

Asymmetric Information and Agency

Overview and Background

- Traditional models of demand side assume that individuals have complete information about prices quantities and the relationship between medical care and other inputs to their level of health
- An alternative view would be to acknowledge the information problems that do exist in healthcare markets

- There are two broad categories of information problems:
 - Asymmetric Information or hidden information
 - Agency Problems or hidden effort
- Asymmetric information occurs in (health) insurance markets when insurance attracts higher than average utilizers than an actuarial fair premium would suggest
- Agency problems can be reflected in the doctor patient relationship, the doctor knows more than the patient

- This lecture will focus on asymmetric information, but introduce the agency problem at the end, which will be the focus of the next lecture.
 - With agency imperfect information is present (i.e., the doctor has a better understanding of health than the patient), but the compensation of the physician is key to whether there is an agency problem.

OVERVIEW OF Adverse Selection

- Adverse selection, a phenomenon in which insurance attracts patients who are likely to use services at a higher than average rate, results from asymmetric information because potential beneficiaries have better information than the insurer about their health status and their expected demand for health care.
- The canonical model for thinking about adverse selection is Akerlof's lemons model

Akerlof's Lemons Principle

- George Akerlof, a nobel laureate developed a model of imperfect information to example what happens in the used car market.
- It was the first economic model with asymmetric information and has found many wide applications beyond the used car market, e.g., bank lending and of particular interest in this course insurance markets;
- Some background on Akerlof's model

Akerlof's Lemons Principle

- Potential buyers know only the average quality of used cars, then market prices will tend to be lower than the true value of the top-quality cars. Owners of the top-quality cars will tend to withhold their cars from sale. In a sense, the good cars are driven out of the market by the lemons. Under what has become known as the Lemons Principle, the bad drives out the good until no market is left.

APPLICATION OF THE LEMONS PRINCIPLE: HEALTH INSURANCE

Overview

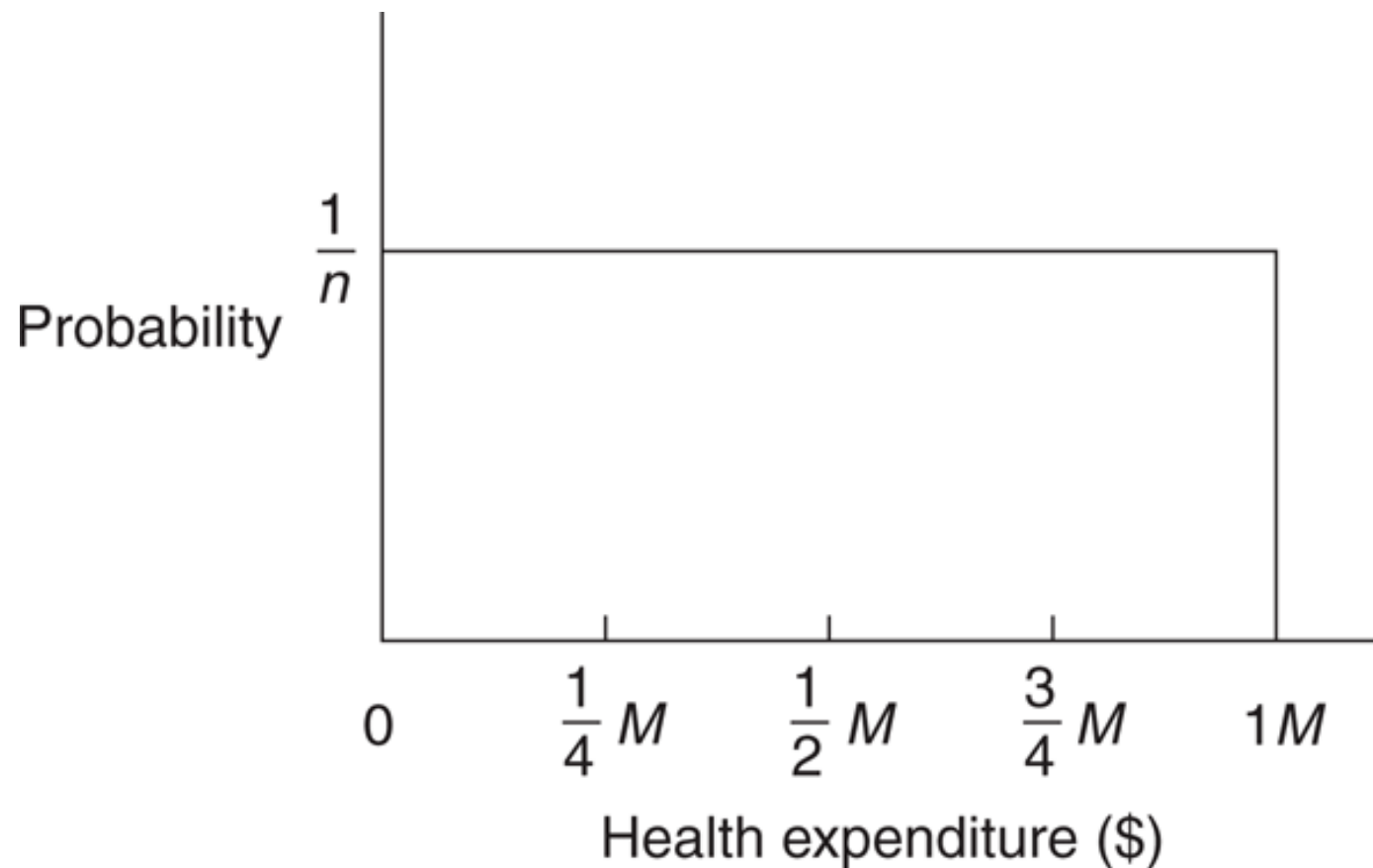
- Information asymmetry will likely occur because the potential insureds know more about their expected health expenditures in the coming period than does the insurance company.
- In this market, the higher health risks tend to drive out the lower health risk people, and a functioning market may even fail to appear at all for some otherwise-insurable health care risks.

An Illustration

- Assume all persons (there are N in total) have the same demographic characteristics and their expected health expenditures can vary from \$0 to \$M
- The probability of any level of expenditures is $1/N$
- Insurers have to at least break even on the insurance contracts they offer

- Information asymmetry:
 - people buying insurance know their actual expenditures;
 - the insurance company just knows the distribution of expected expenditures

Figure 10-2 Uniform Probability of Expenditure (Expected Health Expenditure Levels)



- As long as the information asymmetry exists there will be market failure since the insurance company will lose money on any contract it offers.

- What adverse selection means that is that the insurance company is not able to adequately pool its risks, i.e., have enough low-risk persons to offset the high-risk persons.
- When the insurance company can't pool its risks it loses money on the contracts it sells, so eventually they withdraw from the market and there is no market in insurance, i.e., a market failure

- From the perspective of economic theory there are two types of equilibriums:
 - Pooling equilibriums: with both low- and high-risk persons
 - Separating equilibriums: with either low- or high-risk persons, but not both.
- When a market exists in the insurance market you have a pooling equilibrium

Solutions to Adverse Selection

- If we assumed in the previous model that consumers only knew the distribution of expenditures like the insurance company then an equilibrium would exist in the market for insurance
- However, from a practical perspective the consumer will always know more than the insurance company so then the issue becomes how can the insurance acquire as much information as the person buying insurance or alternative ways to pool risks

- One way for the insurance company to eliminate the inefficiencies in market for insurance is to collect more information on the persons buying insurance, e.g., medical exams and diagnostic tests and questions about lifestyle, how much you drink, whether you smoke, etc

- If you read an older textbook discussion of adverse selection you might see a discussion of not insuring pre-existing conditions, which used to be quite common in the U.S.; this meant that if you were already sick and tried to get health insurance the insurance company would refuse to cover you or if they did sell you insurance charge you a much higher premium

- In November 2009, the U.S. passed a law called “Genetic Information Nondiscrimination Act”, which prohibits insurance companies from using genetic information (from genetic testing) to set premiums or deny coverage
- The U.S. affordable care act (i.e., Obamacare) also prohibits insurance companies from using pre-existing conditions to deny people coverage or charge them higher premiums
 - The insurance companies can only take into account age, region and whether a person smokes

- Collecting information on one person at a time is a solution, but it is a costly one since you must do this for every person who buys insurance, but it does allow an insurance company to pool their risks more effectively
- There are other more efficient ways to pool risks

Group Insurance and Experience Rating

- Group insurance can be a more useful mechanism to reduce adverse selection.
 - Group insurance occurs when insurers sell insurance to companies/employers who provide it to their employees and make the insurance mandatory for everyone who works in the company
 - Provides a mechanism for the insurance to pool its risks since it will have both low and high expenditure persons

- Group plans also enable insurers to implement experience rating, a practice where premiums are based on the past experience of the group, or other risk-rating systems to project expenditures. As expenditures increase so do the premiums. Because employees usually have limited choices both within and among plans, they cannot leave the plan and must pay the premium and take up the insurance.

Community Ratings

- In simplest form everyone in a particular region would pay the same premium
 - This is enacted in the Obamacare healthcare system, all premiums for private healthcare insurance are now based on community ratings (unless its employer provided).
- As noted earlier only things that would matter in terms of premium, i.e., community rating, you would pay for health insurance would be the region you live, your sex and whether you smoke.

THE AGENCY RELATIONSHIP

What is the Agency Relationship?

- An agency relationship is formed whenever a *principal* (for example, a patient) elegates decisionmaking authority to another party, the *agent*.
- In the physician-patient relationship, the patient (principal) delegates authority to the physician (agent), who in many cases also will be the provider of the recommended services.

Agency and Health Care

- The perfect agent physician is one who chooses as the patients themselves would choose if only the patients possessed the information that the physician does.
- The problem for the principal is to determine and ensure that the agent is acting in the principal's best interests. Unfortunately, the interests may diverge, and it may be difficult to introduce arrangements or contracts that eliminate conflicts of interest.

Top Billing Doctors in Ontario

- Physician No. 1 OPHTHALMOLOGY \$6,631,114.94
- Physician No. 2 OPHTHALMOLOGY \$5,232,740.15
- Physician No. 3 DIAGNOSTIC RADIOLOGY \$5,108,884.99
- Physician No. 4 ANAESTHESIA \$3,840,637.14
- Physician No. 5 DIAGNOSTIC RADIOLOGY \$3,821,125.62
- Physician No. 6 INTERNAL MEDICINE \$3,363,670.39
- Physician No. 7 OBSTETRICS AND GYNAECOLOGY \$3,203,952.22
- Physician No. 8 OPHTHALMOLOGY \$3,051,734.96
- Physician No. 9 OBSTETRICS AND GYNAECOLOGY \$2,569,766.43
- Physician No. 10 CARDIOLOGY \$2,527,701.28

- When do interests diverge?
- It has to do with how physicians are paid.
- If physicians are paid using fee-for-service, i.e. they are paid by services they provide
 - e.g., removing a spleen \$439.90 (25% more if laparoscopic), removing an appendix \$458.60, angioplasty \$467.05, surgical repair of a diaphragm \$900; consultations with ophthalmologist: \$82.40, for surgery \$163.2
- This will be the focus next week.