10 Introduction to Economic Regulation

What Is Economic Regulation?

The essence of free enterprise is that individual agents are allowed to make their own decisions. As consumers and laborers, each person decides how much to spend, how much to save, and how many hours to work. Firms decide which products to produce, how much to produce of each product, what price to charge, which inputs to use and from which suppliers to buy them, and how much to invest. In all modern economies, there is also an entity called government, which decides on such things as the income tax rate, the level of national defense expenditure, and the growth rate of the money supply. Government decisions like these affect both the welfare of agents and how they behave. For example, raising the income-tax rate induces some individuals to work fewer hours and some not to work at all. Although an income tax influences how a laborer behaves, the laborer is left to decide how many hours to work. In contrast, in its role as regulator, a government literally restricts the choices of agents. More formally, regulation has been defined as "a state imposed limitation on the discretion that may be exercised by individuals or organizations, which is supported by the threat of sanction."[1]

As has long been noted, the key resource of government is the power to coerce. Regulation is the use of this power for the purpose of restricting the decisions of economic agents. In contrast to the income tax, which does not restrict the choices of individuals (though it does affect their welfare), the minimum wage is a regulation in that it restricts the wages that firms can pay their laborers. Economic regulation typically refers to government-imposed restrictions on firm decisions over price, quantity, and entry and exit. Economic regulation is to be contrasted with social regulation, which is discussed in Part III of this book.

When an industry is regulated, industry performance in terms of allocative and productive efficiency is codetermined by market forces and administrative processes. Even if it so desires, a government cannot regulate every decision, as it is physically impossible for a government to perfectly monitor firms and consumers. As a result, market forces can be expected to play a significant role regardless of the degree of government intervention. For example, under airline regulation, the government controlled price but not the quality of service. Firms were induced to shift competition from the price dimension to the quality dimension. Even in a government-controlled economy like the former Soviet Union, market forces were at work. Although production and price were set by the state, the (effective) market-clearing price was set in the market. If a good is in short supply, people will wait in line for it. The effective price to them is the price paid to the state plus the value of their

1. Alan Stone, *Regulation and Its Alternatives* (Washington, D.C.: Congressional Quarterly Press, 1982), p. 10.

time spent in line. In equilibrium, people stand in line until the effective price clears the market.

Instruments of Regulation

Although economic regulation can encompass restrictions on a wide array of firm decisions, the three key decision variables controlled by regulation are price, quantity, and the number of firms. Less frequently controlled variables include product quality and investment.

Control of Price

Price regulation may specify a particular price that firms must charge or may instead restrict firms to setting price within some range. If the concern of the government is with a regulated monopolist setting price too high, regulation is apt to specify a maximum price that can be charged. For example, in 1989 the Federal Communications Commission (FCC) instituted price caps to regulate AT&T's long-distance rates. If the regulated firm has some unregulated competitors, the regulatory agency may also be concerned with the regulated firm engaging in predatory pricing (that is, pricing so as to force its competitors to exit the market). In that situation, regulation is likely to entail a minimum price as well as a maximum price. In some cases, like the control of oil prices in the 1970s, regulation required that a specific price be set.

More often than not, regulation specifies more than a single price. It can put an entire price structure in place. The regulation of AT&T in the intercity telecommunications market required the FCC to specify long-distance rates for different times of day and for different days of the week. The specification of a price structure as opposed to just a single price greatly increases the complexity of implementing economic regulation and can result in additional welfare losses, as we will observe.

In practice, price regulation may be the means by which a regulatory agency achieves an ultimate objective of limiting industry profit. A regulatory agency often sets price so that the regulated firm earns a normal rate of return. This is standard practice in the regulation of public utilities and has been used in other regulated industries such as the airline industry prior to its deregulation. Because firm profit is determined by a variety of factors (with price being just one of them), a regulatory agency may have a difficult time in achieving its goal of a normal rate of return. Regulatory lag in changing price in response to new cost and demand conditions can result in a regulated firm earning either too high or too low a rate of return. During the inflationary period of the 1970s, rising input prices resulted in public utilities' often earning a below normal rate of return because the regulatory agency was slow to adjust price. Alternatively, a regulated firm that experiences an innovation in its production technology will

reap above-normal profits until the regulatory agency realizes the cost function has shifted down and responds by lowering price. A detailed discussion of rate-of-return regulation is provided in Chapter 12.

Control of Quantity

Restrictions on the quantity of a product or service that is sold may be used either with or without price regulation. From the 1930s up until around 1970, many oil-producing states, among them Texas and Oklahoma, placed maximum production limits on crude-oil producers. Although quantity was controlled by the state, price was determined nationally or globally (though obviously these quantity controls influenced the market price). Alternatively, a common form of quantity regulation that is often imposed upon a common carrier is that it "meet all demand at the regulated price." This requirement is used in regulating electric utilities. Finally, regulation may place restrictions upon the prices that firms set while leaving their quantity decision unregulated. For example, there were no quantity restrictions imposed when natural gas prices were regulated. Because these regulated prices were set below their market-clearing levels and firms were not required to meet all demand, the obvious implication was shortages.

Control of Entry and Exit

As we will see in our studies of economic regulation, the two critical variables that regulators have controlled are price and the number of firms, the latter through restrictions on entry and exit. These variables are critical because price and the number of firms are key determinants of both allocative and productive efficiency.

Entry may be regulated on several levels. First, entry by new firms may be controlled, as is typically done in the regulation of public utilities. A key step toward deregulating the intercity telecommunications market was the FCC's allowing MCI to enter in 1969. MCI was the first entrant in the market since the industry's regulation at the turn of the twentieth century.

In addition to controlling entry by new firms, a regulatory agency may also control entry by existing regulated firms. These markets may already be served by other regulated firms or may be unregulated markets. As an example of the latter, the FCC placed restrictions on AT&T's entry into the computer market in the 1980s. The former case is exemplified by airline and trucking regulation. Their respective regulatory agencies made it very difficult for an existing firm to enter a geographic market already served by another regulated firm. As a more recent example of entry restrictions, the Telecommunications Act of 1996 specified that a regional Bell operating company is not permitted to offer long-distance telephone service to its local telephone customers until its local telephone market is deemed sufficiently competitive by the FCC.

A basis for exit regulation is that regulation strives to have services provided to a wider set of consumers than would be true in a free market. Attaining this goal may entail regulated firms serving unprofitable markets and, hence, create a need for regulations that forbid a regulated firm from abandoning a market without regulatory approval. As we will see, restricting the decision to exit was an important issue in the regulation of the railroad industry.

Control of Other Variables

The essence of economic regulation is the limitation of firm behavior regarding price, quantity, and entry into and exit out of markets. Obviously, firms choose many other decision variables. One of these is the quality of the product or service that they produce. A regulatory agency may specify minimum standards for reliability of a service. If an electric utility has regular blackouts, the regulatory agency is likely to intervene and require an increase in capacity in order to improve service reliability. Although product quality may also be controlled for reasons like product safety, economic regulation does not typically place serious restrictions on it.

One reason for the minimal use of quality regulation is the cost of implementing it. To control any variable, the relevant economic agents have to be able to agree on what the variable is and what restrictions are placed on it. In the case of price and quantity, this is not difficult. The price is the amount paid by the consumer for the good, which is relatively easy to observe. Furthermore, restrictions take the simple form of numbers: a maximum price and a minimum price. Similarly, the measurability of quantity allows a regulatory agency to specify restrictions on it. However, quality is typically neither so well defined nor so easily observable. For example, the quality of airline service encompasses an array of variables, including on-time performance, safety, on-board services, seat width, and luggage handling. In principle, a regulatory agency could attempt to control each of these variables and thus control quality, but it would be very costly to do so. In the case of airline regulation, these variables were not controlled except for minimal standards on safety. As a result, airlines competed vigorously in terms of quality. Generally, economic regulation has not placed severe restrictions on the quality of products or services that firms offer with the notable exception of product safety.

Another variable that is sometimes (though infrequently) regulated is firm investment. In contrast to the other decision variables we have considered, regulation of investment entails government intervention into the production process; that is, a firm's choice of technology and inputs. A regulatory agency may intervene in the capital decisions of a public utility like an electric utility or a local telephone company. One significant example is state regulation of investment decisions by hospitals. Certificate of Need programs require a hospital to obtain state approval before undertaking certain investment projects. The stated objective is to avoid duplicate facilities.

Brief History of Economic Regulation

Formative Stages

What is typically meant by economic regulation in the United States began in the 1870s.[2] Two important events took place around that time. First, a key Supreme Court decision provided the basis for the regulation of monopolies. Second, forces were building in the railroad industry that would result in its being the first major industry subject to economic regulation at the federal level.

Munn v. Illinois (1877)

In 1877 the landmark case of *Munn v. Illinois* was decided. This case established that the state of Illinois could regulate rates set by grain elevators and warehouses. As stated in the opinion of the majority, the important principle promulgated by this decision was that

> property does become clothed with public interest when used in a manner to make it of public consequence, and affect the community at large. 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.

Munn v. Illinois provided the foundation for regulation to be used to prevent monopolistic exploitation of consumers.

Interstate Commerce Act of 1887

Around the time of the *Munn v. Illinois* decision, the railroad industry was going through a turbulent period. Throughout the 1870s and 1880s the railroad industry was subject to spurts of aggressive price wars intermixed with periods of relatively stable prices (see Figure 5.8 in Chapter 5). At the same time, the railroads were practicing price discrimination across different consumers. Those consumers who were charged relatively high prices (because of relatively inelastic demand) were calling for government intervention. At the same time, the railroads were seeking government assistance to stabilize prices (perhaps near the monopoly level). The result of these forces was the *Interstate Commerce Act of 1887,* which created the Interstate Commerce Commission (ICC) for the purpose of regulating rail rates. Although only with later acts of Congress was the ICC given the necessary powers to regulate price, the Interstate Commerce Act represents an important landmark in congressional regulatory legislation.

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2. For a discussion of early (municipal) regulation prior to the 1880s, see M. H. Hunter, "Early Regulation of Public Service Corporations," *American Economic Review* 7 (September 1917): 569–81.

Nebbia v. New York (1934)

A common interpretation of *Munn v. Illinois* was that it was constitutional for government to regulate certain monopolistic industries. A stricter interpretation was that regulation could only be applied to public utilities. However, in its 1934 decision of *Nebbia v. New York,* the Supreme Court outlined a much wider realm for economic regulation. In that case, the state of New York was regulating the retail price of milk. The defense argued that the milk industry was competitive and could not be classified as a public utility so that there was no basis for state regulation. The majority opinion stated:

> So far as the requirement of due process is concerned, and in the absence of other constitutional restriction, a state is free to adopt whatever economic policy may reasonably be deemed to promote public welfare, and to enforce that policy by legislation adapted to its purpose.

The Supreme Court tore down any constitutional barrier to economic regulation as long as, in the state's judgment, such regulation was in the public interest.

Trends in Regulation

Early regulation focused on the railroads and public utilities like electricity, telephone (which encompassed both local telephone and long-distance communications), and city transit. The Massachusetts state commission began regulating such industries in 1885, but not until the period of 1907–1930 did most state legislatures create public-service commissions. In addition to federal regulation of railroads officially dating from 1887, regulation over interstate telephone service came with the Mann-Elkins Act of 1910.

Figure 10.1 depicts the growth of regulatory legislation. Three spurts of legislative activity can be identified.[3] The first two occurred during the periods of 1909–1916 and 1933–1940. During these years, and up through the 1970s, federal regulatory powers were greatly expanded to encompass a large number of vital industries in the United States. The third burst of legislative activity began in the 1970s and entailed the partial or full deregulation of many of the regulated industries. This trend continued up to the 1990s.

The economic historian Richard Vietor has put forth the intriguing hypothesis that these regulatory and deregulatory booms are due to a fundamental change in people's perception of how an economy and its government interact.[4] He attributes the regulatory wave of the 1930s to the downfall of faith in a laissez-faire economy emanating from the Great Depression. The deregulatory period of the 1970s occurred during a period of serious stagflation—high

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3. Elizabeth Sanders, "The Regulatory Surge of the 1970s in Historical Perspective," in Elizabeth E. Bailey (ed.), *Public Regulation: New Perspectives on Institutions and Policies* (Cambridge, Mass.: MIT Press, 1987).

4. Richard H. K. Vietor, *Contrived Competition: Regulation and Deregulation in America* (Cambridge, Mass.: Harvard University Press, 1994).

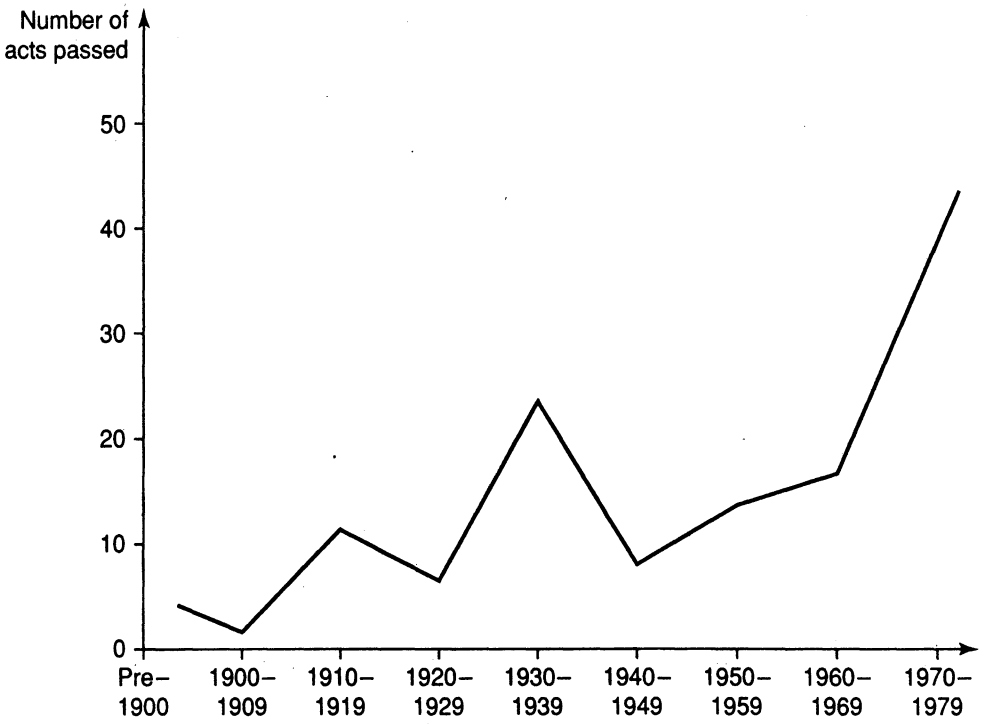

Figure 10.1
Number of Economic Regulatory Legislative Acts
Source: Center for the Study of American Business. This figure is from James F. Gatti, "An Overview of the Problem of Government Regulation," in James F. Gatti (ed.), *The Limits of Government Regulation* (New York: Academic Press, 1981).

inflation and high unemployment—which Vietor argues shook our faith in the ability of the government to provide a constructive influence on the economy. Though this hypothesis is speculative and has not been tested (nor is it clear how one could test it), it is both interesting and plausible.

1930s: Wave of Regulation

After the *Nebbia v. New York* decision and in the midst of the dire economic conditions of the Great Depression, a wave of economic regulation took place over 1933–1940. At the state level, control over the production of crude oil producers was being implemented by oil-producing states. At the federal level, there were several pieces of major legislation that greatly expanded the realm of economic regulation.

A list of these legislative acts is provided in Table 10.1. With legislative acts in 1935 and 1940, the ICC's domain expanded from railroads to the entire interstate surface-freight transportation industry, which included trucks, water barges, and oil pipelines (the last goes back to 1906). The one key exception was ocean shipping, which was regulated by the

Table 10.1
Major Economic Regulatory Legislation, 1887–1940

Year	Legislative Act	Agency Created
1887	Interstate Commerce Act	Interstate Commerce Commission
1910	Mann-Elkins Act	
1916	Shipping Act	
1920	Transportation Act	
1930	Oil prorationing (Oklahoma, Texas)	
1933	Banking Act Securities Act	
1934	Banking Act Communications Act	 Federal Communications Commission
1935	Motor Carrier Act Public Utility Act Securities Exchange Act	 Federal Power Commission Securities and Exchange Commission
1938	Civil Aeronautics Act Natural Gas Act	Civil Aeronautics Board
1940	Transportation Act	

Federal Maritime Commission beginning in 1936. Regulation of long-distance passenger transportation was divided between the ICC (railroads and buses) and the newly created Civil Aeronautics Board (airlines).

To deal with the technologically progressive communications market, the Federal Communications Commission was established in 1934 to regulate broadcasting and to take over the duty of regulating the intercity telecommunications market from the ICC. Although electricity and natural gas had long been regulated at the state and local level, federal regulation of interstate commerce with respect to these two energy sources was only established in 1935 (for electricity) and in 1938 (for natural gas). Initially, natural gas regulation only covered its transportation. Regulation of natural gas prices did not take place until the mid-1950s.

The unsatisfactory performance of financial markets in the Great Depression was followed by a wave of federal legislation relating to the banking and securities industries. Among other restrictions, the Banking Acts of 1933 and 1935 created the Federal Deposit Insurance Corporation, forbade commercial banks from paying interest on ordinary checking accounts, and, in what has been referred to as the Glass-Steagall Act, prohibited both commercial banks from participating in investment banking and investment banks from accepting deposits. The Securities Act of 1933 mandated disclosure of information by issuers of securities, and the Securities Exchange Act of 1934 created the Securities and Exchange

Commission, the main purpose of which was to monitor the activities of the securities industry.

1940s to 1960s: Continued Growth of Regulation

Between the two legislative peaks of the 1930s and 1970s, legislative activity continued on a modest but steady path of expansion of federal regulatory powers. Two sectors—energy and communications—were particularly affected. Although cable television was initially left unregulated at the federal level, it became subject to FCC regulation beginning in 1968. Until 1954 federal regulation of the oil and natural gas industries was only over pipelines and, at the state level, over production of crude oil. Because of a Supreme Court decision in 1954, the Federal Power Commission began controlling the wellhead price of natural gas. Then the price of oil was regulated beginning in 1971. Foreshadowing the deregulation that was to come, the FCC permitted MCI to enter the intercity telecommunications market in 1969. This action represented a crucial first step in the deregulation of that market.

1970s to 1980s: Wave of Deregulation

The decades of the 1970s and 1980s were characterized by extensive deregulation (see Table 10.2). In 1977 fully regulated industries produced 17 percent of the U.S. Gross National Product. By 1988 this figure had been reduced to 6.6 percent.[5] In the area of transportation, several pieces of legislation over 1978–1982 deregulated airlines (Airline Deregulation Act of 1978), railroads (Staggers Act of 1980), trucking (Motor Carrier Act of 1980), and passenger buses (Bus Regulatory Reform Act of 1982). In communications, entry regulation of the intercity telecommunications market was torn down over the course of several decisions that ranged from the FCC's Specialized Common Carrier Decision in 1971 to the breakup of AT&T in 1984 as a result of the U.S. Justice Department's antitrust case. Also during this period, cable television was deregulated at the federal level. Finally, oil price controls were lifted by President Ronald Reagan in January 1981; partial deregulation of natural gas prices had begun in 1978. Only in 1989 were natural-gas price controls removed.

Regulatory Policy in the 1990s

As is evident in Table 10.3, the deregulatory wave that began in the 1970s largely continued into the 1990s. In recent years the deregulation of interstate and intrastate trucking was

5. Clifford Winston, "Economic Deregulation: Days of Reckoning for Microeconomists," *Journal of Economic Literature* 31 (September 1993): 1263–89. This paper also provides a comprehensive summary of the predicted and measured effects of economic deregulation.

Table 10.2
Major Economic Deregulatory Initiatives, 1971–1989

Year	Initiative
1971	Specialized Common Carrier Decision (FCC)
1972	Domestic satellite open skies policy (FCC)
1975	Abolition of fixed brokerage fees (SEC)
1976	Railroad Revitalization and Reform Act
1977	Air Cargo Deregulation Act
1978	Airline Deregulation Act Natural Gas Policy Act
1979	Deregulation of satellite earth stations (FCC) Urgent-mail exemption (Postal Service)
1980	Motor Carrier Reform Act Household Goods Transportation Act Staggers Rail Act Depository Institutions Deregulation and Monetary Control Act International Air Transportation Competition Act Deregulation of cable television (FCC) Deregulation of customer premises equipment and enhanced services (FCC)
1981	Decontrol of crude oil and refined petroleum products (executive order) Deregulation of radio (FCC)
1982	Bus Regulatory Reform Act Garn–St. Germain Depository Institutions Act AT&T settlement
1984	Space commercialization Cable Television Deregulation Act Shipping Act
1986	Trading of airport landing rights
1987	Sale of Conrail Elimination of fairness doctrine (FCC)
1988	Proposed rules on natural gas and electricity (FERC) Proposed rules on price caps (FCC)
1989	Natural Gas Wellhead Decontrol Act of 1989

Source: Updated table from *Economic Report of the President,* January 1989.

completed. Loosened regulatory controls allowed competition to exert itself in the transmission of natural gas and the generation and distribution of bulk power. Entry restrictions in banking—which prevented banks from having branches in more than one state and, in some states, prevented a bank from having more than one branch—were largely eliminated by state legislatures. Contrary to this deregulatory trend, cable television rates have oscillated between being regulated and deregulated, and the landmark Telecommunications Act of 1996 is considered to be a mixture of regulation and deregulation. With regard to the

Table 10.3
Major Federal Economic Regulatory and Deregulatory Initiatives, 1990–1997

Year	Initiative	Provisions
1991	Federal Deposit Insurance Corporation Improvement Act	Introduced risk-based deposit insurance premia, required early regulatory intervention into failing banks, eased conditions for banking failures by limiting FDIC's ability to reimburse uninsured depositors
1992	Cable Television Consumer Protection and Competition Act	Regulated cable TV rates
1992	Energy Policy Act	Opened up wholesale competition by giving FERC the authority to order vertically integrated utilities to act as a common carrier of electrical power
1992	FERC Order 636	Required pipelines to unbundle the sale and transportation of natural gas
1993	Elimination of state regulation of cellular telephone rates	
1993	Negotiated Rates Act	Eliminated regulatory distortions related to trucking rates
1994	Riegle-Neal Interstate Banking and Branching Efficiency Act	Codified at the national level the elimination of branching restrictions at the state level
1994	Trucking Industry and Regulatory Reform Act	Eliminated remaining interstate and intrastate trucking regulation
1995	ICC Termination Act	Abolished ICC
1996	Telecommunications Act	Deregulated cable TV rates, set conditions for local telephone companies to enter long distance telephone, mandated equal access to local telephone systems
1996	FERC Order 888	Removed impediments to competition in the wholesale bulk power market

Acknowledgments: The development of this table was aided by suggestions from Randy Kroszner, Paul MacAvoy, Thomas Gale Moore, and Sam Peltzman. Their assistance is most appreciated. They are not responsible for any errors.

future, the primary architect of airline deregulation, Alfred Kahn, sees us at a point of no return:

The evolution of regulatory policy will never come to an end. The path it takes—and we should make every effort to see that it takes—however, is the path not of a full circle or pendulum, which would take us back to where we started, but of a spiral, which has a direction. This is in a sense only an expression of a preference for seeking consistently to move in the direction of first-best functioning of a market economy, rather than the second—or third-best world of centralized command and control.[6]

6. Alfred E. Kahn, "Deregulation: Looking Backward and Looking Forward," *Yale Journal on Regulation* 7 (Summer 1990): 325–54.

The Regulatory Process

Overview of the Regulatory Process

Stage 1: Legislation

There are two key stages in the regulation of an industry. The first stage entails that the U.S. Congress, a state legislature, or a local government body like a city council enact a piece of legislation that establishes regulatory powers over a particular industry. Numerous agents are involved at this stage of the regulatory process. Because regulation restricts firm decisions, it is expected to influence firms' profits and consumers' welfare. Hence, one would anticipate that both firms and consumer advocates would lobby the government to try to influence what the piece of legislation looks like as well as whether or not it passes. Obviously, legislators are key actors during this stage. Depending on their jurisdiction, legislators may represent producers, consumers, or just their electorate at large. Because industry workers are likely to be affected by legislation, one can also expect them to be involved in this process, particularly if workers are organized into a labor union.

Stage 2: Implementation

Having passed a piece of legislation, the second stage in the regulatory process is the implementation of this legislation. Although the legislature can influence its implementation, the immediate responsibility falls to the regulatory agency. Thus, regulators replace legislators as central actors at the implementation stage while producers and consumers continue to be relevant. Other important actors may include potential entrants who desire to enter this regulated industry.

Stage 3: Deregulation

There is sometimes a third stage in this process, which is the deregulation of the industry. Although one typically imagines deregulation being achieved via a legislative act, both the regulatory agency and the judiciary have proven to be instrumental forces in deregulating an industry. If the regulatory agency and the judiciary are in favor of deregulation, they may be able to achieve it even if the Congress is against it. Long before the Airline Deregulation Act, the airline industry was being deregulated by the Civil Aeronautics Board. In this light, the White House can play a significant role in their choice of regulatory commissioners; it was no mistake that President Jimmy Carter appointed the free-market advocate Alfred Kahn as CAB chairman. Due to its role in deregulating a number of industries, the Circuit Court of Appeals for the District of Columbia has been dubbed the "Supreme Court" for

regulations.[7] In addition to the three branches of government, all agents significantly connected with the industry are typically involved in the deregulatory process including producers, consumers, labor, and prospective firms.

Regulatory Legislation

Selection of the Regulatory Agency

Legislation performs two key tasks in the regulatory process. First, it states which bureaucratic agency has jurisdiction over regulating certain dimensions of an industry. In many cases, like the Interstate Commerce Act of 1887 and the Federal Communications Act of 1934, legislation actually creates the bureaucratic agency. In other cases, legislation extends the realm of an existing agency, as the Motor Carrier Act of 1935 did in bringing motor carriers within the realm of the ICC.

Powers of the Regulatory Agency

The second objective of legislation is in outlining the powers of the regulatory agency. The two key powers are control of price and entry into and exit from the industry. Although the Interstate Commerce Act of 1887 gave the ICC regulatory jurisdiction over the railroad industry, it took the Hepburn Act of 1906 and the Transportation Act of 1920 for the ICC to have the power to control rail rates. Sometimes it is unclear as to the powers given to the regulatory agency by a piece of legislation. Until a 1954 Supreme Court decision, the Federal Power Commission believed that the Natural Gas Act of 1938 did not give it the power to control the wellhead price of natural gas.

General Policy Objectives

Finally, regulatory legislation often specifies some general policy objectives for the regulatory agency to follow. In most cases, legislation instructs the regulatory agency to set "reasonable and just" prices and to see that service is made available to all consumers. Thus, the FCC and the CAB sought to expand long-distance communications and airline service, respectively, to as wide a geographic area as was possible. Another common policy goal is to discourage regulated firms from practicing price discrimination.

Independent Regulatory Commissions

An independent regulatory commission at the federal level is typically composed of five or more members. Table 10.4 provides a listing of some major regulatory agencies at the

7. For an analysis of the role of the judiciary in the deregulation process, see Krishna K. Ladha, "The Pivotal Role of the Judiciary in the Deregulation Battle between the Executive and Legislature," unpublished paper, Washington University, March 1990.

Table 10.4
Major Federal Economic Regulatory Commissions

Agency	Number of Members	Jurisdiction	Size of Staff (FTE)					
			1970	1980	1985	1990	1995	1998
Interstate Commerce Commission* (1887)	7	Railroads (1887) Trucks (1935) Water carriers (1940) Telephone (1910–1934) Oil pipelines (1906–1907)	1,912	1,940	839	661	0	0
Federal Communications Commission (1934)	7	Telephone (1934) Broadcasting (1934) Cable television (1968)	1,645	2,156	1,828	1,839	2,164	1,968
Securities and Exchange Commission (1934)	5	Securities (1934)	1,436	2,100	2,046	2,451	2,665	2,726
Federal Power Commission (1935) Federal Energy Regulatory Commission (1977)	5	Wholesale electricity (1935) Natural gas (1938) Oil pipelines (1977)	1,164	1,605	1,533	1,500	1,411	1,330
Civil Aeronautics Board (1938)†	5	Airlines (1938)	686	753	0	0	0	0

Source: This is an adapted version of tables from Leonard W. Weiss, "The Regulatory Reform Movement" in Leonard W. Weiss and Michael W. Klass (eds.), *Regulatory Reform: What Actually Happened* (Boston: Little, Brown, 1986); and Melinda Warren and Kenneth Chilton, "Regulation's Rebound: Bush Budget Gives Regulation a Boost," Occasional Paper No. 81, Center for the Study of American Business, Washington University, May 1990. Data for 1995 and 1998 are based on private communication with the FCC, SEC, and FERC.

*Abolished in 1995.
†Abolished in 1985.

federal level. Federal regulatory commissioners are appointed, though in some states public utility commissioners are elected.[8] The appointment is for a fixed term, and the terms of the commissioners are staggered. There is an important degree of independence from the executive branch bestowed on regulatory commissioners. A commissioner can be removed for cause, but not at the discretion of the president.

8. For a discussion and comparative analysis of appointed and elected state public utility commissioners, see Kenneth W. Costello, "Electing Regulators: The Case of Public Utility Commissioners," *Yale Journal on Regulation* 2 (1984): 83–105.

In light of the lack of political accountability of regulatory commissioners, it has been argued that they are set up in the manner of judges.[9] In particular, Section 557 of the 1946 Administrative Procedure Act requires all administrative decisions by a regulatory commission to be substantiated by findings of fact and law.

Members of a Regulatory Agency

Political scientist James Q. Wilson has identified three different kinds of employees of a regulatory agency.[10] The *careerist* is an employee who anticipates a long-term relationship with the regulatory agency and whose major concern is that the regulatory agency continue to exist and grow. Not surprisingly, the careerist frowns on deregulation. The *politician* envisions eventually leaving the agency for an elective or appointive position, with the regulatory agency a stepping stone for bigger and better things. Most commissioners are classified as politicians. Finally, the *professional* is more identified with certain skills than with the regulatory agency and strives to maintain professional esteem to allow career advancement.

The incentives of an employee of a regulatory agency depend very much on the type of employee. Understanding how members of a regulatory agency are motivated is important in explaining the policies that are implemented. For example, consider the implementation of price regulation. The professional may desire to use this opportunity to show technical expertise. As a result, the professional might prefer a highly complex pricing structure. In contrast, the careerist might support a simple pricing structure so as to avoid any major problems that might result in legislative action. Finally, because the politician is concerned with not aggravating interest groups, he would be less inclined to allow price discrimination because it might alienate some consumers. Our ensuing analysis of regulation will not allow for such a rich set of motivations underlying the implementation of regulatory policy, but it is important that we at least recognize their presence.

Regulatory Procedures

Given the general and vague policy objectives provided by legislation, a regulatory agency is often left with considerable discretion as to how it regulates the industry. When a regulatory agency is told to set "reasonable and just" rates, there may be a wide array of rates that one could argue meet these criteria. Alternatively, some legislation is very specific about the duties of a regulatory agency. The Emergency Petroleum Allocation Act (1973–1975) and the Energy Policy and Conservation Act (1975–1981) provided a detailed formula as to the price structure for domestic crude oil. As a result, the Federal Energy Administration had minimal discretion over the regulation of crude-oil prices.

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9. Stone, 1982.

10. James Q. Wilson, "The Politics of Regulation," in James Q. Wilson (ed.), *The Politics of Regulation* (New York: Basic Books, 1980).

Rulemaking Process

Two basic approaches to rulemaking have been pursued. First, a regulatory agency may act on a case-by-case approach by individually considering each proposal. The most important proposals concern rate changes and petitions for entry or exit. When the burden of a case-by-case approach becomes too great, a regulatory agency will often turn to substantive rulemaking. Hearings are conducted that lead to the formulation of a general rule that is applicable to a wide class of situations. The move to substantive rulemaking from a burdensome case-by-case approach was made by the FPC in regulating natural gas prices (the first case took five years for it to complete) and by the FCC in deciding on entry into a segment of the intercity telecommunications market (the first case took six years to complete).

If the participants do not agree with the decision of a regulatory decision, they have the right to appeal it in a U.S. Court of Appeals. This tactic has indeed been used. When the FCC told MCI that it was not allowed to operate in the long-distance telephone service segment of the intercity telecommunications market, MCI went to the U.S. Court of Appeals where, in the Execunet I decision (1978), the courts reversed the FCC's decision. Two years after its 1992 ruling that local telephone companies must allow competitors direct access to the local phone network, the FCC found its decision overturned by a federal appeals court.

Delay and Strategic Manipulation of Regulatory Proceedings

An important property of regulatory procedures is that they are biased toward maintaining the status quo. By replacing market forces with administrative processes, regulation imposes due-process requirements on any changes. In some sense, producers and consumers have legal rights to the status quo, and it can only be overthrown through due process. This situation is very much in contrast to the market, where the status quo is regularly overthrown and there is no legal recourse as long as no antitrust laws were violated.

Another property of regulation that favors the status quo is the extent of delay in regulatory proceedings. An agent who is interested in maintaining the status quo can pursue tactics such as litigation in order to lengthen the proceedings. Regardless of the reason for delay, its existence is hard to deny. For the CAB and the ICC, licensing proceedings averaged 170 days for the prehearing stage, 190 days for the hearing stage, and 220 days for the agency review stage. The total length of time was in excess of nineteen months. Ratemaking proceedings were even worse, as on average, ratemaking cases by the CAB, FMC, FPC, and the ICC took over twenty-one months.[11] However, as mentioned earlier, a regulatory agency can reduce delay by replacing a case-by-case approach with substantive rulemaking.

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11. "Delay in the Regulatory Process" in *Study on Federal Regulation,* Volume IV, U.S. Senate, Committee on Governmental Affairs, July 1977.

In addition to generating delay in regulatory proceedings, agents can strategically manipulate the regulatory process in other ways. An important avenue for regulated firms is to control the flow of information to the regulators. For example, in considering a ratemaking case, a regulatory agency usually depends on the regulated firm for estimates of cost and demand conditions. Although outside expert witnesses can be used, their information is simply not as good as that which the firm has at its disposal. Another tactic is for regulated firms to coopt the experts, for example, by keeping the best law firms on retainer.[12]

The Theory of Regulation

Why is there regulation? In a free-market economy like that of the United States, why does the government choose to place restrictions on the decisions of agents? One of the objectives of a theory of regulation is to answer this question. Such a theory should make predictions concerning who benefits from regulation, which industries are most likely to be regulated, and what form regulation will take.[13] A proper addressing of these issues should allow us better to understand the effects of regulation. For example, if we know that there is a general tendency for price regulation to benefit producers, it is logical to expect price to be set significantly above cost in regulated industries.

In this section, we will outline the evolution of thought that addresses the question, Why is there regulation? There have been three stages in this evolution. The first hypothesis put forth was that regulation occurs in industries plagued with market failures. Originally called the *public interest theory,* more recently it has been referred to as *normative analysis as a positive theory* (NPT).[14] Largely due to empirical evidence that was inconsistent with NPT, economists and political scientists developed the capture theory (CT). Basically, the CT states that whether by design or not, the agency that is meant to regulate an industry is "captured" by that industry. The implication is that regulation promotes industry profit rather than social welfare. For reasons described later, NPT and the CT are actually not theories but rather hypotheses or statements about empirical regularities. This is to be contrasted to the third stage in this evolution of thought, which is the economic theory of regulation (ET). This is indeed a theory in the proper sense in that it generates testable hypotheses as logical implications from a set of assumptions. Although the ET is an important advancement and explains some of the observed regulatory activity in

12. For an insightful discussion of the strategic manipulation of the regulatory process, see Bruce M. Owen and Ronald Braeutigam, *The Regulation Game* (Cambridge, Mass.: Ballinger Publishing Company, 1978).

13. These objectives for a theory of regulation are laid out in George J. Stigler, "The Theory of Economic Regulation," *Bell Journal of Economics and Management Science* 2 (Spring 1971): 3–21.

14. Paul L. Joskow and Roger G. Noll, "Regulation in Theory and Practice: An Overview," in Gary Fromm (ed.), *Studies in Public Regulation* (Cambridge: MIT Press, 1981).

the United States over the last hundred years, much evidence is still inconsistent with this theory.

Normative Analysis as a Positive Theory

Normative Rationale for Regulation

There is a basis for government intervention in that under certain conditions unrestrained competition does not work very well. Two common circumstances are that an industry is a natural monopoly or that it is plagued by externalities.

A market is a *natural monopoly* if, at the socially optimal quantity, industry cost is minimized by having only one firm produce. For the single-product case, if the average cost curve is declining for all quantities, then the cost of producing any industry quantity is minimized by having one firm produce it. In that case, the market is a natural monopoly regardless of market demand. Natural monopolies are likely to exist when there is a large fixed-cost component to cost. For example, most public utilities, like local distribution of electricity and local telephone, are natural monopolies. In those cases, fixed costs (in particular, the cost of connecting homes and businesses to the distribution system) are large relative to marginal costs. Hence, average cost is declining for a wide range of outputs. For the relevant region of market demand, these markets are natural monopolies.

The problem with a natural monopoly is that there is a fundamental conflict between allocative efficiency and productive efficiency. Productive efficiency requires that only one firm produce, because only then is the value of resources used to supply the market minimized. However, a lone producing firm will be inclined to set price above cost in its objective of maximizing profit. But then allocative efficiency is not achieved. To generate allocative efficiency, we need enough firms that competition drives price down to marginal cost. But then there is productive inefficiency because there are too many firms producing in the market. Thus we have an argument for government intervention when a market is a natural monopoly.

An *externality* exists when the actions of one agent, say agent A, affects the utility or production function of another agent, say agent B, *and* agent A does not care how his behavior affects agent B's welfare. When an externality is present, perfect competition does not result in an optimal allocation of resources. Suppose I am considering buying an Italian submarine sandwich for lunch. Let us suppose that the restaurant market is competitive so that the price of the sandwich equals marginal cost. If the input markets are also competitive, then the value of resources used by society in supplying that sandwich equals the price charged for it, which we will denote as P. Now suppose the maximum amount that I am willing to pay for that sandwich (taking into account my alternative opportunities for lunch) is V. If $V > P$, then I will buy the sandwich and receive a surplus of $V - P$. If there are no externalities from my consuming that sandwich, then the net welfare gain to society is $V - P$, which is positive. Thus, such a transaction should (and will) take place. Now let us assume that my consumption of the sandwich generates an externality. In particular, suppose the sandwich has onions on it

(as any good Italian sub does) and I am planning to travel on a crowded subway after eating it. Unfortunately, the individual who sits next to me on the subway will have to smell my bad breath. Suppose that this individual would be willing to pay up to W dollars to get me to sit elsewhere (however, there are no seats left on the subway). The net welfare effect of my buying and consuming the Italian sub is not $V - P$ but instead $(V - P) - W$. If $W > V - P$, then welfare is actually reduced by my consuming the sub, even though I am personally better off. Hence, with the existence of an externality, competitive behavior can result in welfare-reducing transactions.

Externalities come in many forms. The example we have just considered is referred to as a negative externality. Other examples of negative externalities are noise and water pollution. In deciding whether to drive to work or take mass transit, the typical automobile driver does not consider the effect of his decision on the quality of the air that everyone must breathe. A common pool problem is a different type of negative externality. It occurs when there are several property owners to a resource: several firms may extract oil from a common reservoir, and several fishermen may fish from the same lake. In their pursuit of utility or profit maximization, these agents do not take into account how their activity reduces the resource and thus raises the cost of production to other agents.

Generally, when there are negative externalities, unregulated competition results in too much of an activity being pursued, whether it is too many Italian subs being consumed or too much oil being pumped out of a reservoir. There are also cases of positive externalities. For example, if I am immunized for a disease, I not only make myself better off but also reduce the spread of the disease, thereby making others better off. Just as there is typically too much activity when there is a negative externality, there is typically too little activity when there is a positive externality.

When a market failure occurs—whether due to natural monopoly, externalities, or some other source—there is a potential rationale for government intervention. In the case of a natural monopoly, price and entry regulation may allow both allocative and productive efficiency. Entry regulation permits only one firm to produce (as required for productive efficiency) whereas price regulation restricts the firm to setting the socially optimal price (as required for allocative efficiency). In the case of externalities, imposition of a tax (subsidy) on an activity that generates a negative (positive) externality can result in a socially preferred allocation. When there is a market failure, in theory regulation may be able to raise social welfare. Whether it does so in practice is an altogether different issue and will be of central concern to us in the following chapters.

Description of Theory

Understanding when regulation *should* occur is normative analysis. This is to be contrasted to a positive theory that explains when regulation *does* occur. Normative analysis as a positive theory (NPT) uses normative analysis to generate a positive theory by saying that regulation

is supplied in response to the public's demand for the correction of a market failure or for the correction of highly inequitable practices (for example, price discrimination, or firms' receiving windfall profits as a result of some change in industry conditions). According to this theory, if a market is a natural monopoly, then the public will demand the industry be regulated because a first-best solution is not achieved in the absence of regulation. Unfettered competition will result in either too many firms producing and/or price exceeding the socially optimal level. By regulating the industry, net welfare gains result, and it is this potential for welfare gains that generates the public's demand for regulation. In this way, the public interest theory uses normative analysis (when should regulation occur?) to produce a positive theory (when does regulation occur?).

Critique of Normative Analysis as a Positive Theory

There are at least two major problems with NPT. First, it is at best a very incomplete theory. NPT puts forth the hypothesis that regulation occurs when it should occur because the potential for a net social welfare gain generates public demand for regulation. Lacking in this analysis is a description of the mechanism that allows the public to bring this result about. Regulation occurs through legislative action and the behavior of the regulatory agency. NPT does not address the issue of how the potential for net social welfare gains induces legislators to pass regulatory legislation and regulators to pursue the proper actions. NPT does not generate the testable prediction that regulation occurs to correct a market failure, but rather assumes it.

The second major criticism of NPT, and the key reason for why it has lacked supporters for several decades, is the large amount of evidence that refutes it. Many industries have been regulated that are neither natural monopolies nor plagued by externalities; for example, price and entry regulation in the trucking, taxicab, and securities industries. In 1974, Richard Posner concluded, "Some fifteen years of theoretical and empirical research, conducted mainly by economists, have demonstrated that regulation is not positively correlated with the presence of external economies or diseconomies or with monopolistic market structure."[15]

Further evidence that is difficult to rectify with NPT is that, in many cases, firms supported or even lobbied for regulation. This was true with the regulation of the railroads in the late 1880s and of local and long-distance telephone where AT&T supported regulation (and thereby eliminated all other competitors from the market). Though firm support is not necessarily inconsistent with NPT, it does not sit comfortably. If a market is a natural monopoly but there are several active firms, competition could be driving price down below average cost so that firms are incurring losses. Regulation would allow at least one of them to earn normal profits. It is unlikely, however, that firms would be in support of regulation if all it could gen-

15. Richard A. Posner, "Theories of Economic Regulation," in *Bell Journal of Economics and Management Science* 5 (Autumn 1974): 335–58.

erate would be normal profits. A more plausible explanation is that regulation is anticipated to provide a stable level of above-normal profits to be earned, and it is for this reason that an industry may be in favor of its regulation.

A third but weaker line of evidence in conflict with NPT is that the regulation of even a natural monopoly does not always really constrain firm pricing behavior. In a well-known study, George Stigler and Claire Friedland examined the effect of regulation on the pricing of electric utilities over 1912–1937.[16] They found that regulation had an insignificant, though downward, effect on prices. In contrast, NPT would predict that regulation would have a strong downward effect on prices because it forces a monopolist to price at average cost rather than at the profit-maximizing level.

Reformulation of NPT

In light of the contradictory evidence, NPT was reformulated. This reformulation says that regulation is originally put in place to correct a market failure but then is mismanaged by the regulatory agency. However, even this reformulated hypothesis is unsatisfactory. First, it is subject to the same criticism of the original formulation in that it merely states a hypothesis rather than generating that hypothesis as a conclusion from a model. To be specific, it does not explain why the regulatory agency is mismanaged. Second, the reformulated hypothesis is still inconsistent with the evidence that industries are regulated that are not subject to significant market failures and that industries have often supported regulation. The reformulated hypothesis of NPT does not appear to be a substantive improvement on the original hypothesis.

Capture Theory

Genesis of the Capture Theory

A review of the history of regulation in the United States since the late nineteenth century reveals that regulation is not strongly correlated with the existence of market failures. At least up to the 1960s, one empirical regularity is that regulation is pro-producer in that it tends to raise industry profit. In potentially competitive industries like trucking and taxicabs, regulation supported prices above cost and prevented entry from dissipating rents. In naturally monopolistic industries like electric utilities, there was some evidence that showed that regulation had little effect on price, so that above-normal profit was allowed to be earned. The empirical evidence seemed to support the claim that regulation was inherently pro-producer.[17]

These empirical observations resulted in the development of the *capture theory* (CT). In stark contrast to NPT, the CT states that either regulation is supplied in response to the

16. George J. Stigler and Claire Friedland, "What Can Regulators Regulate? The Case of Electricity," *Journal of Law and Economics* 5 (October 1962): 1–16.

17. This position was articulated in William A. Jordan, "Producer Protection, Prior Market Structure and the Effects of Government Regulation," *Journal of Law and Economics* 15 (April 1972): 151–76.

industry's demand for regulation (in other words, legislators are captured by the industry) or the regulatory agency comes to be controlled by the industry over time (in other words, regulators are captured by the industry).[18]

Critique of the Capture Theory

In that it is in greater agreement with regulatory history, the CT is more compelling than NPT. Nevertheless, the CT is subject to the same two criticisms leveled against NPT. Like NPT, the CT has no theoretical underpinnings because it does not explain how regulation comes to be controlled by the industry. In light of there being several interest groups affected by regulation, including consumer and labor groups as well as firms, why should regulation be controlled by the industry rather than these other interest groups? In its original form, the CT does not provide an explanation. Rather, it merely states the hypothesis that regulation is pro-producer.

Although there is much evidence supportive of the CT, there are also some empirical regularities that are inconsistent with it. Two common properties of regulation are cross-subsidization and a bias toward small producers. Although we will go into greater detail in later chapters, *cross-subsidization* is when a multiproduct firm prices some goods below average cost and makes up for the losses through revenue collected from the sale of other goods priced above average cost. Such pricing behavior is inconsistent with profit maximization and thus cannot be considered pro-producer. Cross-subsidization has been regularly observed in such regulated industries as railroads, airlines, and intercity telecommunications. It often takes the form of uniform prices' being charged to different consumers even though the marginal cost of supplying these consumers differs greatly. The other property is that regulation is often biased toward small producers. Small producers are allowed to earn greater profits relative to larger firms under regulation than they would have earned in an unregulated market. This was certainly true of small oil refiners under oil price controls.

Perhaps the strongest evidence against the CT is the long list of regulations that were not supported by the industry and have resulted in lower profits. The list includes oil and natural gas price regulation and social regulation over the environment, product safety, and worker safety. Finally, the CT has a difficult time explaining both why many industries were regulated *and* why they were later deregulated.

Economic Theory of Regulation

In summarizing the evidence, one finds that regulation is not strongly associated with the existence of market failure (in conflict with NPT) and is not exclusively pro-producer (in conflict with the CT). Depending on the regulated industry, the welfare of different interest groups is

18. The hypothesis of a life cycle for a regulatory agency is discussed in Marver H. Bernstein, *Regulating Business by Independent Commission* (Princeton, N.J.: Princeton University, 1955).

improved by regulation. One then needs a theory that can explain this phenomenon. In addition, a theory must also explain why we have observed both the regulation and (partial or full) deregulation of such industries as railroads (regulated in 1887, deregulated in 1980), intercity telecommunications (regulated in 1910, partially deregulated starting in 1971), trucking (regulated in 1935, deregulated in 1980), airlines (regulated in 1938, deregulated in 1978), natural gas (price regulated in 1954, deregulated in 1989), and oil (regulated in 1971, deregulated in 1981). It must also tackle the simultaneous decline of economic regulation and rise of social regulation in the past two decades.

The Stiglerian Approach

The major breakthrough in the theory of regulation occurred in a 1971 article by Nobel laureate George Stigler, "The Theory of Economic Regulation."[19] The value of this contribution was not so much in the predictions that it generated (it basically produced predictions along the lines of the CT), but in the way it approached the question, Why is there regulation? In contrast to NPT and the CT, Stigler put forth a set of assumptions and generated predictions about which industries would be regulated and what form regulation would take as logical implications of these assumptions.

The initial premise of Stigler's analysis is that the basic resource of the state is the power to coerce. An interest group that can convince the state to use its power of coercion to that interest group's benefit can improve its well-being. The next premise is that agents are rational in the sense of choosing actions that are utility maximizing. These two assumptions result in the hypothesis that regulation is supplied in response to the demands of interest groups acting to maximize their income. Regulation is one avenue by which an interest group can increase its income by having the state redistribute wealth from other parts of society to that interest group. As is typically the case, Stigler states it best:

> We assume that political systems are rationally devised and rationally employed, which is to say that they are appropriate instruments for the fulfillment of desires of members of the society.[20]

With this fundamental insight, one can construct a theory that will make predictions as to which industries will be regulated and what form regulation will take. The remainder of the section on the *economic theory of regulation* (ET) describes some of the formal models under this rubric and describes their resulting predictions.

Stigler/Peltzman Model

Stigler's contribution did not stop with this analysis. He went on to discuss the different factors that determine which interest group(s) will control regulation. A later paper by Sam Peltzman

19. Stigler, 1971.

20. Ibid., page 4.

formalized the analysis of Stigler, and both of these papers have built on the work of Mancur Olson.[21]

The Stigler/Peltzman formulation has three crucial elements. First, regulatory legislation redistributes wealth. It may do other things, but implicitly Stigler and Peltzman argue that the primary determinant of the form of regulation is the way in which it transfers wealth among members of society. Second, the behavior of legislators is driven by their desire to remain in office, implying that legislation is designed to maximize political support. Third, interest groups compete by offering political support in exchange for favorable legislation.

The general result that follows is that regulation is likely to be biased toward benefiting interest groups that are better organized (so that they are more effective at delivering political support) and gain more from favorable legislation (so that they are willing to invest resources in acquiring political support). More specifically, regulation is likely to benefit small interest groups with strongly felt preferences at the cost of large interest groups with weakly felt preferences. The reasons lie in recognition and implementation. For an interest group to recognize the need for certain legislation, each member must have the potential of gaining a lot from it. Interest-group behavior is driven by the desires of its individual members. It is insufficient for some group potentially to realize a large gain from regulation. What is important is that each of its members stand to gain a lot, for only then does each member have the incentive to invest the resources to learn about the issues and about what needs to be done to achieve favorable legislation. This statement argues to the point that interest groups for which the per capita benefit from regulation is relatively high are more likely to recognize how legislation can be designed to serve their interests. Of course, it is insufficient simply to recognize a desire for a particular piece of legislation. To benefit, that legislation must be implemented. Implementation requires delivering political support—both in terms of votes and money—to legislators who can see that the appropriate bill is written, proposed, and passed. Here, big groups are at a disadvantage because of a free-rider effect. A person who makes a financial donation on behalf of his interest group benefits everyone in the group though the cost is specific to him. For example, a union worker who contributes dues of $50 incurs the full cost, but all union members share in the increased political power from the additional $50. This tendency to undercontribute is stronger the larger the group because the marginal impact of one person's contribution is smaller, though the cost to that person is independent of the group size. Of course, if everyone acts in that manner, contributions will be quite small. The smaller the size of the interest group, the weaker is this free-rider effect because each member's contribution has a proportionately bigger impact on the eventual impact of the group. Thus, in terms of both recognition of a need for regulation

21. Sam Peltzman, "Toward a More General Theory of Regulation," *Journal of Law and Economics* 19 (August 1976): 211–40; Mancur Olson, *The Logic of Collective Action* (Cambridge, Mass.: Harvard University Press, 1965).

and implementation of that regulation, the advantage rests in small interest groups for which the per capita benefits from regulation are high.

This argument provides some insight into why much of observed regulation favors producers. Producer groups are typically small in number, with each firm benefiting a large amount from regulation, whereas the primary opposition is consumers, of which there are typically millions, and the harm that regulation creates, while large in the aggregate, is small for each consumer.

U.S. Peanut Program

An example of a small group's benefiting from regulation at the cost of a large group is the peanut-quota system. Since 1949 the federal government has run a program that limits the number of farmers who can sell peanuts in the United States. Imports are also severely restricted. On top of these restrictions, price supports are used to guarantee that farmers with peanut quotas can cover their production costs for each year. This system generally results in the minimum selling price being about 50 percent higher than the world price.

For 1982–1987, it was estimated that the average annual consumer-to-producer transfer was $255 million (in 1987 dollars) with an associated deadweight welfare loss of $34 million.[22] In 1982 there were 23,046 peanut farmers, which means that each received a net transfer of $11,100. In contrast, the cost to the average consumer of this program was only $1.23. Few consumers would be willing to spend their own time and money to dismantle the peanut program when they would only gain $1.23. However, the program is worth $11,100 to the average peanut farmer, and that gain would certainly make it worth one's while to see that the program continues.

Predicting the Type of Industry to Be Regulated

The key assumption of the Stigler/Peltzman model is that the individuals who control regulatory policy (presumably the legislators) choose policy so as to maximize their political support. Although this is not the only assumption one could make, it is certainly a plausible one inasmuch as legislators desire to be reelected, and this aim is best achieved by maximizing political support. In deciding on government policies (which could include policies other than price and entry regulation), a legislator decides the size of the group to be benefited by regulation and how much wealth is to be transferred to them. For example, a legislator decides on the price structure and, in so doing, which consumers are benefited (their price is set below cost), which consumers are hurt (their price is set above cost), and how much firms are benefited (in terms of the level of profits).

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22. Randal R. Rucker and Walter N. Thurman, "The Economic Effects of Supply Controls: The Simple Analytics of the U.S. Peanut Program," *Journal of Law and Economics* 33 (October 1990): 483–515.

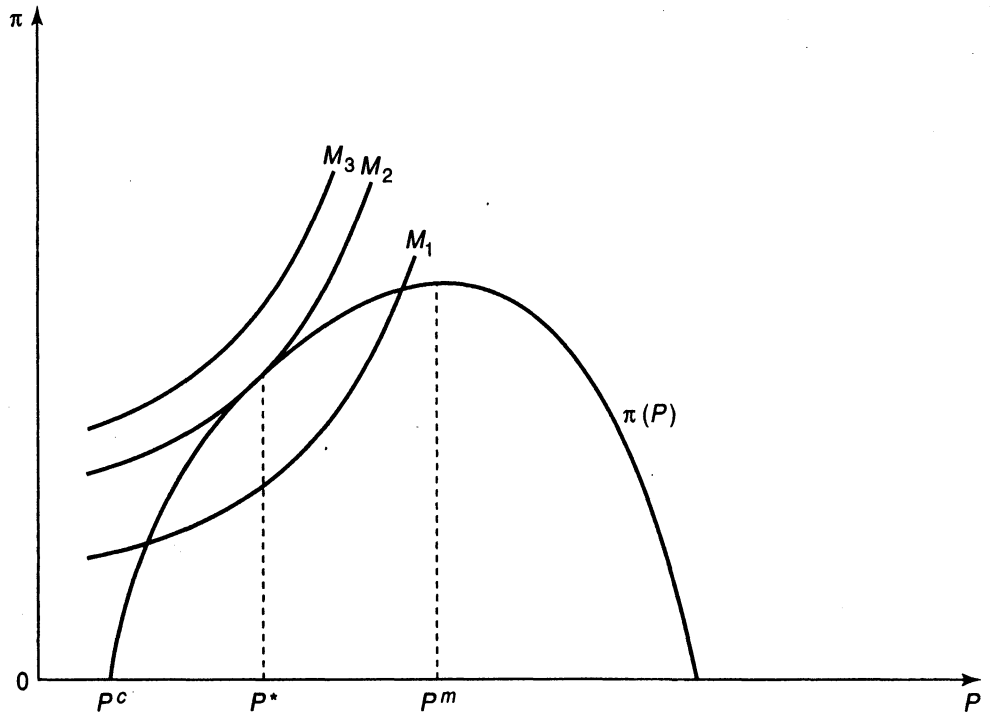

Figure 10.2
Optimal Regulatory Policy: Peltzman Model

Let us address in greater depth the issue of which industries are most likely to be regulated. For this purpose, Peltzman provides a model specifically designed for price and entry regulation. A legislator/regulator chooses price so as to maximize political support. Let the political support function be represented by $M(P, \pi)$ where P is price and π is industry profit. $M(P, \pi)$ is assumed to be decreasing in price because consumers increase their political opposition when price is higher while it is increasing in industry profit because firms respond with greater support. Profit depends on price where $\pi(P)$ will denote the profit function. In particular, $\pi(P)$ is increasing in P for all prices less than P^m (the monopoly price) and is decreasing in P for all prices above P^m. The profit function is shown in Figure 10.2. For $P < P^m$, note that if a legislator raises price, he raises consumer opposition—since $M(P, \pi)$ is decreasing in P—but also raises industry support—since $\pi(P)$ is increasing in P and $M(P, \pi)$ is increasing in π.

Let us characterize the price that maximizes the political support function $M(P, \pi)$ subject to $\pi = \pi(P)$. To do so, we have put in Figure 10.2 indifference curves for a legislator. The curve M_1 represents all pairs of price and profit that generate the level M_1 of political support. Note that the slope of an indifference curve is positive, reflecting the fact that if price is higher (hence, consumer support is reduced) then profit must be higher (which raises industry support) if the same level of political support is to be achieved. Because $M(P, \pi)$

is decreasing in P and increasing in π, political support is increasing in a northwesterly direction, so that $M_3 > M_2 > M_1$. The optimal price for the legislator, denoted P^*, is that which achieves the highest level of political support subject to the constraint that profit equals $\pi(P)$. Note that P^* lies between the competitive price, P^c, where profit is zero and the monopoly price, P^m, where industry profit is maximized. Thus, we have formally derived the result that a legislator/regulator will not set a price so as to maximize industry profit.

The characterization of the optimal regulated price provides important insight into which industries are likely to gain the most from regulation. If the equilibrium price an industry would achieve in the absence of regulation is close to the price that would exist under regulation, P^*, then regulation is unlikely. The interest group that would benefit from regulation will not expect to gain a large amount because price would be relatively unaffected. Hence, it would not warrant the investment of resources to get the industry regulated. Because the regulated price lies in between P^c and P^m, this argument also suggests that the industries most likely to be regulated are those that are either relatively competitive (so that the unregulated equilibrium price is near P^c) or relatively monopolistic (so that the unregulated equilibrium price is near P^m). In both cases, some interest group will gain considerably from regulation. Firms will gain in the case of a competitive industry, while consumers will gain in the case of a monopolistic industry.

Casual observation suggests that it is indeed these two extremes that tend to be subject to economic regulation. Monopolistic industries include local and long-distance telephone, electric and gas utilities, and railroads. Relatively competitive industries include agriculture (regulation takes the form of price supports), trucking, taxicabs, crude-oil and natural-gas production, and securities.

Becker Model

The Stigler/Peltzman modeling of the economic theory of regulation is based on a legislator or regulator choosing regulatory policy so as to maximize political support. In contrast, the formulation of Gary Becker focuses instead on competition between interest groups.[23] He suppresses the role of the legislator/regulator by assuming that "Politicians, political parties, and voters . . . transmit the pressure of active groups."[24] True to the economic theory of regulation, Becker assumes regulation is used to increase the welfare of more influential interest groups.

For simplicity, suppose there are two interest groups denoted group 1 and group 2. An interest group can raise its welfare by influencing regulatory policy. The wealth transfer that

23. Gary S. Becker, "A Theory of Competition Among Pressure Groups for Political Influence," *Quarterly Journal of Economics* 98 (August 1983): 371–400.

24. Ibid., page 372.

group 1 gets depends on both the pressure it exerts on legislators and regulators (denoted p_1) and the pressure exerted by group 2 (denoted p_2). The amount of pressure is determined by the number of members in the group and the amount of resources used. Greater pressure by group 1 as well as less pressure by group 2 implies that group 1 has more influence on the political process. Greater influence translates into group 1 receiving a bigger wealth transfer. In particular, if T is group 1's increase in wealth due to regulation, then $T = I(p_1, p_2)$, where $I(p_1, p_2)$ is called the influence function. It is assumed that $I(p_1, p_2)$ is increasing in the pressure of group 1 and decreasing in the pressure of group 2. In order to transfer wealth of amount T to group 1, it is assumed that group 2's wealth must be reduced by $(1 + x)T$, where $x \geq 0$. When $x > 0$, more wealth is taken from group 2 than is transferred to group 1. This "disappearing" wealth is measured by xT and is the welfare loss from regulation.

A property of the Becker model is that aggregate influence is fixed. The implication is that what is important for determining the amount of regulatory activity (as measured by the wealth transfer) is the influence of one group *relative* to the influence of another group. Each group chooses a level of pressure so as to maximize its welfare given the pressure level chosen by the other group. Because greater pressure uses up the group's resources, each group will not want to apply too much pressure. On the other hand, the less pressure a group applies, the greater the influence of the other group. Hence, by reducing p_1, the relative influence of group 1 declines so that the wealth transfer it gets will be smaller. Taking into account the benefits and costs of pressure, one can derive the optimal value of p_1, given any value for p_2. This optimal level of pressure for group 1 is denoted $\psi_1(p_2)$ and is plotted in Figure 10.3. $\psi_1(p_2)$ is referred to as group 1's "best response function" because it tells group 1 what level of pressure is best (in terms of its own welfare) in response to group 2's level of pressure. For example, if group 2 is expected to apply pressure of $\hat{p}_2$ then group 1's optimal level of pressure is $\psi_1(\hat{p}_2)$, which is denoted $\hat{p}_1$ in Figure 10.3. Because the more pressure that group 2 exerts the lower is the influence of group 1, group 1 finds it optimal to apply more pressure to offset the greater pressure of group 2. This response implies that $\psi_1(p_2)$ is increasing in p_2, as shown in Figure 10.3.

A political equilibrium is defined as a pair of pressure levels such that neither group has an incentive to change their decision. In other words, the pair of pressure levels (p_1^*, p_2^*) is a *political equilibrium* if, given that group 2 applies pressures p_2^*, p_1^* is the pressure that maximizes group 1's welfare *and,* given that group 1 applies pressure p_1^*, p_2^* is the pressure that maximizes group 2's welfare.[25] A political equilibrium is then defined by the intersection of the two best response functions $\psi_1(p_2)$ and $\psi_2(p_1)$ as at that intersection both interest

25. For those who read the section on game theory in Chapter 5, a political equilibrium is just a Nash equilibrium for a game in which groups simultaneously choose how much pressure to apply.

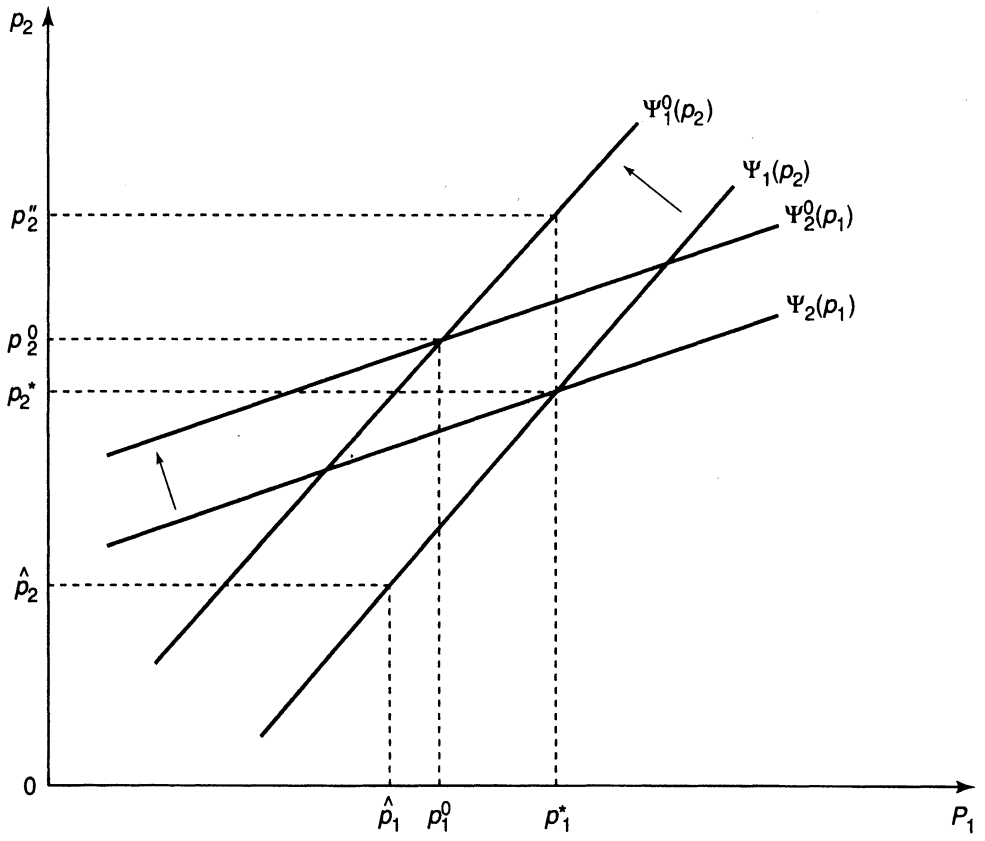

Figure 10.3
Political Equilibrium: Becker Model

groups are simultaneously exerting optimal levels of pressure. The political equilibrium in Figure 10.3 is then the pair (p_1^*, p_2^*).

The political equilibrium has both interest groups investing in pressure so as to influence the political process. The optimal pressure for each group is very much dependent on the level of pressure exerted by the other group because what determines regulatory policy is *relative* influence. As a result, the free-riding problem inherent in all groups is not as important as had been previously thought. Because all groups are subject to free-riding, what is important is the *relative* severity of free-riding. When the free-riding problem is less severe in group 1 than in group 2 (perhaps because group 1 has fewer members), group 1 will have a relative advantage over group 2. This conclusion is true regardless of whether or not group 1 has a severe free-riding problem in some absolute sense.

Another important property to note about the equilibrium is that it is not Pareto optimal. Both groups could invest fewer resources and achieve the same level of relative influence. Because relative influence is all that matters, the political outcome would be the same but

at a lower cost for both groups. As an example of this phenomenon, consider the case of competition among cable operators for the cable television franchise in the New York City boroughs of Brooklyn, Queens, Staten Island, and the Bronx:

> All the [franchise] applicants have hired influential lawyers and public-relations consultants, a roster of whom reads like a Who's Who of former city and state officials. . . . [A vice president for one of the applicants] contends that these friends at city hall (who typically command fees of about $5,000 per month) have tended to cancel one another out.[26]

Competition among groups for influence in the political process uses up economic resources to obtain the wealth transfer, resulting in a Pareto-inefficient outcome. The logic behind this result is exactly the same as that for the Pareto inefficiency of the Cournot outcome in the oligopoly setting (see Chapter 5).

Given the theory of a political equilibrium, let us now use it to generate testable hypotheses concerning the properties of regulation. One important result is that if the marginal deadweight loss from regulation, x, increases then the amount of regulatory activity decreases (measured by the amount of wealth transfer T). An increase in the marginal deadweight loss means that group 2 incurs a bigger loss for any given transfer received by group 1. This greater potential loss spurs group 2 to apply more pressure for any given anticipated level of pressure by group 1. This effect of a rise in x on group 2's behavior is then represented by a shift in its best response function from $\psi_2(p_1)$ to $\psi_2^0(p_1)$ (see Figure 10.3). For example, if group 1 is expected to apply pressure p_1^* then group 2 now chooses to apply pressure p_2'' rather than p_2^* because the welfare loss imposed on group 2 is higher for any given value of T (because of a higher value of x). This higher value of x also implies that group 1 will get a smaller wealth transfer for any given tax of group 2. Because group 1 has less of an incentive to invest resources to increase regulatory activity, it will apply less pressure. This response is represented by its best response function shifting from $\psi_1(p_2)$ to $\psi_1^0(p_2)$ in response to an increase in the marginal deadweight loss from regulation. As a result, the new political equilibrium is (p_1^0, p_2^0), which entails more pressure by group 2, as $p_2^0 > p_2^*$, and less pressure by group 1, as $p_1^0 < p_1^*$. Because the amount of the transfer, T, equals $I(p_1, p_2)$ and $I(p_1, p_2)$ is increasing in p_1 and decreasing in p_2, it follows that $I(p_1^0, p_2^0) < I(p_1^*, p_2^*)$. As measured by the amount of wealth transfer, regulatory activity is reduced because of an increase in the marginal deadweight loss associated with it.

An important implication of this result is that regulatory policies that are welfare-improving are more likely to be implemented than ones that are not. Suppose that industry A is a natural monopoly and industry B is competitive. The deadweight welfare loss from regulating industry B is greater than that for industry A, ceteris paribus, because industry B is already

26. Lauro Landro, "New York Today Picks Its Cable-TV Winners for Four Boroughs," *Wall Street Journal,* November 18, 1981, pp. 1, 22.

achieving a welfare optimum while industry A is not. The implication of the preceding analysis is that the greater marginal deadweight loss associated with regulation of industry B means that more pressure will be applied for regulation in industry A than in industry B. The Becker model suggests that industries plagued by market failures (so that the marginal deadweight loss from regulation is relatively low or even negative) are more likely to be regulated. The beneficiary groups have greater potential for gains so that they will apply more pressure. Groups harmed by regulation will not be harmed as much because of the lower deadweight loss, so that they will apply less pressure against regulation.

In contrast to the Stigler/Peltzman model of regulation, the Becker model provides some justification for NPT. Where there are market failures, there are potential welfare gains from regulation. Some interest groups stand to gain a lot from regulation, whereas other groups stand to lose a little (relative to interest groups in industries not subject to market failure) because of the absence of relatively large deadweight welfare losses. As a result, there is relatively great pressure for regulation of industries subject to market failure. However, the Becker model, in contrast to NPT, does not state that regulation occurs only when there is a market failure. What determines regulatory activity is the relative influence of interest groups, and this influence is determined not only by the welfare effects of regulation but also by the relative efficiency of interest groups in applying pressure to legislators and regulators.

Taxation by Regulation

One of the many perplexing aspects of economic regulation is the common use of cross-subsidization. Cross-subsidization is the use of revenue from the sale of one product to subsidize the sale of another product. More specifically, the price of one product is set to exceed its average cost, while the price of a second product is set below its average cost. Such pricing behavior is perplexing because it appears to be inconsistent with both profit maximization and welfare maximization.

An explanation for cross-subsidization is provided by Richard Posner.[27] He puts forth the thesis that one of the functions of regulation is to assist the government in its role of redistributing resources. In this light, cross-subsidization is interpreted as a means for redistributing wealth from one group of consumers to a second group of consumers. For example, price regulation entails charging a uniform price for providing local telephone service. Thus, a consumer who lives in a city where the marginal cost of hooking him up to the system is low, pays the same fee as a consumer who lives in a rural area, where the marginal cost of hookup is considerably greater. Another example is airline pricing, where, under CAB regulation, the fare was often the same for routes of similar length even though average cost is much higher on

27. Richard A. Posner, "Taxation by Regulation," *Bell Journal of Economics and Management Science* 2 (Spring 1971): 22–50.

low-density routes than on high-density routes. Posner's argument assumes that society desires to redistribute resources from one class of consumers to another class of consumers and concludes that this purpose could be aided through cross-subsidization. In practice, it would appear that consumers in less densely populated areas tend to be subsidized at the cost of consumers in more densely populated areas.

The analysis of Posner fits in with the model of Becker. One can interpret the outcome of cross-subsidization as revealing that some consumers (those with price below cost) have relatively more influence on the political process than other consumers (those with price above cost). Although cross-subsidization cannot be explained by either NPT (as it is inconsistent with welfare maximization) or the CT (as it is inconsistent with profit maximization), it can be explained as the result of competition among interest groups to influence government policy for the purpose of raising their welfare.

Summary of Results

We have derived four major results using the Stiglerian approach to the theory of regulation. These results take the form of predicting the form of regulation and which industries will be regulated. First, there is a tendency for regulation to be designed to benefit relatively small groups with strong preferences over regulation at the cost of relatively large groups with weak preferences over regulation. In many cases, the implication of this result is that regulation will be pro-producer. Second, even if regulation is pro-producer, policy (in particular, price) will not be set so as to maximize industry profit. Because of the constraining influence of consumer groups, price will be set below the profit-maximizing level. A third result is that regulation is most likely in relatively competitive or relatively monopolistic industries because it is in those industries that regulation will have the biggest impact on some group's well-being. Finally, the presence of a market failure makes regulation more likely because the gain to some interest groups is large relative to the loss to other interest groups. As a result, the former will have more influence on the legislative process, ceteris paribus.

Critique of ET: Modeling the Regulatory Process

An important assumption in the models of Stigler, Peltzman, and Becker is that interest groups directly influence regulatory policies. However, when one thinks about the process by which regulation is determined, one realizes there are numerous actors. Voters and special interest groups determine who the legislators are, legislators determine the piece of regulatory legislation (in conjunction with the chief executive), and regulators influence the actual policy that is implemented. In order for interest groups to have a significant impact on regulatory policy, it must be true that the process works the right way. First, interest groups must have a strong impact on the outcome of elections. Second, legislators must be sufficiently constrained by the threat of losing interest group support that they implement the policies supported by

the interest groups that got them into office (and are presumably needed for reelection). Third, regulators must be sufficiently under the control of legislators if the policy that is implemented is not to deviate from that desired. An important critique of economic theories of regulation is that they ignore some important elements of the regulatory process by assuming that interest groups adequately control legislators and that legislators adequately control regulators.

Legislators obviously care about being reelected (and thus want to appease the interest groups that originally elected them), but they also care about other things. Like voters, legislators have preferences over issues even if they are not directly affected by them. Such preferences have been referred to as an ideology where "ideologies are more or less consistent sets of normative statements as to best or preferred states of the world."[28] Because interest groups cannot perfectly control or perfectly monitor the activities of legislators, legislators can be expected to periodically "shirk" their responsibilities to their interest groups and instead pursue their own ideology (which may or may not conflict with the desires of their interest groups).

In addition to legislators not being puppets of their interest groups, regulators need not be puppets of legislators. Regulators are difficult to control because they have access to information not available to legislators and because it is very costly for legislators to draft new legislation to redirect regulatory policy. As a result, regulators can have considerable discretion in implementing policy.[29] Nevertheless, it has been argued that congressional oversight committees can be quite effective in controlling regulators.[30] With its budgetary powers, the Congress can punish regulatory agencies that pursue the wrong policies. In spite of this threat, regulators clearly have a nontrivial amount of freedom from legislators.

Finally, the role of the judiciary has been ignored in the ET. The courts have shown that they can be a key player in the regulatory process:

> Judicial consent is necessary when a statute must be reinterpreted in order to implement a change. For instance, reinterpretation of the existing statutes was necessary for the deregulation of airline, trucking, telecommunications and several other industries, and the deregulation of various environmental, health and safety standards. Deregulation occurred *only* in those cases which were approved by the judiciary. Further, where it did occur, the opposition from committees of Congress was irrelevant.[31]

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28. Joseph P. Kalt and Mark A. Zupan, "Capture and Ideology in the Economic Theory of Politics," *American Economic Review* 74 (June 1984): 279–300. This article provides a nice discussion of how ideology fits into the theory of regulation.

29. For analyses that explore the implications of regulators having better information than legislators, see Pablo T. Spiller, "Politicians, Interest Groups, and Regulators: A Multiple-Principals Agency Theory of Regulation, or 'Let Them Be Bribed,'" *Journal of Law and Economics* 22 (April 1990): 65–101, and Jean-Jacques Laffont and Jean Tirole, *A Theory of Incentives in Procurement and Regulation* (Cambridge, Mass.: MIT Press, 1993).

30. Barry R. Weingast and Mark J. Moran, "Bureaucratic Discretion or Congressional Control? Regulatory Policymaking by the Federal Trade Commission, " *Journal of Political Economy* 5 (October 1983): 765–800.

31. Ladha, 1990, p. 46.

We are aware of ways in which interest groups can pressure the president and the Congress but how can they influence judiciary decisions? What motivates judges? These are important questions that the ET has not addressed.

Testing Theories of Regulation

Does the Empirical Evidence Support the Economic Theory of Regulation?

The central empirical challenge to the ET is to explain both the regulation and deregulation of such industries as railroads, trucking, intercity telecommunications, and crude oil. To address this issue, one should pose the question, What changes in the regulatory environment would induce deregulation?

According to NPT, deregulation would occur when there are changes in cost or demand conditions such that a market failure is either eliminated or sufficiently reduced so as to make deregulation socially optimal. Alternatively, the ET would predict deregulation when the relative influence of interest groups that are benefited by regulation is reduced. This decline in influence could happen as a result of changes in cost or demand conditions (by affecting such things as the deadweight loss associated with regulation) or changes in the cost of organizing groups; for example, a new mechanism or technology may be discovered that reduces the free-rider problem. In the case of consumer groups, this new technology may be the arrival of a political entrepreneur like Ralph Nader who is proficient in organizing people and forming coalitions.

A casual survey of the recent deregulatory movement suggests that the evidence is mixed.[32] The deregulation of the railroad industry in 1976–1980 would appear to be broadly consistent with the ET. The original regulation of the industry is explained by the industry being more influential in the political process. Although regulation originally allowed above-normal profits, it eventually reduced firm profitability for a variety of reasons. In response, one would expect the industry to pressure for deregulation, which is what it did beginning in the mid-1950s. Unexplained, however, is why it took so long for significant deregulation to take place. In contrast, the deregulation of trucking appears quite inconsistent with the ET. The trucking industry was earning large rents from regulation at the time of its deregulation. Further, one is hard pressed to find a reason why consumers of trucking services would have become more influential in the political process relative to trucking firms and the Teamsters Union. Finally, a case that can be argued to be supportive of either the ET or NPT is the deregulation of the intercity telecommunications market. As we will see in Chapter 15,

32. For surveys see Theodore E. Keeler, "Theories of Regulation and the Deregulation Movement," *Public Choice,* 44 (1984): 103–45, and Sam Peltzman, "The Economic Theory of Regulation after a Decade of Deregulation," in Martin Neil Baily and Clifford Winston (eds.), *Brookings Papers on Economic Activity: Microeconomics 1989* (Washington, D.C.: Brookings Institution, 1989).

deregulation can be explained as being a response to the industry no longer being a natural monopoly, as NPT would predict. A weakness in this argument is that, originally, the FCC allowed very limited entry and was steadfastly against allowing entry into certain segments of the market (in particular, long-distance telephone service). This policy is difficult to rectify with NPT. It could be explained by the ET in that technological changes brought forth a new interest group in the form of prospective firms (initially, MCI). This interest group was influential enough to pressure the FCC to allow partial entry, but AT&T was too influential to allow full entry. It was only the U.S. Court of Appeals that eventually expanded entry.

More systematic and direct tests of the ET have been conducted, and this work seeks to determine whether regulation tends to favor interest groups with a low cost of organizing and a high per capita benefit from regulation. This empirical work investigates why states allow reciprocity for dentist licenses,[33] what determines the pricing of nuclear energy,[34] and why some states went from rate-of-return regulation to price caps in regulating the intrastate long-distance rates of AT&T.[35]

A review of the record reveals that while the ET is an important advancement in understanding government intervention, there is still much empirical evidence that would seem to be inconsistent with it. It appears that we have a considerable journey ahead of us in understanding why regulation occurs when it does and why it takes the form that it does. A fuller analysis of the political side of regulation will be dealt with when we examine particular industries. Our studies will include an examination of the political economy of regulations on state banking (the following subsection), railroad and trucking (Chapter 17), strip mining (Chapter 19), and pharmaceuticals (Chapter 24).

Deregulation of Bank Branching Restrictions

Regulatory History

The explosion of mergers, acquisitions, and overall expansion in the banking industry in the 1990s is quite distinct from the pattern of industry evolution that preceded it.[36] Prior to the

33. Gilbert Becker, "The Public Interest Hypothesis Revisited: A New Test of Peltzman's Theory of Regulation," *Public Choice* 49 (1986): 223–34.

34. Charles D. Delorme, Jr., David R. Kamerschen, and Herbert G. Thompson, Jr., "Pricing in the Nuclear Power Industry: Public or Private Interest?" *Public Choice* 73 (June 1994): 385–96.

35. David L. Kaserman, John W. Mayo, and Patricia L. Pacey, "The Political Economy of Deregulation: The Case of Intrastate Long Distance," *Journal of Regulatory Economics* 5 (March 1993): 49–63.

36. This section draws heavily on Jith Jayaratne and Philip E. Strahan, "Entry Restrictions, Industry Evolution, and Dynamic Efficiency: Evidence from Commercial Banking," *Journal of Law and Economics* 41 (April 1998): 239–74; and Randall S. Kroszner and Philip E. Strahan, "What Drives Deregulation? Economics and Politics of the Relaxation of Bank Branching Restrictions," *Quarterly Journal of Economics* 114 (November 1999): 1437–67.

1970s, bank expansion was severely limited by regulation. At the federal level, the Bank Holding Company Act of 1956 effectively prohibited a bank from having branches in more than one state. At the state level, intrastate branching was restricted, with some states limiting a bank to having only a single branch (known as "unit banking"). Now, almost all of these regulations have been dismantled, and, to a large extent, the United States has unrestricted interstate banking and branching.

When Did Deregulation Occur and Why?

Given the restrictions on branching under state regulation, one of the corporate forms to emerge was the multi-bank holding company (MBHC). An MBHC could own and operate multiple bank subsidiaries but could not integrate them. Each bank had to be run independently so, for example, the holder of an account in one bank held by an MBHC could not have access to that same account at another bank owned by the same MBHC. From the perspective of customers, the subsidiaries of an MBHC were wholly unrelated. An important step in the deregulatory process was to allow MBHCs to convert subsidiary banks into branches of a single bank and to acquire other banks and make them branches as well. Later deregulation would permit banks to open new branches.

A recent study by Randall Kroszner and Philip Strahan explores the determinants of when a state chose to permit MBHCs to convert subsidiaries into branches of the same bank. Though most states did not engage in this form of deregulation until after 1970 (and Kroszner and Strahan explore why that is the case), there was considerable variation as to exactly when deregulation occurred, as can be see in Figure 10.4. The analysis focuses on the thirty-six states that deregulated over 1970–1992 with the objective of exploring how well various theories of regulation explain the timing of deregulation. In particular, Kroszner and Strahan consider two of the theories of regulation we have discussed—normative analysis as a positive theory (NPT) and the economic theory of regulation (ET).

Predictions of NPT and ET

Recall that NPT hypothesizes that regulatory policy is designed to maximize social welfare. It predicts that deregulation will take place earlier in those states experiencing higher social welfare losses from regulation. In considering the effects of deregulation, it is presumed that there are efficiencies from size so that these branching restrictions are effectively limiting the size of banks. Such a presumption is borne out by the postderegulation expansion and merger-acquisition activity. This suggests that prohibiting MBHCs from converting their subsidiaries into branches benefits small less efficient banks by protecting them from encroachment by more efficient large banks. The associated welfare loss should then be higher in those states where small banks have a bigger presence. Therefore, NPT predicts that the time until deregulation (or the delay in deregulation) is shorter in states with a greater presence of small banks. A second factor pertinent to the timing of deregulation is the presence

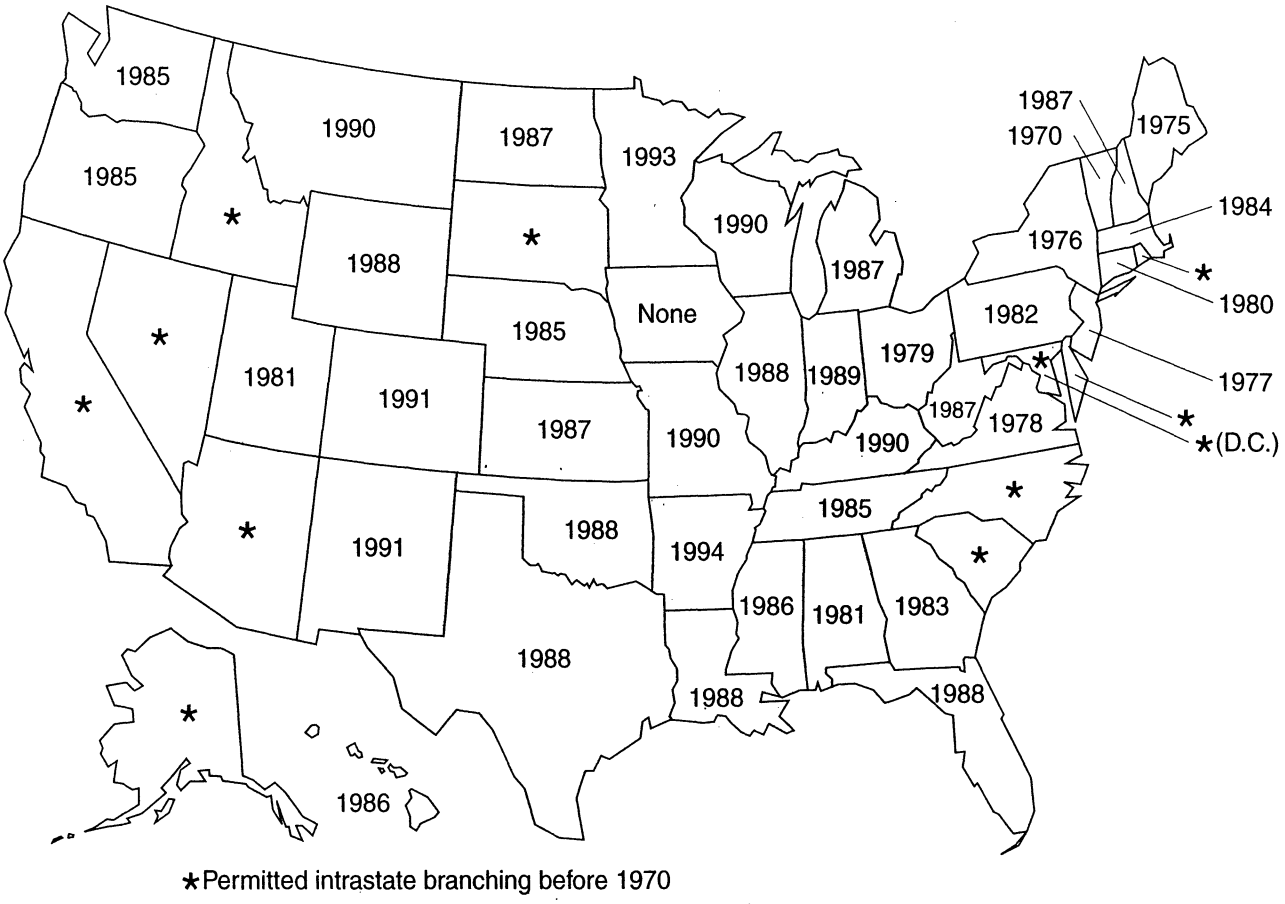

Figure 10.4
Deregulation of Restrictions on Intrastate Branching
Source: Randall S. Kroszner and Philip E. Strahan, "What Drives Deregulation? Economics and Politics of the Relaxation of Bank Branching Restrictions," *Quarterly Journal of Economics* 114 (November 1999): 1437–67.

of small firms. Such firms are especially dependent on the local banking sector for credit (in contrast to large firms that can raise capital through other means such as equity offerings). Given the impact of the efficiency of the banking sector on small firms, the welfare loss from regulation should be higher in states with a greater presence of small firms. NPT then predicts that the delay in deregulation is shorter when the presence of small firms in the state is greater.

Let us now consider the predictions of ET with respect to those two factors—small banks and small firms. In that both represent interest groups affected by branching restrictions, ET should have something to say about how their presence influences the timing of deregulation. If larger banks were unrestricted and could expand, such expansion would allow the realization of certain efficiencies that would put the small banks at a disadvantage. Hence, small banks benefit when deregulation is delayed. According to ET, we would then expect

small banks to exert pressure to delay deregulation so that, contrary to NPT, it predicts that delay is *increasing* in the presence of small banks. On the other hand, the prediction of ET about the relationship between the presence of small firms and the timing of deregulation is the same as for NPT. In that small firms are benefited by deregulation, a bigger presence of small firms should result in more resources (for example, lobbying) being used to speed up deregulation.

Performance of ET and NPT

These predictions were tested by estimating the relationship between the time until deregulation and measures of the presence of small banks and small firms (the authors also take account of several other relevant factors). The presence of small banks in a state is measured by the percentage of banking assets in the state controlled by small banks where a bank is "small" if its assets are below the median level of assets for banks in that state. The presence of small firms in a state is measured by the proportion of all establishments in the state with fewer than twenty employees. Kroszner and Strahan find that delay in deregulation is greater when the presence of small banks is larger and the presence of small firms is smaller. In that the latter prediction is consistent with both ET and NPT while the former is consistent only with ET, ET seems to perform better than NPT in explaining the timing of deregulation of bank branching restrictions.

Summary and Overview of Part II

As with any sort of economic phenomenon, there are certain empirical regularities associated with economic regulation. It typically entails regulation over price, quantity, and/or the number of active firms. Regulatory activity also has certain time-series properties. We have witnessed periodic bursts of legislation. A large amount of economic regulation took place after the Great Depression, whereas deregulation was hot in the 1980s.

This chapter provided a brief review of the regulatory process, but it could hardly do justice to the complexity of this process. Many economic agents are involved at the time of regulation's inception, implementation, and, perhaps, its dismantling. To understand why the regulatory environment looks the way it does, one must understand the motives of consumers, firms, unions, legislators, regulatory commissioners, and government bureaucrats. Several theories of why regulation takes the form that it does were discussed. Different variants of the economic theory of regulation appear to be most consistent with the evidence. Nevertheless, there is still much regulation that this theory cannot explain. More research is required before we will have a complete theory of regulation.

In concluding this chapter, let us provide a brief overview of Part II. The chapters on economic regulation are divided into two segments: the regulation of natural monopoly and the

regulation of potentially competitive markets. Because natural monopoly is perhaps the most important basis for economic regulation, considerable attention is given to understanding what a natural monopoly is, how best to regulate it, and what the effects of regulation are. Chapter 11 provides an introduction to natural monopoly. The standard form of natural monopoly regulation, along with a discussion of its effects, is provided in Chapter 12. In light of its importance, we also consider alternative methods for handling the problem of natural monopoly. Chapter 13 analyzes franchise bidding, using cable television as an application; Chapter 14 considers public enterprise, using municipally owned electric utilities as an application. The final chapter on natural monopoly focuses on dynamic issues related to regulation. This task is performed in Chapter 15, where the intercity telecommunications market provides an interesting case study.

Chapters 16 through 18 assess the effects of regulation in industries that are potentially competitive. A theoretical discussion of these effects and how one might estimate their quantitative size is provided in Chapter 16. Analyses of the regulation of transportation is provided in Chapter 17 where we focus on the price and entry/exit regulation of the railroad, trucking, and airline industries. Concluding Part II, Chapter 18 considers price regulation in the crude oil and natural gas industries.

Questions and Problems

1. Do you agree with the *Nebbia v. New York* decision? If not, what do you think would have been a better judicial decision?
2. What are the roles of the legislature, the judiciary, and the regulatory agency in deregulation? How do interest groups affect deregulation? Should they be allowed to affect regulatory policy?
3. Sometimes, former regulatory commissioners are hired by the industry that they previously regulated. What effect do you think this practice has on the relationship between a regulatory agency and the industry? Should it be allowed? Discuss the advantages and disadvantages of prohibiting this practice.
4. Is there a theory that can explain why a competitive industry like taxicabs is regulated *and* why a monopolistic industry like local telephone is regulated? What about an oligopolistic industry like the airlines?
5. Can one explain why the railroad industry was regulated and then deregulated almost a century later? What about the regulation and deregulation of trucking?
6. What is the empirical evidence for and against the economic theory of regulation?
7. What would be the effect on regulatory practices if regulatory agencies were composed of seven members where two members represent firms, two members represent workers, and three members represent consumers? More generally, how do you think regulatory commissioners should be chosen?

8. Use the economic theory of regulation to explain the existence of trade barriers like tariffs and quotas.
9. What do you think caused the wave of deregulation that took place during the 1970s and 1980s?
10. In many cities, the number of taxicabs is controlled by regulation, as are rates. In the 1980s there was a loosening of entry restrictions in some cities but not others (see Chapter 16 for a description). How could you use the deregulation of taxicab markets to test various theories as to why there is economic regulation?