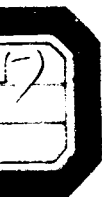


URBAN ECONOMICS

Theory and Policy
K. J. Button



Urban Economics

Theory and Policy

K. J. Button

Senior Lecturer in Economics at the University of Loughborough

M

PREFACE AND ACKNOWLEDGEMENTS

This book grew out of a course I taught at Loughborough University in 1974–5. It became apparent to me at that time that there was no adequate introductory textbook covering urban economic problems in this country despite the wealth of research material which was beginning to appear. This slim volume attempts to fill this void, to provide easy access for students to the basic economic concepts in urban studies and to review current policy debates.

Among the many who have encouraged me in this enterprise, I would particularly like to thank Peter Boyes, Jim Hough and Eric Owen Smith for their valuable comments and suggestions. I would especially like to thank Eamonn Judge who undertook the onerous task of reading through the entire manuscript. Without the assistance of this gallant band, the factual mistakes and misrepresentations of ideas would have been even more numerous. Appreciation must also be expressed for the way the department's typists dealt with my flood of hieroglyphics, and in particular I would like to thank Mrs Madge Lowe and Mrs Gloria Brentnall for the care taken over the typing of the final drafts. I would also like to acknowledge the calm and steady hand of David Gillingwater who kindly drew the diagrams.

K.J.B.

*Department of Economics
Loughborough University*

CONTENTS

Preface and Acknowledgements

1	INTRODUCTION	1
	1.1 The Modern City	1
	1.2 Urban Economics	2
	1.3 This Book	9
	References	11
2	THE ECONOMICS OF GEOGRAPHICAL CONCENTRATION	13
	2.1 Urbanisation	13
	2.2 A Brief History of Urbanisation	14
	2.3 Agglomeration Economies	19
	2.4 The Simple Theory of Inter-Urban Location	23
	2.5 The Location Decisions of Households	27
	2.6 Summary	28
	References	29
3	INTRA-URBAN LOCATION AND LAND USE	30
	3.1 Introduction	30
	3.2 Patterns of Urban Land Use	30
	3.3 Rent as an Influence on Intra-Urban Location	33
	3.4 Some Basic Principles of Location – The Firm	36
	3.5 The Market-Area Theory of Location	41
	3.6 Empirical Studies of Intra-Urban Location	43
	3.7 Residential Location	46
	3.8 Intervention in the Urban Land Market	48
	3.9 Summary	50
	References	50
4	THE URBAN LABOUR MARKET	53
	4.1 Introduction	53

4.2	The Idea of a Local Labour Market	54
4.3	The Gravity Model of Labour Movements	55
4.4	Intra-Urban Wage-Rate Differentials	58
4.5	The Effects of Trade Unions and National Wage Agreements	63
4.6	Discrimination in the Urban Labour Market	65
4.7	Summary and Conclusions	68
	References	69
5	THE DYNAMIC URBAN ECONOMY	71
5.1	Introduction	71
5.2	Economics and Urban Growth	73
5.3	Keynesian Growth Models	75
5.4	Input-Output Models	78
5.5	Supply-Orientated Models	81
5.6	Economic Stability	84
5.7	National Urban-Growth Policy	87
	References	89
6	THE THEORY OF CITY SIZE AND SPACING	91
6.1	Introduction	91
6.2	The Optimum City Size	92
6.3	The Validity of the Optimal-City Concept	100
6.4	The Distribution of City Sizes	102
6.5	Conclusions	106
	References	106
7	THE URBAN ENVIRONMENT	108
7.1	Interest in the Urban Environment	108
7.2	The Economic Causes of Urban Pollution	111
7.3	The Classical Economic Approach to Pollution Control	113
7.4	Environmental Prices or Standards?	115
7.5	Urban Environmental Policy	120
7.6	Conclusion	123
	References	123
8	THE URBAN TRANSPORT PROBLEM	125
8.1	The Problem	125
8.2	The Economic Theory of Traffic Congestion	126

8.3	‘Road Pricing’	129
8.4	Investment in Urban Roads	133
8.5	The Public-Transport Problem	135
8.6	Freight Transport in Towns	137
8.7	Urban Transport Policy	139
8.8	Summary	143
	References	144
9	URBAN HOUSING	146
9.1	The Housing Problem	146
9.2	The Nature of the Urban Housing Market	148
9.3	Urban Renewal	152
9.4	Rebuilding or Modernisation?	154
9.5	Housing Policy	156
	References	163
10	THE URBAN PUBLIC ECONOMY	165
10.1	Introduction	165
10.2	Why an Urban Public Sector?	166
10.3	The Size of the Urban Public Sector	170
10.4	The Financing of the Urban Public Sector	176
10.5	Local Government Reforms	183
	References	186
11	URBAN PLANNING	188
11.1	Economics and Urban Planning	188
11.2	Cost-Benefit Analysis and Allied Techniques	191
11.3	A Case Study in Urban Planning: The Greater London Development Plan	196
11.4	Conclusions	206
	References	207
	<i>Index</i>	211

INTRODUCTION

1.1 The Modern City

The problems of the modern world are numerous and varied but among the most intractable seem to be the economic and social difficulties confronting those who live and work in our major cities. The world's population has expanded rapidly over the past century and this growth has been accompanied by a considerable acceleration in the pace of urbanisation. This process has created severe problems of congestion, crime, housing, education, pollution, over-extended public services and unemployment in urban areas. These problems, although differing in their particular characteristics and in degree, are common to all countries, developed and underdeveloped, and seem to be increasing in both number and size rather than diminishing.

In the 1870s somewhere around 1 per cent of the world's population lived in cities of over a million inhabitants; this percentage has since increased at least tenfold. The migration from countryside to city appears even more startling if smaller cities and towns are included. Today the main population pressures are being experienced in the cities of the Third World and it has not been uncommon for the population of some South American cities to have increased by 150 per cent or more over the past decade. The nations of Western Europe have had their industrial revolutions and in many countries, including the United Kingdom, there is now both a fairly stable population and little potential for further rural-urban migration. In this latter group of countries, urban problems revolve around meeting the needs of the existing inhabitants and replacing old and obsolete facilities, especially housing, which were built for workers during the earlier growth phase. On the other hand, underdeveloped countries must generate sufficient investment to meet the basic needs of a rapidly growing inflow of migrants into their cities and construct housing and facilities where none existed

2 *Urban Economics*

before. In the developed world the urban problem can be seen as one of resource allocation; in the underdeveloped world one of resource creation.

As Ursula Hicks [1974] has pointed out, the urban problems of the Western world can no longer be considered as city problems: they are now much too large and more correctly relate to the conurbations and metropolitan areas which now exist. Although the main period of urbanisation has long since passed in the United Kingdom, we have taken a considerable time to recognise its full significance and to realise the complexity of many of the economic problems that it has created. Indeed, it is only in the last few years that the major conurbations outside of Greater London have been incorporated into a framework of comprehensive administration – previously local government and policy in these areas had been in the hands of several smaller authorities.

The traditional methods of planning and governing urban activities have changed radically in the past decades since the inherent urban problems have become more apparent. The city is no longer treated as a piece of land with factories, shops, theatres, houses, parks and roads scattered randomly over it. The city has been recognised as a living organism with people living and moving within it. The realisation of this human and social element has resulted in the growth of a whole new range of studies, including urban sociology, urban psychology and, of course, urban economics.

1.2 *Urban Economics*

Urban economics is one of the newest and fastest growing specialisms in economics. Although one can trace the foundations of the subject back to the study of urban land economy in the 1920s and extensive work on urban problems was undertaken in German-speaking countries in the inter-war period, modern urban economics is more closely related to regional economics from which it branched at the end of the Second World War. Early work in the field was predominantly American, with pioneering studies of the internal structure of the developing American city being produced by Burgess [1925], Haig [1926] and Hoyt [1933]. Similarly, the majority of studies in the immediate post-war period came from the United States, notably the application of economic analysis to location decisions in urban areas by Walter Isard [1956] and others and

work on the theory of land use by William Alonso [1964] and Lowdon Wingo [1961a].

However, urban economics has only been considered a subject worthy of serious study at the highest level in the last decade, the first postgraduate university degree courses concentrating on the new sub-discipline appearing in the United States only in the 1960s (Perloff [1973]). Again, it was not until the mid-1960s that the first textbook, as opposed to research monograph, appeared; this was Wilbur Thompson's volume, *A Preface to Urban Economics* [1965]. Even today, the flow of urban economic texts is painfully slow, partly because of the relatively small number of experts in the field compared to those in other branches of economics and partly because of the present state of the subject. Indeed, at least one author questions the possibility of writing a comprehensive textbook given the current 'state of knowledge' (Rasmussen [1973]). In contrast to this comparative dearth of teaching material, the amount of research into urban phenomena has expanded considerably in the last decade. Combined with a growing interest in the workings of cities and conurbations has been the establishment of specialist research centres (for example at the London School of Economics and at Bristol University) and the founding of a number of academic journals to report the latest findings (for example *Urban Studies*, *Regional Science and Urban Economics* and the *Journal of Urban Economics*). In addition to the increased interest professional economists have shown in urban problems, urban economics now forms a component part of many academic courses in such fields as sociology and geography and is included in numerous sub-degree and professional syllabi for qualifications in subjects such as town planning.

Despite this rapid expansion of interest in urban economics, no distinct and irrefutable boundary to the subject has yet been agreed upon. There are three distinct problems encountered when one attempts to place a single, comprehensive and workable definition on urban economics.

First, and probably of greatest importance, it is impossible to study the urban economy in purely economic terms; full cognisance must be taken of the historical, political, sociological, planning and geographical perspectives of urban activities. The study of cities must, by virtue of the nature of urban agglomerations, be multi-disciplinary. This is not to say that one cannot concentrate on the

economic aspects, but rather that one must always remember the wider dimensions involved. Second, cities form part of a much larger economic system; most cities play important roles in regional activities, while the largest can influence the course of the national economy. Consequently, many urban problems cannot be treated in isolation but must be placed in their much broader context.

Finally, although in many ways it is the least intractable problem, is the difficulty of defining the physical boundaries of urban economies. It is generally agreed that an urban economy is characterised by proximity, production specialisation, affluence and technology (Hirsch [1973]), but this provides little insight into the problems of defining the geographical confines of the urban concentration and this tends to place the urban economist at some disadvantage relative to his colleagues who are concerned with national or industrial economic problems.

Given these difficulties, there have still been many attempts to define the subject-matter of the sub-discipline. McKean, for example, offers a general definition of urban economics as 'the application of economic analysis to the development of information that seems relevant to the urban problems' (McKean [1973] p. 19), but is prevented from narrowing this down by insurmountable difficulties of vagueness and imprecision.

A rather more practical approach, developed to facilitate the delineation of various university economic courses, is offered by Hugh Nourse [1970-1] who differentiates between regional economics, urban economics and the urban public economy. Adopting his definitions, urban economics would concentrate on the spatial analysis of economic, political and social activities within cities; the study of the city as a point within the national economic framework would be left within the realms of regional economics and the spatial aspects of public-sector involvement would be discussed in a course on the urban public economy. Such a framework may be useful for teaching purposes, but it has its limitations. The approach, although emphasising the interdisciplinary nature of the subject, distracts from the interdependence between many of the intra- and inter-urban phenomena involved. It may be legitimate to consider transportation, housing or pollution in a purely urban context (although generally active and pervasive local government makes it seem unlikely that they can be divorced entirely from the urban public sector) but for a full understanding of how cities

function one must also examine labour and capital movements and these can only be considered in a wider setting.

The artificial distinctions drawn by Nourse are unacceptable simply because they attempt to constrain a subject which is by its nature diffuse. A far more realistic approach at this stage in the development of the subject is to consider any attempt to systematically apply economic principles to the solving of urban problems as urban economics. By 'economic principles' we mean nothing more than the application of a set of logical deductions which, under certain assumptions and conditions, explain people's behaviour. At present it is impossible to develop a general theory of the urban economy for a multiplicity of reasons, some of which are mentioned below, and consequently this rather intellectually unsatisfying definition seems the best available.

Given this rather simple definition of the subject-matter of urban economics, it is worth pondering for a few moments the question of why it has taken economists so long to become immersed in the problems of our cities.

The first reason is peculiar to the United Kingdom: there has been a strong feeling of 'anti-urbanism' in this country for many centuries and this has been reflected in a general avoidance of any discussion of urban issues except in a most negative fashion. Historically, the tendency has been to accept towns as unpleasant economic necessities and to concentrate upon the supposedly more important problems of agriculture and rural living. This is a theme running through not just the economic literature but is to be found in pre-twentieth-century sociology and town planning. The general problem is summed up by Glass [1972]: 'The absence of any general British texts on urbanism is undoubtedly in keeping with the native dislike of towns.'

A second reason for the slow growth of interest amongst economists in urban matters is the early reluctance of town planners to recognise the importance of social science in the planning process. Urban planning until the 1960s was a physical exercise: town plans involving the preparation of a cartographical picture of how the land-use pattern of a city should develop. This attitude prevented economists and other social scientists actively participating in the creation of urban policy and did little to encourage academic research into urban economic problems. There is a high correlation between the changing attitude of planners and the growth of urban economics.

Third, modern urban economics is not simply concerned with 'efficiency' but also with 'equity' (Chinitz [1974]). In the traditional fields of economics, concentration has focused upon devising rules for achieving the optimum allocation of resources; in other words, to maximise production efficiency. Urban economics is more akin to political economy and deals with housing, pollution, crime, race and poverty, all of which cannot be treated in a purely objective way. Before urban economics could become a viable field of study, it was necessary for economists to realise the wider political and social framework within which they must develop their theories.

The final reason is more straightforward: the basic techniques of 'Marshallian microeconomic analysis', with their emphases on perfect markets and minimal government involvement, were founded on a number of implicit and explicit assumptions which are not tenable in an urban setting. The study of cities implies a study of geographical space but the traditional Marshallian neoclassical economic theory which was developed at the turn of the century makes no allowance for this additional 'dimension'; it was primarily designed to consider the determinants of prices and outputs at some predetermined location. This emphasis was not altogether surprising; in Marshall's day much of the United Kingdom's industry was tied to immobile sources of power and raw materials, and consequently location was almost always predetermined by geographical factors. Although it is possible to circumvent this limitation by modifying the basic theory and treating distance as a cost of either production or consumption, other difficulties have proved more formidable.

A considerable amount of neoclassical economic analysis is couched in terms of perfect markets, with all producers and consumers having perfect knowledge of all prices and of each other's activities. Firms are assumed to be incapable of exercising any individual power over the prevailing price; they are much too small. All factors of importance are traded in open markets so that producers must pay the full costs of their activities and consumers are not forced to suffer from pollution and noise without being duly compensated. It is further assumed that everyone is rational, firms attempting to maximise profit and individuals their welfare. Finally, everything is treated as perfectly divisible and can be produced or consumed in infinitely small quantities if desired.

Compared to this ideal, the urban economy is a very 'imperfect'

world and is characterised by widespread externalities (that is costs and benefits which are not reflected in the prices at which goods are bought and sold). The existence of these external effects makes it difficult, if not impossible, to allocate economic resources optimally. In addition, investments tend to be 'lumpy' and often exhibit considerable economies of scale, which makes traditional marginal analysis inappropriate. The assumptions generally associated with the conventional microeconomic approach to problems, namely identical incomes and tastes for all households, uniform utility functions and constant returns to scale are untenable in the urban situation. Indeed, one of the unique features of an urban economy, the 'agglomeration' of economic activity, is only possible when these assumptions are violated. The principal presuppositions of neoclassical analysis, a mythical world of perfect mobility and knowledge, just do not correspond to the realities of the large modern city economy.

With these problems confronting them, it is hardly surprising that economists have been slow to apply their analytical tools to solving the numerous urban problems. It required the development of spatial economic theory in the related field of regional economics to provide the basis for work on modern urban economics. Parallel with the advent of spatial economic analysis came the introduction of new investment-appraisal techniques based upon consumer-surplus theory, such as cost-benefit analysis, which enabled the analyst to take explicit account of the existence of externalities. (Consumer surplus being a welfare concept indicating the benefit a consumer derives from consumption above the actual price he pays for goods.) These new and more powerful tools have enabled advances to be made in the study of the urban economy, but the complexity of urban life is a serious obstacle to rapid progress. It is this complexity which has prevented the widespread use of sophisticated and penetrating mathematical techniques for the creation of a 'general theory' of the urban economy (Richardson [1973a]). To date, mathematical models have proved incapable of incorporating the additional space dimension and of allowing for the non-linear nature of many economic relationships. In addition, as Lowdon Wingo [1961b] intimated over a decade ago, many of the factors influencing urban economic activities are unquantifiable or intangible and, consequently, any attempt to build a comprehensive mathematical model would necessarily result in a myriad of variables that may be

significant being omitted. Finally, the models themselves are usually considered in terms of 'goodness of fit', not their power of prediction, and are in consequence of little assistance to the decision-makers who are responsible for the future of the urban economy.

Given these limitations and constraints, how can the economist contribute to the urban debate? Rather than attempt to develop a comprehensive, all-embracing, general theory of the workings of the city economy, the economist should adopt what Needham [1974] has called a 'partial' approach. By this is meant that the analyst assumes that certain relationships within the economic system remain constant whilst considering changes in other relationships. For example, one would use traditional Keynesian multiplier techniques (see Chapter 5) to consider the implications of a large investment in the local economy and implicitly in doing so assume that relationships with the remainder of the national economy (expressed in terms of the propensities to import, consume, and so on) remain invariate. At a micro level, one would use neoclassical supply and demand techniques to look at the effects of a road-pricing policy to alleviate traffic congestion assuming the general location of economic activity was left unaltered (see Chapter 8). This is admittedly a piecemeal approach, revolving explicitly around problem-solving rather than the creation of a comprehensive framework of analysis, but, nevertheless, it appears, at present, as the only practical method of considering the urban economy available.

Accepting the necessity of employing this rather *ad hoc* approach still enables us to form a clear working distinction between urban macroeconomics and microeconomics. The former is concerned with problems involving the city as a whole and its relationships with the rest of both the regional and national economies. It is based essentially upon Keynesian aggregate economic techniques and is the appropriate approach to adopt when considering problems involving urban growth and economic stability. In contrast, urban microeconomics is primarily concerned with problems internal to the city, resting as it does on the firm foundations of price theory. Initially developed to deal with the activities of individuals, households and firms, microeconomics can shed light on location decisions and the workings of the various urban markets for land, transport and housing. Urban microeconomics differs from traditional neoclassical microeconomics in a number of ways. It has been specifically adapted to allow for the distance factor which

influences many decisions and has been extended to consider the impact of the excessive monopoly forces which are at work within even the smallest cities. Finally, urban microeconomics incorporates an explicit recognition of the substantial role played by the public sector in metropolitan areas, especially the importance of local government, in the sphere of industrial and residential location and in the provision of social services.

1.3 This Book

Existing textbooks on urban economics are generally designed to meet the needs of the final-year or postgraduate economics students who have a good foundation of economic theory. In addition, many of them, although extremely good in their analytical content, draw upon American experience for illustration and comment. This book, on the other hand, tries to present the main strands of modern urban economics in a non-mathematical way and to set this theory in the context of the current urban situation in the United Kingdom wherever possible. A limited knowledge of basic economic theory is necessary for the reader to understand some of the specialised terminology but the interested layman and non-specialist economist who is not to be deterred by a few diagrams should find no difficulty in following the threads of the arguments presented.

The approach used is essentially a problem-solving one, and attempts are made to suggest possible solutions to the seemingly endless series of crises which seem to beset our largest cities. To really understand the underlying causes of these problems some knowledge of basic urban economic theory is essential and included for that reason. As has been pointed out by Harry Richardson [1973b], however, 'urban economic theory is still in an embryonic and turbulent state'; and consequently the theory we outline is fragmented rather than comprehensive in nature. It is probably true to say, though, that the main ideas we set out are now accepted as conventional wisdom even if the details are not yet agreed upon. Where the theory is particularly weak, though, this is clearly indicated.

Some attempt is made to strike a balance between the amount of urban micro- and macroeconomic theory presented, but since most of the major urban problems in the United Kingdom are of a micro kind, there is something of a bias towards this type of theory.

Macroeconomics is far from ignored, however, primarily because it plays an important role in urban planning. Changes in the administrative system in recent years also suggests that knowledge of urban growth may help the reader to a better understanding of the difficulties confronting the public authorities in large cities whose local economy is closely tied to the economies of adjacent urban areas.

In summary, the remainder of the book can effectively be divided into three distinctive sections.

In Chapters 2-6, we look at the development of urban economic theory. Initially (Chapters 2-4) we consider the contribution of the economist to our understanding of why people and firms decide to concentrate and form cities, and we look at the forces working to create current urban land-use patterns. This is urban microeconomics: we consider firms and individuals rather than the whole city as the units of analysis. The other two chapters in this section are macroeconomic-orientated and attempt to find out why cities grow and to what extent this growth is beneficial to society.

The second part of the book examines various urban economic problems. These are principally micro problems involving transport, the urban environment and housing. In the 1970s these seem to be the subjects under greatest discussion in both academic and more popular literature and certainly are the causes of greatest concern to those living in our conurbations. Whilst much of the theory of the earlier chapters is of general applicability to cities in most Western countries, the problems considered in this second part of the book are more specifically related to U.K. experience.

The final part of the book (Chapters 10 and 11) concentrates on the involvement of government in urban affairs. It specifically looks at the part played by local authorities in organising and controlling certain urban activities and considers the role of economics in urban planning. The urban public sector is a particularly topical subject at the time of writing, with major changes in planning, finance and administration having taken place in the late 1960s and early 1970s - changes which are by no means yet completed.

Since the book is primarily concerned with urban economics, the emphasis is directed towards the main economic issues but, without wishing to be too repetitive, it is important to re-emphasise that, because of their natures, no urban problem can be adequately discussed within the strict confines of any one of the traditional aca-

demic disciplines. For a full understanding of city life and urban development, it is necessary also to consider both the sociological and geographical aspects. Where appropriate, some brief mention of the wider implications of particular issues is included but the treatment of non-economic considerations is far from exhaustive.

In an attempt to direct the reader to the wider aspects of urban activity, the book provides extensive references. The referencing also serves to indicate source material which, besides ensuring due credit is awarded to originators of the ideas and theories presented, should enable the interested reader to follow up arguments in more detail. A book of this size and with fairly limited objectives cannot pretend to be comprehensive in its coverage and it is hoped that the lists of references for each chapter will compensate, to some extent, for those topics which have, by necessity, been given only limited space. The decision of what to include and the depth of coverage is obviously subjective.

References

- W. ALONSO [1964], *Location and Land Use: Towards a General Theory of Land Rent* (Harvard University Press).
- E. W. BURGESS [1925], 'The Growth of the City', in *The City*, ed. R. E. Park and E. W. Burgess (Chicago University Press).
- B. CHINITZ [1974], 'Urban Economics: New Approaches', in *Regional Economic Development*, ed. D. J. Firestone (University of Ottawa Press).
- R. GLASS [1972], 'Anti-Urbanism', in *The City*, ed. M. Stewart (Harmondsworth: Penguin).
- R. M. HAIG [1926], 'Towards an Understanding of the Metropolis', *Quarterly Journal of Economics*, pp. 421-3.
- U. K. HICKS [1974], *The Large City: A World Problem* (London: Macmillan).
- W. Z. HIRSCH [1973], *Urban Economic Analysis* (New York: McGraw-Hill).
- H. HOYT [1933], *One Hundred Years of Land Values in Chicago* (Chicago University Press).
- W. ISARD [1956], *Location and Space Economy: A General Theory Relating to Industrial Location, Market Areas, Land Use, Trade and Urban Structure* (New York: Wiley).