

UP&PD 652: Regional Economic Analysis

Prerequisites: Microeconomics and Regression Analysis

This course will survey methods used by academics and sophisticated government offices in the conduct of regional analysis. The course starts out with a brief overview of general growth and regional development theories. Given this base, it moves on to measure current and future growth trends via conventional economic forecasting models—both simple and complex. In the course of this discovery, the concepts of multicollinearity, heteroskedasticity, and autocorrelation in regression analysis—and tests for them—are briefly reviewed and the “art” versus “science” of forecasting are briefly discussed. We wind up lesson on forecasting with a key homework assignment, in which each member of class develops a simple multi-equation forecasting model,

At this point, the course again briefly attends to some theory—trade theory. This time defining globalization just what is and impact on American using Wal*Mart as a foil. From a regional economics perspective, it also means addressing just what might be implied by the term “region” as well as revisiting the microeconomic concept of social welfare. At this juncture the course delves more deeply into regional interindustry relationships only touched upon in the final forecasting assignment. This will be done by developing a set of regional interindustry accounts. We will discuss the advantages and disadvantages (compared to regression techniques) of using these accounts to measure the economic impacts of events, project, and programs across both time and space. In addition to developing a set of accounts your region of choice, we will perform an economic impact analysis of a set of economic activities to it. We will then learn how such accounts can be generalized to enable the evaluation of price effects.

. Returning to regression analysis techniques, the class will briefly investigate so-called panel data techniques, which enable the examination of data that are in both the form of a time series and cross section (multiple regions). We will also examine a series of regional applications panel data techniques and examine issues inherent in such analyses. We will wind up the course quickly investigating spatial econometric approaches and their application.

CORE TEXT BOOKS

Higgins Benjamin, and Donald J. Savoie. 1997. *Regional Development Theories and Their Application*. Transaction Publishers, New Brunswick, NJ.

Isard, Walter et al. 1998. *Methods of Interregional and Regional Analysis*. Brookfield, VT: Ashgate Publishing.

Wooldridge, Jeffrey M. 2006. *Introductory Econometrics: A Modern Approach, 3rd edition*. Mason, OH: Thompson-Southwestern.

Recommended

Kennedy, Peter. 2003. *A Guide to Econometrics, 5th edition*. Cambridge, Massachusetts: MIT press.

BASIS FOR GRADES

50%: Six 3-page memos discussing findings using techniques discussed in class.

40%: A 15-page paper on a topic of your choosing performing regional economic analysis.

10%: Class participation

I. Introduction to Regional Science (January 28)

- Glaeser, Edward L. 2000. "The New Economics of Urban and Regional Growth," in Gordon L. Clark, Maryann P. Feldman, and Meric S. Gertler (eds.) *The Oxford Handbook of Economic Geography*, chapter 5. New York: Oxford University Press, pp. 83-98.
- Higgins Benjamin, and Donald J. Savoie. 1997. *Regional Development Theories and Their Application*. Transaction Publishers, New Brunswick, NJ (Chapters 1, 2,10).
- Hoover Edgar M. and Frank Giarratani. 1999. "[An Introduction to Regional Economics](#)," in Scott Loveridge (ed), *The Web Book of Regional Science*, Morgantown, WV: Regional Research Institute, West Virginia University. (Chapter 1, 9, 11, &12).

II. Basic Regional Growth Theories & Economic Analysis (February 4)

- Higgins Benjamin, and Donald J. Savoie. 1997. *Regional Development Theories and Their Application*. Transaction Publishers, New Brunswick, NJ (Chapters 3-7).
- Hoover, Edgar M. and Frank Giarratani. 1999. "[An Introduction to Regional Economics](#)," in Scott Loveridge (ed), *The Web Book of Regional Science*, Morgantown, WV: Regional Research Institute, West Virginia University (Chapters, 2-8 & 10).
- Nijkamp, Peter and Jacques Poot. 1998. "Spatial Perspectives on New Theories of Economic Growth," *Annals of Regional Science*, 32, 7-37.
- Isard, Walter. 1998. "Location Analysis for Industry and Service Trades: Comparative Cost and Other Approaches," Chapter 4 in **Isard et al.**
- "[Economic Base Methods](#)," Florida State University, Department of Urban and Regional Planning, Planning Methods III: Forecasting for Plan Development.
- Rigby, David. 1992. "The Impact of Output and Productivity Changes on Manufacturing Employment," *Growth and Change*, 405-427.
- Schaffer, William. 1999. "[Regional Models of Income Determination: Simple Economic-Base Theory](#)," in Scott Loveridge (ed), *The Web Book of Regional Science*, Morgantown, WV: Regional Research Institute, West Virginia University. (Chapter 2).

III. Basic Regression Statistics & Regional Forecasting (February 11)

- Topics to be covered:* Correlation matrices, variable plots, diagnostics for misspecification, testing for breaks, Granger causality tests, exogeneity, cointegration, error correction model,
- Drennan, Matthew P. and Sidney Saltzman. 1998. "Regional and Spatial Econometric Analysis," Chapter 4 in **Isard et al.**
- LeSage, James P. and J. David Reed, 1989, "The Dynamic Relationship between Export, Local, and Total Area Employment," *Regional Science and Urban Economics*, 19, 615-636.
- LeSage, James P. 1990. "Forecasting Metropolitan Employment Using an Export-Base Error-Correction Model," *Journal of Regional Science*, 30, 307-324.

Harris, Thomas, J. Scott Schonkwiler, and George E. Ebai. 1999. "Dynamic Nonmetropolitan Export-Base Modeling," *Review of Regional Studies*, 29, 115-138.

Wooldridge, Jeffrey M. 2006. "Basic Regression Analysis with Time Series Data," "Further Issues Using OLS with Time Series Data," Chapters 10 & 11 in *Introductory Econometrics: A Modern Approach, 3rd edition*. Mason, OH: Thompson-Southwestern.

IV. Advanced Topics in Regional Time Series Regression (February 18)

Topics to be covered: serial correlation and heteroskedasticity, dynamic causal effects, estimating models using ARIMA, testing for unit roots, VAR model, volatility clustering

Cromwell, Brian. 1992, "Does California Drive the West? An Econometric Investigation of Regional Spillovers," *Federal Reserve Bank of San Francisco Economic Review*, 13-23.

Del Negro, Marco and Frank Schorfheide, 2003, "Take Your Model Bowling: Forecasting with General Equilibrium Models," *Federal Reserve Bank of Atlanta Economic Review*, fourth quarter, 35-50.

Ewing, Bradley T. and Jamie Brown Kruse. 2002. "The Impact of Project Impact on the Wilmington, North Carolina, Labor Market," *Public Finance Review*, 30, 296 - 309.

Partridge, Mark D. and Dan S. Rickman, 1998, "Generalizing the Bayesian Vector Autoregression Approach for Regional Interindustry Employment Forecasting," *Journal of Business and Economic Statistics*, 16, 62-72.

Robertson, John C. and Ellis W. Tallman, 1999, "Vector Autoregressions: Forecasting and Reality," *Federal Reserve Bank of Atlanta Economic Review*, first quarter, pp. 4-18.

Shoosmith, Gary. 2006. "Co-integration, Error Correction and Improved Medium-term Regional VAR Forecasting," *Journal of Forecasting*, 11, 91-109.

Wooldridge, Jeffrey M. 2006. "Serial Correlation and Heteroskedasticity in Time Series Regressions," and "Instrumental Variables Estimation and Two-Stage Least Squares," and "Advanced Time Series Topics," Chapters 12, 15, & 18 in *Introductory Econometrics: A Modern Approach, 3rd edition*. Mason, OH: Thompson-Southwestern.

V. Simultaneous Equations Models (February 25)

Topics to be covered: two-stage and three-stage least squares, systems econometric time-series analysis

Adams, F. Gerard, Carl G. Brooking, and Norman J. Glickman. 1975. "On the Specification and Simulation of a Regional Econometric Model: A Model of Mississippi," *Review of Economics and Statistics*, 57, 286-298.

- Buck, Andrew J. and Simon Hakim. 1982. "Three Stage Least Squares with Inequality Constraints: Auto Theft and Police Expenditure," *Empirical Economics*, 7, 109-123.
- Bolton, Roger. 1985, "Regional Econometric Models," *Journal of Regional Science*, 25, 495-520.
- Conway, Richard S. Jr. 2001. "The Puget Sound Forecasting Model: A Structural Time-Series Analysis of Ron Miller's Home Town," in Michael L. Lahr and Erik Dietzenbacher (eds), *Input-Output Analysis: Frontiers and Extensions*, (New York: Palgrave), pp. 431-450.
- Di Giacinto, Valter. 2003. "Differential Regional Effects of Monetary Policy: A Geographical SVAR Approach," *International Regional Science Review*, 26, 313-341.
- FXM Associates. 2005. *Assessment of the Direct, Indirect, and Induced Economic Effects of Chain Stores on the Regional Economy of Cape Cod*. A Final Report to the Smart Planning and Growth Coalition. FXM Associates, Mattapoissett, Massachusetts.
- Wooldridge, Jeffrey M. 2006. "Simultaneous Equations Models," Chapter 16 in *Introductory Econometrics: A Modern Approach, 3rd edition*. Mason, OH: Thompson-Southwestern.

VI. Did You Hear that Sucking Sound? (March 3)

In this session, we will discuss the notion of a functional economic area and its relation to various types of political regions. International and interregional trade and issues of measuring them will be covered. We will also touch upon notions of interregional spillover and feedback effects.

- Bordo, Michael D. 2002. "Globalization in Historical Perspective," *Business Economics*, 37, 20-29.
- Dube, Arindrajit, Barry Eidlin, and Lester, T. William. 2005. "Impact of Wal-Mart Growth on Earnings throughout the Retail Sector in Urban and Rural Counties," October 28. *Institute of Industrial Relations Working Paper No. iirwps-126-05*. Available at SSRN: <http://ssrn.com/abstract=841684>.
- Irwin, Elena G. and Jill K. Clark. 2006. "Local Costs and Benefits of Wal-Mart," Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, February. Available at: http://www.agecon.ag.ohio-state.edu/programs/ComRegEcon/walmart/irwin_clark_costsandbenefitsofwalmart.pdf.
- Robison, M. Henry and Michael L. Lahr. (2006) "Spatial Misspecification in the Application of Regional Input-Output Models: Putting Input-Output Models in a Central Place Perspective," working paper.

Sobel, Russell S. and Andrea Dean. (2007) "Has Wal-Mart Buried Mom and Pop?: The Impact of Wal-Mart on Self Employment and Small Establishments in the United States," *Economic Inquiry*, forthcoming.

VII. Regional Interindustry & Impact Analysis (March 10)

Topics to be covered: constructing regional interindustry accounts, modeling regional economic impacts of events, projects, or programs

Lahr, Michael L. 1993. "A Review of the Literature Supporting the Hybrid Approach to Constructing Regional Input-Output Models," *Economic Systems Research*, 5, 277-293.

_____. 2001. "Reconciling Domestication Techniques, the Notion of Re-exports and Some Comments on Regional Accounting," *Economic Systems Research*, 13, 166-179.

Schaffer, William. 1999. "[Regional Impact Models](#)," in Scott Loveridge (ed), *The Web Book of Regional Science*, Morgantown, WV: Regional Research Institute, West Virginia University. (Chapters 3-6)

VIII. Input-Output Analysis in Multiregional & Time Series Contexts (March 24)

Carlino, Gerald A. Robert DeFina and Keith Sill. 2001, "Sectoral Shocks and Metropolitan Employment Growth," *Journal of Urban Economics* 50, 396-417.

Miller, Roneld E. 1998. "Regional and Interregional Input-Output Analysis," Chapter 3 in **Isard et al.**

Rey, Sergio J. 1998. "The Performance of Alternative Integration Strategies for Combining Regional Econometric and Input-Output Models," *International Regional Science Review*, 21, 1-36.

Rickman, Dan S. 2002. "A Bayesian Forecasting Approach to Constructing Regional Input-Output Based Employment Multipliers," *Papers in Regional Science*, 81, 483-498.

Round, Jeffery I. 2001. "Feedback Effects in Interregional Input-Output Models: What Have We Learned?" in Michael L. Lahr and Erik Dietzenbacher (eds.), *Input-Output Analysis: Frontiers and Extensions*. NY: Palgrave, pp. 54-70.

IX. Regional Computable General Equilibrium Modeling (March 31)

Partridge, Mark D. and Dan S. Rickman, 1998, "Regional Computable General Equilibrium Modeling: A Survey and Critical Appraisal," *International Regional Science Review*, 21, 205-248.

West, Guy R., 1995. "Comparison of Input-Output, Input-Output + Econometric and Computable General Equilibrium Impact Models at the Regional Level," *Economic Systems Research*, 7, 209-227.

McGregor, Peter G., J. Kim Swales and Ya Ping Yin, 1996, "A Long-Run Interpretation of Regional Input-Output Analysis," *Journal of Regional Science* 36, 3, 479-500.

Partridge, Mark D. and Dan S. Rickman, 2004, "CGE Modeling for Regional Economic Development Analysis,"

http://economy.okstate.edu/rickman/CGE%20Modeling_regstud_final.pdf

McGregor, Peter G., Eric P. McVittie, J. Kim Swales and Ya Ping Yin, 2000. "The Neoclassical Economic Base Multiplier," *Journal of Regional Science*, 40, 1-32.

Mutti, John. 1981. "Regional Analysis from the Standpoint of International Trade: Is it a Useful Perspective?" *International Regional Science Review*, 6, 95-120.

Isard, Walter and Iwan J. Azis. 1998." Applied General Interregional Equilibrium," Chapter 8 in **Isard et al.**

Schreiner, Dean F., David W. Marcouiller, Gelson Tembo and Elicer Vargas, "Computable General Equilibrium Modeling for Regional Analysis," in Scott Loveridge (ed.) *The Web Book of Regional Science*.

<http://www.rri.wvu.edu/WebBook/Schreiner/contents.htm>

X. Panel Data Techniques (April 7)

Wooldridge, Jeffrey M. 2006. "Pooling Cross Sections across Time: Simple Panel Data Methods" and "Advanced Panel Data Methods," Chapters 13 & 14 in *Introductory Econometrics: A Modern Approach, 3rd edition*. Mason, OH: Thompson-Southwestern.

XI. Applications in Panel Data Techniques (April 14)

Alvarez, Antonio. 2007. "Decomposing Regional Productivity Growth Using an Aggregate Production Frontier," *Annals of Regional Science*, 41, 431-441.

Baptista, Rui and Peter Swann. 1998. "Do Firms in Clusters Innovate More?," *Research Policy*, 525-540.

Egger, Peter and Michael Pfaffermayr. 2003. "The Proper Panel Econometric Specification of the Gravity Equation: A Three-way Model with Bilateral Interaction Effects," *Empirical Economics*, 28, 571-580.

Ioannides, Yannis M. 2002. "Residential Neighborhood Effects," *Regional Science and Urban Economics*, 32, 145-165.

XII. Shift-Share Analysis (April 21)

Blien, Uwe and Katja Wolf. 2002. "Regional Development of Employment in Eastern Germany: An Analysis with an Econometric Analogue to Shift-Share Techniques," *Papers in Regional Science*, 81, 391-414.

Coulson, N. Edward. 1999, "Sectoral Sources of Metropolitan Growth," *Regional Science and Urban Economics*, 29, 723-743.

Deming, William G. 1996, "A Decade of Economic Change and Population Shifts in U.S. Regions," *Monthly Labor Review*, November, 3-14.

Dietzenbacher, Erik, Michael L. Lahr, and Bart Los. 2004. "The Decline in Labor Compensation's Share of GDP: A Structural Decomposition Analysis for the United States, 1982-1997," in Erik Dietzenbacher and Michael L. Lahr (eds.) *Wassily Leontief and Input-Output Economics*. NYC: Cambridge University Press, pp. 188-212.

Stevens, Benjamin and Craig Moore, 1980, "A Critical Review of the Literature on Shift-Share as a Forecasting Technique," *Journal of Regional Science*, 20, 419-438.

Partridge, Mark D. and Dan S. Rickman. 1996. "The Role of Industry Structure, Costs, and Economic Spillovers in Determining State Employment Growth Rates," *Review of Regional Studies*, 26, 235-264.

Wolff, Edward N. 2006. "The Growth of Information Workers in the U.S. Economy, 1950-2000: The Role of Technological Change, Computerization, and Structural Change," *Economic Systems Research*, 18, 221-255.

XIII. Spatial Econometrics (April 28)

Anselin, Luc. 2002. "Under the Hood: Issues in the Specification and Interpretation of Spatial Regression Models," *Agricultural Economics*, 27, 247-267.

LeSage, James P. "Spatial Econometrics," in Scott Lovelace (ed.) *The Web Book of Regional Science*. <http://www.rri.wvu.edu/WebBook/LeSage/spatial/spatial.html>

XIV. Applications in Spatial Econometric Modeling (May 5)

Biles, James. 2003. "Using Spatial Econometric Techniques to Estimate Spatial Multipliers: An Assessment of Regional Economic Policy in Yucatan, Mexico," *Review of Regional Studies*, 33, 121-141.

Rey, Sergio and Brett D. Montouri. 1999. "U.S. Regional Income Convergence: A Spatial Econometric Perspective," *Regional Studies*, 33, 143-156

Ying, Long Gen. 2003. "Understanding China's Recent Growth Experience: A Spatial Econometric Perspective," *Annals of Regional Science*, 37, 613-628.