

# The Economics of Urban Amenities

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EDITED BY

DOUGLAS B. DIAMOND, JR.

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## Preface

Amenities are increasingly recognized as a major determinant of people's well-being. However, the analysis of amenities has remained outside the mainstream of economics. Only in the past two decades have concerted attempts been made to bring the tools of economics to bear on them. These efforts, while useful, have been somewhat fragmented. Though amenities are important to behavior generally, most analyses have focused on a particular regional, urban, or neighborhood phenomenon, such as air pollution, crime, education, housing, taxes, or commutation. General principles for the analysis of amenities have not been formulated.

Amenities have proven to be difficult to analyze using traditional tools. The dimensions of amenities are not those in which most other commodities are measured, nor do amenities have observable prices in the usual sense. Despite the fact that a great deal of effort is devoted to their production and distribution, amenities are not directly bought and sold. Some amenities, like clean air and open space, have been ubiquitous over wide areas in the past and did not have a positive price. In the increasingly prevalent cases in which amenities are scarce, amenities are priced indirectly through the prices of other things—notably land and human resources as well as buildings and other capital—with which they become inextricably related. The demand and supply of amenities must be analyzed through these indirect effects on other markets.

Another reason that amenities are challenging to analyze is that they are spatially differentiated. As in the case of amenities, the analysis of the

spatial dimensions of activities has remained underdeveloped. One of the best hopes for progress in understanding spatial phenomena is through their joint analysis with amenities.

The importance of amenity analysis to policy and planning can hardly be overestimated. Governments from federal down to local units use such analysis, either implicitly or explicitly, to determine service and tax levies and to regulate and zone. Policies to influence the location of people and jobs must be grounded in an understanding of amenity markets. Private firms and individuals must also make periodic location decisions, which will determine their access to amenities. Beyond those decisions based on the given pattern of amenity supplies, there are public policies which seek directly to change amenities such as pollution, crime, and neighborhood public services of various kinds, to name only a few.

This book advances the analysis of amenities by providing conceptual, methodological, and empirical foundations for such analysis. It also applies amenity concepts to a wide variety of specific phenomena. These phenomena are associated with access to places for buying and selling outputs and inputs, as well as with environmental and topographic features, collectively provided goods, and people themselves in their roles as neighbors. The topics range from benefit-cost analysis to gentrification, from the effect of climate on regional migration to the effect of racial prejudice on urban housing markets.

Part I deals with amenities most generally. Diamond and Tolley (Chapter 1) develop a framework within which to place the heretofore disparate parts of amenity analysis. Extensions within the framework are also developed. Based on a rigorous definition of amenities, the chapter examines approaches to modeling effects of amenities on urban form and other phenomena under static and dynamic conditions, giving attention also to the effects of amenities in a regional context. Harris, Tolley, and Harrell (Chapter 2) provide a model of the effects of amenities on the residence site choice. It demonstrates the great influence on land values of amenities other than distance to the central business district, indicating that models of urban form must move beyond those in which the latter variable is the single or dominant explanatory variable.

In Part II on methods of amenity market analysis, Linneman (Chapter 3) reviews a wide range of issues in the hedonic demand estimation literature as it bears on estimating the determinants of residential location. Blomquist and Worley (Chapter 4) examine a specific controversy in the hedonic literature, the degree of endogeneity in the levels of dwelling characteristics and amenities. They specify and illustrate a hedonic demand and supply framework in which econometric tests for simultaneity can be made.

Part III is concerned with the empirical analysis of urban amenity markets. Pollard (Chapter 5) provides a unique analysis of the joint effects on building heights of access to downtown and view amenities. Vaughan and Huckins (Chapter 6) develop the benefit–cost analysis for evaluating measures to control the disamenity, urban expressway noise. Grimes (Chapter 7) estimates rent gradients connected with recreational amenities near a large urban center. In doing so, he models and estimates the effects of competition for recreational land by people from towns and cities outside the dominant urban center. Smith (Chapter 8) investigates racial composition as a neighborhood amenity, estimating how racial preferences effect house prices and testing whether it is preferences or discrimination that causes segregation.

Part IV turns to regional amenity markets. Haurin (Chapter 9) develops a rigorous model of how regional amenities jointly affect regional wage rate differentials and city size. Graves and Regulska (Chapter 10) estimate the effects on migration of climate, access to recreational opportunities, and other amenities, showing how the effects depend on life-cycle variables and race.

Much of the work in this book began as thesis or other research by the contributors while they were associated with the Department of Economics and Center for Urban Studies at the University of Chicago. The contributions in this volume go well beyond that research, however.

We wish to thank Dennis Carlton, Gideon Fishelson, Arnold Harberger, J. Vernon Henderson, D. Gale Johnson, Ronald Krumm, Robert Lucas, Margaret Reid, Sherwin Rosen, Larry Sjastadd, and other colleagues who contributed to the thinking underlying this book. Special recognition is due to Charles Upton whose contributions were immeasurable in dissertation advising and in the Urban Economics Workshop. The patience and help of the members of the editors' families—Alice and Catherine Tolley and Alice Diamond—should also be acknowledged, as should the painstaking and good-spirited help by Betty Raff and June Nelson.

GEORGE S. TOLLEY  
DOUGLAS B. DIAMOND, JR.



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I

=====

# THE AMENITY CONCEPT



# 1

## The Economic Roles of Urban Amenities

DOUGLAS B. DIAMOND, JR.      GEORGE S. TOLLEY

### I. INTRODUCTION

Urban and regional economics address a large set of market and social phenomena that intrinsically possess a spatial dimension. That is, the location of the activity matters to the economic agents. There are, undoubtedly, hundreds of reasons why location matters. However, all of these reasons can be captured in one general concept, that of locational amenities. Amenities, like other goods, affect the level of either firm profits or household satisfactions. But, unlike for other goods, increments to amenities can be gained solely through a change in location. This unique characteristic of amenities means that location matters to people. It also means that amenities are the essence of urban and regional economics.

This chapter will demonstrate that amenities provide a unifying concept central to the explanation of

1. Urban land values
2. Patterns of urban density
3. The locations of households and businesses within and among cities

These subjects encompass topics as diverse as hedonic estimation, the timing of residential land use, neighborhood filtering or gentrification, industrial location, and household migration. All of these involve locational decisions and therefore amenities.

Traditionally, this central role in spatial analysis has been held by a subset of all amenities, the transportation or access amenities. The analy-

sis of firm location has emphasized the transportation costs of inputs and outputs. Intraurban patterns of land prices and residential location were said to be driven by the desire for access to workplaces. However, much work (e.g., Bradford and Kelejian, 1973; Diamond, 1980; Graves and Linneman, 1979; Harris, Tolley, and Harrell, 1968 and in this volume; Wheaton, 1977) on these and other urban phenomena has concluded that nontransportation amenities can be as important or even more important than transportation costs. Thus it is appropriate to delineate in detail just what all amenities have in common and how they influence so many facets of economic life.

The pursuit of amenities is clearly an important household undertaking. Locational amenities affect such major determinants of household well-being as personal security and health, leisure time, housing quality, child quality, and the opportunity set facing the household for market consumption activities. The effects of amenities on firm location can be just as profound. The choice of both a region and the location within the region will reflect the pursuit of factors affecting profits (such as transportation facilities and work force characteristics) over which the firm has no other influence.

In addition to providing an understanding of how amenities shape economic activity, another major reason for examining amenities is that governmental units can directly influence the spatial pattern of amenities and the course of urban economic events. The presence and growth of this power has raised a number of policy concerns that can be addressed only through the analysis of amenity markets. What is the value of decreased noise and pollution? What is the spatial impact of heavily subsidized mass transit? Is the decay of some cities and the sprawling growth of others an efficient use of resources? How can racial and economic integration be achieved? These questions and many others being pondered by the public and its public servants can be at least partially answered through the careful empirical and theoretical analysis of urban amenity markets.

In this chapter we provide a conceptual structure for synthesizing a wide variety of urban and regional economic analyses. We also attempt to summarize the most important insights of amenity market analysis. References to earlier and more recent works in these areas are given. However, the amenity phenomenon is too pervasive to permit a complete review of the amenity-related literature since that would be equivalent to a review of nearly all the literature in urban and regional economics.

The approach is first to *describe and classify amenities* (Section II) and to explore the implications of their peculiar properties for the way they are *allocated through an implicit price system* (Section III). We find that, since they are part and parcel of the residence and firm site choice, ameni-



ties are sold through a tie-in with either vacant land or existing structures. The analysis suggests how *the demands for amenities* might be *estimated from property prices* (Section IV).

Since all locational distinctions are captured in the amenity bundle, we then analyze *residential location patterns* of various socioeconomic groups by examining how the residence market allocates amenities over such competing groups in a given city (Section V). In the allocation process, the pattern of lot sizes, and thus *urban density*, is determined (Section VI). More generally, the whole gamut of the structural characteristics of development is influenced by amenities. The *dynamic nature of this development* is also recognized in Section VI. The fact that structures are durable implies that both past and future expected conditions in the amenity market will influence present location and density patterns. Moreover, the attractiveness of *maintaining* or *renewing* structural characteristics of dwellings is very much a function of amenity market conditions (Section VII) since the amenity market determines the payoff to such investments at a given location.

A quite different allocation process operates to determine the residential location choice across urban areas or *regions*. Since movement across areas implies a change of labor market and perhaps relative prices and the price level, the regional amenity market intrinsically involves wages as well as property prices. These links among amenities, household migration, and compensating differentials in wages and prices are developed in Section VIII.

## II. THE AMENITY CONCEPT

An amenity may be defined as a location-specific good. As we shall see, this simple definition covers a broad range of things.<sup>1</sup> In doing so, it encompasses all aspects of the consumption or production decision that influence the location of the household or firm. However, such a concise definition also hides important nuances of the amenity concept that must be clearly understood before applying the concept to the full scope of urban and regional analysis.

First of all, an amenity is a good. Thus, things such as food and utensils

<sup>1</sup> The vernacular meaning of the word "amenity" is similar but somewhat narrower. Developers and realtors use it to describe features which are specific to their development or to particular houses (e.g., tennis courts, walk-in closets). To the extent that such features are easily replicable elsewhere, they are not truly location-specific. However, the more general advantages and disadvantages of a location are also amenities and are really the focus of our discussion.