FIYS 197 FOUNDATIONS OF ECONOMIC THINKING
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VI. $700 BILLION BAILOUT GAME/DISCUSSION.

The main ideas to drive home are how the bailout will work, how the housing market "caused" the problem, and to show **moral hazard**.

VII. PUBLIC POLICY (Taylor Chapters 13 – 16)

1. **Ensuring Competitive Markets (Chapter 13).**

Mergers and **acquisitions**
- Pro: Potential to benefit from **economies of scale** and **economies of scope**.
- Con: Potentially limits competition
- The Federal Trade Commission (FTC) is charged with approving or disapproving mergers. The question arises, how should the FTC judge whether a merger or acquisition will restrict competition to too great a degree?

The Four-Firm Concentration Ratio
- Sum up the share of industry sales by the four largest firms.
- Pro: only need information on the 4 largest firms.
- Con: the measure doesn't capture the distribution of firm size (e.g., $C_4 = 80$ with $24 + 22 + 18 + 16$ or with $60 + 10 + 8 + 4$.

The Herfindahl-Hirshman Index
- Sum up the square of each firm's share of industry sales: $HHI = \Sigma (s_i)^2$.
- Pro: Better captures the distribution of sales (e.g., in the above examples, the first industry has $1,640 < HHI < 1,912$ while the second example has $HHI > 3,780$).
- Con: Need to know market size (sales) of each firm.
- Con: Not always easy to determine what is the correct market to consider.

Antitrust vs. Regulation
- **Antitrust** refers to government action that breaks-up firms or prevents mergers of existing firms.
- **Regulation** refers to the government having some say in the setting of prices.

Anti-Competitive Practices
- Minimum resale price maintenance agreements vs. Manufacturer's suggested retail price.
- Exclusive dealings.
- Tie-in sales / bundling.
- Price guarantees.
- Predatory pricing vs. loss-leaders.
- Each of these is an attempt to limit choice among potential customers or among competing firms.

The Microsoft Case
- In the best light, the Microsoft case was a situation in which the U.S. government tried to break-up Microsoft for selling something at marginal cost (e.g., Internet Explorer for a price of $0).
- At worst, the Microsoft case was brought about, because Microsoft was using its dominant market position to force its products onto PCs and, more importantly, to prevent other products from appearing on the same machines.
- The original ruling was to break up Microsoft into at least two firms – a software firm and an operating system firm. The decision was reversed on appeal, and Microsoft has since agreed to stop some of its more aggressive market behavior.

Regulating a Natural Monopoly
- Draw the graph of natural monopoly.
- Regulatory options include:
  - Allow monopoly pricing.
  - Marginal cost pricing with a subsidy.
  - Average cost pricing, with an objective of zero economic profit.
    a. **Cost-plus regulation**
       i. The goal would be to set price at average cost.
       ii. One problem is that firms have very little incentive to limit costs.
    b. **Price cap regulation**
       i. The goal would be to set the price cap at average cost.
       ii. Firms have an incentive to reduce costs as they keep the additional profit.
    c. Under either system, firms have an incentive to overstate costs when the agreements come up for renewal.
    d. The firm doesn't always have an incentive to keep quality high.

Privatization
- Governments are historically very bad at running businesses. They are bad at maintaining or improving quality, adopting innovations, or providing good service.
- World-wide, there has been a recent movement toward privatizing government industries in developing and former communist countries.
- Illinois is trying to privatize the toll ways system, the lottery, parking meters, and Midway airport. The concern is whether the state can extract the true value of the business when it sells or leases the business to a private company. Consumers may also face higher prices or lower quality in the future.
- One reason for increased privatization in the United States is the cost-of-labor wedge between public and private firms. Many union groups campaign for **living wage ordinances** to avoid this problem. (Getting more money to spend now is also nice for politicians.)

2. **Externalities and Environmental Economics (Chapter 14).**

Externalities
- **Externalities** are costs or benefits paid or received by a third party.
- **Positive externalities** (e.g., education) are undersupplied in a competitive economy, while **negative externalities** (e.g., pollution) are over-supplied in a competitive economy. [Draw the graph of private and social costs.]
- The **solution** to externalities is to force economic agents to internalize the cost or benefit.

Solutions for Externalities

- **Command and Control Regulation**
  1. Under command and control regulation, the government regulates the externality in the same way for all economic agents. For example, the government might regulate cars by saying all cars must get at least 20 mpg.
  2. One problem with this is that no firm has an incentive to do better than the regulation. Firms are also good at circumventing regulations.
  3. Another problem is that it treats all firms equally, even though some firms may have an easier job of attaining the objective than others.

- **Taxation**
  1. An externality tax (e.g., a pollution tax) can be placed on the transaction of the good that produces the externality.
  2. This is useful in that people can be forced to pay the true social cost of the good.
  3. Taxation in this manner usually achieves a reduction in a negative externality with more flexibility and in a more cost-effective manner than command and control regulation.

- **Tradable Permits**
  1. Under tradable permits, firms are given permits that allow a certain amount of pollution. If they want to produce more pollution, they must purchase permits from other firms. Firms not using their permits can sell them to other firms.
  2. Tradable permits results in a system whereby:
       a. The government sets the amount of pollution in the system (a political decision).
       b. The targeted pollution level is achieved in the most efficient way possible, with some firms cleaning up because they are good at that, while others continue to pollute.
  3. Provide a standard tradable permit problem. Determine the price of a permit.
  4. Notice that a big part of the permit game is being given permits. The distribution of permits largely determines the winners and the losers.
  5. The United States stayed out of the Kyoto protocol largely because Kyoto didn't incorporate a tradable pollution permit system. Now the Kyoto countries are refusing to go forward without such a system.
  6. Tradable permits is an idea worthy of a Nobel prize. The implementation of such systems has had remarkable success with limiting water and air pollution in the United States over the last 40 years. Tradable permits can also be applied to a variety of ideas, including national deficits of EU countries.

- **Well-Defined Property Rights**
  1. As long as property rights are well-defined and enforced, the efficient outcome will always come about if bargaining costs are small (Coase).
  2. The role of the government, therefore, is to assign and protect/uphold property rights and their potential transfer between two economic agents.
  3. Give an example of noise in a college dorm.
  4. Give an example of baseball players.
  5. This idea has, in fact, received a Nobel prize.

- Notice that under none of these schemes is the claim made that the optimal amount of pollution is zero. In almost any economy, pollution will result from producing goods. The real economic question is, once the acceptable level of pollution has been determined, what is the best public policy to achieve this target?

3. Technology and Positive Externalities (Chapter 15).

Why do individuals and firms invest time and money into inventions and the discovery process, known as **research and development (R&D)** in the field?
- To profit from potential discoveries.
- An efficient economic system, therefore, must allow economic return to accrue to discoveries and inventions that people find worthwhile.
- Joseph Schumpeter, and Austrian economist, put forth the idea of **dynamic efficiency** and **creative destructionism**.

Research and Development
- Most **basic R&D** is funded by the federal government, and much of it takes place at colleges and universities.
- Most advanced or **specific R&D** takes place inside firms.
- **International property rights**, including patents, copyrights, and trademarks, is one way to foster new, creative work. Protecting international property rights is extremely difficult.
- Some new developments are a product of **research joint ventures**. But RJVs come with pros and cons.
    1. Pros: More can be produced with more viewpoints or with different technologies (i.e., there are **complementarities** across firms in the research process).. The advancements are shared by all, further limiting monopoly power stemming from the new development.
    2. Cons: Firms may start colluding in other aspects, such as price setting.
    3. Whether the government should encourage RJVs is unclear.
- Research Joint Ventures potentially include three forces:
    1. The **Free Rider Effect**. Firms may not contribute as much to the RJV as they would contribute to R&D on their own, because they will receive the successes of the RJV regardless of how much they contribute. Thus, total private investment in R&D may be undersupplied if the government allows RJVs. (In economics lingo, each firm tries to free ride on the other firm's R&D.)
    2. Individual R&D results in **spillovers** between firms (and scientists). Whenever one discovery is given a patent, other labs and scientists reverse engineer the discovery and find new things. With RJVs, the spillovers are 100%. Sometimes this is good, sometimes it is bad.
    3. Lastly, an RJV may be able to benefit from **complementarities** in the research process. If complementarities exist, both firms will benefit from the RJV more than they would when carrying out individual R&D. Both firms also have more of an incentive to contribute to the RJV when complementarities exist.
    4. The main conclusion (in Anbarci, Lemke, and Roy, 2002, *International Journal of Industrial Organization*) is that RJVs should be encouraged when complementarities are high but discouraged when they are low.

Patent Length
- What is the optimal length for a patent? It probably depends on the product. Should Disney be able to extend its copyright on Mickey Mouse?
    - Pro: Yes, otherwise others will tarnish the reputation.
    - Con: No, the protection doesn't lead to further development of Mickey Mouse.
- The patent length for prescription drugs is 20 years from the time of the patent, which happens early in the R&D process in order to prevent others from beating one to the punch. After receiving the patent, the drug still must go through clinical trials and tests. The effective patent length can be as little as 10 or 5 or even 2 years.

- o Congress passed the Hatch-Waxman Act in 1987 (I believe) that guaranteed an **effective minimum patent length** of at least 5 years. It also made it easier to produce generic drugs. (Again, balancing incentives.)
- o The problem is that firms have perverse incentives to "cut corners" at the testing stage.
- Better policy: don't issue patents for non-medical advances (gel tablets, time release, etc.) but grant longer patents for the original compound.
- Another proposal is for the government to purchase the patent from the drug company and then allow anyone to make the drug. There is a lot of talk about allowing Medicare to negotiate with drug companies to keep prices down. The government could instead just purchase the patent. How the government would do this at a reasonable price, however, remains unclear. The Gates Foundation has made similar offers for buying a vaccination for malaria.

Public Goods
- Public goods are goods that consumers value but that are nonrivalrous and nonexcludable.
  - o **Nonrivalrous** means that more than 1 person can consume the good.
  - o **Nonexcludable** means that it is not cost effective to restrict use of the good once it has been produced.
- Examples of public goods are not easy to come by. National defense is the standard example. Other standard examples such as highways, parks, and schools are not public goods. Each of them violates at least one if not both of the above definitions.
- Keep in mind as well that governments may have to pay for public goods if they want them produced, but this doesn't mean that the government has to actually produce the good. The government can **privatize** the production of the good while overseeing the production of the good.
- The term **free riding** is usually associated with public goods, but it doesn't have to be. The idea of free riding is simple – benefiting from a good for which one did not pay. I can free ride on your contributions to public radio, to the questions you ask in class, and on your responsible behavior in a firm (who pulls the governance weight?).

4. Poverty and Economic Inequality (Chapter 16).

The **poverty line**, which is necessarily arbitrarily drawn, is set at three times the cost of a nutritious diet. It has remained defined as such over the years. In 2005, the poverty line for a family of 2, 3, and 4 was set at about $13000, $15600, and $20000 respectively.

Overall poverty fell drastically during the 1960s, but it has been around 12 – 15% for the last 40 years. Social Security and Medicare are the primary reasons for the decline. That is, the United States has been very good at eliminating poverty of the elderly, but it has not been successful of eliminating poverty of children.

The **poverty trap** refers to an economic dilemma facing anti-poverty programs. Most programs take back benefits as the person receives more income. If the take-back rate is great enough, people in poverty will not have the incentive to begin work or earn more money. Avoiding the poverty trap is probably the most important challenge facing poverty programs. The remainder of this section focuses on anti-poverty programs in the United States.

Temporary Assistance for Needy Families (TANF)
- Feds and states split the cost.
- To receive federal funds, states must impose time limits (24 months in any 60 month span) and work requirements.
- States have flexibility in how they spend the money.
- Unintended Consequence: Lemke, Witt, and Witte (2005, *Eastern Economic Review*) show that time limits and work requirements may encourage single mothers to find low-wage, low-skill jobs rather than taking the time to improve skills and invest in education in order to eventually escape poverty.
- Annual spending on TANF is just under $30 billion.

Earned Income Tax Credit (EITC)
- Poor people (it helps to be a single mother) receive a tax credit worth 40% of her wage.
- Eventually the credit is stopped (roughly when $4,000 is received after earning $10,000). So, for example, the person still receives $4,000 in tax credit whether she earns $10,000 or $20,000. Starting at $20,000, the person's tax credit is "taxed-back" at a 21% rate. Thus, the $4,000 is taxed-back linearly from $20,000 to $40,000
- Pros: The EITC rewards working.
- Pro: The EITC doesn't impose a **distortion in the labor market**, because it isn't paid by firms. People simply work, and if they are eligible for the EITC, then they apply for it through the federal government.
- Pro: The credit is computed using household income, so low-wage workers who are married to a wealthier worker does not qualify for the credit. (This is a particularly bad feature of the minimum wage.)
- Cons: The EITC is thought to be extremely expensive compared to other anti-poverty programs, except Social Security and Medicaid, costing about $35 billion annually in pure cash transfers.
- Con: EITC is riddled with fraud. Estimates suggest that one-third of payments are fraudulent. Estimates also suggest that one-third of legitimate benefits go unclaimed. (Run through the daycare scam.)

Food Stamps
- The federal government gives food stamps (subsidized food purchases) for people living below the poverty line.
- The average benefit is about $100 per person per month.
- Pro: Food Stamps target people, and in particular children, living in poverty.
- Con: People can use food stamps in ways so that the money is not spent on food. (Give the Madison food stamp story.)
- Con: A food stamp program such as this does not really provide additional food or nutrition to the recipients.
- The annual cost of the federal food stamp program is about $30 billion.

Medicaid
- Medicaid is the federal government's health insurance program for the poor. While the federal government provides much of the money and requires certain minimum coverage, state governments can choose to contribute to the program and extend benefits.
- The annual cost of Medicaid, including federal and state funds, is about $230 billion.

Minimum Wage
- The minimum wage, currently set at $6.55 per hour, is an anti-poverty program.
- The minimum wage is an easy target for Congress, because it officially costs the federal government $0.
- Some states set a minimum wage above the federal minimum wage.
- Con: The minimum wage introduces a distortion in the labor market as it artificially inflates the cost of labor. The potential exists, therefore, for an increased minimum wage to increase unemployment as firms substitute capital or high-skill labor for low-skill labor.
- Con: The minimum wage does not actually target the poor. About one-third of minimum wage workers are teenagers, while another third are second-wage earners in the household.

Social Security
- Workers contribute 6.2% of labor income into Social Security, with firms matching 6.2%. Given the elasticity of labor demand and labor supply, empirical estimates suggest that workers pay a 10% tax while employers pay a 2.4% tax.
- Contributions are capped at the first $100,000 of income (or so). Thus, Bill Gates and Tom Hanks pay the same amount into social security as a college professor earning $100,000.
- Benefits are a function of a minimum amount plus a formula part determined by how much one contributed, up to a monthly maximum.
- Presently people can retire at age 67 and receive "full benefits", but really people can retire earlier or later and their benefits will adjust in an actuarially fair manner. This introduces an adverse selection problem. People who think they are going to die soon should retire sooner and receive some benefits. People who think they will live past life expectancy should delay retirement so they receive larger benefits during their longer-than-average life.
- Presently, monthly benefits run from between $1,000 per month and $3,000 per month for new retirees.
- Benefits are paid as long as one survives, but then benefits stop. People are not associated with a particular account or annuity value. Thus, Social Security is financially a worse deal for people with shorter life expectancies (blacks in particular).
- Spouses receive their benefit or half of their spouses. When a spouse dies, the living spouse receives either their benefit or their spouse's benefit, whichever is larger. Some people view this as an anti-woman policy, but it really isn't.

Solvency of Social Security
- Presently there are about 4 workers for every retired person. This is going to fall to about 2.3 workers per retired worker in 20 years.
- The best way to make social security solvent, therefore, is to have the 2.3 future workers be just as productive as the current 4 workers. Thus, increased worker productivity (i.e., education and technological developments) are the best hope of averting a problem.
- Presently social security takes in much more money than it sends out. The Social Security Trust Fund invests these extra funds into U.S. treasury bills. Eventually it will have to trade in these securities in order to make its payouts. And then, in 20 to 40 years (if ever), the trust fund will run dry and the government will need to increase tax rates, decrease benefits, or borrow.
- The easiest proposal that most economists would welcome is the elimination of the cap. Under a good economic forecast, this would make the system solvent.

Economic Inequality in the United States
- The poorest 20% of households earn less then 5% of all income (and pay almost no taxes). The wealthiest 20% of households earn over 50% of all income (and pay over 50% of all taxes.). The top 5% of all households earn over 20% of all income (and pay over 20% of all taxes).
- Over the last 30 to 40 years, inequality has increased between college-educated and non-college-educated workers. The empirical evidence suggests that the demand for skills has increased even in the face of increased supply. This has been termed **skill-biased technological change**.
- This inequality, of course, does not reflect the inequality (and wealth) of the world. Most poor people in the United States are rich relative to the world.

The Estate Tax
- The federal estate tax is considered to be an aggressive redistribution policy. However, it only generates about $30 billion each year.
- People do not pay estate taxes until their entire estate is worth at least $3 million ($6 million if married), but the tax rate is effectively 50%.
- States impose inheritance taxes.
- If the law doesn't change, the estate tax will be eliminated in 2010, but then return to tax estates valued at just $650,000 ($1.3 million if married) in 2011.

5. Economics of Information (Chapter 18).

Example. Prison education programs and recidivism.

Adverse Selection occurs when economic agents make self-interested choices given their **private information** about themselves.

- o Returns to college education: $38,000 HSD vs. $72,000 College Degree (median, 2005).
- o Used car market (lemons) – one immediate problem is that the market gets very **thin**.
- o Buying toxic mortgages – the private market has disappeared.
- o The most sick people are the most eager to purchase health insurance. Adverse selection is why most economists think Barrack Obama's healthcare proposal cannot succeed as currently stated/funded.
- o The most dangerous drivers are the ones in most need of car insurance.
- o The decision regarding when to start receiving Social Security benefits is based on private information regarding life expectancy.

What are some "solutions" to adverse selection?

- o Recidivism and schooling examples don't require a solution other than a statistical one, but this is an important lesson to know coming out of any principles course.
- o Places like Car Max offer warranties.
- o Requiring a firm to purchase health insurance for all employees.
- o State governments requiring all drivers to purchase insurance. (Good drivers end up subsidizing bad drivers.)
- o **Mechanism design** – mechanisms or policies designed to elicit (or prevent) certain behavior despite private information.

Moral Hazard occurs when economic agents make private (hidden) decisions.

- o Treatment of rental properties.
- o Worker effort.
- o Managerial decisions.
- o Once insured, people may be less vigilant (smoking, driving).

Moral hazard problems are what economists call **principal – agent problems**. These situations can be framed as an agent, with private information regarding his actions, making decisions ostensibly on behalf of the principal. The problem then is to figure out how to structure a reward system that elicits the correct behavior from the agent. That is, how can the principle structure rewards so that the agent makes the decisions that are in the best interest of the principal rather than making decisions that are in the best interest of the agent.

Real-world solutions to principal-agent problems (again, under the heading of **mechanism design**).

- o Sales people are paid a commission to keep their effort high.
- o Group workers are offered profit sharing. The idea is that the group members will self-police each other. (Southwest Airlines.)
- o Offering stock options to CEOs. (CEO is the agent and stock holders are the principals.)
- o Capping dental insurance benefits.
- o Imposing large deductibles on insurance policies.

In review, discuss two examples:

- o **FDIC insurance on banking deposits**. This policy elicits bad behavior in that depositors no longer have the incentive to make sure that the banks are making good investments. That is, depositors are engaging in moral hazard by no longer undertaking the painful (or, at the very least, time-consuming) actions of monitoring banks. The natural result is that banks start making riskier investments than they otherwise would.
    - o The government's "solution" may be to increase the premium rate paid by banks, but this most likely just encourages banks to make even riskier investments.

- o Why don't car insurance policies allow drivers to decline the option of **car rental insurance**? As it is, this "**rider**" is usually included in policies automatically. The reason is that most people would pass on the coverage, and only those people that rent cars often will take the coverage. At current prices, high frequency users (i.e., people who rent cars frequently) receive a lot of benefit while low frequency users receive little benefit. When coverage is not optional, low frequency users subsidize high frequency users. If the rider was optional, however, most people would pass on the coverage, and the insurance company would have to charge high frequency users a very high price, which would make the market extremely thin.
    - o By requiring the rider of all customers, car insurance companies are extending their market to the market for rental cars.
    - o Car insurance companies may also have an incentive to make sure their clients are insured while driving a loaner car when their primary car is being fixed, but this is another issue altogether.

Insurance:

- Why does an insurance market exist?
  - Spreading / sharing risk.
  - Individuals don't like (or can't) bear such great risk.

- The **fundamental rule of insurance** is that the average premium must exceed the average claim
  - For a company, like Lake Forest College, our total premiums must exceed our total claims, because our insurance provider has overhead costs as well.
  - Except in extreme situations (after which affording insurance is almost impossible), insurance companies are designed to make money on the insured. There are, of course, winners and loser in any given plan and from year to year.

- Those who can, therefore, are always better off being **self-insured** as it will save some money.
  - Self-insured dental plans are common. The Lake Forest Elementary School District saves about $50,000 (or over 20% by choosing to be self-insured, of course, the district assumes more risk than if it was not self-insured).
  - Self-insured health plans still purchase catastrophic insurance to prevent extreme exposure or impose caps on benefits.
  - Are extended warranties a good deal? Possibly, but not likely.
    - What is covered?
    - Will you have a receipt?
    - When will it break (i.e., during the original warranty period)?
    - Is the firm pricing between its cost and your value?

- Any other questions on insurance?