

## Monopoly Competition

1.
  - a. In perfectly competitive markets, identify and briefly discuss the three conditions for economic efficiency.
  - b. Based upon your current knowledge of intercity rail, bus, and airline passenger modes, in which sector do you believe resources are more efficiently allocated today? Would your answer change if the same question were asked for the year 1975?
2. In table 7.1, interpret the regression results for Chemicals and Allied products. Is intraregional trade important in these commodities? How sensitive are these commodities to changes in prices, incomes, and transportation rates? What will have the greater effect upon flows of these commodities, a 10% increase in transport rates or a 2% increase in price?
3. Because the Pacific Northwest has a comparative advantage in the production of lumber and the Midwest has a comparative advantage in the production of foodstuffs, there will rise a demand for transporting foodstuffs from the Midwest to the Pacific Northwest and for transporting lumber from the Pacific Northwest to the Midwest.
  - a. Suppose that a natural disaster, such as flooding, occurs in the Midwest, which raises the cost of supplying wheat. What effect will this have upon the demand for transporting wheat from the Midwest to the Pacific Northwest?
  - b. Suppose that wheat is an inferior commodity. Then what will be the effect upon the demand for wheat transportation from a rise in per capita incomes in the Pacific Northwest?
  - c. Assume that, nation-wide, there is a general fall in labour productivity. Can we predict the effect that this would have upon the interregional flows between the Pacific Northwest and the Midwest?
4. As of 1982, there were 227,000 miles of pipeline in the USA, over which 537 billion ton-miles of natural gas, crude oil, petroleum products, coal slurry, and chemicals were shipped. Overall, in 1982, pipeline traffic represented 24 % of the total ton-miles shipped. The shipment of each of these commodities through the pipeline network illustrates the nonuniform distribution of such products among different regions in the USA.
  - a. Assume that there are two regions of the country: the oil-rich Southwest and the not-so-oil-rich rest of the country. Also, there are two goods: oil and "all other goods". Assuming that each region has a similar demand for oil, use demand and supply curves to characterize the self-sufficient equilibrium for oil in each of these

- regions. In which region is the price of oil highest? Which region has a comparative advantage in oil?
- b. Are these gains to be made from specialization and trade of oil between the Southwest and rest of the country? Assuming no transportation costs, what is the maximum gain from trade possible? Identify the effect that positive transportation costs will have upon gains from trade. What condition must be satisfied for trade and specialization to occur?
  - c. Between 1950 and 1990, there were significant expansions in pipeline infrastructure. Would you expect the larger pipeline network to raise, lower, or have no effect upon the nation's economic welfare – and why?
  - d. If there are gains to specialization and trade, this also applies to trade in “all other goods”. For these commodities, what condition must be satisfied for trade to occur? Does everyone gain from specialization and trade in oil and “all other goods”? If so, why; and if not, why not?
5. Owner-operators in the truckload segment of the motor carrier industry could be viewed as monopolistic competitors, since quality differences in their services enable them to offer similar but differentiated products.
- a. Do firms in this sector have market power?
  - b. Will a typical firm in this industry make positive, negative, or zero economic profits? Graphically depict a typical owner-operator's long-run equilibrium.
- 6.
- a. In general, explain why freedom of entry and exit are necessary for an efficient allocation of resources in a perfectly competitive market.
  - b. During the period of airline regulation, the government set airline fares and regulated an air carrier's entry into and exit from particular markets. Assuming that the incumbent airlines made economic profits while they were regulated, what impact, if any, did the government's regulation of routes have upon air carrier's ability to make profits?
7. The price elasticity of demand for Amtrak, the nation's rail passenger service, among vacation travellers has been estimated as  $-1.20$ . Given that Amtrak faces the market demand for rail passenger trips, what effect will a 15% increase in fares have upon market demand? What effect will the fare increase have upon revenues? (Hint: convert the formula for the effect of a price increase on total revenues to an elasticity.)
8. Suppose that a transport carrier is accused of price discriminating in two separate markets. The carrier replies that he can't be price discriminating, since he is charging the same price in each of the markets. Do you agree or disagree with the carrier's response?

9. Business travellers have more inelastic demands for air services in comparison with vacation travellers. If an airline charges business and vacations travellers the same route fare between Chicago and Los Angeles, does this necessarily imply that the airline is not price discriminating? Under what conditions would this be consistent with price discrimination?
10. In recent work on airline fares, Morrison and Winston (1995) reported the following regression model results for the third quarter of 1993. The sample included carriers providing direct or on-line connecting services for the 1,000 most heavily travelled routes in the USA. The *t*-statistics are given in parentheses:

$$\begin{aligned} \ln(\text{average fare}) = & -0.027 \ln(\text{route competitors}) - 0.120 \ln(\text{airport } ) + \\ & \quad (2,1) \quad \quad \quad (12,0) \quad (\text{competitors}) \\ & + 0.383 \ln(\text{distance}) - 0.048 \ln(\text{route passengers}) \\ & \quad (47,9) \quad \quad \quad (9,6) \end{aligned}$$

$R^2 = 0,48$

# observations = 5,513

- a. From these results, does actual competition discipline the market? How about potential competition?
  - b. Are these results consistent with a model of pure contestability?
  - c. Why would you expect an increase in flight distance not to have a proportional effect upon airfares? Do the results in the above regression bear this out? What impact does a 10% increase in flight distance have upon airfares in 1993?
  - d. From the reported results, what effect does route density have upon airfares? Is it possible to explain the result on route density in terms of an airline's load factors?
11. The truckload sector of the motor carrier industry has been described as highly competitive. For this segment of the industry, identify a typical firm's short-run profit-maximizing problem and explain the condition that must be satisfied for its marginal cost curve to be interpreted as a short-run supply curve. Holding all else constant, identify how each of the following changes affect the firm's supply of transportation services:
- a. an increase in the price of fuel;
  - b. a decrease in ton-miles shipped;
  - c. an increase in excise taxes on truck tires;
  - d. a profits tax, equal to one-third of any economic profits that the firm earns;
  - e. an increase in transportation rates;
  - f. an increase in the price of a truck tractor;
  - g. improved truck design, which raises fuel efficiency.
12. The US interstate system was started in 1950 and completed in 1973.

- a. Use market demand and supply curves to characterize the effect that the completed interstate system had on the market for intercity motor vehicle passenger trips. Similarly, illustrate with market demand and supply curves how the completed system affected shippers' transportation rates.
  - b. What effect, if any, would you expect the interstate system to have upon rail rates?
13. What distinguishes a constant-cost industry from an increasing-cost industry? In which case would you expect an increase in market demand to have the greatest long-run effect on price and output: a constant-cost or increasing-cost industry?
14. The July 20, 1993 *Wall Street Journal* reported that Union Pacific expects to lose as much as \$30 million because of "track damage, higher operating expenses and lost freight traffic resulting from the Midwestern flood." Drew Lewis, Union Pacific chairman, said that he expected this to reduce net income per share by 10–12 cents. Prior to the floods, some analysts expected Union Pacific to earn \$4 per share. Assuming a share price of \$65, what effect did the floods have on the railroad's short-run cost curves and its return on investment?
15. The June 29, 1993 issue of the *Wall Street Journal* states: "Two decades after 1970s energy crisis sparked ambitious, costly efforts to move commuters from gas-guzzling cars to subway, trolley, and bus systems, something odd has happened: Americans are less likely than ever to use public transit." Use market demand and supply curves to evaluate this statement. In your discussion, comment on the effects of changing employment patterns, commuting patterns, public transit subsidies, income, and the price elasticity of demand.
16.
  - a. Briefly explain why the demand for transportation is a derived demand.
  - b. In 1991, average freight revenue per ton-mile was 24.8 cents. Assume that this represents both the constant marginal cost of shipping a ton-mile and the equilibrium price for motor carrier freight movements. Also, in 1991, intercity trucks were responsible for 750 billion ton-miles. Graphically depict the equilibrium for intercity freight movements.
  - c. Suppose that the demand for transportation is linear and that innovations in the trucking industry reduced the marginal cost of shipping a ton-mile of freight to 20 cents per ton-mile (in 1991 dollars), which resulted in a 10% increase in ton-miles shipped. Graphically depict the effect of the innovation on the market for intercity freight movements and calculate the net benefit to society from the reduced cost of transportation.