

ECON 7387– Section 22536
ECONOMIC ANALYSIS OF URBAN AREAS
Meets MW 11:30am-1:00pm in 212 McElhinney Hall

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<http://www.uh.edu/blackboard> (class website, use Blackboard Learn;
password access)

Overview: This course is a Ph.D.-level applied microeconomics course focusing on urban economics. The field is quite diverse and could easily take up a two-semester sequence, so we will only be able to cover selected topics in this one-semester course. The course begins by examining the monocentric city model by developing bid-rent functions and performing comparative static predictions of the model. The next section of the course reviews both parametric and nonparametric procedures for empirically testing the predictions. We analyze extensions of the basic model to polycentric cities, examine the economics of agglomeration economies, housing markets, spatial equilibrium across cities, urban transportation issues and review some recent themes in economic geography. Other topics may be added depending on the interests of the class.

Recommended Textbooks:

Edward L. Glaeser, *Cities, Agglomeration and Spatial Equilibrium*,
2008, Oxford University Press, ISBN978-0-19-929044-4 (**Glaeser**)
Masahisa Fujita, *Urban Economic Theory: Land Use and City Size*,
1989, Cambridge University Press, ISBN 0-521-34662-2 (**Fujita**)

Handbooks of Urban and Regional Economics:

1. *Handbook of Urban and Regional Economics*, vol. 2, *Urban Economics*, edited by E.S. Mills (Amsterdam: Elsevier, 1988), (**Handbook 2**)
2. *Handbook of Urban and Regional Economics*, vol. 3, *Applied Urban Economics*, edited by P. Cheshire and E.S. Mills (Amsterdam: Elsevier, 1999), (**Handbook 3**)
3. *Handbook of Regional and Urban Economics*, vol. 4, *Cities and Geography*, edited by J.V. Henderson and J. F. Thisse (Amsterdam: Elsevier, 2006), (**Handbook 4**). Draft papers available at <http://www.econ.brown.edu/Faculty/henderson/handbook.html>.
4. *Handbook of Regional and Urban Economics*, vol.5A & vol. 5B, edited by Gilles Duranton, J. Vernon Henderson and William C. Strange (Amsterdam: Elsevier, 2015), (**Handbook 5**). Drafts of each chapter are available at <http://real.wharton.upenn.edu/~duranton/handbook.html>

Course Evaluation: *(subject to revision)*

- 20% Research Proposal (topics due March 7, final paper due Monday May 7, 2018)
- 20% Final Replication Project (take-home, due Monday April 30, 2018)
- 40% Homework sets
- 20% Class presentation(s) of articles

There will be 4-5 homework sets, and at least one will involve the use of Stata. We may also use ArcGIS, a digital mapping program. The goal of the research proposal is to develop the beginnings of an empirical project by the end of the course. The proposal should be approximately 8-10 pages, should include a literature review, and proposed research project including the main hypothesis, description of the data to be used, and the empirical strategy (more guidelines will be provided later). Each student will also be required to present one or more articles to the class in the style of a referee report and to lead the class discussion.

Course Policies: I expect you to attend all classes and to be an active participant in each.

Homework and other course materials will be posted on our class Blackboard website. All assignments are mandatory. No late assignments accepted. Any late homework receives a score of zero. Original hard copies (but no Xeroxes) of homeworks are required; no electronic submissions will be accepted. You may form homework study-groups (in fact I encourage you to do so), but each student must turn in her/his own homework sets. Each homework set turned in must be unique and original. **The Honesty code of the University of Houston applies in this course** (see <http://catalog.uh.edu/content.php?catoid=13&navoid=3246>)

Course Preparation: Students should have completed the first-year Ph.D. sequence in microeconomic theory, and at least one course in econometrics. Familiarity with Stata is also assumed.

Learning Outcomes:

- Students will attain through lectures, homeworks, and readings, substantive knowledge about the economics of cities and regions.
- Students will improve their technical knowledge about a number of modelling aspects, econometrics techniques, and the link between the two.
- Students will improve their critical thinking (and hopefully creativity) about existing research on cities and regions.
- Students will improve their ability to present complex research output in a clear and succinct way.

Course Outline

Note: The course outline is subject to revision; not all papers and topics will be covered. More papers may be added.

1. The Monocentric City Model

Glaeser, Chapter 2.

Fujita, Chapter 2.

Brueckner, Jan, "The Structure of Urban Equilibria: A Unified Treatment of the Muth-Mills Model," *Handbook 2*.

Anas, Alex, Richard Arnott, and Kenneth A. Small, "Urban Spatial Structure," *Journal of Economic Literature* 36 (1998), 1426-1464.

Berliant, Marcus and Courtney LaFountain, "Space in General Equilibrium," in Richard J. Arnott and Daniel P. McMillen (eds.), *A Companion to Urban Economics* (2006), 109-127.

Kraus, Marvin, "Monocentric Cities," in Richard J. Arnott and Daniel P. McMillen (eds.), *A Companion to Urban Economics* (2006), 96-108.

Three Classics:

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

E. S. Mills, "An Aggregative Model of Resource Allocation in a Metropolitan Area." *The American Economic Review* 57:2 (1967), 197—210.

R.F. Muth, *Cities and Housing*, University of Chicago Press (1969).

2. The Monocentric City Model--Extensions

Glaeser, Chapter 2

Baum-Snow, Nathaniel, "Suburbanization and Transportation in the Monocentric Model," *Journal of Urban Economics* 62 (2007), 405-423.

Brueckner, Jan K., "Residential Succession and Land-Use Dynamics in a Vintage Model of Urban Housing," *Regional Science and Urban Economics* 10 (1980), 225-240.

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

Brueckner, Jan K., Jacques-Francois Thisse, and Yves Zenou, "Why is Central Paris Rich and Downtown Detroit Poor? An Amenity-Based Theory," *European Economic Review* 43 (1999), 91-107.

Hanson, Andrew, Kurt Schnier, and Geoffrey K. Turnbull, "Drive 'Til You Qualify: Credit Quality and Household Location," *Regional Science and Urban Economics*, 42 (2012), pp.63-77.

Leroy, Stephen F. and Jon Sonstelie, "Paradise Lost and Regained: Transportation Innovation, Income, and Residential Location," *Journal of Urban Economics* 13 (1983), 67-89.

Wheaton, William C., "Urban Spatial Development with Durable but Replaceable Capital," *Journal of Urban Economics* 12 (1982): 53-67.

3. The Monocentric City Model--Empirics

Ahlfeldt, Gabriel M. and Nicolai Wendland, "Fifty Years of Urban Accessibility: The Impact of Urban Railway Network on the Land Gradient in Berlin 1890-1936," *Regional Science and Urban Economics*, 41:2 (March 2011), 77-88.

Burchfield, Marcy, Henry G. Overman, Diego Puga, and Matthew A. Turner, "Causes of Sprawl: A Portrait from Space," *Quarterly Journal of Economics* 121 (2006), 587-633.

Coulson, N. Edward, "Really Useful Tests of the Monocentric City Model," *Land Economics* (1991), 299-307.

Gin, Alan and Jon Sonstelie, "The Streetcar and Residential Location in Nineteenth Century Philadelphia," *Journal of Urban Economics* 32 (1992), 92-107.

Glaeser, Edward L, Matthew E. Kahn, and Jordan Rappaport, "Why Do the Poor Live in Cities? The Role of Public Transportation," *Journal of Urban Economics* 63 (2008), 1-24.

Glaeser, Edward L. and Matthew E. Kahn, "Sprawl and Urban Growth," in J.V. Henderson and J.F. Thisse (eds.), *Handbook 4* (2004), 2481-2527.

Hamilton, Bruce W., "Wasteful Commuting," *Journal of Political Economy* 90 (1982), 1035-58.

Kau, James B., and C.F. Sirmans, "Urban Land Value Functions and the Price Elasticity of Demand for Housing," *Journal of Urban Economics* 6 (1979), 112-121.

McGrath, Daniel T., "More Evidence on the Spatial Scale of Cities," *Journal of Urban Economics* 58 (2005), 1-10.

McMillen, Daniel P., "One Hundred Fifty Years of Land Values in Chicago: A Nonparametric Approach," *Journal of Urban Economics* 40 (1996) 100-124.

McMillen, Daniel P., "Testing for Monocentricity," in Richard J. Arnott and Daniel P. McMillen (eds.), *A Companion to Urban Economics* (2006), 128-140.

McMillen, Daniel, Ronald Jarmin & Paul Thorsnes, "Selection Bias and Land Development in the Monocentric City Model," *Journal of Urban Economics* 31 (1992), 273-284.

The Classic:

Clark, Colin, "Urban Population Densities," *Journal of the Royal Statistical Society, Series A* (1951), 490-496.

4. Agglomeration Economies—Theory and Empirics

Glaeser, Chapter 4.

Krugman, Paul, Ch. 2 "Localization" and Appendix C "Labor Pooling," in *Geography and Trade*, 1991.

Rosenthal, Stuart S. and William C. Strange, "Evidence on the Nature and Sources of Agglomeration Economies," *Handbook 4*, 2119-2171.

Duranton, Gilles and Diego Puga, "Micro-foundations of urban agglomeration economies." *Handbook 4*, 2063-2117.

Combes, Peirre-Philippe and Laurent Gobillon, "The Empirics of Agglomeration Economies," *Handbook 5*, 247-348.

Arbia, Giuseppe, Giuseppe Espa, Diego Giuliani, and Andrea Mazzitelli, "Detecting the Existence of Space-Time Clustering of Firms," *Regional Science and Urban Economics* 40 (2010), 311-323.

Ciccone, Antonio and Robert E. Hall, "Productivity and the Density of Economic Activity," *American Economic Review* 86 (1996), 54-70.

Duranton, Gilles and Henry G. Overman, "Testing for Localisation using Microgeographic Data," *Review of Economic Studies* 72 (2005), 1077-1106.

Ellison, Glenn and Edward L. Glaeser, "Geographic Concentration in U.S. Manufacturing Industries: A Dartboard Approach," *Journal of Political Economy* 105 (1997), 889-927.

Henderson, J. Vernon, "Marshall's Scale Economies," *Journal of Urban Economics* 53 (2003), 1-28.

Holmes, Thomas J., "The Effects of State Policies on the Location of Manufacturing: Evidence from State Borders," *Journal of Political Economy* 106 (1998), 667-705.

Kim, Sukkoo, "Regions, Resources, and Economic Geography, "Sources of U.S. Regional Comparative Advantage, 1880-1987," *Regional Science and Urban Economics* 29 (1999), 1-32.

McMillen, Daniel P. and Thomas Klier, "Evolving Agglomeration in the U.S. Auto Industry," *Journal of Regional Science* 48 (2008), 245-267.

Melo, Patricia, Daniel J. Graham, and Robert B. Noland, "A Meta-Analysis of Urban Agglomeration Economies," *Regional Science and Urban Economics* 39 (2009), 332-342.

Rosenthal, Stuart S. and William C. Strange, "The Determinants of Agglomeration," *Journal of Urban Economics* 50 (2001), 191-229.

Combes, Pierre-Philippe, Gilles Duranton, Laurent Gobillon, Diego Puga, Sebatien Roux, "The Productivity Advantages for Large Cities: Distinguishing Agglomeration from Firm Selection," *Econometrica*, 80:6 (2012), 2543-3594.

5. Polycentric Cities--Theory

Fujita, M. and F. Ogawa, "Multiple Equilibria and Structural Transition of Non-Monocentric Urban Configurations," *Regional Science and Urban Economics* 12 (1982), 161-196.

Ogawa, M. and M. Fujita, "Equilibrium Land Use Patterns in a Non-Monocentric City," *Journal of Regional Science* 20 (1980), 455-465.

Berliant, Marcus and Ping Wang, "Urban Growth and Subcenter Formation: A Trolley Ride from the Staples Center to Disneyland and the Rose Bowl," *Journal of Urban Economics* 63 (2008), 679-693.

Jan K. Brueckner, "A Model of Non-Central Production in a Monocentric City," *Journal of Urban Economics* 6 (1979), 444-463.

A. Anas and I. Kim, "General Equilibrium Models of Polycentric Urban Land Use with Endogenous Congestion and Job Agglomeration," *Journal of Urban Economics* 40 (1996), 232-256.

Fujita, M., J.F. Thisse, and Y. Zenou, "On the Endogenous Formation of Secondary Employment Centers in a City," *Journal of Urban Economics* 41 (1997), 337-357.

Henderson, J.V. and A. Mitra, "The New Urban Landscape: Developers and Edge Cities," *Regional Science and Urban Economics* 26 (1996), 613-643.

Henderson, J.V. and E. Slade, "Development Games in Non-Monocentric Cities," *Journal of Urban Economics* 34 (1993), 207-229.

6. Polycentric Cities--Empirics

Baumont, C., C. Ertur, and J. LeGallo, Spatial Analysis of Employment and Population Density: The Case of the Agglomeration of Dijon 1999," *Geographical Analysis*, **36**, 146-176 (2004).

Craig, S. and P. Ng, "Using Quantile Smoothing Splines to Identify Employment Subcenters in a Multicentric Urban Area," *Journal of Urban Economics* 49 (2001), 100-120.

McDonald, John F., "The Identification of Urban Employment Subcenters," *Journal of Urban Economics* 21 (1987), 242-258.

Giuliano, Genevieve, Christian Redfearn, Ajay Agarwal, Chen Li, and Duan Zhuang, "Employment Concentrations in Los Angeles, 1980-2000," *Environment and Planning A* 39 (2007), 2935-2957.

Craig, Steven, Janet Kohlhase and Adam Perdue, "Empirical Polycentricity: The Complex Relationship Between Employment Centers," *Journal of Regional Science*, 56(1), January (2016), 25-52.

Giuliano, Genevieve and Kenneth A. Small, "Subcenters in the Los Angeles Region," *Regional Science and Urban Economics* 21 (1991), 163-182.

McMillen, Daniel P., "Nonparametric Subcenter Identification," *Journal of Urban Economics* 50 (2001), 448-473.

McMillen, Daniel P., "Identifying Urban Subcenters using Contiguity Matrices," *Urban Studies* 40 (2003), 57-69.

McMillen, Daniel P. and Stefani C. Smith, "The Number of Subcenters in Large Urban Areas," *Journal of Urban Economics* 53 (2003), 321-338.

Redfearn, Christian, "Persistence in Urban Form: The Long-Run Durability of Employment Centers in Metropolitan Areas," *Regional Science and Urban Economics* 39 (2009), 224-232.

Small, K.A. and S. Song, "Population and Employment Densities: Structure and Change," *Journal of Urban Economics* 36 (1994), 292-313.

7. Spatial Equilibrium across Cities

Glaeser, Chapter 3.

N. Baum-Snow, Matthew Freedman and Ronni Pavan, "Why Has Urban Inequality Increased?" *American Economic Journal: Applied Economics*, (forthcoming), WP August 2017.

Desmet, Klaus, and Esteban Rossi-Hansberg, "Urban Accounting and Welfare." *American Economic Review*, 103:6 (2013), 2296-2327.

Albouy, David, "What are Cities Really Worth? Local Rents, Local Productivity, and the Total Value of Amenities," *RESTAT*, 98:3 (July 2016), 477-487 (earlier version NBER working paper 14981).

Albouy, David, "Are Big Cities Really Bad Places to Live? Improving Quality of Life Estimates across Cities," (2012) working paper.

Beeson, Patricia E. and Randall W. Eberts, "Identifying Productivity and Amenity Effects in Interurban Wage Differentials," *Review of Economics and Statistics* 71 (1989), 443-452.

Blomquist, M.C., M.C. Berger, and J.P. Hoehn, "New Estimates of Quality of Life in Metropolitan Areas," *American Economic Review* 78 (1988), 89-107.

Carlino, Gerald and N. Edward Coulson, "Compensating Differentials and the Social Benefits of the NFL," *Journal of Urban Economics* 56 (2004), 25-50.

Chan, Yong and Stuart S. Rosenthal, "Local Amenities and Life-Cycle Migration: Do People Move for Jobs or Fun," *Journal of Urban Economics* 64 (2008), 519-537.

Gabriel, Stuart A. and Stuart S. Rosenthal, "Quality of Business Environment versus the Quality of Life: Do Firms and Households Like the Same Cities," *Review of Economics and Statistics* 86 (2004), 438-444.

Gyourko, Joseph and Joseph Tracy, "The Structure of Local Public Finance and the Quality of Life," *Journal of Political Economy* 99 (1991), 774-806.

Gyourko, Joseph, Matthew Kahn, and Joseph Tracy, "Quality of Life and Environmental Considerations," in Paul Cheshire and Edwin Mills, eds., *Handbook of Regional and Urban Economics Vol. 3* (1999).

Gyourko, Joseph, Christopher Mayer, and Todd Sinai, "Superstar Cities", *American Economic Journal: Economic Policy*, 5(4): 167-99.

Rappaport, Jordan, "Moving to Nice Weather," *Regional Science and Urban Economics* 37 (2007), 375-398.

Rappaport, Jordan, "Consumption Amenities and City Population Density," *Regional Science and Urban Economics* 38 (2008), 533-552.

Edward L. Glaeser & Joshua D. Gottlieb, 2009. "The Wealth of Cities: Agglomeration Economies and Spatial Equilibrium in the United States," *Journal of Economic Literature*, vol. 47(4), pp. 983-1028, (earlier version as NBER Working Paper #14806).

The Classic:

Roback, Jennifer, "Wages, Rents, and the Quality of Life," *Journal of Political Economy* 90, 1257-1278 (1982).

8. Tiebout Sorting, Local Public Finance Theory and Fiscal Federalism

R. Fernandez and R. Rogerson. Income distribution, communities, and the quality of public education. *Quarterly Journal of Economics* 111:1 (1996), 135—164.

Epple, Dennis and Glenn J. Platt, "Equilibrium and Local Redistribution in an Urban Economy when Households Differ by Preferences and Incomes," *Journal of Urban Economics*, 43, (1998), 23-51.

D. Epple and H. Sieg. Estimating equilibrium models of local jurisdictions. *Journal of Political Economy* 107:4 (1999), 645—681.

H.S. Banzhaf & R. Walsh. 2008. “Do People Vote with Their Feet? An Empirical Test of Tiebout’s Mechanism” *American Economic Review*, 98:3 (2008), 843-863.

Calabrese, Epple & Romano, “Inefficiencies from Metropolitan Political and Fiscal Decentralization: Failures of Tiebout Competition” *Review of Economic Studies*, 79: 3 (July 2012), 1081-1111.

L. Boustan “Was Postwar Suburbanization White Flight? Evidence from the Black Migration” *Quarterly Journal of Economics*, 125:1 (2010), 417-443.

Alesina, R. Baqir, and C. Hoxby. Political jurisdictions in heterogeneous communities. *Journal of Political Economy* 112:2 (2004), 348—396.

Bucovetsky “Optimal Jurisdictional Fragmentation and Mobility” *Journal of Public Economics*, 16:2 (1981), 171-191.

P. Rhode & K. Strumpf “Assessing the Importance of Tiebout Sorting: Local Heterogeneity from 1850 to 1990,” *American Economic Review*, 93 (2003) 1648-77

N. Baum-Snow & Byron Lutz “School Desegregation, School Choice, and Changes in Residential Location Patterns by Race” *American Economic Review*, 101:7 (2011), 3019-46.

T. J. Nechyba, “Local Property and State Income Taxes: The Role of Interjurisdictional Competition and Collusion,” *Journal of Political Economy* 105:2 (1997) , 351—384

Fujita Chapter 6

Two Classics:

Oates, W. E., *Fiscal Federalism*, New York: Harcourt Brace Jovanovich (1972).

C. M. Tiebout, “A Pure Theory of Local Expenditures,” *Journal of Political Economy* 64:5 (1956), 416—424.

9. Hedonic Models

Bajari, Patrick and Lanier Benkard, “Demand Estimation with Heterogeneous Consumers and Unobserved Product Characteristics: A Hedonic Approach,” *Journal of Political Economy* 113 (2005), 1239-1276.

Bajari, Patrick and Matthew E. Kahn, “Estimating Housing Demand with an Application to Explaining Racial Segregation in Cities,” *Journal of Business and Economic Statistics* 23 (2005), 20-33.

Bartik, Timothy J., "The Estimation of Demand Parameters in Hedonic Price Models," *Journal of Political Economy* 95 (1987), 81-88.

Ekeland, Ivar, James J. Heckman, and Lars Nesheim, "Identification and Estimation of Hedonic Models," *Journal of Political Economy* 112 (2004), S60-S108.

Sheppard, Stephen, "Hedonic Analysis of Housing Markets," in Paul Cheshire and E.S. Mills, (eds.), *Handbook 3*.

Kohlhase, Janet, "The Impact of Toxic Waste Sites on Housing Values," *Journal of Urban Economics*, 30, (July 1991), 1-26.

N. Kuminoff, V. Kerry Smith and Christopher Timmins, "The New Economics of Equilibrium Sorting and Policy Evaluation Using Housing Markets" *Journal of Economic Literature*, 51:4 (2013), 1007-1062.

Sandra Black, "Do Better Schools Matter? Parental Valuation of Elementary Education," *Quarterly Journal of Economics*, 114:2 (1999), 577-599.

The Classic:

Rosen, Sherwin, "Hedonic Markets and Implicit Prices," *Journal of Political Economy* 82 (1974), 34-55.

10. Housing Supply

Albert Saiz, "The Geographic Determinants of Housing Supply" *Quarterly Journal of Economics*, 125:3 (2011), 1253-1296.

D. Epple, Holger Sieg, B. Gordon "A New Approach for Estimating the Housing Production Function" *American Economic Review* 100:3 (2010), 905-924.

Davidoff, 2017. Supply Constraints are Not Valid Instrumental Variables for Home Prices Because They are Correlated with Many Demand Factors, *Critical Finance Review*, 5:2 (2016), 177-206.

11. House Price Dynamics

Bailey, M. J., R. Muth, and H. O. Nourse, "A Regression Method for Real Estate Price Index Construction," *Journal of the American Statistical Association* 4 (1963), 933-942

Bostic, Raphael W., Stanley D. Longhofer, and Christian L. Redfearn, "Land Leverage: Decomposing Home Price Dynamics," *Real Estate Economics* 35 (2007), 183-208.

Case, Bradford and John M. Quigley, "The Dynamics of Real Estate Prices," *Review of Economics and Statistics* 83 (1991), 50-58.

Case, Karl and Robert Shiller, "The Efficiency of the Market for Single-Family Homes," *American Economic Review* 79 (1989), 125-137.

Englund, Peter, John M. Quigley, and Christian L. Redfearn, "Improved Price Indexes for Real Estate: Measuring the Course of Swedish Housing Prices," *Journal of Urban Economics* 44 (1998), 171-196.

Glaeser, Edward L. and Joseph Gyourko, "Urban Decline and Durable Housing," *Journal of Political Economy* 113 (2005), 343-375.

Glaeser, Edward L., Joseph Gyourko, and Albert Saiz, "Housing Supply and Housing Bubbles," *Journal of Urban Economics* 64 (2008), 198-217.

Glaeser, Edward L., Joseph Gyourko, and Raven Saks, "Urban Growth and Housing Supply," *Journal of Economic Geography* 6 (2006), 71-89.

Glaeser, Edward L., Joseph Gyourko, and Raven Saks, "Why is Manhattan So Expensive? Regulation and the Rise in House Prices," *Journal of Law and Economics* 48 (2005), 331-370.

Himmelberg, C., C. Mayer, and T. Sinai, "Assessing High House Prices: Bubbles, Fundamentals, and Misperceptions," *Journal of Economic Perspectives* 19 (2005), 67-92.

McMillen, Daniel P., "Changes in the Distribution of House Prices over Time: Structural Characteristics, Neighborhood or Coefficients?" *Journal of Urban Economics* 64 (2008), 573-589.

Quigley, John M., "A Simple Hybrid Model for Estimating Real Estate Price Indexes," *Journal of Housing Economics* 4 (1997), 93-118.

12. Urban Transportation and Mode Choice

Small, Ken, Clifford Winston and Jia Yan, "Uncovering the Distribution of Motorists' Preferences for Travel Time and Reliability: Implications for Road Pricing," *Econometrica*, 73 (July 2005), pp. 1367-1382.

Small, Ken, Clifford Winston and Jia Yan. "Differentiated Road Pricing, Express Lanes, and Carpools: Exploiting Heterogeneous Preferences in Policy Design," *Brookings-Wharton Papers on Urban Affairs* (2006) 53-96.

Parry, Ian and Ken Small. "Should Urban Transport Subsidies be Reduced?" *American Economic Review* (2009) 99:3 700-724.

Baum-Snow, Nathaniel and Matt. Kahn. "The Effects of Urban Rail Transit Expansions: Evidence from Sixteen Cities." *Brookings-Wharton Papers on Urban Affairs* (2005)

Duranton, Gilles and Matt Turner "The Fundamental Law of Road Congestion: Evidence from U.S. Cities," *American Economic Review*, 101 (Oct 2011), 2616-2652.

McFadden, Daniel, "The Measurement of Urban Travel Demand," *Journal of Public Economics*, 3: 4 (1974), 303-328,

Leroy, Stephen and Jon Sonstelie, "Paradise Lost and Regained: Transportation Innovation, Income and Residential Location." *Journal of Urban Economics*, 13:1 (1983), 67-89.

Brueckner, Jan and Harris Selod, "The Political Economy of Urban Transport-System Choice," *Journal of Public Economics*, 90:6-7 (2006), 985-1005.

Fujita Chapter 7

Brueckner, Jan, "Transport Subsidies, System Choice, and Urban Sprawl," *Regional Science and Urban Economics*, 35:6 (2005), 715-733.

Vickrey, W. S., "Congestion theory and transport investment," *American Economic Review* 59:2 (1969), 251—260.

Wheaton, William, "Income and urban residence: An analysis of consumer demand for location," *American Economic Review* 67:4 (1977) , 620—632.

Small, Ken, Urban Transportation Economics, *Harwood Fundamentals of Pure and Applied Economics series*, 1992.

Glaser, Edward and Janet E. Kohlhase, "Cities, Regions and the Decline in Transport Costs," *Papers of the Regional Science Association*, 83 (Jan. 2004), 197-228.

12. New Economic Geography

Fujita, Masahisa and Jacques Thisse, "The Core-Periphery Model," ch.8.2 in *Economics of Agglomeration*, 2nd ed., Cambridge University Press (2013), pp.306-317.

Brakman, Steven, Harry Garretsen, and Charles van Marrewijk, "The Core Model of Geographical Economics," ch.3 in *The New Introduction to Geographical Economics*. 2009. Cambridge UK: Cambridge University Press, pp.81-133.

Krugman, Paul, "Increasing Returns and Economic Geography," *Journal of Political Economy* 99:3 (June 1991), 483-499.

Combes, Pierre-Philippe, Thierry Mayer & Jacques-François Thisse, *Economic Geography: The Integration of Regions and Nations*, Ch. 2 "Space in Economic Thought," pp. 26-52 and Ch. 6 "The Core-Periphery Structure," pp. 130-165, Princeton University Press, 2008.

Redding, Stephen and Daniel Sturm, "The Cost of Remoteness: Evidence from German Division and Reunification," *American Economic Review*, 98:5 (2008), 1766-1797.

Ahlfeldt, Redding, Sturm, Wolf "The Economics of Density: Evidence from the Berlin Wall" *Econometrica* 83 (2015), 2127–2189.

Stephen J. Redding & Esteban Rossi-Hansberg "Quantitative Spatial Economics" *Annual Review of Economics*, 9 (2017), 21-58.

13. Place-Based Policies

Glaeser, Edward L., and Joshua D. Gottlieb, "The Economics of Place-Making Policies," *Brookings Papers on Economic Activity* (2008) 155-253 (Also NBER WP w14373).

David Neumark & Helen Simpson, "Place-Based Policies," Ch. 18, *Handbook 5*, 1197-1287.

M. Busso, J. Gregory and P. Kline. "Assessing the Incidence and Efficiency of a Prominent Place Based Policy" *American Economic Review*, 103:2 (April 2013), 897-947.

14. Econometric Issues

Baum-Snow, Nathaniel & Fernando Ferreira, "Causal Inference in Urban Economics," *Handbook 5*, pp.1-68.

Gibbons, Steve, Henry Overman and Eleonora Patacchini, "Spatial Methods," *Handbook 5*, 115-164.

Cameron, A. Colin, Jonah B. Gelbach, and Douglas L. Miller. "Bootstrap-based Improvements for Inference with Clustered Errors." *The Review of Economics and Statistics* 90:3 (2008): 414-427.

Bester, C. Alan, Timothy G. Conley & Christian B. Hansen, "Inference with Dependent Data Using Cluster Covariance Estimators" *Journal of Econometrics*, 165 (2011), 137-151,

15. Empirical Methods: Parametric Spatial Models

Anselin, Luc, Anil K. Bera, Raymond Florax, and Mann J. Yoon, "Simple Diagnostic Tests for Spatial Dependence," *Regional Science and Urban Economics* 26 (1996), 77-104.

Brown, R.P., Rork, J.C., "Copycat Gaming: A Spatial Analysis of State Lottery Structure," *Regional Science and Urban Economics* 35 (2005), 795-807.

Brueckner, Jan K., "Testing for Strategic Interaction among Local Governments: The Case of Growth Controls," *Journal of Urban Economics* 44 (1998), 438-467.

Brueckner, Jan K., "Strategic Interaction Among Governments," in Richard Arnott and Daniel P. McMillen (eds.), *A Companion to Urban Economics*, (2006) Blackwell.

Brueckner, Jan K. and Saavedra, Luz A., "Do Local Governments Engage in Strategic Property-Tax Competition?" *National Tax Journal* 54 (2001), 203-229.

Fredriksson, P. G. and Millimet, D. L., "Strategic Interaction and the Determinants of Environmental Policy across U.S. States," *Journal of Urban Economics* 51 (2002), 101-122.

Gérard, Marcel, Hubert Jayet, and Sonia Paty, "Tax Interactions among Belgian Municipalities: Do Interregional Differences Matter," *Regional Science and Urban Economics* 40 (2010), 336-342.

Kelijian, H. H. and Prucha, I. R., "A Generalized Spatial Two-Stage Least Squares Procedure for Estimating a Spatial Autoregressive Model with Autoregressive Disturbances," *Journal of Real Estate Finance and Economics* 17 (1998), 99-121.

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