

Regional Economics Lecture 1

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Coming Soon!

Summer 2010 - July

URBP 220

Economic Analysis for Urban Planning

(tell your friends!)

Textbooks

GIS Tutorial II: Spatial Analysis Workbook
David Allen
Paperback: 408 pages
Publisher: ESRI Press: Pap/DVD/CD edition (June 1, 2009)
Language: English
ISBN-10: 1589482018
ISBN-13: 978-1589482012

The ESRI Guide to GIS Analysis Volume 1: Geographic Patterns & Relationships
Andy Mitchell
Paperback: 186 pages
Publisher: ESRI Press: 1 edition (August 1, 1999)
Language: English
ISBN-10: 1879102064
ISBN-13: 978-1879102064

The ESRI Guide to GIS Analysis: Volume 2: Spatial Measurements and Statistics
Andy Mitchell
Paperback: 252 pages
Publisher: Esri Press: 1 edition (July 1, 2005)
Language: English
ISBN-10: 158948116X
ISBN-13: 978-1589481169
Available as a package on amazon.com

Supplementary Readings

Supplementary Readings will be either:
posted on-line
or
available on reserve in the library

(Note: not all material used in the course can be posted online because SJSU does not have electronic rights to all the materials.)

**Regional Economics
Social Networking Update**

Course Wiki:
<http://regionaleconomics.pbworks.com/>
(be sure to register on the course wiki – some graded assignments will be related to the wiki)

Course Grade (Update)

Exam 1 – 35%
(EXAM 1 POSTED FRI, MAR 19; EXAM 1 DUE BY EMAIL SUN, MAR 21 AT NOON)

Exam 2 (Final Exam) – 35%
(FINAL EXAM – PRESENTLY SCHEDULED AS AN IN-CLASS EXAM MON, MAY 25, 0945-1200)

Assignments – 30% (To Be Announced – approximately 10 graded assignments)

Regional Economics

Topic Areas:

Housing

Regional Governance

US

EU

Migration, Immigration, and Innovation

Fiscal Federalism

Case Studies

To be decided but will include:

San Francisco Bay Area

Monterey Bay Area

European Union

REMI 2010 PI+ Training Series

(not a course requirement)

Regional Economic Models, Inc. (<http://remi.com/>)
(one of several purveyors of software and data for regional economic analysis)

FREE Training on one component of REMI Model called "Policy Insight" (PI):

Go to

http://www.remi.com/index.php?mact=News,cntnt01,detail,0&cntnt01articleid=281&cntnt01origid=81&cntnt01detailtemplate=onlineDetail&cntnt01returnid=123&hl=en_US

to sign up for up to six one-hour training sessions on PI during Feb, Mar, and Apr.

[Not a course requirement – no effect on grade]

**Regional Governance/Economic
Development Policy Organizations**

BEA <http://bea.gov/>
ABAG <http://www.abag.ca.gov/>
Metropolitan Transportation Commission
<http://www.mtc.ca.gov/>
AMBAG <http://www.ambag.org/>
Economic Development Department, City of San
Jose <http://www.sjeconomy.com/>
San Jose Redevelopment Agency
<http://www.sjredevelopment.org/>

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Three Aspects of Each Topic Area

- Measurement

- Theory

- Policy

Regional Economic Measurement

Two aspects of measurement:

- Data

- Instruments/Measures or Indexes/Methods

The two aspects are related (inter-twined)

Accessing Data

Bureau of Economic Analysis Regional Data

Accessing Data

Bureau of Labor Statistics

CPI

Regional CPIs

Teaser: What are the California Regional CPIs?

How do they compare over the last 10 years?

Hint: Be sure to check California Department of Finance website

Indexes and Index Numbers

- Simplest Indexes
- Price Indexes
- Quantity Indexes (e.g., indexes of industrial production)
- Startling Results from Indexes

Simplest Indexes

Year	Output
1	12.8
2	13.4
3	14.7
4	17.1
5	15.6
6	19.3
7	21.2
8	22.4
9	21.9
10	24.1

Simplest Indexes

Year	Output	Index (base year 3)
1	12.8	87.07
2	13.4	91.16
3	14.7	100.00
4	17.1	116.33
5	15.6	106.12
6	19.3	131.29
7	21.2	144.22
8	22.4	152.38
9	21.9	148.98
10	24.1	163.95

Simplest Indexes

Year	Output	Index (base year 1)	Index (base year 7)
1	12.8	87.07	60.39
2	13.4	91.16	63.21
3	14.7	100.00	69.34
4	17.1	116.33	80.65
5	15.6	106.12	73.58
6	19.3	131.29	91.04
7	21.2	144.22	100.00
8	22.4	152.38	105.55
9	21.9	148.98	103.30
10	24.1	163.95	113.58

Price Indexes Consumer Price Index (CPI)

Year	CPI
2000	172.2
2001	177.1
2002	179.9
2003	184
2004	188.9
2005	193.3
2006	201.4
2007	207.342
2008	215.303
2009	211.337

Real vs. Nominal

Concept

"money illusion"

Formula

Real earnings = (Nominal Earnings/CPI)*100

Real vs. Nominal

Year	Nominal Weekly Earnings
2000	\$576
2001	\$596
2002	\$608
2003	\$620
2004	\$638
2005	\$651
2006	\$671
2007	\$695
2008	\$722
2009	\$739

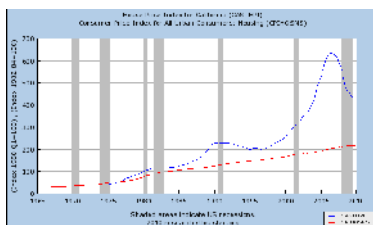
28% increase

Real vs. Nominal

Year	CPI	Nominal Weekly Earnings	Real Weekly Earnings
2000	172.0	\$576	\$334
2001	177.1	\$590	\$327
2002	179.9	\$600	\$329
2003	184	\$650	\$357
2004	188.9	\$638	\$338
2005	195.2	\$651	\$332
2006	201.6	\$671	\$333
2007	207.342	\$690	\$330
2008	215.300	\$722	\$335
2009	214.537	\$750	\$344

2.98% increase

Startling Results from Indexes



FRED 2

FRED 2 Home

<http://research.stlouisfed.org/fred2/>

Data Information Services Center

<http://econdisc.stlouisfed.org/>

**Selected Indexes of
Regional Economic Performance**

Location Quotient (LQ)
Hachman Index (HI)
HERFINDAHL-HIRSCHMAN INDEX (HHI) Index
Inverse HHI
Ellison-Glaeser Index (EGI)

**Characteristics of Indexes
of Regional Performance**

Concept
Uses
Implementation (how to compute)
Spatial representation and implications
versatility
Limitations/issues

**Location Quotient
for a particular industry (i)**

Concept

compare the structure of employment in a given local area to the structure of employment in a reference area – that is compare the ratio of employment in industry i to total employment in the local area compared to the same ratio in the reference area – usually, the base area is much larger than the local area (say, the local area is a city and the reference area is a country)

Uses

to determine the degree to which some industries are over-represented in a given local area compared to the reference area, and other industries are under-represented in a given local area compared to the reference area

**Location Quotient
for a particular industry (i)**

Implementation
(lower case refers to local area, upper case refers to reference area)
e_i – employment in industry i in the local area
e_T - employment in all industries in the local area
E_i – employment in industry i in the reference area
E_T – employment in all industries in the reference area

$LQ_i = [(e_i/e_T)/(E_i/E_T)]$

The Location Quotient is (obviously) a relative measure.

**Location Quotient
for a particular industry (i)**

Spatial representation and implications

Versatility
many variables besides employment can be used to compute location quotients, including sales, value added, occupation*

Limitations/issues

*Blair and Carroll (2009, p.81)

Hachman Index

Concept
gives a measure of similarity of a local area to a reference area based on all industries – the closer to 1 is the Hachman Index the closer is the area to the reference area across all industries; Hachman Index ranges from 0 (completely different structure from the reference area) to 1 (identical structure to the reference area);

Uses
used as a “measure of diversity” by Moody's economy.com and in reports on economic diversity by the Federal Reserve Bank of San Francisco

Hachman Index

Implementation

1. Determine LQ_i for all $i=1,2,\dots,N$ industries
2. compute the weighted sum

$$\sum_{i=1}^N [LQ_i] * e_i$$
3. Compute the reciprocal ($1/x$) of the weighted sum in Step 2:

$$HI = \{1 / (\sum_{i=1}^N [LQ_i] * e_i)\}$$

Hachman Index

Teaser Questions:

1. Why is the HI weighted by e_i ? What happens if the HI is unweighted (equally weighted – i.e., all $e_i = 1$?)
2. Why take the reciprocal of the weighted sum? What happens if we don't take the reciprocal?

Hachman Index

Spatial representation and implications

Perlich (1994)

<http://www.babr.utah.edu/>

Versatility

similar to LQs, many variables besides employment can be used to compute the Hachman Index

Limitations/issues

Herfindahl-Hirschman Index (HHI)

$$H = \sum_{i=1}^N s_i^2$$

where s_i is the market share of firm i in the market, and N is the number of firms. Thus, in a market with two firms that each have 50 percent market share, the Herfindahl index equals $0.50^2 + 0.50^2 = 1 / 2$.

http://en.wikipedia.org/wiki/Herfindahl_index

Herfindahl-Hirschman Index (HHI)

$$H = \sum_{i=1}^N s_i^2$$

where s_i is the market share of firm i in the market, and N is the number of firms. Thus, in a market with two firms that each have 50 percent market share, the Herfindahl index equals $0.50^2 + 0.50^2 = 1 / 2$.

Herfindahl-Hirschman Index (HHI)

The Herfindahl Index (H) ranges from $1 / N$ to one, where N is the number of firms in the market. Equivalently, the index can range up to 10,000, if percents are used as whole numbers, as in 75 instead of 0.75. The maximum in this case is $100^2 = 10,000$.

A HHI index below 0.01 (or 100) indicates a highly competitive index.

A HHI index below 0.1 (or 1,000) indicates an unconcentrated index.

A HHI index between 0.1 to 0.18 (or 1,000 to 1,800) indicates moderate concentration.

A HHI index above 0.18 (above 1,800) indicates high concentration

Price-to-Rent Ratio

Why is there a relationship?

Blair and Carroll (2009, pp. 175-186),
DiPasquale and Wheaton (xxxx,pp. yyy-yyy), and
Pogodzinski, Parker, and Vandermeiden (xxxx, pp. yy-yy).

The formulas differ by whether they relate to land or housing
and what institutional details, such as tax treatment, they take
into account.

Price-to-Rent Varies Spatially

