

BOSTON COLLEGE
Department of Economics

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Spring 1996

Urban Economics I
EC 893.01

Course Outline

This course is the first of an integrated two-term sequence on urban economics. The sequence will emphasize theory and the theory of policy rather than empirical analysis, and will cover the core material in urban economic theory.

The principal subject areas are urban spatial economics, urban transportation economics, housing economics, and urban public finance. Other topics may be covered as well, depending on students' interest. There is no necessary sequence to the material except that the urban spatial economics should come first since it is employed in all the other subject areas. My preference would be to cover urban spatial economics and urban transportation economics this term and other topics next term. But this is open to negotiation.

Another issue we should discuss is the level of mathematical sophistication. Should I assume that you are fluent in optimal control theory? If not, should I devote a few lectures to developing optimal control theory? Or should I avoid optimal control theory? Apart from this, how technical should the lectures be? On the one hand, concepts are often more easily communicated using simple mathematics. On the other, it is important to develop technical fluency.

The tentative grading scheme is as follows:

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|------------------|-----|
| Problem sets (4) | 15% |
| Midterm | 15% |
| Final | 30% |
| Paper | 40% |

The dates for the midterm and the final will be decided in class. The midterm will be just before spring break. For the paper, I have in mind a modest but polished piece of urban economic theory--perhaps a new model, perhaps an interesting extension of an existing model. I am flexible, however. Original econometrics or policy analysis is certainly acceptable, but I do not want a literature review. The topic should be chosen by the midterm, after consultation with me. The paper is due the last day of classes. I am prepared to provide plenty of assistance on the paper.

I. The Basic Monocentric City -- Descriptive Analysis

*J.K. Brueckner, "The Structure of Urban Equilibria: A Unified Treatment of the Muth-Mills Model," in E.S. Mills, ed., *Handbook of Regional and Urban Economics*, Vol. II, Elsevier, 1987.

*R.M. Solow, "On Equilibrium Models of Urban Location," in J.M. Parkin, ed., *Essays in Modern Economics*, Longman, 1973.

W. Alonso, *Location and Land Use*, Harvard University Press, 1964.

R.F. Muth, *Cities and Housing*, University of Chicago Press, 1969, Chs. 1-4.

J.V. Henderson, *Economic Theory and the Cities*, Academic Press, 1985, Chs. 1-2.

M.J. Beckmann, "On the Distribution of Urban Rent and Residential Density," *Journal of Economic Theory* 1 (1969), 60-67.

A. Montesano, "A Restatement of Beckmann's Model on the Distribution of Urban Rent and Residential Density," *Journal of Economic Theory* 4 (1972), 329-354.

W.C. Wheaton, "A Comparative Static Analysis of Urban Spatial Structure," *Journal of Economic Theory* 9 (1974), 223-237.

J. Hartwick, U. Schweizer and P. Varaiya, "Comparative Statics of a Residential Economy with Several Classes," *Journal of Economic Theory* 13 (1976), 396-413.

D. Pines and E. Sadka, "Comparative Statics Analysis of a Fully Closed City," *Journal of Urban Economics* 20 (1986), 1-20.

M. Straszheim, "The Theory of Urban Residential Location," in E.S. Mills, ed., *Handbook of Regional and Urban Economics*, Vol. II, Elsevier, 1987.

M. Fujita, *Urban Economic Theory*, Cambridge University Press, 1989, Chs. 1-5.

D.K. Richter, "A Computational Approach to Resource Allocation in Spatial Urban Models," *Regional Science and Urban Economics* 10 (1980), 17-42.

J.K. Brueckner, "The Economics of Urban Yard Space: An "Implicit-Market" Model for Housing Attributes," *Journal of Urban Economics* 13 (1983), 216-234.

E.S. Mills, "An Aggregative Model of Resource Allocation in a Metropolitan Area," *American Economic Review* 57 (1967), 197-210.

II. The Basic Monocentric City -- Normative Analysis

*R. Arnott and J. Riley, "Asymmetrical Production Possibilities, the Social Gains from Inequality and the Optimum Town," *Scandinavian Journal of Economics* 79, 1977, 301-311.

- *R. Arnott, "Optimal City Size in a Spatial Economy," *Journal of Urban Economics* 6, 1979, 65-89.
- *R. Arnott and J. Stiglitz, "Aggregate Land Rents and Aggregate Transport Cost," *Economic Journal* 91, 1981, 331-47.
- J. Mirrlees, "The Optimum Town," *Swedish Journal of Economics* 72, 1974, 114-135. (difficult)
- J. Herbert and B. Stevens, "A Model of the Distribution of Residential Activity in Urban Areas," *Journal of Regional Science* 2, 1960, 21-36.
- W. Wheaton, "Linear Programming and Locational Equilibrium: The Herbert-Stevens Model Revisited," *Journal of Urban Economics* 1, 1974, 278-88.
- R. Arnott, *Topics in Residential Location Theory*, unpublished Ph.D. thesis, Yale University, 1975.
- Y. Kanemoto, *Theories of Urban Externalities*, (Amsterdam: North-Holland, 1980).
- M. Fujita, *Urban Economic Theory* (Cambridge, U.K.: Cambridge University Press, 1989), Chs. 3-8, App. B.
- G. Debreu, *Theory of Value* (New York: Wiley, 1959).
- J. Serck-Hansen, "The Optimal Number of Factories via Spatial Market," in H. Bos, ed., *Toward Balanced International Growth* (Amsterdam: North-Holland, 1969)
- F. Flatters, V. Henderson, and P. Mieszkowski, "Public Goods, Efficiency, and Regional Fiscal Equalization," *Journal of Public Economics* 3, 1974, 99-112.
- D. Starrett, "Principles of Optimal Location in a Large Homogeneous Area," *Journal of Economic Theory* 9, 1974, 418-448.
- W. Vickrey, "The City as a Firm," in M. Feldstein and R. Inman, ed., *The Economics of Public Services* (London: MacMillan, 1977).
- R. Arnott and J. Stiglitz, "Aggregate Land Rents, Expenditure on Public Goods, and Optimal City Size," *Quarterly Journal of Economics* 93, 1979, 471-500.
- M. Fujita, "A Monopolistic Competition Model of Spatial Agglomeration: Differentiated Product Approach," *Regional Science and Urban Economics* 18, 1988, 87-124.

III. The Monocentric City Model: Extensions

A. Traffic Congestion

- *Y. Kanemoto, *Theories of Urban Externalities* (Amsterdam: North Holland, 1980), Chs. IV, V.
- *R. Arnott and J. MacKinnon, "Market and Shadow Land Rents with Congestion," *American Economic Review* 68 (1978), 588-600.

R. Strotz, "Urban Transportation Parables," in J. Margolis, ed., *The Public Economy of Urban Communities* (Baltimore, MD: Johns Hopkins University Press, 1965).

R. Solow and W. Vickrey, "Land Use in a Long, Narrow City," *Journal of Economic Theory* 3 (1971), 430-447.

E. Mills and D. DeFerranti, "Market Choices and Optimum City Size," *American Economic Review, Papers and Proceedings* 61 (1971), 340-345.

R. Arnott, "Unpriced Transport Congestion," *Journal of Economic Theory* 21 (1979), 294-316.

D. Pines and E. Sadka, "Optimum, Second-Best, and Market Allocation of Resources within an Urban Area," *Journal of Urban Economics* 9 (1981) 173-189.

Y. Kanemoto, "Externalities in Space," in *Urban Dynamics and Urban Externalities* (Chur: Harwood, 1987), section 5.

B. Durable Housing

*D. Harrison and J. Kain, "Cumulative Urban Growth and Urban Density Functions," *Journal of Urban Economics* 1 (1974), 61-98.

*A. Anas, "Dynamics of Urban Residential Growth," *Journal of Urban Economics* 5 (1978), 66-87.

*R. Arnott and F. Lewis, "The Transition of Land to Urban Use," *Journal of Political Economy*.

R. Arnott, "A Simple Urban Growth Model with Durable Housing," *Regional Science and Urban Economics* 10 (1980), 53-76.

J. Brueckner, "A Vintage Model of Urban Growth," *Journal of Urban Economics* 8 (1980), 389-402.

J. Brueckner, "A Dynamic Model of Housing Production," *Journal of Urban Economics* 10 (1981), 1-14.

M. Fujita, "Toward a Dynamic Theory of Land use," *Papers of the Regional Science Association* 37 (1979), 133-165.

O. Hochman and D. Pines, "Costs of Adjustment and the Spatial Patterns of a Growing, Open City," *Econometrica* 50 (1982), 1371-1389.

W. Wheaton, "Urban Spatial Development with Durable but Replaceable Capital," *Journal of Urban Economics* 12 (1982), 1-21.

C. Endogenous CBD

-- the Solow model covered in class

D. Non-CBD employment

*A. Polinsky and D. Rubinfeld, "Property Values and the Benefits of Environmental Improvements" in L. Wingo and A. Evans, eds., *Public Economics and the Quality of Life* (Washington, D.C.: Resources for the Future, 1977).

E. Pollution and Zoning

*J.V. Henderson, "Externalities in a Spatial Context: The Case of Air Pollution," *Journal of Public Economics* 7 (1977), 89-110.

Y. Kanemoto, pps. 46-55 of "Externalities in Space"

T. Miyao, *Dynamic Analysis of the Urban Economy* (New York: Academic Press, 1981), Ch. 7.

A. Polinsky and S. Shavell, "The Air Pollution and Property Value Debate," *Review of Economics and Statistics* 57 (1975), 100-104.

F. Race

*J. Yinger, "Racial Prejudice and Racial Residential Segregation in an Urban Model," *Journal of Urban Economics* 3 (1976), 383-396.

*J. Kain, "Housing Segregation, Negro Employment, and Metropolitan Decentralization," *Quarterly Journal of Economics* 82 (1968), 179-197.

J. Yinger, "Prejudice and Discrimination in the Urban Housing Market," *Current Issues in Urban Economics*, P. Mieszkowski and M. Straszheim, eds., (Baltimore: Johns Hopkins University Press, 1979).

Y. Kanemoto, *Theories of Urban Externalities*, Ch. VI.

T. Miyao, *Dynamic Analysis of the Urban Economy*, Chs. 5, 6.

G. Jurisdictional Fragmentation, Exclusionary Zoning, and the Method of Local Public Finance