CHAPTER 19
Asymmetric Information

CHAPTER OUTLINE

19.1 Problems Due to Asymmetric Information
19.2 Responses to Adverse Selection
   Controlling Opportunistic Behavior Through Universal Coverage
   Equalizing Information
19.3 How Ignorance About Quality Drives Out High-Quality Goods
   Lemon Market with Fixed Quality
   Lemon Market with Variable Quality
   Limiting Lemons
19.4 Price Discrimination Due to False Beliefs About Quality
19.5 Market Power from Price Ignorance
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19.6 Problems Arising from Ignorance When Hiring
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   Cheap Talk
   Education as a Signal
   Screening by Employers

TEACHING TIPS

Chapter 19 presents a nice opportunity to analyze some very intriguing economic questions without much need to run through a long series of mathematical relationships. Thus, it can serve very effectively as a way to expose students who are either weak quantitatively or simply weary of optimization problems to areas where there is current, interesting work being done. Topics addressed in this chapter are also of great relevance today for consumers, given the changes in the health insurance industry and information technology, especially the internet.

If many of your students work full time, they will certainly be familiar with HMOs and the demise of full indemnity coverage due to adverse selection problems. Because HMOs are the most cost-effective choice for healthy individuals interested in low- or no-cost physical exams, well baby care, and health club reimbursement, and traditional indemnity plans typically offer better coverage for individuals who are in relatively poor health, an adverse selection problem arises. As traditional plans become populated by individuals that are, on average, sicker than the rest of the working population (upon which actuarial tables are based), premiums must rise. The adverse selection problem then becomes even more severe as premiums rise. For this reason, traditional indemnity plans are becoming cost prohibitive, and many employers are changing their mix of offered health care plans.

When discussing asymmetric information and the costs of obtaining information, an interesting application to discuss is the tourist trap model (described in the text) in which all consumers end up paying the monopoly price even if there are many souvenir shops. This example creates a good lead into the section on advertising and prices. Students are likely to take a dim view of advertising by lawyers until you discuss the price implications.

One of the most important topics in the chapter, especially if your program is labor- or industrial relations-oriented is the section on statistical discrimination. Although not done explicitly in the text, you might want to discuss the link between statistical discrimination and dual labor market theory (DLM). By tying statistical discrimination to DLM you can discuss the implications for two groups of workers who, even though they are perceived to have differential ability at the outset, do not. If one group of workers is
disproportionately directed into the secondary sector and develops the characteristics of secondary workers, a distribution similar to Figure 19.3 develops independent of the initial distribution.

**ADDITIONAL APPLICATIONS**

**Wholesale Used-Car Auctions**

Sometimes, buyers can use information about sellers’ characteristics to predict whether a car is a lemon. Buyers infer that adverse selection is more likely if the seller has an alternative use for a used car. A seller who is willing to keep the car if the offered price is low, is likely to sell only a lemon. In contrast, a seller who no longer wants the car is much more likely to sell the car whether or not it is a lemon.

David Genesove (1993) observed this difference in adverse selection at wholesale used-car auctions. Both *used-car dealers*, who sell only used cars, and *new-car dealers*, who sell both new and used cars, attend these auctions.¹ Dealers trade because they receive too many or too few used cars in trade-in, have the wrong mix of cars for their local retail customers, or are trying to unload lemons.

Retail customers, who have time to inspect and test-drive cars, are more likely to spot a lemon than a dealer at one of these auctions. At the auctions, potential buyers have only a few minutes to inspect a car and cannot drive it, so they don’t know if the car is a lemon. After these quick, visual inspections, bidding takes place. The owner then accepts or rejects the highest bid.

New-car and used-car dealers differ substantially in their likelihood of selling a given car. There are three principal differences between new- and used-car dealers. First, new-car dealers tend to sell to final customers only recent-vintage used cars that are close substitutes for new cars. Nearly 60% of the used cars sold by new-car dealers are no more than 4 years old, compared to only 30% for used-car dealers.

Second, new-car dealers obtain a higher share of their used cars through trade-ins: 69% versus 26%. Third, new-car dealers obtain more used cars in trade-ins. Used-car dealers are relatively small: 85% obtain fewer than 100 cars in trade-ins and only 2.5% obtain 300-600 cars a year. In contrast, only 7% of new-car dealers obtain fewer than 100 cars, 33% receive 300-600, and 14% obtain over 600 trade-ins a year.

Because new-car dealers have more trade-ins and sell relatively few older cars, they are more likely to want to sell their older cars at the wholesale auctions. Indeed, new-car dealers are twice as likely to sell a six-year-old trade-in at wholesale. Because of this greater tendency to unload all old cars, they are less likely to engage in adverse selection and keep the higher-quality, old cars.

Thus, if the seller is known to be a new-car dealer, we would expect buyers to be willing to pay more for their older cars. Indeed, new-car dealers receive a premium of 17% ($400) over other dealers when they sell six-year old or older cars. Thus, buyers use the identity of the seller as an imperfect signal of quality.

Similarly, buyers apparently view the number of previous owners as a signal about whether the car is a lemon. A one-owner car sells for 9% ($330) more than multiple-owner cars.

Thus, by using information about the number of former owners and the current owner, potential buyers adjust their estimates of the quality of a car. Although these signals decrease the probability of paying too much for a lemon, they do not eliminate that possibility.

1. If buyers had more time, or if the auctioneers would certify quality, the asymmetry could be eliminated. Why doesn’t that happen?

2. Why are extended warranties on used cars sold for an additional fee rather than building the cost into the price and including them on all sales?

DISCUSSION QUESTIONS

1. Suppose you go on a fishing vacation to the mountains. Should you ask the local bait shop owner for the best places to fish?
2. Why is reputation more important to a roofer than to a landscaper?
3. Should the government try to prevent firms from becoming “noisy monopolies”? How would you word such a law? What would be the advantages and disadvantages?
4. Should the government subsidize the Consumers Union and other nonprofit organizations that provide comparative brand information? Why or why not?
5. Consulting firms routinely ask potential employees to sign noncompete clauses that prevent them from quitting and moving to a rival firm within a certain period of time. Why would such an agreement be so common in this industry?
6. Consumers’ limited information about product prices gives firms market power. Is there a practical way for the government to reduce or eliminate this problem?
7. Has the internet increased or decreased consumer information asymmetry? How?
8. Why would a car dealer say “Shop around for the best deal, then come see us last”?

ADDITIONAL QUESTIONS AND MATH PROBLEMS

1. At many large music stores, potential buyers can listen to a music CD before deciding whether to purchase it. Why would the seller make such an offer?
2. Suppose you are vacationing on a sunny Caribbean island. You walk to the beach to rent a sailboat for an hour. A nice gentleman tells you that he has “the best rental prices on the island. You can search the entire island and you won’t find a better deal than this.” Under what circumstances should you believe him?
3. At some urban universities, many students and faculty eat at lunch trucks that are parked along the streets surrounding the campus. Before going there for lunch one day, you ask two people where you should eat. Neither individual you ask has ever been there. One says, “Just pick the one with the shortest line.” The other says, “Pick the one with the longest line.” Which advice should you follow?
4. Evaluate the following statement. “With constantly changing technology, you don’t want to buy a used computer. On the other hand, if technology were fixed, you wouldn’t want a used computer either.”
5. Under what circumstances would receiving your college degree in two years have a negative effect on your employability and/or salary?
6. Suppose that only high quality workers can signal their ability by attending a technical school at a cost $c$. Wages for highly productive employees are $w_h$; wages for low productivity workers are $w_l$. If initially a pooling equilibrium occurs, can the firm alter the cost or payoffs to generate a separating equilibrium? How?
7. Standardized tests are sometimes criticized by parents who claim that their kids spend too much time studying for them. Under what circumstances is this a valid claim?
1. Because buyers have often only heard one or two songs on the CD, they may be reluctant to purchase it for $15. If they like the songs they have heard, but don’t like any others, the per-song cost of those that the buyer enjoys is high. If they like most or all of the songs, the per-song cost is reduced. Because of this information asymmetry (the seller knows more about the contents of the CD than the buyer), risk-averse customers will purchase few CDs. By allowing customers to sample CDs, information is equalized, and risk-averse buyers can reduce risk at virtually no cost.

2. The claim may be partly true if all sellers are charging the monopoly price, or a price that exceeds the cost of search. (All sellers charge the same; thus, there is no better price on the island.) The claim of a better price is very unlikely. If there are any search costs for customers, they will be unlikely to search for this better price. Thus, the rental store has an incentive to match the higher price of neighboring rental shops.

3. There are two possible outcomes. Most of the customers at these restaurants eat at the campus on a regular basis. Information about restaurant quality travels fast through the student and faculty community. Thus, all restaurants that want to stay in business for any length of time have an incentive to serve high quality meals, and you could save time by getting in the shortest line. If, however, either the restaurants or the cooks at the restaurants turn over frequently, regular patrons will have an information advantage, and the longest line is the best bet.

4. With changing technology, used computers are often obsolete and cannot be upgraded to run current software, making them a poor investment. Only used computers that have current or nearly current technology will have value that approaches that of new machines. However, there is significant risk to buying a used computer that is nearly new, since it could be for sale because it is a lemon. With constant technology, there is no inherent advantage to purchasing a new computer. Thus, unless the seller of a used machine no longer has need for a computer, the machine may also be for sale because it is a lemon.

5. If employers use years of education as a signal of quality, an individual that has fourteen years of schooling may be viewed as inferior to an individual with sixteen. The sheepskin effect (completing the degree) would likely eliminate this disadvantage. A potentially greater disadvantage would be the signal regarding the quality of the education that an individual received given that he or she was able to complete in two years a degree that normally takes four years.

6. If the initial solution is a pooling equilibrium, where all workers are paid the average wage, it must be that the wage premium given to technical school graduates is not sufficient to get them to attend the school. The firm could either increase the salary offered to graduates or to subsidize the cost of schooling by offering a hiring bonus such that $w_h - c > w_l$. Such a strategy would only pay if the difference between value of marginal product for high productivity workers versus low productivity workers was in excess of the wage premium required to get the high productivity workers to attend the school.

7. Standardized test scores serve as a signal for both students and schools. Students can signal ability through high scores. Secondary schools use test scores as a signal of school quality. If schools spend class time taking practice tests and other preparations for tests such as the SAT and ACT exams, the amount of time spent on regular curriculum is reduced. Further, if colleges and universities do not regard standardized test scores as a good signal, they may not weigh them heavily in admissions decisions.