OWNERSHIP CONSTRAINTS TO BROWNFIELD REDEVELOPMENT

Accepted version of paper published in Environment and Planning A (2001), 33, pp. 453-477.

Published version available at: https://doi.org/10.1068/a33200

David Adams[1], Alan Disberry[2], Norman Hutchison[3] and Thomas Munjoma[4]

Abstract

This paper examines the nature and significance of ownership constraints within the urban redevelopment process. It suggests that such constraints derive from the distinctiveness of land as a commodity, the imperfect nature of the land market, the behavioural characteristics of landowners and the institutional context for land ownership, exchange and development. From this, the paper proposes a common definition of ownership constraints as a basis for their practical classification. This divides ownership constraints between those that concern deficiencies in, or limitations to, the extent of ownership rights in potential development land and those that relate specifically to the strategies, interests and actions of those who hold such rights. The various types of ownership constraints that fall under these headings are then explored, with research presented into the extent to which they each disrupted plans to use, market, develop or purchase 80 large redevelopment sites in four British cities between 1991 and 1995.

1. INTRODUCTION

Over the past two to three decades, numerous commentators have drawn attention to the often problematic nature of ownership constraints to brownfield redevelopment (see, for example, Edwards, 1977; Nabarro and Smart, 1978; Chisholm and Kivell, 1987; Cameron *et al.*, 1988; Civic Trust, 1999). For, as Breheny and Ross (1998, p. 23) report in their recent study of urban housing capacity, "Alongside issues of contamination and access, the difficulty of site assembly is seen as a major constraint on the development of urban sites. Sites that have the potential for development are often in multiple ownership. In many cases, ownership is difficult to determine. When it is determined, owners are often reluctant to sell land - usually because of an expectation of higher gains in the future."

Almost all previous work on the brownfield redevelopment has adopted a multi-dimensional approach in which ownership constraints have been considered alongside planning, physical, infrastructural and other barriers to development (see, for example, Adams *et al.*, 1988; Cameron *et al.*, 1988; Department of the Environment, 1991; Adams *et al.*, 1994). Although such studies have demonstrated how the combined impact of such constraints can thwart redevelopment, the full extent and the exact causes of those constraints related to ownership have tended to be obscured within such general analysis.

Indeed, of all the recognised constraints within the development process, ownership has long remained the most elusive. Drawing on extensive recent research, this paper therefore seeks to define, classify and measure ownership constraints to brownfield development. This specific focus should not be taken to imply that, in practice, ownership constraints can or should be considered separately from other factors. Rather, by seeking to unravel the precise nature and significance of such ownership

[1] University of Glasgow - david.adams@glasgow.ac.uk
[2] Previously at University of Aberdeen
[3] University of Aberdeen - n.e.hutch@abdn.ac.uk
[4] Previously at University of Aberdeen

constraints, it is intended to provide a more informed basis for their resolution within an integrated policy framework.

In the next section, we begin by reviewing the theoretical derivation of ownership constraints. Here, we argue that full reliance cannot be placed on any single theoretical tradition to explain the complexities of ownership constraints but that perspectives from neoclassical economics and institutional analysis need instead to be weaved together. From this review, in Section 3, we propose a common definition of ownership constraints to development as a basis for their practical classification. In Section 4, our research method is explained, while in Section 5, we evaluate the extent to which ownership constraints disrupted plans to use, market, develop or purchase 80 large brownfield redevelopment sites in four British cities between 1991 and 1995. The main theoretical and practical implications of the paper are then summarised in Section 6.

2. TOWARDS A THEORY OF OWNERSHIP CONSTRAINTS

The concept of ownership constraints to development derives from the distinctiveness of land as a commodity, the imperfect nature of the land market, the behavioural characteristics of landowners and the institutional context for land ownership, exchange and development. Although they are all well discussed in the literature, the relative significance and practical impact of each of these factors remain matters of considerable dispute. At stake is the extent to which neoclassical theories of land supply need be tempered by institutional perspectives. As Ball (1998) contends, the issue is no longer whether or not institutions matter, but rather how they should be treated in theory and method.

The outcome has important theoretical and practical implications for whether ownership constraints should be regarded primarily as a short-run interruption of normal market processes or perceived instead as evidence of more fundamental institutional barriers to the smooth provision of society's land needs. This choice assumes heightened significance in the context of a UK urban land policy that seeks to direct development pressure to brownfield sites, many of which are already problematic even apart from ownership factors.

The distinctiveness of land as a commodity

The physical and legal characteristics of land make it distinctive as a commodity and provide the starting point for discussion of ownership constraints. Real property is locationally specific and generally immovable (D'Arcy and Keogh, 1999). This can put sellers in a monopoly position relative to buyers. For example, manufacturing firms wishing to expand may be constrained not only by an aggregate shortage of available urban land (Fothergill *et al.*, 1987) but also by the determination of adjacent owners to exploit their monopoly position (Adams *et al.*, 1994).

Land ownership in strict legal terms refers not to land but rather to property rights in land, known as estates and interests. These rights exist as "bundles" (Denman and Prodano, 1972), the ownership of which may be divided, even for a single parcel, between different individuals or organisations. In such cases, development may be unable to proceed until the bundle of rights is united under the control of a single owner.

Once land is developed, it creates a built environment that becomes extremely durable. Yet, the optimal redevelopment rule in neoclassical theory, which envisages the smooth transfer of land to its "highest and best use" (Harvey, 1996), assumes that once the price of land in a new use exceeds the price of land in its current use by the cost of demolition, rational owner behaviour readily accepts sale for redevelopment (Rosenthal and Helsley, 1993)[1]. However, as Bourne (1967) points out, despite such theoretical imperative, some owners may be hesitant or financially unable to forsake their existing

property. Furthermore, if redevelopment requires substantial owner investment or carries significant risk, owners may prefer to accept the existing level of returns, even if they expect redevelopment to generate higher returns in the long term.

The imperfect nature of the land market

In a perfectly competitive market, rapid changes in price balance the quantity demanded with the quantity supplied and ensure equilibrium. However, as numerous texts point out, the conditions of perfect competition are extensively breached in land and property markets (Adams, 1994; Balchin *et al.*, 1995; Evans, 1995; Harvey, 1996). Development land is heterogenous not homogenous. It is traded infrequently in a series of linked sub-markets. Transaction costs limit the ease of market entry and exit and aggravate liquidity. Sub-markets are not merely geographically defined, but are also product differentiated. In residential land, for example, separate sub-markets exist for bulk land, small housing sites and sites suitable for flatted development. The number of buyers and sellers for land as a whole, let alone in each sub-market is limited.

Keogh and D'Arcy (1999) argue that paucity of information pervades property market activity and deserves special mention. Since full information is costly or time-consuming to acquire (and may even be subject to monopoly control), market participants must act on partial information. This renders the concept of an identifiable and definitive market price problematic. Extensive debate therefore concerns the extent to which estimates of value can ever correspond to actual price (Matysiak and Wang, 1995). According to Evans (1995), market imperfections make it more appropriate to seek a range of values than an exact market price. This would allow for an average margin of error of about 10 per cent, which Evans believes is unlikely to be significantly reduced in the future.

Although market imperfections occur when the conditions of perfect competition are violated within the market, if market operations are distorted by external influences, market failure can arise. Externalities, public goods and lost opportunities all provide examples of such distortions within land and property markets (Adams, 1994).

Despite widespread recognition of the imperfect nature of the land market, much debate surrounds the theoretical and practical impact of perceived imperfections, even within mainstream economics. As Harvey (1996, p. 25) points out: "Where markets are defective, price signals work at less than full efficiency and adjustments in supply and demand are sluggish." But are land markets simply slow to clear, while eventually reaching equilibrium, or do they constantly move from one state of disequilibrium to another?

Although Ball *et al.* (1998), for example, believe that equilibrium in the land market can exist empirically, they draw particular attention to its likely instability owing to both temporary shocks which may have important persistence effects and institutional structures which serve to reduce the speed at which the markets can adjust to demand changes. This view is taken further by Keogh and D'Arcy (1999, p. 2405) who suggest that ". . . decentralised trade, costly information, and long time lags in the production of real property may be expected to result in slow adjustment to equilibrium, or even a failure to achieve equilibrium altogether." As these comment indicate, imperfections in the land market may well ensure that market signals are transmitted only slowly to potential sellers or never transmitted at all. We can thus identify at least one way in which ownership constraints to development might arise.

The behavioural characteristics of landowners

Even if market signals were to be fully received by owners, their response may remain unpredictable. Most commentators acknowledge that not all landowners are profit-maximising or even rational in their behaviour. Debate therefore concerns the extent to which landowners are motivated by non-market considerations, and are unresponsive to market signals and, consequently, whether this has any serious impact on the long-run supply of land.

In an early seminal paper, Form (1954) challenged the utilitarian notion that individuals compete impersonally in a free and unorganised land market. He argued instead that the operation of the land market was driven by social, economic and cultural relationships between real estate, big business, government and residents. Account therefore needs to be taken of such social realities as owner preferences in explaining land exchange and development.

In mainstream economics, recent work has centred on the extent to which the individual preferences of particular landowners can be accommodated in models of land supply (Evans, 1983; Wiltshaw, 1985; Evans, 1986 and Wiltshaw, 1988). Evans, for example, acknowledges that the reluctance of elderly couples to sell up and move at any price, or the high regard in which wealthy landowners may hold the amenity of their estates above any tempting offers received from developers, may be the kinds of exceptional cases, where individual preferences are more important than monetary considerations. Wiltshaw (1985) discusses the extent to which land affords an owner satisfaction in such amenity uses as a garden, and subsequently (1988) explains the extent to which non-land income is likely to affect supply prices.

Such personal preferences can be accommodated within neoclassical residential location theory which is based on utility-maximising behaviour by households rather than profit-maximising behaviour by firms. Indeed, personal preferences can be considered part of what Baum and Crosby (1988) call the 'psychic income' or positive feeling that land or property ownership may create. In mainstream economic analysis, the impact of personal preferences can be represented by the concept of 'consumer surplus' or the amount above market value that would be required, as compensation, to tempt particular owners to sell (Evans, 1983). The apparent unwillingness of some owners to sell at any price suggests that their consumer surplus may be so high that no monetary figure could provide enough compensation for its loss.

In the behavioural literature, the strategies, interests and actions of landowners are widely acknowledged as important (Goodchild and Munton, 1985; Adams, 1994). Goodchild and Munton, for example, contend that individual owners perceive land management and development in a way that relates significantly to their own particular characteristics or circumstances. Adams (1994) suggests that certain landowners pursue more active land management and development strategies than others. Active landowners are those who develop their own land, enter into joint venture development or make their land available for others to develop. In contrast, passive landowners take no particular steps to market or develop their land, even though they may intend to do so in the distant future. They may respond, or fail to respond, to offers from potential developers, but otherwise they retain land without development.

Passive owner behaviour should not, of course, be confused with irrational owner behaviour. Refusal to sell land with development potential may be perfectly rational for the individual owner if, for example, it helps to minimise tax liabilities or maximise future choice. Where suitable replacement land would be hard to find, if and when needed, the opportunity costs of land release may significantly outweigh the likely proceeds from sale.

Behavioural analysis suggest that different types of landowner may respond to the same market signals in different ways. To explore why, it is helpful to turn to Massey and Catalano (1978) who identified three distinct types of private landowner differing from each other in their role within the overall structure of social formation and, critically, by their function in the process of production. These they called former landed property, industrial land ownership and financial land ownership.

Former landed property consists of the remaining holdings of the landed gentry and aristocracy, the church and the crown. In each case, extensive and predominantly rural estates are retained not purely for investment purposes, but as part of a wider social role. Such owners may choose to retain land that has development potential to make it available to others on a non-profit basis, to protect its amenity, to preserve a cherished view or maintain a historical connection, or to minimise tax liabilities.

Industrial landowners comprise owner-occupier farmers and manufacturing industrial capital, both of whom need to own land as a condition of production. Land with development potential may be retained for its use value, even if it is currently underused or unused. Despite any high exchange value, reflected in tempting offers from developers, such industrial landowners may be reluctant to sell for a higher and better use if, to do so, would disrupt existing production or jeopardise future expansion.

Financial land ownership is as much the product of capitalism as industrial land ownership, but in contrast to industrial owners, financial owners (mainly property companies, pension funds and insurance companies) are motivated by the investment potential of land and property. Since such owners seek to maximise total returns reflected in exchange value, they are least likely permanently to retain land with development potential, unless they intend to undertake that development themselves. In latter case, financial owners will normally seek to minimise any delay prior to development.

As Massey and Catalano (1978) showed, the ownership of land is not necessarily explained by demand for its immediate consumption. Property users, developers and investors buy and sell land for different purposes and may act in different ways (Keogh, 1994). However, static theories of land price determination from von Thunen to Alonso have been constructed around the rent that users are prepared to bid for proximity to central locations (Evans, 1983). Dynamic theories of land price determination need to reflect the distinction between user and investor demand and acknowledge that prices actually paid for land may change independently of changes in current bid rents.

While full information, perfect competition and instant equilibrium are no longer considered necessary assumptions in mainstream economics (Maclennan and Whitehead, 1996), to what extent does behavioural analysis serve to undermine or invalidate the neoclassical theory of the land market? Does the apparent unresponsiveness of certain owners to immediate market signals really matter?

Ball *et al.* (1998) contend that the simple land supply model, which assumes that landowners behave rationally and have similar preference functions, is not necessarily invalidated by varied owner behaviour. Although variations in owner preferences may slow down market responsiveness or alter the spatial pattern of development, their impact on supply elasticities is more likely to occur in the short rather than the long run. However, since the imperfect nature of the market for land and property protracts the processes of disequilibrium adjustment, they suggest that most of the interesting questions about such markets concern their short-run behaviour. Although they argue that "the long-run land supply function should be expected to be more elastic, because, over the long run, more landowners are tempted to sell for development" (Ball *et al.*, 1998, p. 68), they recognise that the long run is "essentially a heuristic device" which "enables temporal completeness of the system" (p. 35).

From this perspective, varied ownership behaviour may well reflect strategic moves to influence or threaten the behaviour of competitors and could thus be analysed within mainstream economics through game theory (Pindyck and Rubinfeld, 1995). In a similar manner, Evans (1995) argues that the eventual sale price will reflect buyer/seller psychology, primarily through its impact on the process of negotiation between the two parties.

Although the motives and behaviour of landowners account for a further way in which ownership constraints to development arise, their impact on the long-run supply of land remains open to dispute. Nevertheless, those who would argue that ownership constraints attributable to varied landowner behaviour matter little in the long run face two main difficulties. The first concerns the practical evidence. As detailed studies have shown, unresponsive ownership strategies often take many years to change. Llewelyn-Davies (1996), for example, found that 10 of the 28 potential housing sites they examined in Strathclyde which remained vacant at least between 1985 and 1995, were affected by ownership constraints and/or reluctance to sell. In a later nationwide survey, the Civic Trust (1999) revisited 54 potential housing sites in 1998 that had originally been identified by the House Builders Federation twelve years earlier. The investigation identified landowner retention as a dominant reason why 11 sites either remained undeveloped at the end of the period or were developed for uses other than housing. Such evidence makes it important to consider whether demand changes are ever fully reflected in long-run landowner behaviour to the extent theorised in mainstream supply models.

In any event, the institutional context of land supply in the UK (and in other countries with similar urban land policies) makes the short run crucial and presents the second and more forceful difficulty. Since the supply of land available for immediate development is limited by planning consents issued by the state, it becomes all the more important to ensure that the entire, if restricted, supply is readily available for development, rather than being constrained by ownership factors.

Indeed, if brownfield land considered suitable for development by the planning system is held off the market by its owners, there may be no vast tracts of replacement greenfield land available for immediate purchase and development, primarily because planning permission would not be granted. On a regional basis, ownership constraints to brownfield development may thus have their most serious impact in pressured areas such as the South East of England, where the supply of alternative greenfield land for development relative to demand is most restricted by the planning system.

Where, in such an institutionally-determined model of land supply, intense market demand for development land arises over the short run, a policy that lets ownership constraints on suitable sites resolve themselves over time may simply frustrate demand for development and cause land prices to rise. Although such price rises may actually persuade some previously reluctant owners to sell, they may also serve to further raise the expectations of others. Moreover, as later discussed, not all ownership constraints are susceptible to monetary compensation. It cannot therefore be assumed that by restricting the supply of land, ownership constraints will in due course correct themselves through the operation of the price mechanism. Nor, as we discuss in a separate paper (Adams *et al.*, 2000), should it be concluded that the behaviour of brownfield owners can be readily influenced by the introduction of a vacant land tax. Yet, in view of the negative externalities created by vacant urban land, it is apparent that state failure to confront ownership constraints on brownfield sites is neither economically efficient nor politically acceptable. This takes us to the final component behind the concept of ownership constraints.

The institutional context for land ownership, exchange and development

Healey *et al.* (1995) argue that new institutional approaches, now apparent across disciplines such as economics, economic geography, sociology and policy research, represent significant intellectual

challenges to three earlier conceptions of human relations and behaviour. These conceptions are economic reductionism (the assumption that human relations are dominated by economic considerations), instrumental rationality (the assumption that human behaviour is determined by rational calculation of individual interests atomistically conceived) and structural reductionism (the assumption that human behaviour is determined by a narrow set of structural forces such as capital-labour conflict, the power of elites or culture).

New institutional economics, for example, opposes the simple neoclassical notion that resources are allocated merely by market processes since it holds that markets both reflect and help to operationalise the institutional structure of society (Samuels, 1995)[2]. A broad range of explanatory variables, including cultural influences and power distribution, are required to explain market outcomes since "the market economy *per se* is itself a system of social control" (Ibid, 1995, p. 573).

Within new institutional economics, institutions are often regarded as the "rules of the game" in contrast to the "players" or organisations (North, 1990)[3]. Since these rules, norms and regulations are created by society to enable it to function properly, institutions reflect prevailing power and interests. In this context, the property market can be conceived as a network of rules, conventions and relationships, collectively representing the system through which property is used and traded. What is legally or culturally feasible may thus deserve as much attention as what is technologically feasible (Keogh and D'Arcy, 1999).

The principle that institutions evolve to minimise the transactions costs of commodity production and exchange is well rehearsed in institutional economic theory (Coase, 1937; Williamson, 1985; North, 1990). Although some aspects of institutional structure will minimise transaction costs and promote efficiency, others may actually raise costs and impair efficiency. Indeed, as Keogh and D'Arcy (1999) argue, it cannot be assumed that property markets will always be moving towards greater efficiency and lower transaction costs. As Van der Krabben and Lambooy (1994) contend, the collection of information may itself be an important transaction cost. They emphasise the importance of uncertainty in explaining human behaviour and point out that, because the knowledge of decision-makers is severely limited, people are boundedly rational and sometimes have to behave opportunistically. Institutions, they suggest, are designed to reduce these uncertainties of human interaction. This is, of course, one important purpose of land use planning.

Healey and Barrett's work (1990) suggests that the institutional context for ownership behaviour could be usefully explored in relation to the resources to which owners have access (such as private development finance and government grants) the rules which they consider govern their behaviour (such as property rights law and compulsory purchase procedures) and the ideas they draw upon in developing their strategies (such as the perceived boundary between private property rights and public intervention). This makes it necessary to look beyond the narrow range of development constraints acknowledged by neoclassical models (such as those attributable to planning restrictions, public sector monopoly ownership and the cost and availability of credit) through exploration of a broader range of potential influences on ownership strategies, including valuation methods and private tenure patterns (Healey, 1991).

Reflecting the importance of dynamic and evolutionary change within institutional theory (Samuels, 1995), the evolution of ownership behaviour could be plotted against varied owner expectations of future institutional change. While recognising that current practices and structures may generate strong path dependency (Keogh and D'Arcy, 1999), such analysis would highlight the importance of time as an essential dimension within which to consider the constantly changing relationship between the motives and behaviour of those who own land with development potential and the institutional context for land ownership, exchange and development.

3. THE DEFINITION AND CLASSIFICATION OF OWNERSHIP CONSTRAINTS

The previous section contended that theories of the supply of land for development need to take account of the distinctiveness of land as a commodity, the imperfect nature of the land market, the behavioural characteristics of landowners and the institutional context for land ownership, exchange and development. Drawing this together, we suggest that an ownership constraint can be said to exist if development is unable to proceed because the required ownership rights cannot rapidly be acquired through normal market processes. From this definition, five main categories of ownership constraints can be identified, as shown on the left hand side of Table 1 and explained in detail in Section 5.

Table 1: Classification of ownership constraints in the development process

A	Ownership unknown or unclear	A.1	Title deeds incomplete or missing
		A.2	Ownership in dispute
B	Ownership rights divided	B.1	Land held in trust
		B.2	Land subject to leases or licences
		B.3	Land subject to mortgages or other legal charges
		B.4	Land subject to restrictive covenants
		B.5	Land subject to easements
		B.6	Land subject to options or conditional contracts
C	Ownership assembly required for development	C.1	Ransom strips
		C.2	Multiple ownership
D	Owner willing to sell but not on terms acceptable to potential purchasers	D.1	Restrictive terms or conditions of sale
		D.2	Unrealistic expectations of prices
E	Owner unwilling to sell	E.1	Retention for continued current use for: * Occupation * Investment * Making available to others on non-profit basis
		E.2	Retention for control or protection
		E.3	Retention for subsequent own development
		E.4	Retention for subsequent sale * Indecision *(terms of sale unresolved)* * Postponement *(delayed sale advantageous)* * Uncertainty *(unsure of present value or potential)* * Speculation *(hoping for future rise in value or potential)*
		E.5	Retention for no specified purpose: inertia

Table 1 suggests that ownership itself may first be unknown or unclear (see Section 5.1). Secondly, the power of freehold owners[4] to sell land readily available for development with immediate vacant possession may be restricted by a whole series of lesser rights in the same land (see Section 5.2). Thirdly, particular sites may be developable only in amalgamation with others, in which case the assembly of their respective ownerships becomes a prerequisite to successful development (see Section 5.3). Fourthly, although certain owners may be willing to sell land for development, the terms and conditions may be too onerous to attract potential purchasers (see Section 5.4). Finally, for a variety of reasons, some owners may be entirely unwilling to sell their land to potential developers (see Section 5.5).

Although the main categories of ownership constraints shown in Table 1 are not always mutually exclusive in practice, it will be apparent that the first two of the above categories concern deficiencies to, or limitations on, the extent of ownership rights in potential development land, while the final three relate to the strategies, interests and actions of those who hold such rights.

4. RESEARCH METHOD

In his critique of research methods in behavioural institutionalism, Ball (1998) emphasises that future empirical work in this field must avoid small non-random samples, cut through the secrecy often surrounding ownership patterns and transactions behaviour, and concentrate as much on outcomes as owner preferences. The research reported in this paper was specifically conceived to move well beyond hand-picked examples of ownership constraints or even generalised predictions of ownership behaviour and instead produce rich and representative case study evidence drawn from a large sample size which would begin to unravel and pinpoint the significance of ownership constraints to brownfield redevelopment. The research was therefore designed first, to identify all potential redevelopment sites above a certain size in four British cities at a given date, secondly, to reduce this number by random sampling to 20 per city, thirdly, to collate information available on these sites from planning records and other relevant sources and finally to contact and question all those who owned relevant interests in the sites.

To reflect significant differences in development policies and land law north and south of the border, the research was undertaken in two Scottish and two English cities. Two of the selected cities, Aberdeen and Nottingham, had witnessed strong prior development pressure (measured by relative compound annual growth rates in office, retail and industrial rents between 1983 and 1994, published by Jones Lang Wootton) while the other two, Dundee and Stoke-on-Trent, had experienced weaker development pressure.

In each city, local authorities, prominent chartered surveyors, Chambers of Commerce and, in Scotland, local enterprise companies were first contacted to identify all potential redevelopment sites undeveloped at 31 December 1995 which were of at least 2 hectares in area or on which at least 5,000m^2 of gross floorspace was then under active consideration[5]. It was decided to concentrate on brownfield sites of at least this size since, despite notable exceptions, the more significant redevelopment is, in terms of area and floorspace, the greater the number of existing owners likely to be affected and the more complex the process of negotiation with each one. As Table 2 shows, although 166 potential sites were initially identified from these contacts, detailed investigation by the research team showed that 78 did not meet the research criteria. This meant that only 88 potential redevelopment of the required size could be identified across the four cities at 31 December 1995.

Table 2: Research evaluation of potential redevelopment sites						
	Meeting research criteria	*Failing to meet research criteria*				
		Below size threshold	*Buildings not economically or physically obsolete*	*Greenfield site*	*Dev't commenced prior to 31.12.95*	*Total*
Aberdeen	21	10	3	3	1	42
Dundee	20	8	5	4	0	43
Nottingham	24	21	7	1	4	57
Stoke	23	0	0	1	3	24
Total	**88**	**39**	**15**	**9**	**8**	**166**

These sites were not easily comparable with aggregate vacant or derelict land statistics produced on national or local basis, for two main reasons. First, such aggregate statistics are dominated at least numerically by smaller sites, whereas the research database contained only large sites. Secondly, and more importantly, the database did not exclude sites that were still in occupation but which were considered by the local authorities, chartered surveyors or other contacts as likely to be brought forward for redevelopment in the short-term. The research therefore sought to capture the anticipated flow of future sites, rather than be restricted to the stock of identified vacant or derelict land contained in aggregate statistics.

Although it was surprising, despite extensive searching, to discover only 88 sites meeting the research criteria across the four cities, this itself may reflect false perceptions of the availability of large brownfield redevelopment sites and is an important research finding in its own right. In this context, it is interesting to note only 43 sites were identified in Dundee and Stoke-on-Trent combined (the two cities that had experience weaker development pressure) in contrast to 45 in Aberdeen and Nottingham combined (the two that had experienced stronger development pressure). This would suggest that, despite the policy imperative to build on brownfield rather than greenfield sites, potential urban redevelopment sites of any size may well be far fewer in number than popularly imagined.

The 88 sites in the population were then reduced to 80 (20 per city) through the random elimination of four sites in Nottingham, three in Stoke-on-Trent and one in Aberdeen. Many of these 80 sites in the sample were already proposed for particular developments. If and when all these proposals come to fruition, the sites will be re-used for a wide variety of purposes including city centre shops and offices, out-of-centre retailing and business activity, industrial and warehouse units, private and social housing (including a proposed urban village), hotel, leisure and tourist uses, a further education college and even a new fire station.

Detailed inspection of planning and development records held by local planning authorities and other relevant bodies enabled the development history of each sample site between 1986 and 1995 to be reconstructed. Recent development proposals were thus revealed and available information noted on all development constraints (planning, physical and infrastructural, as well as ownership).

The research then sought to contact all non-residential owners of freehold or long leasehold (above 99 years) interests in English sample sites on 31 December 1995, or of corresponding interests in Scottish ones, together with those who had owned such interests during the research period of between 1991 and 1995[6]. Although many potential such owners were identified through local authorities, chartered surveyors or informal on-site enquiries, a more comprehensive picture of ownership was obtained only through formal searches to the Land Registry in England and Register of Sasines in Scotland. Through exhaustive probing and cross-checking of these various sources of information, an initial population of 298 separate ownership interests was identified in the 80 research sites. However, more detailed investigation, including direct contact with potential owners, eliminated 86 of these interests which were deemed inapplicable because, for example, they either owned the site in question outside the period 1991-95, or owned land beyond the site.

Table 3: Owner response rates

	Aberdeen		*Dundee*		*Nottingham*		*Stoke*		*Total*	
	No	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**
Successful contact										
Full questionnaire	29	**83**	35	**48**	30	**62**	26	**46**	120	**57**
Notes from owner	4	**11**	3	**4**	7	**15**	6	**11**	20	**9**
Non response										
No contact	1	**3**	28	**38**	9	**19**	21	**38**	59	**28**
Refused	1	**3**	7	**10**	2	**4**	3	**5**	13	**6**
Total	35	**100**	73	**100**	48	**100**	56	**100**	212	**100**

As Table 3 reveals, successful contact was made with 140 of the 212 owners in the final research population, representing a response rate of 66%. A full research questionnaire was completed for 120 of these 140 owners (normally by a member of the research team at interview, although occasionally by owners themselves and returned through the post). More limited notes were obtained from the other 20 owners successfully contacted, usually through telephone conversations but occasionally from meetings with a member of the research team[7].

From the development site histories and the landowner questionnaires, the research attempted to discover how far each of the ownership constraints listed in Table 1 disrupted plans to use, market, develop or purchase the 80 research sites between 1991 and 1995. Disruption in this sense was conceived as a blockage to the smooth progress of the site through the development pipeline as described in the event-sequence model of the development process produced by Barrett *et al.* (1978).

The extent of such disruption was then graded as minor, significant or very significant, again depending on its implications for the site's progress through the development pipeline[8]. This was assessed primarily through owner questionnaires for the first two categories of constraints and through these combined with more extensive empirical work for the latter three. However, all such information was carefully cross-checked by the research team to achieve consistency between the 80 sites, with final adjustments made, where necessary, to initial site findings. This ensured that the research conclusions, which reflected an essentially qualitative audit of ownership constraints, were consistently based on all available sources of information rather than on any one particular source.

Table 4: Extent of disruption caused by ownership constraints

		Minor		Significant		Very Significant		Total	
		No	%	No	%	No	%	No	%
A.1	Title deeds incomplete or missing	8	80	1	10	1	10	10	100
A.2	Ownership in dispute	2	50			2	50	4	100
A	**Total: Ownership unknown or unclear**	**10**	**71**	**1**	**7**	**3**	**21**	**14**	**100**
B.1	Land held in trust								
B.2	Land subject to leases or licences	13	62	4	19	4	19	21	100
B.3	Land subject to mortgages/other legal charges	2	67	1	33			3	100
B.4	Land subject to restrictive covenants	6	50	2	17	4	33	12	100
B.5	Land subject to easements	4	44	3	33	2	22	9	100
B.6	Land subject to options or conditional contracts	1	33	1	33	1	33	3	100
B	**Total: Ownership rights divided**	**26**	**54**	**11**	**23**	**11**	**23**	**48**	**100**
C.1	Ransom Strips	1	17	2	33	3	50	6	100
C.2	Multiple ownership	3	15	5	25	12	60	20	100
C	**Total: Ownership assembly required for development**	**4**	**15**	**7**	**27**	**15**	**58**	**26**	**100**
D.1	Restrictive terms or conditions of sale	3	75	1	25			4	100
D.2	Unrealistic expectations of price	3	16	13	68	3	16	19	100
D	**Total: Owner willing to sell but not on terms acceptable to potential purchasers**	**6**	**26**	**14**	**61**	**3**	**13**	**23**	**100**
E.1.1	Retention for continued current use for occupation	1	17	2	33	3	50	6	100
E.1.2	Retention for continued current use for investment	3	100					3	100
E.1.3	Retention for continued current use for making available to others on non-profit basis					1	100	1	100
E.2	Retention for control or protection								
E.3	Retention for subsequent own development	1	13	5	63	2	25	8	100
E.4.1	Retention for subsequent sale: Indecision	1	33	1	33	1	33	3	100
E.4.2	Retention for subsequent sale: Postponement								
E.4.3	Retention for subsequent sale: Uncertainty			5	100			5	100
E.4.4	Retention for subsequent sale: Speculation			4	100			4	100
E.5	Retention for no specified purpose: inertia	1	20	2	40	2	40	5	100
E	**Total: Owner unwilling to sell**	**7**	**20**	**19**	**54**	**9**	**26**	**35**	**100**
	Totals	**53**	**36**	**52**	**36**	**41**	**28**	**146**	**100**

This empirical work revealed that ownership constraints disrupted plans to use, market, develop or purchase 64 of the 80 research sites between 1991 and 1995. As Table 4 shows, 146 individual ownership constraints were found (1.8 per site) showing that some sites were affected by more than one such constraint[9]. These figures represent a cautious estimate of actual ownership constraints since they exclude both alleged constraints about which insufficient evidence was discovered and any constraints present but which had not yet disrupted plans to use, market, develop or purchase the site.

Overall, 64% of ownership constraints caused significant or very significant disruption to plans to use, market, develop or purchase the research sites, while 36% caused only minor disruption[10]. Constraint types A and B listed in Table 4 concerned deficiencies to, or limitations on, the extent of ownership rights in potential development land. Altogether, 62 individual constraints were recorded within these two categories (a mean of 0.8 per site), of which 58% were considered to cause only minor disruption and 42% significant or very significant disruption. Constraint types C, D and E relate to the strategies, interests and actions of those who hold such rights. As Table 4 indicates, 84 individual constraints were recorded within these two categories (a mean of 1.0 per site), of which 20% were considered to cause only minor disruption and 80% significant or very significant disruption. In the following discussion, we explain in more detail these five types of constraint and consider further the extent of disruption they each caused.

5. THE NATURE OF OWNERSHIP CONSTRAINTS

5.1 Ownership unknown or unclear

Perhaps the most basic form of ownership constraint to development arises where the title to land is unknown or unclear. In some cases, title deeds may be incomplete or missing, while in others, ownership itself is disputed between parties (Cameron *et al.*, 1988; Howes, 1989).

In institutional terms, unknown or unclear ownership of land reflects essentially private and informal systems of title registration which vary from country to country. For example, in England and Wales, the ownership of all land and property was recorded primarily by individual title deeds until a more formal system was initiated by the Land Registration Act 1925. Compulsory registration of title was introduced county by county from 1937, but did not become a national requirement until 1990. Accordingly, all land now stands in an area of compulsory registration, but land does not need to be registered until a transaction next occurs. Despite the blanket coverage of a registration requirement, the identification of ownership through the Land Registry remains problematic. Open access to the Land Registry in England and Wales was granted in 1990, when its records first became available for public inspection. However, even by the late 1990s, only 15 million of the 24 million properties in England and Wales were recorded in the Registry (Chapallaz, 1998).

Since 1617, public information on the ownership of land in Scotland has been available in the Register of Sasines. This is one of the oldest surviving registers of property deeds in the world. However, as Chisholm and Kivell (1987) point out, even the Scottish Register of Sasines has never extended to a full cadastral survey of the type that exists in Sweden, South Africa, Taiwan and most Australian municipalities[11]. Such cadastres make essential details of all land ownership readily available as public knowledge. The production and maintenance of cadastral maps has been greatly facilitated by the recent and rapid development of Geographical Information Systems.

Chisholm and Kivell (1987) argue that a British cadastral survey is urgently needed to provide the market with better information on the ownership and valuation of land. Although such a full cadastre could prevent constraints of unknown or unclear ownership, it would need to bring together certain information that, in England and Wales at least, has previously been kept private. Chisholm and Kivell

recommend that it should contain public information on land ownership, purchase date, price paid, the official value set for property taxation, details of any existing use rights and, for vacant land or property, the date when use ceased.

In the research, unknown or unclear ownership proved disruptive on 11 of the 80 sites, with a total of 14 individual cases of such disruption recorded. As Table 4 showed, most of these were caused by missing or incomplete title deeds rather than disputed ownership. Although usually a minor irritant in the development process, resulting in delay or extra expense, unknown or unclear ownership was significant or very significant in 4 reported cases. Such limited cases mainly arose from disputes in ownership between public sector bodies following administrative reorganisation.

5.2 Ownership rights divided

A whole variety of rights and entitlements can be created in the same land, each of which may be traded separately. Their existence demonstrates how land markets are structured by their framework of law and culture. A developer must either acquire or respect all such rights. This section explores how lesser rights in development land may constrain its immediate development potential.

Land held in trust

All estates in freehold land held by two or more people are held in trust. Trustees are considered joint owners of trust property and are unable to sell their shares separately. This may delay conveyancing until agreement is reached that satisfies the terms of the trust deed.

Land subject to leases or licences

No development may be possible on land or property leased to tenants, unless the leases are surrendered or until they expire. A developer must decide whether to wait until the expiry of any leases, and thus suffer delay, or offer to buy them in at a cost in order to realise potential marriage value and profit from development more quickly. Attractive cash offers may therefore be necessary to persuade tenants to surrender early to enable development to take place. What is possible in each case may depend as much on the institutional context of landlord and tenant law as on the precise terms of the lease. Licences tend to be short in length and more easily terminated than leases.

Land subject to mortgages or other legal charges

Potential development land may be subject to a mortgage or other legal charge that serves as loan collateral. The terms of the original mortgage or lending agreement may restrict the borrower's right to sell in order to protect the lender's interest in the value of the land. The more highly geared the borrower, the more restrictions may be placed on its management. In practice, such rights are unlikely to be exercised unless the proceeds of a proposed sale fall below the value of the original mortgage or loan, threatening its repayment to the lender.

Land subject to restrictive covenants

Restrictive covenants may have been imposed by earlier vendors of land or buildings to prevent subsequent development such as that of commercial or industrial uses within a predominantly residential area. Elsewhere, agricultural land on the edge of a city may be sold at a relatively low price for horse grazing, subject to a restrictive covenant preventing development of any kind. Even if planning permission is later obtained for new homes, no construction can take place until the original vendor agrees to lift the restriction, usually in return for a substantial extra payment. If the whole

character of an area changes over time making the covenant outdated, and the original vendor cannot be traced or refuses to grant consent, an application can be made to the Lands Tribunal for the removal of a restrictive covenant. This is often necessary when extensive Victorian properties near the centre of towns, originally built as single dwellings and subject to restrictive covenants as such, are proposed to be converted into flats or offices.

Land subject to easements

Easements, such as rights of way and rights of light, further restrict the power of the freehold owner. Such easements need to be removed or altered before construction can proceed, unless development can be designed around them. Private rights of way, for example, can be removed with the agreement of those who will lose the benefit, but as with restrictive covenants, they present developers with yet another potential constraint that often has significant cost implications. Public rights of way, although technically not easements, may have a similar impact since they can be amended only through statutory procedures that normally require a diversion to be provided.

Land subject to options or conditional contracts

A developer may to wish to secure the right to purchase land, while trying to obtain planning permission. This can be achieved by means of either an option, granted by a freeholder to the developer normally in return for payment, or a contract for sale conditional on planning permission.

In the research, the division of ownership rights proved disruptive on 34 of the 80 research sites, with a total of 48 individual cases of such disruption recorded, of which 46% resulted in significant or very significant disruption. As Table 4 showed, leases and licences were the most prevalent such form of disruption. However, their impact was usually limited, owing to their short-term nature on potential redevelopment sites. Restrictive covenants and easements were also periodically disruptive. The former were normally overcome as part of the development process, while development, if it occurred, tended to be designed around the latter.

5.3 Ownership assembly required for development

Ransom strips

A typical ransom strip is small piece of land incapable of use or development on its own but essential to the successful development of land adjacent. This is usually because it controls the only acceptable access from a potential development site to the public highway. The ransom strip may well have been deliberately retained by a previous seller of adjacent land to extract some financial benefit from any future development. An owner of the ransom strip will not normally sell unless offered at least one-third of the value of the adjoining land by its owner[12]. However, as Taylor (1991) notes, private owners of ransom strips can hold out for as much as they like. Unreasonable demands from ransom strip owners can readily make development unviable.

Multiple ownership

A site that has no single owner, but is divided between two or more freehold owners, is said to be in multiple or fragmented ownership. This renders coordinated development problematic (Civic Trust, 1988) and may even inhibit developer demand altogether (Howes, 1989). Without compulsory purchase, development cannot proceed unless agreement is reached with each owner. In a private market, the last owner to settle is in the strongest position to drive a hard bargain with any developer

who has already bought out all other owners. Development that is frustrated by multiple ownership provides a good example of a lost opportunity in welfare economics.

In the research, difficulties in assembling land in different ownership proved disruptive on 24 of the 80 research sites, with a total of 26 individual cases of such disruption recorded. As Table 4 showed, both ransom strips and multiple land ownership were highly problematic, producing significant or very significant disruption in 85% of the instances encountered. Multiple ownership of land, in particular, proved hard to resolve without the prospect of lucrative commercial development and/or state intervention.

Although more profitable forms of development tended to facilitate the assembly of land in multiple ownership by providing developers with greater leeway to negotiate with several owners, in the case of ransom strips, single vendors often interpreted potentially profitable forms of development as an opportunity to extract even higher payments from any developer. This illustrates that no simple relationship exists between potential development profit and the ease with which ownership constraints can be overcome.

5.4 Owner willing to sell but not on terms acceptable to potential purchasers

Restrictive terms or conditions of sale

Some owners may appear quite willing to respond to offers from potential developers and may even market land themselves, but the terms or conditions they seek to impose on any sale can deter potential purchasers. For instance, many local authorities have remained reluctant to sell development land freehold and have instead restricted disposals to long leasehold. Examples were reported from Manchester in the late 1970s and early 1980s (Adams *et al.*, 1988) where disposals for industrial development were limited to 99-year leases with an option to renew for a further 26 years, if requested by the lessee. Despite complaints from property agents, there was little hard evidence to show that this policy, by itself, deterred development.

Unrealistic expectations of price

Despite the potential significance of restrictive terms and conditions, much greater attention is accorded in the literature to owners who constrain development either by setting unrealistically high asking prices for their land or by holding unrealistically high expectations of its value below which they refuse to entertain offers. Almost always, such expectations reflect values set in more prosperous times which have failed to adjust to subsequent economic decline. As Edwards (1977, p. 206) first asked "Why if there is a widespread exodus of capital, with manufacturers and statutory undertakers locating their investments elsewhere, do land values in the inner cities remain so high that the re-use of obsolete land and buildings is impeded?"

Research on the operation of the inner Manchester land market between 1978 and 1984 revealed that owners were encouraged to set unrealistic asking prices primarily by conventional valuation practices which produced a significant contradiction between residual values (based on future costs and returns) and comparative values (based on historic price data) (Adams *et al.*, 1985). Developers in Manchester, as potential purchasers of land, all valued land as a residual by deducting expected development costs and required profit from expected development value. Existing owners, as potential sellers, were usually advised by professional valuers, all of whom relied on the comparative method of valuation which aims to compare the sale site with the most recent similar transactions. Yet, the shortage of actual land sales within inner cities restricts comparable evidence and makes the general level of prices hard to discern. It was therefore argued that over reliance on the comparative method placed undue

emphasis on the most favourable recent transaction, ensuring that land prices were "revised downwards only slowly and reluctantly in response to lack of demand or excess supply" (Ibid, 1985, p. 172)[13].

When land values as a whole decline over a particular period or in a particular area, the earlier use of land for loan collateral may act in a similar way to constrain its sale for development. Howes (1989), for instance, comments that owners may be unwilling to sell at prices below those which match book valuations or recoup historic acquisition costs financed through loans.

This behaviour may well reflect a reluctance among such owners to accept that sunk costs, defined as those "which are irrevocably committed to a particular use, and therefore are not recoverable in case of exit" (Mata, 1991, p. 52) are indeed sunk. According to Clark and Wrigley (1995), such costs fall into three categories: set-up sunk costs (initial capital investment) accumulated sunk costs (the normal costs of doing business) and exit sunk costs. Unlike fixed costs, sunk costs normally have no market value and cannot be retrieved by sale to a competitor.

Although Clark and Wrigley (1995) consider that the implications of sunk costs for firms' exit strategies have been relatively unexplored, they suggest that sunk costs help explain why market exit is not necessarily triggered by a substantial decline in the level of demand. In a property context, where an owner fails to accept that site or building value has fallen below the historic cost of acquisition owing to physical, functional or economic obsolescence, such reluctance to write off sunk costs could result in an unrealistic asking price and protracted vacancy, even if the business itself closes.

Historic cost accounting has traditionally been favoured by accountants who considered it objective and easily verifiable by an auditor or other independent third party. Again, this illustrates the significance of professional rules and practice within the land market. However, the Accounting Standards Board, now recommends that property assets should be regularly revalued on the basis of their current value to the business rather than retained in company accounts at their historic acquisition cost.

Unrealistic expectations of price may also arise where land is contaminated or subject to other physical constraints. A wealth of literature now exists on how best to value contaminated sites (see, for example, Patchin, 1988; Chalmers and Roehr, 1993; Syms, 1995, 1996 and 1997; Richards, 1995 and 1997; Kennedy, 1998). Although there is no consensus on a standard valuation approach (Sheard, 1992), Kennedy (1998) argues that recent improvements in the technical identification and assessment of contamination have facilitated the valuer's task. Almost certainly, environmental stigma will cause a diminution in value as a result of real or perceived risk, even after initial remedial work has been completed (Mundy, 1992).

In this context, Wiltshaw (1998) distinguishes between certainty stigma arising from a known liability and uncertainty stigma reflecting, for example, the fear that environmental cleanliness standards may be tightened in the future. He argues that land values can be readily affected by market perception that contamination creates a permanent risk, even if scientific expertise certifies that the land has been fully and effectively cleaned up. However, Peisner and Taylor (1994) contend that the land market does not overestimate contamination risks since some developers in their case studies achieved extraordinary profits while other experienced losses.

Even if the residual approach recommended by Sheard (1992), in which the cost of meeting an owner's liability for remedial treatment is deducted from the post-treatment value of the land, is widely accepted, plenty of room still exists for dispute between potential vendor and purchaser over the extent of current and possible future liabilities. Moreover, a residual calculation may well produce a

negative site value that removes any incentive for owners of contaminated land to sell. Unless a purchaser is willing to ease the transaction by making a nominal payment termed "willing vendor value" (Adair and Hutchison, 2000), such cases may be resolved only within an institutional framework that acts effectively either to require the original polluter or current owner to remove the contamination or to subsidise developers for undertaking such work.

Although many valuation disputes tend eventually to be settled by negotiation with an "amicable bargain" struck (Nabarro and Smart, 1978), the significance of unrealistic expectations of price as an ownership constraint depends on the period of time required for owners' perceptions to adjust to current market realism. At their most disruptive, such constraints can be almost self-sustaining, since by slowing down market activity and lessening the number of transactions, they restrict the availability of the actual sale evidence needed to challenge owners' unrealistic price expectations.

In the research, owners willing to sell but not on terms acceptable to potential purchasers proved disruptive on 21 of the 80 research sites, with a total of 23 individual cases of such disruption recorded[14]. As Table 4 showed, significant or very significant disruption was caused in 74% of the instances where this type of constraint was evident. It was particularly noticeable in Stoke-on-Trent, where the research unearthed clear evidence that several owners of vacant urban land or obsolete urban property were willing to sell but only at prices unsupportable in a fragile local property market.

5.5 Owner unwilling to sell

There are five main reasons why certain owners choose to retain land with development potential rather than market it for immediate sale or even respond favourably to unsolicited offers received from developers. Specifically, land may be retained for continued current use, for control or protection, for subsequent own development, for subsequent sale and even for no particular purpose whatsoever. Land so retained may be used, underused or even unused.

Retention for continued current use

According to Goodchild and Munton (1985), the main motives for ownership are occupation, investment, making land available for others on a non-profit basis, and control. Goodchild and Munton argue that owners do not respond uniformly to development opportunities open to them and that apparently attractive offers may fail to persuade some to sell. Those in occupation, for example, might be quite satisfied with their present location and unwilling to face the costs and disturbance of removal. Such matters do not concern those who purchase land and property as an investment rather than for occupation. Benevolent owners, usually with extensive holdings, who are willing to make land available to non-profit making organisations such as sports clubs, may be much less influenced by attractive financial offers than either owner-occupiers or investors.

Retention for control or protection

As a motive for the ownership of land, control or protection differs from occupation, investment and making land available for others, in that land controlled or protected is normally kept undeveloped. Some owners control land to protect its amenity, preserve a cherished view or maintain a historical connection, intending expressly to prevent development. Land may also be controlled as a buffer between the owner's use (for example, for the production of toxic chemicals) and neighbouring uses (Moss, 1981). Such forms of control should be distinguished from the retention of land for subsequent development by the owner, which is discussed next.

Retention for subsequent own development

Land may be retained for eventual development, even if construction is not expected to commence for several years. Indeed, the ownership of land with development potential can be compared to the ownership of an option to develop, which when exercised, incurs a substantial cost and fixes the use of the land for the foreseeable future (Titman, 1985: Evans, 1999a). The value of development land therefore includes the value of the option to begin construction at the optimal time (Grenadier, 1995) By applying option pricing theory, writers such as Williams (1991 and 1997), Quigg (1993) and Grenadier (1995 and 1996) have sought to model the value of this option.

Quigg (1993), for example, using data from 2,700 land transactions in Seattle, estimated that market prices reflected a premium for optimal development which had a mean of 6% of land value. She concluded that "Based on our assumptions and estimates, most properties would not be developed if the investor correctly accounts for the option to wait (Quigg, 1993, p. 635). As Williams (1991, p. 191) points out: "This option is more valuable the more uncertain are changes over time in either operating revenues or construction costs." According to Grenadier (1995), since market uncertainty and volatility raise the value of the option to wait, it may well be rational to delay development until later than a conventional development appraisal would suggest.

However, Ball *et al.* (1999) warn against the uncritical application of such American econometric models to a British development context, arguing that while the option to wait "may have some value to investors in the market for existing space, it has less obvious value to a highly geared developer with creditors demanding interests payments which the developer had expected to pay from rents (Ball *et al.*, 1999, p. 216).

Owner-occupiers such as manufacturing companies, however, may well keep land vacant for many years in anticipation of eventual expansion. For instance, when the Vauxhall car plant was built at Ellesmere Port in Cheshire in 1961, it occupied only half of a 160 hectare former RAF airfield. Thirty years later, the other 80 hectares still remained unused. At that point, it was decided to release all the land kept for expansion, since it was considered that any future investment could be accommodated through increased productivity within the existing plant (Adams *et al.*, 1994). In contrast, in the 1990s, expansion land originally kept in reserve when the Toyota car plant was built near Derby was brought forward for development earlier than planned, owing to industrial restructuring in motor manufacture. These examples demonstrate the significance of broader structural change in explaining ownership strategies.

Once expansion land is surrendered, future growth may be achievable only through expensive relocation. It may therefore be entirely rational, both from the perspective of the individual owner and the economy as a whole to keep land with development potential idle. However, in practice, it may be hard to distinguish between owners whose retention of land for subsequent development reflects a long-term investment strategy and those who, mainly as a precaution, keep development sites idle with no specific intent.

Retention for subsequent sale

Indecision, postponement, uncertainty or speculation may cause owners who themselves do not intend to exploit the development potential of their land, to defer sale. These will now be considered in turn.

Indecision as a cause of retention for subsequent sale

Large organisations with bureaucratic decision-making procedures are especially prone to marketing delays caused by indecision. If the land to be sold is relatively small in comparison with the organisation's overall landholdings, there may be little incentive to reach a rapid decision. In an extensive study of corporate property assets, Avis *et al.* (1989) found reactive rather than proactive management typified large organisations since they were often not well organised to maximise the contribution of property to business performance.

In the past, much criticism on these grounds has been directed towards the public sector, and in particular to local authorities and former nationalised industries. Cantell (1977), for example, mentioned slow decision-making procedures within public bodies, while Nabarro (1981) referred to departmentalism within local authorities which delayed the internal transfer of land prior to marketing.

However, recent years have seen a fundamental shift in attitude, as many councils have found it essential to maximise receipts from land sales in order to promote economic development or simply make up for lost revenue from elsewhere. As Department of the Environment (1991, p. viii) research found ". . . during the 1980s local authority owned land was more likely to be brought forward for development than either private sector or other public authority land". Although indecision may remain important as an explanation for the temporary retention of land, it can no longer be attributed to a simplistic division between the speed of public and private-sector decision making.

Postponement as a cause of retention for subsequent sale

An intended sale may therefore be postponed until the time is most advantageous for the owner to sell. Goodchild and Munton (1985) argue that a greenfield owner who wishes to maximize financial gain from land investment should accept the highest offer once planning permission is granted, unless special circumstances justify a delay. In a different context, Needham and Verhage (1998) suggest that property developers who own land banks in Israel ration its release to avoid reductions in prices and hence in their own development gains.

Of the special circumstances identified by Goodchild and Munton, perhaps the most interesting concerns taxation, since they show that Development Land Tax, introduced by the Labour Government in 1976, caused landowners to hold land off the market in anticipation of its eventual repeal by a succeeding Conservative Government. Similar criticisms were previously made of earlier attempts to tax development value, most notably the Development Charge, introduced in 1947, and the Betterment Levy, introduced in 1967, both of which were subsequently repealed. This demonstrates the importance of political change (and anticipated political change) to land market operations.

However, the timing of individual land sales may well be influenced as much by the owner's personal tax position as by the likelihood of future changes to the tax regime as a whole. At present, transfers of land may be subject, for instance, to capital gains tax and inheritance tax. In each case, the detailed rules that determine the exact calculation of tax liability, especially those that concern allowable exemptions, may encourage owners to postpone the sale of land from one tax year to another. An example of this would be the valuable retirement relief provisions from capital gains tax which depend on the age of the vendor and the timing of sale.

Uncertainty as a cause of retention for subsequent sale

According to Evans (1999b and 1999c), risk and uncertainty coupled with transaction costs explain why landowners may retain vacant land until they receive what they consider a minimum or absolute rent in the Marxian sense. Using the example of London Docklands before and after the formation of the Development Corporation in 1981, Evans (1999c, p. 2311) contends that "if the value of the property is virtually zero then the landowner has little incentive to sell or let the land, and every incentive to wait and see whether rents and the sale price will improve." This emphasis on risk and uncertainty links to the earlier discussion of notional option values which increase as uncertainty and volatility increase. For as Evans notes (1999a), the value that such options have until development occurs may mean that owners prefer to wait rather than sell at the current market price.

Owners may thus keep land off the market if they are uncertain either about their own future needs or about the likely marketability or value of their land (Howes, 1989). Such market uncertainty as a whole should be distinguished from the reluctance of particular owners not to accept evidence that market prices have fallen. The impact of this more general uncertainty is most keenly felt in what are known as thin or fragile markets, such as those existing in many inner city areas (Healey and Barrett, 1990).

Speculation as a cause of retention for subsequent sale

Speculation occurs if owners who would be prepared to sell at higher prices, hold land off the market at present. Although some owners hold development land merely in anticipation of an overall rise in market values, others engage in "rent-seeking" activity in an attempt to move sites from a low value to a higher value sector of the market by obtaining a better planning permission (if necessary, by appeal to the Secretary of State) or increasingly, by first registering a formal objection to a proposed development plan. Such speculative behaviour may be encouraged by flexible planning regimes. The stronger the possibility that planning permission will eventually be granted for a higher value use, then the greater the incentive for the owner to keep the site off the market, rather than offer it for immediate sale.

Retention for no specific purpose

As a final constraint, it must be recognised that some owners may hold on to land for years with no specific intent. This type of neglect has been variously described as "bureaucratic forgetfulness" (Cantell, 1977) "apathy" (Civic Trust, 1988) and "corporate inertia" (Adams *et al.*, 1994). Such attitudes appear disproportionately to affect relatively small plots of land owned by organisations that have extensive holdings of land, but whose main business is not in land or property. Retention tends to be encouraged by the low costs incurred in keeping land vacant, and, in many cases, historic purchase costs that were written off years ago. Retention of land for no specific purpose may be challenged by a more proactive approach to property management, which may include an internal mechanism for fixing a notional rent for vacant sites, thus revealing opportunity costs previously hidden (Avis *et al.*, 1989).

In the research, owners unwilling to sell proved disruptive on 29 of the 80 research sites, with a total of 35 individual cases of such disruption recorded. As Table 4 showed, this type of constraint caused significant or very significant disruption in 80% of the instances where it was found. Such disruption was primarily attributable to retention of land for continued occupation or subsequent own development and, somewhat less often, to delayed marketing owing to uncertainty or speculation. Only 5 cases of retention for no specific purpose were discovered.

6. Conclusions

Van der Krabben and Lambooy (1993), who propose a theoretical framework to explain the operation of the Dutch property market, criticise traditional urban economic theories for overemphasis on the demand side of the urban system and for assuming that supply adjusts readily to demand. They argue that property development processes should be regarded not as a smoothly operating "service-hatch" but rather as a theoretical problem area. They contend that institutional analysis provides the best way to explain urban spatial restructuring processes and the dynamics of urban change. This would concentrate attention on how market decisions are conditioned by institutional arrangements, regulation and power.

This paper has demonstrated that ownership constraints to brownfield development may arise either because of deficiencies in, or limitations to, the extent of ownership rights in potential development land or as a result of the strategies, interests and actions of those who hold such rights. Such constraints undermine the contention that, in land and property markets, supply responds to produce development at the right time, in the right place, and at the right price (Lichfield and Darin-Drabkin, 1980). It is therefore simplistic to reduce the role of the landowner to that of supplying enough land to meet demand by responding rapidly to any changes signalled from the market.

As our research showed, ownership constraints disrupted plans to use, market, develop or purchase 64 of the 80 sites between 1991 and 1995. The most prevalent form of constraint encountered was the division of ownership rights. However, since most existing leases on potential redevelopment sites were of short-term duration, the impact of this was limited. In contrast, multiple ownership of land proved particularly hard to resolve without the prospect of lucrative commercial development and/or state intervention. Other troublesome barriers to redevelopment were caused by owners willing to sell but whose expectations of price were unrealistic and by those entirely unwilling to sell.

Nevertheless, the significance of ownership constraints cannot be measured simply by the disruption they cause from site to site since their collective impact across an urban area as a whole may be equally important. For if ownership constraints are known to be concentrated at brownfield rather than greenfield sites, this must harm the attractiveness of urban areas as suitable locations for development, compared to the urban periphery. Thus, even if ownership constraints to brownfield redevelopment are actually resolved, the time and resources this process consumes may generate a negative reputation for brownfield sites that works to switch the spatial pattern of development further in favour of greenfield sites.

Nevertheless, ownership constraints do not merely alter the spatial pattern of development by disrupting its production process but also influence the overall quantity of development. This is because development demand is not constant but instead concentrated in windows of opportunity created by development cycles which are themselves characterised by lagged supply responses to demand pressures.

If ownership constraints aggravate these lags to such an extent that windows of development opportunity are missed, development projects may not simply be held over until the next upturn, but may well be cancelled altogether. As far as brownfield redevelopment is concerned, simple equilibrium models of land supply are thus open to criticism as much for their failure to explain development outcomes as for the unrealism of their assumptions[15]. Thus, if ownership constraints are as potentially significant throughout the UK as our research would suggest, they would require an imaginative policy response if much greater brownfield redevelopment is ever to be delivered and sustained[16].

ACKNOWLEDGEMENTS

This paper is based on research funded by the Economic and Social Research Council (Award No. R000 23 6081). The support of the Council is gratefully acknowledged. We would also wish to express our appreciation to all those who facilitated the research through their provision of valuable advice and information and in particular, to Geoff Keogh, Alan Hooper and Craig Watkins for their helpful comments on the final draft of this paper.

REFERENCES

Adair A S, and Hutchison N E, 2000, *The Valuation of Urban Regeneration Land, Department of Land Economy*, University of Aberdeen

Adams D, 1994 *Urban Planning and the Development Process* (UCL Press, London)

Adams D, Baum A, and MacGregor B, 1985, 'The influence of valuation practices upon the price of vacant inner city land' *Land Development Studies* **2** 157-173

Adams D, Baum A, and MacGregor B, 1988, 'The availability of land for inner city development: a case study of Inner Manchester' *Urban Studies* **25** 62-76

Adams D, Disberry A, Hutchison N, and Munjoma T, 1999, '*Do landowners constrain urban redevelopment?*', Aberdeen Papers in Land Economy 99-01, Department of Land Economy, University of Aberdeen

Adams D, Disberry A, Hutchison N, and Munjoma T, 2000, 'Mind the gap! Taxes, subsidies and the behaviour of brownfield owners', *Land Use Policy*, **17**, 135-145

Adams D, Disberry A, Hutchison N, and Munjoma T, 2001, 'Managing urban land: the case for Urban Partnership Zones', *Regional Studies*, forthcoming

Adams D, Russell L, and Taylor-Russell C, 1994 *Land for Industrial Development* (E & F N Spon, London)

Avis M, Gibson V, and Watts J, 1989 *Managing Operational Property Assets,* Department of Land Management and Development, University of Reading

Balchin P N, Kieve J L, and Bull G H, 1995 (5th edn) *Urban Land Economics and Public Policy* (Macmillan, Basingstoke)

Ball M, 1998, 'Institutions in British property research' *Urban Studies* **35** 1501-1517

Ball M, Lizieri C, and MacGregor B D, 1998 *The Economics of Commercial Property Markets* (Routledge, London)

Barrett S, Stewart M, and Underwood J, 1978 *The Land Market and the Development Process* Occasional Paper 2, School for Advanced Urban Studies, University of Bristol

Baum A, and Crosby N, 1988 *Property Investment Appraisal* (Routledge, London)

Bourne L S, 1967, Private redevelopment of the central city, Research Paper 112, Department of Geography, University of Chicago

Breheny M, and Ross A, 1998 *Urban Housing Capacity: What can be done?* (Town and Country Planning Association and Joseph Rowntree Foundation, London)

Cameron G C, Monk S, Pearce B J, 1988 *Vacant Urban Land: A Literature Review 1976-86* (Department of the Environment, London)

Cantell T, 1977, 'Britain's idle acres' *Built Environment* **3** 238-240

Chalmers J A, and Roehr S A, 1993, 'Issues in the valuation of contaminated property' *The Appraisal Journal* **61** 28-41

Chapallaz N, 1998, 'Public sectors datasets' pp. 9-14 in Wyatt P, and Fisher P, *Property Information Today and Tomorrow* (Royal Institution of Chartered Surveyors, London)

Chisholm M, and Kivell P, 1987 *Inner City Waste Land: An Assessment of Government and Market Failure in Land Development* Hobart Paper 108 (Institute of Economic Affairs, London)

Civic Trust 1988 *Urban Wasteland Now* (Civic Trust, London)

Civic Trust 1999 *Brownfield Housing: 12 Years On* (Civic Trust, London)

Clark G L, and Wrigley, N, 1995, Sunk costs: a framework for economic geography, *Transactions of the Institute of British Geographers* **NS 20** 204-223

Coase R A, 1937, 'The nature of the firm' *Economica* **4** 386-405

Commons J R, 1934, *Institutional Economics: its Place in Political Economy* (Macmillan, New York)

D'Arcy E, and Keogh G, 1999, 'The property market and urban competitiveness: a review' *Urban Studies* **36** 917-928

Denman D R, and Prodano S, 1972 *Land Use: An Introduction to Proprietary Land Use Analysis* (Allen and Unwin, London)

Department of the Environment 1991 *Tackling Vacant Land: An Evaluation of the Policy Instruments for Tackling Urban Land Vacancy* (HMSO, London)

Edwards M, 1977, 'Vagaries of the inner city land market' *Architects Journal* **165** 20-21

Evans A, 1983, 'The determination of the price of land' *Urban Studies* **20** 119-129

Evans A, 1986, 'The supply of land: a pedagogic comment' *Urban Studies* **23** 527-530

Evans A, 1995, 'The property market: ninety per cent efficient?' *Urban Studies* **32** 5-29

Evans A, 1999a, The land market and government intervention pp. 1637-1669 in Mills E S, Cheshire P, (Eds) *Handbook of Regional and Urban Economics* (Elsevier Science, Amsterdam)

Evans A, 1999b, 'On minimum rents: Part 1, Marx and absolute rent' *Urban Studies* **36** 2111-2120

Evans A, 1999c, 'On minimum rents: Part 2, A modern interpretation' *Urban Studies* **36** 2305-2315

Fothergill S, Monk S, and Perry M, 1987 *Property and Industrial Development* (Hutchinson, London)

Form W H, 1954, 'The place of social structure in the determination of land use' *Social Forces* **32** 317-323

Grenadier S, 1995, 'The persistence of real estate cycles' *Journal of Real Estate Finance and Economics* **10** 95-119

Goodchild R N, and Munton R, 1985 *Development and the Landowner* (Allen Unwin, London)

Harvey J, 1996 (4th, edn) *Urban Land Economics* (Macmillan, Basingstoke)

Healey P, 1991, 'Models of the development process: a review' *Journal of Property Research* **8** 219-238

Healey P, and Barrett S M, 1990, 'Structure and agency in land and property development processes: some ideas for research' *Urban Studies* **27** 89-104

Healey P, Cameron, S, Davoudi S, Graham S, and Madani-Pour A, 1995 Introduction: the City - Crisis Change and Invention to *Managing Cities* (John Wiley and Sons, London)

Howes C, 1989, 'Special report land assembly: private sector gets a boost' *Chartered Surveyor Weekly* **26.3** 61–3

Kennedy P J, 1998, *Investment Valuation of Contaminated Land and UK Practice: A study with special reference to former gas works*, Unpublished PhD thesis, Nottingham Trent University

Keogh G, 1994, 'Use and investment markets in British real estate' *Journal of Property Valuation and Investment* **12** 57-72

Keogh G, and D'Arcy E, 1999 'Property market efficiency: an institutional economics perspective' *Urban Studies* **36** 2401-2414

Lichfield N, and Darin-Drabkin H, 1980 *Land Policy in Planning* (Allen and Unwin, London)

Llewelyn-Davies, 1996 *The Re-Use of Brownfield Land for Housing: A Preliminary Study of Strathclyde* (Joseph Rowntree Foundation, London)

Maclennan D, and Whitehead C, 1996, 'Editorial: Housing economics: an evolving agenda' *Housing Studies* **11** 341-344

Massey D, and Catalano A, 1978 *Capital and Land: Land Ownership by Capital in Great Britain* (Edward Arnold, London)

Mata J, 1991, Sunk costs and entry by small and large plants pp. 49-62 in Geroski P A, and Schwalbach J, (Eds) *Entry and Market Contestability: An International Comparison* (Blackwell, Oxford)

Matysiak G A, and Wang S, 1995, 'Commercial property market prices and valuations: analysing the correspondence', *Journal of Property Research* **12** 181-202

Moss G, 1981 *Britain's Wasting Acres: Land-use in a Changing Society* (Architectural Press, London)

Mundy B, 1992, 'Stigma and value' *The Appraisal Journal* **60** 7-13

Nabarro R, 1981, 'The general problem of urban wasteland' *Built Environment* **6** 159-165

Nabarro R, and Smart G, 1978, 'High cost and low value in urban land' *Built Environment* **4** 229-236

Needham B, and Verhage R, 1998, 'The effects of land policy: quantity as well as quality is important' *Urban Studies* **35** 24-44

North D C, 1990 *Institutions, Institutional Change and Economic Performance* (Cambridge University Press, Cambridge)

Patchin P J, 1988, 'Valuation of contaminated properties' *The Appraisal Journal* **56** 7-16

Peisner R, and Taylor C, 1994, 'Does the land market break down for contaminated properties?' *Journal of Property Research* **11** 145-158

Quigg L, 1993 'Empirical testing of real-option pricing models' *Journal of Finance* **48** 621-640

Pindyck R S, and Rubinfeld D L, 1995 (3rd, edn) *Microeconomics* (Prentice Hall, New Jersey)

Richards T, 1995, *A Changing Landscape: The Valuation of Contaminated Land and Property* (College of Estate Management, Reading)

Richards T, 1997, *Is it Worth the Risk? The Impact of Environmental Risk on Property Investment Valuation* (College of Estate Management, Reading)

Rosenthal S S, and Helsley R W, 1994, 'Redevelopment and the urban land price gradient' *Journal of Urban Economics* **35** 182-200

Royal Institution of Chartered Surveyors 1995 *Appraisal and Valuation Manual* (Royal Institution of Chartered Surveyors, London)

Samuels W J, 1995, 'The present state of institutional economics' *Cambridge Journal of Economics* **19** 569-590

Sheard E M, 1992 'Valuation of contaminated land: current theory and practice' *Journal of Property Valuation and Investment* **11.1** 17-27

Syms P M, 1995 'Contaminated land and other forms of environmental impairment: an approach to valuation' *Journal of Property Valuation and Investment* **14.2** 38-47

Syms P M, 1996 'Perceptions of risk in the valuation of contaminated land' *Journal of Property Valuation and Investment* **15.1** 27-39

Syms P M, 1997 *Contaminated Land: The Practice and Economics of Redevelopment* (Blackwell Science, Oxford)

Taylor N P, 1991 *Development Site Evaluation* (Macmillan, London)

Titman S, 1985 'Urban land price under uncertainty' *American Economic Review* **43** 505-514

Van der Krabben E, and Lambooy J G, 1993, 'A theoretical framework for the functioning of the Dutch property market' *Urban Studies* **30** 1381-1397

Van der Krabben E, and Lambooy J G, 1994 An institutional economic approach to land and property markets, Research Memorandum FEW 636, Faculty of Economic Sciences, Tilburg University Tilburg

Veblen T B, 1899, *The Theory of the Leisure Class: An Economic Study of Institutions* (Macmillan, New York)

Williams J, 1991 'Real estate development as an option' *Journal of Real Estate Finance and Economics* **4** 191-208

Williams J, 1997 'Redevelopment of real assets' *Real Estate Economics* **25** 387-407

Williamson O E, 1985 *The Economic Institutions of Capitalism: Firms Markets Relational Contracting* (Macmillan, London)

Wiltshaw D G, 1985, 'The supply of land' *Urban Studies* **22** 49-56

Wiltshaw D G, 1988 'Pedagogic comment and the supply of land for a particular use' *Urban Studies* **25** 439-447

Wiltshaw D G, 1998 'Stigma perception and the remediation of contaminated land' *Journal of Property Research* **15** 285-303

ENDNOTES

1. The optimal redevelopment rule assumes that bids received by owners of land with redevelopment potential take account of the costs of redevelopment and presumably of developer's profit as well.

2. As Samuels (1995, p. 578) explains, new institutional economics "works largely within neoclassicism, and shares its rationality, maximisation, and market or market-like orientation and likewise tends to seek, though with less formalisation, the conventional determinate, optimal, equilibrium solutions to problems." This should be contrasted with approaches in old institutional economics which derives from such writers as Veblen (1899) and Commons (1934) and challenges such basic tenets of neoclassicism as profit-maximising behaviour.

3. In this paper, we follow North's definition while acknowledging Ball's (1998) remark that what constitutes an institution varies from theory to theory. In this context, it is interesting to note that Ball adopts what he calls a common sense view of what is an institution and refuses to get drawn into a firm definition.

4. In Scotland, the proprietor of the dominium title, commonly termed the feuhold owner, is generally the nearest equivalent to the freehold owner in England.

5. Throughout the research, redevelopment was defined to include the re-use of property through substantial refurbishment.

6. It should be emphasised that the definition of owners, here adopted for the purposes of the research, does not distinguish between those who hold land expressly for the purpose of development and those who do not. We therefore include within our definition of owners those whose other characteristics might prompt them to be termed "developers" in everyday language.

7. As Table 3 shows, only 13 owners openly refused to participate. A further 59 owners proved impossible to contact, including 30 who had already relinquished ownership by the end of 1995. Several of these were businesses that had previously gone into receivership. Such earlier ownership was particularly significant in accounting for the proportionately lower response rate in Stoke-on-Trent. Of the other 29 owners not contacted, many were small companies in owner-occupation (particularly concentrated in Dundee) who failed to respond to the persistent efforts of the team.

8. It should be noted that the word significant is used throughout the paper not in a strict statistical sense, but rather to carry the common meaning "of considerable amount or effect or importance" (Oxford English Dictionary).

9. On most sites, only one or two disruptive ownership constraints were recorded. As an exception, however, one of the Aberdeen sites experienced missing title deeds, disputed ownership, the presence of leases/licences and easements as well as the retention of the site for some time between 1991 and 1995 for continued occupation. Such multiple or overlapping constraints all needed to be recorded separately since different actions were required for them each to be overcome.

10. It will be noted that Table 4 shows whether and how each separate constraint affected the 80 research sites at any time between 1991 and 1995, irrespective of whether the particular constraint had been resolved by the end of the research period. A separate analysis revealed that 75 of the 146 constraints identified in Table 4 had, to the research team's best knowledge, been resolved by mid 1998, two and a half years after the end of the research period (Adams *et al.*, 1999). Of course, even if constraints are eventually resolved, in the meantime they may cause very significant disruption to a site's progress through the development pipeline.

11. Chisholm and Kivell (1987) define a cadastre as a public register of land for fiscal purposes.

12. Although this practice was first established in Stokes v Cambridge (1962), it should be noted that no definitive proportion has ever been officially recognised. Each case will need to be treated on its merits.

13. The RICS Appraisal and Valuation Manual now warns against comparable valuations that are excessively dependent on the adjustment of transaction evidence to reflect site differences. It suggests that the comparable method cannot easily be applied to high density or complex greenfield developments, urban sites or existing buildings with development potential (Royal Institution of Chartered Surveyors, 1995).

14. Price expectations were deemed unrealistic either where they were framed without reference to current market conditions (and were instead set, for example, to fund expensive relocation, cover tax liabilities or recoup both the original purchase price and incurred interest charges) or where they exceeded even the owner's estimate of open market value by at least 25%.

15. Consider, for example, land in multiple ownership that requires to be assembled into single ownership before it can be considered part of the effective supply of urban redevelopment land. Such action may be financially viable only in a development boom. If the ownership constraints cannot be speedily resolved before the boom recedes, the development may be lost. Any incentive to overcome such constraints and bring the land forward for redevelopment may not necessarily materialise again.

16. We consider the policy implications of our research in a separate paper (Adams *et al.*, 2001).