Government Regulations

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ECON 2216: Industrial Organization

Outline

Market Power and Inefficient Behavior

- To prevent practices or amalgamations of firms that would harm society through the exercise of market power
- Economists often have difficulty determining which practices result in inefficient behavior
  - E.g., suppose that two firms merge and the resulting reduction in competition causes price to rise. That sounds bad. However, suppose that as aresult of the merger, the merged firm develops a new and better product or provides the same product but offers better services or develops a lower-cost method of production than before. That sounds good
    - ⋆ Should the antitrust laws ban all mergers if they significantly eliminate competition, or should they also pay attention to the potential efficiency gains and balance the two?

Trade-off Between Price and Efficiency

- Mergers may result in both increased price and increased efficiency
  - Price increase due to eliminated competition may cause deadweight loss
  - Lowered marginal cost due to efficiency gains
- Efficiency gains can outweigh deadweight loss (e.g., \$9 gain vs. 50¢ loss)
- Complexity and debate in applying calculations to antitrust proceedings
  - Increased use of economics in antitrust cases
  - Litigation complications due to different countries' analyses

Who May Sue

- Deciding who has legal standing, which is the right to bring a suit, is complicated
  - Only a party that suffers an injury that the antitrust laws were designed to prevent is permitted to sue
  - E.g., suppose that if two firms merge, they will become very efficient and reduce price. Rival firms would be harmed by the merger, yet they have no legal standing to sue to block the merger under the antitrust laws because the goal of the antitrust laws is to generate low prices to consumers
- Suppose that individual consumers are the direct purchasers of a product from firms that have engaged in a conspiracy
  - Would an individual purchaser have the incentive to sue if all that could be recovered was the price overcharge on the product, trebled, plus attorneys' fees? Usually no
  - In an effort to create greater incentives to bring suits, courts allow attorneys to file class-action suits on behalf of all consumers

Economic Theory of Damages

- The economic theory of damages starts from the proposition that the purpose of damages is to deter inefficient activity but not to be so burdensome as to deter efficient activity
  - E.g., Suppose that any time a firm was convicted of illegally conspiring with another firm, the firms' managers were executed
    - ★ As will be shown, it is not so easy to determine when an agreement among firms is an illegal one
    - ★ If the penalty were death, many firms might be dissuaded from activity that could be perfectly lawful and beneficial, such as the creation of a trade association that sets product safety standards
    - ★ The optimal penalty is one that balances the beneficial and the nonbeneficial aspects of deterrence
- An optimal penalty reduces the incentive to engage in illegal activity
  - E.g., Suppose a group of firms conspire, they can raise their profits by \$100
    - ★ If this conspiracy could be detected with certainty and at no cost by enforcement officials, then a penalty of \$100 would suffice to deter the activity

Market Power[1]

- A firm has market power if it is profitably able to charge a price above that which would prevail under competition
- It is difficult to measure marginal cost and therefore difficult to measure the deviation between price and marginal cost
  - An alternative approach is to estimate the price elasticity of the residual demand facing an individual firm
  - This price elasticity of the residual demand summarizes the ability of a firm to exercise market power
  - The price-cost margin equals the negative of the inverse of the elasticity of demand:

$$\frac{(p - MC)}{p} = -\frac{1}{\epsilon}$$

  - If the elasticity is large, the firm has little market power

Market Power[2]

- Whether a firm currently has market power is a much different question from whether, as a result of a merger, it could acquire and exercise additional market power
- The first question: Whether price is already elevated significantly above competitive levels
  - Can be answered directly by comparing price and marginal cost or indirectly by looking at the elasticity of demand facing the firm
  - The second question: Whether price will rise significantly above its current level as a result of the merger activity
    - Can be answered directly by predicting how price will change or indirectly by predicting how the elasticity of demand facing the firm will change as a result of the merger

Market Definition

- A **market definition** specifies the competing products and geographic area in which competition occurs that determines the price for a given product
- How the market is defined often determines the outcome of antitrust cases
  - E.g., in determining whether to permit a merger, the government and the courts examine the market shares of firms, which are viewed as proxies for the firms' actual or potential market power
  - A firm's market share depends crucially on the market definition
    - E.g., Coke's share of its market will be much larger if the market is defined as colas than if it is defined as all soft drinks or all drinks

Product Market[1]

- A proper definition of the product dimension of a market should include all those products that are close demand or supply substitutes
  - Product B is a demand substitute for A if an increase in the price of A causes consumers to use more B instead
  - Product B is a supply substitute for A if, in response to an increase in the price of A, firms that are producing B switch some of their production facilities to the production of A
  - In both cases, the presence of B significantly constrains the pricing of A
- The degree of substitution between products depends on the current prices of the two products
  - E.g., A and B may be highly substitutable at a high price for A, but not at a low price for A
- Because it is difficult to determine which products to include in the market definition, market shares may be only a crude indicator of market power

Product Market[2]

- If Products A and B are in the same economic market, then their prices should tend to move closely together.
- Therefore, a reasonable first step in defining economic markets is to examine the price correlations among different products that are under consideration for inclusion in the same product market
  - Although no standard levels of correlation have been established to determine if two products are in the same market, the available data may often be used to develop such standards
    - Suppose that everybody agrees that two different types of plastic materials are in the same economic market
    - One could compute the correlation between their prices and use it as a benchmark to determine whether some third plastic material belongs in the same economic market with the other two products
- **Cross-elasticity of demand:** The percentage change in quantity demanded in response to a 1 percent change in the price of another product
  - All else the same, the larger a cross-elasticity of demand, the larger in absolute value is the direct elasticity of demand

Geographic Market

- The geographic limit of a market is determined by answering the question of whether an increase in price in one location substantially affects the price in another
  - If so, then both locations are in the same market
  - E.g., Consider the consumption of oranges in Chicago
    - Oranges are shipped to Chicago from outside the city limits
    - The geographic areas that ship to Chicago are in the same economic market as Chicago because they contain orange producers whose output significantly influences the price of oranges in Chicago
    - Notice that these same orange producers could also significantly affect the price of oranges in Milwaukee
    - Thus, Milwaukee and Chicago could be in the same economic market

Price-Fixing and Output Agreements

- The Court's views on price-fixing and output agreements are that an agreement whose sole purpose is to eliminate competition and raise prices above competitive levels is illegal
- The reduction in the number of cartels is likely the most important achievement of U.S. antitrust laws
  - Cartels can significantly raise prices to consumers
  - Thus, consumers benefited greatly from the prosecution and elimination of these cartels

Not All Agreements are Illegal: Rule of Reason

- Price-fixing may be lawful if ancillary to procompetitive purpose
- Investigate necessity of price-fixing for procompetitive purpose
- Famous case: Chicago Board of Trade
  - Members agreed to trade only at closing price after Board closed
  - Encouraged trading during Board's open hours
  - Organized exchange creates market price, charges fees for trades
  - Reduces free-riding problem by discouraging after-hours trading
- Court ruled agreement not a per se violation of antitrust laws
  - "The true test of legality is whether the restraint imposed is such as merely regulates and perhaps thereby promotes competition or whether it is such as may suppress or even destroy competition."
- Cooperative agreement on pricing can sometimes promote competition

Outline

Market Inefficiencies

- The most common justification for regulation is to correct a market inefficiency
  - Commonly observed causes of market inefficiencies include
    - ★ monopoly power
    - ★ externalities such as pollution, uncertainty, and
    - ★ various forms of opportunistic behavior
- Not all inefficiencies can be corrected even by optimal government intervention
  - E.g., If the inefficiency stems from limited information, the government may not be able to obtain and disseminate the relevant information cost effectively

Correcting Market Inefficiencies

- There are two chief points of view:
  - Many, if not most, economists argue that the chief objective of government regulation should be to promote economic efficiency by eliminating market inefficiencies
  - Other economists and consumer advocates argue that regulation should be used to redistribute income

Capture Theory, Interest-Group Theory, and Captured Regulatory (Highlighted)

- **Capture theory**: firms want regulation to "capture" regulators and control their actions
- **Interest-group theory**: various groups (firms, consumers, etc.) can influence regulators
  - *Example: Occupational licensing*
    - ⋆ Regulated occupations (plumbers, electricians, doctors, etc.) lobby for licensing laws
    - ⋆ Regulations make entry difficult, raising wages in regulated occupations
- **Captured Regulatory**: Industries may capture regulatory bodies directly or indirectly
  - Lobby legislatures for regulation (e.g., occupational licensing, transportation)
  - Capture staff of regulatory agency
- *Three reasons for likely regulatory capture*:
  1. Staffed by sympathetic industry experts
  2. Staff may expect attractive jobs in industry after leaving agency
  3. Limited resources lead to reliance on well-financed regulated firms

Example

- A spectacular example of the capture of a regulatory body by railroads occurred when trucks first started competing with railroads for long-distance freight-moving business in the early 1930s
  - Texas and Louisiana placed a 7,000- pound payload limit on trucks serving two or more railroad stations (and hence competing with railroads), but applied a 14,000-pound limit to trucks serving only one station (and hence not competing directly with railroads)

When Regulation is Harmful?

- Three cases where regulation is unnecessary or harmful
  1. Firms have an incentive to develop a new product, make a new discovery, or obtain a more efficient technology than anyone else so as to become a monopoly. Regulation that removes this incentive to innovate without replacing it with other incentives may be harmful
  2. Second, if a market is competitive or contestable, there is little need to regulate because market pressures eliminate monopoly power
  3. Third, the cost of regulation may be so high or regulators so inept that society is harmed by regulations
- Where a monopoly is not likely to be eliminated quickly by entry and where it does not serve as an incentive to innovate, government intervention may be useful

Government Ownership

- One approach to regulating a natural monopoly is to have the government own it and set prices to maximize welfare rather than profits
- Public ownership of utilities is common in the United States
  - 75% of the population use publicly owned water, and 20% get their electricity from publicly run firms
- Often, government-owned firms are less efficient than privately owned firms(Chinese SOEs)
  - Managers have less of an incentive to maximize profits under public ownership

Franchise Bidding and Control

- **Franchise bidding**: Government sells monopoly rights to highest bidder
  - Government captures monopoly rents through bidding process
- Government may require bidder to increase welfare over monopoly level
  - Consider fee and price charged to consumers
  - Eliminate monopoly profits with low prices
- Efficiency challenges:
  - May not result in efficient pricing
  - Natural monopolies may lose money at price equal to marginal cost
  - Regular monitoring to prevent price increase or service reduction
  - Economic environment changes may require repeated bidding
  - Incumbent advantage in subsequent bidding

Price Controls: Efficiency, Redistribution, and Regulation

- Governments use price controls to control inflation or keep industry prices low
- Price regulation of a monopoly has efficiency and redistribution effects
  - Moderate reduction in monopoly's price raises efficiency
  - Excessive reduction creates shortages, can decrease quantity sold
- Unregulated monopoly charges price p_m and sells Q_m units; deadweight loss occurs
- Regulatory board sets maximum price:
  - $\underline{p} > p_m$: no effect
  - $\underline{p} = p_c$: efficient solution, deadweight loss eliminated
- Efficient regulation requires:
  1. Monopoly making positive profit
  2. Cost of regulatory board less than social gain
  3. Regulatory board having enough information for optimal regulations

Price Regulations of a Natural Monopoly

- A firm is a natural monopoly if it can produce the market quantity at a lower cost than can two or more firms
  - If the natural monopoly is not regulated, it charges p_m , sells Q_m units, and makes a large profit
  - If the regulatory board sets $\underline{p} = p_a$, the monopoly sells Q_a units and makes no profit
    - ⋆ It leads to inefficient pricing because $p_a > MC$
    - ⋆ The efficient solution is to set $\underline{p} = p^* = MC$ and sell Q^* units
- If $\underline{p} = p^*$, the monopoly loses money
  - The monopoly prefers to shut down rather than take losses
- Society could keep the monopoly operating at p^* by subsidizing it by an amount equal to the lost profit
- An alternative way to keep the monopoly operating, and operating efficiently, is to allow it to price discriminate
  - The regulatory prices that maximize consumer welfare subject to the requirement that revenues cover costs is called **Ramsey pricing**

Natural Monopoly Price Control: Utility Industry

- Utilities (water, sewer, electricity transmission, energy distribution) are natural monopolies
  - High start-up costs and significant economies of scale
- Governments regulate utilities to ensure fair pricing and proper services1
  - Price controls prevent excessive prices to consumers
  - Quality of service is regulated
- Example of natural monopoly price control: protecting consumers from exploitation

Sustainability of Natural Monopolies

- Natural monopoly: most efficient for one firm to produce entire industry output
- **Sustainable** natural monopoly: can prevent entry
- Single-product natural monopoly sustainable if economies of scale at all outputs
  - Natural monopoly with strictly falling average cost curve: immune to entry
  - Natural monopoly with U-shaped long-run average cost curve: not always immune

Regulatory Lag

- *Inducing regulated firms to produce efficiently may be a problem*
- Regulated firms not rewarded for lower costs as regulated price is lowered accordingly
- Trade-off between lower costs in the long run and lowest possible price at any given time
  - Insisting on lowest price could harm consumers in the long run
- *Price cap regulation*: maximum price set, not changed for several years
  - Encourages regulated firms to lower costs during price cap period
  - Common for local phone rates in the US and UK

Making Competitive Industries More Monopolistic

- Governments often regulate competitive industries, making them less competitive and lowering welfare
  - Governments may regulate poorly because of mistakes or because regulators are captured by special-interest groups
- Agricultural marketing orders allow farmers to act collectively to reduce total crop production and to price discriminate
  - In some industries, laws allowed advertising about prices to be forbidden
  - This ban on advertising gave firms information-based monopoly power and resulted in higher prices

Limiting Entry

- Governments restrict entry in some industries
  - E.g., occupational licensing laws
- *Restricting entry creates artificial scarcity, raises prices for consumers*
- Government-provided rights or licenses to existing firms
  - Potential entrants can only obtain a license from a license-holder leaving the industry
  - Number of firms stays constant
- New entrants do not make excess profits, but consumers pay high prices
  - Example: taxicab industry

Agricultural Regulations: Price Supports and Inefficiency

- Governments may promote inefficiency to transfer income to the agricultural sector
- **Price supports**: Government buys excess to prevent prices from falling below support levels
  - Induces farmers to produce more than in a competitive market
  - Government buys and stores excess supply
- Inefficient income transfer to farmers
  1. Excess production
  2. Inefficiency in consumption: consumer pays price above marginal cost
  3. Government pays to store excessive output

For Further Reading I

- Carlton, Dennis W., and Jeffrey M. Perloff. Modern Industrial Organization. Fourth edition. Harlow, Essex, England: Pearson, 2015. Print.
- Belleflamme, Paul., and Martin. Peitz. Industrial Organization : Markets and Strategies. Cambridge, UK ;: Cambridge University Press, 2010. Print.