



Housing and Urban Development Indicators: A Good Idea Whose Time Has Returned

Stephen Malpezzi* and Stephen K. Mayo**

This special issue of *Real Estate Economics* is devoted to "Housing and Urban Development Indicators." The issue has been underwritten by the United States Department of Housing and Urban Development as a U.S. Contribution to the United Nation's *Habitat II* Conference, held in Istanbul, Turkey in June 1996. This introduction first briefly explains the role of indicators in urban research. Current research on indicators is then described, including a major international research effort undertaken in over fifty countries with support from numerous academics and other researchers, the United Nations, the World Bank and a number of governments. Finally, the papers in this issue are introduced and placed in context.

Knowledge that is not quantifiable is of a meager and uninteresting kind.
Lord Kelvin

Any figure that looks interesting is probably wrong.
Sir Claus Mosley in a Presidential Address to the Royal Statistical Society

This special issue of *Real Estate Economics* is devoted to "Housing and Urban Development Indicators." The issue has been underwritten by the United States Department of Housing and Urban Development as a U.S. Contribution to the United Nation's *Habitat II* Conference, held in Istanbul, Turkey in June 1996. For this issue papers were sought that:

- Present and analyze basic housing and urban development indicators, over time, cross sectionally, or both.
- Contain methodological contributions, including theoretical and empirical evaluations of alternative indicators, and requirements for improved indicators.
- Model the determinants of indicators across U.S. metropolitan statistical areas (MSAs) and/or over time; within MSAs (where appropriate); and across countries (where appropriate).

*University of Wisconsin-Madison, Madison, WI 53706

**The World Bank, Washington, DC 20433

- Discuss the links between indicators, their analysis and urban policy development.

The United Nations Centre for Human Settlements (Habitat) has developed a “standard” list of indicators, and generally uses the MSA as the unit of observation, but by design this issue was not so constrained. A database appendix has been prepared containing indicators from each of the papers in this issue, and containing selected other indicators, international and domestic, in spreadsheet form. The appendix can be found at: <http://www.wisc.edu/bschool/re>, or can be obtained from the editors.

Precursors

Standard textbook discussions of economic method often follow the following lines. After postulating some first principles, a theory is developed, and from that, testable hypotheses. Next, the researcher collects data and tests the hypotheses. In light of the tests, the hypotheses—and the theory—is either rejected, or conditionally maintained. If the test rejects the hypotheses, the theory may be modified in light of this new information, or it may simply be scrapped.¹

Such a description of how research is undertaken might suggest to a casual observer that empirical analysis is subservient, or an afterthought, to theory. However, while this “standard model” is sometimes followed, often analysis of data leads to theory, rather than the reverse. For example, Kuznets’s (1941) well known analysis of data on household consumption led to theoretical advances such as the life cycle model of Ando and Modigliani (1963), and the permanent income model of Friedman (1957). Also, the simple model implies or assumes that data are themselves independent of the theory. In practice, theory is often needed to learn how to better measure the phenomena under study. In the housing field, for example, Rosen’s (1974) article and related literature provided the theoretical underpinnings for the explosion of research on the measurement of housing prices over the last two decades.

As urban economics, housing and real estate economics, and related fields have developed over the past thirty years, much effort has gone into measurement and empirical issues. In fact, much of the research undertaken during the initial flowering of these fields in the late 1960s and early 1970s

¹ Many textbook descriptions of such a process can be found, for example Lipsey and Steiner (1966). Of course this model has not gone unchallenged, see the large literature on economic methodology, for example McCloskey (1986) and many articles which this provocative volume spawned.

was devoted to the development of indicators of the health of housing and real estate markets, and of cities and their inhabitants. Measurement issues and empirical analysis figure prominently in such seminal works as Muth (1969) and Mills (1972). A number of early works in urban economics focused on data and indicator issues such as Hochwald (1961), Tiebout (1962) and Hirsch (1966), among many others. Flax (1978) and Murphy (1980) are other useful sources, and with the popularity of *Money* magazine's annual rating of cities and Savageau and Boyer's annual almanac, urban indicators have in some sense broken through to the popular consciousness.

So, in some sense an emphasis on indicators and empirical analysis in urban real estate housing and related fields is really nothing new. On the theory side, recent research by (for example) Krugman (1991) and Barro and Sala-i-Martin (1992) have made important contributions on their own terms to the literature on urban economics and economic development. But these studies also performed another service, in that they re-awakened broad interest in these topics among the general economics profession. In similar fashion, some recent research on international indicators has awakened interest in these issues beyond the "usual suspects" working in the field.

The International Indicators Effort

The larger impetus for this issue was actually an international research effort comparing housing and urban development indicators across countries. The genesis of this initial research was the lack of consistent data for international comparisons of urban development outcomes. Standard comparative data sources, such as the World Bank's *World Development Report*, present hardly any such data, with the exception of some urban population figures (but see World Bank 1994 for an issue with some information on infrastructure). In order to fill this gap the United Nations and the World Bank sponsored the collection of basic urban indicators, beginning with a focus on housing market conditions, in a sample of 51 countries. Several dozen indicators were collected.

To give a flavor for the kinds of indicators collected and examined, Table 1 presents brief definitions of ten of the key indicators, and Table 2 presents initial data from the countries on a few of these indicators. Table 2 shows six of the indicators along with the per capita GNP of each country, and the population of each metropolitan area surveyed.² The other indicator figures

² GNP figures are from the *World Development Report* and are unadjusted for purchasing power parity. In some cases comparisons should be made with caution. See Angel and Mayo (1996) and Mayo (circa 1996) for a fuller discussion and details.

Table 1 ■ Ten key indicators of housing sector performance.

| Indicator | Definition |
|--|---|
| House price-to-income | Ratio of the median free-market price of a dwelling unit and the median annual household income. |
| Rent-to-income | Ratio of the median annual rent of a dwelling unit and the median annual household income of renters. |
| Housing production | Total number of housing units (in both formal and informal sectors) produced last year per 1,000 people. |
| Housing investment | Total investment in housing (in both formal and informal sectors in the urban area) as a percentage of gross city product. |
| Floor area per person | Median usable living space per person (in square meters). |
| Permanent structures | Percentage of housing units in structures built of permanent material. |
| Unauthorized housing | Percentage of the total housing stock in the urban area that is not in compliance with current regulations. |
| Housing credit portfolio | Ratio of total mortgage loans to all outstanding loans in both commercial and government financial institutions. |
| Land development multiplier | Average ratio between the median land price of a developed plot at the urban fringe in a typical subdivision and the median price of raw, undeveloped land in an area currently being developed. |
| Infrastructure expenditures per capita | Ratio of the total expenditures (operations, maintenance and capital) by all levels of government on infrastructure services (roads, sewerage, drainage, water supply, electricity and garbage collection) during the current year, and the urban population. |

are for the city, with the exception of the housing to credit portfolio ratio, which is developed from national data. Data were collected by individual researchers in each market and country, following a common data collection protocol. Every effort was made to document and explain ideal collection procedures and to maximize comparability. More confidence is placed in general patterns of the indicators, such as how they vary on average, than in precise point estimates between pairs of countries.

Table 2 ■ Basic international housing indicators, 1993.

| Country (city) | Country GNP per Capita (\$U.S.) | City Population (millions) | Floor Area per Person (m ²) | Housing Production per '000 | Owner Occupancy (%) | House Price to Income Ratio | Housing Credit Portfolio | Land Development Multiplier |
|---------------------------|---------------------------------------|----------------------------------|--|-----------------------------------|---------------------------|--------------------------------------|--------------------------------|-----------------------------------|
| Tanzania (Dar es Salaam) | 110 | 1.6 | 5.0 | 14.8 | 27 | 1.9 | 0.0 | n.a. |
| Malawi (Lilongwe) | 200 | 0.4 | 6.6 | 9.3 | 33 | 0.7 | 5.3 | 16.6 |
| Bangladesh (Dhaka) | 210 | 5.2 | 3.7 | 8.0 | 30 | 6.3 | 3.0 | 2.0 |
| Madagascar (Antananarivo) | 230 | 0.9 | 5.1 | 1.9 | 36 | 3.3 | 2.4 | 5.0 |
| Nigeria (Ibadan) | 290 | 5.7 | 9.0 | 2.1 | 62 | 3.6 | n.a. | 2.0 |
| India (New Delhi) | 350 | 8.4 | 8.6 | 4.1 | 48 | 7.7 | 2.4 | n.a. |
| Kenya (Nairobi) | 370 | 1.4 | 5.1 | 2.7 | 29 | 1.0 | 6.1 | n.a. |
| China (Beijing) | 370 | 7.0 | 9.3 | 13.3 | 8 | 14.8 | 0.0 | 8.3 |
| Pakistan (Karachi) | 380 | 8.2 | 7.1 | — | 83 | 1.9 | 8.5 | 3.8 |
| Ghana (Accra) | 390 | 1.4 | 10.4 | 2.6 | 28 | 2.5 | 2.9 | 12.5 |
| Indonesia (Jakarta) | 570 | 8.2 | 10.2 | 7.1 | 56 | 3.5 | 3.3 | 2.2 |
| Egypt (Cairo) | 600 | 6.1 | 12.0 | 10.5 | 32 | 6.7 | 7.4 | 10.0 |
| Zimbabwe (Harare) | 640 | 1.5 | 7.0 | 7.7 | 45 | 2.8 | 9.5 | 15.0 |
| Senegal (Dakar) | 710 | 1.6 | 8.1 | 3.4 | 57 | 3.0 | 1.7 | 4.0 |
| The Philippines (Manila) | 730 | 7.9 | 12.0 | 5.7 | 48 | 2.6 | 7.0 | 6.7 |
| Cote d'Ivoire (Abidjan) | 750 | 1.9 | 7.9 | 7.8 | 21 | 1.4 | 8.9 | 2.5 |
| Morocco (Rabat) | 950 | 1.1 | 6.0 | 6.5 | 46 | 6.7 | 6.6 | 5.5 |
| Ecuador (Quito) | 980 | 5.3 | 8.6 | 9.3 | 79 | 2.4 | 22.3 | 4.0 |
| Jordan (Amman) | 1,240 | 1.3 | 10.0 | 12.5 | 75 | 3.4 | 19.0 | 4.2 |
| Colombia (Bogota) | 1,260 | 4.9 | 8.8 | 6.0 | 62 | 6.5 | 11.0 | 2.9 |
| Thailand (Bangkok) | 1,420 | 6.0 | 16.5 | 18.5 | 68 | 4.1 | 7.1 | 2.6 |
| Tunisia (Tunis) | 1,440 | 1.6 | 6.5 | 7.8 | 67 | 6.1 | 8.4 | 3.7 |
| Jamaica (Kingston) | 1,500 | 0.6 | 15.3 | 11.3 | 41 | 4.9 | 22.0 | 1.3 |
| Turkey (Istanbul) | 1,630 | 7.3 | 17.0 | 6.6 | 60 | 5.0 | 2.5 | 10.0 |
| Poland (Warsaw) | 1,690 | 1.7 | 17.4 | 1.9 | 35 | 10.8 | 18.0 | 2.4 |
| Chile (Santiago) | 1,940 | 4.8 | 15.9 | 6.2 | 80 | 2.1 | 20.4 | 2.8 |

Table 2 ■ (continued)

| Country (city) | Country GNP per Capita (\$U.S.) | City Population (millions) | Floor Area per Person (m ²) | Housing Production per '000 | Owner Occupancy (%) | House Price to Income Ratio | Housing Credit Portfolio | Land Development Multiplier |
|-----------------------------|---------------------------------------|----------------------------------|--|-----------------------------------|---------------------------|--------------------------------------|--------------------------------|-----------------------------------|
| Algeria (Algiers) | 2,060 | 1.8 | 8.5 | 2.7 | 45 | 11.7 | 0.0 | 10.4 |
| Malaysia (Kuala Lumpur) | 2,320 | 1.2 | 18.6 | 8.6 | 59 | 5.0 | 22.0 | 4.3 |
| Mexico (Monterrey) | 2,490 | 2.5 | 8.6 | 6.0 | 83 | 3.7 | 18.0 | 6.0 |
| S. Africa (Johannesburg) | 2,530 | 8.7 | 11.1 | 7.0 | 64 | 1.7 | 39.0 | 6.2 |
| Venezuela (Caracas) | 2,560 | 3.8 | 16.0 | 3.9 | 65 | 2.0 | 16.5 | n.a. |
| Brazil (Rio de Janeiro) | 2,680 | 6.0 | 19.4 | 4.9 | 62 | 2.3 | 32.6 | 10.4 |
| Hungary (Budapest) | 2,780 | 2.0 | 23.5 | 3.0 | 45 | 6.6 | 29.0 | 6.0 |
| Czechoslovakia (Bratislava) | 3,140 | 0.4 | 23.2 | 6.8 | 14 | 6.5 | 15.0 | n.a. |
| Republic of Korea (Seoul) | 5,400 | 10.6 | 18.8 | 7.2 | 40 | 9.3 | 5.2 | 1.3 |
| Greece (Athens) | 5,990 | 3.1 | 24.5 | 6.4 | 55 | 3.8 | 10.6 | n.a. |
| Israel (Tel Aviv) | 10,920 | 1.3 | 24.8 | 3.8 | 80 | 5.0 | 14.0 | 2.5 |
| Spain (Madrid) | 11,020 | 4.8 | 24.4 | 4.9 | 74 | 3.7 | 25.0 | 12.0 |
| Singapore (Singapore) | 11,160 | 2.7 | 20.0 | 6.4 | 90 | 2.8 | 15.0 | 1.3 |
| Hong Kong (Hong Kong) | 11,490 | 5.8 | 7.1 | 14.2 | 43 | 7.4 | 18.9 | 1.2 |
| United Kingdom (London) | 16,100 | 6.8 | 31.9 | 2.6 | 58 | 7.2 | 37.4 | 2.4 |
| Australia (Melbourne) | 17,000 | 3.0 | 50.7 | 8.2 | 73 | 3.9 | 23.9 | 2.2 |
| The Netherlands (Amsterdam) | 17,320 | 0.7 | 23.8 | 7.6 | 9 | 4.8 | 16.4 | 2.6 |
| Austria (Vienna) | 19,060 | 1.5 | 31.0 | 4.4 | 17 | 4.7 | 25.2 | 1.2 |
| France (Paris) | 19,490 | 10.7 | 32.4 | 5.0 | 43 | 4.2 | 19.7 | 4.2 |
| Canada (Toronto) | 20,470 | 3.8 | 41.1 | 7.3 | 60 | 4.2 | 28.0 | 3.3 |
| U.S. (Washington, DC) | 21,790 | 3.9 | 68.7 | 6.6 | 61 | 3.9 | 43.6 | 2.0 |
| Germany (Munich) | 22,320 | 1.3 | 35.0 | 5.0 | 17 | 9.6 | 36.0 | 1.1 |
| Norway (Oslo) | 23,120 | .5 | 42.0 | 6.9 | 74 | 5.5 | 36.0 | 2.5 |
| Sweden (Stockholm) | 23,660 | 1.5 | 40.0 | 5.6 | 45 | 4.6 | 19.7 | 4.0 |
| Japan (Tokyo) | 25,430 | 8.2 | 15.8 | 11.0 | 40 | 11.6 | 10.8 | 2.0 |
| Finland (Helsinki) | 26,040 | 0.8 | 30.4 | 13.3 | 63 | 3.7 | 23.2 | n.a. |

n.a. Data not available.

Source: Housing Indicators Project, directed by Shlomo Angel and Stephen Mayo.

These indicators can be used in a diagnostic and comparative way, to put conditions in housing markets in one country in perspective relative to other countries, for example see Mayo (1993, and circa 1996). Such indicators can be used to construct indexes of housing policy and subpolicy such as regulation, taxation. Angel and Mayo (1996) and Mayo (forthcoming) present examples of such analyses.

The success of this initial effort has led to an expansion, both in terms of more countries and a wider range of indicators. The international effort is now collecting a set of indicators which includes other urban development outcomes, such as indicators related to socioeconomic development, infrastructure, transport, the urban environment, local governments, in addition to housing and real estate. In the U.S., the U.S. Department of Housing and Urban Development has taken the lead in preparing an initial set of indicators on one hundred large U.S. MSAs (Glickman, Lahr and Wyly 1996). A U.S. Department of Housing and Urban Development (HUD) publication in 1996 provides a summary of that agency's contributions to the overall *Habitat II* effort.

The intent of this issue was to expand upon both the U.N./World Bank/ HUD efforts described briefly earlier and, where possible, other existing research. Most of the indicator papers contained in this issue focus on the U.S., but there is one international paper. Some papers treat the MSA as a unit of observation as in the previous indicator efforts, while others examine the spatial pattern of an indicator within a city. The papers also vary in the degree to which they focus on theoretical as opposed to purely empirical issues.

The references herein and the papers presented in this issue only scratch the surface of this important topic. In addition to these sources, and works cited therein, representative examples include (among many others) the work of Case and Shiller (1989) and of Thibodeau (1995) on housing prices; of Kasarda (1993) and Smeeding, O'Higgins and Rainwater (1990) on social economic indicators; of Holtz-Eakin and Rosen (1989) and Aschauer (1989) on infrastructure; of Ladd and Yinger (1989) on fiscal and governance measures; and of Rose (1989) and Malpezzi (1996) on urban regulations. A much longer, but still incomplete, bibliography can be found at: <http://www.wisc.edu/bschool/re>.

Research in This Issue

The first paper, by Agostini and Richardson, is interesting in several respects. They adopt the traditional indicator approach of using the MSA as the unit

of analysis. The construction of a human development index for U.S. cities attempts to draw together two strands of literature: the U.S. literature on quality of life across cities (as in for example Blomquist, Berger and Hoehn 1988), and the international literature on so-called Human Development Indexes, which have been popularized by the United Nations Development Programme (UNDP) 1996 and ul Haq (1995). Agostini and Richardson's paper is also of interest in that they are city officials rather than professional academics, so they offer a useful perspective on the role indicators play from the point of view of policy makers and practitioners.

There has long been concern in the U.S. that the spatial distribution of urban outcomes matters a great deal for the performance of cities and the welfare of their citizens, with both efficiency and distributional implications. Two papers in the current issue address such issues in different ways. Bogdon and Can present spatially disaggregated indicators of housing affordability. Research using aggregate numbers on affordability (such as that presented in Green and Malpezzi (1996)) are often relatively sanguine, at least in the sense that when such aggregate indicators get worse it's often primarily because of changes in incomes rather than problems in the housing market *per se*. Bogdon and Can's contribution suggests that such aggregate analysis might be misleading or at least incomplete. This analysis can inform the current debates on spatial distribution of mortgage lending and insurance, and on the probable spatial effects of shifts from supply side to demand side housing subsidies.

The paper by Li and Rosenblatt addresses other spatial issues that have implications for current finance and insurance controversies. They investigate whether economic indicators exist which can predict spatial patterns of future house prices and, hence, the probability of default and lending risk. Generally the results of Li and Rosenblatt are not encouraging, in the sense that while there are correlations between some economic fundamentals, house prices, and potential default losses, these relationships do not appear to be at all robust. They vary across region and time in a way that suggests that our state of knowledge is at best incomplete and that policy judgments made on the basis of such relationships, for example in the redlining and "underserved markets" debates, may be misleading.

The paper by Pennington-Cross harkens back to a broader urban and regional economics literature. Much regional analysis focuses on the quantity of output of regions or cities; but given a choice economists generally prefer analysis of prices, as these contain more information. Pennington-Cross constructs the price of tradable goods by city. He further suggests how these

indicators can be used to study how shocks to the terms of trade of individual cities can affect their growth and development.

Many papers in housing economics examine housing's role as a consumption good, but it is also of course an investment and a major store of wealth. Deutsch's contribution to the issue focuses on indicators of housing's contribution to household portfolios in Austria, with special reference to the role transfers of housing have on intergenerational transfers of wealth. The paper documents the large role these transfers play in wealth transfers in Europe, and complement analyses of U.S. housing markets, such as that of Englehardt (1994).

Taken together, these papers and the related literature demonstrate that indicators not only help us test existing theories but can be the impetus behind better theory. Improved tests and amended theory are critical to an enhanced understanding of urban markets. Indicators are a bridge between the inductive and deductive traditions in urban economics, and serve to remind us that intellectual progress requires both, or rather that these two traditions are ineluctably intertwined. Continued serious and concerted work on urban indicators will improve and illuminate theory, public policy and our basic understanding of the structure and dynamics of cities.

We would like to extend our thanks to the many authors who submitted papers on short notice, numerous referees, and of course the U.S. Department of Housing and Urban Development for its generous support of this special issue. We would also like to acknowledge Shlomo Angel who, with Steve Mayo, co-directed the original housing indicators project and made many contributions to the work underlying this issue. Referees will be acknowledged individually at the end of 1997. Opinions expressed are those of the authors and do not reflect official policy or views of any institution.

References

- Agostini, S.J. and S.J. Richardson. 1997. A Human Development Index for U.S. Cities: Methodological and Preliminary Findings. *Real Estate Economics* 25(1): 1–11.
- Ando, A. and F. Modigliani. 1963. The "Life Cycle" Hypothesis of Savings: Aggregate Implications and Tests. *American Economic Review* 53: 55–84.
- Angel, S. and S.K. Mayo. 1996. Enabling Policies and Their Effects on Housing Sector Performance: A Global Comparison. Paper presented to the *Habitat II* Conference, Istanbul, Turkey.
- Aschauer, D. 1989. Is Public Expenditure Productive? *Journal of Monetary Economics* 23(2): 177–200.
- Barro, R.J. and X. Sala-i-Martin. 1992. Convergence. *Journal of Political Economy* 100(2): 223–251.

- Blomquist, G.C., M.C. Berger and J.P. Hoehn. 1988. New Estimates of Quality of Life in Urban Areas. *American Economic Review* 78(1): 89–107.
- Bogdon, A. and A. Can. 1997. Indicators of Local Housing Affordability: Comparative and Spatial Approaches. *Real Estate Economics* 25(1): 43–80.
- Case, K.E. and R.J. Shiller. 1989. The Efficiency of the Market for Single Family Homes. *American Economic Review* 79(1): 125–137.
- Deutsch, E. 1997. Indicators of Housing Finance Related Intergenerational Wealth Transfers. *Real Estate Economics* 25(1): 131–174.
- Engelhardt, G.V. 1994. House Prices and the Decision to Save for Down Payments. *Journal of Urban Economics* 36(2): 209ff.
- Flax, M.J. 1978. *Survey of Urban Indicator Data, 1970-1977*. Urban Institute: Washington, DC.
- Friedman, M. 1957. *A Theory of the Consumption Function*. Princeton University Press: Princeton, NJ.
- Glickman, N.J., M.L. Lahr and E.K. Wyly. 1996. *State of the Nation's Cities: America's Changing Urban Life*. U.S. Department of Housing and Urban Development: Washington, DC.
- Green, R.K. and S. Malpezzi. 1996. *A Primer on U.S. Housing Markets and Policies*. University of Wisconsin, Center for Urban Land Economics Research Working Paper.
- Hirsch, W.Z. 1966. *Regional Accounts for Policy Decisions*. Johns Hopkins University Press: Baltimore, MD.
- Hochwald, W. (ed.). 1961. *Design of Regional Accounts*. Johns Hopkins University Press: Baltimore, MD.
- Holtz-Eakin, D. and H.S. Rosen. 1989. The 'Rationality' of Municipal Capital Spending: Evidence From New Jersey. *Regional Science and Urban Economics* 19: 517–536.
- Kasarda, J.D. and others. 1993. *Urban Underclass Database*. Social Science Research Council: New York, NY.
- Krugman, P. 1991. *Geography and Trade*. MIT Press: Cambridge, MA.
- Kuznets, S. (assisted by Lillian Epstein and Elizabeth Jencks). 1941. *National Income and its Composition 1919-38* (2 vols.). National Bureau of Economic Research: New York, NY.
- Ladd, H.F. and J. Yinger. 1989. *America's Ailing Cities: Fiscal Health and the Design of Urban Policy*. Johns Hopkins University Press: Baltimore, MD.
- Li, Y. and E. Rosenblatt. 1997. The Failure of Urban Indicators to Predict Home Price Appreciation: Implications for Redlining Research. *Real Estate Economics* 25(1): 81–104.
- Lipsey, R.G. and P.O. Steiner. 1966. *Economics*. Harper and Row: New York, NY.
- Malpezzi, S. 1996. Housing Prices, Externalities, and Regulation in U.S. Metropolitan Areas. *Journal of Housing Research* 7(2): 209–241.
- Malpezzi, S., R. Green and G. Chun. 1996. New Place to Place Housing Price Indexes for U.S. Metropolitan Areas, and Their Determinants: An Application of Housing Indicators. University of Wisconsin, Center for Urban Land Economics Research Working Paper.
- Mayo, S.K. 1993. South African Housing Sector Performance in International Perspective. Paper presented to the 21st IAHS Housing Congress, Capetown, South Africa.
- . (Circa 1996) Housing Sector Performance and Housing Strategy in Gaza and the West Bank. In Anthony Zahlan (ed.), *The Reconstruction of Palestine: Urban and*

- Rural Development*. Kegan Paul International Publishers: New York, NY. Forthcoming.
- McCloskey, D. 1986. *The Rhetoric of Economics*. University of Wisconsin Press: Madison, WI.
- Mills, E.S. 1972. *Studies in the Structure of the Urban Economy*. Johns Hopkins University Press: Baltimore, MD.
- Murphy, T. 1980. *Urban Indicators: A Guide to Information Sources*. Gale Research Company: Detroit, MI.
- Muth, R.F. 1969. *Cities and Housing*. University of Chicago Press: Chicago, IL.
- Pennington-Cross, A. 1997. Indicators of External Shocks to the City Economy: An Index of Export Prices and Terms of Trade. *Real Estate Economics* 25(1): 105–129.
- Rose, L.A. 1989. Topographical Constraints and Urban Land Supply Indexes. *Journal of Urban Economics* 26(3): 335–347.
- Rosen, S. 1974. Hedonic Prices and Implicit Markets: Product Differentiation in Pure Competition. *Journal of Political Economy* 82(1): 34–55.
- Savageau, D. and R. Boyer. 1993. *Places Rated Almanac*. Revised. Prentice Hall: New York, NY.
- Smeeding, T., M. O'Higgins and L. Rainwater. 1990. *Poverty, Inequality and Income Distribution in Comparative Perspective: The Luxembourg Income Study*. Urban Institute Press: Washington, DC.
- Thibodeau, T.G. 1995. House Price Indices from the 1984-1992 MSA American Housing Surveys. *Journal of Housing Research* 6(3): 439–479.
- Tiebout, C.M. 1962. *The Community Economic Base Study*. Committee for Economic Development: New York, NY.
- United Nations Development Programme. 1996. *Human Development Report 1996*. Oxford University Press: Oxford and New York.
- U.S. Department of Housing and Urban Development. 1996. *Beyond Shelter: Building Communities of Opportunity—The United States Report for Habitat II*. Washington, DC.
- ul Haq, M. 1995. *Reflections on Human Development*. Oxford University Press: Oxford and New York.
- World Bank. 1994. *World Development Report 1994: Infrastructure for Development*. Oxford University Press: Oxford and New York.

