

## SECTION NOTES 26

Covering material from Lecture on April 27<sup>th</sup>

### CLASS OUTLINE

1. Signaling

## 1 Signaling

Signaling is often used in markets where asymmetric information exists, but a “higher” quality individual/firm can signal their high quality at a cost. However, this is only possible if the cost to signal their high quality is lower than the cost of someone who is of low quality trying to make the same signal. In other words, signaling is possible because it is more expensive for low quality individuals to do so.

**Problem:** (Pindyck & Rubinfeld, Chapter 17, Exercise 9)

There are two used car dealerships, one of high quality  $H$  and low quality  $L$ . It costs dealership  $H$  \$8,000 on average to buy and service each car before it's ready for sale. It costs dealership  $L$  \$5,000 on average to buy and service each car before it's ready for sale. Consumers value a car from  $H$  at \$10,000, and cars from  $L$  at \$7,000. Consumers do not know the quality of each dealerships' cars, but assigns a probability  $p = 0.5$  of ending up at each, and is therefore willing to pay \$8,500 for a car at either dealership.

Dealership  $H$  wants to offer a bumper-to-bumper warranty lasting for  $Y$  years that will cost it on average \$500 $Y$ . If  $L$  tries to offer the same warranty, it will cost them \$1,000 $Y$  on average because the cars are of lower quality.

- a. Suppose  $H$  offers a one-year warranty on all of the cars he sells.
  - i. What is  $L$ 's profit if he *does not* offer a one-year warranty? If he *does* offer a one-year warranty?
  - ii. What is  $H$ 's profit if  $L$  *does not* offer a one-year warranty? If he *does* offer a one-year warranty?
  - iii. Will  $L$  match  $H$ 's one-year warranty?
  - iv. Is it a good idea for Harry to offer a one-year warranty?
- b. What if  $H$  offers a two-year warranty? Will this offer generate a credible signal of quality? What about a three-year warranty?
- c. If you were advising  $H$ , how long a warranty would you urge him to offer?

**Problem:**

Education is a continuous variable, where  $e_h$  is the years of schooling of a high-ability worker and  $e_l$  is the years of schooling of a lower-ability worker. The cost per period of education for these types of workers is  $c_h$  and  $c_l$ , respectively, where  $c_l > c_h$ . The wages they receive if employers can tell them apart are  $w_h$  and  $w_l$ . The fraction of high-ability workers is given by  $\theta$ .

1. Under what conditions is a separating equilibrium possible? How much education will each type of worker get?
2. Under what conditions is a pooling equilibrium possible?
3. Describe the equilibrium if  $c_l \leq c_h$ .