Introduction to Urban Economics

ECON 166
Prof. J. M. Pogodzinski
Lecture 3

Agenda for Lecture 3

Some results on jobs-housing balance for California and the Bay Area
- choropleth maps
- correlation
- spatial autocorrelation
- hot spot analysis

Schools of Thought
- Neoclassical economics
- Marxian economics
- Conservative economics

Tales of Three Other Cities

Introduction to Location Models

Core Based Statistical Area (CBSAs)

Counties (in some cases) or Metropolitan Statistical Areas (MSAs) are more suitable geographies for measuring jobs-housing balance.

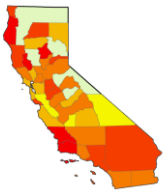
Core Based Statistical Area (CBSAs) combine **Metropolitan Statistical Areas** and **Micropolitan Statistical Areas**.

There are 35 CBSAs in California.

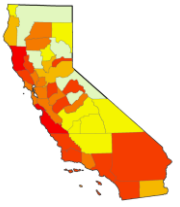
The California CBSAs

California CBSAs on Three Dimensions:

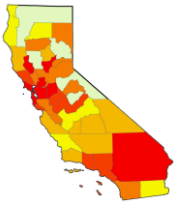
High Rent-Income, High Owner Cost-Income, Long Commutes



High rent-to-income – percent of rental housing units costing more than 35% of income



High owner costs-to-income – percent of owner-occupied units with mortgages costing more than 35% of income

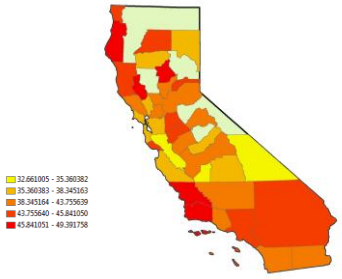


Percent of workers with long commutes – more than 45 minutes

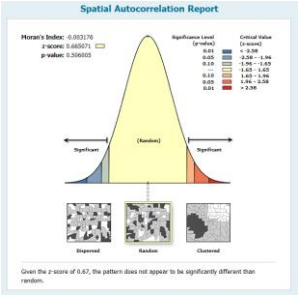
Correlations

- Between High Rent-to-Income and High Owner Costs-to-Income
  0.421326
- Between High Rent-to-Income and Long Commutes
  -0.01925
- Between High Owner Costs-to-Income and Long Commutes
  0.323054

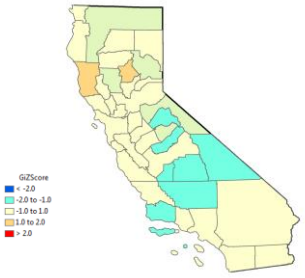
California CBSAs – High Rent-to-Income
More than 35%



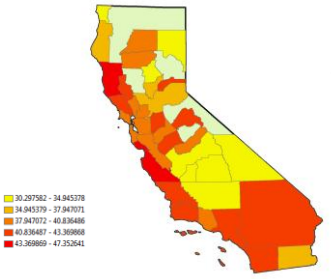
Spatial Autocorrelation
High Rent-to-Income



Hot Spot Analysis
High Rent-to-Income

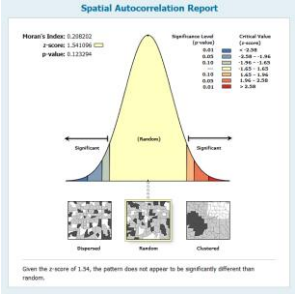


California CBSAs – High Owner Cost-to-Income
More than 35%

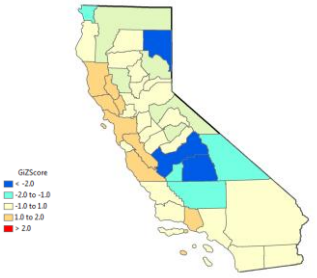


Includes only owner-occupied units with a mortgage

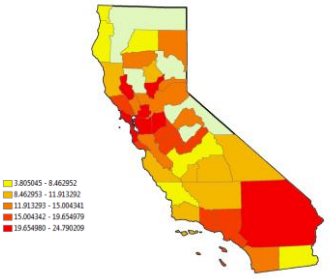
Spatial Autocorrelation
High Owner Cost-to-Income



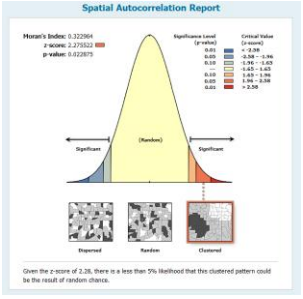
Hot Spot Analysis
High Owner Cost-to-Income



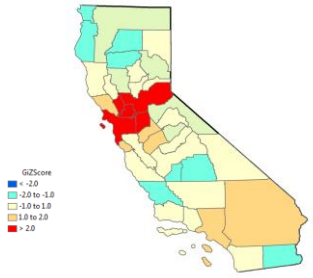
California CBSAs – Long Commutes
More than 45 minutes



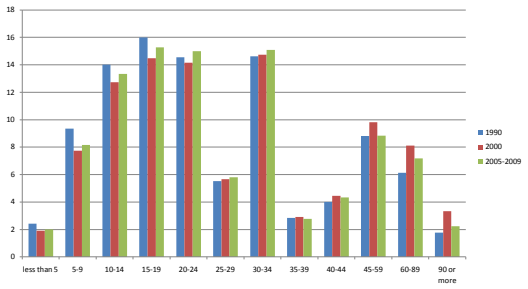
Spatial Autocorrelation
Long Commutes



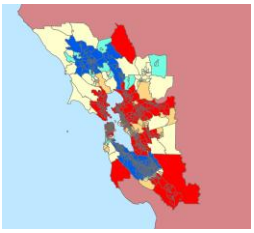
Hot Spot Analysis
Long Commutes



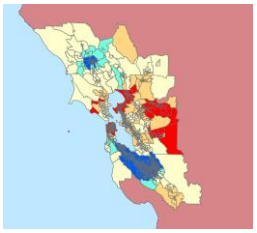
Distribution of Commute Times in San Francisco Bay Area



Hot Spots of Commute Times 2000 and 2005-2009

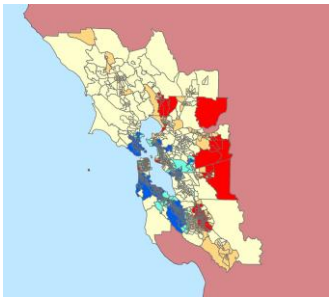


Hot Spots Long Commutes 2000 data



Hot Spots Long Commutes 2005-2009 data

Hot Spots of Additions to Housing



Correlations

- Between Long Commute in 2000 and Long Commute in 2005-2009
  - 0.375
- Between Long Commute in 2000 and Percent Change in Housing Stock
  - 0.124
- Between Long Commute in 2005-2009 and Percent Change in Housing Stock
  - 0.485

Making Local Population Projections

- Association of Bay Area Governments (ABAG) http://www.abag.ca.gov/
- California Department of Education (CDE) http://www.cde.ca.gov/
- Demographic Research Unit, California Department of Finance http://www.dof.ca.gov/Research/Research.asp (click on links under "Demographic Research)
- American Factfinder (U.S. Census) http://factfinder.census.gov/home/saff/main.html?_lang=en

Schools of Thought

- Mainstream (Neo-classical) Economics
- Behavioral Economics
- Conservative Economics
- Marxian Economics

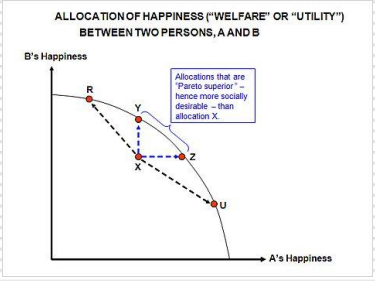
Mainstream Economics

- Ethical objective: Maximize utility of members of the society
- Basic result: Allocate resources efficiently – marginal benefit equals marginal cost for uses of each resource
- Allocation of resources best handled by markets, but markets fail to be efficient when there are monopolies, externalities, information problems, public good.
- Markets produce unequal income distribution, so society may decide to address this issue (and this may generate some inefficiency).
- Research agenda often focused on public policy.

Readings on Efficiency

- When Value Judgments Masquerade as Science
  http://economix.blogs.nytimes.com/2010/08/27/when-value-judgments-masquerade-as-science/?scp=2&sq=uwe%20reinhardt&st=cse
- Is 'More Efficient' Always Better?
  http://economix.blogs.nytimes.com/2010/08/20/is-more-efficient-always-better/
- Kenneth Arrow, "Uncertainty and the Welfare Economics of Medical Care"
  http://sws.bu.edu/ellisrp/EC387/Papers/1963Arrow_AER.pdf

Uwe Reinhardt on Efficiency



http://economix.blogs.nytimes.com/2010/08/20/is-more-efficient-always-better/

Behavioral Economics

- Outgrowth of mainstream economics, in which agents display limitations
- People have limited powers of problem solving, so use rules of thumb.
- People are influenced by how problems are "framed."
- People have limited willpower to act in long-run best interests.
- People tend to sacrifice their own interests for the sake of someone else.

Application of Behavioral Economics

Most important application for urban economics and real estate is the phenomenon of real estate price "bubbles."

Robert Shiller thinks the housing price bubble of the 2000s was a "social contagion;" people saw that housing prices were going up, and believed that this would continue.

Shiller recommends that people need better financial information, but also that government should have a Financial Product Safety Commission (similar to the Consumer Product Safety Commission).

Conservative Economics

- The late Milton Friedman was the most famous conservative economist. He believed that human freedom is the ultimate goal. Free market capitalism provides freedom and satisfactory economic performance.
- He said that "government is necessary to preserve our freedom…, yet by concentrating power in political hands, it is also a threat to freedom." The role is government should be limited to certain basic functions."
- Government programs may be intended to "do good," but can be "captured" by special interests and used to promote private interests.

Marxian Economics

- Marxists emphasize social classes, and assert that social classes are in conflict. Class conflict leads to revolution – maybe.
- Marxists believe that class conflict plays out in urban areas in conflicts over land use as the middle and upper classes expand the downtown area at the expense of the urban poor. "Gentrification" of parts of the central city is seen as part of a larger class struggle.
- Global Cities, the cities that are the centers of economic and financial power, are seen as the places where this class struggle is most prominent.

Tales of Three Other Cities

- Develop a table similar to Tables 1.1-1.3 for one of the following three cities:
  - San Jose
  - San Francisco
  - Oakland
- Identify the sources of data and describe in sufficient detail the basis for disignating the "inner ring counties" and the "outer ring counties"
- Compare the results for the city you select with the results discussed in the text for NYC, LA, and Chicago

Tale of Three Other Cities

- Replicate Table 1.4 for one of the following:
  - San Jose
  - San Francisco
  - Oakland

Location Decisions, Agglomeration Economies, and the Origins of Cities

- Lessons in Basic Location Theory for a Firm
- Other Factors in the Location Decision
- Agglomeration Economies
- Static Theory of External Economies and Diseconomies
- Economic Origins of Urban Areas in the U.S.

Lessons in Basic Location Theory for a Firm

- Choose location that is the most profitable for
  - Assembling output from inputs
  - Distributing output to customers
- Simple models
  - One input, customers all located in one place
  - Input suppressed, customers in various locations

One Input, One Market Model*

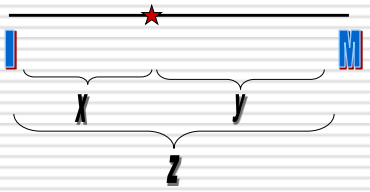
based on discussion in text and Appendix to Chapter 3

- Inputs are located at "I"
- Market is located at "M"
- Transportation cost per mile of moving 1.2 tons of raw lumber one mile): *a*
- Transportation cost per mile of moving 1.0 tons of firewood one mile): *b*

*** Assumes a 20% weight-losing process.**

One Input, One Market Model

based on discussion in text and Appendix to Chapter 3



One Input, One Market Model

continued – based on Appendix to Chapter 3

- p = price of output at the market, point "M"
- a = cost per mile of transporting 1.2 tons of raw lumber
- b = cost per mile of transporting 1 ton of firewood
- w = ware rate per unit of labor
- L = amount of labor needed for one ton of firewood
- R = price of raw lumber at the forest, point "I"
- x = distance raw lumber is transported
- y = distance firewood is transported
- $z = x + y$ = distance from "I" to "M"
- Q = output of the firm
- g = weight gain/loss factor (not included in Appendix model)

Teaser Question: which of these variables are "endogenous" and which are "exogenous"?

One Input, One Market Model

continued

- Profit = TR – TC
  $=pQ-1.2RQ-wLQ-Q(1.2ax+by)$
- TR = pQ
- TC consists of
  - $1.2RQ$ = Cost of raw lumber
  - wLQ = cost of labor
  - $Q(1.2ax+by)$ = transportation cost

One Input, One Market Model
continued

- Profit Maximizing output Q^* determined by:
  MR = MC
- MR = $p + Q(\Delta p/\Delta Q)$
- MC = $1.2R + wL + 1.2ax + by$

One Input, One Market Model
continued

- Profit Maximizing location corresponds to that location that minimizes transportation costs per unit of output
- Transportation cost per unit of output
  = $1.2ax + by = 1.2ax + b(z\text{-}x)$
  = $(1.2a - b)x + bz$
- Graph the equation above
  - **Where is profit-maximizing location?**
  - **What determines the profit-maximizing location?**
  - **What can cause profit maximizing location to change?**

More about Profit Maximization
related to Figure A3.2, p. 52

p. 52 "The analysis is complicated slightly by the fact that output depends on price, which depends on marginal cost. And marginal cost (MC) depends on location…The point is that, in order to maximize profits, the firm must minimize marginal costs."

More about Profit Maximization

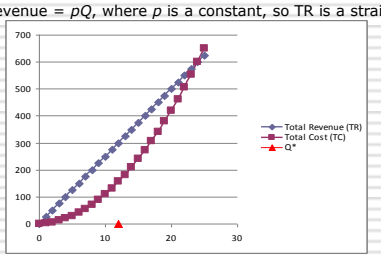
related to Figure A3.2, p. 52

- Profit maximization when price depends on quantity (market-powerful firm)
- Profit maximization when price is given (independent of quantity) – perfectly competitive firm

Profit Maximization

Perfectly Competitive Firm – see ue_lecture_4.xls

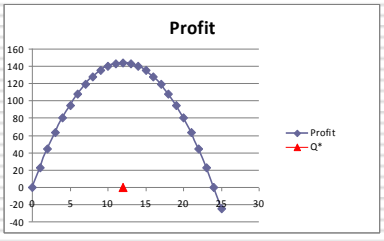
Total Revenue = pQ, where p is a constant, so TR is a straight line



Profit Maximization

Perfectly Competitive Firm

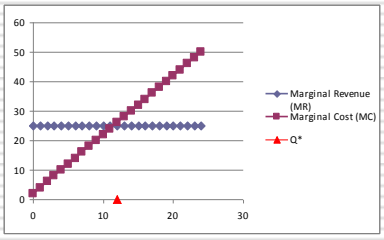
Profit = TR - TC



Profit Maximization

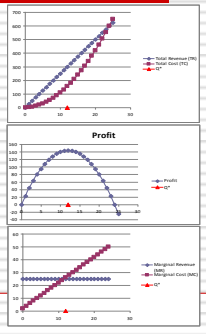
Perfectly Competitive Firm

Marginal Revenue (MR)= Marginal Cost (MC)
Marginal Revenue is constant (horizontal line); Marginal Cost is increasing



Profit Maximization

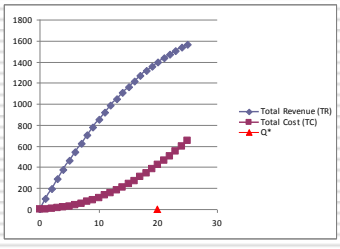
Perfectly Competitive Firm



Profit Maximization

Market-Powerful (e.g., Monopolistically Competitive) Firm – see ue_lecture_4.xls

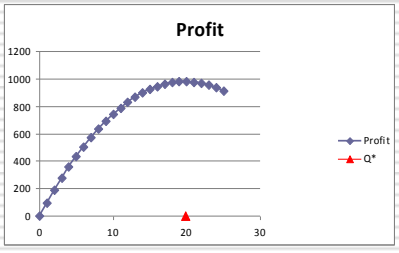
Total Revenue = pQ, where p depends on Q (the inverse demand curve), so TR is not a straight line



Profit Maximization

Market-Powerful (e.g., Monopolistically Competitive) Firm

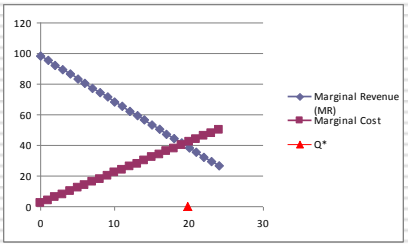
Profit = TR - TC



Profit Maximization

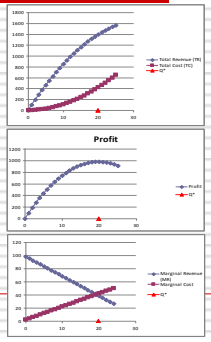
Market-Powerful (e.g., Monopolistically Competitive) Firm

Maximum Profit occurs where MR = MC; MR is not constant



Profit Maximization

Market-Powerful (e.g., Monopolistically Competitive) Firm



End of Lecture 2