Regulation and antitrust

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> The state – the machinery and power of the state – is a potential resource or threat to every industry in the society. With its power to prohibit or compel, to take or give money, the state can and does selectively help or hurt a vast number of industries. (Stigler, 1971: 3)

In theory, public policies toward business – the regulation of prices and conditions of entry into specific industries, and the enforcement of antitrust laws that circumscribe the conduct of firms more broadly – serve as bulwarks of a freely functioning market economy. Without such public-sector controls, profit-seeking firms, it is commonly thought, inevitably would acquire market power and exploit it by restricting output and raising price, benefiting themselves at consumers' expense. Government agents must therefore vigilantly stand guard, intervening when necessary to limit the potential abuses of monopoly. Such intervention supposedly is guided by the goals of ensuring that prices are kept in line with costs, that scarce productive resources remain fully employed, that technological progress is rapid, and that economic growth is vigorous.

From this point of view, regulation and antitrust are thrust upon unwilling producers in order to channel and redirect their behavior away from privately rational, but socially harmful ends. Business decisions motivated solely by the quest for profit are displaced by those of public policymakers who pursue broader objectives. Assigning greater weight to the interests of society as a whole, the antitrust and regulatory authorities act quickly and appropriately to correct the failures that seem to flourish in unfettered markets, thereby redistributing wealth back to consumers and enhancing economic efficiency.

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Public choice theory, by contrast, resists modeling public policymakers as disinterested maximizers of society's welfare (Buchanan and Tullock, 1962). Built on a foundation of methodological individualism, public choice closes the behavioral system by assuming that all human actors, in or out of government, pursue similar objectives (utility maximization) and employ the same rational-choice calculus to select the alternative that yields the greatest personal benefit net of cost (Buchanan, 1972). This assumption of universal self-interest, coupled with the logic of collective action (Olson, 1965), implies that the individuals responsible for formulating and executing public policies toward business will have powerful incentives, not selflessly to promote the public interest, but to enhance their own wellbeing by catering to the demands of politically well-organized special-interest groups.

Applied to public utilities, common carriers and other 'natural monopolies', the economic theory of regulation has revolutionized the study of public policies toward business. As a result of the empirical evidence accumulated over the past quarter century, lending broad support to the theory's implications, few economists now take seriously the naïve view 'that regulation is a device for protecting the public against the adverse effects of monopoly' (Posner, 1971: 22). The public interest 'theory' of regulation (Hotelling, 1938; Joskow and Noll, 1981), which is not in fact a theory in the accepted scientific sense (Posner, 1974; Aranson, 1990), has been displaced by models that bring the tools of microeconomics to bear in analyzing regulation as the product of the supply and demand for wealth transfers. Initially articulated as a theory of regulatory agency 'capture' in which, 'as a rule, regulation is acquired by the industry and operated primarily for its benefit' (Stigler, 1971: 3), the theory has been generalized and extended to allow for more complex patterns of wealth transfers amongst the many and varied groups having stakes in regulatory outcomes (Peltzman, 1976; McCormick and Tollison, 1981; Becker, 1983). The

constellation of forces at work has been shown to include the industry's customers (Posner, 1974), subsets of heterogeneous producers (Marvel, 1977; Maloney and McCormick, 1982; Anderson and Tollison, 1984; Anderson et al., 1989), and politicians themselves (Crain and McCormick, 1984; McChesney, 1987, 1991, 1997). While disputes continue about the efficiency of the regulatory process (Becker, 1985; Wittman, 1989, 1995; Lott, 1997; Rowley, 1997) – that is, whether competition in the market for wealth transfers is sufficiently robust so as to minimize regulation's deadweight social costs – the economic theory of regulation, which models regulation exclusively as a mechanism of wealth redistribution, is now the reigning paradigm of regulatory analysis.

Such a revolution has not yet materialized fully in the study of antitrust policy. Despite efforts to bring public choice principles to bear in explaining the origins (Baxter, 1980; DiLorenzo, 1985; Stigler, 1985; Libecap, 1992; Boudreaux et al., 1995; Ekelund et al., 1995; Troesken, 2000) and enforcement of the antitrust laws (Faith et al., 1982; Shughart and Tollison, 1985; Shughart, 1990; McChesney and Shughart, 1995), the conventional wisdom that antitrust serves the interests of that most unorganized of groups – consumers – still holds sway. Even the late George Stigler, who did much to undermine the idea 'that regulation is instituted primarily for the benefit of the public at large' (Stigler, 1971: 3), once called antitrust a 'public interest law in the same sense in which . . . private property, enforcement of contracts, and suppression of crime are public-interest phenomena' (Hazlett, 1984: 46).

The scholarly disconnect between antitrust and regulation rests partly on a failure to appreciate the regulatory character of many antitrust decrees (Easterbrook, 1984). In addition, while regulatory policies normally are tailored narrowly to apply to specific firms and industries – and the interest groups having stakes in regulatory outcomes can therefore be identified easily

– the antitrust laws supply a broad set of proscriptions on firm behavior that apply to the economy generally. Antitrust's wide reach complicates the identification of winners and losers. Because no one group consistently benefits from antitrust enforcement, the special-interest basis of antitrust policy is less apparent than is the case with other forms of regulation. Last, there is widespread resistance to the idea that the law enforcement agencies and judges who interpret and give effect to the vague language of the antitrust statutes are vulnerable to political influence.

As we shall see, however, antitrust *is* regulation and, hence, both can be analyzed with the same set of tools. Despite the tenacity of the public-interest view of competition policy (McCormick, 1984), the economic theory of regulation, embellished by public choice principles, helps to illuminate the causes and consequences of antitrust and to situate it within a general economic model of public policies toward business.

Policy responses to 'market failure'

Orthodox welfare economics (Pigou, 1932) justifies government intervention into the private economy on the basis of a perceived failure of market institutions always 'to sustain "desirable" activities or to estop "undesirable" activities' (Bator, 1958: 351). Such situations arise when the benefits or costs of a decision or choice at the level of the individual diverge from the corresponding benefits or costs at the level of society, that is, when the parties interacting in a market cannot capture the full social benefits – or do not bear the full social costs – of their resource-allocation decisions. Potential gains from trade remain unexploited when private benefits and costs are not equal to social benefits and costs and, in principle, society's welfare can be improved by appropriate policy intervention.

Consider the case of environmental pollution. In the stylized Pigouvian world, manufacturers of goods that generate toxic wastes as byproducts of the production process have little incentive to take account of the costs the pollutants impose on others. The marginal private cost of production, which consists only of the explicit and implicit costs borne by the firm's owners in bringing the product to market, is consequently less than the marginal social cost of production, which includes the additional health care expenses and other costs incurred by third parties exposed to the environmental contaminants. Because private costs are less than social costs, the firm produces a quantity of output that is greater than is optimal from society's point of view. Intervention in the form of an effluent fee equal to the difference between private and social costs is the prescribed policy response. Such a tax forces the firm to 'internalize the externality', thereby reducing production to the socially optimal rate and supplying tax revenue that can in principle be used to compensate those who are injured by the residual pollutants.

Private markets may likewise fail to achieve ideal results when the social benefits of an activity exceed its private benefits. In deciding whether to be inoculated against a communicable disease, for instance, rational individuals understandably pay greater attention to the expected reduction in their own risks of infection than to the benefits conferred on others, whose risks are also lowered by virtue of immunity that is more widespread. Because inoculated individuals cannot appropriate personally the positive spillover effects of their choices, a public subsidy for vaccines helps align private benefits with social benefits, inducing more individuals to become inoculated than otherwise and thereby correcting the market's undersupply of immunizations. Market failures are also thought to be common when transaction-relevant information is distributed asymmetrically between buyers and sellers and the better-informed parties can exploit their superior knowledge strategically: purchasers of insurance may misrepresent their own risk

characteristics in order to obtain coverage at actuarially favorable rates, for example. Similarly, sellers of ‘experience goods’ may, because quality claims cannot be verified prior to purchase, misrepresent product attributes in order to increase their profits at buyers’ expense (Nelson, 1970). Public intervention to ensure appropriate information provision is routinely called for in such circumstances. In the limit, private markets may fail completely – and production rights must therefore be assigned to the public sector if any output is to be supplied at all – in the case of certain ‘public goods’ (national defense, for example) whose consumption is nonrivalrous and from whose benefits nonpayers cannot easily be excluded (Samuelson, 1954).

As the foregoing discussion suggests, conventional welfare economics assumes (often implicitly) that while markets are beset with imperfections, the public policy process is not so encumbered. The costs of transacting, including the costs of acquiring, collating and utilizing information about resource values and of contracting for their exchange – costs that may prevent private economic actors from exploiting all available gains from trade – are ignored when corrective government action is prescribed. Social welfare is invariably enhanced when government intervenes because policymakers are presumed to be fully informed about the social costs and social benefits of resource allocation decisions not taken into account by private decision makers and, moreover, unselfishly to select the appropriate policy response.

This line of reasoning commits what Harold Demsetz (1969) calls the ‘nirvana fallacy’. Market outcomes are generated in a setting in which information is costly to acquire, the future is uncertain, and choices consequently are ‘boundedly rational’ (Simon, 1957). Nevertheless, market performance is usually evaluated, not by way of comparison with other, necessarily imperfect alternatives, but rather in light of the outcomes that would materialize in some

idealized and unattainable world in which decision makers are fully informed and endowed with perfect foresight.

Modern approaches to the study of the imperfections associated with externalities, asymmetric information and public goods raise doubts about their empirical importance (Demsetz, 1970; Coase, 1974; Cawley and Philipson, 1999). More fundamentally, the Coase Theorem (Coase, 1959, 1960) highlights the incentives of private parties to take account of the external costs and benefits of their resource allocation decisions and to contract their own way around 'market failure'. Consider apple growing and beekeeping (Cheung, 1973). Apple growers benefit from the pollination services of bees and beekeepers benefit from a ready supply of apple blossom nectar. A complex set of bilateral contracts has evolved that compensates each party for their joint contributions to the apple and honey crop. Such contractual solutions to market failures require only that property rights be defined clearly and that transaction costs be less than expected gains. Indeed, the contours of the efficient solution (but not the distribution of income) are invariant to the initial property rights assignments. The Coase Theorem emphasizes that not every potential market failure demands a government response: private parties may fail to reach agreement, not only because the costs of doing so are high, but also because the anticipated benefits are low. The Theorem emphasizes in addition that, even when social welfare potentially can be enhanced by government intervention, the knowledge limitations confronting policymakers and the costs of government intervention must be considered before corrective action is taken.

The regulatory nirvana. Nowhere is the nirvana fallacy committed more regularly than in the analysis of perceived market failures due to monopoly, to which regulatory and antitrust policies have arisen in response. The textbook model of 'perfect competition' remains

the standard by which the conduct of flesh-and-blood producers is evaluated by those who formulate and execute public policies toward business. In that model, rivalry between firms, by any commonsensical definition of the concept, is assumed away. Competition is ‘perfect’ in the model of perfect competition because large numbers of firms offering identical products for sale interact with large numbers of consumers making offers to buy, there are no barriers to the entry of new firms into the market (and no barriers to the exit of old ones), and all transaction-relevant information, including information about the locations of sellers and the prices they charge, the quality attributes of their products, and the requirements and creditworthiness of buyers, is freely available to all.

Under such circumstances, long-run market equilibrium is characterized by *allocative efficiency* and by *productive efficiency*. Since the product offered for sale by any one firm is, by assumption, identical in all respects to the products offered by its ‘rivals’, no seller can charge a price greater than marginal production cost. Because there is no product differentiation in the model of perfect competition, buyers select among sellers solely on the basis of price; they are otherwise indifferent as to the identity of the firm from which they make their purchases. The demand curve facing an individual seller consequently is perfectly elastic (horizontal) at the market-determined price (which is equal to marginal cost): any firm attempting to raise its price above marginal cost would immediately see its customers switching their purchases to rivals charging lower prices. No firm possesses *market power*, defined as the ability to raise price without losing all of its sales; each is a *price taker*, whose only decision is how much output to produce at the going market price.

When the firm (and the industry) expands output to the point at which price is equal to marginal cost, the value consumers place on the last unit produced (the amount they are willing

to pay for it) is just equal to the value (opportunity cost) of the resources consumed in producing that unit. From society's point of view, price equal to marginal cost yields an efficient allocation of the economy's scarce sources in the sense that producers' decisions about how much to produce dovetail with consumers' decisions about how much to buy. Neither too few nor too many resources are devoted to the production of the good in question. As Goldilocks might say, the quantity of resources consumed by the perfectly competitive industry is 'just right'.

In addition, since there are, again by assumption, no barriers to the entry of new firms into the industry, sellers cannot earn positive economic profits in the long run. The rate of return on invested capital in the perfectly competitive industry is driven to normal levels – equal to the rate of return on the next best alternative investment opportunity. With above-normal profits eliminated by new entry (and below-normal profits eliminated by exit), market price (average revenue) is not only equal to marginal cost, it is equal to average cost as well. Given that marginal cost is equal to average cost only at the latter's minimum point, that is in turn the only point consistent with long-run, zero-profit industry equilibrium. What is true for the industry must also be true for every firm in it. Price equal to marginal cost and zero profits implies that the horizontal demand schedule perceived by price-taking firms must be tangent to the minimum points on their respective average cost curves. This is the hallmark of *productive efficiency.* Given existing technologies and resource prices, the perfectly competitive industry produces its product at the lowest possible cost per unit. Things are once again 'just right': the industry consists of the socially optimal number of firms each of which employs its production capacity at the efficient (cost-minimizing) rate.

The welfare costs of monopoly. The belief that actual markets frequently fail to achieve ideal textbook results supplies the principal justification for antitrust and regulatory

intervention into the private economy. But using the model of perfect competition in this way commits the nirvana fallacy. Real producers do not conduct business in a frictionless world of homogeneous products, zero transaction costs and perfect knowledge. Owing to differences in quality, reputation, location, and so on, each seller's product or service has one or more unique attributes that distinguish it in the minds of consumers from the products or services sold by its rivals. The offerings of sellers in most markets are good, but not perfect substitutes for one another and buyers typically have preferences for one particular brand (and are therefore willing to pay more for it). The demand schedule confronting each firm slopes downward under these very common circumstances and because of this, neither allocative nor productive efficiency can possibly be attained.

In the presence of product differentiation (and the downward-sloping demand curves to which it gives rise), the assumptions of the model of perfect competition no longer apply. In order to attract customers away from the sellers of substitutable products and to increase its own sales, each firm must be prepared to engage in the commonplace types of rivalry assumed away for model-building purposes. They advertise and promote their products, engage in research and development, and offer pre- and post-sale services, warranties, convenient locations and hours of operation, to name a few of the many available methods of nonprice competition. In addition, of course, the quantity sold by a firm facing a downward-sloping demand curve can be increased if its product's price is reduced. Downward-sloping demand also implies market power: the firm can raise its price without losing all of its sales.

The firm with market power does not take price as given, but instead searches for the price that maximizes its profits and, as every sophomore knows, that profit maximum occurs at an output rate that is lower (and a price that is consequently higher) than would be chosen by a

perfectly competitive industry facing the same demand and cost conditions. In other words, the firm exploits its market power by restricting the number of units offered for sale below the competitive level. This output restriction reduces the welfare of consumers in two ways. First, because price exceeds average cost, at least in the short run (see below), income is redistributed from buyers to the seller in the form of pure economic profit. (This redistribution, by itself, usually is treated as a pure income transfer having no impact on the welfare of society as a whole: the seller's gains exactly offset consumers' losses.) Second, because price also exceeds marginal cost, additional surplus is transferred away from consumers which, not being captured by the seller, imposes a 'deadweight' welfare loss on society (Harberger, 1954). When all units of output are sold at the same price (that is, the seller does not engage in price discrimination), this deadweight social welfare loss materializes because, by restricting production below the competitive level, the firm fails to supply units of output for which consumers are willing to pay more than it would cost to produce.

Markets populated by firms possessing market power thus fail to achieve desirable results in the sense that fewer units of output are produced (and fewer resources are therefore allocated to production) than is optimal when benchmarked against the textbook model of perfect competition. Price in excess of marginal cost impairs allocative efficiency. Moreover, although productive efficiency is achieved by firms with market power under constant-cost conditions, only by coincidence will such firms produce their outputs at rates corresponding to minimum average cost with more generic U-shaped cost curves.

The polar case of market power is monopoly, defined as a market served by a single firm producing a product having no close substitutes. Whether any firm possessing market power, including a monopolist, is able to earn above-normal profits in the long run depends critically on

the conditions of entry facing newcomers to the industry. Consider a market that is perfectly 'contestable', for example. Firms contemplating entry into such a market do not bear any costs not borne by the established firm(s) – and firms exiting the industry can recoup their prior investments net of depreciation. Under these conditions, prices and profits must stay at competitive levels regardless of the number and size distribution of incumbent producers (Baumol et al., 1982).

Efficiency or redistribution? It is not the distribution of income between producers and consumers that is the stated concern of public policies toward business. Profits, after all, play an indispensable role in market economies, helping guide alert entrepreneurs to redirect scarce productive resources from less highly valued to more highly valued uses. Rather, it is the existence of allocative inefficiency ('deadweight' social welfare loss) that supplies a theoretical justification for government intervention into sectors of the economy ostensibly plagued by market power. Although the deadweight losses due to monopoly do not seem to loom large empirically (Harberger, 1954; Posner, 1975) and therefore are offset by even modest efficiency gains (Williamson, 1968a, 1977), the presumption is that appropriate public policies can and will be employed systematically to identify and correct these market failures, thereby restoring competitive results. In principle, the public's interest will be served – society will experience a net gain from such intervention – as long as the cost of implementing pro-competitive public policies is less than the associated improvement in market efficiency.

The proponents of an activist anti-monopoly policy have also pointed to the possibility of 'X-inefficiency' (Leibenstein, 1966, 1978), the idea that the managers of firms insulated from competitive market forces have weak incentives to deploy the resources at their command cost-effectively. Less competition leads to internal waste and therefore less efficiency. While

Leibenstein did not identify the sources of such waste precisely (hence the ‘X’ in ‘X-inefficiency’), he argued that such losses would far outweigh any cost savings (i.e., scale economies) otherwise associated with monopoly. Thus, in contrast to Williamson’s tradeoff model, it is productive efficiency, not allocative efficiency, that should loom large in justifying public policies toward business. If freedom from competition makes it possible for managers to be ‘X-inefficient’, then policies aimed at increasing firms’ exposure to competitive market forces will produce significant efficiency gains. Subsequent work has indicated, however, that this remains an open question (Stigler, 1976; Jensen and Meckling, 1976; De Alessi, 1983; Bertoletti and Poletti, 1997; Schmidt, 1997; for a general application of these ideas to regulation and antitrust, see Rowley and Peacock, 1975).

On the other hand, the public choice model stresses that issues of income distribution will tend to carry greater weight in the public policy process than concerns of economic efficiency. Groups that stand to gain or lose wealth because of policies targeting perceived sources of market failure will coalesce around the policy process in order to protect their own parochial interests. Politicians and policymakers will respond rationally to and balance these competing demands, and in doing so tend to give preference to those constituencies best able to support them politically in exchange for favorable treatment. The economic theory of regulation (including antitrust regulation) is thus about the political pressures that impinge on the elected officials who enact the legal rules delineating regulation’s scope, and on the agencies whose bureaucrats enforce those rules. Depending on the policy process in question, the beneficiaries of regulation may turn out to be almost any well-organized special-interest group. Owing to the fact that ‘the public’ is numerous, geographically dispersed, and, in general, unorganized politically,

its influence on the policy process is necessarily weak. Public regulation of private industry therefore will rarely, if ever, serve the public's interest.

Regulation

> The 'protection of the public' theory of regulation must say that the choice of [oil] import quotas is dictated by the concern of the federal government for an adequate supply of petroleum in the event of war – a remark calculated to elicit uproarious laughter at the Petroleum Club. (Stigler, 1971: 4)

The extent of public regulation of industry in the United States – and elsewhere – is both broad and deep. To name just a few, rules – and agencies to enforce them – have been established to require the disclosure of financial information to investors; to license physicians, hospitals, attorneys, accountants, stockbrokers, barbers, electricians, plumbers, morticians, and taxicab operators; to regulate advertising claims; to enforce environmental quality, workplace safety and product safety standards; and to promote equal opportunity in employee hiring and promotion decisions. While all such regulatory regimes are worthy of study from an interest-group perspective (see, e.g., Stigler, 1988), because of its historical significance in justifying regulatory controls on private industry, the case of immediate interest here is that of so-called natural monopoly.

Natural monopoly 'does not refer to the actual number of sellers in a market but to the relationship between demand and the technology of supply' (Posner, [1969b] 1999: 1). In particular, a monopoly is said to be 'natural' if, first, the production of the good or service in question is characterized by robust economies of scale, that is, long-run average costs fall sharply over the relevant range of output rates. Scale economies will loom large if production technologies are subject to increasing returns (proportional increases in input usage produce greater than proportional increases in output), if large capital investments must be made before

production begins, but the cost of producing additional units or of serving additional customers is comparatively low from then on, or both. Second, monopoly is natural if, in the presence of significant economies of scale in production, the demand schedule intersects the long-run average cost curve at a point where the latter is still declining.

The existence of scale economies up to the level of market demand is sufficient for establishing natural monopoly when the firm produces a single product. In modern parlance, scale economies are a strong form of 'cost sub-additivity', meaning that there is no feasible way of subdividing the firm's quantity of output, *Q*, having each subpart produced by separate firms, without incurring higher total costs. In other words, 'the cost of producing the whole is less than the sum of the costs of producing the parts' (Baumol et al., 1982: 17). Strict cost sub-additivity (and, hence, natural monopoly) in the multi-product case requires both economies of scale and economies of joint production, the latter representing situations in which the total cost of producing the individual products by separate firms is greater than the total cost of having all of them produced by the same firm (Tirole, 1988: 19–20; also see Sherman, 1989, and Spulber, 1989).

The efficiency results of free and open competition may not be achievable under the conditions defining natural monopoly. Because of the peculiar relationship between demand and cost, one firm can supply the entire market more efficiently than two or more firms, each of which, owing to the strictures of cost sub-additivity, would necessarily incur higher unit costs. Indeed, an alternative definition of natural monopoly is an industry in which one firm is viable (i.e., earns positive economic profits), but two or more firms are not (Tirole, 1988: 20). Two unhappy outcomes are then possible: 'either the firms will quickly shake down to one through mergers or failures, or production will continue to consume more resources than necessary'

(Posner, [1969b] 1999: 1). In the former case, left unrestrained, the sole survivor rationally will restrict the number of units it produces below the competitive level and raise its price to the monopoly profit-maximum. In the latter case, capital investments will be wastefully duplicated from society's point of view in the sense that production on a larger scale by a single firm would yield substantial improvements in economic efficiency.

Regulation of natural monopoly is thus justified normatively on the grounds that, while society would benefit from the production efficiencies achieved by having the market served by a single firm, allocative efficiency will be impaired if the monopolist remains free to exercise his market power. Society can in principle have it both ways if government intervenes by, on the one hand, assigning exclusive rights to produce the good or service in question to one firm and, on the other hand, imposing legal controls that require the franchisee to expand production and lower price, thereby approximating competitive market outcomes.

Construed narrowly, the natural monopoly justification for regulation rests on the fulfillment of extreme assumptions and, as such, applies only to a limited set of 'public utilities'. Water and sewer systems, electric power grids and telecommunication networks, long regulated by local, state and national governments in the United States and elsewhere, are prime examples. Even in these textbook cases, however, the theoretical rationale for regulation is weak. Competition for the field can substitute for competition within it (Demsetz, 1968; Williamson, 1976). Additionally, 'access pricing', whereby rival suppliers pay for the right to utilize the large-scale infrastructure necessary to serve public utility customers, avoids duplicative investments in production capacity and promotes efficient utilization of that capacity (Shy, 2001: 8). It also turns out that if an unregulated natural monopolist operates under conditions of contestability, it will charge Ramsey-optimal prices in all markets (i.e., prices that are inversely

proportional to the elasticity of demand in each market; see Ramsey, 1927), subject to a minimum profit constraint that ensures viability (Baumol et al., 1977; Baumol et al., 1982; Tirole, 1988: 308–9). Hence, while the particular configurations of cost and demand defining natural monopoly prevent the attainment of first-best outcomes, they may not preclude second-best optima even in the absence of regulation.

In practice, even otherwise staunch supporters of active government involvement in the economy admit that arguments based on 'trumped-up claims of monopoly' (Scherer, 1980: 482) frequently have been appealed to in order to widen regulation's scope far beyond the limited set of industries for which public-sector controls might theoretically be defensible. Indeed, public regulation of industry in the United States began at the federal level in 1887 with passage of the Act to Regulate Commerce, which established the Interstate Commerce Commission (ICC) and delegated to that agency the authority to ensure that railway rates were 'just and reasonable'. The ICC's regulatory powers ultimately were expanded to include control over most surface (and some subsurface) interstate transportation modes, including inland water carriers, trucks, busses, and crude oil pipelines – industries to which the natural monopoly label does not obviously apply.

Public regulation of industry in the United States in fact predates the Act to Regulate Commerce by a decade. In 1877, the US Supreme Court ruled that when private property is 'affected with a public interest', regulation is constitutionally permissible despite the Fourteenth Amendment's guarantee that 'no State shall . . . deprive any person of life, liberty, or property without due process of law'. That ruling was handed down in *Munn* v. *Illinois*, 94 U.S. 113, a case challenging a provision of the Constitution of the State of Illinois designating privately owned grain elevators as public warehouses as well as a law passed by the Illinois legislature in

1871 prescribing maximum rates for grain storage. Munn and Scott, two grain elevator operators, had been convicted of charging higher rates than the law allowed; the Supreme Court upheld their conviction. In the following years, the Court construed the 'public interest' standard strictly, approving state regulation of only a select group of industries, including in addition to grain storage, banks, fire insurance companies and insurance agents. Limited as the early extensions of regulation may have been, none of the newly regulated industries plausibly were monopolies, natural or otherwise.

But the Court rejected even the narrow construction of *Munn* in 1934, declaring that 'the phrase "affected with a public interest" can, in the nature of things, mean no more than that an industry, for adequate reason, is subject to control for the public good' and that 'there can be no doubt that on proper occasion and by appropriate measures the state may regulate a business in any of its aspects, including the prices to be charged for its products or the commodities it sells'. In that 1934 case, *Nebbia* v. *New York*, 291 U.S. 502, a case in which the Court upheld the right of New York's Milk Control Board to regulate milk prices in the state, the Court in effect ruled that there is no constitutional distinction between public utilities and other industries. The states were thereafter free to regulate any business operating within their jurisdictions for any reason public officials could rationalize as promoting the public interest, so long as the regulation was 'neither arbitrary nor discriminatory'.

Thus were the regulatory floodgates opened. Any pretense that natural monopoly conditions explained the onset of economic regulation was gone.

With their stronger and more overt socialist heritages, many European governments adopted a different method for dealing with alleged natural monopolies. At least until recently, public ownership rather than regulation of privately owned firms has been the norm there.

(Though much rarer, such a policy approach is not unknown in the United States: the electric power industry, for example, contains a mix of investor-owned, publicly owned and customer-owned companies; virtually all of America's local public transit systems, many of its municipal refuse collection services and, most infamously, its postal delivery service, are also operated as government enterprises.) As with public regulation in the United States, public ownership in Europe expanded far beyond the bounds set by the peculiar configurations of cost and demand defining natural monopoly. In addition to the traditional public utilities, commercial airlines, railroads, banks, television and radio networks, and telephone systems are (or have been) nationalized. So have the manufacturing of steel, automobiles and aircraft, and the extraction and processing of oil, coal and other natural resources. While an analysis of state-owned enterprises is beyond the scope of the present discussion, it suffices to say that, because of weaker incentives for using resources efficiently (Alchian, 1965; De Alessi, 1982, 2001), publicly owned firms are predicted to perform poorly by market standards. That prediction is borne out by an extensive empirical literature (see, e.g., Shughart, 1997: 295–301). Public enterprise even seems to be inferior to (less technically efficient than) regulation (Rowley and Yarrow, 1981).

The American and European paths continue to diverge even now. Beginning with the domestic commercial airlines, a wave of deregulation has been underway in the United States since the late 1970s. The United Kingdom embarked on a program of privatization the following decade, and the number of state-owned enterprises on Europe's endangered species list increased dramatically with the collapse of the Soviet Union. But public ownership of industry in Europe has been replaced, not by a hands-off approach to the private sector, but by a new emphasis on regulation. A comparison of traditional and interest group theories of regulation helps shed light on these developments.

The standard theory. Given that, absent contestable market conditions, an unregulated natural monopolist rationally would restrict output, raise price, and thereby earn above-normal profits, the case for government intervention rests on the theory that an industry-specific regulatory agency can and will impose controls that allow the substantial economies of single-firm production to be achieved, while at the same time forcing prices and profits to competitive levels. But a serious problem arises at the outset: because marginal cost lies below average cost when the latter is falling, mandating a price equal to marginal cost would cause the regulated firm to incur losses and a subsidy would therefore be necessary for it to remain viable in the long run. Market demand would be satisfied and the regulated firm would be constrained to earning a normal profit if it were allowed to charge a price equal to average cost, but that price would necessarily exceed marginal cost. Thus, all orthodox theories of regulation are inevitably concerned with tradeoffs between productive efficiency, allocative efficiency and sustainability.

There is a second, perhaps more serious, problem confronting the regulators. The ostensible goal of regulation is to induce the regulated firm to produce and price ‘optimally’ (Train, 1991). If that goal is to be achieved, the regulatory agency must be fully informed about the cost and demand conditions facing the firms it is responsible for regulating. It is reasonable to assume, though, that regulated firms will have both more and better information about their own costs and the values their own customers place on the goods or services they produce than will the regulatory agency’s staff, no matter how expert they may be. The very real possibility exists that regulated firms will exploit their superior knowledge to persuade regulators to approve rate requests that depart from optimality. Mechanisms must therefore be designed that provide incentives for regulated firms truthfully to reveal the specialized information in their possession. The complexity of the regulatory process is increased – and strategic

misrepresentation of relevant information becomes more likely – owing to the fact that considerations of allocative efficiency and sustainability typically force regulatory agencies to contrive a schedule of allowable rates rather than permitting them to deal with the much simpler problem of approving a single price that all customers will pay.

The necessity of creating a schedule of allowable rates arises whenever customers differ in their marginal valuations of the good or service supplied by the regulated firm. Under such quite common circumstances, requiring the regulated firm to charge the same price to all buyers generates allocative inefficiency even if that price is set at the proper break-even level which allows the firm to earn a normal profit. This allocative inefficiency results from the fact that some customers – those who would choose to purchase the good or service if it were priced at marginal cost – will not be willing to buy at the higher average-cost price. In addition, as noted above, because marginal cost lies continuously below average price under natural monopoly conditions, no single market-clearing price equal to marginal cost exists at which the regulated firm can avoid economic losses.

Price discrimination is the standard solution to this problem. Following this approach, customers are segregated into different classes based on their elasticities of demand for the regulated firm's product and a separate rate is set for each class that is inversely proportional to its demand elasticity (Ramsey, 1927). The result of price discrimination is higher rates for those customers having less elastic demands and lower rates for those customers having more elastic demands. It is not unusual, for example, for industrial customers to be required to pay more for electric power than commercial (small business) customers, who are in turn required to pay more than residential customers. Such discriminatory rate structures help achieve regulation's two-fold objective, at least in principle. First, charging different prices to different classes of customers

increases the regulated firm's revenues over and above those that would be earned under a single-price policy. Price discrimination thus makes it more likely that the firm will break even. Second, tailoring prices more closely to customers' marginal valuations works to mitigate allocative inefficiency.

Other regulatory pricing schemes for helping resolve the twin problems of efficiency and sustainability include 'peak-load pricing', which involves charging higher prices to all customers when the demand for the regulated firm's good or service rises systematically relative to normal demand. Differentially higher electricity rates during the summer months and differentially higher public transit fares during 'rush-hour' are relevant examples. 'Multi-part pricing', in which customers pay a fixed service connection charge upfront plus a price per unit of service consumed that approximates the marginal cost of supplying them, is another alternative, as is a rate schedule that declines in stepwise fashion as additional 'blocks' of service are consumed.

It should be obvious, however, that, in the presence of imperfect (and perhaps strategically false) information, diversity in customers' demands and differences in the costs of serving them, 'optimal' regulation will be elusive (Coase, 1946). The orthodox case for regulating natural monopoly is undermined further by considering some rational behavioral responses to it. Traditional public utility regulation requires the regulatory agency to establish schedules of allowable rates consistent not only with the goal of improving allocative efficiency, but also with an eye toward preventing the regulated firm's revenues from breeching an overall profit constraint, thereby ensuring that the firm's owners earn only a normal or 'fair' return on their investments. Under such a regulatory regime, the regulatory agency is obligated to pass through to customers the cost of any physical capital it permits the firm to add to its installed 'rate base' (the value of the stock of capital on which the regulated rate of return is computed)

plus an allowance for normal profit. Because prices must be increased by more than the cost of additions to the rate base in order to ensure that the regulated firm continues to earn a 'fair' return, the cost of capital is effectively lowered. As a result, the regulated firm has an incentive to invest in more capital than it would in the absence of regulation (Averch and Johnson, 1962; Baumol and Klevorick, 1970). Rate-of-return regulation may therefore compromise the regulated firm's productive efficiency by inducing it to select an input combination that is too capital-intensive compared with the combination that is optimal from society's point of view. Firms subject to rate-of-return regulation also have incentives opportunistically to evade the regulatory profit constraint by diversifying into unregulated lines of business and then adopting internal-to-the-firm transfer pricing policies that reallocate recorded profits away from core activities subject to regulatory control.

So-called price-cap regulation supplies a somewhat different set of incentives (Acton and Vogelsang, 1989; Train 1991: 317–19). Adopted by the US Federal Communications Commission in mid 1990 for regulating long-distance telephone rates and by regulatory authorities in the United Kingdom for regulating natural gas, electric power and water utilities, the regulated firm is permitted to earn a rate of return that exceeds the ceiling that would otherwise be imposed in exchange for agreeing not to raise its prices by more than allowed under a predetermined formula. That formula is of the form $CPI - X$, where CPI is the annual rate of increase in an index of retail prices and X is some specified percentage less than the measured economy-wide inflation rate. In other words, the public utility or common carrier is authorized to raise its prices only if the rate of inflation is greater than X, and then only to the extent that the CPI exceeds that threshold.

Price-cap regulation has two advantages over traditional rate-of-return regulation. First, because input prices are not distorted and the regulated firm can keep any and all of the profits it earns under the price cap, it will choose efficient methods of production. In addition, the firm has an incentive to implement any cost-reducing innovations in those production methods, again because it can keep all of the realized profits. (It does not have an incentive to pass those cost savings on to consumers in the form of lower prices, however.) Second, regulatory rate hearings are greatly simplified: requests for price increases are approved automatically, subject only to the regulatory agency's determination that the proposed increase satisfies the agreed-to pricing formula.

It is nevertheless true that, as with all other forms of regulation, the information required to implement price caps largely must be obtained from the regulated firm itself. Depending on how methodically regulatory rate hearings are conducted and how aggressively the regulatory agency adjusts price caps over time to take account of changing conditions of cost and demand, the utility may be able to exploit its superior knowledge to benefit its owners and managers at consumers' expense.

In the end, and in spite of a large and elegant scholarly literature prescribing mechanisms for dealing with the complexities of regulation,

> its contribution to social and economic welfare is very possibly negative. The benefits of regulation are dubious, not only because the evils of natural monopoly are exaggerated but also because the effectiveness of regulation in controlling them is highly questionable. (Posner, [1969b] 1999: 106)

The conclusion that regulation often fails to achieve its stated goals garnered empirical support in an initial series of studies examining its actual effects. A study of electric utility regulation, for example, found that it had little or no impact on the level of prices or on the rates of return to investments in that industry (Stigler and Friedland, 1962). In another study, investors

were found to have obtained few benefits from the regulatory oversight of new stock issues by the US Securities and Exchange Commission (Stigler, 1964). Indeed, a survey of the early empirical literature supporting the 'capture' theory of regulation suggested that, while regulatory intervention was not always as ineffective as Stigler and Friedland had found – as a matter of fact, they were later shown to have been wrong (Peltzman, 1993) – in those industries where regulation did affect prices and profits, the effects were perverse (Jordan, 1972). In particular, when applied to naturally competitive industries, such as air and surface transportation, regulation uniformly was found to have reduced the number of competitors and to have raised prices. On the other hand, when applied to industries more plausibly characterized by natural monopoly conditions, regulation had no effect on prices.

These empirical findings raised two important questions. If consumers' interests are not materially advanced by regulation, why is regulation adopted in the first place? Given the very real costs of regulation – the costs to taxpayers of defraying the expenses of the regulatory agencies and the costs to society in the form of the resources misallocated by poorly crafted regulatory constraints and the resources consumed in attempts to influence the regulatory process – why does regulation persist?

The initial answer to both of these questions was that, despite their well-intentioned purposes, regulatory agencies are vulnerable to 'capture' by the very firms they were created to oversee. Public institutions ostensibly designed to protect consumers from the abuses of monopoly in practice catered chiefly to the interests of producers. This 'capture' theory of regulation has subsequently been formalized and extended into what is currently known as the economic theory of regulation, to which the discussion now turns.

The economic theory of regulation. Regulation creates rents for the regulated. By virtue of the exclusive franchises they have been granted, the owners of regulated firms are in position to earn profits in excess of normal levels. Regulatory agencies are of course charged with the responsibility of ensuring that public utilities and other natural monopolies do not exercise their market power, imposing controls on price that allow the owners to earn only 'fair' rates of return on their investments. But if the profits of regulated natural monopolies were in fact typically equal to the rate of return available in the next best alternative investment opportunity, there would be no need for rules governing the conditions of entry into the regulated industry. The regulation of entry into a market with natural monopoly characteristics can be justified on the basis of a social-welfare standard only if prices would be too high after entry, not if they would be too low. If prospective entrants anticipate that entry will cause prices to fall below average cost so that all firms, including the incumbent, stand to incur economic losses, *then they will not enter*. Legal barriers to entry, usually imposed in the form of requirements that newcomers to the market obtain a 'certificate of convenience and necessity' from the regulatory agency prior to entering, consequently supply prima facie evidence that the profits of regulated firms are often above normal levels.

Regulated firms may earn supranormal profits in only some of their markets. Regulatory mandates requiring public utilities to serve all of the customers in their territories regardless of cost (so-called 'universal service' requirements) and rules designating shippers as 'common carriers', may force regulated firms to serve markets they would not serve in the absence of regulation. In such cases, and as an alternative to explicit subsidy, the regulatory agency must permit the regulated firm to make up losses in markets where revenues are less than costs by charging higher prices (and earning profits exceeding normal levels) in more remunerative

markets. A case can be made for erecting legal barriers to entry into the firm's paying markets on the grounds that, without the supranormal returns obtainable there, owners would not earn a 'fair' return overall.

Regulatory cross-subsidies of these kinds are quite common, so common in fact that Richard Posner (1971) calls such pricing schemes 'taxation by regulation': some of the excess returns associated with exclusive natural monopoly franchises are taxed away by regulators in the form of requirements to serve customers that would not be served otherwise. The implication is that regulators allow regulated firms to charge some of their customers prices that exceed the costs of serving them so that other customers can be served at prices that are less actual costs. One allocative inefficiency is introduced to sponsor another.

The history of deregulation (about which more later) suggests, however, that prices exceed costs in most, if not all, regulated markets. The rates paid by long-distance telephone customers, for example, supposedly kept high by regulators in order to subsidize local telephone customers, have fallen dramatically since MCI and other competitors began entering the industry in 1982. (Deregulation was initially opposed by the incumbent regulated monopolist AT&T on the basis that, if MCI was allowed to 'skim the cream' from its most profitable market, AT&T's ability to fulfill its universal local telephone service obligations would be severely compromised.) But local telephone rates are also falling as competition emerges in those markets. To be sure, lower local and long-distance telephone rates are explained in part by the rapid pace of technological change in the telecommunications industry since the early 1980s – events which themselves owe much to the competitive market forces unleashed by deregulation. It is nevertheless reasonable to conclude from this and similar experiences in the commercial

airline industry, the trucking industry, and the natural gas transmission industry, among others, that prices (and profits) under regulation tend to exceed normal levels.

Whether rents exist in all or only some of a regulated firm's markets, however, their existence begets rent-seeking (Tullock, 1967; Krueger, 1974). Individuals and groups rationally strive to put themselves in position to earn above-normal returns and, moreover, are willing to invest resources for the purpose of capturing them equal to the expected value of their anticipated gains (Posner, 1975; Tullock, 1980). In the case at hand, rent-seeking materializes in the form of lobbying activities calculated to influence the regulatory process. George Stigler (1971) modeled regulation largely as a struggle between producers and consumers for access to the rents associated with conditions of natural monopoly. Given that the members of the regulated industry normally would be better informed about the regulatory process, have greater financial stakes in regulatory outcomes, and, owing to their smaller numbers and more cohesive objectives, be better organized and, hence, more effective in bringing influence to bear on the regulatory agency, regulators would tend to favor their interests over those of consumers. The essence of the 'capture' theory of regulation is that 'consumers are the least organized and therefore typically the least effective interest group. The long-run consumer interest in particular has no lobby' (Posner, [1969b] 1999: 67).

In Stigler's formulation of the problem, producers dominate the regulatory process and no one should therefore be surprised that, from society's perspective, public regulation of industry is ineffective or perverse: 'Consumers never asked for an Interstate Commerce Commission to prevent new truckers from entering the business. Nor had consumers been heard from when the federal government set up milk marketing boards to restrict the supply of milk

and drive up the price. The main players were truckers and milk producers, who wanted to limit competition' (Henderson, 1995: 62).

A subsequent formalization of the economic theory of regulation (Peltzman, 1976) supplies a more general framework for thinking about the problem. In that more general theory, the regulators themselves are portrayed as rational, self-interested actors whose objective is to maximize their own political support. Where they hold elective office, 'political support' can be defined in terms of votes, campaign contributions, or both, in which case regulators are assumed to be motivated by the goal of maximizing their probability of reelection. Where they hold appointive office, regulators strive to maximize their probability of reappointment or some other index of job security. An even more universal behavioral assumption is utility (wealth) maximization, a maximand which includes the regulator's salary and perquisites of public office as well as income received from post-government employment, which, because of the specialized knowledge gained in participating in the regulatory process, not infrequently will be a job in the regulated industry itself. In any case, the interest-group theory of regulation rejects the analytical inconsistencies of the 'public-interest' theory, which places regulators outside the model and does not therefore inquire into their motives. Everyone involved in the regulatory process, including the regulators themselves, is thereby brought within the ambit of positive economic analysis.

As in all economic models of human behavior, the regulator's pursuit of self-interest is not unconstrained. In Peltzman's framework, the regulator selects the price the regulated firm is permitted to charge. This price can be set at the competitive level, in which case the regulated firm earns a normal profit and consumers enjoy all of the gains associated with regulation. The price can also be set at the monopoly profit-maximizing level, in which case producers are

regulation's sole beneficiaries. In general, however, the politically self-interested regulator must weigh the demands of both groups. While an increase in price (and profit) elicits greater political support from the regulated firm(s), it also invites greater opposition from consumers. Lower prices invoke the opposite reactions. If the political returns to higher profit or lower price are diminishing at the margin, neither group will get all that it wants from regulation: from the regulator's point of view, the optimal price will lie somewhere between the extremes of competition and monopoly. Where the balance is struck in any particular case depends on the configurations of the costs and benefits of bringing political influence to bear on the regulatory process facing the groups having stakes in the outcome.

Like the public-interest theory, the Stigler-Peltzman model predicts that regulation will target natural monopolies and that, to the extent to which losses in political support from the regulated firm are offset by increases in support from consumers, regulators will require the regulated firm to charge a lower price than it would otherwise. But unlike the public-interest theory, the Stigler-Peltzman model helps explain why regulatory controls have in practice been applied to industries that would otherwise be competitive. If regulators can increase their political support by mandating that prices be raised above competitive levels, they will rationally do so up to the point where the additional support provided by producers equates at the margin to the loss in support from consumers.

Although the discussion thus far places the Stigler-Peltzman model of regulation in its original, highly stylized producer-consumer context, the economic theory of regulation is in fact much more general. Because 'the political process automatically admits powerful outsiders to the industry's councils' (Stigler, 1971: 7), regulatory outcomes will assimilate the interests of any individual or group that can bring effective influence to bear on the regulators. For example, 'it is

well known that the allocation of television channels among communities does not maximize industry revenue but reflects pressures to serve many smaller communities' (ibid.). The regulatory subsidies granted to rural electric power and telephone customers are further examples of this point. The economic theory of regulation accommodates such diversity. It places regulation in political context and argues that the observed level and pattern of regulatory intervention into the private economy is the logical outcome of a process that tends to favor groups having comparative advantages in exploiting regulatory institutions and processes to their own self-serving ends.

One of the most fruitful applications of the interest-group model recognizes not only that a constellation of interests frequently impinges on the regulatory process, but also that the groups seeking influence are themselves not monolithic. The producers in any industry, for example, differ as to size, cost-efficiency, geographic location, and so on. Heterogeneity on these and other competitive margins gives rise to the possibility that a subset of firms within an industry will be able to utilize regulatory processes to benefit themselves at the expense of their rivals.

To illustrate, consider an industry whose members employ two distinct production technologies. Assume that one technology is relatively labor-intensive and that the other is relatively capital-intensive. The firms using capital-intensive production methods negotiate a contract with labor union representatives that raises wage rates *industry-wide*. All firms face higher costs as a result, but the costs of the labor-intensive firms rise proportionately more than those of the capital-intensive firms. Marginal producers employing labor-intensive production methods are forced to exit the industry, and if the ensuing increase in market price outweighs the increase in costs for the surviving low-cost producers, their inframarginal rents increase.

Moreover, these rents are protected by the fact that the now higher industry wage rates erect a barrier to entry by labor-intensive firms (Williamson, 1968b).

Regulatory processes can be exploited to produce similar intra-industry redistributions of wealth. Consider the Factory Acts adopted by the British government during the 1830s. These laws, which limited the hours women and children could legally work, are widely seen as public-spirited measures designed to end the cruel exploitation of vulnerable members of the labor force. Howard Marvel (1977), however, argues that a key impetus for passage of the Factory Acts was that they benefited the owners of steam-powered textile mills at the expense of the owners of water-powered mills. The latter could operate only when water flows were adequate to power the textile machinery; production had to be curtailed during times of drought. By preventing the water-powered mills from working overtime when streams were in spate, the Factory Acts conferred a considerable competitive advantage on the owners of the steam-powered mills who were not constrained by river conditions and could therefore operate on a regular basis year-round. In addition, Anderson and Tollison (1984) suggest that the interests of senior (male) factory operatives also played a role in the adoption of the Factory Acts insofar as the working-hour restrictions limited the extent to which women and children could compete for their jobs.

The heterogeneous firm approach has likewise been shown to be helpful in explaining the adoption of workplace safety rules (Maloney and McCormick, 1982) and environmental quality regulations (Pashigian, 1985; Bartel and Thomas, 1987). Requiring all producers to employ the same technologies for reducing the risk of on-the-job injuries or for controlling the emission of pollutants can benefit some firms at the expense of others. The actual (as opposed to the stated) purposes of regulation are frequently cloaked in high-minded ideals.

Deregulation. In seeking to explain why a regulatory policy has been adopted, the economic theory of regulation 'tells us to look, as precisely and carefully as we can, at who gains and who loses, and how much…' (Stigler, 1975: 140). In seeking to explain why a regulatory policy persists, especially in the face of evidence that its actual effects are 'unrelated or perversely related' to its announced goals, the interest-group theory tells us that 'the *truly intended effects should be deduced from the actual effects*' (ibid.; emphasis in original). Errors are of course possible, but in the Stigler-Peltzman framework,

> errors are not what men live by or on. If an economic policy has been adopted by many communities, or if it is persistently pursued by a society over a long span of time, it is fruitful to assume that the real effects were known *and desired*. Indeed, an explanation of a policy in terms of error or confusion is no explanation at all – anything and everything is compatible with that 'explanation'. (ibid.; emphasis added)

Hence, if it is found, for example, that the regulatory policies of the US Civil Aeronautics Board placed the interests of the commercial airlines over those of the flying public, or that the regulatory policies of the Interstate Commerce Commission placed the interests of the railroads and motor carriers over those of their customers, then the interest-group theory teaches that it is reasonable to conclude that regulation was intended to have precisely those effects.

But what of deregulation? While it is relatively easy, after the fact, to identify the winners and losers from regulation's adoption, how is it possible to explain policies freeing an industry from regulatory control, thereby presumably confiscating its hard-won rents? One theory appeals to regulation's 'unintended consequences': designed to ensure that regulated firms would earn profits in excess of normal levels, some regulatory regimes were in practice unable to deliver on that promise. Airline rate regulation under the auspices of the US Civil Aeronautics Board, for instance, has been described as 'sporadic, casual, and uninformed' (Wilcox, 1966: 424). The agency's failure in this regard has been attributed to a number of factors, not the least important

of which was the problem of determining 'the' cost of a seat on a particular flight, given the industry's complex mix of routes, traffic schedules and capital equipment (Douglas and Miller, 1976). Lacking sufficient flexibility in the fares they were permitted to charge under regulation, the airlines rationally competed for passengers by a variety of nonprice means, including safety records, quality of in-flight meals, comfort of aircraft cabin interiors, and attractiveness of cabin attendants. The scheduling of frequent flights on major routes, offering passengers convenient departure and arrival times, was one of the more important margins of competition. The result was chronic overcapacity: 'for all flights by all major airlines in 1977, the composite load factor stood at only 55.5 percent, which meant that on average each plane was flying a little more than half full' (McGraw, 1984: 261). Thus, despite regulatory rate fixing, which generated markups ranging from 20% to 95% over the fares charged on unregulated intrastate flights of equal distance (Keeler, 1972), the airlines' profits were eroded by the costs of inefficient scheduling and other forms of nonprice competition. Indeed, the airlines hardly ever earned what the CAB considered to be a 'fair' rate of return (Moore, 1986: Douglas and Miller, 1974).

An important barrier to regulatory reform is what Gordon Tullock (1975) calls 'the transitional gains trap': the promise of above-normal returns motivates resource owners to seek regulatory privileges from the state. But these gains are only transitory. First, the present value of the available rents is in some cases dissipated upfront in the form of expenditures incurred in the pursuit of monopoly rights. To the extent that these rent-seeking investments are 'sunk', deregulation will not necessarily increase society's welfare (McCormick et al., 1984; Shughart, 1999). Second, regulatory rent streams may be eroded ex post by nonprice competition among the privileged franchisees. Last, if the monopoly franchise is subsequently sold, the rents will be capitalized in the purchase price of the monopolist's assets. In all of these cases, the rate of

return on investments in the regulated industry is driven to normal levels. As a result, there seems to be no politically acceptable way of abolishing a regulatory program that is inefficient both from the standpoint of consumers, who pay artificially high prices, and from the standpoint of producers, who no longer make exceptional profits: 'those persons and groups who have established what they consider to be entitlements in the positive gains that have been artificially created will not agree to change, and those persons and groups who suffer losses will not willingly pay off what they consider to be immoral gainers' (Buchanan, 1980: 365). The controversy over compensation for the 'stranded costs' of regulated electric utilities – investments made under regulation that are not viable in a competitive market environment – is illustrative (McChesney, 1999).

From a theoretical perspective, the uncomfortable fact of the matter is that the grip of the 'dead hand' of monopoly (Buchanan and Tullock, 1968) has been loosened in the airline industry, the trucking industry, and elsewhere. While economists have not yet fully fleshed out a general theory of institutional change, at least some of the episodes in what has thus far been a highly selective deregulation movement seem amenable to explanation by the economic theory of regulation (Keeler, 1984; Peltzman, [1989] 1998).

The railroad industry exemplifies a case in which 'support for . . . regulation eroded along with the rent' (Peltzman, [1989] 1998: 307). Even though federal regulators kept prices artificially high, a secular decline in demand for rail transport and a regulatory rate structure that accommodated the interests of motor carriers, the ICC's other major constituency, ultimately squeezed railroad profit margins. A spate of bankruptcies in the early 1970s produced a situation in which the only viable political options were nationalization or deregulation. The commercial airline industry, where, as we have seen, profits were dissipated over time by nonprice

competition between the major carriers and inefficient capacity utilization, is another instance in which the demand for deregulation seems to have originated from the regulated firms themselves. A demand-side theory of deregulation based on the interests of producers, who expected costs to fall faster than prices, is broadly consistent with the Stigler-Peltzman model. Other examples of deregulation (e.g., stock brokerage, bank deposits, oil) also seem to fit that model, while some (e.g., telecommunications, trucking) do not (Peltzman, [1989] 1998).

Supply-side forces may also be at work. Politicians serve as brokers of wealth transfers in a public choice interpretation of the economic theory of regulation (McCormick and Tollison, 1981). If wealth transfers, not social welfare, are all the brokers care about – that is, they are 'factionalist reformers' rather than 'utilitarian reformers' (Tollison and Wagner, 1991) – then in the face of changes in underlying economic conditions or coalitional strength (producing corresponding changes in relative political prices), they may take advantage of opportunities to advance their own interests by deregulating selected industries, thereby redistributing wealth to newly important constituencies, even though the costs to society of doing so exceed the benefits.

In any case, privatization and deregulation pose major challenges to models in which the privileged holders of monopoly franchises and the other beneficiaries of regulation seem well positioned to resist reform when it is not in their interest. Analytical responses to these challenges merit high priority on the research agendas of political economists. This is especially so given that, paradoxically, the selective retreat of traditional economic regulation of price and entry has been accompanied by spirited growth of regulation in the areas of social and environmental policy (McGraw, 1984: 304).

Antitrust

> There is a specter that haunts our antitrust institutions. Its threat is that, far from serving as the bulwark of competition, these institutions will become the most powerful instrument in the hands of those who wish to subvert it. More than that, it threatens to draw great quantities of resources into the struggle to prevent effective competition, thereby more than offsetting the contributions to economic efficiency promised by antitrust activities. This is a specter that may well dwarf any other concern about the antitrust processes. We ignore it at our peril and would do well to take steps to exorcise it. (Baumol and Ordover, 1985: 247)

The stated goals of antitrust policy are much the same as those of regulatory policy. It too attempts to influence the pricing and output decisions of private business firms. But enforcement of the antitrust laws proceeds by indirect means rather than by way of the hands-on price and entry controls normally associated with public regulation. Stripped to their essentials, the antitrust laws declare private monopolies to be illegal. Law enforcement is then carried out on a number of fronts, including preventing monopolies from being created in the first place through the merger of former competitors or the striking of collusive agreements among them, requiring the dissolution of large firms that have attained monopoly positions in the past, and limiting the use of certain business practices thought to facilitate the acquisition or exercise of market power.

American common law in the late nineteenth century ‘still contained provisions that had been struck from the English common law by statutes’, including proscriptions on forestalling and engrossing as well as prohibitions on combinations of workers in restraint of trade (Letwin, 1965: 52). US antitrust policy’s legislative history dates to state statutes, many of which were enacted in the 1880s (Libecap, 1992; Boudreaux et al., 1995). It began at the federal level with passage of the Sherman Act (1890), section 1 of which states that ‘every contract, combination in the form of trust or otherwise, or conspiracy, in restraint of trade or commerce among the several States, is declared to be illegal’. The law’s only other substantive section (section 2) declares that ‘every person who shall monopolize, or attempt to monopolize, or combine or conspire with any

other person or persons, to monopolize any part of the trade or commerce among the several States, or with foreign nations, shall be deemed guilty of a felony'.

Some commentators have argued that the Sherman Act merely codified the common law treatment of restraints of trade (Demsetz, 1992; Kleit, 1993), layering on an apparatus of public enforcement (by the US Department of Justice) and allowing certain mergers to be deemed unlawful, neither of which innovations produced significant changes in American competition policy. It is clear, however, that at least some freely entered into private contracts were newly brought within statutory reach. Before the Sherman Act, price-fixing agreements were not presumptively illegal. Indeed, 'the common law was inclined to uphold contracts in restraint of trade for the same reasons that moved it to sustain any good contract' (Letwin, 1965: 42). As was the case with the futures contracts banned in a Dutch edict of 1610, which proscribed 'windhandel' or trading in shares not currently in the seller's possession, the courts did not impose sanctions on firms for participating in collusive agreements; 'they simply refused legal enforcement of such contracts' (Garber, 2000: 36). In particular, 'the modern common law on combinations in restraint of trade was established by the *Mogul Steamship* case [2 Chitty 407 (1815)], which laid down the principle that although a trade combination might be destroyed by attack from within, it could not be successfully attacked by an outsider' (Letwin, 1965: 49). Thus, 'the Sherman Act went far beyond the common law when it authorized the Attorney General to indict violators of the Act, and gave injured persons the power to sue them' (ibid.: 52).

The Sherman Act was innovative for a second reason. 'Unlike statute law, common law allows people to contract around it' (De Alessi, 2001: 39). In other words, 'all those parties who do not wish to be bound by a particular [common law] rule, . . . generally have the opportunity to

adopt any other rule that is mutually satisfactory' (De Alessi and Staaf, 1991: 112). This was no longer possible after 1890. Controlled by the statute's language, individuals and firms were no longer free to enter into contracts that would restrain trade, even if such contracts made them jointly better off.

Be that as it may, desultory enforcement of the Sherman Act early on, combined with negative reactions from antitrust's partisans to early interpretations of it, produced a demand for new legislation that would define more sharply the boundaries of US antitrust policy. Supporters of a vigorous antitrust policy were especially critical of the 1911 landmark decision ordering the dissolution of the Standard Oil trust, in which the Court announced a 'rule of reason', declaring its unwillingness to condemn all restraints of trade, but only those determined to be 'unreasonable'. As a compromise between those pressing for a law that would incorporate a list of specific business practices to be declared unlawful (and made criminal offenses) and those pressing for a law that would provide broad, but unspecified enforcement powers, two additional antitrust statutes were enacted in 1914. One of these was the Clayton Act, which identified and declared illegal four specific business practices – price discrimination (section 2), exclusive dealing and tying contracts (section 3), mergers (section 7) and interlocking corporate directorates (section 8) – where their effect 'may be to substantially lessen competition or tend to create a monopoly'. The other was the Federal Trade Commission Act, which created a five-member law enforcement body and delegated to it the responsibility for prosecuting unspecified 'unfair methods of competition' (FTC Act §5).

Subsequent amendments to these two statutes strengthened and broadened the scope of the powers granted to the federal antitrust authorities. The most important of these were the Robinson-Patman Act (1936), which made it more difficult to mount defenses against charges of

unlawful price discrimination; the Wheeler-Lea Act (1938), which added the phrase ‘unfair or deceptive acts or practices in or affecting commerce’ to section 5 of the FTC Act, thereby granting the commission authority to regulate advertising and other business activities, such as product warranties and credit terms, falling under the rubric of ‘consumer protection’; the Celler-Kefauver Act (1950), which closed a ‘loophole’ in section 7 of the Clayton Act allowing mergers consummated through the acquisition of stock to escape condemnation (but see Ekelund et al., 1995); and the Hart-Scott-Rodino Antitrust Improvement Act (1976), which established a formal pre-merger notification and review process.

Statutory antitrust policy is of much more recent vintage in Europe. Six pieces of legislation delineate its contours in the United Kingdom: the Monopolies and Restrictive Trade Practices Act (1948), the Fair Trading Act (1973), the Restrictive Trade Practices Act (1976), the Resale Prices Act (1976), and the Competition Acts of 1980 and 1998. The first of these laws established the Monopolies and Restrictive Practices Commission, a tribunal having the authority to investigate cases referred to it by the Board of Trade (see Rowley, 1966, for an analysis of the repercussions of the law). The second established the Office of Fair Trading, delegating to it responsibility for monitoring competition and granting it authority to refer to a lay body, the Monopolies and Mergers Commission (MMC), the power to investigate suspected ‘monopoly situations’ (defined as a single firm or group of firms accounting for 25 percent of sales or purchases in the relevant market). Public utilities and ‘anti-competitive practices’ were added to the MMC’s charge by the Competition Act of 1980. The two 1976 statutes deal with price-fixing agreements and with vertical price restraints (e.g., resale price maintenance), respectively (Hay and Morris, 1991: 612–14); the Competition Act of 1998 aligns British law more closely with its European counterpart (Utton, 2000).

Competition policy in the European Union emanates from the Treaty of Rome (1957). The first of the Treaty's two substantive antitrust provisions prohibits agreements and other concerted actions, be they along horizontal or vertical lines or involve price or nonprice terms, which restrict competition within or among the member states. The second provision condemns abuses of dominant market positions, including 'imposing unfair purchasing or selling prices or other unfair trading conditions', 'limiting production, markets or technical development to the prejudice of consumers', 'applying dissimilar conditions to equivalent transactions with other trading parties' and 'making the conclusion of contracts subject to acceptance by the other parties of conditions which . . . have no connection with the subject of such contracts' (ibid.: 617). Although not based on any clearly articulated theory of anticompetitive behavior, possible 'abuses of dominant market positions' have been the chief concern of the EU's law enforcers in recent years. Reflecting the emerging globalization of antitrust, worries of incipient market dominance have provoked decisive European opposition to a number of high-profile mergers between major US companies to which US authorities had previously granted clearance.

Despite differences in details, the stated purposes of competition policy in the United States and elsewhere in the western industrialized world rest squarely on the market-failure tradition. Antitrust's staunchest advocates see the laws as embodying values consistent with economic efficiency goals, ensuring that markets remain vigorously competitive and that consumers are thereby protected against the abuses of market power: 'a much more widespread pattern of growth by merger, an efflorescence of collusive agreements of all sorts, and the use of various exclusionary and otherwise anticompetitive practices now forbidden would all follow on the abandonment of a procompetitive public policy' (Kaysen and Turner, 1959: 5). Indeed, at

least one respected student of the legislative history of the Sherman Act has argued forcefully that antitrust's origins were explicitly based on a consumer-welfare standard (Bork, 1966, 1978).

The professed efficiency basis of competition policy has not gone unchallenged (Lande, 1982; DiLorenzo and High, 1988). What is more important, faith in the efficacy of the antitrust laws to deliver net social gains ignores the political pressures that impinge on the agencies created to enforce them, pressures marshaled by groups perceiving opportunities to exploit antitrust processes strategically, not to promote competition, but to subvert it (Baumol and Ordover, 1985). A law that declares mergers to be illegal where their effect 'may be to substantially lessen competition or tend to create a monopoly' is also a law that affords the merger partners' rivals the opportunity to block a transaction that promises to create a larger, more efficient competitor. A law that makes it illegal for a firm to charge different prices to different customers not justified by differences in the cost of serving them is also a law that affords rivals the opportunity to seek relief from prices that are 'predatorily' low. The Robinson-Patman Act was in fact drafted and passed in response to the political influence mobilized by independent grocers, druggists and other small retailers, who complained loudly that, under the Clayton Act's original language, the Federal Trade Commission was either unable or unwilling to prevent the emerging national chain stores from using their mass buying power to sell goods to consumers at prices below those charged by the independents (Ross, 1984).

Observers of the antitrust enforcement process have long been critical of individual applications of it (for recent surveys of the case-study literature, see Armentano, 1990, and Rubin, 1995). A typical antitrust case study finds that the evidence presented in behalf of the plaintiff was 'weak and at times bordered on fiction' and that 'neither the government nor the Courts seemed able to distinguish between competition and monopolizing' (Peterman, 1975:

143). Even when the law conceivably has struck at acts and practices that resulted in injury to consumers, the effectiveness of the penalties imposed on guilty defendants has been called into question (Elzinga, 1969; Rogowsky, 1986, 1987). Systematic empirical studies of the antitrust case-selection process have produced *no* support for the hypothesis that the process is guided by social-welfare criteria (Long et al., 1973; Asch, 1975; Siegfried, 1975) or that antitrust law enforcement has had measurable pro-competitive effects on the behavior of firms (Stigler, 1966; Asch and Seneca, 1976; Shaw and Simpson, 1986; Sproul, 1993).

Viewed through the lens of public choice, these apparent empirical anomalies are easily explained: social-welfare criteria carry little or no weight in the objective functions of the politicians and policymakers charged with drafting and enforcing the antitrust laws. Writing in 1969, Richard Posner charged that the Federal Trade Commission's stated mission of promoting competitive markets had been significantly impaired by reason of its dependence on Congress, which must approve budget requests and confirm presidential appointments to senior policymaking positions. He emphasized the obvious point that in a geographically based representative democracy, each member of the legislature is obligated to protect and further the provincial interests of those who have elected him to office. More specifically, 'the welfare of his constituents may depend disproportionately on a few key industries. The promotion of the industries becomes one of his most important duties as a representative of the district' (Posner, 1969a: 83). The ability to do so would accrue disproportionately to the members of the committees and subcommittees of Congress vested with oversight responsibilities with respect to antitrust law enforcement generally and the FTC in particular: a legislator holding such a position will have 'a great deal of power to advance the interests of businesses located in his district however unimportant the interests may be from a national standpoint' (ibid.). A

subsequent test of this antitrust ‘pork barrel’ hypothesis found that cases instituted against firms headquartered in the jurisdictions of key committee members were more likely to be dismissed than cases instituted against firms not so represented (Faith et al., 1982).

Merger law enforcement seems to be particularly vulnerable to political influence. Two studies have found that, holding its staff’s evaluation of the merits of a proposed merger constant, the commission is more likely to vote to oppose a transaction the more pressure is brought to bear on it in the form of news coverage and summonses to appear before congressional committees (Coate et al., 1990; Coate and McChesney, 1992). Similarly, the only two factors found to increase the probability of a merger challenge by the UK’s Monopolies and Mergers Commission were whether the proposed merger would affect the balance of payments adversely and whether the firm targeted for takeover contested the bid (Weir, 1992). The available evidence from capital market event studies suggests that the mergers challenged by the US antitrust authorities tend to be efficiency enhancing on balance, and that the merger partners’ rivals therefore appear to be the chief beneficiaries of merger law enforcement (e.g., Eckbo and Wier, 1985). This evidence offers further support for the contention that, because many investigations of alleged violations of the law are initiated ‘at the behest of corporations, trade associations, and trade unions whose motivation is at best to shift the costs of private litigation to the taxpayer and at worst to harass competitors’, antitrust seldom serves the public’s interest (Posner, 1969a: 87).

In sum, the empirical case for characterizing antitrust processes as a mechanism of wealth redistribution is strong. From the perspective of public choice, antitrust is simply another form of regulation, having the same causes and consequences. Although this conclusion has not yet gained wide acceptance, the mounting evidence of the politicization of antitrust law enforcement

produced by recent high-profile cases brought against some of the world's most successful business enterprises – cases instigated not in response to complaints by consumers but at the prompting of competitors and other special pleaders – promises eventually to bring antitrust within the ambit of the economic theory of regulation.

Summary

The economic theory of regulation generally and antitrust in particular looks behind the stated intentions of the proponents of government intervention into the private economy to uncover hidden agendas of wealth redistribution. The theory's main thrust is that the formulation and enforcement of public policies toward business has, in fact, tended to protect politically powerful constituencies at the sacrifice of competition and economic efficiency. That is, the theory explains many (if not all) policy decisions as rational political responses to the demands of well-organized pressure groups. These demanders of protectionism offer political support (votes, campaign contributions and the like) in return for favored treatment. These favors include the right to charge prices in excess of costs, the erection of barriers to the entry of new rivals, and the proscription of business practices and contractual agreements that would enhance overall economic efficiency, but harm them personally. Importantly, the strategic exploitation of regulation and antitrust by well-organized groups does not represent 'abuse' of the policy process in any meaningful sense. The demand for protectionism – and the political response to it – is simply rational behavior under a particular set of institutional constraints.

Competing with this general public-choice description of the purposes and effects of government policies toward business is the public-interest 'theory', which contends that regulatory and antitrust policies are the product of well-intentioned, but fallible, public servants.

Whether justified or not in the economic theories or situational facts they rely on in any particular case, the function of the relevant laws, regulations and enforcement agencies is to serve what are believed to be the best interests of society as a whole. While mistakes are certainly possible, public policies toward business, or so it is thought, are designed and generally work to improve the allocation of scarce productive resources.

Strongly held a priori beliefs in the efficacy of governmental processes are the principal sources of support for the public-interest theory. The empirical evidence is almost universally consistent with the predictions of the interest-group, public-choice theory. As a result, the benefits of regulation are now seen to accrue chiefly, not to the public at large, but to politically well-organized pressure groups. While antitrust policy has only recently been exposed to the analytical power of the public-choice model, the idea that it, uniquely among public policies toward business, is immune to political influence is now in significant retreat.

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