Exercise session 7

Problem 1: For each of the following characteristics, say whether it describes a perfectly competitive firm (PC), a monopolistically competitive firm (MC), both, or neither.

a. Sells a product differentiated from that of its competitors

b. has marginal revenue less than price

c. earns economic profit in the long run

d. produces at the minimum of average total cost in the long run

e. equates marginal revenue and marginal cost

f. charges a price above marginal cost

Problem 2: For each of the following characteristics, say whether it describes a monopoly firm (M), a monopolistically competitive firm (MC), both, or neither.

a. faces a downward-sloping demand curve

b. has marginal revenue less than price

c. faces the entry of new firms selling similar products

d. earns economic profit in the long run

e. equates marginal revenue and marginal cost

f. produces the socially efficient quantity of output

Problem 3: Suppose initially only firm A served the whole market of a specific good. Over time consumers realized that the good has close substitutes and other firms entered the market offering differentiated products. We can conclude that the demand for firm A became elastic. Is this statement true or false? Explain your answer.

Problem 4: Use a graph to demonstrate why a profit-maximizing monopolistically competitive firm must operate at excess capacity. Explain why a perfectly competitive firm is not subject to the same constraint.
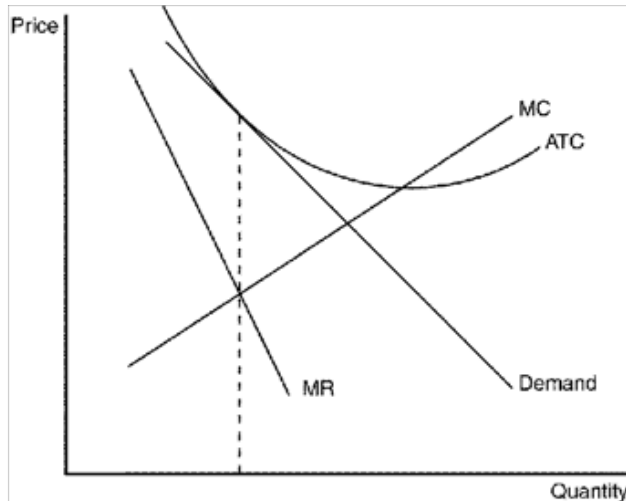
Problem 5: Assume the role of a critic of advertising. Describe the characteristics of advertising that reduce the effectiveness of markets and decrease the social welfare of society.

Problem 6: Assume the role of a defender of advertising. Describe the characteristics of advertising that enhance the effectiveness of markets and increase the social welfare of society.

Problem 7: The market for peanut butter in Ostrava is monopolistically competitive and in long-run equilibrium. One day, the major Tomáš Macura discovers and announces that all brands of peanut butter in Ostrava are identical. Thereafter, the market becomes perfectly competitive and again reaches its long-run equilibrium. Using an appropriate diagram, explain whether each of the following variables increases, decreases, or stays the same for a typical firm in the market.

  a. price
  b. quantity
  c. average total cost
  d. marginal cost

e. profit

Problem 8: Consider the market for slices of pizza. Suppose that the market is perfectly competitive. There are 4 consumers and 2 producers (but each acts as price taker). Consumers are identical and producers are identical. Assume that partial slices of pizza may be produced and consumed. Individual demand curve: $q=6-P$; individual supply curve: $q=P$

a) Write an equation for the market demand curve. Why does the demand curve slope downward?

b) Write an equation for the market supply curve. Why does the supply curve slope upward?

c) Find equilibrium price and quantity in the market for pizza slices. How many slices does each person consume? How many does each producer make?

d) Calculate the consumer and producer surplus.

e) Is the equilibrium quantity efficient? Why?

f) Using the efficiency criterion, could the government do any better than the market in allocating goods in this case?

Problem 9: Now suppose there is an externality associated with pizza slices. Consumers of the pizza have a nasty habit of dropping their paper plate on the sidewalk after eating. This presents a form of visual pollution to everyone else in the area. Assume that, on average, ½ plate is dropped on the sidewalk per slice of pizza consumed. Each plate on the sidewalk causes $2 of collective unhappiness to society.

a) Is this a positive or a negative externality?

b) What is the marginal external cost of a slice of pizza?

c) Draw the marginal social benefit curve.

d) Does equilibrium production of pizza change in the face of the externality?

e) Calculate the total external cost of pizza consumption in equilibrium.

f) What are some policy instruments the government could use to eliminate the loss of surplus?

g) Now suppose the externality occurs in the following form. The consumers don't dump their plates on the ground. Instead, the pizza parlors dump their trash (tomato cans, cheese wrappers, etc.) on the street at the end of the day. How would your analysis differ? Which curve would you alter now, to reflect the externality? Supposing the marginal external cost is the same per slice as above, does the efficient equilibrium differ?

Problem 10: Suppose that a monopolist has a total cost of TC(Q) = 16+4*Q. The demand is given by P(Q) = 20 – Q.

a) Find the profit maximizing price and quantity and profit of the monopolist
b) Find the efficient level of production and price.
c) Find the deadweight loss.

Problem 11: Consider a market in which the inverse demand is given by $P(Q) = 50 - 5Q$.

a) Assume that the market is perfectly competitive and that the supply is given by $Q(P) = \frac{4}{5}P$. Compute the equilibrium price, quantity, CS and PS. Illustrate the CS and the PS in a figure.

b) Now consider a monopoly operates in this market with the cost function of $TC(Q) = 10Q$. Compute the profit maximizing output and price and CS, PS and DWL. Illustrate CS, PS and DWL in the figure.

Problem 12 (Chicken game): Imagine two drivers, Ipek and Enriko racing toward each other at high speed on a very narrow road. Each driver has the option to swerve or to race on. If one swerves while the other races on she/he is ridiculed and called a chicken. If both swerve it is a tie and if none swerve it ends in mutual destruction. A payoff table consistent with this game is:

		Enriko	
		swerve	race on
	swerve	1 1	2 0
Ipek	race on	0 2	-10 -10

Do any player has a dominant strategy? If so, what is it? Find the Nash equilibrium / equilibria of the game.

Problem 13 (Matching pennies – *zero sum game*): Suppose Paulina has a penny that she can show either as head or tail. If both pennies coincide then Jose wins and takes Paulina's penny while if they do not, Paulina wins and takes Jose's penny. The payoffs are given by

		Paulina	
		H	T
Jose	H	1, -1	-1, 1
	T	-1, 1	1, -1

Find the Nash equilibrium of the game.