

Problem Set 1

Chapter 1

1. Know the meaning of the following terms: urban area, urbanized area, PSMA, CSMA

Chapter 2

1. There are three reasons for the concentration of jobs in cities; comparative advantage, internal scale economies and agglomerative economies. Know each.

(1) What role does self-sufficiency play in explaining the development of cities?

(A) Comparative Advantage: be able to solve a question like number 1 on page 40.

(B) Scale economies in transportation

Do you understand and know how use Figure 2-2 on page 23?

(C) Internal scale economies of production

(1) the causes of scale economies

(D) Agglomerative Economies in Production are of two types: localization and urbanization. Discuss each.

Which is more important?

(1) Should a city diversify its economic base? Explain. Answer question 9 on page 41..

Chapter 3

1. Cities develop around the concentration of employment generated by firms

(A) What is a transfer oriented firm? What is the "tug of war?"

What is the difference between total transport costs, procurement cost and distribution costs?

(B) What is a resource oriented firm?

What is the importance of "monetary weight?"

What is meant by weight losing, weight gaining, and what role do they play in determining where a firm will locate?

8 Answer question 2 on page 79 and question 10 on page 80.

Do you know how to use Figures 3-1 and 3-2?

(D) What is a market oriented firm?

2. What is the principle of median location?

3. What local inputs may attract a firm and what role do they play in attracting a firm?

(A) Answer this question a second time, however, this time relate your answer to the Sacramento PMA

5. What is the trade off influencing a firm's location when it balances transport costs to local input costs?

Chapter 4

1. Know the history of urbanization.

Chapter 5

1. Discuss urban development within a regional perspective.

2. What is market area analysis?

Answer questions 1, 5, 8, 13, 14 and 17.

Do I know how to use Figures (5-5), (5-6), (5-7)?

What are the determinants of market area? Assume demand is fixed.

What are the determinants scale economies?

What are the determinants demand density?

3. Given the following information:

per capita demand 10 demanded per month

population density 25 people per sq. mile

land area 2 sq. miles

output per store 100 units sold per month

What is total demand?

How many stores will be established in the market?

What is the market area per store?

What will happen to each firm's optimal output if:

Scale economies increase

Travel costs increase

How will your answers the above questions change (do one at a time) if:

Per capita demand decreased to 6

Per capita income increases

Population density increases to 50

How will the presences of a downward sloped demand curve change your answers to the above

first three questions? What is the demand and output effect?

4. What is central place theory?

5. What are the determinants of the optimum number of police stations?

Problem Set #2

1. What is an economic base study and why does it emphasize exports?

2. The City of Jefferson is a small urban community generating 6,000 jobs. It is estimated that 3,000 of these jobs are basic.

(A) What is the difference between basic and nonbasic employment?

(B) Why does this difference between basic and nonbasic employment matter?

(C) What is an export multiplier?

3. A computer chip firm plans to pen a plant in the City of Jefferson. The firm will provide 200 jobs. Given you answer to question (2), how much will total employment in Jefferson increase?

Explain your answer.

4. What are the limitations of economic base studies?

5. Given the following information:

	Jefferson USA	
Manufacturing Employment	600	10,400,000
Total NonFarm Employment	3,000	115,000,000

(A) What is a location-quotient? How is it used to determine export base employment and the multiplier?

(B) Compute the location-quotient for the above industry. Is Jefferson's manufacturing sector an export industry? Explain.

6. What is input-output analysis?

(A) Given the following transaction table, compute the first and second round effects of an increase in Auto output of \$ 1000.

	Auto	Metal	Households
Auto	.20	0	.10
Metal	.35	.50	.10
Labor	.30	.15	.35
Imports	.15	.35	.45
Input	1.00	1.00	1.00

7. What is fiscal impact analysis?

(A) How would fiscal impact analysis be used to evaluate the impact of the computer chip firm that will be built in the City of Jefferson? Be specific.

1. Sullivan builds his growth model around the demand for and supply labor. What are the determinants of demand and supply and how is the labor market related to gross regional product?

2. What are the benefits and costs of employment growth?

Problem Set 3

1. The following exercise requires you to understand Ricardian rent theory. There are five parcels of land. Each parcel has different fertility or productivity, e.g.,

Parcel	Output	Non-land Costs	Rent
1	1000	\$ 5,000	
2	1000	\$ 7,000	
3	1000	\$ 10,000	
4	1000	\$ 14,000	
5	1000	\$ 20,000	

(A) Assume that the market for land is competitive and transport costs are zero. Each user of land faces a fixed price for their output (\$ 8/unit). Which parcels of land will be used and what rents will be paid? Defend your answer.

(B) If the demand for output increases causing the price of output to be \$ 10, which parcels of land will be used and what will happen to rents paid for each parcel? Defend your answer.

(C) How did the leftover principle allow you to answer the above two questions?

(D) Explain why each land user earns only " normal" profits?

(E) The user of parcel 2 wants to purchase the parcel from the landowner. How much will the user pay for the land? Make any assumptions you wish to arrive at a quantitative answer to this question.

(F) A technological change reduces nonland costs on each parcel by \$ 2000. Who benefits from this change? Farmers? Landowners? Consumers? Defend your answer.

2. Given the following information: Parcels of land are available from the city center to five miles from the CBD. Each parcel generates 100 units of output. Price per unit of output is \$ 5. Nonland costs are \$ 250 for each parcel. There is no factor substitution. Transport costs are \$.20 per mile for each unit of output.

(A) Calculate the land rent for each parcel.

(B) What is a bid-rent function?

(C) Derive the bid-rent function for the above land.

(D) Derive the bid-rent for the above land when transport costs are \$.10 per mile per unit of output.

(E) What will happen to the bid-rent function if factor substitution occurs? Explain.

3. There are two land uses in the region: office and residential. Those demanding office space generate total revenue of \$ 5000 and have nonland cost of \$ 2000 which decrease \$ 400 each mile away from the CBD. Transportation costs are \$ 500 per mile. Land use at the CBD is .5 acres and increases .1 acre per mile from the CBD.

(A) Calculate pre-rent profits and rent per acre.

Those demanding residential space require that their dwelling unit have 2000 square feet of living space. The typical household has \$ 800 to spend on commuting and housing costs. There is no factor substitution. Commuting costs are \$ 100 per month for each mile away from the CBD.

(A) Calculate the housing-price function.

(B) What is the meaning of the slope of the housing-price function?

(C) Discuss the trade-off between land and commuting costs.

Firms producing 2000 square feet of housing incur capital cost of \$ 800. Assume that six dwelling units can be built on each acre of land.

(A) Derive the residential-bid rent function.

How will land be allocated among these two uses? Defend your answer.

4. Discuss how the following changes will influence land use.

(A) travel costs including costs of operating vehicle and commuting costs

(B) two earner households

(C) pollution and crime are concentrated in the CBD

5. Intel establishes a plant in Nevada City that will increase the region's export sales.

What impact will the new plant have on regional land use, employment, population, wages and rents? In answering this question focus on how the labor and land market respond and adjust to this change. Assume that there are only two land uses, manufacturing and residential.

6. Repeat question (5) as it pertains to the building of a sports stadium in the CBD. Assume that there are only two land uses: office space (or retail) and residential.

7. Discuss the forces leading to the decline to the traditional monocentric city.

(A) What trade-off does business confront when deciding whether to locate in the CBD or the suburban fringe?

1. Derive the bid-rent function for office firms.

2. Derive the bid-rent function for retailers.

3. What are the various explanations that explain urban income segregation?

4. How does the property tax influence land use in the monocentric city?

5. What explains the suburbanization of employment and population?

Problem Set #4

Chapter 10

Assignment: Write a four page essay discussing the forces that explain the decline of the traditional monocentric city and the rise of the modern multicentric city and the suburbanization of the American city. Due Date: First class day after Thanksgiving.

Chapter 11 -- Land Use Controls

You are to know the economics effects -- allocation and distribution effects -- of the following land use controls. Allocation effects refer to how land is allocated or used, while the distributional effects relate to the gainers or losers associated with a given land use policy.

- urban growth boundary
- building permits
- zoning
- nuisance
- performance
- fiscal
- design
- open space
- impact fee and development taxes
- transferable development rights

How does "equal protection" and "just compensation" relate to land use controls?

Answer questions 6, 8, 9, 12, 13, 15, and 17.

Chapters 16-18: Local Government

1. What is the economic rationale of local government? You need to know the following:

- Natural Monopoly
- Externalities
- Public Goods

2. What is the optimal level of government?

3. What are arguments for metropolitan consolidations?

4. Discuss the Baumol Model of Local Spending.

5. What explains the fiscal problems of central cities?

6. What is the median voter rule?

(A) Develop an example to illustrate how this rule works.

(B) What is the Lindahl approach?

(C) What are the implications of the median voter rule?

(D) Answer questions 2, 3, 12 on pages 498-500.

7. What is the Tiebout Model?

(A) Develop an example to illustrate how this model works.

(B) What are the inefficiencies associated with this model?

8. Write an essay explaining how the property tax -- residential and business -- works.

Who pays tax? How does the tax effect the allocation of resources?

9. Write an essay explaining the sales tax?

10. What is the rationale behind intergovernmental grants?

Problem Set #5

Website Exercise: Turn in ten articles from the Sacramento Bee on land use issues, e.g., urban sprawl, and surf the websites listed on the handout that was distributed in class. Be sure to read the two articles assigned from THE BROOKINGS REVIEW.

Chapters 12 - 15

1. Why are poverty rates so much higher in central cities?

(A) Is the above question relevant to the City of Sacramento? Explain.

(B) If your answer to the above question is yes, what is the reason for racial segregation in the city?

(C) What are the consequences to Sacramento and the Sacramento MSA of segregation?

2. What is the spatial mismatch theory and does it pertain to Sacramento? Explain.

3. Are the dimensions of poverty in the Sacramento MSA different from the national profile presented in the textbook? Explain.

4. What are the policy options to reduce poverty in the central city?

5. What is the hedonic Approach to Housing?

6. Is there one housing market for the metropolitan area or numerous segmented markets? Explain.

7. What are neighborhood effects?

8. What factors explain why certain portions of the housing stock are maintained while others are allowed to deteriorate and are abandoned?

9. What is filtering?

10. Do you rent or buy a house? Explain your choice to rent and buy.

11. How do you explain racial housing discrimination and segregation in the Sacramento MSA?

(A) What is the meaning of the word "tipping?"

12. What are the arguments for subsidizing housing?

(A) If you are going to subsidize housing, does it matter what form the subsidy takes? Explain.

13. Should the City of Sacramento pass a rent control measure regulating rents in the midtown area? Explain.

Chapters 19 - 20

1. Develop a theoretical auto travel model for Highway 50 that explains the congestion costs associated with peak use and how the adoption of a congestion tax to generate the optimum traffic volume.

2. Should the diamond lanes on Highway 99 be eliminated? Explain your answer.

3. Downtown Sacramento is considering the adoption of a parking tax to limit driving into the CBD. Do you favor such a tax as a means to eliminate peak traffic congestion? Explain

4. I noticed that additional lanes are being added to Highway 50 east of Sunrise Boulevard. Under what conditions is such an expansion economically justified?

5. How does congestion affect land use?

6. What is a modal split model?

(A) What determines a commuter's choice of a transport mode?

(B) Discuss modal choices from a planner's perspective.

(C) Buses or Light Rail. Which and Why?

7. Should transit be subsidized or should the auto be made to pay its way?

(A) What is the rationale underlying transit subsidy?

(B) Why does transit incur a deficit?