Problem Set 1
Market Power and Public Policy ECON 465

Allan Collard-Wexler

September 20, 2016
Due Date October 5 2016

1. Monopoly and Third Degree Price Discrimination

   Suppose that $UMBRELLA$ corporation faces market demand function

   $$Q^D = 100 - 10P$$

   Its cost function is $TC = 10 + 5Q$. The $UMBRELLA$ corporation is a monopolist since it holds the patent on "mobile rain avoidance devices".

   (a) How much will it choose to produce and what will be the market price for umbrellas?

   (b) What is consumer surplus in the case of monopoly?

   (c) Suppose that the Umbrella Corporation was able to price as a first-degree price discriminator. What is producer and consumer surplus?

   (d) Suppose that the market for umbrellas is composed of an island with two sides, a side with rain forest and a desert side. Demand for umbrellas on the rain forest side is:

   $$Q^{RF} = 50 - 2P$$

   while the demand on the desert side is:

   $$Q^{DE} = 50 - 8P$$

   The $UMBRELLA$ corporation can price discriminate between these two markets. What will be the prices and quantities in the Rain Forest and Desert market? Why are these prices different?

   (e) Compute total consumer surplus and producer profits when the $UMBRELLA$ Corporation can price discriminate between Rain Forest and Desert markets. How are these different from the case where there is no price discrimination?

   (f) What is the elasticity of demand and the markup (the learner index say) in both the rain forest and desert market?

2. Pricing at Pacific Funland (A mix of mostly Type 2 PD and a tiny bit of bundling)

   You run pricing at the well-known Pacific Funland amusement park in Southern California. You have three types of consumer: FAMILIES, with two parents and two kids; local KIDS, who are just individual kids; and COUPLES, who are comprised of two adults.

   On a given day, there are 200 families, 50 local kids and 100 couples who are potential visitors to the park.

   A family has a willingness to pay for admission (in total) of 700, while each couple has total willingness to pay of 200. Kids have a willingness to pay (each) of 50.

Say you can charge two prices: one for adults and one for kids. What is the best pricing mix? Show your working clearly. Next, explain in words what your conclusion is. That is, imagine you had to write a 200 word memo to a fairly stupid boss as to why you answer works. What would you write?

3. Non-linear pricing (Type 2 PD) Hint: to do this you will need to go through the rigorous calculus based approach in some detail - that is, slides 18-26 of Monopoly 2.pdf

   Let there be two types of consumer. Type A has utility given by $12q - p$. Type B has utility given by $5q - p$, where q is a numerical index of quality and p is the price of a unit. There are three times as many Type B's as there are Type A's. The total number of consumers is 400. The marginal cost of serving each individual consumer's purchase is $4q$. This means the total variable cost of serving a consumer is equal to $2q^2$. The firm must also incur a fixed cost of production equal to F.

   Given that the firm cannot distinguish a Type A from a Type B, would the firm want to operate if F = 1000?

4. Monopoly and segmented markets (Type 3 PD)

   The demand elasticity in market 1 is measured to be constant at all prices, having a value of $\varepsilon_1 = -4$. The demand elasticity in market 2 is constant at all prices, having a value of $\varepsilon_2 = -2$. Suppose a monopolist can price discriminate between the two markets, setting potentially different prices in each market. Is the following statement true? "The price in market 1 will be 150% higher than the price in market 2" Justify your conclusion assuming that the same production facility serves both markets.

5. (10 points) In "Brand History, Geography, and the Persistence of Brand Shares" by Bronneberg, Dhard, and Dube (2009), explain the results of table 4 (in Figure 1 on the following page). What does is imply about the ease of new entry in yogurt, versus beer, versus coffee?

6. (10 points) In "Testing for Imperfect Competition at the Fulton Fish Market", by Graddy (1995):
   (a) Is evidence that different groups pay different prices enough to show price discrimination?
   (b) Why is the evidence that price discrimination implies imperfect competition.
   (c) How do you square the evidence of imperfect competition with the large number of fish sellers?

7. (10 points) This problem is based on "The Evolution of Advertising Intensive Industries" by Sutton
   (a) What is the mechanism that will induce the breakdown fragmented configuration in the paper? What factors may support the existence of the large fringe of small firms
   (b) What is Snow Crop's marketing policy that led to an extremely rapid rise in the company's market share in the "crucial decade"? What was the competition in advertising like for the third to fifth packer-label leaders compared to the two leaders?
   (c) Concentration in both US and UK frozen food markets are relatively low. What are the causes for the low concentration? What are the experiences shared by frozen food industries in these two countries during the early phases of development?
   (d) Do frozen food markets in Germany and Italy experience the same experience shared by UK and US? What is Sutton's explanation for this difference in experience?

TABLE 4
EARLY ENTRY AND MARKET SHARE

Variable	Entry Effect (1)	Brand Effects (2)	Entry and Brand Effects (3)
Beer (N = 94):			
Intercept	.141 (.010)	.149 (.011)	.139 (.011)
Budweiser		.118 (.016)	.020 (.026)
Miller			
Early entry	.134 (.014)		.117 (.026)
R^2	.483	.372	.487
Coffee (N = 150):			
Intercept	.139 (.011)	.059 (.014)	.052 (.011)
Folgers		.251 (.020)	.206 (.015)
Maxwell House		.197 (.020)	.088 (.018)
Hills Bros.			
Early entry	.208 (.019)		.175 (.015)
R^2	.440	.533	.755
Ketchup (N = 50):			
Intercept			.388 (.019)
Heinz			
Early entry			.072 (.025)
R^2			.149
Mayonnaise (N = 100):			
Intercept	.248 (.019)	.292 (.027)	.189 (.020)
Kraft		.205 (.039)	.144 (.025)
Unilever			
Early entry	.332 (.029)		.303 (.026)
R^2	.576	.222	.682
Soft drinks (N = 156):			
Intercept	.144 (.009)	.062 (.009)	.058 (.008)
Coca-Cola		.211 (.012)	.171 (.015)
Pepsi-Cola		.161 (.012)	.158 (.012)
Dr Pepper			
Early entry	.126 (.016)		.056 (.014)
R^2	.295	.682	.713
Yogurt (N = 100):			
Intercept	.171 (.014)	.162 (.013)	.154 (.014)
Dannon		.145 (.019)	.111 (.025)
Yoplait			

Figure 1: Table 4 from Bronnenberg et al (2009)