

UPP 531: Economic Development II

Fall 2009

Time: Tuesdays 9 – 11:50 a.m.
Location: Art and Design Hall 2236
Office Hours: by appointment

Instructor: Joshua Drucker
Office: 221 CUPPAH
email: jdruck@uic.edu
telephone: 312-413-7597

Course Syllabus

(last updated August 21, 2009)

Course Description and Objectives

The course provides students with the skills to understand and apply a variety of analytic techniques for regional and local economic development planning. These techniques are used in professional practice to yield information about the behavior and performance of local economies and industries in support of appropriate and effective development policies and programmatic decision-making. By the end of the course, students should be able to select techniques appropriate to particular situations and information needs, conduct analyses using these methods, critically evaluate the validity of their own work and that of others, and interpret analytic results for policy and planning purposes.

Note that this course focuses on economic development at the local and regional scales. The data available, and thus the techniques employed, for community- or neighborhood-level analysis tend to be quite different. Students interested in small-scale approaches may wish to investigate Community Development II: Practice (UPP 541) and/or Community Development Methods and Techniques (UPP 548).

Prerequisites

UPP 531 is designed to be taken subsequently to UPP 530: Economic Development I. The *context* of professional practice in which economic development planning techniques typically are used is covered in UPP 530, along with basic economic development concepts, history, theories, and strategies. Some familiarity with these will be assumed in this course.

Students should be comfortable with subscript and summation notation. (Many linear and matrix algebra textbooks provide quick reviews, including Chapter 1 of the Searle supplemental reading listed under Topic 8.) Matrix algebra is not required for the course, but students who would like to understand the mathematics behind input-output models and are interested in the optional readings on the topic should have a good grasp of fundamental matrix algebra concepts.

Basic experience using spreadsheet (e.g., Microsoft Excel) and word processing (e.g., Microsoft Word) software is assumed. More advanced spreadsheet experience and an operating knowledge of SPSS or another statistical software package used for calculating and analyzing descriptive statistics and conducting regression modeling may be helpful but are not required as prerequisites.

Class Format

Class sessions will combine lecture with discussion. Lectures will be used to organize material from the readings and related sources in a systematic fashion and to supplement it with additional background and examples. The intention in class sessions is to maintain an open discussion atmosphere, and you are encouraged to contribute examples, questions, clarifications, comments, discussion points, etc., throughout. Some time may be set aside for structured or small-group discussions.

The class sessions will not necessarily cover all the material in the assigned readings, so attending class is not a substitute for carefully reading the assigned literature. It is important that the assigned discussion readings be completed *prior to* class sessions on that topic to enable an engaged and stimulating session. The required technical readings may be completed either prior to or after the corresponding class sessions according to student preference. Some students may find it helpful to read the technical readings twice—once before class and again after the topic is introduced in class. In many cases, lectures or discussions will extend the treatment of a topic beyond the scope of the required readings.

A series of assignments will serve as hands-on learning experiences. Some class sessions will include time devoted to discussion and/or presentation of the assignments. There may be one or more sessions held in a computer laboratory.

Course Materials

The readings for this course are drawn from journals or excerpted from a variety of texts. Most of them will be posted in electronic format to the course Blackboard site. The remainder are available on the Internet (with links provided below) or in Daley Library.

Requirements and Grading

Your course grade will consist of a series of three reports (worth 45% total, 15% each), three shorter homework assignments (20% total, 6 ⅔% each), a final exam (30%), and class preparation and participation (5%). The reports and homework assignments will require the application of selected techniques to analyze a particular local economy or economic development scenario using actual data. The first and third reports must be completed individually. For the second report and for the three homework assignments you may choose to work individually or in pairs of your selection. Note that both members of a pair will receive the same grade on the assignment. All assignments are due at the beginning of the class period held on the due date (i.e., at 9:00 a.m.). Unless you have made alternative arrangements with the instructor *in advance of the due date*, late assignments will be penalized by 10% of their full weight per weekday late, up to a maximum of a week late and a 50% penalty. Late assignments will not be accepted more than one week (one class period) after the assigned due date. The final exam will be open-book but must be completed individually. More details about the final exam will be provided later in the semester.

Class preparation and participation will be assessed in part by your contribution of informed comments, probing questions, or examples to class discussions. While class attendance is not strictly mandatory, excessive absences will affect the preparation and participation portion of your grade, and more importantly, will affect your ability to master the material in this course. All required discussion readings listed for a topic should be completed prior to the first session on that topic, except if otherwise indicated below or by the instructor.

Student Conduct and Intellectual Property

The University of Illinois at Chicago Guidelines Regarding Academic Integrity state that: “All members of the campus community—students, staff, faculty, administrators—share the responsibility of insuring that these standards are upheld...Academic dishonesty includes, but is not limited to: cheating, fabrication, facilitating academic dishonesty / plagiarism, ... , nonoriginal works.” (The full guidelines are available online at <http://www.uic.edu/ucatalog/GR.shtml#qa>.)

For this course: (1) You are permitted and encouraged to seek advice and suggestions from other class members on the written assignments, unless specifically instructed otherwise. This may include exchanging drafts for feedback and/or proofreading. (2) In all written and presented work, you must cite or otherwise fully attribute all ideas, data, and other information that are not your own. This includes information presented in tables, graphs, appendices, etc. The only exception is the information presented in class and contained in the lectures, slides, handouts, or notes that you make for yourself based on class sessions—these materials you may consider to be your knowledge from the course and you need not cite them. (3) You are not permitted to accept or give aid of any kind for the open-book final exam.

Course Structure

This schedule is subject to change based on class progress and scheduling issues that may arise.

Date	Unit	Topic	Assignments
8/25	I – Getting Started	1. Introduction and Overview of Course 2. Local and Regional Economic Data	
9/1		2. Local and Regional Economic Data, continued 3. Indicators and Indexes	
9/8	II – Economic Composition Analysis	3. Indicators and Indexes, continued 4. Income and Product Accounts	
9/15		5. Industrial Composition & Change	
9/22	III – Regional Economic Models	Discuss Report 1 5. Industrial Composition & Change, continued 6. Economic Base Multiplier	Report 1 due
9/29		7. Regional Input-Output Models	Homework 1 due
10/6		8. Economic Impact Analysis	Homework 2 due
10/13		8. Economic Impact Analysis, continued	Homework 3 due
10/20		9. Labor Market Analysis 10. Fiscal Impact Analysis (as time permits)	
10/27	IV – Forecasting	11. Forecasting Overview; Judgmental, Allocation, and Extrapolation Techniques	
11/3		no class (tentative)	
11/10		12. Forecasting: Regression Models	Report 2 due
11/17		12. Forecasting: Regression Models, continued	
11/24	V – Finishing Up	<i>Catch-up (if necessary)</i> 13. Clustering (as time permits)	
12/1		Discuss Report 3 14. Course Review & Evaluation	Report 3 due
To Be Announced			Final Exam

Course Schedule and Readings

There are two types of required readings:

- *Technical* readings explain and present information regarding models and analytical techniques that will be covered in class. These readings provide explanatory background literature, so in some sense are a substitute for a textbook. They may contain material not covered explicitly in class sessions; students are responsible for this material. Some students may choose to complete the assigned technical readings prior to the date on which the corresponding material is covered in class, to help prepare them to get the most out of class sessions. Others may find it useful to revisit the technical readings or postpone reading them until after the class sessions in which the concepts and techniques are introduced, so that they act as supplements and additional learning supports. Students are responsible for all of the assigned technical readings by the end of the course.
- *Discussion* readings offer examples, extensions, opinions, or different perspectives, and will be used to initiate discussions and critical examinations of the models and techniques. All discussion readings should be completed *prior* to the date listed unless otherwise indicated by the instructor.

The last portion of the reading list presents supplemental readings organized by topic. These are optional and provide further resources and examples.

REQUIRED READINGS

Tuesday, August 25

- Topics*
1. Introduction and Overview of Course
 2. Local and Regional Economic Data

(no required readings)

Tuesday, September 1

- Topics*
2. Local and Regional Economic Data, continued
 3. Indicators and Indexes

Technical Readings

1. Cortright, J., and A. Reamer. 1998. *Socioeconomic Data for Understanding Your Regional Economy*. Washington, D.C.: Economic Development Administration, U.S. Department of Commerce.
Please read Chapters 2-3, pp. 13-46, and Chapter 8, pp. 69-73. Read elsewhere as interested—I recommend Chapter 4, pp. 47-50, and Chapter 7, pp. 63-67.
2. McLean, M. L., and K. P. Voytek. 1992. *Understanding Your Economy: Using Analysis to Guide Local Strategic Planning*. Chicago, Illinois: Planners Press, American Planning Association. Chapter 3: Assessing Economic Performance and Condition, pp. 31-49.

Discussion Readings

1. *Browse the following websites (to be split up and assigned in class):*
 - a. EconData: <http://www.econdata.net>.
 - b. Economagic: <http://www.economagic.com>.
 - c. U.S. Dept. of Commerce, Bureau of Economic Analysis, Regional Economic Accounts: <http://www.bea.gov/regional/index.htm>. Be sure to look through the Local Area Personal Income portion at <http://www.bea.gov/regional/reis/>.
 - d. U.S. Bureau of Labor Statistics, Occupational Projections: <http://data.bls.gov/oep/noeted/empoptd.jsp>. Also State Occupational Projections website at <http://www.projectionscentral.com/>.
 - e. U.S. Census Bureau. American Fact Finder: http://factfinder.census.gov/home/saff/main.html?_lang=en.
 - f. Illinois Census Profile System, Fact Finder and Data Facts: <http://www2.illinoisbiz.biz/censusprofile/>. (Note that Firefox and Mozilla do not always work very well with this site. Internet Explorer tends to work better.)
 - g. Illinois Department of Employment Security, Labor Market Information Source: <http://lmi.ides.state.il.us/>.
 - h. Illinois Department of Commerce and Economic Opportunity, Location One Information System: http://www.illinoisbiz.biz/dceo/Bureaus/Business_Development/Resources+and+Support/Location+One.htm. (Go to this website, then click on either the "Sites" or "Buildings" link.) Please pick a county and explore the types of data available from the pull-down menu. Do the same for a locality.

2. *Browse these example indicator and index reports (to be split up and assigned in class):*
 - a. Progressive Policy Institute. 2001. The Metropolitan New Economy Index. Available online at <http://neweconomyindex.org/metro/index.html>.
 - b. Massachusetts Technology Collaborative (MTC). 2008. *Index of the Massachusetts Innovation Economy*. Available online at http://www.masstech.org/institute2009/the_index.html. Please focus on the Index Overview (pp. 4-6) and 2008 Indicators of the Massachusetts Innovation Economy (pp. 26-49). Read remainder as interested.
 - c. Corporation for Enterprise Development (CFED). 2007. *The Development Report Card for the States*. Available online at <http://www.cfed.org/focus.m?parentid=34&siteid=2346&id=2346>. Please look through the summary (drc home page on left menu, then look under 2007 DRC Overview), framework (on left menu), measures (on left menu), and a few state report cards (grades on left menu). Peruse the rest of the site as interested.
 - d. Sustainable Seattle. 1998. *Indicators of Sustainable Community*. Sustainable Seattle. Available online at <http://www.sustainableseattle.org/Programs/RegionalIndicators/1998IndicatorsRpt.pdf>. Please focus on the economy section, pp. 33-44.
 - e. SustainLane. 2008. U.S. City Rankings. Available online at <http://www.sustainlane.com/us-city-rankings/>.

Tuesday, September 8

- Topics* 3. Indicators and Indexes, continued
 4. Income and Product Accounts

Technical Reading

1. Bendavid-Val, A. 1991. *Regional and Local Economic Analysis for Practitioners*. New York, New York: Praeger. Chapter 5: Income Measures, Income and Product Accounts, pp. 41-52.

Discussion Readings

1. Goldstein, H. A. Unpublished paper. "An index of the Triangle region's economic health."
2. Schaffer, R. L. 1973. *Income Flows in Urban Poverty Areas: A Comparison of the Community Income Accounts of Bedford-Stuyvesant and Borough Park*. Lexington, Massachusetts: Lexington Books. Chapter 1: Income Flows in Urban Poverty Areas, pp. 1-8, and Chapter 2: Community Income Flows, pp. 9-21.

Tuesday, September 15

- Topic* 5. Industrial Composition and Change

Technical Readings

1. McLean, M. L., and K. P. Voytek. 1992. *Understanding Your Economy: Using Analysis to Guide Local Strategic Planning*. Chicago, Illinois: Planners Press, American Planning Association. Chapter 4: Analyzing the Structure and Dynamics of a Local Economy, pp 51-74.
2. Loveridge, S., and Selting, A. C. 1998. A review and comparison of shift-share identities. *International Regional Science Review*, 21(1), 37-58.
Please read pp. 37-43, elsewhere as interested.

Discussion Reading

1. Cambridge Systematics, Inc. 2001. *Making the Knowledge Economy Work for All Kansans*. "Supplement B: Shift-Share Analysis." Available online (along with rest of report) at http://www.kansasinc.org/strategic_report.shtml.

Tuesday, September 22

- Due* • Report 1

- Topics* • Discuss Report 1
 5. Industrial Composition and Change, continued
 6. Economic Base Multiplier

Technical Readings

1. Malizia, E. 1978. Standardized share analysis. *Journal of Regional Science*, 18 (2): 283-291.
2. SOCRATES, Texas Workforce Commission. Available online at <http://socrates.cdr.state.tx.us/>. Experiment with the shift-share tool (link to it from the fifth blue square most of the way down first page).
3. Bendavid-Val, A. 1991. *Regional and Local Economic Analysis for Practitioners*. New York, New York: Praeger. Chapter 8: Economic Base Analysis, pp. 77-85.

(no discussion readings)

Tuesday, September 29

Due • Homework 1

Topic 7. Regional Input-Output Models

Technical Readings

1. Bendavid-Val, A. 1991. *Regional and Local Economic Analysis for Practitioners*. New York, New York: Praeger. Chapter 9: Input-Output Analysis, pp. 87-113.
2. Miernyk, W. H. 1965. *The Elements of Input-Output Analysis*. New York, New York: Random House. Chapter 2: Input-Output Analysis, pp. 8-28. Also part of Chapter 4: Applications of Input-Output Analysis, pp. 42-50. (Note: this text is also available in Daley Library.)
3. *IMPLAN Professional Version 2.0 Manual*. 2000. Stillwater, Minnesota: Minnesota IMPLAN Group. Chapter 8: An Overview of Input-Output and Impact Analysis, pp. 95-105.

(no discussion readings)

Tuesday, October 6

Due • Homework 2

Topic 8. Economic Impact Analysis

Technical Reading

1. *IMPLAN Professional Version 2.0 Manual*. 2000. Stillwater, Minnesota: Minnesota IMPLAN Group.
Please read Chapter 9: Project Definition, pp. 107-114, Chapter 15: Predictive Model Derivation, pp. 163-174, and Chapter 16: Impact Analysis, pp. 175-187. Also read or skim other chapters as needed for the assignment. You may find Chapter 10: Study Area Considerations, pp. 115-121, Chapter 11: Database Elements, pp. 123-129, and Chapter 17: Case Studies, pp. 189-213, particularly useful. Chapters 2-6 (pp. 7-90) constitute the Users' Guide for running the IMPLAN software.

Discussion Readings

1. Schaffer, W. A. 1980. The role of input-output models in regional impact analysis. In S. Pleeter (ed.), *Economic Impact Analysis: Methodology and Applications*: 156-167. Boston, Massachusetts: Martinus Nijhoff Publications.
2. Curliss, J. A. 2004. State Took Rosier View of Dell Jobs. *The News and Observer*, December 19.
3. Office of the Illinois Governor. 2008. Governor Blagojevich announces Batman movie Dark Knight generates nearly \$40 million in revenue for Illinois economy. Available at <http://www.illinois.gov/PressReleases/PrintPressRelease.cfm?SubjectID=2&RecNum=7019> (accessed July 22, 2008).

Tuesday, October 13

Due • Homework 3

Topic 8. Economic Impact Analysis, continued

(no technical readings)

Discussion Readings

1. Regional Technology Strategies, Inc. 1999. *Federal Express in the Piedmont Triad: Economic Impacts and Opportunities*. November 16.
You need not read this entire document word-for-word. Please look over the layout and get a feel for its contents, and pay closer attention to Chapters 1 (pp. 7-12) and 3 (pp. 43-61).
2. Siegfried, J. J., A. R. Sanderson, and P. McHenry. 2007. The economic impact of colleges and universities. *Economics of Education Review*, 26 (5): 546-558.
3. University of Massachusetts. 2006. *UMass: a Strategic Investment*. Amherst, Massachusetts: University of Massachusetts. Available at http://media.umassp.edu/massedu/econdev/umass_economic_impact.pdf and <http://www.massachusetts.edu/econimpact/methodology.html> (accessed July 24, 2008).
For the first document, the powerpoint presentation, please read the slides entitled “An Open Letter to the Commonwealth” (slides 3) and “An Outstanding Return on State Investment” (slides 4-5). Read or skim the remainder to get a sense of the types of economic impacts claimed. Read the second document, a short webpage on the methodology, as interested.

Tuesday, October 20

Topics 9. Labor Market Analysis
10. Fiscal Impact Analysis (as time permits)

Technical Readings

1. McKee, W. L., and R. C. Froeschle. 1985. *Where the Jobs Are: Identification and Analysis of Local Employment Opportunities*. Kalamazoo, Michigan: W. E. Upjohn Institute for Employment Research. Chapter 4: An Integrated Approach to Identifying Occupational Job Opportunities, pp. 75-105.
Please read pp. 75-89, up to “The Occupational Process Model.” Read the remainder as interested for a discussion of data types and sources (most of these have remained functionally the same over time, though often with new names and online availability.)
2. Ramage, S. 1993. *Fiscal Impact Analysis: Methods and Applications in Land Use Planning*. Chapel Hill, North Carolina: Center for Urban and Regional Studies, University of North Carolina at Chapel Hill. Prepared for Durham County, North Carolina.
Please read sections 2-4 (pp. 6-63).

Discussion Readings

1. Bartik, T. J. 1993. Who benefits from local job growth: migrants or the original residents? *Regional Studies*, 27 (4): 297-311.
2. Bunnell, G. 1997. Fiscal impact studies as advocacy and story telling. *Journal of Planning Literature*, 12 (2): 136-151.
3. Browse the website of:
SOCRATES, Texas Workforce Commission: <http://socrates.cdr.state.tx.us/>.
Concentrate on the Occupational Profiles section.

Tuesday, October 27

Topic 11. Forecasting Overview; Judgmental, Allocation, and Extrapolation Techniques

Technical Readings

1. Goldstein, H. A. 1990. A practitioner’s guide to state and substate industry employment projections. *Economic Development Quarterly*, 4 (3): 260-275.
Please read pp. 260-268, elsewhere as interested.
2. Goldstein, H. A. 2000. *Projecting State and Area Industry Employment with the ALMIS Long-Term Projection System*. Prepared for U.S. Department of Labor, Employment and Training Administration, ALMIS Long-Term Industry Employment and Census Tools Consortium.
Please read sections 5.1 through 5.4, pp. 33-42. Note that the models in sections 5.3.1, 5.3.2, and 5.3.4 through 5.3.7 are also covered in the Goldstein article in *Economic Development Quarterly* listed above, so you may skim or skip these portions if you have already read them.

Discussion Readings

1. Armstrong, J. S. 1985. *Long-Range Forecasting: From Crystal Ball to Computer*. 2nd Ed. New York, New York: John Wiley & Sons. Chapter 6: Judgmental Methods, pp. 79-149.
Please read the sections from pp. 85-90, 91-92, top of page 96, 96-107, 108-124, 132-146.
You may skim the remaining portions of the chapter, as well as all of the research boxes.

Tuesday, November 3

no class (tentative)

Tuesday, November 10

Due • Report 2

Topic 12. Forecasting: Regression Models

Technical Readings

1. Allison, P. D. 1999. *Multiple Regression: a Primer*. Thousand Oaks, California: Pine Forge Press.
Please read all of Chapter 1 (pp. 1-23) and sections 2.1 (pp. 25-31) and 2.3 (pp. 34-37) from Chapter 2.
This reading is optional for those students who have had prior experience with multiple regression and are selecting the optional single-equation regression portion of Assignment 5.
2. Goldstein, H. A. 2000. *Projecting State and Area Industry Employment with the ALMIS Long-Term Projection System*. Prepared for U.S. Department of Labor, Employment and Training Administration, ALMIS Long-Term Industry Employment and Census Tools Consortium.
Please read the section 5.5 introduction and section 5.5.1, pp. 43-44, and sections 5.6 through 5.7.3, pp. 55-66.
Students choosing the single-equation regression option on Assignment 5 should also read sections 5.5.3 through 5.5.6, pp. 45-55.

(no discussion readings)

Tuesday, November 17

Topic 12. Forecasting: Regression Models, continued

Technical Reading

1. Gujarati, D. N. 1995. *Basic Econometrics*. New York, New York: McGraw-Hill.
Please read sections 13.2, 13.3, and 13.4 through “The Durbin-Watson d statistic once again” (pp. 455-464). Feel free to skim past the algebra and equations if the notations are unfamiliar to you, but please read the descriptive text and the conclusions carefully.

Discussion Reading

1. Georgia Department of Labor. 2007. *Georgia Workforce 2014: An Analysis of Long-term Employment Projections to 2014*. Available at <http://explorer.dol.state.ga.us/mis/Current/gaworkforcecurrent.pdf>.
Please read the Introduction and Assumptions and Methodology sections, pp. 5-7, and skim over the beginning of the employment projections, pp. 8-14. Read or skim rest of document as interested.

Tuesday, November 24

- Topics* • Catch-up (if necessary)
 13. Clustering techniques (as time permits)

Technical Reading

1. StatSoft. 2008. Principal Components and Factor Analysis. Available at <http://www.statsoft.com/textbook/stfacan.html>.
Please look through this page from the beginning through the paragraph “How many Factors to Extract?” Look through the remainder of the page as interested.
2. StatSoft. 2008. Cluster Analysis. Available at <http://www.statsoft.com/textbook/stcluan.html>.
Please look through this page from the beginning up to (not including) two-way joining. You can skim through the different distance measures and linkage rules. Look through the remainder of the page as interested.
3. Feser, E. J., and M. I. Luger. 2003. Cluster analysis as a mode of inquiry: its use in science and technology policymaking in North Carolina. *European Planning Studies*, 11 (1): 11-24.

Discussion Readings

1. Markusen, A., G. H. Wassall, D. DeNatale, and R. Cohen. 2008. Defining the creative economy: industry and occupational approaches. *Economic Development Quarterly*, 22 (1): 24-45.
2. Peters, D. J. 2001. *Missouri Industry Clusters: Information Technology*. Missouri Department of Economic Development, Division of Research and Planning. Available at <http://www.missourieconomy.org/industry/cluster/it.stm> (accessed July 29, 2008).
Please read pp. 2, 6-7, skim pp. 8-17, read pp. 18-19. Read or skim rest of report as interested.

Tuesday, December 1

- Due* • Report 3
- Topics* • Discuss Report 3
 14. Course Review and Evaluation

(no required readings)

SUPPLEMENTAL READINGS

Topic 1: Introduction and Overview

McLean, M. L., and K. P. Voytek. 1992. *Understanding Your Economy: Using Analysis to Guide Local Strategic Planning*. Chicago, Illinois: Planners Press, American Planning Association. Chapter 1: Overview of Strategic Planning, pp. 1-7.
- *what is strategic economic development planning? how does economic analysis fit in?*

Bendavid-Val, A. 1991. *Regional and Local Economic Analysis for Practitioners*. New York, New York: Praeger. Chapter 3: Project Interventions for Regional Development, pp. 21-25.
- *a discussion of the nature of regional development planning projects*

Topic 2: Local and Regional Economic Data

McLean, M. L., and K. P. Voytek. 1992. *Understanding Your Economy: Using Analysis to Guide Local Strategic Planning*. Chicago, Illinois: Planners Press, American Planning Association. Chapter 2: Structuring the Analysis: Concepts and Issues, pp. 9-29.
- *discusses dimensions along which economic analysts choose in structuring an approach and selecting data*

Walker, J. A., and J. B. Murphy. 2001. Implementing the North American Industry Classification System at BLS. *Monthly Labor Review*, 124 (12): 15-21. Available online at <http://www.bls.gov/opub/mlr/archive.htm>.
- *describes the operational differences between the SIC and NAICS industry classifications*

United States Department of Commerce, Bureau of Economic Analysis. 2008. *Local Area Personal Income and Employment Methodology*. Available online at <http://www.bea.gov/regional/pdf/lapi2006/lapi2006.pdf>.

The most relevant portions are the short sections titled "Employment in industries covered by the UI programs", pp. IX-2 to IX-3 (pp. 71-72 in the pdf document) and "Alternative measures of county employment and wages", pp. IX-7 to IX-9 (pp. 76-78). See also the sections "Adjustments for noncovered segments of UI-covered industries", p. IX-4 (page 73), and "Employment not covered by the UI programs", pp. IX-5 to IX-7 (pp. 74-76), for the categories of employment not covered by the *Quarterly Covered Employment and Wages*.

Office of Management and Budget. 2000. Final Report and Recommendations From the Metropolitan Area Standards Review Committee to the Office of Management and Budget Concerning Changes to the Standards for Defining Metropolitan Areas. *Federal Register*, 65 (163), August 22: 51060-51077. Available online at <http://www.census.gov/population/www/estimates/masrp.html> (the first link under "Previous MASRP Notices...").

- *describes changes made to metropolitan definitions in 2003 (for 2000 Decennial Census data); Table B on pp. 51069-51074 is especially useful*

Levitan, D. 1993. How to read the economy: a primer. *Government Finance Review*, 9 (2): 25-27.
- *short descriptions of GDP, GNP, GSP, CPI, and indicators in lay terms*

Alonso, W. 1968. Predicting best with imperfect data. *Journal of the American Institute of Planners*, 34 (4): 248-255.

- a brief discussion of the dangers of error propagation and suggestions for avoiding them

Topic 3: Indicators and Indexes

City of Minneapolis. 2007. Minneapolis Sustainability Indicators. Available online at <http://www.ci.minneapolis.mn.us/sustainability/indicators.asp>. Benchmark and target chart at <http://www.ci.minneapolis.mn.us/sustainability/docs/indicators-matrix.pdf>. Annual analysis of "Greenprint" subset of indicators at <http://www.ci.minneapolis.mn.us/sustainability/MinneapolisGreenprint.asp>.

- an example of a broad variety of sustainability factors and metrics at the municipal level

Chapple, K., A. Markusen, G. Schrock, D. Yamamoto, and P. Yu. 2004. Gauging metropolitan "high-tech" and "I-tech" activity. *Economic Development Quarterly*, 18 (1): 10-29.

- propose a method of ranking high-tech U.S. metros -tech and compare it to other rankings

Also, see the commentaries and rejoinders in the same issue:

Mathur, V. K. 2004. Gauging metropolitan "high-tech" and "I-tech" activity: some thoughts and commentary. *Economic Development Quarterly*, 18 (1): 30-33.

Cortright, J., and H. Mayer. 2004. Increasingly rank: the use and misuse of rankings in economic development. *Economic Development Quarterly*, 18 (1): 34-39.

Gottlieb, P. D. 2004. Response: different purposes, different measures. *Economic Development Quarterly*, 18 (1): 40-43.

Chapple, K., A. Markusen, G. Schrock, D. Yamamoto, and P. Yu. 2004. Rejoinder: high-tech rankings, specialization, and relationship to growth. *Economic Development Quarterly*, 18 (1): 44-49.

Maclaren, V. W. 1996. Urban sustainability reporting. *Journal of the American Planning Association*, 62 (2): 184-202.

- guidelines for how to conduct community urban sustainability reporting

Grunkemeyer, W., and Moss, M. (No date). *Key Concepts in Sustainable Development*. Web book, Regional Research Institute, West Virginia University. Available online at <http://www.rri.wvu.edu/WebBook/Grunkemeyer-Moss/contents.htm>.

- further background in community sustainable development: history of sustainability ideas, definitions of common terms, and the process of community sustainable development

Phillips, K. R. 1998/1999. The composite index of leading economic indicators: a comparison of approaches. *Journal of Economic and Social Measurement*, 25 (3/4): 141-162.

- extension: review of different approaches to constructing leading economic indicators composites

additional examples of leading indicator index construction:

Fleissig, Adrian R. 2008. *Southern California Leading Economic Indicator*. Institute for Economic and Environmental Studies, California State University-Fullerton. Available online at http://business.fullerton.edu/centers/iees/reports/SC_Lead_2008%20q1.pdf.

Megna, R., and Q. Xu. 2003. Forecasting the New York State economy: the coincident and leading indicators approach. *International Journal of Forecasting*, 19 (4): 701-713.

Crane, Steven E. 1993. Developing a Leading Economic Indicator Series for a Metropolitan Area. *Economic Development Quarterly*. August, 267-281.

LeSage, J. P., and M. Magura. 1987. A leading indicator model for Ohio SMSA employment. *Growth and Change*, 18 (3): 36-48.

Claus, E., and I. Claus. 2002. *How Many Jobs? A Leading Indicator Model of New Zealand Employment*. Wellington, New Zealand: New Zealand Treasury. Available online at <http://www.treasury.govt.nz/workingpapers/2002/02-13.asp>.

Kozlowski, P. J. 1977. *A Local Index of Leading Indicators: Construction, Uses, and Limitations*. Kalamazoo, Michigan: W. E. Upjohn Institute for Employment Research.

Topic 4: Income and Product Accounts

Armstrong, R. B. 1980. *Regional Accounts: Structure and Performance of the New York Region's Economy in the Seventies*. Bloomington, Indiana: Indiana University Press. (Note: this text is in storage in the Daley Library.)

- example of a thorough regional accounts study

Dholakia, Ravindra H. 2006. Preliminary estimates of regional accounts for Gujarat State. *Journal of Income and Wealth*, 28 (2) July-December: 3-14.

- rare recent example of a regional accounts study, for a state in India

Isard, W. 1960. *Methods of Regional Analysis: An Introduction to Regional Science*. Cambridge, Massachusetts: MIT Press. Chapter 4: Regional Income and Social Accounting, pp. 80-121, and Chapter 5: Interregional Flow Analysis and Balance of Payments Statements, pp. 122-181. (Note: this text is in the Daley Library.)

- classic textbook treatment of regional accounts and balance of payments studies

United States Department of Transportation: Bureau of Transportation Statistics. 2004. *Commodity Flow Survey, 2002*. Washington, D.C. Available at

http://www.bts.gov/publications/commodity_flow_survey/index.html (accessed July 29, 2008). (See full report under National – U.S. Report; also see selected tabular data under States or Metropolitan Areas.)

- data for national and regional commodity flows (skim or browse only); 2007 data are scheduled to be released in late 2009

Topic 5: Industrial Composition and Change

Bendavid-Val, A. 1991. *Regional and Local Economic Analysis for Practitioners*. New York, New York: Praeger. Chapter 7: Economy Composition Analysis, pp. 67-76.

- a slightly different presentation of shift-share analysis and location quotients from McLean and Voytek

Miller, M. M., L. J. Gibson, and N. G. Wright. 1991. Location quotient: a basic tool for economic development analysis. *Economic Development Review*, 9 (2): 65-68.

- very straightforward and brief description of location quotients and their uses

York County Economic Development Corporation. 2004. Industry Cluster Analysis Baseline Report (1995-2001 data). Available at <http://www.ycedc.org/images/ClusterAnalaselineReport.pdf>.

- report using location quotient and shift-share local economic analyses

Puget Sound Regional Council. 2004. Central Puget Sound Regional Economic Profile. Available at <http://www.psrc.org/projects/monitoring/repreport.pdf>.

- report using location quotient and shift-share local economic analyses (see Chapter 2 and Appendices B and C)

Sonoran Institute. 2005. A Socioeconomic Profile of La Plata County, Colorado. Available at <http://co.laplata.co.us/plan/eps/toc.pdf>.

- local economic analysis (computer-generated!) using index of specialization (see p. 23)

Damgaard, C., and J. Weiner. 2000. Describing inequality in plant size or fecundity. *Ecology*, 81 (4): 1139-1142.

- brief mathematical description of Lorenz curve and Gini coefficient, and a suggested additional asymmetry measure

Porter, M. E. 2003. The economic performance of regions. *Regional Studies*, 37 (6-7): 549-578.

- uses location quotients and Gini coefficient analysis among other approaches to measure regional wage inequality and industrial composition, relating them to economic performance

Hillebrand, E. 2008. The global distribution of income in 2050. *World Development*, 36 (5): 727-740.

- estimates and projects a worldwide Gini coefficient

Dewhurst, J. H. L., and P. McCann. 2002. A comparison of measures of industrial specialization for travel-to-work areas in Great Britain, 1981-1997. *Regional Studies*, 36 (5): 541-551.

- analyzes and compares 11 constructed measures of industrial specialization

Rhoades, S. A. 1993. The Herfindahl-Hirschman index. *Federal Reserve Bulletin*, 79 (3): 188-189.

- brief description of Herfindahl-Hirschman index, presented to measure market concentration

Barff, R. A., and P. L. Knight, III. 1988. Dynamic shift-share analysis. *Growth and Change*, 19 (2): 1-10.

- simple extension: annualized shift-share analysis

Holden, D. R., A. G. M. Nairn, and J. K. Swales. 1989. Shift-share analysis of regional growth and policy: a critique. *Oxford Bulletin of Economics and Statistics*, 51 (1): 15-34.

- a critique of the inherent assumptions of typical shift-share analysis

Oosterhaven, J., and L. Broersma. 2007. Sector structure and cluster economies: a decomposition of regional labour productivity. *Regional Studies*, 41 (5): 639-659.

- an application of shift-share to labor productivity in the Netherlands

Herzog, H. W., Jr., and R. J. Olsen. 1977. Shift-share analysis revisited: the allocation effect and the stability of regional structure. *Journal of Regional Science*, 17 (3): 441-454.

- extension: a four-term reformulation of shift-share analysis

Gabe, T. M. 2006. Growth of creative occupations in U.S. metropolitan areas: a shift-share analysis. *Growth and Change*, 37 (3): 396-415.
- *application of Herzog and Olsen's shift-share to study U.S. growth in creative class occupations during the 1990s*

Dinc, M., and K. E. Haynes. 2005. Productivity, international trade and reference area interactions in shift-share analysis: some operational notes. *Growth and Change*, 36 (3): 374-394.
- *discusses and demonstrates two new applications of shift-share analysis focusing on output productivity and international trade*

Isard, W. 1998. Chapter 2: Location analysis for industry and service trades: comparative cost and other approaches. In W. Isard, I. J. Azis, M. P. Drennan, R. E. Miller, S. Saltzman, and E. Thorbecke, *Methods of Interregional and Regional Analysis*. Aldershot, United Kingdom: Ashgate: 7-39. Read pp. 24-30, elsewhere as interested.
- *textbook treatment of quantitative tools for industrial location analysis*

Topic 6: The Economic Base Multiplier

Isserman, A. 1980. Alternative economic base bifurcation techniques: theory, implementation, and results. In S. Pleeter (ed.), *Economic Impact Analysis: Methodology and Applications*. Boston, Massachusetts: Martinus Nijhoff Publications: 32-53.
- *sections 2.1 and 2.2 through 2.2.3 discuss four procedures for bifurcating the economy into basic and nonbasic sectors; section 2.5 compares the procedures empirically; section 2.6 makes suggestions for practitioners*

Klosterman, R. E. 1990. *Community Analysis and Planning Techniques*. Savage, Maryland: Rowman and Littlefield. Chapters 9-11, pp. 113-167.
- *more detailed coverage of the economic base model and bifurcation techniques; provides work-through examples*

Tiebout, C. M. 1962. *The Community Economic Base Study*. New York, New York: Committee for Economic Development. (Note: this text is available in Daley Library.)
- *original, classic manual for designing and conducting a community economic base study*

Isserman, A. 2000. Economic base studies for urban and regional planning. In L. Rodwin and B. Sanyal (eds.), *The Profession of City Planning: Changes, Images, and Challenges 1950-2000*. New Brunswick, New Jersey: Center for Urban Policy Research: 174-193.
- *discusses the history of and suggests future uses for economic base studies*

Schaffer, W. A. 1999. *Regional Impact Models*. Webbook. Morgantown, West Virginia: Regional Research Institute, West Virginia University. Available online at <http://www.rri.wvu.edu/WebBook/Schaffer/index.html>.
- *a straightforward treatment of input-output modeling; Chapter 2 relates in particular to the economic base multiplier topic.*

McCann, P. 2001. *Urban and Regional Economics*. Oxford, United Kingdom: Oxford University Press. Chapter 4: Regional Specialization, Trade, and Multiplier Analysis, pp. 137-174.
- *nice explanation of economic base multipliers, demonstrates their equivalence to Keynesian regional income multipliers; ends with a basic introduction to regional input-output analysis.*

Nishiyama, Y. 1997. Exports' contribution to economic growth: empirical evidence for California, Massachusetts, and Texas, using employment data. *Journal of Regional Science*, 37 (1): 99-125.
- extension: *methodologically sophisticated empirical examination of whether exports actually do drive non-export activity*

Gibson, L. J., and M. A. Worden. 1981. Estimating the economic base multiplier: a test of alternative procedures. *Economic Geography*, 57 (2): 146-159.
- *an empirical test of different methods of estimating the economic base multiplier*

Krikelas, A. C. 1992. Why regions grow: a review of research on the economic base model. *Economic Review*, 77 (4): 16-29.
- *concise review of the theoretical and empirical debates surrounding the economic base model*

Isard, W. 1960. *Methods of Regional Analysis: An Introduction to Regional Science*. Cambridge, Massachusetts: MIT Press. Focus on pp. 189-212 (part of Chapter 6: Regional Cycle and Multiplier Analysis). (Note: this text is in the Daley Library.)
- *textbook treatment of economic base and interregional trade multipliers*

Topic 7: Regional Input-Output Models

Schaffer, W. A. 1999. *Regional Impact Models*. Webbook. Morgantown, West Virginia: Regional Research Institute, West Virginia University. Available online at <http://www.rri.wvu.edu/WebBook/Schaffer/index.html>.
- *a straightforward treatment of input-output modeling; Chapters 3 and 9 correspond in particular to the regional input-output models topic.*

Miller, R. E. 1998. Chapter 3: Regional and interregional input-output analysis. In W. Isard, I. J. Azis, M. P. Drennan, R. E. Miller, S. Saltzman, and E. Thorbecke, *Methods of Interregional and Regional Analysis*. Aldershot, United Kingdom: Ashgate: 41-133. Read pp. 43-70, 86-94, elsewhere as interested.
- *in-depth mathematical exposition of regional input-output models; for those interested in following more closely the mathematics of input-output models there is a brief review of relevant matrix algebra concepts on pp. 125-133.*

Hewings, G. J. D. 1985. *Regional Input-Output Analysis*. Beverly Hills, California: Sage Publications. (Note: this text is available in Daley Library.)
- *pamphlet contains another treatment of regional input-output modeling; also describes its origins, links to economic base and Keynesian models, and methodological extensions*

Chase, R. A., P. J. Bourque, and R. S. Conway, Jr. 1993. *The 1987 Washington State Input-Output Study*. Washington Office of Financial Management, Forecasting Division. Available online at <http://129.3.20.41/eps/urb/papers/9311/9311001.pdf>. Note that the Washington State Input-Output Model has been updated regularly – discussion and newer versions are available online at <http://www.ofm.wa.gov/economy/io/>.
- *describes the history, construction, and uses of the State of Washington input-output model*

Jensen, R. C. 1990. Construction and use of regional input-output models: progress and prospects. *International Regional Science Review*, 13 (1-2): 9-25.
- *promotes decomposition of input-output models for policy analysis; middle section discusses how economic development strategies relate to input-output model components*

Siegel, P. B., J. Alwang, and T. G. Johnson. 1995. Decomposing sources of regional growth with an input-output model: a framework for policy analysis. *International Regional Science Review*, 18 (3): 331-353.

- *promotes decomposition of input-output models for policy analysis; middle section discusses how economic development strategies relate to input-output model components*

Baumol, W. J., and E. N. Wolff. 1994. A key role for input-output analysis policy design. *Regional Science and Urban Economics*, 24 (1): 93-113.

- *extension: shows how input-output analysis is crucial for policy analysis and design*

Lazarus, W. F., D. E. Platas, and G. W. Morse. 2002. IMPLAN's weakest link: production functions or regional purchase coefficients? *Journal of Regional Analysis and Policy*, 32 (1): 33-48.

- *analyzes sources of error in input-output modeling using IMPLAN*

Stewart, R. L., J. Brede Stone, and M. L. Streitwieser. 2007. U.S. benchmark input-output accounts, 2002. *Survey of Current Business*, 87 (10): 19-48. Available online at http://www.bea.gov/scb/pdf/2007/10%20October/1007_benchmark_io.pdf.

- *all the definitions, classifications, and details of the BEA's benchmark input-output accounts*

For more on the matrix algebra behind regional input-output models see:

Searle, S. R. 1982. *Matrix Algebra Useful for Statistics*. New York, New York: John Wiley and Sons. (Note: this text is in the Daley Library.)

- *a more extensive treatment of matrix algebra concepts; see Chapters 1-2 for a basic review of notation and matrices; see Chapters 4-5 for fundamental matrix algebra concepts key to the mathematics underlying input-output models*

Topic 8: Economic Impact Analysis

Schaffer, W. A. 1999. *Regional Impact Models*. Webbook. Morgantown, West Virginia: Regional Research Institute, West Virginia University. Available online at <http://www.rri.wvu.edu/WebBook/Schaffer/index.html>.

- *a straightforward treatment of input-output modeling; Chapters 4 and 5 correspond most closely to the economic impact analysis topic*

Israilevich, P. R., R. Mahidhara, and G. J. D. Hewings. 1994. *The Choice of Input-Output Table Embedded in Regional Econometric Input-Output Models*. Working Paper CES 94-1: Center for Economic Studies, United States Bureau of the Census.

- *tests implications of input-output data accuracy for impact analysis and forecasting using a regional model with an embedded input-output component*

Goldstein, H. A., and M. I. Luger. 1992. *Impact Carolina: The University of North Carolina at Chapel Hill and the State's Economy*. Chapel Hill, North Carolina: University of North Carolina. Prepared for University Bicentennial.

- *a very careful economic impact analysis of a major research university*

Goldstein, H. A. 1989-1990. Estimating the regional economic impact of universities: an application of input-output analysis. *Planning for Higher Education*, 18 (1): 51-63.

- *step-by-step description of an impact analysis of UNC's sponsored research expenditures*

Harris, R. I. D. 1997. The impact of the University of Portsmouth on the local economy. *Urban Studies*, 34 (4): 605-626.

- *simple university impact analysis based on a regional input-output model*

Drucker, J., and H. A. Goldstein. 2007. Assessing the regional economic development impacts of universities: a review of current approaches. *International Regional Science Review*, 30 (1): 20-46.

- *describes methodologies used to assess economic impacts of universities*

Hall, P. V. 2004. "We'd have to sink the ships": impact studies and the 2002 West Coast port lockout. *Economic Development Quarterly*, 18 (4): 354-367.

- *flaws in typical application of economic impact analysis to short-term infrastructure disruptions*

Porter, P. K., and D. Fletcher. 2008. The economic impact of the Olympic Games: ex ante predictions and ex poste reality. *Journal of Sport Management*, 22 (4): 470-486.

- *argues that input-output analysis is unsuited to analyzing short-term events; illustrates with analysis of 1996 and 2002 Olympic Games*

Sanders, H. T. 2002. Convention myths and markets: a critical review of convention center feasibility studies. *Economic Development Quarterly*, 16 (3): 195-210.

- *reviews and criticizes impact studies of convention centers as promotional and misleading*

Biles, J. J. 2004. Export-oriented industrialization and regional development: a case study of maquiladora production in Yucatan, Mexico. *Regional Studies*, 38 (5): 519-534.

- *a regional input-output impact analysis of export-oriented production in Mexico*

Hjerpe, E. E., and Y.-S. Kim. 2007. Regional economic impacts of Grand Canyon river runners. *Journal of Environmental Management*, 85 (1): 137-149.

- *a regional input-output impact analysis of river rafting in the Grand Canyon*

Goodman, R., and E. J. Feser. 1998. *Understanding the Economic Impact of Casinos in Missouri*. Prepared for the United States Gambling Research Institute. Available at http://www.casinowatch.org/costs/goodman_report.html (accessed February 2, 2008).

- *reviews and critiques earlier impact study of gambling industry in Missouri*

Stone, K. E. 1995. Impact of Wal-Mart stores on Iowa communities: 1983-93. *Economic Development Review*, 13 (2): 60-69.

- *an example of a well-done impact analysis that does not make use of an input-output model*

Rickman, D. S., and R. K. Schwer. 1995. A comparison of the multipliers of IMPLAN, REMI, and RIMS II: benchmarking ready-made models for comparison. *Annals of Regional Science*, 29 (4): 363-374.

- *compares models and multipliers obtained with IMPLAN, REMI, and RIMS II; note that discussion is of older version of IMPLAN – the model structure is similar, but the underlying data has been updated and additional multiplier options included*

Oosterhaven, J., E. C. van der Knijff, and G. J. Eding. 2003. Estimating interregional economic impacts: an evaluation of nonsurvey, semisurvey, and full-survey methods. *Environment and Planning A*, 35 (1): 5-18.

- *extension: considers forward linkages and compares full-survey-based input-output models to quicker and less data-intensive methods with a case study of a Dutch energy firm*

Kay, D. L., J. E. Pratt, and M. E. Warner. 2007. Role of services in regional economy growth. *Growth and Change*, 38 (3): 419-442.

- extension: *hypothetical extraction method for analyzing local-oriented sectors*

Wernerheim, C. M., and C. A. Sharpe. 2001. The potential bias in producer service employment estimates: the case of the Canadian space economy. *Urban Studies*, 38 (3): 563-591.

- extension: *a different use of an input-output model, to analyze the extent to which standard industry codes lead to mis-estimation of producer and consumer services employment*

Topic 9: Local and Regional Labor Market Analysis

Bartik, T. J. 1991. *Who Benefits From State and Local Economic Development Policies?* Kalamazoo, Michigan: W. E. Upjohn Institute for Employment Research. (Note: this text is available in Daley Library.)

- the full work of which the article in the required readings is drawn as a summary

Dresser, L. 2006. *When Work Doesn't Pay: the Hidden Cost of Low-Wage Jobs in Wisconsin.* Center on Wisconsin Strategy. Available at www.cows.org/pdf/rp-low-wage-jobs.pdf (accessed July 25, 2008).

- describes the costs pushed onto the public sector by low-wage employment

Stibbard, P. 1996. Data describing labour market dynamics: can we do better? *Statistical Journal of the UN Economic Commission for Europe*, 13 (4).

- short article advocating the collection of data on labor market flows, not just stocks

Clark, K. A., and R. Hyson. 2001. New tools for labor market analysis: JOLTS. *Monthly Labor Review*, 124 (12): 32-37.

- short article about a relatively new BLS labor market series – JOLTS – and its uses for economic research and analysis. Also see the BLS JOLTS site at <http://www.bls.gov/jlt/>.

browse the website of:

Illinois Department of Employment Security, Labor Market Information Source:
<http://lmi.ides.state.il.us/>.

Topic 10: Fiscal Impact Analysis

Kotval, Z., and J. Mullin. 2007. *Fiscal Impact Analysis: Methods, Cases, and Intellectual Debate.* Lincoln Institute of Land Policy. Available at <http://www.lincolninst.edu/pubs/PubDetail.aspx?pubid=1252> (accessed January 29, 2008).

- alternative to Ramage report; covers less ground in terms of methods and more in terms of examples, future alternatives, criticisms, and academic debates

Tischler, P. S. 1996. The realities of fiscal impact analysis. *Land Development*, Fall: 21-24.

- brief article argues for marginal over average cost approaches and gives examples of community-level fiscal impact analyses

Stern, R. B., and D. G. Stuart. 1980. Beware the pitfalls in fiscal impact analysis. *Planning*, 46 (4): 15-17.

- eight pitfalls to watch out for in local fiscal impact analysis; dated, but still applicable

Burchell, R. W., D. Listokin, and W. R. Dolphin. 1985. *The New Practitioner's Guide to Fiscal Impact Analysis*. New Brunswick, New Jersey: Center for Urban Policy Research, Rutgers University. (Note: this text is available in Daley Library.)

- one of the main source texts for the Ramage report, but less comprehensive; Sections 1-3 correspond to Ramage's Sections 2-4, Section 5 has example problems

Dekel, G. P. 1995. Housing density: a neglected dimension of fiscal impact analysis. *Urban Studies*, 32 (6): 935-951.

- extension: argues for including development density in fiscal impact analysis; focuses on residential development but arguments are applicable to nonresidential development as well

Heikkila, E. J., and W. Davis. 1997. Rethinking fiscal impacts. *Journal of Planning Education and Research*, 16 (3): 201-211.

- extension: offers a production framework for relating output of services to local government inputs and neighborhood characteristics

Topic 11: Forecasting: Judgmental, Extrapolation, and Allocation Techniques

Klosterman, R. E. 1990. *Community Analysis and Planning Techniques*. Savage, Maryland: Rowman and Littlefield. Chapters 1-3, pp. 3-48.

- more detailed coverage of extrapolation techniques and particular functional forms

Forecasting Principles website: <http://www-marketing.wharton.upenn.edu/forecast/>.

- a site devoted to presenting resources for forecasting and forecasting research; has glossary, descriptions and relationship charts of forecasting methods, research evidence, bibliographies, practitioner guides, sample data, etc. Designed to be used with Armstrong's (2001) book *Principles of Forecasting* (a collection of 30 papers on various forecasting techniques) but also useful on its own.

Franklin, J. C. 2007. An overview of BLS projections to 2016. *Monthly Labor Review*, 130 (11): 3-12. Available online at <http://www.bls.gov/opub/mlr/2007/11/art1full.pdf>.

- describes BLS methodology for employment projections – these are the national projections you would use as exogenous when constructing local or regional projections

Stevens, B. H., and C. L. Moore. 1980. A critical review of the literature on shift-share as a forecasting technique. *Journal of Regional Science*, 20 (4): 419-437.

- deeper background on shift-share formulations, concentrating on their use for forecasting

Andrikopoulos, A., J. Brox, and E. Carvalho. 1990. Shift-share analysis and the potential for predicting regional growth patterns: some evidence for the region of Quebec, Canada. *Growth and Change*, 21 (1): 1-10.

- assesses shift-share accuracy in forecasting, with competitive shift projected by regression

Kurre, J. A., and B. R. Weller. 1989. Forecasting the local economy, using time-series and shift-share techniques. *Environment and Planning A*, 21 (6): 753-770.

- extension: application of time-series techniques to shift-share forecasting method

Mayor, M., A. J. Lopez, and R. Perez. 2007. Forecasting regional employment with shift-share and ARIMA modelling. *Regional Studies*, 41 (4): 543-551.

- extension: *further application of time-series techniques to shift-share forecasting*

Coleman, C. D., and D. A. Swanson. 2007. On MAPE-R as a measure of cross-sectional estimation and forecast accuracy. *Journal of Economic and Social Measurement*, 32 (4): 219-233.

- extension: *discusses, computes, and analyzes alternative diagnostics of forecast accuracy*

Longhi, S., and P. Nijkamp. 2007. Forecasting regional labor market developments under spatial autocorrelation. *International Regional Science Review*, 30 (2): 100-119.

- extension: *demonstrates applying spatial autocorrelation models to regional employment forecasts*

Topic 12: Forecasting: Regression Models

Armstrong, J. S. 1985. *Long-Range Forecasting: From Crystal Ball to Computer*. 2nd Ed. New York, New York: John Wiley & Sons. Chapter 8: Econometric Methods, pp. 191-247. Ch. 13: Testing Outputs, pp. 333-361.

- *Ch. 8 is a non-mathematical discussion of use of econometric methods for forecasting; Ch. 13 discusses measures of accuracy and their popularity in academic and practical use*

Pindyck, R. S., and D. L. Rubinfeld. 1991. *Econometric Models and Economic Forecasts*. 3rd Ed. New York, New York: McGraw-Hill, Inc. (Note: this text is available in Daley Library.)

- *approachable text for those wanting the statistics behind econometric forecasting; see Chapter 8 in particular*

Gujarati, D. N. 1995. *Basic Econometrics*. New York, New York: McGraw-Hill. (Note: the first and second editions are available in Daley Library; the third and later editions are available through I-Share. The date of publication above and the page numbers below refer to the third edition.)

- *the Durbin-Watson test is described on pp. 420-425, there is a numerical example on pp. 433-434, and the table of Durbin-Watson test statistic significance points is on pp. 818-821*

Golberg, M. A., and H. A. Cho. 2004. *Introduction to Regression Analysis*. Southampton, United Kingdom: WIT Press. (Note: this text is *not* owned by UIC, but comparable texts are available in Daley Library.)

- *discusses standard error of forecast (or prediction) and prediction intervals on pp. 95-101*

Employment and occupational projection websites for the U.S. states can be found through the links at http://www.projectionscentral.com/lt_projsites.aspx.

Topic 13: Clustering

Shields, M., D. L. Barkley, and M. Emery. 2004. Industry clusters and industry targeting. Industry Targeting/Industry Clusters Workshop, Orlando, FL, December 2-3. Available online at http://www.nercrd.psu.edu/Industry_Targeting/ExtensionPapersandSlides/IndClusterExt.ShieldsBarkleyEmery.pdf.

- *discusses advantages and disadvantages of using industry clusters as an industry targeting strategy*

Koo, J. 2005. How to analyze the regional economy with occupation data. *Economic Development Quarterly*, 19 (4): 356-372.

- suggests three types of economic analyses using occupations and clusters

Cortright, J. 2006. *Making Sense of Clusters: Regional Competitiveness and Economic Development*. Prepared for the Brookings Institution Metropolitan Policy Program. Available at http://www.brookings.edu/reports/2006/03cities_cortright.aspx (accessed December 20, 2007).

- examines the state-of-the-art in cluster concepts applied to regional economic development; Chapter 4 describes broadly the type of analytical approaches used

Mayer, H. 2005. Cluster monitor: a guide to analyzing industry clusters in regional economies. *Economic Development Journal*, 4 (4): 40-53.

- data needs, analytical approaches, and principles for cluster-based economic development

Feldman, M. P., and J. L. Francis. 2004. Homegrown solutions: fostering cluster formation. *Economic Development Quarterly*, 18 (2): 127-137.

- despite the title, largely presents case against public efforts to found industry clusters; in the process, also gives a good summary of findings of cluster policy research to date

Porter, M. E. 1998. Clusters and the new economics of competition. *Harvard Business Review*: 77-90.

- distillation of parts of 1990 text *The Competitiveness Advantage of Nations*; focuses on the role of competition in clusters and implications for companies and public industrial policy.

Martin, R., and P. Sunley. 2003. Deconstructing clusters: chaotic concept or policy panacea? *Journal of Economic Geography*, 3 (1): 5-35.

- acerbic but accurate review of cluster literature and its misappropriation for policy uses

Doeringer, P. B., and D. G. Terkla. 1995. Business strategy and cross-industry clusters. *Economic Development Quarterly*, 9 (3): 225-237.

- brief review of cluster theory and assessment of its use (misuse) in economic development policy

Thompson, W. R., and P. R. Thompson. 1985. From industries to occupations: rethinking local economic development. *Economic Development Commentary*, 9: 12-18.

- advocates examining occupational-functional dimension of local economies

Markusen, A. 1996. Sticky places in slippery spaces: a typology of industrial districts. *Economic Geography*, 72 (3): 293-313.

- typology of industrial districts or clusters with international examples

Koo, J. 2005. Knowledge-based industry clusters: evidenced by geographical patterns of patents in manufacturing. *Urban Studies*, 42 (9): 1487-1505.

- exploratory analysis of knowledge-based industry clusters created using patent citation data

Peters, D. J. 2005. Using labor-based industry complexes for workforce development in Missouri. *Economic Development Quarterly*, 19 (2): 138-156.

- example application of labor-based industry clusters in Missouri

Feser, E. J. 2003. What regions do rather than make: a proposed set of knowledge-based occupation clusters. *Urban Studies*, 40 (10): 1937-1958.

- *proposes methodology for creating occupational clusters to use as another unit of analysis in regional economic analysis*

Feser, E. J., and E. M. Bergman. 2000. National industry cluster templates: a framework for applied regional cluster analysis. *Regional Studies*, 34 (1): 1-19.

- *describes methodology for creating manufacturing industry clusters from national input-output data, with example application to North Carolina*

Feser, E. J., S. H. Sweeney, and H. C. Renski. 2005. A descriptive analysis of discrete U.S. industrial complexes. *Journal of Regional Science*, 45 (2): 395-419.

- *uses benchmark clusters from Feser and Bergman (2000) to analyze cluster concentrations across the United States*

Hill, E. W., and J. F. Brennan. 2000. A methodology for identifying the drivers of industrial clusters: the foundation of regional competitive advantage. *Economic Development Quarterly*, 14 (1): 65-96.

- *uses both cluster and discriminant analysis to identify driver industries and surrounding industrial complexes in Cleveland-Akron CMSA*

For more on the mathematical and statistical techniques of cluster and factor analysis:

Everitt, B., S. Landau, and M. Leese. 2001. *Cluster Analysis*. 4th Ed. London, United Kingdom: Arnold. (Note: this text is in the Daley Library.)

- *covers the motivations behind and the techniques of cluster analysis*

Jain, A. K., M. N. Murty, and P. J. Flynn. 1999. Data clustering: a review. *ACM Computing Surveys*, 31 (3): 264-323.

- *wide review of clustering procedures and applications; section 5 describes types of cluster analysis techniques*

Kim, J.-O., and C. W. Mueller. 1978. *Introduction to Factor Analysis: What It Is and How To Do It*. Beverly Hills, California: Sage Publications. (Note: this text is in the Daley Library.)

- *introduction to the concepts and applications of factor analysis*

Tucker, L., and R. MacCallum. 1993. *Exploratory Factor Analysis*. Available at <http://www.unc.edu/~rcm/book/factornew.htm> (accessed July 28, 2008).

- *covers the concepts and objectives behind factor analysis and common techniques used in exploratory factor analysis*