall control.

Survey Results

1. Types of development

A substantial 91 of surveyed sites were brownfield ones, in line with the strong prevailing policy emphasis on brownfield development (CLG, 2006). The proportion of dwellings in the sample built on brownfield was slightly less at 86, because greenfield sites tend to be larger in size. The amount of brownfield building was somewhat higher than the national total for England of 77of dwellings at that time, according to CLG data.

The fact that most sites were brownfield ones highlights the importance of the discretionary nature of modern English planning , because there is a general presumption that development is permissible on brownfield land when it is already being used for buildings.

Overall, the specified number of dwellings to be built on the sampled sites was substantial, involving the construction of 51,000 dwellings, almost a third of the annual England total at the time. Most developments were small, reflecting the predominantly infill character of the land. The mean size was 55 dwellings but this figure was influenced by a number of larger projects and the median was only 21 dwellings. The size distribution is left-censured because the smallest sites recorded in the 'major development' category relate to 10 proposed dwellings. The largest recorded development in the sample was for 1,600 dwellings, while almost two-thirds of projects (63%) involved the construction of 25 dwellings or less. 60% of schemes were of flats only and 23% of developments were mixed commercial and residential schemes, reflecting contemporary emphasis on flat building and mixed-use urban regeneration.

The small average size of developments also highlights the existence of interrelationships between general planning policy and planning delay. As planning policy is generally resistant to substantial large-scale greenfield expansion, English housing supply is associated with a plethora of small schemes, all of which have to be assessed by planners. The modelling results reported below indicate that, although larger sites took longer to evaluate than smaller ones, they required less time on a dwelling unit basis. Consequently, the small site planning policy stance is inherently costly and time consuming.

2. Types of developer

The names of all applicants were collected and an internet search of their identities and characteristics undertaken. Respondents were grouped into five categories: large developers building more than 1000 dwellings annually; medium sized ones with a 200-999 dwelling annual output; small developers constructing fewer than 200 dwellings a year; non-developers, possibly undertaking housebuilding as part of a mixed-use development or because they own potential residential land; and social housing providers.

The relative importance of different types of developer is reported in Table 3. The ranking is classified in two ways: by the percentage of total schemes undertaken by each developer category and, also, by the shares in the total number of dwellings to be built. There is a substantial difference between the two, because smaller producers tend to build on smaller sites. Consequently, the shares of the larger firms are far higher in terms of dwellings than of sites. Broadly, the shares of the largest firms were in line with national size data, once adjustment is made for known biases in the sample (Ball et al, 2010).

Table 3: Developer type shares of sites and dwellings

Developer type	% of schemes	% of dwellings
Large developer	19	38
Medium developer	9	12
Small developer	40	31
Non-developer	20	12
Social housing	12	8

As part of the data collection exercise, the name of the agent used by each applicant was also recorded. The initial expectation was that the use of a specialist might indicate quicker progression of planning applications through development control but, in reality, virtually all applicants used them. So, the use of planning specialists seems to be axiomatic rather than a potential explanatory variable.

3. How long to gain planning permission?

The mean time taken to evaluate planning applications for sites in the sample was almost 43 weeks ('Planning Weeks' in Table 4). There were a number of sites that took a particularly long time to process through development control, so the median was less at 30 weeks. For sites requiring more than one planning permission the mean total time rises to almost 66 weeks and the median time to 39 weeks, including the times between individual applications ('Total Weeks' in Table 4). 55% of sites required one planning application but almost 30% required two and others required more (Figure 2). The results also indicate high variability with respect to development control time, with the standard deviation approximately the same as the mean. This suggests a general degree of high uncertainty, with one standard deviation of evaluation time being almost 40 weeks and for total development control time almost 80 weeks.

Table 4: Time to progress sites through development control

WEEKS PER SITE	PLANNING WEEKS	TOTAL WEEKS
Mean	42.7	65.7
Median	29.9	39.1
Standard Deviation	38.9	79.4
Coefficient of Variation	0.9	1.2

Figure 2: Number of planning applications per site

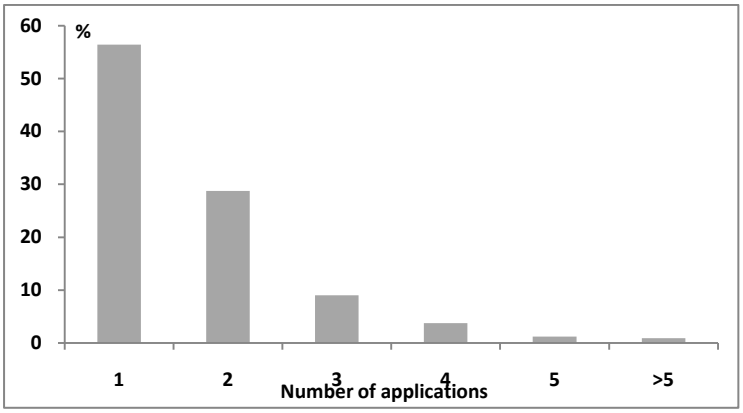
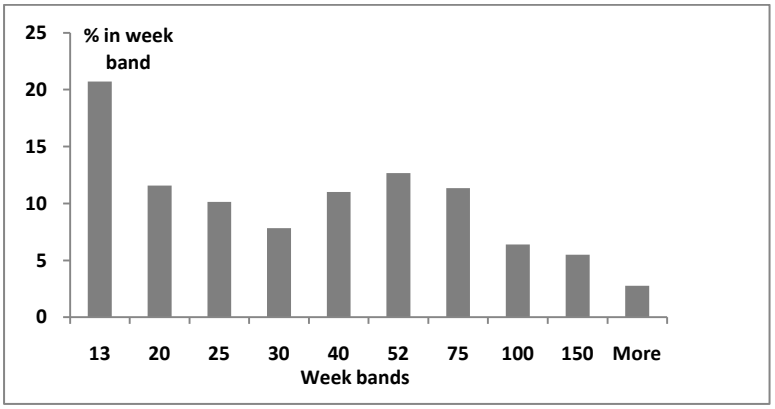


Figure 3: Time taken for planning evaluation of sites

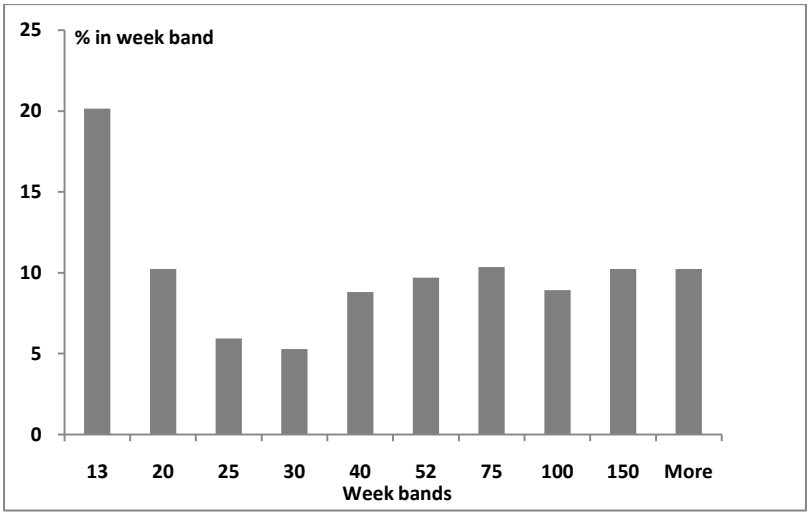
Per cent of sites by weeks taken



Note: The week bands (14-20, 21-25, 26-30, 31-40, 41-52, 53-75, etc.) do not have standard sizes in order to better describe the distributions of times

Figure 4: Total time taken for development control of sites

Per cent of sites by weeks taken



Note: The week bands (14-20, 21-25, 26-30, 31-40, 41-52, 53-75, etc.) do not have standard sizes in order to better describe the distributions of times

In view of the high standard deviations, it is worth examining the distribution of site times further. Figure 3 breaks down the distribution of evaluation times, using the previous government's 13 week target as a base. It then explores the initial overshooting of that timeframe within relatively narrow time bands and subsequently enlarging them as time passes in order to describe meaningfully the relative scale of delays. It shows that only a fifth of sites were approved within the 13 week planning permission target. A further 30% are approved within 30 weeks and, then, there is a bunching of the remaining site approval times between 40 and 75 weeks; while 15% of sites took longer than that, with 8% taking more than two years. Figure 4 shows a similar exercise including the time sites are held by developers between planning submissions. The most noticeable difference is in the longer end of the distribution beyond 40 weeks where the times grow noticeably longer. Now, a fifth of sites are associated with total development control periods of over 100 weeks (i.e. circa two years plus).

Inspection of the information associated with planning applications did not suggest that sites taking more time were necessarily those over which there was a great deal of controversy and dispute. The need for reapplications, when they occurred, was generally not about the principle of development but concerned details regarding its nature. The modelling analysis below suggests that it is by no means clear that sites which take a long time to pass through development control are necessarily 'difficult' or 'controversial', rather than simply 'unlucky' ones in a stochastic process.

4. Appeals

The time in development control increased substantially when developers appeal to the Planning Inspectorate against a rejection by the local authority of their scheme. As only successful schemes have been sampled, the appeals made always led a final overruling of the local authority's decision. The additional time for the preparation and submission of an appeal adds considerable costs for both developers and planning authorities. The outcome of appeals is by no means certain when an appeal is made, so going to appeal adds further uncertainty for the applicant, in terms of the outcome, its cost and the time development control will take.

Only a relatively small number of sampled sites went to appeal, 4% of the total, and those that did vary substantially in their characteristics. However, the threat of being forced to appeal hangs over a much larger group of schemes, highlighting the uncertainties inherent in the English approach to planning. The threat may deter potentially successful applications altogether, because of the impact on expected costs, or the costs and risks may put developers off from appealing when planners reject their schemes. In either case, land is lost to residential development. Alternatively, it may encourage developers to bid less for land to compensate for the risk, which will discourage some landowners from selling.

When sites are subject to more than one application, or to an appeal, there will be a certain amount of time when there are no active applications. Such holding times may occur for a variety of reasons:

- The developer may be preparing for a new application, which can take considerable time. That time will depend on factors such as the scale of the objections given earlier in planning application rejections, the need for redesign and rethinking, the viability of a development, providing new supporting material, and the drawing up of a wide evidence base when opting for appeal.

- There may also be a substantial time gap between an initial outline application and subsequent applications for reserved matters, especially when the latter relate to a particular phase of a large-scale development as that may only be activated once a large number of properties have been sold in earlier phases.
- Finally, developers may decide after all to hold onto the site before resubmitting, waiting for better market conditions, signs of a change in local planning policy, or for idiosyncratic reasons. However, in normal market conditions, this imposes significant costs on developers, which acts as a deterrent. They face opportunity costs when land is held idle; in addition, while significant costs have already been sunk into preparing previous applications and at least part of those could be reused if the re-application took place quickly.

Consequently, it should not be assumed that the time between applications is of no relevance for the measurement of planning delay. Rather part of such time is an inherent part of the planning process in which applicants prepare or revise schemes in the hope that they will then meet planner approval.

Modelling development control time

Hedonic regressions are particularly suited to the problem of measuring the causes of time spent in development control, because they enable the identification and quantification of specific characteristics that may affect that time. Sirmans (2005) provides a survey of their use in housing studies.

The null hypothesis assumed here for the time it takes for the planning system to process any development proposal is that it is random. If the null proved to hold, the modelling results would show that none of the variables aimed at measuring potential influences on the time taken would have significant coefficients.

The relative importance of potential influences on development control processing time can be evaluated through standard hedonic regressions of the following type:

$$DCT_i = c + \alpha_h S_h + \delta_l D_l + \phi_m P_m + e_i \qquad (1)$$

where: DCT_i are the days taken in the development control from initial submission of a development proposal to final planning permission for the i^{th} observation; c is a constant; S_h is a vector of site and building characteristics; D_l is a vector of developer characteristics; P_m is a vector of local authority and planning characteristics; and e_i is an error term.

The dependent variable is the days a development proposal is evaluated in the planning approval process. However, in some modelling formulations the dependent variable is changed from that in equation 1 to the number of days the planning approval process per dwelling on each site (i.e. days a site was in the planning system divided by the number of dwellings to be built on it). This was done in order to take account of some potential non-linearities in the influence of the size of developments on development control time.

As equation 1 indicates, the theory underlying the model is that there are a variety of characteristics related to a site which in combination influence the time taken in development control. Those variables can be divided into three broad types related to physical, developer and local authority influences. Within each category, there are potentially a large number of effects, some of them of a

'soft', hard to measure kind, as noted earlier. Data for only a limited number of variables can realistically be collected, due to research costs and availability of appropriate information.

It is in the nature of the hedonic approach that important variables may be omitted, the absence of which carries the risk of biases in the estimated coefficients of those variables included. However, experience has suggested that simpler model forms may often be superior (Cropper et al, 1988). Furthermore, while specific influences may require complex modelling (Palmquist, 2005; Abbott and Klaiber, 2011), the types of variable being examined here are unlikely to fall into that category.

A stepwise methodology was adopted towards the groups of variables. The variables first introduced into the model were those associated with site characteristics; then the planning process; developer characteristics; and, finally, local authorities and areas. In reality, co-variances were insufficiently high for most variables to make this procedure particularly important. However, grouping variables into their broader categories still assists in explanation of the model results.

Spatial autocorrelation is unlikely to generate particular issues, given the nature of this analysis. Site and building physical features are common across England; the various types of developer are ubiquitous across England; and local authorities work to national planning rules but with specific local idiosyncrasies, which are stochastic in statistical terms.

It might be thought that building density should vary systematically between city centre and suburban developments, being higher in more central locations with higher land-values, and so create determinate spatial variation in this variable. However, this was less the case than might be expected for the sample used here. This is because in England in the 2000s, central government laid down brownfield land and housing density targets, which were often reinforced at the local level (CLG, 2006). In this period of high planning-required housebuilding densities, even small market towns would have stipulations for high new build densities and predominantly brownfield development. For example, in the small but economically successful town of Newbury, Berkshire, only 5 sites were built on in 2006/07 at the peak of a housing boom. All were brownfield with a density well above the then nationally set minimum, averaging 110 units per hectare. Newbury is part of West Berkshire District Council which covers a large, mainly rural area with a spread of small towns in prosperous southern England. Only 20 major (i.e. 10 dwellings or more) housing sites adding 1,100 dwellings were developed across the whole area in that year, and despite its rural character only three sites were greenfield with the remaining 17 being brownfield ones (W. Berks, 2007, Table B12). Central government brownfield and density targets were abolished in 2011 (CLG, 2011c).

Within the three broad groups of potential influences of development control time, the following independent variables were included in initial models. Various formulations of some variables were modelled; for example, inclusion of site area and number of dwellings independently or jointly as a site density variable. In view of the large number of variables, a parsimonious strategy was adopted in the choice of final models, so that they contain only a limited number of key variables. Initial tests indicated that semi-log formulations performed worse than unlogged ones.

Explanation of the relevance of the specific independent variables used in the modelling is most usefully done through the broad subject groupings of site, developer and local authority. Planning related factors exist in all three, though obviously the local authority itself is the 'planner' and site of

the evaluation of applications. Some variables are self-explanatory but others need further elaboration.

1. Site and building characteristics

These variables relate to the scale of the project and its proposed buildings:

- site area
- the number of dwellings to be built
- the height of the proposed buildings
- 'trophy' buildings - English towns typically have relatively low rise development but in the 2000s it became fashionable to promote high rise, prestige housing projects.
- the density of the development
- specific building types and mixes – flats, houses, etc. – as some may take longer to evaluate
- brownfield or greenfield

Some of these characteristics indicate greater project complexity and a plausible hypothesis is that more complex sites take longer to evaluate. However, some identify that sites are more likely to conform to planning criteria, which may lead them to be processed more rapidly through development control. For example, high density sites may be more acceptable to planning and they need not necessarily be complex ones but often small, in-fill, blocks of flats. Large sites also trigger a distinct response within the planning system, while brownfield sites helped authorities to meet the existing national targets.

2. Developer characteristics

Some developers may gain planning permission quicker than others for a variety of reasons. For example, larger firms may have more skilled personnel or have valuable previous experience of dealing with a particular local authority. Some such factors may vary systematically with firm size and developer type. For example, small firms are going to be local in nature and, so, may have superior knowledge of planning requirements or be more tenacious in progressing applications. Larger national concerns may also be more willing to submit repeat applications or to use the appeals process to achieve the preferred developments they want to build in a locality. Non-developers may be particularly inexperienced in making planning applications. Housing association outputs, because they deal with specific housing needs, may be viewed more favourably.

It is clearly difficult to distinguish all potential developer influences but identification of builders by size and type captures the most potential influences. Dummy variables were consequently set up for large, small, housing and non-developer types of builder, with medium-sized firms as the comparator.

Going to appeal, following a planning rejection, is an option for a developer. So, appeals are included within the developer category. However, the time appeals take are consequences of the actions of the Planning Inspectorate and there has been commentary that the appeals process can take an excessively long time (Barker, 2004).

Developers can also choose to submit full applications or requests for outline permission and then reserve matters for details. The latter route is typically associated only with larger projects.

A final developer planning related factor concerns the amount of time between planning applications for a site, as in some cases this was quite long. A control dummy variable was used, which operated when non-active time was more than a half of the total time in development control.

3. Local authority and other agency characteristics

The most complex set of variables under investigation relates to local authorities. This is because there are a wide variety of potential hypotheses in relation to their behaviour. Some of these refer to planning practices; others to wider characteristics of local authorities, such as their size; some will be relative to the social and economic characteristic of the areas they serve; and, finally, the political composition of the council many influence planning outcomes.

Local authority influences in the modelling were introduced in two ways:

1. *Local authority model* Dummy variables were used for each authority bar one. The consequence is that the coefficients are indicators of the whether a local authority was better or worse than the excluded one. Birmingham was chosen as the comparator authority.
2. *Local behavioural model* The other approach was to treat each local authority area as a bundle of characteristics, so that variables for those characteristics were used to identify what sort of factors seemed to influence local authority behaviour in general. Some local authority dummies were introduced as well, in an attempt to identify ones that were strongly atypical. In this framework, the local authority dummies are time deviations from those 'normal' ones for their bundle of characteristics.

The two formulations explore different factors. The first enables an investigation of whether or not there are significant differences in local authority performance with regard to delay having controlled for differences in developer mixes and the types of sites they consider. In principle, this approach enables a more sophisticated ranking of local authority performances than currently exists. Official measures of planning performance have already been criticised here for examining planning permissions only rather than projects related to specific sites. But, in addition, they do not take account of the heterogeneity of developments that local authorities have to investigate. Yet, it makes little sense to criticise or penalise local authorities for factors out of their control.

The second approach is of particular interest because it enables the exploration of behavioural factors at the local authority level which may be influencing development control time. It enables the identification of specific features of local housing markets and social and political structures that help to set the local institutional and political frameworks through which development control takes place.

A variety of local area characteristics were explored.

- Some related to the extent and variability of *housebuilding.* Certain local authorities may face much higher levels of building than others relative to their size or, alternatively, experience more volatile new build housing markets which leads to fluctuations in the number of applications they have to deal with and overload at specific points in time. These features were examined through the following variables:
    - new housing as a percentage of the existing stock
    - the volatility of housebuilding output
    - the number of major planning decisions made weighted by local housing output

- Others concerned the *local planning culture*:
    - the percentage of major residential planning applications granted
    - the extent to which officers, rather than committees of local councillors, make final development control decisions (Killian Pretty, 2008); though most major applications, in practice, go to committee
- Another group of variables related to an area's *economic and social* characteristics:
    - the degree of local deprivation, measured by standard national scores
    - the share of owner occupation, which may be an important in influencing local planner sensibilities and politics (Fischel, 2001a and b).
    - the level of local house prices relative to the regional average to indicate the income and social status of the locality
    - the average travel to work time - to pick up whether the locality was a suburban/rural commuter or core urban one.
- The area's *regional location* was also included, because there may be cultural and institutional behavioural differences across regions. Regional differences might also be significant with regard to labour market differences, which may affect the ease of recruiting and retaining competent planning staff (CLGC, 2008).
- Political leadership of the local authority as identified by which political party was in control or whether there was no overall control, taken from national data on local elections.
- Reports are frequently required for specific development proposals from other departments in the local authority, e.g. education and highways, and from a variety of statutory authorities, regarding infrastructure, services and environmental matters, so the speed of response of those institutions may matter as well. In non-unitary authorities, some matters may be referred to the county level.

A final group of influences relate to *local policy and politics* and the resulting explicit or implicit strategic behaviour of local authorities with regard to development:

- Some may wish to encourage more affordable housing and, so, expedite its progress while looking less favourably on other schemes.
- In a similar vein, there might be greater preference for some developers over others, such as small local firms over larger national ones in order to promote local businesses.
- More generally, if a local authority wishes to limit development in its area, it may choose to signal this subtly and raise developers' costs by slowing development control (Audit Commission, 2006). By contrast, others may be keen on encouraging housebuilding and, so, may speed up development control. This may occur, for example, with urban regeneration schemes in areas of high deprivation, or with particular prestige projects, such as high rise blocks of flats - which became fashionable local urban status symbols in the 2000s.

Modelling Results

Table 5 provides the results for the final models with the dependent variable net days of development control time. All variables are listed that were significant at the 10% level as well as at the 5% level. The results are reported for both the local authority and the local behavioural models.

1. With regard to both models, only a limited number of factors seem to influence development control processing times and colinearities between those variables were not large either. Many of the hypothesised effects identified above were insignificant and excluded from the final models.
2. Much (circa 70%) of the variability in development control time could not be explained by the models. This could be due to the existence of missing variables which have an important influence on development control time. However, a wide range of information was included. A more likely explanation is that a great deal of randomness exists in the time projects take to be evaluated in development control, reinforcing the early descriptive analysis of the survey results.
3. Looking at the local authority model specifically, there was limited variation between local authorities in the lengths of development control times, with only a few local authorities standing out as significantly different from others. Instead, the results suggest that there is a great deal of general variation in development control times for ostensibly similar projects within and between individual local authorities.

Local authority ranking in the local authority model

In the basic 'local authority' model, only fourteen out of 45 local authorities were significantly different from the comparator authority Birmingham's performance and all of them were slower, apart from Redbridge. Moreover, three of those fourteen were only significant at the 10% level rather than the 5% level. With development control time per dwelling per site as the dependent variable even fewer authorities stand out as being different in performance than others, with only 9 having a significant difference at the 5% level.

Site characteristics

With respect to site characteristic variables, three factors were significant: the number of dwellings to be built in the development proposal; whether the development was a brownfield or greenfield one, with brownfield sites being process quicker than greenfield ones; and small-sized sites. All three variables were significant in both the local authority and behavioural models, with coefficients with similar values. However, in the behavioural dwelling days per site model, brownfield was insignificant. All other potential site characteristics were found to be insignificant in various model formulations and were excluded from the final models: including whether the site was for a mixed-use development; whether for flats only; the number of floors in the proposed buildings; the density of the development; and the site size.

The number of dwellings to be built on a site was important, indicating that larger schemes are subject to greater scrutiny. There seem to be some non-linearities in the size relationship, as shown by the fact that small schemes of between 10 and 15 units experienced quicker processing times. This may be because they typically fall below s106 developer contribution requirements or simply because their size raises fewer issues. There were over 300 such small-scale developments in the sample, representing 37% of all cases surveyed. However, in terms of the per dwelling days per site formulation, these smaller schemes exhibited longer times per dwelling; suggesting that although small sites are processed quicker that the extra speed was less than proportionate to their size.

Developer characteristics

Turning to developer characteristics, only large developers and housing association dummies were significant but with opposite effects. Large developers experienced longer times and housing associations shorter ones. The finding that social housing providers had shorter times was consistent across all the estimated models. Some of these developments may be sites given as part of s106 agreements so that planners are already familiar with them, although visual inspection of the data suggested that most were standalone projects.

Table 5: Net days of development control processing time

Dependent variable: Net days of development control processing time

A. LOCAL AUTHORITY MODEL

Variable	***Coefficient***	***t-Statistic***
C	307.03	9.85
APPEAL	164.60	3.90
DDY50	71.89	3.95
LARDEV	86.13	4.02
HA	-61.51	-2.53
BROWN	-100.34	-3.51
DWELL	0.50	5.95
DWLT15	-47.60	-2.68
FLR5	-50.31	-1.66
ASH	371.47	4.95
BASING	184.65	4.14
BRIST	88.80	2.79
EHANTS	109.56	1.84
GUILD	174.66	2.50
LEEDS	204.85	2.48
PORT	140.20	2.18
REDB	-109.55	-1.94
SLOUGH	94.33	1.71
SCAM	645.06	9.24
SWARK	71.09	1.64
WBERK	219.32	3.64
WYCH	145.69	2.77
WOKH	192.29	3.28
Sample : 908		
R-squared	0.31	
Adjusted R-squared	0.30	

B. LOCAL CHARACTERISTICS MODEL

Variable	***Coefficient***	***t-Statistic***
C	145.27	2.58
APPEAL	191.95	4.62
DDY50	65.95	3.60
LARDEV	84.67	3.93
HA	-58.15	-2.40
BROWN	-95.01	-3.29
DWELL	0.46	5.68
DWLT15	-45.08	-2.55
REGHPR	98.47	2.36
NOC06	63.54	3.20
MJDEC/TOTST	1682.12	2.52
ASH	406.09	5.35
BASING	148.90	3.12
CAM	-142.10	-2.80
LEEDS	156.46	1.84
SCAM	560.49	7.76
WBERK	205.16	3.39
WOKH	151.40	2.50
Sample : 908		
R-squared	0.30	
Adjusted R-squared	0.29	

Table 6: Net days of development control processing time per dwelling per site

Dependent variable: Net days of development control processing time per dwelling per site

A. LOCAL AUTHORITY MODEL **B. LOCAL CHARACTERISTICS MODEL**

Variable	Coefficient	t-statistic	Variable	Coefficient	t-statistic
C	11.11	6.60	C	3.17	1.28
APPEAL	8.13	3.51	APPEAL	8.91	3.81
DDY50	3.64	3.57	DDY50	3.51	3.41
HA	-2.42	-1.81	HA	-2.55	-1.89
BROWN	-3.13	-1.96	DWELL	-0.03	-6.25
DWELL	-0.03	-6.43	DWLT15	9.32	9.58
DWLT15	9.21	9.57	REGHPR	5.02	2.16
ASH	22.08	5.23	NOC06	3.24	3.00
BASING	8.28	3.32	ASH	23.99	5.70
BRIST	3.99	2.23	BASING	5.69	2.18
GUILD	8.46	2.15	CAM	-8.50	-2.98
LEEDS	9.84	2.13	SCAM	28.31	6.94
SLOUGH	5.99	1.93	WBERK	10.15	2.97
SCAM	32.43	8.25	WOKH	8.92	2.78
WBERK	10.51	3.10			
WYCH	10.05	3.40			
WOKH	7.99	2.42			
Sample : 908			Sample : 908		
R-squared	0.31		R-squared	0.29	
Adjusted R-squared	0.29		Adjusted R-squared	0.28	

Notes for Tables 5 & 6: The progressively darker shades of grey indicate variables associated with the planning process, developer characteristics, site characteristics & local authorities respectively. The group in white on the right hand side represent local characteristics. Details of the variables are as follows, with dummy variables identified by (D) and set at 1 for the statement specified:

APPEAL = Successful planning appeal (D); DDY50 = over half total time had no planning application active (D); LARDEV = developer builds over 1000 units a year (D); HA = developer is a social housing body (D); BROWN = brownfield development (D); DWELL = number of dwellings to be built; DWLT15 = planned units between 10 & 14(D); FLR5 = block of flats 5 or more storeys high (D); ASH = Ashford (D); BASING = Basingstoke (D); BRIST = Bristol (D); EHANTS = East Hampshire (D); GUILD = Guildford (D); LEEDS = Leeds (D); PORT = Portsmouth (D); REDB = London Borough of Redbridge (D); SLOUGH = Slough (D); SCAM = South Cambridgeshire (D); SWARK = London Borough of Southwark(D); WBERK = West Berkshire (D); WYCH = Wychavon (D); WOKH = Wokingham (D); REGHPR = local average house price relative to region; NOC06 = No overall control of council by a political party in 2006 (D); MJDEC/TOTST = Major residential planning decisions in 2005 and 2006 divided by total housing starts in local authority area 04/5 to 07/8.

The large developer result may simply arise because of involvement with bigger, more complex, sites. On average (as measured by both for the mean and median) the sites they built on were associated with over twice as many dwellings as those of other developer enterprise types. The colinearity with larger sites probably accounts for why the large developer dummy variable is insignificant in the models based on dwellings per site (Table 6).

Interestingly, choosing the full application or outline/reserved matters routes did not seem to influence the length of development control times. The introduction of outline planning permission was an earlier attempt to speed up development control. However, these results indicate that it has not been a success on that score.

In contrast, two other developer options with respect to the planning process were significant. The first was the expected one of going to appeal when an application was refused. The second was when the amount of time between planning applications for a site was more than a half of the total actual time in development control (referred to a DDY50 in the tables). Rejection or modification of schemes consequently had a substantial impact on both total planning time and the net time of evaluation in the planning system.

Local area characteristics

Few of these turned out to be significant in explaining development control times but those that did were revealing. One significant area variable was local house prices relative to regional ones, with more expensive neighbourhoods having slower development control processing times. Councils with no overall party political control, where leadership is weak, also had longer development control times. This may result may also occur because when local politics are hotly contested, local councillors are more concerned about the impact on voters of potentially controversial local developments and want each investigated thoroughly to avoid antagonising local voters. The final important factor was the number of major planning applications relative to contemporary building rates, suggesting that high levels of applications may hit development control processing capacity constraints.

Differentiating local areas on the basis of the characteristics unsurprisingly lowered the number of atypical local authorities. Only five remained as being unusually long in evaluating developments for areas with their characteristics. All were commuter areas in the south east of England.

Conclusion

The issue of planning delay in England is approached here by looking at the experience of development proposals as a whole for a large sample of sites across a wide range of local authorities. It shows that superior results can be achieved in this way compared with the common approach in policy debate of examining aggregate planning permission data on a comparative local authority basis. A site based analysis reveals a slow, uncertain system and identifies planning delay as a serious problem for housing supply and its ability to respond to increases in demand.

Moreover, only a relatively limited and simple set of factors seem to explain the different evaluation times experienced by projects. Site size matters, brownfield and smaller sites are processed more quickly, as are social housing projects. Lengthy times between submissions of applications for any one project are associated with long evaluation times in development control.

There is also evidence that development control is affected by concerns about local resistance to development, with more affluent communities and areas with hung councils recording significantly longer processing times. There is a small group of areas in south east England with particularly lengthy evaluation times.

Modelling relative local authority performances indicated that 80% of councils had performances statistically indistinguishable from each other, once variations in site and other characteristics were accounted for. This finding questions the relevance of data on rankings of English local authorities by their relative performances in assessing planning permissions within given time frames. However, this approach has been at the core of policy monitoring and analysis of planning delay over the past decade or so. Development control is a lengthy process everywhere and, given its nature, the likely success of recent reforms must be treated with scepticism.

A plausible hypothesis that can be derived from the analysis here is that there is a considerable degree of randomness in development control times, due to the sheer complexity of development control, including the range of procedures that have to be gone through and the number of people that have to become involved in one way or another. What randomness implies is that any particular development proposal may sail through some aspects of the process but become snarled up in others on a chance basis. If a detailed investigation of the events is undertaken the cause of the snarl up on that occasion may be identified, but that does not imply that changing development control procedures in consequence will necessarily improve matters, because some other random event may come along instead. In other words, it is the sheer complexity of development control that generates the chance of additional delay and not necessarily particular events within the process itself.

If this hypothesis is correct and the evidence does tend to support it, two important implications follow. The first is methodological. Detailed case studies of development control are not the way to investigate the issue of planning delay. Rather the type of statistical approach adopted here is preferable. The second is policy-related. The overriding aim of reforms to development control should be to reduce radically the complexity of the process in order to speed it up and lower the currently high degree of uncertainty. Whether currently proposed reforms achieve that is a matter of some conjecture.

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