Regulation and Deregulation

1. Introduction

Regulation refers to the participation by governments, either directly or indirectly through government agencies and commissions, in the decision making processes of businesses and individuals. The impetus for government intervention may be purely economic, or it may stem from broader social or environmental concerns. Worker safety and environmental protection laws influence business decision making as much as direct economic regulation (of prices, for example). From an industrial organization perspective, regulation is one of four possible social responses to the existence of market power, the other three being public sector provision (nationalization), antitrust (or pro-competitive) laws, and acquiescence.

Broadly speaking, there are two schools of thought on the existence of regulation in a mixed market economy. The first explanation is that regulation arises as a response to some market failure, and that it is carried out in "the public interest." The second explanation is that regulation is an economic good of value to certain groups in society, and that various levels of government are suppliers of this good.

Public Interest Theories of Regulation

Generally, public interest explanations of regulation are a form of *normative analysis* because they justify the existence of regulation via claims that regulatory responses to specific situations result in improvements to social welfare. These explanations view regulation as a process carried out in the public interest as a response to market failure.

The first state regulatory boards were established in the 1870s, using such justification. The legal foundation for regulation was established by the Supreme Court's Munn v. Illinois decision (1877), which upheld the right of the state of Illinois to set maximum prices on grain storage warehouses, arguing that grain storage was in the public interest:

> "When, therefore, one devotes his property to a use in which the public has an interest, he, in effect, grants to the public an interest in that use and must submit to be controlled by the public for the common good to the extent of the interest he has thus created."

A market failure justification requires three things:

- Proof of the existence and significance of market failure.
- Determination that correction is feasible. This entails identifying a regulatory framework in which profit maximization leads to the desired social outcomes.
- Cost-benefit analysis. The benefits of regulation (improved allocative efficiency) must be balanced against the costs of regulation, which generally fall into two categories:

(1) ***Direct costs*** of maintaining a regulatory agency

(2) ***Indirect costs*** of regulation-induced inefficiencies

Economic theory of regulation[1]

These theories of regulation are based on the premise that there is a demand for regulation from groups who could benefit from the redistribution of income and wealth resulting from regulation. The supplier of regulation is the government. One typical conclusion of this form of analysis is that regulation tends to benefit small, well-organized groups with strong feelings at the expense of large, unorganized groups with weak feelings.

Economic theories of regulation do not attempt to justify regulation, merely to explain its existence and form as the outcome of wealth-maximizing efforts of self-interested economic agents in society. Thus, economic theories of regulation are a form of *positive analysis*. Such views enjoyed increasing popularity among economists and government decision makers in the 1970s and 1980s as a trend toward deregulation of previously regulated industries began to gain momentum. Economic theories of regulation often offer explanations for observed outcomes in situations where public interest explanations are inadequate:

- "Regulatory Capture" -- a precursor to economic theories of regulation. The economic view of regulation provides theoretical underpinnings for the notion that regulators are often "captured" by the very firms and industries they are supposed to control. In return for votes, financial support, or the promise of future private-sector employment, regulators use their power to serve the interests of the firms. This notion turns the public interest theory of regulation on its head.

- Cross-subsidization as a manifestation of interest group influence. Regulation often entails one group of customers paying higher prices to enable regulated firms to offer another group of customers lower prices.

- Case examples:

  (1) Railroads and the ICC

  (2) Interstate trucking -- regulation as a means to price fixing

  (3) Airlines -- Regulation was initiated (in the 1930s) ostensibly for safety reasons, but eventually was used by airlines to maintain high prices on key

[1] Stigler, George, "The theory of economic regulation." *Bell Journal of Economics* 2 (1971): 3-21; Posner, R., "Taxation by Regulation." *Bell Journal of Economics* 2 (1971): 22-50; Posner, R., "Theories of Economic Regulation." *Bell Journal of Economics* 5 (1974): 335-358; Peltzman, Sam, "Toward a More General Theory of Regulation." *Journal of Law and Economics* 19 (August 1976): 211-240.

routes. The major carriers' opposition to deregulation is prima facia evidence in support of the economic theory of regulation -- If regulation were detrimental to firms and served the "public interest" of consumers, then why would regulated firms oppose deregulation?

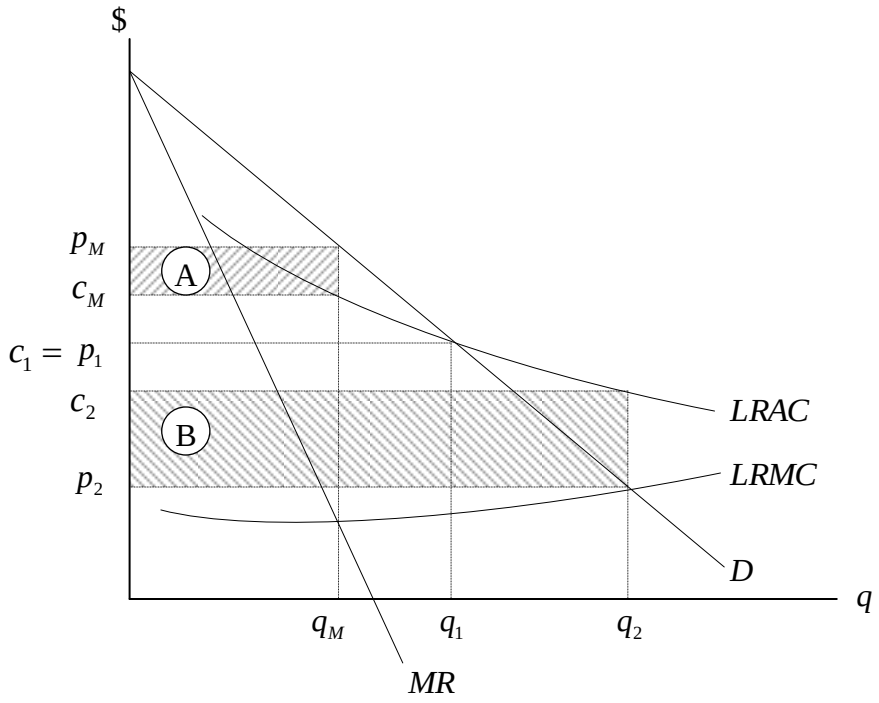
2. Traditional public interest approach -- theory and implementation

Usually, regulation in response to market failure takes the form of price and/or entry regulation. The typical "suspects" are the cases of natural monopoly and large sunk costs/specific investments.

The natural monopoly or efficiency dilemma

Figure 1 presents the standard depiction of the natural monopoly problem. Left on its own, the monopoly will produce output equal to q_M, which will result in a price of p_M, and the monopolist will earn profits equal to area A. The allocatively efficient output (the social optimum) is q_2. At this output, the market price would be p_2, and the monopolist would incur an economic loss equal to area B.

Figure 1



Subsidization or nationalization

One potential solution to the dilemma portrayed in Figure 1 is for the government to provide a subsidy equal to area B.

The "Ramsey" price

In Figure 1, an output level of q_1, with the associated market price of p_1, represents a potential compromise solution between the extremes of monopoly control and public

subsidization. This outcome, commonly referred to as the Ramsey price[2], maximizes social benefits subject to the constraint that profits cannot be negative. There is a dead weight loss associated with this outcome, so it is in a class of outcomes known as "second best" solutions. Such an outcome guarantees normal economic profit, which is sufficient to attract private capital into the industry. Thus, operationalization of the Ramsey price concept entails guaranteeing private investors a "reasonable" rate of return.

Does natural monopoly really require regulation?

Natural monopolies (if they truly exist) and the foregoing analysis of them seem to provide straightforward argument in favor of economic regulation. But this conclusion has been questioned over the past 25 years in a number of ways.

- Contestable markets theory[3]

  A contestable market is one in which the mere threat of competition is sufficient to induce incumbent firms to act like perfect competitors. If entry is free and exit is costless, then incumbent firms with monopoly power are vulnerable to "hit and run" competition whenever they generate abnormal profits. Thus a firm with monopoly power may not abuse that power, and there would be no need for regulation.

  It should be noted that as sunk costs become a more important consideration in business firm operations, this theory becomes increasingly inapplicable.

- Franchise bidding[4] as an alternative to regulation.

  It may be argued that just because a market is a natural monopoly, regulation is not the only solution. A bidding process for the monopoly would replace competition *in* the market with competition *for* the market. In figure 1, if the franchise for the monopoly were put to bid, any bid that stipulated $p > p_1$ would generate economic profits, but competitive bidding should drive bids down to p.

  Although subject to criticism on different grounds, this approach does have some real-world applications in the cable TV and telecommunications areas.

Rate of return / Cost of service regulation (Implementation of Ramsey pricing)

In theory, regulators desiring to implement Ramsey pricing must set a rate of return, *r*, equal to the following:

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[2] Ramsey, Frank, "A Contribution to the Theory of Taxation," *Economic Journal* 37 (1927): 47-61.

[3] William J. Baumol, John C. Panzar, and Robert D. Willig, *Contestable Markets and the Theory of Industry Structure*. New York: Harcourt Brace Jovanovich (1982).

[4] Demsetz, Harold, "Why Regulate Utilities?" *Journal of Law and Economics* 11 (1968): 55-65.

$$r = \frac{\Pi}{K}, \text{where} \begin{cases} r = \text{the opportunity cost of capital} \\ \Pi = \text{accounting profit} \\ K = \text{value of invested capital, or the firm's "rate base"} \end{cases}$$

Notice the following:

$$r = \frac{\Pi}{K} = \frac{TR - TC}{K} = \frac{(p * q) - (ATC * q)}{K}$$
$$rK = (p * q) - (ATC * q)$$
$$p = ATC + \frac{rK}{q}$$

Thus, price is the sum of average costs plus the average cost of capital. This approach is sometimes referred to as "rate of return" or "cost of service" (COS) regulation. This implementation of Ramsey pricing requires the following:

- Knowledge of average total costs. In theory and practice, ATC is a function of output, thus the regulator needs intimate knowledge of the firm's *operating cost structure*.
- Knowledge of market demand.
- The appropriate level of *r*, the opportunity cost of capital. In theory, this is the rate of return on alternative investments with equal risk. Since all similar investment opportunities may also be regulated, this may be a biased measure. In practice, regulators use the weighted average cost of capital.

The foregoing discussion highlights some problems with implementation of Ramsey pricing:

- *Information intensity*. The data requirements for the regulator are formidable.
- *Asymmetric information*. The most likely source of information for the regulator is the regulated firm. This sets up obvious moral hazard problems.
- *Shareholders and lobbying efforts*. The regulated firm's stock price will be directly affected by *r*.[5] Thus shareholders will have an incentive to lobby for increases in *r*.

[5] Consider a firm with a rate base = $10 million, and a P/E ratio of 10. If the rate of return is set equal to 10%, then the target profit level is $1 million (rate base * rate of return), and the equity value of the firm will be $10 million dollars. An increase in r to 11% will increase the equity value of the firm by $1 million. Existing shareholders may obviously expend lobbying efforts to capture some of this gain.

- *Rate base building*. Because investors are guaranteed a set rate of return for each dollar in the rate base, there is an incentive to build the rate base.

- *Distributional costs*. Since implementation of Ramsey pricing usually entails raising the price of inelastically demanded goods, there are potential adverse effects for lower-income consumers. [The subsidization alternative would be more appealing to lower-income consumers, if the subsidy were financed by progressive income taxes.]

Incentive regulation

Because of obvious shortcomings with COS regulation, not the least of which is the lack of incentives to minimize costs, regulatory agencies have increasingly experimented with incentive-based regulatory schemes.

- Indexed (or averaged) rate changes in response to input price increases (as opposed to "automatic pass throughs") create incentives for regulated firms to economize on inputs as they increase in relative price.

- Price caps (as opposed to outright price schedules) set price ceilings on "families" of goods and services and give regulated firms significant autonomy to vary prices on individual goods and services. In theory, they can then raise prices on inelastically demanded goods and lower prices on elastically demanded goods, thereby improving revenues. This moves prices in general toward Ramsey outcomes, and thus toward greater social efficiency.

A more general example of incentive regulation is the use of the marketable rights approach to pollution abatement.[6]

3. Deregulation

Deregulation is the reduction or elimination of government power in a particular industry, usually enacted to create more competition within the industry. In the United States, a general movement toward deregulation gathered steam in the 1970s, leading to a series of legislative changes that resulted in the deregulation of some notable industries. In particular, the U.S. Airline Deregulation Act of 1978 was the first in what has become a series of changes that have dismantled government oversight of industries. Since then, the trucking, telecommunications, electricity and banking industries have all undergone various levels of deregulation.

The economic arguments in favor of deregulation generally proceed along efficiency lines, but differences of opinion exist concerning the overall welfare effects of deregulation. In the wake of problems associated with electricity deregulation in California (2000 – 2001) and in the financial services industry (2008 – 2009), there has

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[6] See A. Denny Ellerman, Paul L. Joskow, Richard Schmalensee, Juan-Pablo Montero, and Elizabeth M. Bailey, *Markets for Clean Air – The U.S. Acid Rain Program*. Cambridge, U.K.: Cambridge University Press (2000).

been a backlash against deregulation. MIT economist Paul Joskow warns that we should avoid using current problems associated with deregulation efforts as a pretext for launching a "reregulation" process.[7] His main points offer as good a summary of thinking on the subject of deregulation as any available, and include his observations that:

- Markets are never perfect in a textbook sense, but they are typically better than the next best alternative.
- Microeconomics offers a "sound intellectual framework" for evaluating when it makes sense to impose regulation on a market.
- Deregulation, privatization and regulatory reform initiatives ("market liberalization") over the last three decades have generally been beneficial for the economy and for consumers.
- Market liberalization and regulatory reform initiatives have not always been successful – we should learn from both successes and failures.
- The fundamental question should be "what is the best that we can do in an imperfect world?

On this last point, Joskow reminds us that the extent of regulation in any specific industry[8] should reflect a careful balancing of issues on two sides of a ledger. One side of that ledger would consider the very real costs of market imperfections such as monopoly power and externalities, while the other side of the ledger would consider the equally real costs of regulatory imperfections such as bureaucratic costs on inefficiencies stemming from interest group rent-seeking activities.

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[7] Joskow, Paul, "Deregulation." Available at http://econ-www.mit.edu/files/3875 (2009).

[8] For a summary of issues related to deregulation of the airline industry in the U.S., see Anderson, James E., "The Policy Cycle: Airline Regulation and Deregulation," in *Public Policymaking, An Introduction*, 5th ed. Boston: Houghton Mifflin (2003), or Kahn, Alfred E., "Airline Deregulation," The Concise Encyclopedia of Economics, The Library of Economics and Liberty, http://www.econlib.org/library/CEE.html. For a summary of issues related to deregulation of the airline industry in the U.S., see "A State of Gloom." *The Economist*, January 18, 2001.