King Saud University
College of Business Administration
Department of Health Administration - Masters` Program

HHA 524 Health Economics
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Mohammed S. Alnaif, Ph.D.

alnaif@ksu.edu.sa

Demand for Health and Health Insurance

Learning Objectives

- Discuss the importance of demand in management decision making,
- Articulate why consumer demand is an important topic in healthcare,
- Apply demand theory to anticipate the effects of a policy change,
- Use standard terminology to describe the demand for healthcare products, and
- Discuss the factors that influence demand.

Demand for Health Care and Health Insurance

Demand for health care

- ***Demand requires people** to seek a service they can afford and are willing to pay for it.*
- ***The need for health care is the care that doctors believe is essential** for a person to stay healthy.*
- ***Sometimes, patients think they need health care**, but doctors believe they cannot benefit from such care.*

Demand for Health Care and Health Insurance

Demand for health care

- ***Sometimes the doctor believes that there is a medical need, but the patient does not consult his doctor because he prefers not to receive treatment or that he has not recognized the need.***
- ***Even if patients have as much knowledge as doctors, their demands may be different from their needs.***

Demand for Health Care and Health Insurance

Demand for health care

- ***The law of demand applies to health care as in other markets: as the price of health care increases, you demand less of it.***
- ***But we must be careful. What matters is the price of health care to you (the price you pay).***
- ***If you have health insurance, this price may be much lower than the actual cost of providing you with care.***

Demand for Health Care and Health Insurance

Demand for health care

- ***Under most health-insurance contracts,*** ***the marginal private cost of care to a household is less than the marginal social cost of providing that care.***
- ***The household has an incentive to purchase a lot of health-care services*** ***because its purchases are, in effect, being subsidized by insurance companies.***

Demand for Health Care and Health Insurance

Demand for health care

- ***Another key characteristic** of health care is that demand is relatively inelastic. If you are sick and require care, you will purchase health-care services at almost any price.*
- ***Of course, your ability to purchase health care is ultimately limited by your income**, but you are likely to trade off spending on many other products to purchase the medical care you need.*
- ***Therefore,** we often read stories about people without insurance being bankrupted by medical expenses.*

Demand for Health Care and Health Insurance

Demand for health care

- ***The use of health care depends on demand and availability*.**
- ***If planners allocate resources based on need rather than demand, they may find themselves in a situation where some services are underused, and some services are overused.***
- ***Just as the health care market is different from other commodities, so is the demand for health care different from the simple demand model.***

Demand for Health Care and Health Insurance

Demand for health care

- ***One of the differences is that health care is not demanded because it is self-satisfying.***
- ***After all, health care itself does not lead to satisfaction.***
- ***Instead, health care is in demand because people are satisfied with their activities when they are healthy.***
- ***So, the demand for health care is a derived demand.***

Demand for Health Care and Health Insurance

Demand for health care

- ***Patients' perceptions*** ***of their need and capacity to benefit from health care are strongly influenced by physicians and health care providers.***
- ***Although in economics, it is assumed that consumers can make informed decisions*** ***about their consumption patterns, healthcare consumers delegate this decision-making power to health care workers who are more aware of them.***

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Demand for health care

- ***This phenomenon is due to information asymmetry between health care providers and patients, which carries the risk of induced demand by providers to increase revenue.***
- ***Another complication stems from the fact that health care is highly heterogeneous.***

Demand for Health Care and Health Insurance

Demand for health care

- ***Each patient has a relatively different combination of pain and symptoms*.**
- ***Therefore*, each patient needs to purchase a different package of care that both the patient and the physician have uncertainty about its effectiveness in meeting the need.**

Demand for Health Care and Health Insurance

Demand for health care

- ***Another critical difference** is that many health services are paid for by third parties.*
- ***Payments by third parties or insurance companies**, although they significantly increase people's purchasing power for health care, it is also important to note that they can lead to ethical risks and increase demand for services that patients may not need.*

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Demand for health care

- ***Demand for health care depends on the level of consumption of an individual in case of illness; the amount of consumption can differ according to the factors affecting the demand, such as income, service price, education, norms, social traditions, and quality.***
- ***A person's decision to use services is related to his or her illness/injury status rather than health care.***

Demand for Health Care and Health Insurance

Demand for health care

- ***Developing countries** are focused on promoting health care as an essential policy to improve health outcomes and fulfill international obligations and universal coverage of health services.*
- ***However, many policies have focused** more on improving physical access than on the demand side healthcare needs pattern.*

Demand for Health Care and Health Insurance

Demand for health care

- ***In low-income countries**, allocating scarce financial resources is based on clear criteria for the impact of investment in the health sector on service demand.*
- ***In these countries**, due to the lack or, weakness of social security systems, the occurrence of the disease leads to increased health costs and reduced labor productivity and leads to a loss of household welfare.*

Demand for Health Care and Health Insurance

Demand for health care

- ***In developed countries**, due to insurance, many health services are used with minimal consumer participation in the payment.*
- ***In developing countries**, concerns about less use of health services, to the level of supply is associated with poor access.*
- ***However**, due to various barriers on the demand side, related to the cost of treatment, travel costs, and quality of services, the rate of exploitation is low.*

Demand for Health Care and Health Insurance

Demand for health care

- ***Since one of the priorities of health policymakers is to improve people's health*, various factors that directly and indirectly affect the demand for health services should be examined more carefully.**
- ***Identifying the factors influencing individuals' decision to request health care services and choosing from different providers.***

Demand for Health Care and Health Insurance

Derived demand for healthcare

- ***Grossman, used human capital theory to explain the demand for health care.***
- ***According to human capital theory, people invest in themselves through education and health to increase their income.***
- ***Grossman proposed an approach in which many important aspects of the demand for health services differ from the traditional demand approach.***

Demand for Health Care and Health Insurance

Derived demand for healthcare

- ***Grossman (JPE, 1972) was concerned with how individuals allocate their resources to produce health.***
- ***The model goes beyond traditional demand analysis and has been extremely influential in health economics.***
- ***It utilizes the idea of the individual as a producer of health (not simply a consumer) by removing the artificial separation of consumption and production.***
- ***It also introduces the idea of investing in human capital (health and education) to improve outcomes in both the market (work) and non-market (household) sectors.***

Demand for Health Care and Health Insurance

Derived demand for healthcare

- ***Demand for health care is derived from a demand for health** (few people want health care for its own sake)*
- ***Demand for health is derived from the demand for utility** (e.g., healthy days in which to participate in leisure and work)*
- ***Individuals are not passive consumers of health but active producers** who spend time and money on the production of health.*
- ***Health can be seen as lasting over time periods**.*
- ***It depreciates** (perhaps at a non-constant rate) and can therefore be analyzed as a capital good.*

Demand for Health Care and Health Insurance

Key assumptions

- ***Individuals value health but do not value it above all else (if they did, they would not over-eat, smoke, drink too much, or drive too fast).***
- ***We have limited incomes with which to finance health and other activities, and neither is costless.***
- ***We exert a relatively high degree of control over our health by virtue of the fact that we can influence our health-affecting consumption patterns, our health care utilization and our environment.***

Demand for Health Care and Health Insurance

The demand for health

Health demand consists of two elements and can be considered as both a consumer good and a capital good. :

1. ***Consumption effects:*** ***health yields direct utility i.e., you feel better when you are healthier.***
2. ***Investment effects:*** ***health increases the number of days available to participate in market and non-market activities – the novel bit of the model.***

Demand for Health Care and Health Insurance

The demand for health

- ***The demand and supply of healthcare ideally do not follow similar economic logic as for other goods*.**
- ***Though income, wage and prices interact in some way to control the market for health services*, the unique nature of healthcare affecting the consumer's utility via the indirect route of controlling health status needs to be recognized.**

Demand for Health Care and Health Insurance

The demand for health

- ***Also, healthcare utilization is profoundly affected and determined by several non-economic social factors which result in serious inequity and vulnerability.***
- ***Education, ethnicity and occupation impose strong impact not only on healthcare demand, but also on the final health outcome.***

Demand for Health Care and Health Insurance

The demand for health

- ***Likewise, several non-market relations and government interventions often distort the supply of healthcare goods, including medicines.***
- ***Existence of patents, price and profit controls, barriers to migrate, etc. create strong effects on the supply of health goods and services.***
- ***Additionally, the impact of technology on healthcare costs and hence demand would depend on the nature of technology per se, rather than the cost involved.***

Demand for Health and Health Insurance

Health Financing: The Macroeconomic Level

- ***Financing health care** has evolved from personal payment at the time-of-service delivery to financing through health insurance (prepayment) by the employer and employee at the workplace.*
- ***This has progressed in most industrialized countries towards governmental financing through social security or general taxation**, supplemented by private and non-governmental organizations, **and personal out-of-pocket expenditures.***

Demand for Health and Health Insurance

Health Financing: The Macroeconomic Level

- ***Ultimately, every country faces the need for governmental funding of health care either for the total population or at least for vulnerable groups such as the elderly and the poor, as in the USA, where governmental funding comes to nearly 50 percent of total health expenditures.***
- ***Government funding is necessary also for services that insurance plans avoid or are inefficient in reaching, including as community-oriented services and groups at special risk, such as infants and the elderly.***

Demand for Health and Health Insurance

Health Financing: The Macroeconomic Level

- ***Health systems require financial resources to accomplish their goals. The major expenses of most health care systems are human resources, care at hospitals, and medications.***
- ***In most tropical nations, health care financing is supplied by a mix of governmental spending, private (mostly out-of-pocket) spending, and external aid.***
- ***For the low- and lower-middle-income nations, health care financing remains a significant challenge.***

Demand for Health and Health Insurance

Health Financing: The Macroeconomic Level

- ***Many upper-middle-income nations** across Latin America, Africa, and Asia have been able to provide financing mechanisms for health that cover significant portions of their populations.*
- ***These mechanisms both ensure access to health care and protect individuals** against catastrophic debt for accessing health services.*
- ***However, in low-income nations** (the majority of which are in sub-Saharan Africa), financing is a major barrier to health care delivery.*

Demand for Health and Health Insurance

Health Financing: The Macroeconomic Level

- ***Health care financing in upper-middle- and high-income countries** is generally provided through health insurance schemes (often employment or union based) or governmental financing that is funded by general taxation.*
- ***Governmental financing is severely limited in low-income nations** due to lack of a significant tax base.*
- ***Health insurance is difficult to implement in these nations due to the high burden of disease, lack of sufficient disposable income among the population, and difficulty creating large, diverse risk pools. Almost all currently implemented health insurance schemes in these countries require government subsidization to sustain them.***

Demand for Health and Health Insurance

Health Financing: The Macroeconomic Level

- ***Out-of-pocket expenses*** ***(i.e., private spending that is not pre-paid as part of an insurance program) for health comprise a large portion of health financing in most low-income countries.***
- ***These expenses often drive families into poverty*** ***or are an insurmountable barrier to accessing needed health care services.***
- ***Higher-income countries tend to have fewer out-of-pocket expenses*****, as more of the population is covered by pre-paid health insurance plans.**

Demand for Health and Health Insurance

Health Financing Systems

- ***Health financing provides** the resources and economic incentives for the operation of health systems and is a key determinant of health system performance in terms of equity, efficiency, and health outcomes.*
- ***Health financing involves the basic functions** of revenue collection, pooling of resources, and purchase of interventions. **Figure 3-1.** illustrates these functions and their interactions.*
- ***Revenue collection** is how health systems raise money from households, businesses, and external sources.*

Demand for Health and Health Insurance

Health Financing Systems

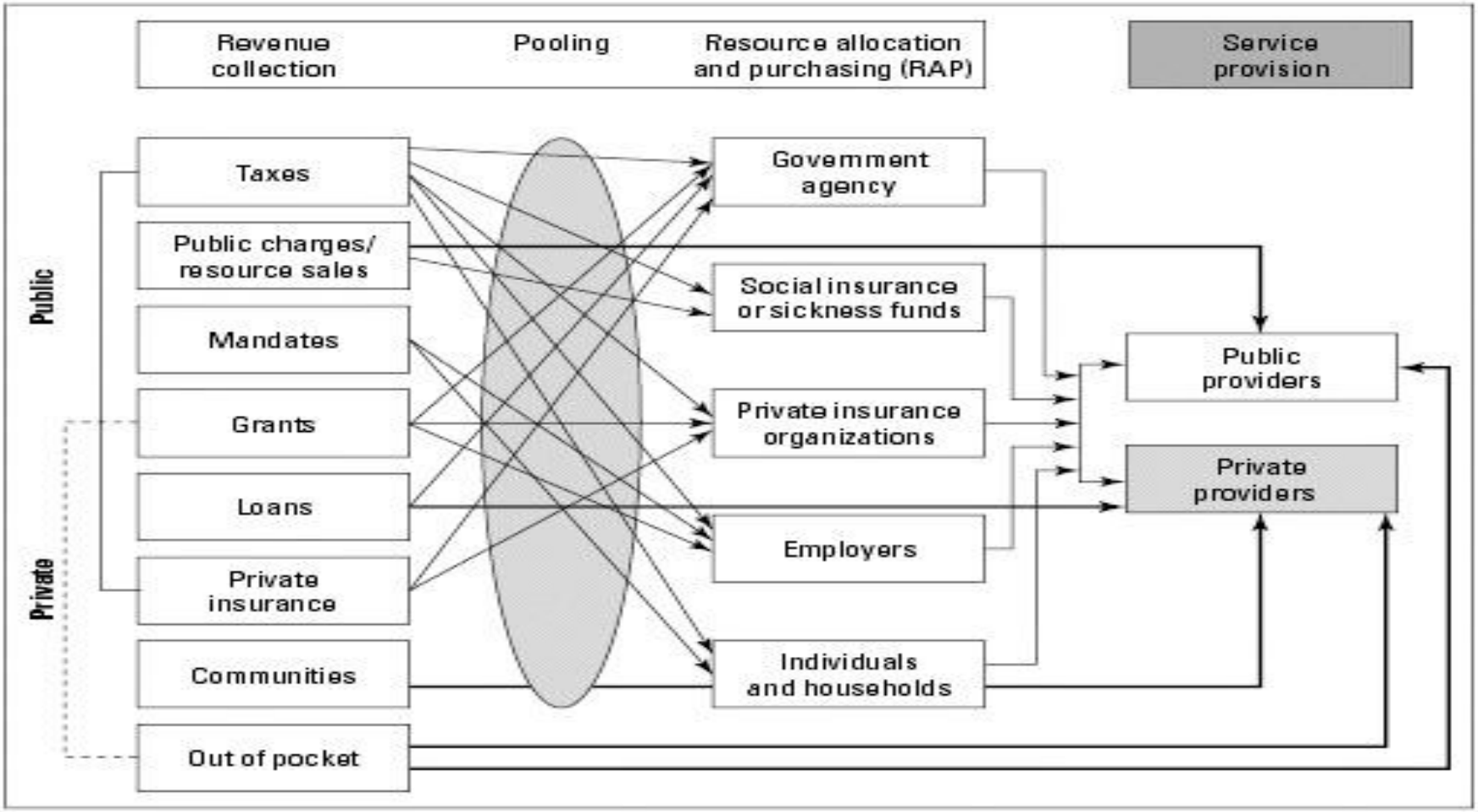
- ***Pooling deals with the accumulation and management of revenues so that members of the pool share collective health risks, thereby protecting individual pool members from large, unpredictable health expenditures.***
- ***Prepayment allows pool members to pay for average expected costs in advance, relieves them of uncertainty, and ensures compensation should a loss occur.***

Demand for Health and Health Insurance

Health Financing Systems

- ***Pooling coupled with prepayment enables the establishment of insurance and the redistribution of health spending between high- and low-risk individuals and high- and low-income individuals.***
- ***Purchasing refers to the mechanisms used to purchase services from public and private providers.***

Figure 3-1. Interactions among Revenue Raising, Risk Pooling, Resource Allocation, and Service Provision



Source: Authors.

Demand for Health and Health Insurance

Health Financing Systems

- ***In terms of health policy at the country level, these three financing functions translate into the following:***
  - ***raising sufficient and sustainable revenues in an efficient and equitable manner to provide individuals with both a basic package of essential services and financial protection against unpredictable catastrophic financial losses caused by illness or injury.***
  - ***managing these revenues to equitably and efficiently pool health risks; and,***
  - ***ensuring the purchase of health services in an allocatively and technically efficient manner.***

Demand for Health and Health Insurance

Health Financing Systems

- ***These financing functions are generally embodied in the following three stylized health financing models:***
  - ***national health service (NHS): compulsory universal coverage, national general revenue financing, and national ownership of health sector inputs***
  - ***social insurance: compulsory universal coverage under a social security (publicly mandated) system financed by employee and employer contributions to nonprofit insurance funds with public and private ownership of sector inputs***
  - ***private insurance: employer-based or individual purchase of private health insurance and private ownership of health sector inputs.***

Demand for Health and Health Insurance

Health Financing Systems

- ***Although these models provide a general framework** for classifying health systems and financing functions, they are not useful from a micro policy perspective because all health systems embody features of the different models.*
- ***The key health policy issues are not** whether a government uses general revenues or payroll taxes, but the amounts of revenues raised and the extent to which they are raised in an efficient, equitable, and sustainable manner.*
- ***Similarly, nothing is intrinsically good or bad about public versus private** ownership and provision. The important issue is whether the systems in place **ensure access, equity, and efficiency.***

Paying for Health Services

Health Financing Systems - Microeconomic Level

For most products and services purchasing decisions, consumers generally

1. ***have a choice among many suppliers,***
2. ***can distinguish the quality of competing goods or services,***
3. ***make a (presumably) rational decision regarding the purchase on the basis of quality and price, and***
4. ***pay for the full cost of the purchase.***

Paying for Health Services

Health Financing Systems - Microeconomic Level

- ***Decisions around healthcare services are unique when compared with other services and goods.***

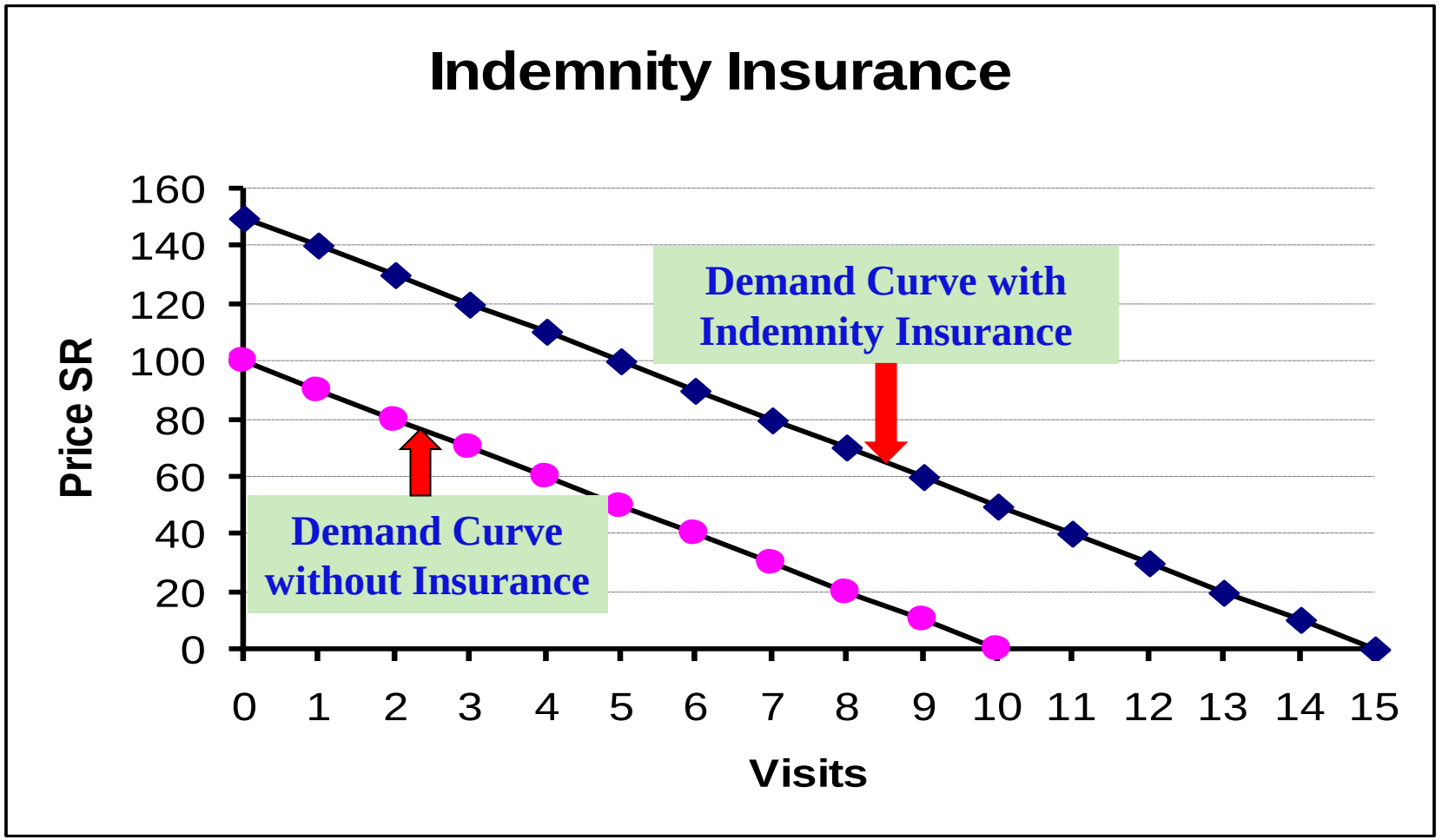
1. ***First, often choices for a particular service are limited to a few individuals or organizations.***
2. ***Next, judging the quality among competing providers is difficult, if not impossible.***

Paying for Health Services

Health Financing Systems - Microeconomic Level
Decisions around healthcare services

3. ***Then, the decision on which provider to use for a particular service typically is not made by the consumer but rather by a physician or some other clinician.***
4. ***Finally, for most individuals, health insurance from third-party payers (insurers) is paid for or subsidized by employers or government agencies, so many patients are partially insulated from the costs of healthcare.***

Figure 3-1.* The law of demand: *All else assumed equal, consumers purchase more of a good during a given time interval the lower its opportunity cost (relative price) and vice versa



Paying for Health Services

Basic Insurance Concepts

Given that insurance is the cornerstone of healthcare reimbursement in most countries, an appreciation of basic insurance concepts will help you better understand the marketplace for healthcare services.

Paying for Health Services

Basic Insurance Concepts

A Simple illustration, Consider this simple example to better understand insurance concepts. Assume that no health insurance exists and you face only two possible medical outcomes in the coming year:

Outcome	*Probability*	*Cost*
Stay healthy	*0.99*	*$ 0*
Get sick	*0.01*	*50,000*
	1.00	

Paying for Health Services

Basic Insurance Concepts

- ***Furthermore, assume that everyone else faces the same medical outcomes at the same odds and with the same associated costs. What is your expected healthcare cost—E(Cost)—for the coming year?***
- ***To find the answer, we multiply the cost of each outcome by its probability of occurrence and then sum the products:***

E(Cost) = (Probability of outcome 1 × Cost of outcome 1) + (Probability of outcome 2 × Cost of outcome 2) = (0.99 × $0) + (0.01 × $50,000) = $0 + $500 = $500.

Paying for Health Services

Basic Insurance Concepts

- ***Assume, for example, that you and every-one else earn $60,000 a year. With this salary, you and everyone else can easily afford the $500 "expected" healthcare cost. The problem, however, is that no one's actual cost will be $500.***
- ***If you stay healthy, your cost will be zero; if you get sick, your cost will be $50,000.***
- ***A cost of $50,000 could force you, and most people who get sick, into personal bankruptcy.***

Paying for Health Services

Basic Insurance Concepts

- ***Now, suppose an insurance policy that pays all your healthcare costs for the coming year is available for $600.***
- ***Would you take the policy, even though it costs $100 more than your "expected" healthcare costs?***
- ***Most people would, and do. Because individuals are risk averse, they are willing to pay $100 more than their "expected" benefit to eliminate the risk of financial ruin.***
- ***In effect, policyholders are passing the costs associated with the risk of getting sick to the insurer, which, as you will see, is spreading those costs over a large number of subscribers.***

Paying for Health Services

Basic Insurance Concepts

- ***Would an insurer be willing to offer the policy for $600?***
- ***If the insurer could sell enough policies, it would know its revenues and costs with some precision.***
- ***For example, if the insurer sold a million policies, it would collect 1,000,000 × $600 = $600 million in health insurance premiums; pay out roughly 1,000,000 × $500 = $500 million in claims; and have about $100 million to cover administrative costs.***

Paying for Health Services

Basic Insurance Concepts

- ***Needless to say, the concept of insurance is much more complicated in the real world.***
- ***Insurance typically has four distinct characteristics:***

1. ***Pooling of losses. The pooling, or sharing, of losses is the basis of insurance. Pooling means that losses are spread over a large group of individuals, called a pool, so that each individual realizes the average loss of the pool (plus administrative expenses) rather than the actual loss incurred.***

Paying for Health Services

Basic Insurance Concepts

- ***In addition, pooling involves the grouping of a large number of homogeneous exposure units—that is, people or things having the same risk characteristics, so that the law of large numbers applies.***
- ***(In statistics, the law of large numbers states that as the size of the sample increases, the sample mean gets closer and closer to the population mean.)***
- ***Thus, pooling implies***
  a. ***the sharing of losses by the entire group and***
  b. ***the prediction of future losses with some accuracy.***

Paying for Health Services

Basic Insurance Concepts

2. Payment only for random losses.

- ***A random loss is unforeseen and unexpected and occurs as a result of chance. Insurance is based on the premise that payments are made only for losses that are random.***
- ***A random loss A loss that is unpredictable and occurs as a result of chance.***

Paying for Health Services

Basic Insurance Concepts

3. ***Risk transfer. An insurance plan almost always involves risk transfer.***

- ***The sole exception to the element of risk transfer is self-insurance, which is the assumption of a risk by a business (or an individual) itself rather than by an insurance company.***
- ***Risk transfer is the passing of a risk from the insured to the insurer, which typically is in a better financial position to bear the risk than the insured because of the law of large numbers.***

Paying for Health Services

Basic Insurance Concepts

4. ***Indemnification. Indemnification for losses is the reimbursement to the insured if a loss occurs.***

- ***In the context of health insurance, indemnification occurs when the insurer pays, in whole or in part, the insured or the provider for the expenses related to an insured's illness or injury.***

Paying for Health Services

Basic Insurance Concepts

- ***In summary*, we applied these four characteristics to our insurance example:**

1. ***The losses are pooled* across a million individuals,**
2. ***the losses on each individual are random (unpredictable),***
3. ***the risk of loss is passed to the insurance company*, and**
4. ***the insurance company pays for any losses*.**

Paying for Health Services

Real-World Problems

- ***Insurance works fine when the four basic characteristics are present.***
- ***However, if any of these characteristics is violated, problems arise.***
- ***The two most common problems are adverse selection and moral hazard.***

Paying for Health Services

Adverse Selection

- ***Adverse selection**, in its simplest form, means that individuals most likely to need healthcare services are most likely to buy health insurance.*
- ***This tendency creates a problem for insurers** because it drives the costs of healthcare for a defined population to higher-than-anticipated levels.*

Paying for Health Services

Adverse Selection

- ***Adverse selection**, **For example**, an individual without insurance who needs a costly surgical procedure will likely seek health insurance if it is affordable to do so, whereas an individual who does not need surgery is much less likely to purchase insurance.*

Paying for Health Services

Adverse Selection

- ***Similarly, consider the likelihood** of a 20-year old to seek health insurance purchase versus the likelihood of a 65-year-old to do so.*
- ***The older individual**, with much greater health risk due to age, is more likely to seek insurance.*

Paying for Health Services

Adverse Selection

- ***If this tendency toward adverse selection goes unchecked**, a disproportionate number of sick people, or those most likely to become sick, will seek health insurance, and the insurer will experience **higher-than-expected claims**.*

Paying for Health Services

Adverse Selection

- ***This increase in claims will trigger premium increases to spread the costs across the pool, which worsens the problem because healthier members of the plan will either pursue cheaper rates from another company (if available) or simply forgo insurance.***
- ***The adverse selection problem exists because of asymmetric information, which occurs when individual buyers of health insurance know more about their health status than do insurers.***

Paying for Health Services

Asymmetric information

- ***Asymmetric information** is when there is an imbalance in information between buyer and seller which can distort choices. The issue with **asymmetric information** starts before any transaction takes place. **For Example**:*
  - ***Doctors have superior knowledge** about drugs and treatments*
  - ***A used-car seller knows** more about vehicle quality than a buyer*

Paying for Health Services

Adverse Selection

- ***Preexisting conditions present a true problem*** ***for the health insurance field because an important characteristic of insurance is randomness.***
- ***If an individual has a preexisting condition*****, *the insurer no longer bears random risk but rather assumes the role of payer for the treatment of a known condition.***

Paying for Health Services

Adverse Selection

- ***When the cost of health insurance is relatively low**, such as in an employer-subsidized plan, most people to whom it is made available will choose to buy the insurance.*
- ***However,** when the cost of health insurance is relatively high, the choice is not as easy to make.*
- ***Often, those who opt in will be more likely to have immediate healthcare needs** and hence be more expensive to insure than the population as a whole.*

Paying for Health Services

Adverse Selection

- ***Thus, adverse selection is a factor in increased health insurance costs, and the higher the costs, the higher the premiums, which means even more individuals will do without coverage.***
- ***The traditional techniques used by insurers to mitigate adverse selection risk have included denying coverage to or charging higher premiums for individuals with preexisting health conditions or excluding those conditions from the individual's policy.***

Paying for Health Services

Moral hazard

- ***Moral hazard, when the party with superior information alters his/her behavior in such a way that benefits himself while imposing costs on those with inferior information.***
- ***Moral hazard occurs when insured consumers are likely to take greater risks, knowing that a claim will be paid for by their cover.***
- ***The consumer knows more about his/her intended actions than the producer (insurer).***

Paying for Health Services

Moral hazard

- ***This moral hazard occurs when insurance contracts are written on the basis of endogenous (having an internal cause or origin) incurred expenses and not on the basis of exogenous (having an external cause or origin) health needs.***
- ***This kind of insurance leads to overconsumption of care, the distortionary costs of which are offset by reducing the level of insurance.***

Paying for Health Services

Moral hazard

- ***Moral Hazard, Insurance is based on the premise that payments are made only for random losses, and from this premise stems the problem of moral hazard.***
- ***The most common illustration of moral hazard in a casualty insurance setting is the owner who deliberately sets a failing business on fire to collect the insurance payment.***

Paying for Health Services

Moral hazard

- ***Moral hazard is also present in health insurance, but in a less dramatic form—few people are willing to voluntarily sustain injury or illness for the purpose of collecting health insurance proceeds.***
- ***However, undoubtedly there are people do purposely use healthcare services that are not medically required.***

Paying for Health Services

Moral hazard

- ***For example*, some people might visit a physician or a walk-in clinic for the social value of human companionship rather than to address a medical necessity.**
- ***Also, some hospital discharges might be delayed* for the convenience of the patient rather than for medical purposes.**

Paying for Health Services

Moral hazard

- ***Insurers attempt to protect themselves from moral hazard claims by paying less than the full amount of healthcare costs.***
- ***Forcing insured individuals to bear some of the cost lessens their tendency to consume unneeded services or engage in unhealthy behaviors.***
- ***One way to make patients pay out of pocket is to require a deductible.***

Paying for Health Services

Moral hazard

- ***Deductible**, The dollar amount that must be spent on healthcare services (e.g., $500 per year) by the insured individual before any benefits are paid by the insurer.*
- ***To illustrate, a policy may state that the first $500 of medical expenses incurred each year will be paid by the individual.***

Paying for Health Services

Moral hazard

- ***After this deductible is met, the insurer will pay all eligible medical expenses for the remainder of the year.***
- ***Yet such a policy would still be problematic for the insurer without further modification.***
- ***The primary tools that insurers have, to address the moral hazard problem are copayments and coinsurance.***

Paying for Health Services

Moral hazard

- ***Copayment*** ***A fixed cost to the patient each time a service is rendered (e.g., $20 per outpatient visit).***
- ***Coinsurance*** ***A sharing of costs between the patient and the insurer (e.g., the patient pays 20% and the insurer pays 80% of the costs of hospitalization).***

Demand for Health and Health Insurance

The Theory of Insurance

- ***Friedman and Savage (1948) and Ehrlich and Becker (1972) viewed the demand for insurance as reflecting the maximum we would pay, over and above the expected loss, to avoid the consequences of the loss.***
- ***The expected loss is the amount we would expect to pay, on average, if the event occurred many times.***
- ***Thus, if we would have to pay $20,000 every time, we flip a coin and "heads" occurs and pay $0 whenever "tails" appears, then the expected loss for 100 flips of our coin is $10,000 on each flip.***

Demand for Health and Health Insurance

The Theory of Insurance

- ***The theory of the demand for insurance has been based on expected utility theory and an assumed preference for certain losses over uncertain ones of the same expected magnitude.***
- ***The following is representative of this interpretation of expected utility theory:***

  The purpose of any insurance policy is to convert an uncertain, but potentially large, loss into a certain, small loss. Such a conversion benefits the consumer if greater losses cause progressively larger declines in utility (that is, if there is diminishing marginal utility of wealth).

Demand for Health and Health Insurance

The Theory of Insurance

- ***People buy insurance because** they are **risk-averse**. Buying insurance allows a person to pay a certain known amount in order to transfer the risk of a much larger expenditure (in the case of an adverse event) to an insurer, known as a third-party payer.*
- ***Firms sell insurance because they are paid to assume a risk that can be managed by spreading it over a large pool of the insured.** Insurance markets exist where consumers are willing to pay enough to transfer risk to induce insurance companies to assume the risk.*

Demand for Health and Health Insurance

What Is Utility?

- ***Utility** is a term in economics that refers to the total **satisfaction** received from consuming a good or service.*
- ***Economic theories** based on rational choice usually assume that consumers will strive to **maximize** their **utility**.*
- ***The economic utility of a good** or service is important to understand, because it directly influences the demand, and therefore price, of that good or service.*
- ***In practice, a consumer's utility** is impossible to measure and quantify.*

Demand for Health and Health Insurance

The Theory of Insurance

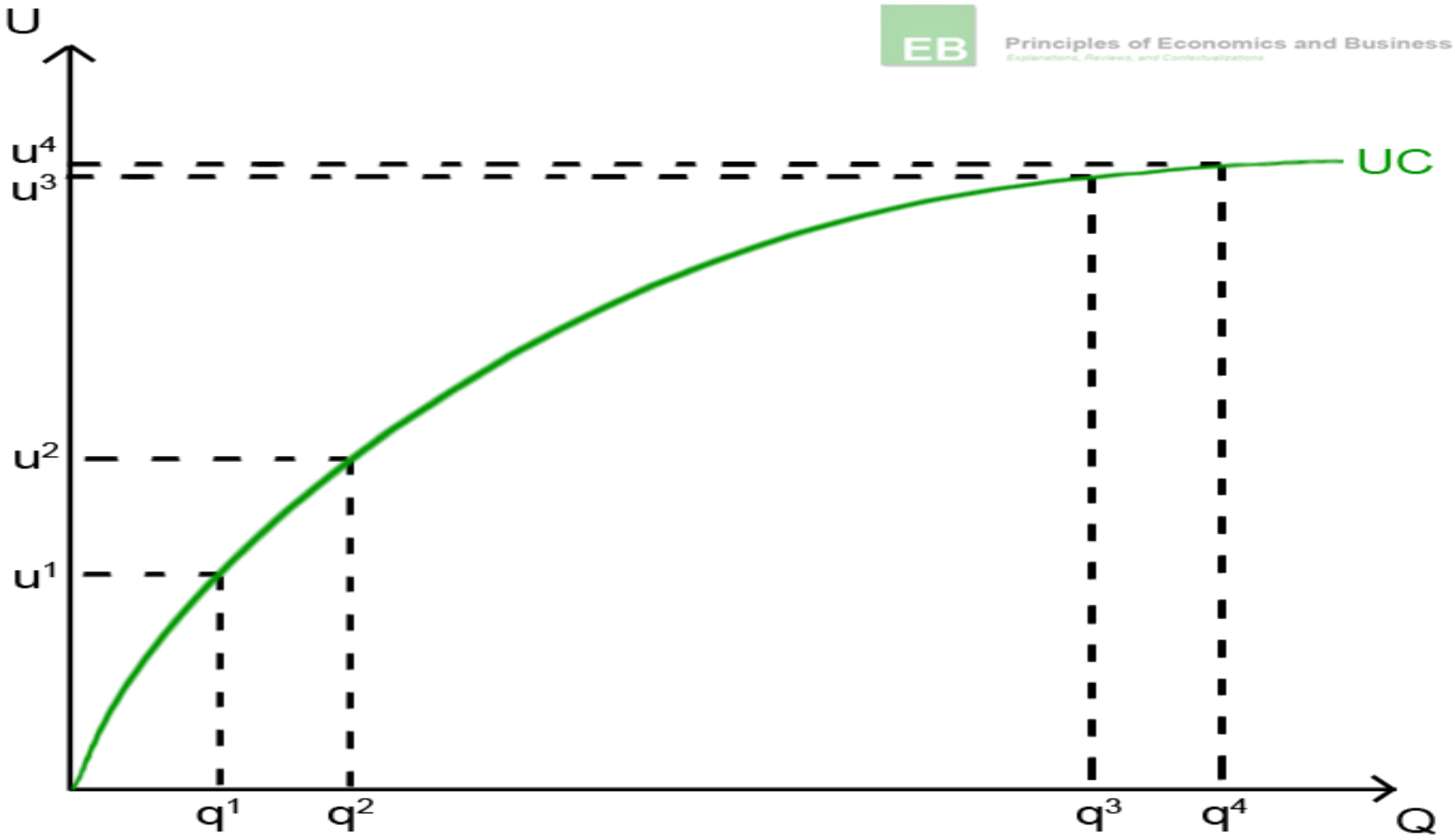
- ***The conventional treatment of the demand** for health insurance has its genesis in the theories of **diminishing marginal utility and expected utility**, both of which were developed in relation to gambles.*
- ***The law of diminishing marginal utility** states that the first unit of consumption of a good or service (or income or wealth) yields more **utility** than the second and subsequent units, with a continuing reduction of utility for greater amounts.*
- ***The expected utility hypothesis states** that the utility from the expected value of a gamble will depend on the gamblers' risk appetite and exposure.*

Demand for Health and Health Insurance

The Theory of Insurance

- ***Diminishing marginal utility** refers to the phenomenon that each additional unit of gain leads to an ever-smaller increase in subjective value.*
- ***For example**, three bites of candy are better than two bites, but the twentieth bite does not add much to the experience beyond the nineteenth (and could even make it worse).*
- *This effect is so well established, that it is referred to as the "**law of diminishing marginal utility**" in economics, and is reflected in the **concave shape** of most subjective utility functions. **Figure 3-2.***

Figure 3-2. ***An important consequence of diminishing marginal utility is that subjective value changes most dynamically near the zero point, and quickly levels off as gains (or losses) accumulate.***



Demand for Health and Health Insurance

The Theory of Insurance

- ***Risk-averse** describing someone who **dislike risk** unwilling to take risks or wanting to avoid risks as much as possible*
- ***Risk-prone** or **Risk-Loving** describing someone who is willing to take big risk to increase the potential return on investment.*
- ***Stochastic process**, in probability theory, a process involving the operation of chance. More generally, a **stochastic process** refers to a family of random variables indexed against some other variable or set of variables*

Demand for Health and Health Insurance

The Theory of Insurance

- ***Health care expenses and lost labor earnings* due to illness represent a major *source of risk* for individuals and families.**
- ***Exposure to such risks is costly* in itself (if individuals are risk averse), but can also have long term effects especially on the poor.**
- ***Selling assets,* withdrawing children from school to care for ill parents, and exiting the labor market can leave low incomes families trapped in poverty.**

Demand for Health and Health Insurance

The Theory of Insurance

- ***There are a number of types of risk associated with health. There is the risk to one's health and life associated with illness or disease.***
- ***There is the additional risk that if one undertakes treatment, it may or may not cure or alleviate symptoms of disease.***
- ***There are also the costs associated with the treatments of illness and disease. A person can take action to reduce the risk of illness such as getting vaccines, avoiding unhealthy environments, and leading a healthy lifestyle. One cannot insure against bad health outcomes, though.***

Demand for Health and Health Insurance

The Theory of Insurance

- ***Protection against the risks of ill health can be achieved by reducing the size and variability of the underlying stochastic process, for instance by improving public goods that affect health outcomes (pollution, etc.), and by spreading risks across individuals.***
- ***People can insure themselves against some or all of the financial loss associated with the treatment of illness by buying health insurance policies.***

Demand for Health and Health Insurance

The Theory of Insurance

- ***People don't generally self-insure by saving money*** ***when they are well to use in times of illness. Much of this is due to the fact that people cannot save enough for catastrophic illnesses. Even people with extensive wealth buy insurance due to the fact that most people are "risk-averse."***
- ***Economists define risk aversion*** ***as a characteristic of people's utility functions.***
- ***Consumers' attitudes toward risk depends on the marginal utility*** ***of an extra dollar that may be different in different ranges of wealth.***

Demand for Health and Health Insurance

The Theory of Insurance

- ***If the marginal utility of wealth decreases as wealth increases, there is a small probability of a smaller amount of wealth when the probability weighted or expected value of the alternatives is equal.***
- ***That is a situation of risk aversion.***
- ***Risk-loving people gamble when gambling involves an unfair bet. Betting on lotteries would be rational behavior in a range of wealth when the marginal utility of an extra dollar is increasing.***

Demand for Health and Health Insurance

The Theory of Insurance

- ***In general**, it is assumed that people are **more likely to buy insurance** to cover **low probability** events involving large losses than **high-probability** events that are associated with small losses, and they are more likely to buy lottery tickets when there is a low probability of winning a large amount of money.*

Demand for Health and Health Insurance

Consumer theory

- ***Consumer theory assumes** that if consumers are perfectly informed, they maximize their **utility** as a function of consuming various goods, given relative prices, their income and preferences.*
- ***Changes in prices and income influence** how much of different goods rational consumers will buy.*
- ***Health insurance is expected to be a normal good** with a positive income **elasticity of demand**, implying that the poor are less likely to insure or buy insurance.*

Demand for Health and Health Insurance

Consumer theory

- ***A price increase of a substitute for insurance** – such as user fees – is expected to raise the insurance demand, as is a decrease in insurance premium.*
- ***However, due to uncertainty** about the unknown future health, insurance choice is **not made based on utility alone** but on consumers' expectation about factors such as their health status.*
- ***Thus, theories on decision-making under uncertainty** are generally used to describe insurance enrolment.*

Demand for Health and Health Insurance

State-dependent utility theory

- ***A healthy person might optimistically expect to remain healthy in the near future, which has implications on the insurance choice.***
- ***The resulting insurance coverage may be below full loss coverage, if the anticipated insurance pay-off is below the real loss in case of illness.***
- ***Hence, the anticipated need for medical care given the current state, and the magnitude of the related insurance pay-off in case of sickness will affect individuals' insurance demand.***

Demand for Health and Health Insurance

State-dependent utility theory

- ***Suggests that consumers' utility level*** ***and tastes are influenced by their state, such as their health or socio-economic status.***
- ***Accordingly,*** ***people may have different degrees of risk aversion, which could influence their insurance decision and the magnitude of their expected insurance pay-off. Most people insure when they are healthy.***

Demand for Health and Health Insurance

Regret and disappointment theories

- ***Are based on the assumption that people have a loss aversion and conservative preferences.***
- ***Individuals try to avoid regret and disappointment and do not just consider the eventual outcome, as suggested by Expected Utility (EU) theory.***
- ***They factor in their feelings of regret, in case the decision would have been wrong, and of disappointment, if the outcome does not correspond to what they have expected.***

Demand for Health and Health Insurance

Regret and disappointment theories

- ***Hence, individuals may prefer to remain uninsured** because they might regret their decision, or be disappointed if they do not benefit from an insurance payout; or they insure to avoid feelings of regret from falling ill while uninsured.*
- ***Regret and disappointment theory may be combined with state-dependent utility theory**: an individual in a less fragile health state may factor in a 'smaller amount of regret' when deciding whether to insure or not.*

Demand for Health and Health Insurance

Poverty literature

- ***The poverty literature describes additional concepts that influence decision-making, namely time preferences and poor households' risk aversion against risky investments.***
- ***This literature suggests that households are expected to become increasingly risk averse as they move closer to poverty, as any further drop in income can push them below the survival point.***

Demand for Health and Health Insurance

Poverty literature

- ***Poor households who are more likely to have credit constraints in the future may be more willing to sacrifice current income and insure in order to have less risk in the future.***
- ***According to concepts of time preference, those with a higher value for future protection than current consumption are more likely to purchase insurance.***
- ***On the other hand, the poor might not insure, as out of necessity they may have to choose present over future consumption.***

Demand for Health and Health Insurance

The Theory of Insurance

- ***Two points are important here.***
- ***First, the risk premium is the measure of our willingness to pay for insurance. It is the amount over and above the expected loss that we are willing to pay to avoid the consequences of the loss. This is the reason why insurance can exist. Insurers must pay to settle claims; claims are the expected losses. If insurers are to cover administrative and marketing costs, and make at least a normal profit, they have to collect something over and above the expected loss (Loading Fee). The presence of a (big enough) risk premium allows this to occur.***

Demand for Health and Health Insurance

The Theory of Insurance

- ***Second, the risk premium reflects the most that we are willing to pay. If the insurance market is competitive, we may end up paying much less than what we are willing to pay for coverage, just as we often pay much less than what we are willing to pay for a cup of hot coffee.***
- ***Not everyone has the same degree of risk aversion. Most of us are at least somewhat uncomfortable dealing with risk, others are very uncomfortable, and some love it. Thus, in principle, each of us has our own unique total utility curve like that shown in Figure 3-1.***

Demand for Health and Health Insurance

Demand

- ***Demand** is one of the central ideas of economics. It underpins many of economics' contributions to public and private decision making.*
- ***Analyses of demand** tell us that human wants are seldom absolute. More often they are conditioned by questions: "**Is it really worth it?**" "**Is its value greater than its cost?**"*
- ***These questions are** central to understanding healthcare economics.*

Demand for Health and Health Insurance

Demand

- ***Demand** forecasts are essential to management. Most managerial decisions are based on revenue projections.*
- ***Revenue projections** in turn depend on estimates of sales volume, given prices that managers set.*
- ***A volume estimate** is an application of demand theory.*
- ***An understanding of the relationship** between price and quantity must be part of every manager's tool kit.*

Demand for Health and Health Insurance

Demand

- ***On an even more fundamental level, demand forecasts help managers decide whether to produce a certain product at all and how much to charge.***
- ***Suppose you conclude that the direct costs of providing therapeutic massage are $48 and that you will need to charge at least $75 to cover other costs and offer an attractive profit margin.***
- ***Will you have enough customers to make this a sensible addition to your product line?***

Demand for Health and Health Insurance

Demand

- ***Demand analyses** are designed to answer such questions. On an abstract level, we need to ration goods and services (including medical goods and services).*
- ***We must develop a system** for determining which wants will be satisfied and which will not.*
- ***Market systems use prices to ration goods and services**. A price system costs relatively little to operate, is usually self-correcting (e.g., prices fall when the quantity supplied exceeds the quantity demanded, which tends to restore balance), and allows individuals with different wants to make different choices.*

Demand for Health and Health Insurance

Demand

- ***These are important advantages**. The problem is that markets work by limiting the choices of some consumers.*
- ***As a result**, even if the market process is fair, the market outcome may seem unfair.*
- ***Wealthy societies typically view exclusion** of some consumers from valuable medical services, perhaps because of low income or perhaps because of previous catastrophic medical expenses, as **unacceptable**.*

Demand for Health and Health Insurance

Demand for health care

- ***Economists assume that individuals allocate their limited budget to try and maximize their utility and that when individuals do this, they are using their resources efficiently (i.e., individuals are acting 'rationally').***
- ***A demand curve illustrates this phenomenon, it is a description of the planned quantity demanded at each price when utility is maximized.***

Demand for Health and Health Insurance

Demand for health care

- ***When we translate this thinking to health care, problems arise.***
- ***For example, unlike most other goods, health care does not yield utility directly. Few people enjoy the experience of consuming health care.***
- ***Its value comes from the positive effect one hopes it has on health and, in turn, the satisfaction we derive from the activities we can do when we are healthy (that is, working and leisure activities). Demand for health services is therefore a derived demand.***

Demand for Health and Health Insurance

Market failure in the health insurance

- ***Despite their many virtues**, markets do not always perform well. We will now consider the main reasons markets fail:*
- ***However**, not all of the market failures that may arise in such markets necessarily justify public intervention.*
- ***It is useful to briefly review sources of inefficiency** in the delivery of health insurance, and to examine the extent to which public intervention can correct the associated market failures.*
- *The inefficiencies derive mainly from **information asymmetries** and **imperfect competition**, and less from standard public goods and **externality characteristics**.*

Demand for Health and Health Insurance

Market failure in the health insurance

Despite their many virtues, markets do not always perform well. Other reasons for markets failure include:

1. ***Externalities***
2. ***Public goods***
3. ***Imperfect competition***
4. ***Imperfect information***
5. ***Natural monopoly***
6. ***Income redistribution***

Demand for Health and Health Insurance

Externalities

- ***Production or consumption** of some products may directly affect others. These side effects are called **externalities**.*
- ***When the side effects benefit others, they are called **external benefits**. When the side effects harm others, they are called **external costs**.***
- ***When these side effects are not considered in market exchanges, the resulting equilibrium may entail volumes that **are too high or too low.***
- ***For example**, immunization confers external benefits on people who have not been immunized. If you are immunized, my risk of becoming ill decreases.*

Demand for Health and Health Insurance

Public goods

- ***A public good** is an extreme example of **externalities**.*
- ***A pure public good** has two unusual characteristics:*
  1. ***Consumption by one person does not prevent consumption by another**, and exclusion is difficult. One person's use of a pure public good does not interfere with another's use of it, **so use is nonrival**.*
  2. ***The marginal cost** of letting one more person use the public good **is zero**.*
- ***For instance**, my enjoyment of clean air in the country does not limit your enjoyment of it.*

Demand for Health and Health Insurance

Imperfect competition

- ***At equilibrium in a perfectly competitive market, price equals marginal cost.***
- ***Producing more volume than that produced at equilibrium would be inefficient because the value of the additional output would be less than its cost.***
- ***In an imperfectly competitive market, however, every producer has some market power, so producers will set prices to make marginal revenue equal marginal cost.***

Demand for Health and Health Insurance

Imperfect information

- ***The efficiency of market outcomes rests on the assumption that buyers and sellers have perfect information, which is seldom the case in healthcare.***
- ***The purpose of a visit to a physician is often the reduction of uncertainty; people seek care because they need more complete information.***
- ***If patients are unsure about the benefit, they will gain from a physician visit, they may decide to forgo the visit, which can lead to less-than-optimal market outcomes.***

Demand for Health and Health Insurance

Imperfect information

- ***In insurance markets** with **information asymmetries**, competition may sometimes have negative effects on allocative efficiency.*
- ***For example**, when insurers are faced with a heterogeneous risk population, they will have incentives to sell policies only to low-risk individuals i.e., those individuals to whom it is cheap to provide insurance.*
- ***If they cannot offer different policies to different risk types**, then they may lower the quality of the policies they do sell so as to make them sufficiently unattractive to high-risk individuals.*

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Imperfect information

- ***This kind of selection incentive** might suggest public intervention to control the extent, or at least type, of competition in the insurance market.*
- ***This is referred to as the effect of active selection** the selection by firms, because of their policies, of good risks, as opposed to adverse selection the selection by firms, in spite of their policies, of bad risks.*

Demand for Health and Health Insurance

Natural monopoly

- ***If fixed costs** are so high that only one firm can survive in the long run, that firm is a natural monopoly.*
- ***Monopolies develop relative to** the structure of costs and the size of the market.*
- ***In a small market**, only one hospital may be able to survive. In a larger market, multiple competitors can thrive.*

Demand for Health and Health Insurance

Income redistribution

- ***A substantial part of government spending** can be described as insurance or redistribution.*
- ***In many countries' taxes are** imposed on the healthy and wealthy to provide medical care and income to those less fortunate.*
  ***Redistribution is usually rationalized** in one of two ways.*
- ***One views redistribution as a public good**.*

Demand for Health and Health Insurance

Income redistribution

- ***We all have some sympathy for the unfortunate, and we all benefit if someone offers them aid. Individual gains are small, however, and we may be tempted to let others provide our share of the redistribution.***
- ***People who obtain a benefit at another's expense or without the usual cost or effort are called free riders. Free riding results in under provision of the public good.***

Demand for Health and Health Insurance

The Theory of Insurance

***To summarize**: This simple model is the basis of the demand for health insurance. In the absence of employers, tax subsidies, and the like, we expect to see four sorts of behavior:*

- ***People who are more risk averse will buy more health insurance.***
- ***People will be more likely to buy insurance for events that have large financial consequences.***
- ***People will be less likely to buy insurance for events that are very unlikely or very likely to occur.***
- ***People will be less likely to buy insurance as their wealth position increases.***

THANK YOU