THE POLITICS OF LAND POLICY:
USING DEVELOPMENT GAINS FOR PUBLIC PURPOSES

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Abstract

This article looks at how land policy can be used to help realise shared and public facilities – such as affordable housing - in urban planning projects. The basic idea is that land policy can be seen as a way of capturing - in money or in kind - some of the financial surplus that arises when something is built, and of putting that money and those resources to use for some public purpose. This approach enables us to compare in different countries the thinking about and the practice of land policy and its relation to planning, and to put the British experience with that in a wider perspective. The article does not provide answers about how land policy should be carried out, for that is a political matter, involving ideological considerations about the place of land and property rights in society. But the approach does give a systematic way of exploring the financial effects of political choices about land policy, and what those mean for planning.

1. Planning, finance, and land policy

For more than sixty years, planning in Britain has been deeply concerned with betterment and development gains. For at least thirty years after the Uthwatt report (1942) the idea was that betterment was unearned and should be 'creamed off' for the benefit of the community. There was, however, not much attention for how the community was to benefit. That became concrete in the 1980's when the attention shifted to planning gain, and the facilities which developers could be persuaded to provide out of their development gains. Currently, the attention is for affordable housing and the extent to which land for that can be provided cheaply by using the development gains from market housing (Cousins et al. 2001, Crook et al. 2002).

In most of "continental Europe", these issues have received much less explicit attention. However, implicitly they play an important role in processes of urban development. The purpose of this article is to make this role explicit, to help planners to

be more inventive in identifying development gains, in tracing where they arise, and in devising ways of steering them into financing public uses. It does this by explaining why a 'surplus' often arises when a project is developed, and it reviews instruments for land policy in several countries, linking them to attempts to use the surplus for public purposes.

To do this, we put forward a model which links land policy financially to urban planning, thus carrying on the tradition of the classic book by Lichfield and Darin-Drabkin (1980). In some ways this model is similar to that which some people are currently using in Britain, be it implicitly (Crook et al. 2002) or explicitly (Cousins et al. 2002). In other ways it is significantly different. It was developed in order to compare land policy in Israel and the Netherlands (Needham, Verhage, 1998). It has since been used to compare housing and land policy in Britain, France, Germany and the Netherlands (Verhage, 2002). And it has been used to advise the Dutch government on land policy for urban expansions (Needham et al. 2000).

Before we go further, we should mention three limitations. First, we do not deny that there are often very strong emotions attached to land and property rights: but we do not discuss them here. We recognise however that it is partly because of those emotions that we cannot conclude: land policy should always be used in the one way or the other.

Second, we are not saying that the land-policy considerations discussed here should determine the final decision about the location and form of a development project. That must clearly depend on other considerations too, such as environmental and external effects, and people's preferences.

The third limitation concerns the phase of the development process. A project might take many years to develop: and then it has a use life of many more years. Our analysis is limited to the financial surplus that arises in the development phase, also to policy measures taken in that phase. This separation cannot be complete for, during the use life also, land policy measures can be taken relating to the surplus that arises in the development process, such as annual property taxes. We return later to this point.

The starting point for our argument is that urban development often produces a 'financial surplus'. Why this arises and how it can be measured are explained. Then we ask the question: who has the right to that surplus? No conclusive answer can be given. In practice we see that the various parties involved – landowners, developers, local government, even the owners of the developed property – struggle against each other to get a share of it. The rules which govern this struggle, and which therefore affect the outcomes, are the rules of land policy. This is illustrated with examples of land policy instruments from various countries. Finally we set out the importance for urban planning of the land policy rules about how the financial surplus is to be distributed.

2. The financial surplus arising out of urban development

When a development is carried out, it is often the case that the market value of the completed project is greater than the (minimum) production costs. The minimum production costs are the payments to all the parties involved, which will just persuade them to supply the factors of production (e.g. land should be valued at its transfer value), and also the payments for providing the finance (interest charges) and for taking the (development) risks. In the minimum costs, regular profits for the developer are included for these are necessary to induce the developer to engage in a project. (This is explained in more detail in Needham and Verhage, 1998).

The difference between the market value of the completed project and the minimum production costs can be regarded as being a financial surplus, or the supra-normal profits, that are made when a site is developed. This is most obvious for new urban development on greenfield sites. It is more complex in the case of renewal within the existing urban area, for it is not so easy to delimit the scope of a renewal project in an unambiguous way. For example, there are often parts of the project that are commercially viable, whereas for other parts financial support is required. In such cases, whether the market value of the completed project is greater than the minimum costs depends upon the delimitation of the project area.

It can be complicated to calculate the minimum production costs, because of the arrangements which are in place for meeting some of the costs and charging for them. For example, if there is a development of 200 houses on a location previously unserviced, then the costs of servicing that location must obviously be included in the 'minimum production costs', because the housing could not be built without incurring those costs. If, however, some of those servicing costs are paid for by a public authority (e.g. connecting the sewage system to the sewage treatment works) without charging those costs to the development, it is easy to ignore them. Less obvious is the answer to the question: how should the costs be treated of widening the existing road system because of the extra traffic? Or of extending the local primary school and the local library? This complication is well known under the name of 'the rational nexus' and plays a big role in the discussions about planning gain (see below). There are additional complications with urban restructuring. The costs of initiating the restructuring of an area are often high, and much consultation between various parties is required to answer the question: who pays what? Often, because of the location within the existing built up area of a city, the returns from urban restructuring can be high, but large investments need to be made to initiate the project.

Because of such complications, it is difficult unequivocally to distinguish the minimum costs of urban development and restructuring. Nevertheless, the concept of the financial surplus can be justified theoretically. Also, using cases of greenfield development, it has been made operational within fairly narrow limits. This was not easy: a surplus is not an item that occurs on the financial accounts of the parties involved, moreover none of those parties has an interest in letting a surplus be seen. Nevertheless, we have been able to deduce it from those financial accounts supplemented by interviews, in ten case studies - two in France, two in Germany, two in England and four in the Netherlands. (Verhage 2002, Needham et al, 2000, Verhage 2003, Verhage and Needham forthcoming).

3. Why is there a financial surplus?

It can be expected that, if there is a financial surplus, then just as in other markets developers will build more until the price has dropped, and/or the factor prices have

risen, to that point at which the financial surplus has disappeared. If this is to happen with real estate, it can take many years. The reason is that built real estate lasts a very long time. So a 'second-hand' building is a good substitute for a new one. New development increases the supply of new buildings, but this adds proportionately only a small amount to the total amount supplied[i]. As a result, total supply is dominated by supply out of stock (i.e. existing buildings being offered for sale). In order to increase the total supply sufficiently to influence the price, the supply of new buildings has to be increased for many consecutive years. This is known as the stock adjustment process. If there is regularly and over a long time a financial surplus, then we conclude that something must be preventing the stock adjustment process from running its course[ii].

There can be two reasons for this. One is locational monopoly. Then the constraint on increasing supply consists of geographical factors which cannot be reproduced. Examples would be a residential location near to an attractive urban park, or a business location near to a big railway station. Such causes of a financial surplus cannot be removed. A second sort of constraint can come from land-use planning, for this can restrict the supply of land in certain locations and for certain uses. (This relation has been the subject of many studies in Britain in the 1980s. For a wide ranging review of these studies, see Monk et al., 1991.) In that case, it can be decided to increase the supply of land so much that the market value of the landed property falls to that level at which there is no more financial surplus. However, there might be good planning reasons for not wanting to do that, such as protecting valuable landscapes or strategically important agricultural land. Then land-use planning is accepted socially and politically even though it might raise market values by restricting supply.

In economic terms, the financial surplus can be regarded as a rent or a 'quasi-rent' which arises because of the small price elasticity of supply of the real estate. This price elasticity of supply is small because some of the characteristics of the property (i.e. some of the locational characteristics cannot be supplied) and/or because of land-use planning. For a text book treatment see Lipsey and Steiner (1978, pp.338 et seq.).

4. Who gets the financial surplus?

The existence of this surplus is recognised widely and is usually ascribed to the land. The argument is that land is the factor which is in inelastic supply and which, therefore, can command the surplus. This is the assumption made, usually implicitly, in the British studies about development gain. However, we should not assume that the price of land absorbs the financial surplus completely: residual land price theory is too limited in this respect. We do not assume this because:

- the undeveloped land is acquired in a negotiating process with many uncertainties. It is not inevitable that the seller of the land will have such a strong bargaining position that he/she will always be able to extract the whole financial surplus. And the market in real estate is notoriously untransparent, so the bargaining parties do not have unambiguous market prices to refer to in their bargaining;
- the development process, which includes the land assembly, can last a long time, during which market conditions (costs, prices, bargaining strength) can change. So the estimates of the size of the financial surplus can change during the development process. For example, if a price for the land is paid in year 0 based on estimates of house prices in year 4, and the actual house prices in year 4 are greater than expected, then the financial surplus will be greater than expected in year 0 and the seller of the land has no opportunity of claiming any of the extra surplus.

As a result, some of the many parties to the development process – and not just the land owner of the developer - have the opportunity of getting hold of some of the financial surplus for themselves. There is a 'struggle for the surplus' (see also De Greef, 1997). The following simplification of the development process shows where the surplus can arise and who the parties are who struggle for it[iii].

(Figure 1 about here)

This scheme has been used to measure the size of the financial surplus and its distribution in ten case studies in four countries. Our expectation is that it is usable and robust enough to be used in other countries too.

The seller of the unserviced land tries to get as much of the surplus as possible by selling as dearly as possible. The developer tries to buy the land, unserviced or serviced, as cheaply as possible. And the public authority can try to get hold of (some of) the surplus in different ways, so as to be able to use it for public services connected to the development. One way is for the public authority itself to buy unserviced building land early in its agricultural use, before it had acquired any "hope value", and then sell it, serviced or unserviced, at its full market value in the new use. Another way is to create special procedures to capture a value increase caused by the development, for example by requiring that whoever carries out the development shall contribute towards the creation of high quality public spaces. Yet another way is to impose on the developers contributions towards off-site services –in the form of planning gain agreements. The first two ways are aimed at not letting the financial surplus "leak" out of the process into the pockets of the first landowners. If it is no longer possible to prevent this, because the land has already been acquired by developers, the aim is to make the developers spend part of any remaining financial surplus on the residential environment instead of keeping it as a supra-normal profit. All these activities of the public sector are referred to as land policy.

Sometimes, it can be commercially advantageous for a developer to plough some of the financial surplus back into the project, thereby increasing the quality of the development and its selling price. However, this will not take place if the surplus goes to the seller of the undeveloped land, who usually wants to take the highest possible price, and then retire from the scene. The housing developer might well see that better public facilities within the scheme would increase the selling price of the completed houses: but if that expenditure increases also the profits of other developers who do not contribute to the facilities ('free riders'), then the expenditure will not be made. In such cases, the financial surplus will 'leak out' of the development in the form of supra-normal profits.

The actions of the actors involved can in all cases be described as a "struggle" for this surplus.

5. Land policies and the distribution of the financial surplus

Has anyone the undisputed right to the surplus? Often an unequivocal *legal* answer can be given to this, for the owner of a property right has certain privileges defined and protected in law. A well-known example is that the owner of a freehold interest (fee simple) in land has the right to the income from that land (usus fructus). But that privilege is often subject to legal qualifications. Israel provides an extreme example, where 50% of the land value increase caused by changing the zoning has to be paid as a tax to the local authority (Alterman, 1988, p.196). Here we want to present an approach which can be applied to many countries, each of which has its own property rights regime and - therefore - its own legal definitions of the rights of ownership and its own qualifications to this. So we cannot be satisfied with a *legal* answer to the question: who has the right to the financial surplus?

The answer to this question also has aspects of equity and social justice. Is it considered right that someone who has the good fortune to own land in a particular location becomes rich, because a public authority changes the zoning from agriculture to housing in that location, or because a road authority builds a motorway with a junction near to that location? Is it considered right that rules for redistributing a financial surplus on a development project should work out differently in commercially booming areas than in depressed areas? We must look for a social or political answer rather than a legal one. So we ask the question in the form: who should have the right to the financial surplus?

The answer could be: those who create it. But sometime the surplus is (partly) created by geographical conditions created in the past (such as a park), and it is clearly not practicable to give the surplus to a historic figure. And sometimes, as we have argued above, the surplus is created by land-use planning: but in our opinion it is dangerous to argue that a public authority which creates scarcity for planning reasons has the unlimited right to collect the gains from the increased prices which result[iv]. If that were accepted, a planning authority might plan for scarcity in order to enjoy the resulting rises in land values.

In our opinion, it is not possible to make a conclusive argument about who has the right to the financial surplus, or to a part of it. That is why we see, in different countries, different legal and practical arrangements. Each country gives a different answer to the question and translates that into the explicit and implicit rules of the property rights regime there. The 'struggle' for the financial surplus becomes a political struggle. This is 'the politics of land policy'.

6. Land policy as the practice of land politics

How the politics of land policy work out with different planning issues and in different countries is made clear from the following examples.

Betterment

The arguments about who should benefit from increases in land prices (above the rate of inflation) caused by a general economic and population growth are well known. The case put forward by Henry George – that this increase in capital value is unearned and can legitimately be 'creamed off' - is still persuasive (see e.g. Brown 1997, Netzer 1998). The argument of George, derived from John Stuart Mill (1900, first edition 1848), that a creaming-off tax would not affect land prices has to be qualified in the light of more recent economic knowledge (Needham, 2000). Nevertheless, the political argument continues to attract support. But working it out into practicable land policy is so difficult that we have not found one country where this is done systematically.

When land and property prices rise because of changes in what it is permitted to build on the land, the betterment is 'a gift of the planner'; and it is difficult to justify politically that the landowner retains it. Once again, however, there are great practical problems with 'creaming it off', and very few countries do this directly. It has been tried several times in Great Britain, but with no permanent success (see the review in Grant, 1999). A current example is the 'planbatenheffing' introduced in Flanders, Belgium in 2000. It was created as a counterpart to the compensation for 'plan damage' that already existed. The idea is that if private persons can be compensated by the planning authority for decreases in the value of their property as a result of planning

measures, it is only fair to tax the value increase on their property due to planning measures.

When land and property prices rise because of infrastructure works, the arguments are fairly conclusive. The infrastructure works cause the price increase, so it seems reasonable to use that increase to pay for the works. How this is done in practice is described below.

In some countries there is a long tradition that, when a public body disposes of land to private developers, it sells not the freehold but a lease on the land (Bourassa, Hong, 2003). It is then able to include, in the terms of the lease, conditions which allow that public body to take some of the betterment. This can be general betterment, as described by Henry George. An example is provided by the City of Amsterdam: the ground rent paid (or transmuted into a premium) takes account of rises in prices. And it can be betterment in the sense of financial surplus that arises during the development or redevelopment process. An example of this is provided by the City of the Hague: if the lessee redevelops a site on which it holds a lease acquired from the municipality, the ground rent to be paid is adjusted to reflect the increased land value (Needham, 2003).

Recovering the costs of infrastructure works

In many countries, there is general agreement that infrastructure works *on the development site* which are necessary for the development, or which cause the value of adjacent property to rise, should be paid for by those who benefit from those works. And so we see in the US subdivision regulations, in Great Britain section 106 agreements, in the Netherlands various possibilities explicitly restricted to recovering the costs of on-site works (the existing 'baatbelasting' and 'exploitatieovereenkomst' and the proposed 'exploitatievergunning'), in France, the 'permis de lotissement' and the 'programme d'aménagement d'ensemble', in Germany the 'Erschliessungsbeitrag' (again, explicitly for on-site works), in Israel the confiscation of up to 40% of the development site for public facilities (Alterman, 1988, p.186).

Where the infrastructure works are *outside the development site*, there is less agreement about the justice of requiring the developer to pay for those works, even when the principle is the same. How this principle has come to be accepted for off-site works in the US and in Great Britain is illuminating. It is only comparatively recently that it has been widely accepted in the United States that a developer should contribute, in the form of impact fees, towards the costs of providing certain facilities outside the development site itself (such as arterial roads, interceptor sewers, regional parks). This change – the introduction of impact fees – has reduced the size of the financial surplus enjoyed by the developer[v] by redirecting some of the surplus into paying for off-site infrastructure works. This illustrates how social and political ideas about the 'right' to the financial surplus can change: with the introduction of impact fees, the size of the financial surplus for the developer was reduced.

In England in the 1980's the practice arose of getting developers to pay a sum, either in money or in kind, as a condition of being granted a planning permission. The term 'planning gain' disclosed the thinking behind it: the developer made a gain, which it was legitimate to extract for public purposes. So, although the money was generally used for paying for off-site services which had a direct connection with the proposed development, this restriction was not necessary, and cases have been recorded of payments for libraries, swimming pools, sports centres, community centres (Debenham, Tewson, Chinnocks, 1988). The only limit to those payments was the size of the financial surplus: if the planning authority was in a strong position relative to the developer, for example because of high demand and land scarcity, it could extract a contribution equal to almost the whole of the financial surplus ('the planning gain'). In the course of time this practice has been regulated, first with a ministerial circular in 1983, then with new legislation when 'planning gain' became 'planning agreements' (Town and Country Planning Act 1990), then in the Planning and Compensation Act 1991, now in a ministerial circular 1/97 called 'Planning obligations'. The current rules are that financial obligations imposed on the granting of a planning permission 'must relate fairly and reasonably to the development being permitted, must be for a planning purpose, and must not be manifestly unreasonable' (see Grant, 1999). It will be seen that there are strong similarities between the 'planning obligations' in England and the

impact fees in some parts of the US. The comments made about how impact fees have become accepted and how they redistribute the financial surplus apply to planning obligations also.

It is a political decision whether or not to follow the principle that some of the costs of infrastructure works should be recovered from development projects which benefit from those works. How that principle works out in practice depends on the details of the regulations. These usually involve the concept of 'the rational nexus', that is, that there must be a connection between the charges and the development. The American situation is described by Nicholas and Nelson (1988) as: "The rational nexus term chiefly involves two principles. First, there must be a reasonable connection between community growth that new development generates and the need for additional facilities to serve that growth. Second, there must be a connection between the expenditure of the fees collected from contributing development and the benefits that development enjoys". Stroud (1988) adds to this: 'The government requires the new development to pay its proportionate share for new facilities, but not more than its share.' Circular 22/83 with which the British government tried to bring order into the anarchy which had grown around planning gain says (para. 20): "Unless a condition fairly and reasonably relates to the development to be permitted, it will be *ultra vires*." It will be clear that it is very difficult to specify objectively which costs fall within the rational nexus and which outside it. For example, impact fees in the US can be used to pay for primary schools on the development site and regional parks off the site, both of which are flatly rejected in the Netherlands. But in that latter country, local planting, children's play areas, and cycle tracks are commonly paid for out of the financial surplus on the development, as are the costs of the public administration in making and supervising the implementation of the plan. The legislators do their best to formulate a general principle, and the courts refine it with jurisprudence. It is in this way that land politics get their political fine tuning.

Other political arguments about the rights to the financial surplus

We find other land policy practices which go further that those described above. The practice of requiring those who build market housing to contribute to the costs of

providing ‘affordable housing’ is a topical example. This is a legal requirement in Great Britain (since the introduction in 1998 of the circular DETR 6/98 Planning and affordable housing) and in Ireland (in the Planning and Development Act 1999), and it is a common practice in the Netherlands whenever the municipality sells building land to developers of private housing. The practice is not unknown in the United States, where developers of employment-generating land uses have been obliged to pay for ‘affordable housing’ with linkage fees (see e.g. Susskind, McMahon, 1988) and where some States have ‘inclusionary housing’ policies (see e.g. Calavita and Grimes 1998).

A Dutch example is the argument that ‘open space’ is valued but not priced, that new urban development benefits by being near to unbuilt land, and that – therefore – an ‘open-space-tax’ should be levied on greenfield development (CPB, 1999). The practice of ‘claw-back’ is another example: a public agency claims a part of the financial surplus on a development project if this turns out to be higher than expected and if the project has received a public subsidy.

Finally we mention two particularly refined regulations which some Dutch municipalities use when they dispose of building land to private developers, and which can be analysed using the analysis presented above (see Verhage 2003, Verhage and Needham, forthcoming). The disposal price is set on expectations of selling prices, of risks, etc., but it is only when the developer sells the completed houses that it becomes clear how big the ‘surplus’ is which the developer makes. So the municipality sells the land under the condition that, when the houses are sold, a calculation is made whether the developer has made more profit than was expected: if so, then this extra profit is divided between the municipality and the developer. Some municipalities try to extract the surplus which can arise at a different place in the development process. They sell land to a developer: the developer sells the houses for a certain price long before they are completed, in order to generate cash flow and to reduce risks: the buyer takes possession of the house when it is completed, by which time the house can have acquired a value much greater than the price for which it was bought. The municipality can require the developer to sell the house under the condition that the first buyer, if he/she re-sells within a few years, pays a part of the price rise to the municipality.

Property taxes

As stated in the introduction, we restrict ourselves to land policy measures taken during the development phase and in order to redirect the financial surplus arising in that phase. It should be added that property taxes paid during the use life of the project have the effect of directing some of that financial surplus to the local government which levies the tax. However, this is in our opinion a blunt instrument for this purpose: the taxes are not necessarily paid by those who have enjoyed the financial surplus, nor are they directly related to the actions which caused the surplus to arise. On the other hand, property taxes can effectively be applied to redirect financial surpluses which arise during the use life of the project, for example if prices of existing properties rise because of a new road.

7. Conclusions: putting land policy to the service of land-use planning

This way of looking at land policy – including the topics of planning gain and development gain - starts from the financial surplus which usually arises out of urban development. There is a struggle for this financial surplus which, because it cannot be conclusively determined who has the moral right to it, is inevitably political and has to be supported by ideological arguments. We have argued that much of public land policy can be regarded as being the attempt by public authorities using the instruments of public law or using private law arrangements to obtain some of that financial surplus. The surplus is often used to finance public facilities in, or directly related to, the development project, but sometimes it is used for more 'ideological'reasons to benefit 'the community'. Different (political/ideological) approaches to who should receive the financial surplus lead to different policies, to different instruments of land policy, and to different distributions of that surplus.

At the beginning of this paper, we stated that land policy can be used to support land-use planning. It can do this by enabling a public authority to gain some of the financial surplus, whereby the public authority then uses this to solve the many financial problems around the planning of new development. For that reason, it is desirable to know how big the financial surplus is, who collects it, and whether and how it can be

mobilised for a better urban environment. This does not necessarily mean that the surplus should go to a public authority: the aim can also be realised by agreements entered into by the developer, the landowner, community interests, and local government.

The insights into the development process elaborated above can be used to design land policy instruments which will have the required effects. Predicting the effects of possible instruments requires knowledge of the financial aspects of the development process. If it is desired, for example, to capture some of the value increase when land is rezoned, so as to be able to finance better public facilities on the site, then it needs to be decided: at what stage in the development process should the measure be applied? and how big can the 'capture' be before it starts to push up the prices of the completed development or deter it altogether? (See the review in Needham, 2000.)

Finally we refer once again to that complex mixture of considerations – ideological, emotional, economic, technical – concerning land policy. The ideological arguments – about the right to own land, and what that involves – have unleashed revolutions. The emotional arguments are sometimes vulgarly pecuniary – people want to make money out of land – but can also be about attachment to places, or stewardship of natural resources. The economic arguments concern economic efficiency and the mobilisation of resources for production. And the technical arguments are about how to realise a high quality of development. We do not take a stance on these matters, rather we put forward an analytical framework for exploring the effects of political choices about land policy and what those choices mean for urban planning.

A. value of total development (sum of market value of all houses)	First ownership Of building
B. price paid by buyers of the houses	
A – B = S.4	Surplus for first buyers
B. income received by building developer from selling the houses	The Building Development Process
C. costs of building houses and on-site infrastructure	
D. costs of capital and of selling	
E. normal profits of building developer	
F. price paid by building developer for serviced land	
B – (C + D + E + F) = S.3	Surplus for building developer
F. income received by land developer from selling serviced land	The Land Development Process
G. costs of servicing land and on-site infrastructure	
H. costs of capital and of selling	
I. normal profits of land developer	
J. price paid by land developer for unserviced land	
F - (G + H + I + J) = S.2	Surplus for land developer
J. income received by seller of unserviced land (first landowner)	Change Of Land Use
K. costs of capital and of selling	
L. normal profits of first landowner	
M. value of land in its initial use	
J – (K + L + M) = S.1	Surplus for initial landowner

Figure 1 The development process and where the financial surplus can arise

Total surplus = S.1 + S.2 + S.3 + S.4 = A – (C+ D + E + G + H + I + K + L + M)

That is, total surplus = income from sales less total costs including normal profits

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End notes

[i] For example, only about 10% of all houses sold in the UK are new build. See Golland, Boelhouwer 2002)

[ii] The stock adjustment model was applied as long ago as 1960 to housing (Muth, 1960) and has since then been applied to offices also (see for example Rosen 1984, Fischer 1992): for a recent application to housing development see Needham and Verhage, (1998)

[iii] This scheme is an adaptation of similar schemes by De Kam (1996) and De Greef (1997).

[iv] We have recognised that putting in local services can increase the value of the final development. Then it can be argued that those who pay for those services have created some of the financial surplus. But we have taken account of this by reckoning the costs of those services to the 'minimum production costs': so they have already been accounted for and the financial surplus has been reduced accordingly.

[v] In any case, to the extent that the developer cannot pass on the fee to the first buyer – see Huffman et al. 1988, Scaburskis 1990