Solutions to problem set 5

Econ 460: fall 2003

1. (a) Assuming risk neutrality, the value of a randomly selected car is equal to the expected value of the car =1/2*12000+1/2*6000=9000

   (b). Since the expected value represents the maximum willingness to pay for the buyer. This valuation does not meet the requirement of the seller to part with his car. Hence only lemons would be offered for sale.

   (c). Once the consumer realizes this he bids down his offer to $6000, knowing for sure that he is bound to get a lemon.

   (d). The most common ways out are warranties, certification from some neutral agency etc.

   (e). Adverse selection refers to the *type* of the agents being hidden from one party (as in Lemons model). Moral hazard refers to a situation of hidden *action* i.e. the actions undertaken by one party are imperfectly observed by one party.

2. With 10 strangers, it is a case where the share of tourists is low. Neither Tavern can make a profit without attracting the villagers so both must be charging the same price and attracting 5+30=35cutomers a night on average. In competing for the villager's patronage, the price of the drink is bid down to average cost at q = 35 which is 2.20.

   If the number of strangers grows to 75, it becomes profitable for both Taverns to raise the price to $3. However seeing the profit new firms enter. The zero profit condition then defines the equilibrium in terms of the two variables, the

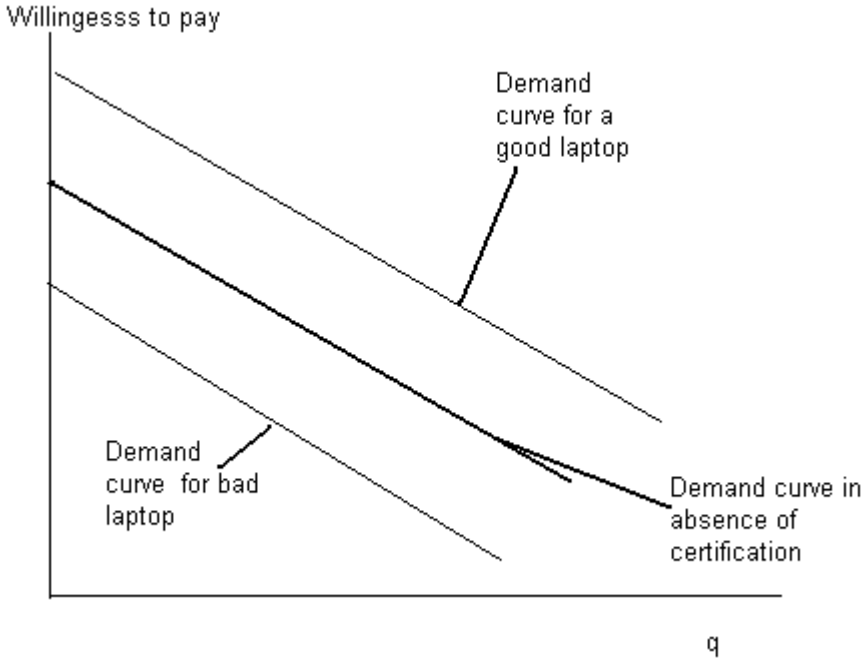
equilibrium number of firms and the fraction of the firms that are low price. Using $q^a = 15$, $q^A = 35$ and $\alpha = 4/9$. In the new equilibrium there are five taverns two of which charge \$3 and attract only strangers and three of which charge \$2.20 and attract both strangers and villagers.

3. Straight substitutions into the two equations characterizing the equilibrium using $q^a = 4000$, $q^A = 8000$ and $\alpha = 1/6$ yields an equilibrium with 5 restaurants, four of which charge \$20 and attract only tourists and one firm charges \$18 and attracts both tourists and villagers.

   If the number of villagers doubles (check that α is still below the critical value so we would again have a two price equilibrium) their share of customers grows to $\alpha = 2/7$. Substituting these values into the same equations we find that no new restaurants enter but one of the \$20 restaurants stops catering to only tourists and switches to charging \$18.

4. The impact of the discontinuing of the certification program is to make good and bad laptops indistinguishable so both of them will sell for the same price. The consumer now would be willing to pay at the most equal to the expected quality of a laptop which would lie in between the valuation of the good laptop and a bad laptop. Graphically this would mean that the demand curve in the absence of

certification program would lie in between the demand curve for the good and the



bad laptop.