Economics, Real Estate and the Supply of Land

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Centre for Spatial and Real Estate Economics
The University of Reading
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Christopher and Adrianne,
Stephen and Denise,
and their children
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Preface

This book brings together work on the economic theory of the land market which I, and others, have carried out over the past twenty years or so. Bringing it together, systematising it, shows the way in which the parts interrelate, and presents a picture of the way in which the market operates.

My own thinking has developed over a long period. An early recognition was that the theory of urban location, the topic of my doctoral thesis (Evans 1973), emphasised the demand side at the expense of the supply side, indeed there was no theory of the supply side. My first attempt to try to remedy this using neoclassical growth theory (Evans 1975) failed to deal with the problem. But at that time, working at the Centre for Environmental Studies and teaching at University College London and the London School of Economics, I had considerable contact and argument with radical colleagues and radical students. The radical view was that landowners and landlords could and did exploit their position. Accepting that this might be true meant putting the arguments in terms of mainstream economics. So from a neoclassical thesis and radical anti-thesis came, I hope, a synthesis which is an improvement on both. So I am indebted to former colleagues, Michael Ball, Alex Catalano, and Doreen Massey among these, and to many students, for the arguments which led to the development of a number of the ideas presented in this book, and, usually, published earlier in article form, mainly in Urban Studies (Evans 1983, 1995, 2000a, 2000b), but also Land Economics (Evans, 1991) and the International Journal of Urban and Regional Research (1992).

This book is largely concerned with the economic theory of the land market. Some empirical evidence is referred to, where it is necessary to support and advance the argument. But the book could not have been written without the knowledge of the operation of the land market which other, more empirically oriented, researchers have set out. For their work I particularly have to thank Goodchild & Munton (1985), Bramley (1993a, b), Adams (1994/2001), and Kivell (1993).

The length of time during which the book has been in preparation has one advantage for the reader. There are far fewer rough edges than there might have been. For their help in smoothing the edges I chiefly have to thank the students in the Department of Real Estate and Planning (formerly Land Management) at the University of Reading. When I first gave the course of lectures on which this book is based, many of the lectures developed ideas
which, at the time, were unpublished in any form. Maybe this sharpened people’s minds, but students asked numerous questions, forcing me to simplify, amplify, or rethink. Some contributed suggestions as to examples and development and these are incorporated here with grateful thanks and acknowledgement.

At the time the lectures were initiated, I was awarded a Nuffield Social Science Research Fellowship to develop the research of which this book is the result, and of which the direct result was a series of journal papers, amongst them those cited above. I thank the Trust for this help. Colleagues have also helped in discussions and criticisms. Whilst a full list would become over extensive I would wish to thank Paul Cheshire (LSE), Lin Tzu-Chin (National Taipei University, Taiwan), Geoff Keogh (Aberdeen), the late Max Neutze (Australian National University, Canberra), and my colleagues at Reading, Mark Andrew, Graham Crampton, Éamonn D’Arcy, Alessandra Faggian, Phil McCann, Geoff Meen and Mike Stabler.

Finally, in preparing the lectures and the book for publication I have to thank Abi Swinburn for dealing with all those aspects of word processing and diagram preparation which I have never learned, as well as, with unfailing cheerfulness, acting as the lynch pin of the Centre for Spatial and Real Estate Economics at the University of Reading, a group with which I am proud to have been associated.
Introduction: The Market for Land and Property

'We can work it out'

The supply of land

It seems, at first sight, rather strange that over the past two hundred years and more of progress in the development of economic analysis, no theory of the supply of land has been constructed. In the case of the two other primary factors of production, capital and labour, there has been substantial work both on the supply of labour and on the supply of capital. The cause would appear to be the dominance of the mode of analysis introduced by Ricardo at the beginning of the nineteenth century with its assumption that the supply of land is fixed. This appears to be true in the most obvious sense, for the world is divided between the land and the sea, and the extent of any change in the total amount of land, through coastal erosion for example, would appear to be negligible. The assumption has therefore been accepted and scarcely questioned.

Nevertheless, although it appears to be obvious at a global level, it is not obvious, and not true, at a less than global level. In the case of some small countries it is very obviously false. Five per cent of the area of the former British colony of Hong Kong is land recovered from the sea, and the percentages are even higher in the cases of the former colonies of Singapore (10%) and Macao (33%) (Glaser et al. 1991). And the assumption ignores the fact that the use of land can be changed, particularly through urban development. Even with respect to the supply of land for agricultural use, the assumption ignores the extent to which the use of the land which exists can be changed, for example by the draining of marshland, as in the English Fens in medieval times, or by the irrigation of semi-desert, as in the American south-west in the twentieth century, or by the clearance of
land of rocks and trees, as has occurred throughout the world throughout the centuries.

It is as though the theory of the supply of labour considered only the total population of the world, and failed to look at, say, what proportion of the population might work in any country, or what might be the supply of labour into particular kinds of employment, on the grounds that the world population could be taken as fixed in the short run.

In this book I try to set out a theory of the supply of land and to set it within an analysis of the economics of the property market. Primarily we will be concerned with the supply of land for a particular use, in particular, the supply of land for urban development. If we consider the nature of land, without being prejudiced, indeed blinded, by the Ricardian assumption, then it is very evident that land has characteristics which differentiate it from other factors of production and which will affect its supply for some particular use. The most obvious, the most important, is that land is fixed in location. The price or value of a piece of land, its relative advantages and its relative disadvantages, have to be considered together with, and indeed are virtually inseparable from, its location. And in the theories of land rent developed by Von Thunen with respect to agriculture, and by Alonso with respect to urban uses, the location of a piece of land relative to other sites is the crucial factor determining relative rents.

With respect to the supply of land for a particular use at some location the important factor is that of contiguity. The spatial relationship of sites, their size, and their configuration if they are put together may not merely be important but crucial. Moreover, there is nothing equivalent to contiguity in respect of other factors of production. One can advertise for capital to build a railway and merely accept those cheques which are cleared, one may advertise for labour and be only slightly more selective in accepting what is offered. But one cannot just advertise for sites on which to build a railway. The sites which would be acceptable are few and have to have specific spatial relationships, in particular those of contiguity and quite specific relative location. It is because of this problem that countries have laws which allow the state and some public utilities powers of compulsory purchase, powers which would be regarded as impermissible, except in wartime, in relation to labour and capital.

Finally, the ownership of land is important, the reasons for ownership, who owns it and how it is owned. It is evident that land and property are different from other kinds of assets. In English history, for example, the ownership and acquisition of land has given political power and social
status in a way that the ownership of other kinds of asset could not, and this special position is explored in much of English literature. So although, in *The Importance of Being Earnest* Lady Bracknell is dismissive of the importance of land in her celebrated verbal duel with her prospective son-in-law, the exchange, and the epigram, is indicative of the special importance of land (Lady Bracknell ‘What between the duties expected of one during one’s lifetime, and the duties expected of one after one’s death, land has ceased to be either a profit or a pleasure. It gives one position, and prevents one from keeping it up.’ Wilde (1899) Act I, p. 224). And because of the special position of land it follows that the owners of land and property may sometimes act in what appears to be an economically irrational manner, choosing to sell, or not to sell, property when the alternative would appear to be more financially profitable. To choose an example a century later than Wilde, a possible landowner’s position is given in Michel Frayn’s *Headlong* – ‘I happen to own this estate ... I didn’t ask to own it. I just found myself with it, in exactly the same way as people find themselves landed with a big brain, or a weak heart, or big tits... I propose to go on owning it. Owning this estate is what I was put into the world to do. Nothing wrong with that. Everything has to be owned. That’s what gives it life, that’s what makes it mean something, having a human face attached to it. If we’ve learnt nothing else from the Communists we’ve surely learnt that’ (Frayn 1999, p. 30).

A peculiarity of the land market is that different owners of land may have differing objectives and be described in different ways. The independence of the English yeoman farmer and the American homesteader who own and farm their own land is part of their respective countries’ culture and folklore. The landed gentry in England derived their income from the rents obtained from their tenants and this gave them independence and political power. The holding together of the estate was regarded as of primary importance, as the eldest son inherited the estate and younger sons went into the church or the army, but some concern was expected for the condition of the tenants. There were responsibilities as well as rights, and because of both of these a landlord’s behaviour may differ from that of an investor pure and simple whom an economist would expect to maximise the income from the estate. Their behaviour will also differ from that of the speculator buying a piece of land in the expectation that it can be sold within a short time for a higher price. Each of these terms – yeoman, homesteader, landed gentry, investor, speculator – implies differing attitudes to the land owned with respect to the present and to the future. As we shall try to show these differing attitudes will affect the process of change and development. In turn the process will also interact with and affect the views and role of the owner.
The demand for land

The economic analysis of the theory of rent was one of the central concerns of classical economics. Adam Smith devoted a number of chapters in his *Inquiry into the Causes of the Wealth of Nations* to the topic, as did Nassau Senior, John Stuart Mill, Karl Marx, and others and at various points these authors did sometimes suggest that the owner of land might have an independent role to play. But, in the English tradition at least, it is David Ricardo who is primarily regarded as having sorted out the main themes of rent theory, and indeed, it would sometimes seem, who is regarded as having settled the subject. A consequence has been that the demand for land has been regarded as the primary, perhaps, the only determinant of land rent and land values while the perceived role of the land owner has been to use the land, or to allow it to be used, for the activity which will yield the highest current income.

The classical economists were, of course, almost wholly concerned with analysing the determination of the rent of agricultural land, rather than with the value of urban land. Ricardo's analysis, in particular, was based on the twin assumptions, first, that all of the (fixed) supply of land was used for agriculture, land in any urban use could be, and therefore was, ignored, and, second, that there was only one agricultural product, corn. A justification for this, in his case, was that he was primarily concerned with the analysis of the distribution of income between classes in society and the price of land in general, rather than with the rents of particular pieces of land.

The development of a theory to explain differences between the rents and values of different pieces of land is primarily credited to Johann Von Thunen in his book *The Isolated State*. In a study which is widely regarded as the first major piece of research in applied microeconomics, he set out to understand and explain the pattern of agricultural land values in the region of his landed estates in East Prussia. There he found that rents and land values were highest close to any major town which was a market for produce and declined rapidly with distance from this market. Moreover, the kind of agriculture found close to the major town was different to that found further away where the cost of transport of the product was higher. The same pattern of different kinds of agriculture arrayed in concentric zones around a major market centre was found elsewhere during the nineteenth century [see Chisholm 1968]. It was obvious that differences in transport costs affected the rents that could be charged at different locations. The demand for sites further from the city was lower and so the rents which could be charged were also lower. Note, however, that in the Von Thunen analysis as in the Ricardian analysis, it is the demand for land which
determines the rent which will be paid. Land owners have no role other than to try to obtain the highest possible current rent for the land which they own.

When the economic analysis of urban areas began to be developed in the twentieth century, it was the Von Thunen approach which was used, particularly in the initial analyses of residential location within urban areas, by Alonso (1960, 1964) and Wingo (1961). In these analyses the central business district of the urban area replaces the urban area in the Von Thunen analysis as the destination of all travel. Instead of the transport of agricultural produce to the city, however, the concern is with the daily movement of people to their workplace in the city centre. Through this analysis the decline in land values with distance from the city centre could be explained, and, as the analysis was further developed, the patterns of location of different social groups explained (Muth 1969; Evans 1973). The approach has been very fruitful, and much of the urban economic analysis which has been carried out over the past forty years or so has depended on it, in one way or the other.

But, as we have already stressed, both the Ricardian and the Von Thunen approaches have as a feature in common that it is the demand for land which determines the rent to be charged. The supply of land is unimportant. In Ricardo's case this is because he assumes that there is a fixed supply of land which cannot be altered. In Von Thunen's case it is because he assumes that the land surrounding the city is all available for agricultural use so that, if the demand is high enough, the land will be used by the owner or rented by a tenant. In each case the owners of the land have no particular role other than to maximise the income that they obtain from the land which they own, either using it themselves or renting it to a tenant.

This assumption might have been reasonably realistic in the case of agricultural land where the choices to be made are few, merely whether one crop is grown or another. The problem is that it continued to be made when the analysis was extended to urban areas and urban development where it may be, and often is, considerably less realistic. Over the last few years, however, the situation has changed as a number of contributions have been made to the economic analysis of land markets which make the point that the owner of a piece of land does have a choice - that he or she may choose, for one reason or another, not to rent out the land to yield the highest current income, and in turn may choose not to sell the land to the highest current bidder.

These contributions together define a topic which may be called a theory of
the supply of land, or, as Max Neutze has suggested, more accurately, the supply of land for a particular use. It may have been that Ricardo, Von Thunen, Alonso and others were correct in assuming that the role of the land owner is usually slight in its effect on the general pattern of land values even around or within a large urban area. But in the analysis of the use of particular sites, and in the analysis of the use of land in smaller urban areas, the role of the owners of land cannot be ignored.

There is a further factor which increases the necessity for a proper understanding of the land market and that is the need to understand the economic effects of the system of land use planning which is in operation. The British system, in particular, sets out to prevent development in any form over large swathes of the countryside, and tends to restrict development elsewhere. As a result there may be relatively few areas where development is permitted and the behaviour of the owners of the land there needs to be understood. For example, some years ago a student thesis explored the Edinburgh land market in the 1950s [Kaucz 1976] finding that the planners had largely designated the land holdings of builder A for development in the first five years, and the holdings of builder B in the second five years. A and B accounted for some 70% of the residential development in the Edinburgh area. Kaucz found that the planners seemed surprised that development did not occur in the way that they had planned, surprise which can only result from implicitly assuming that land owners, even builders, exercised no independence but merely responded to demand. Perhaps such a simple assumption would not be made now, but an understanding of the role of the land owner is still sought. For example, David Adams [1994] has carried out a number of empirical studies of the role of land owners in the development of derelict sites and vacant land.

An increased understanding of the operation of the planning system is therefore an important reason, possibly the most important reason, for better understanding the role of the land owner and the nature of the supply of land. Nevertheless the discussion in this book is generally based on the working assumption that there is no planning system in operation. This is because we can only find out what the effects of a planning system might be if we know what the position would have been if it had not existed. If we know that then we are in a better position to understand the economic and physical effects of the system which is in operation. The reader who is interested in pursuing the subject can do so with the author in his book, *Economics and Land Use Planning* [Evans 2004]. The aim of this book, however, is to bring together various approaches to the analysis of the supply of land for development into a coherent whole.
The development of a theory of the supply of land

The approach taken is to build up an understanding of the economics of the land market, starting at the simplest level with demand-oriented rent theory and adding to it. It is as though we start with the outline of a picture, a few pencil strokes, and progressively add more colour and detail until the picture becomes, we hope, a reasonable representation of a recognised reality. So in the next chapter we set out the basic demand-oriented theory of rent and land value, as it was developed by the classical and neoclassical economists. In Chapter 3 we try to integrate the theory of land value with the theory of the supply of real property, showing the way in which, within urban areas, higher land values will tend to result in a more intensive use of land. To allow this, more capital has to be invested in the construction of more space on a site, and we show that this intensification of use can take several forms, from the extension of the existing buildings to their total demolition and the construction of new, differently configured buildings.

Consideration of this process indicates that it can be haphazard in nature as some sites are redeveloped while other, adjacent, apparently identical sites are left untouched. In part this may be because of differing attitudes and motivations of owners, to which we have already referred. In part, however, it may be because the information about the market, about prices, about alternative uses, which would be necessary for the property market to be ‘efficient’ in economic terms is not available. The conditions necessary for a perfectly competitive market would be that, with respect to the sale of any property, there were many buyers, many sellers, full information, and similar properties also on the market. The implications of the fact that these conditions are not fulfilled are discussed in Chapters 4 and 5.

Having established the imperfect nature of the land and property market, we turn specifically to considering the motivations of land owners and the supply of land for a particular use. In Chapters 6 and 7 we look at the main reasons why the owner of a piece of land may choose not to use their land, or to sell or rent it to someone else, for the activity which yields the highest current income. In Chapter 6 we suggest two reasons for this. First, the owner may be speculating that a higher return may be obtained in the future and that it is worth while giving up a marginally higher return in the near future for a much higher return later. Second, the future may be very uncertain and what is likely to be the most profitable form of development may not be clear. The expense and permanence of development closes off other options and an owner may therefore prefer to delay development in order to keep these options open.
In Chapter 7 we show that owners, particularly occupiers, may be attached to the land that they own, as home owners may be attached to their homes. This 'attachment' may cause them to be reluctant to sell their property unless they are compensated for having to give up the property, and the compensation they require may be large or small depending on their degree of attachment. The implication of this, and of the analysis in the preceding chapter, is that the supply of land for a particular use is an upward sloping function. Land is not different. As with the supply of any other good, the higher the price that is offered the greater will be the quantity that is supplied in any period. Thus the owners of land do have a role to play. They do not simply allow their land to be used for the current 'highest and best use'. It will become evident in the rest of the book that the existence of this upward function for the supply of land for a particular use is crucial to an understanding of the land market.

In Chapters 8 and 9 we consider various features of the land market associated with ownership. First, we argue in Chapter 8 that the process of development will differ if land is owned by landlords who let to tenants from what it would be likely to be if its ownership were split and it was occupied by users who were more attached to the land. The rate of development would be faster and the price of land for development would be lower in the landlord/tenant case than in the owner/occupier case.

Second, looking at ownership in a different way, US evidence shows that, in a relatively unplanned land market with continuing urban growth, as the probability of urban development increases, so the ownership of land passes from users – primarily farmers – into the hands of investors, who, after holding the land for a period, sell it on to the actual developers. We also show that in other contexts, with more restrictive planning systems, different processes of transition will occur.

In Chapter 9 we look at the land market from a more political viewpoint arguing first that the ownership of land and property has always been associated with political objectives and, often, political power. But we also show that land can be owned in common provided there is agreement as to the aims of the group. And finally we look at the libertarian view that land should be owned free of any constraint on the owner with respect to rights, responsibilities, and duties.

The fact that landowners may sometimes not simply accept the market determined rent but may set out to obtain a higher rent on some of their land or choose, apparently, to forgo income on some of their land, even agricultural land, by not letting it to the highest bidder, was not missed by
one classical economist, Karl Marx. He noted that landlords may sometimes be able to extract an increased rent from their land if it produces a monopolisable product. In Chapter 10 we show that to do this they have to restrict the uses to which their land can be put. We also show that the theory of ‘monopoly rent’, as Marx called it, is applicable to some kinds of urban development, in particular shopping centres. In Chapter 11 we consider the concept of what Marx called ‘absolute rent’. He argued that landlords will not let their land at less than some minimum ‘absolute’ rent. We show that this view can be justified in terms of modern economic analysis, in particular transaction costs and risk and uncertainty, and can also be applied to explain some features of development in the present day.

In Chapter 12 we return to an analysis of the consequences of the imperfection and inefficiency of the land and property market. We have established in the previous chapters that the owners of land and property may not simply accept the price offered for their property. In the first place the price isn’t determined by and in the market, as we established in Chapters 4 and 5. In the second place property owners may, for one perfectly valid reason or another, choose to hold on to their land or property, either in an active fashion, knowing the alternatives available, or, more passively, because they have no thought of selling. Because of its characteristics the land and property market is not only imperfect and inefficient but the participants in the market lack knowledge of the alternatives available, in particular, of the price they might be able to obtain or the price that they may have to pay. Indeed, as we have suggested, many owners of land may be unaware of its value, since most of those owning land and property are primarily interested in using it and continuing to use it, whether farming the land or occupying the property as a residence, office, or factory. The result is that anyone wishing to buy or sell has to recognise the extent or their lack of information, or uncertainty by searching the market for those who might be willing to trade, and the price at which they would be willing to do so. It is the economic consequences of this uncertainty which is the main topic of Chapter 12.

Given the lack of certainty about the availability of land, the fact that it is not available ‘off the shelf’ and has often to be sought out and always to be negotiated over, it is inevitable that developers will start looking to buy land before they actually need it. In Chapter 13 we show why developers engage in land banking – the purchase of land some time ahead of development, and why this process too will be affected by the nature of the planning system in operation.

In Chapters 14, 15 and 16 we consider explicitly the problem of contiguity.
We argue that contiguity is demonstrably important and show it affects the process of site assembly. The problem of contiguity, a problem which does not arise in other product and factor markets, explains why governments intervene in the land market in a way which would be unacceptable in democratic countries in other markets. In particular governments use powers of compulsory purchase to put together sites for public development. Moreover, in some countries where the land holdings of peasant proprietors may be small and scattered, for example in Germany, Taiwan, and Japan, governments have devised systems for the reallocation of land ownership so that sites can be rearranged into more easily developable patterns.

Finally, in Chapters 17 and 18 we consider the economic effects of the taxation of land and property. From their analysis of the land market the classical and neoclassical economists concluded that taxing the rent of land or profits arising from the development of land would not distort the land market in any way. The rate of development would continue unchanged and the price of land would be unaffected. Our analysis demonstrates that this conclusion is wrong: the taxation of land, in particular the taxation of profits arising from development, will be passed on in higher prices and slow down the rate of development. Thus a view widely held and even occasionally acted on since it was first put forward by the classical economists in the nineteenth century is actually wrong. If nothing else I hope that this book will lay that idea to rest.
Introduction

The basic theory of rents and land values as it was developed by the classical economists, and set out in this chapter, implied that these were wholly demand determined. In the classical theory of Ricardo it was assumed there is a fixed supply of land and that it has a single use which is to be used to grow 'corn', in other words food. From these assumptions follow certain conclusions. First, that the imposition of taxes on land will neither increase rents nor alter the use of land, and, second, that 'the price of land is high because the price of corn is high and not vice versa'. The basic neoclassical analysis which is also set out here assumed that land had alternative uses and these conclusions did not necessarily follow.

We argue here that although the neoclassical theory would appear to be more generally relevant than Ricardian theory, nevertheless restrictive planning systems can lead to situations where the Ricardian assumptions apply and Ricardian theory is the more relevant. The planning system may fix the amount of land available for a particular use, and may permit only this amount of land, and no more, to be used in that way. It has therefore been argued in England where the planning system does operate in this way that therefore the Ricardian conclusion follows, namely that the price of land is high because the price of [housing] is high, and not vice versa. Following on from this it has also been argued that it follows that the price of land and housing is wholly demand determined so that the supply of land for housing is irrelevant. As we shall show, whatever might be the merits of the first conclusion, the second certainly does not follow from it. This is because it ignores the fact that the supply of land is under the control of the planning authorities and can be changed. The Ricardian conclusion depends, on the other hand, on the assumption that the supply of land is
fixed and unchangeable. An increase in the amount of land allowed by the planning system to be used for housing can therefore result in a fall in the price of land and housing, and this conclusion is consistent with Ricardian theory when this is correctly understood.

At the end of the chapter we go on to try to explain why many people, including many economists who should know better, can misremember, misunderstand and misrepresent basic rent theory. We conclude that it is, first, because students of economics spend very little time on the subject, including, possibly especially, those who go on to become professional economists. Second, it is because the concept of 'economic rent' which is widely used in economics is thoroughly misleading. It is meant to indicate a payment for a factor of production surplus to that required to transfer a factor from one use to another, but students assume, wrongly, that all land rents are in principle economic rents.

**Ricardian rent theory**

The assumptions of Ricardian rent theory are that the supply of land is fixed, and that a single product is produced from this given supply of land. In the original analysis this product was called corn. The economic analysis is represented diagrammatically in Figure 2.1. Rent is indicated on the vertical axis and the quantity of land on the horizontal axis. The fixed supply of land is therefore indicated in the figure by the vertical line $SS'$ in that $OS$ hectares will be supplied whatever the rent offered or paid (above zero). The demand for land is derived from the demand for corn and is represented by the

![Figure 2.1](image-url)