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Regulation and Deregulation in Industrial Countries

Some Lessons for LDCs

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and
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How regulatory misdirection often derailed efforts to offset market failure in the United States, and the implications for policy in developing countries.

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This paper — a joint product of the Public Sector Management and Private Sector Development Division, Country Economics Department and the Private Sector Division, Legal Department — is part of a larger effort in PRE to explore how to strengthen the efficiency of the private sector in developing countries by redefining public and private boundaries. Copies are available free from the World Bank, 1818 H Street NW, Washington. DC 20433. Please contact Ernestina Madrona, room N9-061, extension 37496 (126 pages).

The United States experience with antitrust and with directive regulation in the rail, trucking, airline, and telephony sectors offers useful lessons for developing countries. The experience highlights the realities both of market failure and of the difficulties of implementing regulation to control it — and reveals that imperfect regulation may be no better than imperfect competition.

Antitrust measures to regulate price fixing and to require approval for mergers above some threshold level of industrial concentration are straightforward to implement and have provided some gains in economic welfare. The regulation of price discrimination, restrictive vertical practices, and predatory pricing is administratively more difficult, and the potential gains are less clearly evident. In many situations, import competition can be an efficient alternative.

Direct regulation of rail, trucking, airline, and telephony was frequently inefficient, the regulatory apparatus often lost sight of its original objectives, and the regulators were captured by the regulated. For rail and trucking regulation, the regulatory outcome probably was worse than it would have been under laissez-faire.

Bradburd and Ross recommend the following hierarchy of regulatory responses to imperfect competition in LDCs:

- First, ensure that domestic markets are open to import competition to the maximum feasible extent.

- Second, in cases of nontradables and when free access to imports is impossible, adopt streamlined antitrust policies that minimize the need for discretionary judgments.

- Third, consider direct regulation of natural monopolies as a last resort, but only in an economically important sector and only if designed to minimize the likelihood of regulatory misdirection.

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I: THE ISSUES

I.1 Introduction

In recent years the market has come back into vogue as an allocative mechanism: government regulation of economic activity is not automatically assumed to be welfare enhancing, and direct government provision of goods and services faces a hostility once reserved for private monopolies.[1] In the industrialized countries, the movement to deregulate economic activity gained political momentum in the mid-1970's, and by the mid-1980's a large number of previously regulated sectors of these economies were either totally or largely deregulated. A similar trend is gaining momentum among developing countries: parastatals are being privatized, and efforts are being made to eliminate price maxima and minima, to reduce or eliminate domestic and international barriers to the entry of new firms, and to eliminate government-created distortions in the pattern of import and export activity.

The movement to the market in industrialized countries and LDCs has several causes. Regulatory systems designed to improve allocative efficiency have in many cases failed to do so, either because they were poorly conceived and designed to begin with, because they were "captured" and altered so that they served the interest of the regulated entities or regulators rather than the general polity, or because they were inflexible in the face of exogenous changes in market conditions. In effect, regulatory systems whose goals were to promote efficiency, equity and flexibility are now being

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[1] Button and Swann (1989, p. 1) describe this as a process of "economic disengagement," which they argue is currently occurring worldwide.

abandoned to promote these very same ends.

Those who created the regulatory institutions currently being dismantled focused their attention on "market failures" and tended to be very optimistic about the extent to which regulation would be welfare enhancing. This was naive. Those riding the current wave of deregulation must be wary of focusing their attention on "regulatory failures" and of naively assuming that all deregulation will be welfare enhancing.

To create sound public policies we must recognize the realities of both market failure and the difficulties of implementing regulation to control it and give due consideration to the costs of each. A careful evaluation of the industrialized countries' experience with regulation and deregulation may provide valuable lessons for LDCs who are considering what regulatory path to follow, helping them to avoid the creation of regulatory institutions that, once established, are resistant to change even if they are obviously flawed. The purpose of this study is to perform such an evaluation. But before turning to the empirical record, it is helpful to delineate conceptually how regulatory practice can be viewed as the outcome of the interaction between market and regulatory failure.

1.2 Regulation as a Response to Market Failure[2]

The reasons why markets might fail to allocate resources efficiently from a social perspective are well known to economists and other public policy specialists. These include, but are not limited to, the existence of imperfect information, positive and negative externalities, monopoly and oligopoly, and constantly declining costs in the relevant range of production. In principle, regulation can limit the welfare losses from many of these market failures; the focus in this paper is on regulation as a response to the welfare losses associated with imperfectly competitive markets.

As we use the term "regulation," we mean it to apply to antitrust regulation, that is, the establishment and enforcement of laws governing the nature of firms' competitive behavior and the market structures within which that competitive behavior takes place, and also to "directive regulation," situations under which the regulatory body itself sets prices, output levels, quality, and other variables that are ordinarily determined by management.

This definition raises an interesting question: If the market outcome is viewed as non-optimal, why not use economic incentives such as taxes and subsidies to induce firms to move toward the social optimum, or

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[2] Regulation can also function largely or purely as a redistributive mechanism. As analyzed later in the paper, this may be viewed as occurring as one of the legitimate functions of government or as a response to rent seeking activities by interest groups, although the formal distinction is not clear. In any event, it is not possible to accurately interpret the industrialized countries' regulatory experience without giving this purpose of regulation its due weight.

alternatively, why not have direct public provision of the goods in question; why use this sort of halfway house between the two? Stiglitz and Sappington (1987) argue that with perfect information, there is no difference between the three approaches: If the government wished a particular outcome to occur, it could either induce the firm to accomplish it by a combination of taxes and subsidies, order the firm to accomplish it through regulation, or accomplish it itself after nationalizing the firm. In practice, information is never perfect, making it difficult to set taxes and subsidies at the correct level to achieve a desired outcome. Further, principal-agent problems imply that the interests of those who manage publicly-owned firms for the government are not likely to be congruent with those of the government. With antitrust or directive regulation, the government need not attempt to control all aspects of the functioning of the regulated entity, just those directly related to its primary objectives.

Given the decision to regulate, why is antitrust employed to regulate activity in some industries and directive regulation (or nationalization) in others? Many different industrialized countries have chosen the same mode of regulation for particular industries, suggesting that regulatory efficiency considerations or some other rational criteria govern the choice of regulatory instrument for each industry. Let us consider this hypothesis.

The disadvantage of antitrust regulation relative to directive regulation or nationalization is that, at least in principle, the government has less control over the market outcome; the offsetting advantage is that business activity and decisions are left in the hands of private enterprises,

with government involvement only occurring when firm behavior or market structure violates some pre-established limits. This greatly reduces the informational and administrative requirements of regulation relative to more interventionist approaches, and also preserves more of the profit-oriented incentives for production efficiency than do most other regulatory approaches. In the ideal, antitrust would operate so as to define clearly--and rationally--what business behavior is permissible and what is not, and businesses would then pursue their own objectives subject to constraints imposed by antitrust.

Under conditions of unregulated natural monopoly (in the absence of perfect price discrimination), an efficient market equilibrium, with price equal to marginal cost, will not occur: a profit-maximizing monopolist would not choose to produce the socially optimal output level, and even if it did, it could not sustain it because price would be below average cost. However, antitrust cannot be the regulatory solution: a monopolist violates no laws against conspiring with rivals in setting the profit maximizing output. Structural antitrust approaches such as dissolution are unsatisfactory because they necessitate inefficient production. By contrast, in principle directive regulation can help ensure that the regulated monopolist does produce the output level at which marginal cost equals price, or one close to it.[3]

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[3] Typically, this can only be sustained if the government provides a subsidy to cover the firm's losses, or if a regulated price discrimination scheme is installed under which differences in consumers' willingness to pay and/or elasticities of demand are exploited so as to satisfy the revenue requirements. (Baumol and Bradford, 1970).

This in turn creates another difficulty. Once these differences in prices exist, it may be possible for entrants to "skim the cream," profitably offering the regulated service only to those customers designated as high-price customers under the regulated pricing scheme. In this situation, the regulated natural monopolist may be in an unsustainable position, unable to survive by charging the same price to all customers but also unable to sustain necessary price differences among customers because of competition from cream

1.3 Regulatory Inefficiency and Regulatory Failure

Our discussion to this point has focused on regulation as a potential way of limiting the market failures associated with imperfect competition. However, just as there are market failures, there are also failures of the regulatory response to market failure.

In analyzing regulatory imperfections, we find it useful to make a distinction between "regulatory inefficiency" and "regulatory failure." "Regulatory inefficiency" represents departures from the Pareto optimum at which marginal social costs of the remaining market inefficiency are equal to the marginal social costs imposed by the regulation intended to remedy that market inefficiency. Such regulatory inefficiency can result from producing the wrong amount of regulation or failing to produce it in the least costly manner. We define "regulatory failure" as occurring when regulatory actions of government intended to address a market failure lead to an outcome inferior to that which would have been obtained under laissez-faire.[4] Sufficient regulatory inefficiency will result in regulatory failure.

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skimming rivals. This may necessitate regulatory restrictions on entry as well as pricing regulation. See Myer and Tye (1988) for a very lucid discussion of this issue.

[4] A regulatory outcome could be inferior to a laissez-faire outcome either because the departure from Pareto optimality is greater or because the net benefits of regulation, including regulatory costs, are negative. Although they do not fit neatly into the standard Paretian framework, undesirable consequences of a distributional or other nature may also influence the relative merits of the laissez-faire and regulatory outcomes.

Avoiding regulatory failure is an obvious policy objective[5]; however, this is a de minimus objective: policy planners should strive to construct institutions and mechanisms of regulation that will minimize regulatory inefficiency. Along with ensuring that regulation is provided in the least costly manner, this will require balancing the social costs of market failures with the costs of efforts to rectify them. This in turn requires a clear understanding of regulatory imperfections, their causes and their consequences.

When regulation is "misdirected" -- that is, it does not function just as policy-makers intended -- it can be either because the regulated entities "capture" the regulatory apparatus and turn it to their own advantage, or because something else occurs to misdirect the original regulation. If sound regulatory policies are to be implemented in LDCs, it is necessary that we understand how and why misdirection occurs.[6] Let us define regulatory "capture" as a situation in which the regulators adopt the regulated entities' objectives as their own.[7] This can occur at the very inception of regulation, as argued by Peltzman (1976), or over time, as in Bernstein's (1955) "life-cycle hypothesis," as a regulatory agency created to promote the public interest changes its objective to that of promoting the interests of those it regulates. We define regulatory "misdirection" to be any

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[5] Regulatory failure nevertheless occurs with frequency. See Krueger (1990) for examples.

[6] The discussion that follows is not meant to be exhaustive, but only to cover some of the more frequent causes of regulatory problems.

[7] Obviously, in the real world the relative weighting of benefits to the regulated entities, their customers, rivals, and/or potential rivals lies along a continuum. A dominant weight for the utility of the regulated entities would in our view suffice to define "capture."

situation in which the regulatory apparatus does not function as originally intended in the enabling legislation. This subsumes situations in which the regulators deliberately pursue the objectives of the regulated entities; situations in which the regulators' actions work to the benefit of the regulated entities, even though that is not the regulators' intent; and situations in which the regulation benefits no group but the regulators themselves. In principle, capture could be prevented if (non-corrupt) legislators could employ incorruptible agents to implement regulatory policies; this would not suffice to avoid misdirection.

I.3.1 Regulatory Capture

A regulatory body might adopt the regulated producers' objectives as its own because the regulated producers are able to exert greater political leverage than the other regulation-affected groups, or because the staffing of the regulatory body comes to be dominated by former regulated producers who maintain their producer-welfare orientation.

In theory, the possibility of any government regulatory action (including inaction) that may benefit or harm any group creates incentives for the development of interest groups that will attempt to ensure government policies favorable to their interests.[8] Interest groups representing

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[8] Many modern political-economic theories of regulation (and of government generally) tend to view government activity or its absence as the outcome of the competition between different interest groups for access to the political process and its redistributive power. Examples of such models are Stigler (1971), Becker (1983), Peltzman (1976), and Owen and Braeutigam (1978). These theories differ in their details and emphases, but all these regulatory theories share a similar spirit in being "self-interest" based theories rather than "public interest" based.

producers, consumers and labor interests are all theoretical possibilities; in practice, producer interest groups are likely to be more politically effective.

Regulatory benefits and costs are frequently concentrated for producers and diffuse for consumers. (Labor is somewhere in between.) The costs involved in organizing and maintaining the functioning of an interest group can be large and typically increase with the number of members in the group. As a result, while it may be common for producers to find it worthwhile to form a politically active interest group, or even to undertake political activity individually, consumers would rarely find the expected benefits of interest group activity to exceed the expected costs.[9] As a consequence, producer interest groups may be more effective in pursuing political means to economic ends than are consumer interest groups.[10]

As for staffing, former regulated producers may come to dominate the staffing of the regulatory body when regulators require, or are believed to require, very specialized knowledge concerning either the regulatory apparatus or the regulated industry. Often, the only individuals possessing this knowledge are themselves regulated producers, and this leads to the

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[9] Mancur Olson (1965) provides an excellent discussion of the determinants of group participation in the political process.

[10] In the U.S., congressional committee membership is responsive to the particular concerns of the individual congresspersons. As a result, House and Senate members who have a strong interest in some regulatory activity are more likely to serve on the committee with oversight responsibility for that activity. If the senators and congresspersons are producer-oriented for the reasons outlined above, this will be reflected both in legislation and in the activities of the regulators who rely on their oversight committees for support and appropriations. (See Weingast, 1981, and Shepsle, 1978.)

"revolving door problem" under which government draws its regulators from the regulated producers, who as regulators then acquire skills making them still more valuable in the substantially-more-remunerative regulated sector, to which domain they return armed with both in-government contacts and deep knowledge of regulatory procedures. The revolving door makes it more likely that regulators drawn from the ranks of producers will retain their interest in the welfare of the regulated group.

I.3.2 Regulatory Misdirection Without Capture

Regulatory misdirection can also occur in the absence of capture. Here we highlight four sources of misdirection: information asymmetries between regulators and those affected by regulation, whether producers or consumers; regulatory rigidities that grow out of the tendency for producers and consumers to develop "property rights" in particular regulatory outcomes; the unintended consequences of what we call "regulatory firefighting," reacting to unanticipated side effects of previous regulatory actions; and the pursuit of self-interest by those responsible for regulation.

To begin with information asymmetry, traditional regulatory agencies suffer from an information disadvantage vis-a-vis the entities they must regulate. Producers[11] have far better knowledge of their average and marginal costs, of recent and pending technological advances, and of their own degree of managerial slack than do their regulators. By manipulating

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11 Information asymmetry is not confined to the relation between regulators and producers; it may occur with consumer or labor groups as well, sometimes with similar consequences.

information-access to their advantage, they are able to distort the regulatory process so as to redistribute surplus to themselves. (Owen and Braeutigam, 1978, p.4)

Rigidities are a second cause of regulatory misdirection. Economic conditions change, and if regulatory systems cannot adjust in response, the consequences can be very costly for society. Unfortunately, several forces operate to create barriers to regulatory change.

Firms and other economic entities make investment decisions and otherwise commit resources against the backdrop of a variety of social institutions, including regulatory systems, and they may suffer losses if these institutions change. If for any reason the government hesitates to alter regulatory institutions because doing so will impose those losses, then establishing a regulatory system effectively creates property rights that make it difficult to alter the regulatory status quo.[12]

These property rights in the regulatory status quo can be particularly troublesome in situations in which, in the absence of regulation, exogenous economic changes would dictate the disappearance of some existing producers or impose substantial losses on them.[13] Owen and Braeutigam (1978)

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[12] Gary Becker has argued (1983) that there will be a political bias in favor of maintaining the status quo because it may be necessary to compensate groups for losses they suffer due to changes in government policies. Becker's model assumes a context of competing interest groups that vie for government favors, but this is clearly not a necessary condition.

[13] Note that if regulated entities have been sold at some point, their profits would have been capitalized in the purchase price; consequently, any worsening of economic conditions in the market actually imposes "losses" on the new owners.

argue that the stress on procedural fairness within regulatory bodies encourages regulatory outcomes that appear distributionally fair, and economic survival is one obvious index of fairness.[14] Consequently, when efficiency might dictate exit of firms, regulators are prone to intervene to prevent this from occurring, even if it is very costly to do so.

We would argue that this rigidity will be most severe if regulation has at some point significantly constrained the profitability of producers[15]: producers can in effect argue that if they are not allowed to exploit their market position when it is strong, they are entitled to compensating protection when it is weak. Further, because there is no way of determining how regulated firms would have fared if regulation had never occurred, regulators cannot determine a "fair" level of compensating protection from market changes. Thus, regulation may be resistant to change even under very dynamic market conditions.

Just as regulated producers may appear to have regulatory property rights protecting their survival and perhaps even their market position and profits, customers too may be viewed as having an entitlement to the existing level and quality of service and in some cases even prices: they too have made

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[14] Regulatory powers can be abused, and in a world of imperfect information, non-survival of the regulated entities might signal abuse of regulatory powers including, but not limited to, effectively expropriatory behavior. Survival is clearly an imperfect signal: regulatory entities can survive in the presence of regulatory abuse and fail in its absence, as when external circumstances cause firms to fail or when efficient regulation dictates that regulated entities exit the market. Regulated entities' survival nevertheless plays a signalling functioning, and as such it affects regulatory behavior.

[15] This is not at all unlikely, especially in light of Bernstein's regulatory life-cycle hypothesis.

investments based on the existing regulatory institutions. This may add to the pressures for rigidity.[16]

Reacting and re-reacting to unanticipated side effects of regulation, or "regulatory firefighting," is our third cause of regulatory misdirection. These unanticipated side effects spring from two sources. First, regulatory systems are almost always constructed on the basis of inadequate information. Second, regulation often seems to be devised on the assumption that regulated entities and their customers and competitors will respond passively to regulation, whereas profit maximizing behavior generally requires that they invest resources to mitigate regulation's impact. In both cases, the result is often "creeping regulation," a situation in which more and more complex, costly and far-reaching regulations are required to achieve the original regulatory goal.

Our final source of regulatory misdirection is pursuit of self-interest on the part of those charged with regulation.[17] Regulatory bodies can be difficult to monitor: regulatory objectives are often unclear; there is no convincing counterfact to the current situation; unanticipated changes in exogenous conditions occur that make optimal regulation a moving target; and obtaining the information necessary for an accurate assessment of regulatory

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[16] Owen and Braeutigam argue that even though both producers and consumers in regulated industries develop property rights in the status quo, producers are better able to strategically bend the regulatory system to their advantage.

[17] As Krueger (1990, p. 13) very nicely puts it, "One must ask why economists were ever comfortable with the simultaneous beliefs that individuals in the private sector act in their self-interest while those in the public sector are motivated by a Benthamite vision of social justice."

performance is time consuming and costly, leading to an information asymmetry between regulators and those with oversight responsibility.

Regulator self-interested behavior can take many forms. One of these is corruption. Given the political will, safeguards against this can be established, although it may be costly to do so. It is much more difficult to deter the other forms of self-interested behavior that commonly arise in bureaucratic organizations. One such behavior is resistance to necessary change. It is not only producers and consumers in regulated industries who develop property rights in the regulatory status quo, but regulators as well. Regulators typically have a substantial human capital investment in the current set of regulatory institutions; in consequence, as individuals and as a group, they are likely to resist change because it threatens to significantly reduce the value of that capital.

I.4: Learning from the Regulatory Experience of Industrialized Countries

Evaluation of the regulatory experience of industrialized countries provides an opportunity for exploring how the tension between market and regulatory experience has resolved itself in practice, and what lessons might be relevant to developing countries seeking to devise regulatory policies of their own. Further, the substantial differences in the regulatory approaches of the industrialized countries suggest that inter-country comparisons might be of great value in determining what works and what does not. Unfortunately, there are so many institutional differences among these countries--legal, political, economic and cultural--that such inter-country comparisons tend to devolve into a comparison of incommensurables.

Fortunately there is an alternative. The United States and several other industrialized countries have in recent years deregulated significant sectors of their economies that were at one time heavily regulated. This provides us an opportunity to examine and evaluate how well regulation has functioned within countries by analyzing both the historical development of regulatory systems and the effects of their dismantling. In effect, the deregulatory movement of the last decade has provided us with a natural experiment with which we can increase our understanding of the regulatory process, free of many of complications of inter-country comparisons.

For the most part, we will focus our attention on regulation and deregulation in the United States, with some attention to the U.K. and Canadian experience. The next section of this paper will evaluate the U.S. experience with antitrust as a general method of regulating monopoly and oligopoly and promoting competition, and suggest some lessons for developing countries that follow from the U.S. experience. The third section will analyze that country's experience with what we will call "directive regulation," in which the government actually intervenes in the setting of price and/or output or entry conditions.[18] The analysis of directive regulation (and deregulation) will largely employ a "case study" approach, analyzing the regulatory experience of the following industries: rail transport, motor transport,

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[18] "Directive regulation" corresponds to what is generally called simply "regulation" in the economics literature. The semantic difficulty is that antitrust enforcement is no less a form of regulation, and we therefore choose to use the terms antitrust regulation and directive regulation to refer to these two subcategories of regulatory activity.

airline transport, and telecommunications. The final section will draw on the various strands of the empirical analysis to present a framework for efficient regulatory policy in developing countries. In developing this framework, particular attention will be given to the likelihood that developing countries are likely both to be more vulnerable to problems of monopoly or oligopoly than their industrialized country counterparts, and more constrained in the availability of the resources and personnel needed to gather and process the information required for the efficient operation of a regulatory system.

II: ANTITRUST REGULATION IN INDUSTRIALIZED COUNTRIES

This section consists of two parts. The first is a general discussion of antitrust regulation and the forms it can take. We discuss the relative advantages of orienting antitrust toward influencing market structure or toward preventing abusive conduct. We then discuss the primary methods available for influencing market structure and what forms of conduct might be proscribed. Following this, we consider enforcement issues: whether to use the general judiciary or a specialized agency to enforce antitrust statutes; whether or not the "reasonableness" of specific business practices (or their effects) should affect their permissibility; and what should be the penalties for antitrust infractions.

The second part of this section provides an assessment of industrialized countries' experience with antitrust (focusing on the U.S.) and the lessons and recommendations for LDC regulatory policy that can be culled from that experience. Our discussion of antitrust issues relies heavily on Scherer and Ross (1990) and Martin (1988).

II.1 General Discussion

II. 1.1 Antitrust Focus: Structure or Abusive Conduct

A structural antitrust approach may take the form of regulation of mergers, establishment of market-share ceilings, or dissolution of firms with monopoly or near-monopoly positions. Regulation of abusive conduct is naturally concerned with price fixing and other activities that directly affect the vigor of competition; however, it may also be concerned with forms of conduct--including predatory pricing, vertical restraints that limit entry, and price discrimination--that affect competition indirectly because they may lead to the development of monopoly. The two approaches need not be mutually exclusive, although clearly, sufficiently vigorous pursuit of either would make the other redundant.

United States antitrust policy, while certainly not ignoring abusive conduct, has historically[19] shown a greater concern with market

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[19] Passage of the Sherman Antitrust Act of 1890 mar's the beginning of federal antitrust legislation in the United States. Though its language is vague, the Sherman Act was designed to prohibit agreements to fix prices or otherwise restrain trade through combinations or conspiracies, and to prevent "monopolization" of industries, where monopolization may be interpreted to mean extra-normal efforts to establish a dominant market share in a market. (Actually, Congressional intent in using the term "monopolize" has never been clear and the judicial interpretation has varied considerably over time (Scherer and Ross, 1990).

Various weaknesses in the Sherman Act and in the economic sophistication of the federal judiciary led to the passage in 1914 of the Clayton Act and the Federal Trade Commission Act, the latter establishing the Federal Trade Commission, an independent commission whose primary purpose was to initiate and administratively adjudicate certain kinds of antitrust cases. The Federal Trade Commission and the Antitrust Division of the U.S. Justice Department divide responsibility for antitrust enforcement at the Federal level.

structure--not only the existence or evolution of monopoly, but more generally, the number and size distribution of firms--than has been the case in the European countries, where antitrust treatment of monopoly has focused on the regulation or abusive conduct.

One advantage of the structural approach is that if monopolies (and tight oligopolies) are prevented from developing, it is not necessary to constantly monitor firm behavior to determine if some illegal abusive conduct is occurring. Neither is it necessary to monitor firms to determine if they have developed a legal counterpart to legally proscribed behavior. Monitoring always involves some costs, but it can be particularly costly in situations where there is great information asymmetry between firms and their would-be

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Antitrust enforcement also takes place at the state level in the U.S..

If the Sherman Act could be described as being in part concerned with the abuse of existing monopoly or oligopoly power (Section I) and in part with efforts to increase monopoly power (Section II), the Clayton Act and the FTC Act might best be described as primarily concerned with behavior that would lead to the creation of such power. Each of the Acts made unlawful several kinds of business practices, including a variety of vertical business relations as well as "unfair" business practices that firms might use to eliminate actual or potential rivals. The Clayton Act and FTC Act also gave the government some authority to block mergers between firms that would tend to create a monopoly.

In the decades that followed, new antitrust legislation has essentially taken the form of amendments to the original legislation. These amendments were designed to close loopholes that arose because of unanticipated judicial interpretation of the Sherman, Clayton, and FTC Acts, or because businesses developed new modes of behavior not anticipated when the Acts were passed.

In the U.S., federal antitrust cases brought by the Justice Department's Antitrust Division are tried in the federal courts; the decisions of the FTC may be appealed there as well. There have been substantial shifts over time in the views of judges and antitrust enforcement personnel toward a variety of business practices, in part for ideological reasons and in part because of changes in economists' views of these practices. As a consequence, the vigor of antitrust activity in the U.S. has waxed and waned, and certain business practices viewed with hostility in some periods have been viewed sympathetically in others. It is therefore difficult to present a concise history of U.S. antitrust policies. The interested reader should consult Scherer and Ross (1990) and Martin (1988).

regulators. As Scherer and Ross (1990) point out, the U.K. and West German experiences with abuse-oriented approaches to monopoly suggest that determining whether or not prices are excessive, and what price level is reasonable, calls for judgments in which the antitrust enforcers invariably operate at an information disadvantage vis-a-vis those whose prices they seek to control. This information asymmetry is common in industrialized countries; it is likely to be the rule in LDCs.

The advantages do not lie entirely with the structural approach however. Constraining the development of monopoly and oligopoly implies limiting the size of firms within markets, and depending upon how this is accomplished, it carries the potential of limiting scale economies, slowing innovative activity, and discouraging active rivalry.

A judicious mixture of the two approaches might be superior to relying on either in isolation. Relatively modest structural measures can substantially reduce the monitoring costs that accompany a conduct approach, and the latter can be resorted to when structure-based antitrust efforts would carry unacceptably high costs in terms of foregone scale economies and/or technological progress.[20]

Regulating Structure

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[20] If large firm size or oligopolistic market structure causes innovative activity to increase relative to the levels that would exist in more perfectly competitive market structures, society might be better off accepting greater static inefficiency in return for faster technological change. Industrial organization economists refer to this as the trade-off between static and dynamic efficiency.

A monopolist is unlikely to produce the competitive equilibrium output, and even if conduct-oriented antitrust can deter firms in highly concentrated markets from colluding with each other, the recognition of mutual interdependence that characterizes oligopolistic markets is likely to lead each firm to act independently to avoid price rivalry.[21] As a consequence, avoiding the development of monopoly or high market concentration is the major concern of structure-oriented antitrust regulation. Several instruments exist for regulating market structure. One is placing ceilings on each firm's permissible market share; a second is dissolution of firms with monopoly or near-monopoly market positions; and a third is to regulate mergers to prevent individual market shares or the level of market concentration from exceeding some maximum permissible level.

Placing upper limits on a firm's permissible market share may require sacrificing static scale economies;[22] further, to the extent that large size is associated with technological change, it may mean sacrificing dynamic efficiencies as well. In addition, if there is a ceiling on a firm's permissible market share, price and/or other forms of rivalry directed toward increasing market share will have less of a payoff, especially as firms approach the ceiling. Thus, this policy has the potential to frustrate the

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[21] Oligopolists "recognize their mutual interdependence" in the sense that each realizes that its actions will affect its rivals, that its rivals will respond to its actions, and that it will be affected by those responses in turn. Thus, in a highly concentrated market, each firm may conclude that any price cutting that it initiates will be quickly matched by rivals, and that profits in the new equilibrium will be lower that at present. Such reasoning can lead to the avoidance of price rivalry even in the complete absence of any collusive behavior.

[22] See Scherer and Ross, 1990, p. 676 for a discussion of the monopoly\scale economies tradeoff.

very competitive behavior it is meant to encourage.

Dissolution of firms with commanding market shares carries all the disadvantages of market share ceilings and carries additional disadvantages as well. Because it significantly disrupts the functioning of the firm, dissolution is likely to result in production inefficiencies and transaction cost increases that may persist for some time. Further, such non-marginal intervention may be associated with greater enforcement costs.[23]

Regulating merger activity is another method of preventing monopoly and tight oligopoly market structures from developing. Though it still carries risks of thwarting attainment of static and dynamic efficiencies, it is not as disruptive as dissolution or as discouraging of rivalry as market share ceilings. It is consequently a more attractive option. The disadvantages of market share ceilings and dissolution have led to their being used sparingly in the United States, while regulation of merger activity continues to play a significant role in antitrust regulation.

Regulating Conduct

The types of conduct that might reasonably be the subject of antitrust enforcement fall into several broad categories: an incumbent monopolist's exploitation of its power; agreements between competitors to restrain rivalry; acts designed to eliminate competitors; and acts designed to

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[23] The U.S. Justice Department case against IBM initiated in 1969 and dropped in 1932 is a good case in point. The total cost of the case is unknown, but estimates run into the hundreds of millions of dollars.

prevent or hinder entry of new firms into an incumbent's market.

Firms may exploit existing monopoly power by restricting output and elevating price; this is the "classic" monopoly behavior that leads to welfare losses. But monopolists may also exploit their market position by engaging in price or quality discrimination (Phlips, 1983; Srinagesh and Bradburd, 1989), or by tying sales of products for which they have rivals to the sales of those where they have a monopoly position (Adams and Yellen, 1976).

If there is no firm with a monopoly position, the monopoly equilibrium, or one close to it, will only occur if the firms in the market avoid active price rivalry. Under certain conditions, generally involving small numbers of firms, this may occur without any collusion between rival firms, simply as a consequence of firms' recognition of mutual interdependence; in such situations, conduct-oriented antitrust is powerless.

A monopoly-like equilibrium may also be attained through agreements between competitors, however, and these can be proscribed under antitrust regulation. Such agreements might include, but not necessarily be limited to, price fixing agreements, agreements to "divide the market" along geographic or product attribute lines, agreements regulating the nature and extent of advertising or product quality, and agreements to merge or otherwise join together the management of competing firms.

The monopoly behavior described above concerns either a firm acting alone or in cooperation with its rivals. But incumbent firms can also

act to restrain competitive forces by attempting to eliminate their existing rivals or preventing new ones from entering their market, and these actions too may be prohibited or regulated. Acts designed to eliminate competitors would include predatory pricing, "unfair business practices" such as attempting to sabotage rivals' business operations or reputations, refusing to deal with customers who buy rivals' products, and other practices that go beyond the "normal" bounds of rivalry. There are some forms of behavior whose intent is ambiguous, for example, pricing a product aggressively in order to move down a learning curve (Spence, 1981, Ross, 1986); the latter clearly offers an opportunity for misapplied antitrust enforcement.

Incumbent firms may try to deter new entry through limit pricing strategies, threats of aggressive post-entry behavior, product differentiation strategies, attempts at vertical foreclosure, and other means. They can also use the political process to erect barriers to potential entry. Interestingly, while modern theoretical contributions in industrial organization, particularly applications of game theory, have circumscribed the conditions under which economists believe firms can effectively deter entry through their own actions[24], political economic research, including the rent-

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[24] The literature on strategic entry deterrence has grown increasingly sophisticated over time, largely due to the contributions of modern game theory (Tirole, 1988, Chapter 8; Scherer and Ross, 1990, Chapter 10, and cites therein). This has made our analyses of firm behavior richer, but also much more complicated and qualified; static limit pricing, which once seemed quite straightforward in intent and effect (Modigliani, 1958) is a good case in point. The static limit pricing model assumes that an incumbent firm threatens to maintain the limit-price output even if entry occurs, thus making entry unprofitable and effectively discouraging it. However, absent some "commitment" to rivalry, if entry actually occurs, it will be more profitable to accommodate it than to carry out the threat. Such a threat is therefore not sub-game perfect and is not credible. As a result, it would not deter entry.

seeking and DUP[25] literatures (Bhagwati and Srinivasan, 1980; Anderson, 1989; Rowley, Tollison and Tullock, 1988), has increasingly recognized the power of firms to protect their profits through political means (Demsetz, 1979).

With the exception of non-collusive rivalry avoidance[26], it is feasible to forbid all of the behavior described above. From a policy perspective, it is important to determine if doing so would actually be welfare increasing. History can be a helpful guide here, and following our discussion of enforcement alternatives, we will review the U.S. (and to a limited extent the U.K.) antitrust experience.

II.1.2 Enforcement Issues:

Enforcement by General Judiciary or Specialized Agency

Countries may differ in whom they choose to make responsible for enforcing their antitrust statutes and adjudicating cases. The two broad choices are an independent agency (or "commission") and the general judiciary. In many European countries, there is an independent commission that regulates abuses of monopoly power (Scherer and Ross, 1990). Both approaches are used at the federal level in the United States, because the Federal Trade

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25 "DUP" activities are "directly unproductive" activities (Bhagwati and Srinivasan, 1980). DUP activities and rent-seeking activities correspond to the same behavior; the former term appears more frequently in the trade literature.

26 The line between collusive and non-collusive parallel action is actually not an exact one; in the United States, judicial interpretation of what does and does not constitute collusive behavior has varied over time. (Martin, 1988, pp. 125-29).

Commission and the Antitrust Division of the Department of Justice share the responsibility for antitrust enforcement.

The general judiciary and independent commission approaches each have different strengths and weaknesses. There are two great advantages of the independent commission approach. The first is that such independent commissions may be expected to have (or develop) both a commitment to and competence in issues of antitrust and monopoly. In contrast, there is no particular reason to believe that the typical judge will be able to evaluate competently the issues involved in antitrust litigation, and the U.S. experience in this regard is not particularly encouraging (American Bar Association, 1989(A), p. S-33, Scherer and Ross, 1990, pp. 336-337). The second is that handling abusive conduct problems administratively rather than through the general judiciary may save both time and litigative resources.

The disadvantage of the independent commission approach is that this regulatory efficiency may come at the expense of protecting appeal rights. There is consequently a danger of independent commissions' power being subverted to serve private or politically partisan ends.[27] In the case of the general judiciary approach, there is less danger of power being subverted in this way. First, if the general judiciary system incorporates rights of appeal, that is itself a safeguard. Second, if the judges (and in some cases, juries) that try the cases are chosen from a wide pool, it is much more difficult to conspiratorially subvert the regulatory process than when

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[27] The U.K. has accepted the risks involved in this tradeoff by choosing to limit defendants' appeal opportunities; in the U.S., defendants in cases brought before the administrative law judges of the FTC retain their right of appeal to the general federal judiciary.

adjudicative decisions are made administratively within an independent commission.

For better or worse, both independent commissions and the general judiciary, to the extent that they depend upon the executive or legislative branches for continuing appropriations, authority, or appointment of personnel, may be subject to executive or congressional influence.[28] This too must be considered in creating regulatory institutions. While such oversight can serve to prevent abuse of regulatory power, it is also an instrument that can be exploited for the purpose of capturing or protecting economic rents.[29]

The need to make good judgments, to make them with relatively low transaction costs, the likely information asymmetries between the enforcement agency and the regulated firms, and the generally weak condition of legal systems in LDCs, lead us to recommend in LDCs a specialized agency approach along the lines of the U.K. Monopolies Commission.[30]

The limits on the right of appeal that inhere in such an approach are a problem that we recognize. It is tempting to recommend that the right of appeal to the general judiciary be protected; however, even if such appeals

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[28] This threat of outside influence can be reduced if regulators are granted lifetime tenure or if regulatory agencies are self-financing through penalty revenues. Both of these carry some significant risks.

[29] The American Bar Association Section of Antitrust Law evaluation of the Federal Trade Commission (1989A) discusses this problem at some length.

[30] The U.S. policy of having two separate enforcement agencies is almost certainly ill-advised for LDCs. Resources are wasted in duplicated effort, and an uncertain division of responsibilities can allow problems to fall between the cracks.

are limited to matters of procedure (e.g. capricious or arbitrary decision making) rather than fact, resolution of the appeal would in many cases necessitate an attempt to evaluate the reasonableness of the original decision, and this would present us with many of the weaknesses of the general judiciary that we originally wished to avoid. Presumably, if the agency displays a persistent pattern of abusing its power, corrective action will be taken.

The enforcement agency needs to be able to impose penalties in appropriate circumstances if it is to deter anti-competitive behavior. Given our choice of investing an independent agency with antitrust enforcement powers, and the reduction in safeguards against abuse of power that accompany that choice, we recommend that penalties for antitrust violations be limited to fines.

Reasonableness as an Antitrust Defense

Independent of choosing its agent of antitrust enforcement and its antitrust focus, a country must decide whether to determine guilt in antitrust cases on the basis of a "per se" rule or a "rule of reason."

Under a "per se" rule, guilt is determined on the basis of whether or not the proscribed act in question can be proved to have been committed, whatever the actual consequences of that act. Under a "rule of reason," in contrast, the reasons why the contested action was initiated and its effect on rivals and on consumers are all taken into account in determining whether or not a violation of the law has occurred and what remedy, if any, will be

applied. (See Scherer and Ross, 1990, p. 317-339 for a detailed discussion of these issues. We draw extensively on their analysis.)

There are several advantages to a per se rule in antitrust. First, firms face less uncertainty regarding what is illegal than under a rule of reason. Second, if the behavior defined to be illegal per se is almost never in the public interest, a per se rule avoids the losses associated with erroneous judicial approval of restrictive practices under a rule of reason. The third and greatest advantage of a per se rule is that it very substantially reduces adjudication and enforcement costs (Martin, p. 155). It is extremely costly and complicated to determine why an act was committed and what its present and future effects will be, and doing so greatly strains the limits of judicial economic expertise. In the event that a particular restrictive practice is ruled "reasonable," in some circumstances the court must be prepared to monitor behavior in the future to ensure that today's reasonable practice remains reasonable in the future. (See Scherer and Ross, 1990, p. 336, and their discussion of this issue in the context of the 1927 Trenton Potteries Case.)

All of this may seem to suggest that a per se rule is always optimal. However, there is one disadvantage to a per se rule: there are some circumstances in which apparently restrictive practices can be welfare increasing,[31] and a per se rule does not permit the flexibility needed in

[31] Among these might be aggressive pricing to exploit learning economies and vertical restrictions that have the effect of reducing transaction costs. Another, less persuasive, might be price fixing agreements in high fixed cost industries subject to highly cyclical demand. For a discussion of the latter, see Scherer and Ross, 1990, pp. 303-306.

these cases. Optimally, legislators will weigh expected costs and benefits in choosing which rule to adopt. As the U.S. experience shows, it is possible to adopt a per se rule for some practices and a rule of reason for others.

Antitrust Penalties and Relief

In the United States, some antitrust violations are treated as civil cases and some, price fixing for example, may be tried as criminal cases. In publicly brought civil cases, if a violation is found to have occurred, the remedy is injunctive relief, in the form of a cease and desist order, a requirement that the defendant undergo divestiture, or even, in some cases, dissolution. In criminal cases, penalties may be fines or incarceration of guilty individuals. Clearly, if all penalties for antitrust infractions are fines, there is a danger that firms may come to treat them as a business expense. If so, in deciding whether or not to commit some action, the corporation will calculate the action's expected benefit, taking into account the probability of being caught and fined as well as the size of the fine. As Posner (1976) and Landes (1983) have demonstrated, for risk neutral firms, an effective deterrent fine must be equal to or larger than the expected gain from the (undetected) illegal action divided by the probability of being caught and punished.[32]

If the resources devoted to antitrust enforcement are not great,

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[32] This assumes that if caught, the convicted firm retains its ill-gotten gains. If it must forfeit them, the effective deterrent penalty is reduced to (p)/(1-p) multiplied by the expected gain from undetected illegal activity, where "p" is the probability of being unpunished.

or if for some other reason[33], the probability of punishment is small, the effective deterrent fine can become extremely large, particularly if the illegal action is quite profitable. For a variety of reasons, such large fines are rarely imposed in the United States (Gallo et al., 1985). In situations where this is the case, fines alone may not be an effective deterrent.

The threat of a jail sentence for individuals convicted of antitrust violations is another method of deterrence,[34] and one that can be quite powerful, particularly when it is combined with personal and corporate fines. It can provide employees of corporations more of an incentive to refuse to engage in illegal acts, not only because of the stigma of jail sentences and fear of personal financial losses, but also because jail sentences clearly define the punished offense as being criminal and not merely "business as usual" (Gilbert Geis, 1968).

The disadvantage of a jail sentence as an antitrust deterrent is that it is a harsh punishment, and one that could be abused for political purposes. Consequently, one would want to use this form of deterrence, if at all, only in cases where the prohibited action was one that could be defined simply and unambiguously, and was one that was illegal per se. This form of punishment might be appropriate for price fixing for example, but certainly not for price discrimination. It is also clear that this method of deterrence

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[33] These might include very stringent evidentiary standards for conviction or opportunities for successful bribery.

[34] Jail sentences for individuals convicted of price fixing have become more common in recent years (Scherer and Ross, pp. 325-27).

has some serious disadvantages in situations in which the rights of appeal are abridged.[35]

II.2 The U.S. Antitrust Experience: Lessons for LDCs

The antitrust experience of the United States and European countries provides two kinds of information that can be very useful in the formulation of LDC antitrust policy decisions. The first of these concerns the importance of market forces, including import competition, relative to regulatory forces; the second has to do with which specific antitrust regulatory procedures and policies appear most likely to be welfare enhancing. We discuss these in turn.

II.2.1 The Importance of Domestic and International Competition

As we will discuss below, antitrust activity has almost certainly reduced to some extent firms' ability to exploit their monopoly power.

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[35] We have not discussed private antitrust remedies, in particular the ability of private individuals to sue for damages consequent to antitrust violations. The advantage of private remedies is that they provide an incentive for antitrust enforcement even if the public effort is for some reason compromised. The disadvantage is that single damages may be insufficient to encourage private litigation, the outcome of which is uncertain, and multiple damages can encourage frivolous or strategic suits whose primary purpose is extracting a settlement or weakening a rival through litigation.

The resource costs of litigation and the danger of frivolous or strategic suits argue against allowing private antitrust suits. At the same time, allowing private suits does provide some protection for firms that might otherwise be without it, as well as a mechanism for redress. We recommend a compromise position in which private suits for damages consequent to antitrust violations are permitted, with the defendant, if found liable, paying single damages to the successful plaintiff and single damages to the government as well. This policy is similar to one suggested in Salop and White (1986).

However, the importance of market forces such as rivalry between incumbents, potential and actual entry, and significantly, import competition, in constraining monopoly and oligopoly behavior cannot be overestimated. Antitrust only comes into play when the natural competitive forces in markets are in some way blunted; we should not assume that absent antitrust, the market equilibrium will be the monopoly equilibrium or even close to it.

There are of course situations--generally those where the size of the domestic market and the structure of costs dictate the existence of a tight oligopoly--in which a monopoly-like equilibrium will obtain in the absence of antitrust activity; in some of these situations non-collusive recognition of mutual interdependence makes even antitrust laws impotent unless the enforcement agencies are willing to pursue radical policies of restructuring that may threaten economies of scale and scope. But even here, the market force of import competition may operate to introduce active rivalry.[36]

The U.S. experience in the automobile, steel, and other industries demonstrates that in domestic markets characterized by tight oligopoly, import competition may be a very potent force[37]. Competition from abroad has forced U.S. companies to increase quality, to reduce inefficiency, to accelerate the pace of product and product innovation, and to price products more aggressively; it has had a similar effect in other countries. With improvements in infrastructure, and with today's global market outlook of

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[36] This issue is discussed in Spiller (1986B, p.30).

[37] For example, see the articles on the steel industry and the automobile industry in Walter Adams (1990).

producers, imports will play an increasingly important role in reducing firms' ability to exploit monopoly positions in domestic markets.

Opening LDCs' domestic markets to import competition will limit the monopoly power of domestic firms in the home market[38]; it will limit the power of foreign multinationals that have attained a position in the home market; it will reduce the ability and incentive of firms to use the power of the state to capture rents[39]; and very importantly, as we will discuss further below, it may permit governments to effectively regulate imperfectly competitive markets without creating a cumbersome, expensive and potentially burdensome antitrust regulatory apparatus.

Import competition will not suffice to make all markets effectively competitive. Foreign firms too can be parties to collusive agreements, and when these involve domestic firms, regulation may be necessary, as it may be in cases of domestic "non-tradeables." There may also be situations, preferably few, in which political circumstances prevent LDCs from eliminating import protection. To the extent that they can be welfare enhancing and effective, antitrust and other regulatory mechanisms should be implemented to deal with these situations. But in presenting our recommendations for these regulatory mechanisms in LDCs, we assume that they function within a domestic market that is, to the greatest extent possible,

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[38] We implicitly assume here that the importing sector itself is not monopolized; the benefits of open markets could be severely attenuated if it were. The government should take steps to ensure that there are no artificial barriers to entry into this market.

[39] This has obvious economic benefits, but it has a clear political benefit as well.

open to import competition.

II.2.2 Evaluation of Antitrust Regulation

The most obvious problem that arises in evaluating the overall success of the U.S. antitrust effort is that we do not have a convincing counterfactual with which to compare the U.S. experience. Absent antitrust, would consolidations through (unregulated) merger activity have created monopolies in most industries? Would predatory practices, price discrimination and/or vertical foreclosure have been used to eliminate existing competitors and discourage potential ones? Would firms in oligopolistically structured markets have succeeded in crafting durable agreements to avoid rivalry? If, in the absence of antitrust regulation, the average level of market concentration were higher, would static economies of scale, size, or scope, or dynamic economies, have been such as to actually increase total surplus relative to the regulated outcome? These are important questions the answers to which can be only most crudely approximated.

A second problem arises because the U.S. antitrust effort has had at least two objectives: 1) promoting allocative efficiency; and 2) maintaining a viable role for small business in the U.S. economy (Martin, 1988, pp. 255, 387, 514-16). These two objectives are not infrequently inconsistent,[40] but there is no legislative (or judicial) statement of the U.S. marginal rate of substitution between them. It is impossible to evaluate

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[40] In the famous 1962 Brown Shoe case, the Court stated in its ruling that when the two objectives conflict, Congress' intent was to choose to pursue the viability of small locally-owned businesses even at the cost of economic efficiency (Martin, pp. 251-254).

accurately the success of a program whose objectives are ambiguous. These problems make an overall assessment of whether antitrust has been welfare enhancing practically impossible.[41] But we can assess individual aspects of antitrust activity, and in the process, provide some guidance to policy planners in LDCs.

Regulating Price Fixing

Most, though not all, economists would probably agree that antitrust enforcement of laws prohibiting price-fixing has on balance been welfare increasing, even if estimates of the actual size of the welfare gain would vary greatly. This is because there are very few situations in which price fixing is welfare enhancing[42] and because the conflicting objectives that have occasionally misdirected U.S. antitrust efforts have not materially affected price-fixing regulation.

If the U.S. experience is a good indicator, regulation of price-fixing is likely to be welfare enhancing in LDCs, particularly if enforcement is focused on sectors in which import competition is weak. Further, it generally has the advantage of promoting distributional equity (Scherer and Ross, 1990, pp. 679-81).

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[41] Experts' views of antitrust and its effects vary greatly. Robert Bork (1978) is quite negative about antitrust while the American Bar Association analyses of antitrust enforcement by the Justice Department and the FTC (1939 A and B) were on the whole positive.

[42] A possible exception might be the case of stabilization cartels in industries with large fixed investments, designed to prevent ruinous competition. The dangers of ruinous competition are easily exaggerated however.

Assuming that regulation of price-fixing[43] is well-advised, employing a per se rule in adjudication of price-fixing complaints is likely to be preferable to a rule of reason. As we indicated above, there are few situations in which price fixing is welfare enhancing. At the same time, having a per se rule reduces direct litigation costs substantially and greatly lessens the need for technically trained economists and economically sophisticated jurists. A per se rule also reduces uncertainty regarding what is and is not illegal, making it easier to impose substantial penalties for violations of the law if they are needed for deterrence.

Regulating Mergers

Regulation of merger activity in the U.S. has probably been less successful than that involving price fixing. There has been a great decline in U.S. regulation of merger activity in recent years, and this probably reflects some disenchantment with this form of regulatory activity:[44] fewer horizontal mergers are challenged, and regulation of conglomerate and vertical mergers has largely been abandoned.

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[43] We view behavior such as output restriction agreements and agreements to "divide the market" as coming under the umbrella of "price-fixing."

[44] In the context of a rather different argument, Adams and Brock, 1989, detail how few antitrust merger cases have been brought in recent years. It is possible to argue that this does not reflect regulatory disenchantment so much as the impact of regulation in discouraging firms from even considering mergers that might attract antitrust attention. However, the number of mergers that have occurred, and the fact that many have been horizontal mergers involving large firms, suggests that this alternative explanation is not correct (Adams and Brock, 1989).

Few would argue that merger regulation has not affected the average level of market concentration in the U.S. economy (Dewey, 1974), but some mergers have undoubtedly been prohibited that would have been welfare enhancing, and others that probably should not have been allowed, have been, either because of regulators' economic biases, because of politically motivated congressional or executive interference in the antitrust enforcement process, or because regulators erred in estimating post-merger economies of scale or scope.[45] Unfortunately, the errors do not cancel out.

Regulation of vertical and conglomerate mergers is not likely to be welfare enhancing in LDCs; regulation of horizontal mergers may be in many circumstances. As is apparent from some of the merger activity that followed passage of the Sherman Act in the U.S., horizontal mergers may act as an effective alternative to price fixing agreements and therefore may require regulation. However, things here are more complicated than in the case of price-fixing. Regulating agencies in LDCs must be sensitive to the gains in static and dynamic efficiency that may accompany horizontal mergers, particularly in cases where there appear to be significant opportunities for exploiting economies of scale through merger, or where large size is necessary for product and process innovation.[46] These considerations may play a greater role in developing countries where domestic product markets are smaller than in some of the industrialized countries. The fact that mergers have the

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[45] Some recent mergers that created regional airline monopolies or oligopolies appear to fall into this category (Dempsey, 1990).

[46] The evidence from industrialized countries on the relation between size and innovative activity suggests that the relation is a complicated one and that larger firm size does not always lead to greater innovative activity. (Scherer and Ross, 1990, Chapter 17, provides an excellent summary of the empirical studies to date.)

potential to be either welfare increasing or decreasing implies that a rule of reason should govern decisions regarding the legality of mergers. Fortunately, as the U.S. experience with the Justice Department Merger Guidelines and the Federal Trade Commission pre-merger notification requirements demonstrates, if regulation of horizontal mergers takes the form of requiring pre-merger approval, and then only in cases where the proposed merger would cause post-merger market concentration to exceed some pre-determined threshold, the costs of such regulation can be relatively modest.

Markets in LDCs tend to be have higher levels of domestic market concentration than those in industrialized countries; consequently, a fairly high threshold --perhaps a domestic three-firm concentration ratio of 80%-- might be needed to avoid having to review all horizontal mergers. Assuming that domestic markets are open to imports, mergers in markets for tradeables should generally be permitted. In the case of non-tradeables, threshold-exceeding mergers should only be permitted when there is a compelling case for efficiency gains.

Regulating Price Discrimination

The cutback in U.S. antitrust enforcement is not confined to merger regulation: the level of antitrust activity has declined for almost every potential antitrust offense except price-fixing (Brett, 1985). In large part,[47], this reflects the profession's weakening confidence in the welfare enhancing effects of antitrust enforcement directed toward other forms of

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[47] It probably also reflects antitrust staff cutbacks. See American Bar Association, 1989 (A) and (B), passim.

formerly "suspect" business conduct. This is clearly the case in the area of price discrimination (American Bar Association, 1989A and 1989B).

There is very little to suggest that U.S. antitrust regulation of price discrimination is or has ever been welfare increasing (Williamson, 1981; Martin, 1988); in fact, quite the contrary is true. Many economists now regard the overall effect of the Robinson-Patman amendment to the Clayton Act, the primary enabling legislation for regulation of price discrimination, to be anticompetitive rather than procompetitive.[48]

LDCs would do well to avoid such regulation. As is well-known, price discrimination can be either welfare increasing or decreasing, depending upon the form it takes and the specific conditions of demand and supply that hold for the good in question (Jun-ji Shih, Chao-cheng Mai and Jung-chao Liu, 1988; Schmalensee, 1982A). And when they occur, welfare losses that may result from price discrimination generally tend to be modest. On this basis alone, LDCs seem well-advised to avoid attempting antitrust regulation of price discrimination either by a per se rule or rule of reason approach.

A second argument against pursuing antitrust regulation of price discrimination is that it is easily susceptible to misdirection. In the United States, no small part of the antitrust legislation (and enforcement) effort dealing with price discrimination has been directed toward protecting

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[48] Martin (1988, pp. 394-96) summarizes the major arguments and provides useful references.

competitors--most often small businesses--rather than competition.[49] Although this may well have been part of the Congressional intent in framing antitrust legislation, it is doubtful that it has been welfare enhancing.

Restrictive Vertical Practices

It is more difficult to draw useful lessons from the U.S. and European antitrust experiences with respect to restrictive vertical practices.

On the one hand, recent research focusing on industrialized countries suggests that efforts to economize on transactions costs may play an important role in determining vertical business relations (Caves and Bradburd, 1988) and that antitrust legislation there may have erred in the past in generally viewing such relations inhospitably.[50] And in developing countries, where capital markets and other elements of social infrastructure, including the legal system, may operate with greater friction than in industrialized countries, companies have even greater incentives to vertically integrate or establish non-arms-length vertical relationships with upstream suppliers and downstream customers.

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[49] The Robinson-Patman Amendment to Section 2 of the 1914 Clayton Act, passed in 1936, almost certainly was passed with the aim of protecting small grocery stores from the competition of large grocery chains that were able to use their buying power to obtain grocery items from suppliers at lower expense (Scherer and Ross, pp. 509-10).

[50] See Richard Schmalensee, "Antitrust and the New Industrial Economics" and Oliver Williamson, "Antitrust Economics: Where It's Been; Where It's Going" for a discussion of how consideration of transaction costs has altered perceptions of optimal antitrust enforcement in the U.S.. See also American Bar Association, 1989 (A) and (B).

On the other hand, there are characteristics of LDCs that suggest that some regulation might be desirable. First, in economies that are smaller or have less well-developed capital markets, vertical integration and vertical contractual restrictions may be more potent in limiting entry. Second, LDCs are justifiably concerned with the viability of domestic firms competing with multinationals; if domestic firms have less favorable access to capital or technology than multinationals, allowing these firms greater latitude in pursuing vertical strategies in LDC markets may increase the relative disadvantage of domestic firms.

This would seem to suggest that a rule of reason is the appropriate approach to regulating vertical integration and vertical relations between companies in developing countries. Vertical restraints that appear sensible in the computer industry may be unjustifiable in the market for ceramic pots. The problem with applying a rule or reason in these cases is that, frequently, only rather sophisticated analysis can determine if a particular vertical practice is welfare enhancing[51]. LDCs are likely to find these analyses both costly in their use scarce human resources and, because of the necessary complexity of the analyses, vulnerable to misdirection.

On balance, we would recommend minimal antitrust activity relating to vertical practices, restricting only those actions, such as full-line

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[51] For example, whether or not vertical integration will be welfare enhancing is a function of the values of the elasticities of substitution between inputs and demand elasticities for final products. Neither of these is easy to measure with accuracy. See Scherer and Ross (1990), p 524.

forcing[52], that have the greatest potential for limiting entry. Those practices proscribed should be governed by a per se rule.

Predatory Pricing

Predatory pricing may be defined as setting price at an unprofitably low level with the immediate intent of destroying or disciplining a rival, and the ultimate aim of establishing monopoly pricing.

McGee (1958) and others have argued that predatory pricing is not a significant antitrust concern because it is rarely a firm's profit maximizing strategy. In part, this rests on the argument that it is unprofitable to predatorily cut price in order to eliminate a particular rival if another rival will emerge as soon as price is elevated to a profitable level. Nevertheless, predatory pricing does occur on occasion in industrialized countries, and might be a more potent strategy in economies in which the queue of potential entrants is reduced by constraints on access to capital.[53] This is another case in which incumbent domestic firms or multinationals may have more power than one would wish.

Nevertheless, regulation of predatory pricing presents something of a dilemma. It appears to be a good candidate for regulation because, when

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[52] Full-line forcing refers to a practice under which a producer of a group of related products requires that a customer buy its entire line of products, rather than allowing it to buy only those items than it finds preferable to other sellers' offerings.

[53] Bork (1978) argues that successful predation requires imperfect capital markets. Bork is wrong on this count. In any event, imperfect capital markets are probably the rule in LDCs.

it occurs, it is not only injurious to competition but often violates general standards of fairness as well. Unfortunately, it is also exceedingly difficult to separate predatory pricing from the active price rivalry that should be encouraged. Consequently, misguided regulatory enforcement can easily do more harm than good.

In theory, predatory pricing can be distinguished from vigorous price rivalry by whether or not price is below marginal cost. Three problems (at least) emerge in practice: 1. the difficulties of measuring marginal cost; 2. firms' opportunities for strategic responses to such regulation that artificially distort the fixed cost-marginal cost relation; and 3. the occasional need for firms to sell products below marginal cost in non-predatory situations such as eliminating excess inventories or working down a learning curve. (Martin, 1988, pp. 408-38 provides an excellent discussion of the issues surrounding predatory pricing and its regulation.)

Some theorists (Baumol, 1979) have suggested looking for price increases after the period of price decreases as evidence of predatory intent. Regulation based on this principle would clearly require costly monitoring activity.

On balance, we favor minimal regulation of predatory pricing. This is in part based on our expectation that it would be very difficult to regulate predatory pricing in a way that actually enhanced welfare, and in part on our expectation that if import competition is permitted, there will be very few cases in which firms will find predation to be an attractive strategy.

II.2.3 Overview

The lessons we draw from the industrialized countries' experience, taken together, suggest that with the exception of regulating price-fixing and setting pre-merger review requirements where the 3-firm concentration ratio is above some threshold level, antitrust should play a limited role in promoting competitive market outcomes in LDCs. This is quite deliberate. Antitrust enforcement can be costly. It can divert administrative and other scarce skills away from more productive uses. Improperly wielded, it can lessen the competitive vigor of markets, hinder achievement of production efficiencies, or slow the pace of technological change. In most cases, import competition can be an efficient alternative. Consequently, antitrust laws should only exist and be enforced when normal market forces do not operate and where such laws will deter behavior that has the potential for causing significant reductions in consumer/producer surplus or significant negative distributional consequences. These are fairly stringent general criteria. Nevertheless, we feel they are appropriate, not only for LDCs but for industrialized countries as well.

III: DIRECTIVE REGULATION

In the next four subsections we will analyze four cases of directive regulation. These serve to illustrate many of the regulatory problems discussed in Section II above, and also provide valuable lessons for developing countries considering either increasing or decreasing government involvement in their economies. Each exemplifies different market

imperfections, regulatory failures, and transition to at least a significantly deregulated state.

In each case, we will describe the political and economic conditions that led to the demand for regulation, the successes and failures of the regulatory apparatus and their proximate causes, the political and economic conditions that led to deregulation, and an evaluation of the experience since deregulation.

III.1 Rail Freight Regulation and Deregulation

In this section we will discuss the U.S. experience with regulation and deregulation of rail freight transport. We will argue that railroad regulation exemplifies much of what can go wrong with regulation: railroads, rail workers and shippers all developed property rights in the regulatory status quo, leading to inflexibility; "creeping regulation" occurred as regulators, trying to play catch-up with exogenous changes in technological and economic conditions, were forced to regulate an ever-widening sphere of economic activity; and regulatory objectives were poorly articulated and too rarely exposed to searching scrutiny. All of these contributed to regulatory misdirection, inefficiency and failure, and created pressures for deregulation.

We will argue that deregulation of rail freight transport has been welfare increasing, but that the aftereffects of regulation have impaired the performance of the sector in the deregulated era.

Because rail freight regulation embodies so many of the pitfalls of government efforts to directly regulate economic activity, it provides ample lessons for policy planners in LDCs. We discuss these in the latter part of this section.

Why Regulate Railroads?

Federal railroad regulation[54] began with passage of The Act to Regulate Commerce in 1887. It applied only to interstate railroad carriers, but this was virtually the entire industry. The Act required that carrier rates be just and reasonable, prohibited personal discrimination between shippers, and established the Interstate Commerce Commission (ICC) as the enforcement agency.

Economic and political factors both played roles in ensuring passage of the legislation. Railroad transportation is characterized by very high fixed costs for track and roadbeds, very low marginal costs, and significant economies of density.[55] A monopolistic supplier of rail services

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[54] This history of railroad regulation draws heavily on the excellent discussion provided in Asch and Seneca (1989). Both freight and passenger services were ultimately regulated; however, we will confine our discussion to rail freight transport.

[55] As pointed out by Robert G. Harris (1977) , "Economies of Traffic Density in the Rail Freight Industry," Bell Journal of Economics, 8 Autumn 1977: p. 557, the distinction between economies of scale and economies of density is an important one. Economies of scale refer to a long-run average cost curve that declines as the size of the firm increases, while economies of density refer to effect on average costs as output increases holding the route system (miles of rail line in the railroad case) constant. A small firm with high traffic density may enjoy lower average costs than a large firm with low density.

over a particular route has substantial monopoly power and relatively little threat from (railroad) competitive entry. At the same time, because marginal costs are so low, if two or more railroads compete on the same route, and rivalry begins to reduce prices to levels near marginal cost, all firms might experience financial crises because their revenues would fail to cover average costs.[56].

Abuse of monopoly power and price discrimination led to political pressure for railroad regulation from the grain producing states, a quite powerful group. The rail industry's vulnerability to price wars reduced industry opposition to such regulation (Nelson, 1975), and in fact, the industry may even have viewed regulation as a promising vehicle for cartel behavior (MacAvoy, 1965; Kolko, 1965).

How Well Did Regulation Function?

By 1906, amendments to the original legislation had given the ICC the power to prescribe maximum limits for rates if current rates were found unreasonable. However, the ICC could not set the actual rate or a minimum rate.

As one of a series of actions that suggest that regulatory misdirection was already occurring, the ICC's authority was subsequently increased substantially; by 1920, the ICC was empowered to set fair and

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[56] This was a significant impetus for price-fixing agreements between railroads in the early days of rail transportation. See Asch and Seneca, p. 388.

reasonable rates that should yield a fair return to railroads and also had the power to set actual and minimum rates. Events in the 1920's and 1930's revealed that these changes signal more than a simple increase in regulatory authority: they appear to reflect a fundamental change in the relation between the ICC and the railroads, a change that sees the ICC beginning to assume some responsibility for the economic welfare of those they regulated.

During the 1920's, the railroads began to face competition from motor carriers especially, but also from water carriers, pipelines, and to a lesser extent, airlines. This competitive entry hurt the rail industry, and its effects were compounded by the Great Depression of the 1930's. For a variety of reasons, significant among them the distress of the rail industry, Congress passed the Emergency Transportation Act of 1933, the Motor Carrier Act of 1935 (MCA) and the Transportation Act of 1940, which together establish a legislative basis for regulating virtually all transport modes.

Here we see exemplified the regulatory property rights problem and the "creeping regulation problem." Prices were to have been set to ensure a "fair return" for railroads; when the industry fell into difficulty, the government assumed responsibility for its survival, even though the railroads' problems were due in large part to factors exogenous to the regulatory apparatus. But in order to maintain the viability of the rail industry, the ICC had to control not only rail transport prices, but those of competing transport modes as well.

Is this evidence of regulatory capture as well as regulatory misdirection? Subsequent events suggest not, or if so, that the capture was

transitory. In the immediate post-war period, the ICC had to decide whether to set prices for rail, motor, air, etc. transport on basis of average variable costs, marginal costs, or "fully distributed costs," FDC, which included fixed costs. If competition were strictly intramodal, all the various transport modes would no doubt have preferred pricing on the basis of fully distributed costs, but with intermodal competition becoming more important, and given the cost structures of the various transport modes, the railroads stood to gain from a marginal cost approach and the motor and air carriers from one based on FDC.[57] The ICC decided to set prices using fully distributed costs, which placed rail transport at a price disadvantage relative to other transport modes. This policy played a significant role in the decline of the railroads and presumably would not have been adopted by a railroad-captured ICC.

Earlier we discussed the propensity for property rights in the regulatory status quo to be bestowed not just on producers, but consumers and labor as well. This factor also played an important role in railroad regulation.

As a consequence of competition from other transportation modes and exogenous changes[58] in economic conditions, railroads began to find significant portions of their trackage to be unprofitable, and in the absence

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[57] With FDC, the railroads prices would have to be much higher than those of other transport modes, and they would be unable to successfully compete for traffic. With something close to marginal cost pricing, the trucking industry would have been in a similarly difficult position.

[58] Rent capture by rail workers in the form of supra-competitive wages and inefficient work rules also played a role in making routes unprofitable.

of ICC regulation, would have abandoned these routes. However, both rail workers and the communities facing loss of service were active in politicking against route abandonment. Whatever the cause--the political force of workers and communities or forces strictly internal to the ICC--the ICC policies operated so as create extremely high barriers to exit (Winston, et al., 1990, p. 8). The costs of this were borne by railroads, and to some extent, by shippers.

The financial condition of railroads steadily deteriorated: the loss of business to other transport modes meant that the railroads had to sacrifice economies of density in hauling freight; exit barriers forced them to expend very significant resources to maintain unprofitable trackage; and inefficiencies due to regulation and union workrules elevated costs. The end result was the near financial collapse of the railroad industry. Railroad regulation was clearly failing.

Deregulation of Rail Freight Transport

Pressures for deregulation of rail transport built to a head during the 1970s. Several factors played a role in this. Foremost was the railroads' financial condition which made the status quo unsustainable. In addition, because trucking regulation was a necessary prop to rail regulation, the very strong pressure building for partial or total deregulation of trucking[59] meant that the elaborate (though inefficient) railroad regulatory system that had developed higgledy-piggledy over the years would probably

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[59] We will discuss trucking deregulation below.

unravel because rail prices would be unsustainable.

Political factors were only slightly less important. During the 1970s there was a general ideological movement toward less government intervention in the economy, a movement that was greatly strengthened by the initial success of airline deregulation in 1978. In addition, it is likely that the cumulative effect of economic analyses very critical of railroad regulation affected public thinking and legislative attitudes toward rail regulation (Derthick and Quirk, 1985).

The economic and political pressures for deregulation led to passage of the Staggers Rail Act of 1980 which was intended to increase the role of competition in setting rates. The Staggers Rail Act partially, though not entirely, deregulated rail transport. The ICC continues to monitor rail traffic rates, and performs rate reasonableness determinations; however, under the terms of the Act, it may review rates only if a railroad has a dominant market position and if the rate is above a certain percentage of variable costs: if the rate is <u>below</u> a given percentage, the ICC is not empowered to review it. Further, commodity movements whose prices are set under contract[60] are exempt from regulation.[61] Built-in flexibility allows rates to increase with inflation without review. Very importantly, the bill also made it easier for railroads to add or abandon rail lines (trackage) and to buy and sell lines (Asch and Seneca, p. 401).

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[60] Contracts may involve railroad service requirements such as timely delivery and use of specified types of rolling stock; shipper obligations include guaranteed volume and return carriage.

[61] This is an important exemption. Currently, more than half of all railroad traffic is shipped under a contract rate (winston, et al., p. 11).

Effects of Rail Freight Deregulation

Many though not all economists view rail deregulation as a success,[62] if a somewhat qualified one. There is concern that the successes achieved in the immediate post-regulatory period may not be enduring. Those who do see significant deregulatory gains generally view them as coming not from a general lowering of fares[63] but from elimination of an inefficient rate structure, improvements in railroad operating efficiency, improvements in timeliness and reliability of rail service (Winston et al., pp. 25-29) and abandonment of excess capacity (Friedlaender, 1981).

Overall, shippers appear to have gained from deregulation, although these benefits have not come from lower rates but from improvements in service. However, there has clearly been some redistribution among shippers, and some shippers fared worse after deregulation (Asch and Seneca, pp. 404-5; Winston et al., p. 28). Despite fears, relatively few communities lost rail service, in part because of new entry from private haulers and small non-union railroads (Winston et al., p. 40); those that did, still had access to truck transport. Aggregate gains to shippers are certainly not huge; some

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67 For contrasting views, compare T. Gale Moore, "Rail and Trucking Deregulation," 1986, and K.D. Boyer, "The Costs of Price Regulation: Lessons from Railroad Deregulation," 1987.

63 Essentially, those who continued to ship by rail prior to deregulation generally had a relatively low price elasticity for rail transport, and consequently, welfare losses due to elevated prices were modest.

estimates are extremely low or even negative (Moore, 1986; Boyer, 1987)[64]; others are as large as a few billion dollars (Winston et al.).

In contrast, the railroads gained greatly from deregulation. First, they were able to adopt more rational pricing policies, lowering rates to meet competition on some routes and commodities and raising them on others. (Note that there still remains some ICC pricing regulation in monopoly situations.) Second, deregulation allowed the railroads to increase efficiency. In part, this was the result of rail consolidations, particularly "end-to-end" mergers, which improve service time and reliability (Harris and Winston, 1983; Winston et al., 1990). Also, the railroads made greater use of hub and spoke systems[65] (in some cases involving truck transport to hubs (MacDonald, 1989)) for organizing shipments into "unit trains" that allowed them to exploit economies of density in hub-to-hub travel while minimizing the trackage necessary to move feeder traffic to the hubs. In addition, and importantly, the railroads increased efficiency by abandoning excess capacity, in some cases by the action of individual railroads and in some cases as a consequence of railroad mergers.

Deregulation also benefited the railroads because it increased

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[64] According to Winston et al., 1990, one reason Boyer's estimate of gains to shippers is lower than theirs is that Boyer focused on rates and gave insufficient weight to the value of improvements in service.

[65] In a "hub and spoke" transport system, the total area to be serviced is divided into regions, each of which contains a "hub." "Spokes" are the transport routes connecting the hub to the surrounding localities in its region. An item to be transported interregionally from point A to point B is sent first to A's regional hub; there it is combined with other items destined for B's region and transported to B's regional hub. Finally, it is sent via spoke to point B.

pressure on the powerful railroad labor unions to ease workrule constraints that had led to great inefficiencies in the use of both labor and capital prior to deregulation. The efficiency gains were not captured by the rail workers. Deregulation has not benefited rail workers in the short run. The long run evaluation is less clear: on the one hand, deregulation may lead to a larger long run equilibrium size for the railroad industry, implying a greater demand for rail workers; on the other hand, elimination of featherbedding and other labor-use inefficiencies following deregulation could shrink labor demand. In addition, rail workers may also experience losses if deregulation causes compensation to fall to the competitive level or close to it.[66] Railroad employment has fallen from 482,731 in 1977 to 301,879 in 1985, but the evidence suggests that this was not the result of deregulation per se (Winston et al., p. 40) but rather the result of long-term trends affecting rail traffic and labor us.

Though deregulation has been at least a qualified success to date, problems have surfaced in the period since deregulation. These problems are illuminating.

Many of the problems currently plaguing the rail industry can be grouped under the heading of "hysteresis effects"[67] or "regulatory legacy

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[66] Note in this regard that there is no particular reason to affirm that rail workers are entitled to receive more than a competitive level of compensation.

[67] "Hysteresis" refers to a situation in which the relation between two variables is a function of the path by which one or both of the variables reached their current values. For example, the relation between a person's current net worth and current happiness is almost certainly affected by the direction from which net worth reached its current level.

effects." An industry's position at any given time is not just a function of current market conditions, but of the past as well;[68] thus, an industry's deregulatory experience may be profoundly affected by its previous experience under regulation.

The railroads' regulatory legacy has dimmed the sector's prospects for economic health. Under the regulatory regime, rail workers enjoyed enormous bargaining power which they utilized to obtain substantial pay premiums as well as union workrules that increased rail worker employment.[69] While there have been some reductions in workrule-related inefficiencies in the period since deregulation (Winston et al., p. 40), rail workers have strongly resisted reductions in compensation and have succeeded in blocking many workrule reforms that would have permitted substantial cost-savings (Winston et al., p. 12). This has had the effect of weakening the railroads' competitive position relative to motor transport.

A second problematic regulatory legacy is that the railroads remain undercapitalized, restricting their ability to make the investments necessary for competitive viability.[70] As discussed above, in the latter stages of regulation, the railroads experienced a financial crisis. They were forced to underinvest in track maintenance and in modern rolling stock. As the normally highly capital intensive railroad industry entered the era of

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[68] Hysteresis effects on market conduct are discussed in Bradburd and Over, 1982.

[69] Railroad workrules are often cited as extreme examples of featherbedding and efficiency-reducing union behavior. See Hildebrand (1979).

[70] Railroads are still not earning a normal return on capital (Winston et al., p. 43).

inter-modal competition following deregulation, it did so with an outmoded and poorly maintained capital stock and meager financial resources. Another harmful legacy of the railroads' weak condition prior to and following deregulation is merger activity that has increased the number of rail route monopolies,[71] mergers that probably would not have been permitted absent the railroads' weak financial condition.[72]

Barring a change in circumstances exogenous to the rail industry such as a large increase in energy prices or far stricter environmental controls on motor emissions, the financial condition of the railroads will remain fragile, discouraging needed investment and encouraging rail consolidations that will increase the extent of route monopoly.[73]

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[71] There were 73 Class I railroads in 1975 and only 16 in 1988. These 16 railroads operated 82% of the system mileage (Winston et al., p. 11). The decline in the number of railroads led to elimination of competition on individual routes.

[72] Although rail transport must compete with other transport modes, the relative cost advantage of rail transport remains great for shipment of commodities, such as coal and grain, with low value by volume.

[73] Economists concerned about rail monopoly have suggested an alternative market structure under which a private firm or parastatal would own and maintain the trackage, functioning as a common carrier for operators of rolling stock. This would virtually eliminate the possibility of route monopoly by individual railroads and, barring collusive behavior, the need to regulate rail tariffs (Winston et al., 1990).

There are disadvantages of such a system however. A trackage common carrier would itself be a monopoly, constrained only by intermodal competition. At present, intermodal competition would not constrain rail pricing for all commodities. In addition, given the mutual dependence of trackage and rolling stock investment decisions, the coordination failures and opportunism problems (Williamson, 1979; 1985) inherent in such a vertically dis-integrated system might make lead to underinvestment by both the trackage common carrier and the owners of rolling stock.

If the trackage common carrier is a parastatal, an additional problem arises because trackage rationalization and optimal provision of services are likely to require unequal investments in trackage improvement across routes or even route abandonment. The parastatal's greater susceptibility to political pressure may make this infeasible.

Lessons from Railroad Regulation and Deregulation

There are some clear lessons that emerge from railroad regulation and deregulation. The first and foremost is that the very existence of a particular regulatory system must be periodically questioned: the conditions that ostensibly led to railroad regulation in the late nineteenth century changed dramatically with the advent of motor and air transport and improvements in water transport, yet regulation continued and even expanded in scope. Regulation is particularly problematic when the regulated industry competes with competitive industries. The second lesson is that regulation must have clearly articulated goals. In the course of just a few decades, rail regulation's focus changed from regulating rail freight charges in order to protect shippers from monopolistic exploitation by railroads to that of trying to restrict intermodal shipping competition in a futile effort to protect all those it had come to regulate. The metamorphosis of railroad regulation occurred in part because there was no periodic review of the regulatory goal and the role of regulation in attaining it.

A third lesson, one that we have been stressing, is that consumers, producers and labor tend to acquire property rights in the regulatory status quo, making it very difficult to reform regulatory systems even when they are obviously failing. These regulatory property rights

delayed the advent of deregulation and reduced its scope.[74] In light of this, regulatory systems should be initiated only after the most careful analysis, and rarely if ever in circumstances in which the competitive environment is still fluid. Regulation is an inefficient means of compensating those injured by changing technological and other market conditions.

III.2 Motor Carrier Regulation and Deregulation

The Motor Carrier Act of 1935 ("MCA" henceforth) brought interstate motor carriage under the regulatory authority of the ICC. This section examines the causes and effects of U.S. regulation and deregulation of motor carriage, or "trucking;" it is organized in the same manner as the previous section. Trucking regulation, like rail regulation, is an example of "regulatory failure" in that it led to an outcome worse than laissez-faire. However, the causes and consequences of regulatory inefficiency in the two sectors are not congruent, and the U.S. experience with trucking regulation offers additional insights for the design of regulatory institutions.

Why Regulate Trucking?

Motor carriage does not appear to be an obvious candidate for regulation. There are few natural barriers to entry or exit: economies of scale are modest; public provision of road infrastructure removes any

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[74] Even now, the rail workers union is striving to require that short-line railroads adopt the costly and inefficient union work rules that have hampered the larger railroads, and midwestern states have sponsored legislation making trackage abandonment more difficult (Winston et al., p. 53).

significant sunk costs from the shoulders of potential entrants; and both capital and expertise requirements for entry are quite low. Therefore, even in small numbers cases, entry and the threat of entry would normally prevent monopoly pricing. Why then regulate?

In the United States, trucking appears to have been regulated because the ICC could not successfully regulate rail transport without also regulating the competing transport modes: trucking, air transport, pipelines, and water transport.[75] Prior to its regulation, truck transport created particularly difficult problems for the ICC, because it diverted a significant amount of traffic, including some of the most profitable, from the railroads (Owen and Braeutigam, 1978, p. 166).[76]

Opposition to trucking regulation was blunted by the economic dislocations of the Great Depression. There is evidence that large truckers and shippers actually supported regulation because they hoped it would

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[75] The Emergency Transportation Act of 1933, the Motor Carrier Act of 1935 (MCA) and the Transportation Act of 1940 were all responses to competitive entry by other transport modes in the 1920's and to the effects of the Great Depression. Here we focus on the MCA. Asch and Seneca (1989), p. 393 ff. provide a useful historical summary of this material. We draw on it heavily in the material that follows.

[76] As is frequently the case in regulated declining-cost industries, ICC regulation of railroads incorporated a pricing scheme under which differences in consumers' willingness to pay and/or elasticities of demand were exploited to satisfy producer revenue requirements. (See Baumol and Bradford, 1970).

The difficulty is that once these differences in prices exist, it may be possible for unregulated firms to "skim the cream," profitably offering the regulated service only to those customers designated as high-price customers under the regulated pricing scheme. In this situation, the regulated firms may be in an unsustainable position, unable to survive by charging the same price to all customers but also unable to sustain necessary price differences among customers because of competition from cream skimming rivals. This frequently necessitates regulatory restrictions on entry.

stabilize rates (Friedlaender, 1969). Presumably, those bearing the costs of such regulation were either too dispersed to effectively oppose it or were unable to gauge its consequences accurately. Agrarian interests did not oppose trucking regulation because agricultural commodities were specifically exempted from ICC trucking regulation. Private carriers (firms hauling their own goods) were also exempted.

How Well Did Regulation Function?

The ICC had great regulatory power. The Motor Carrier Act of 1935 established categories of carriers; it gave the ICC the authority to regulate entry into trucking by requiring common and contract carriers to obtain operating licenses from the ICC; and it also gave the ICC the authority to set maximum and minimum rates for common carriers and minimum rates for contract carriers.

ICC regulation of trucking was a dismal failure. The regulatory power of the ICC was very quickly "captured" by trucking interests, and virtually the whole regulatory apparatus was structured so as to produce enormous rents for a relatively small number of large trucking firms that had received operating licenses at the inception of regulation, and to protect those rents from erosion due to competitive entry.

ICC trucking regulation permitted rates to be set by trucker dominated "rate-setting boards," which effectively operated as regional cartels. Because they were part of the regulatory apparatus, the rate-setting boards were immune from antitrust enforcement.

ICC procedures also acted as effective mechanisms to enforce cartel pricing. Trucking firms wishing to change their rates had to file them in advance with the ICC to allow competitors the opportunity to protest, and the majority of protested rates were withdrawn. This had the effect of eliminating secret price cutting, the greatest threat to price-fixing agreements. Even if the ICC did not require that the proposed rate be withdrawn, the fact that all competitors could match a price cut before it took effect clearly removed most of the incentive for cutting price in the first place (Breyer, 1982, p. 225).

ICC regulation not only acted to help cartelize existing licensed operators, it also erected almost insurmountable barriers to new entry. To operate legally, all trucking firms had to receive an operating license from the ICC. Prior to the regulatory reforms of 1980, potential entrants had to make a "compelling case" that permitting their entry was in the public interest; in effect, entry was "guilty unless proven innocent." Potential entrants had to establish that existing service was inadequate, which was almost impossible to do. In addition, under ICC regulations, permission for entry could be denied if existing carriers made a case that entry would harm them financially or that they themselves would offer the proposed service (Winston et al., Chapter 2).

If a license was granted to an operator, it was for a specific

route or a specific commodity[77], making it difficult for truckers to respond flexibly to changes in cost and demand conditions. Even worse, in one of the more Kafkaesque aspects of ICC regulation, new entrants' routes were sometimes deliberately designed to be inefficiently circuitous so as to minimize the threat to existing carriers.

Even the ICC administrative procedures acted to the disadvantage of small firms and\or new entrants. Prior to regulatory reform, rate cases, entry cases, etc. were handled administratively in a manner similar to, or actually within, the courts. This was a time consuming process, and financially costly as well, because it required lawyers, expert witnesses, and other trappings of an adversarial legal system. One result of this was that small firms found adjudication costs to be a very real barrier to dealing with the ICC, and in effect, only large firms had their views represented (Asch and Seneca, 1989, p. 399-400).

The overall effect of trucking regulation was to elevate both costs and prices substantially above competitive levels in the regulated sector. There was substantial static inefficiency in the production of motor transport services and in shipper operations due to ICC-imposed constraints on carrier operations. In addition, both truckers' and shippers' incentives to innovate were stifled. Earlier, we defined "regulatory capture" as occurring when the regulators adopt the regulated entities' objectives as their own: ICC regulation appears to follow this pattern.

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[77] "Regular route carriers" had to actually follow a prescribed route from origin to destination. "Irregular route carriers" could carry their permitted commodities from a prescribed origin to a prescribed destination, but could choose their own route (Winston et al., Chapter 2).

Deregulation of Trucking

We have already discussed the general political and economic pressures that led to deregulation of rail and trucking carriage, including a general ideological shift favoring less government regulation, the accumulating weight of economic studies critical of regulation and its effects, and the financial crisis facing the railroads.

In the case of trucking, three other factors probably played a role as well. One was the energy inefficiencies built into the route and commodity restrictions that governed regulated carriers: in a period of great concern for energy efficiency, circuitous routes and empty backhauls simply were an embarrassment. A second was the increasing public awareness of the unsavoriness of the International Brotherhood of Teamsters' leadership: unionized truckers were strongly opposed to deregulation (as were the licensed trucking firms themselves) because it threatened the economic rents in which they shared[78], and they were a large and well-organized group that had been politically effective for some time; however, the Teamsters' reputation at the time that deregulation became a salient issue made it difficult for them to rally public or legislative support. A third force favoring deregulation was the fact that independent truckers, shippers, and utilities, all supported deregulation (Asch and Seneca, 1989, p. 402) and communicated that to

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[78] See Thomas G. Moore, 1978, pp. 327-43.

legislators.[79]

The deregulatory pressures culminated in passage of the Motor Carrier Act of 1980, a sweeping reform measure. The Act substantially reduced licensing barriers to trucking entry, limited collective ratemaking agreements, and removed many administrative restrictions on rate setting. Route restrictions were removed, potential entrants no longer had to prove public necessity for proposed services, and permits were to be issued to qualified applicants unless there was a compelling reason not to --the latter a reversal of the previous burden of proof (Asch and Seneca, 1989, p. 400).

In some ways, the most striking feature of trucking deregulation is that it did not occur earlier. It is important to note that the ICC's administrative complexity contributed significantly to the delay of regulatory reform: the extraordinary degree of regulatory misdirection in the ICC was disguised by a complex web of procedures that appeared to guarantee administrative fairness but actually protected the rents of a small group of trucking firms.

Effects of Motor Carrier Deregulation

Deregulation of trucking has had some predictable effects. Substantial entry has occurred (Winston et al. 1990, pp. 10-11) and the rents enjoyed by labor and incumbent firms have [illegible] (Moore,

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[79] Many of the shippers and utilities had a large financial interest in deregulation to warrant <u>individual</u> political activity on its behalf.

p. 32). The change to a deregulated environment, combined with the severe recession in the early nineteen-eighties, resulted in a large number of motor carrier bankruptcies and mergers. The extent to which this was a response to more competitive pricing and a more vigorous search for operating efficiencies rather than recession cannot be determined exactly.

As might be expected in a transition from a largely cost-based pricing system to one in which both demand and supply factors play a role, some shipping rates increased, while others decreased. Competition through service/performance began to play a more important role as well, particularly in the less-than-truckload sector.[80]

Among motor carriers, the greatest losers were the less-than-truckload carriers. This is worthy of note, because this was the sector viewed as most effectively protected from competition by ICC regulation prior to 1980.[81]

All in all, deregulation of motor freight carriage has led to very significant welfare gains. The losses incurred by LTL carriers and drivers and some shippers were more than equalled by the gains received by other shippers and TL carriers. Economists' estimates of the total annual gain from deregulation differ, but some are more than $15 billion (Winston et al., p.

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[80] As the name implies, in the less-than-truckload sector, truckers transported more than one shippers' merchandise in a single truck.

[81] Even prior to deregulation, the truckload carriers faced substantial competition from private carriers. The TL carriers were less effective at preventing rate competition prior to deregulation as well (Winston et al., pp. 35-37).

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Lessons from Motor Carriage Regulation and Deregulation:

The clearest lesson that emerges from the above review is that regulation of trucking is socially inefficient and should not be attempted in the first place. But more general lessons also emerge as to how to proceed (and not proceed) with directive regulation in sectors other than trucking where at least in principle such intervention offers the possiblity of welfare benefits.

The second lesson, one that bears repeating, is that "creeping regulation" is an ever-constant threat. Motor transport was not itself a sector in need of regulation; it was regulated in order to sustain railroad regulation.[82] If changes in exogenous circumstances make attaining some primary regulatory goal difficult or impracticable in the absence of expanding the regulatory apparatus, regulators' first instinct has been the wrong one--to consider regulatory expansion rather than to reconsider the primary goal. Sunset laws are a valuable component of regulatory schemes in this regard.

The third lesson is a sobering one. Regulatory entitlements arise in subtle ways, and once present, retard any subsequent efforts at regulatory reform or deregulation. From their inception, regulations should be crafted

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[82] It is interesting to note in this regard that motor transport regulation was first initiated in the U.K. for very similar reasons as it was in the U.S.: rail regulation was not practicable without also regulating competing transport modes, even though these competing modes might not themselves need regulation (Fleming and Button, 1989, p. 81).

to discourage the creation of these property rights in the regulatory status quo. Motor freight regulation functioned so as to create and protect enormous rents for those LTL carriers who had operating licenses: potential entrants could be barred from receiving a license if their entry could be shown to harm an existing carrier financially, which entry would be very likely to do. But one may ask: Why did the ICC function to protect existing licensees? This was not necessary for the protection of the railroads or for attaining the other articulated regulatory goals. The answer may be that once the regulations were in place, operating licenses became valuable properties whose worth would be diminished if their owners' privileged positions were not protected. The original licensees obtained a windfall, but those who purchased their licenses presumably earned only a normal return; to allow entry at this point would destroy the value of an investment made in good faith,[83] and this could easily be viewed as violating the standards of administrative fairness.[84]

The fourth lesson is that because regulation has the potential to confer extremely large economic rents on various groups, the very size of these rents can greatly retard the process of deregulation. If the original operating licenses were awarded only for a set period, or if the regulators regularly sold, auctioned or gave away by lottery such finite-duration licenses to operate, rents would have been lower and there would have been far

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[83] According to estimates by Moore (1986), the value of a common carrier's operating license in 1975 was $398,000 in 1982 dollars; by 1982 the value had fallen to $15,000.

[84] Note how this blurs the practical distinction between regulatory misdirection and regulatory capture.

less political resistance to deregulation.[85]

The fifth lesson is that enabling legislation must be very carefully crafted. Articulation of objectives that are conflicting and\or vague statements that might support claims to regulatory entitlements are a sure recipe for regulatory misdirection. The U.S. Transportation Act of 1940, which formed part of the basis of ICC regulatory policies, is an excellent case in point. The Act included a Declaration of National Transportation Policy, which laid out the following rate-making goals: safe, adequate, economical and efficient service; fair wages and equitable working conditions; and the preservation of the inherent advantage of each mode (Asch and Seneca, p. 396). It also condemned destructive competition. The vagueness and inconsistency of these goals played an important role in the establishment and entrenchment of a Byzantine regulatory system, even though none of them seems exceptionable in and of itself.

Finally, the history of ICC transport regulation testifies to the benefits of avoiding administrative complexity. Administrative procedures need to be structured so as not to create a barrier to entry or to threaten the viability of smaller firms: the adversarial and legalistic approach employed in ICC hearings prevented new and/or small firms from exercising their full rights. In regulated industries, access to the regulatory apparatus may be as important to a business' success and survival as production efficiency and good marketing; simple and clear regulations,

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[85] Unfortunately, there is a potential disadvantage of government capture of economic rents through auction licenses and other means: if such rents are large enough, they can disguise the true budgetary costs of the regulatory apparatus.

elimination of unnecessary paperwork requirements, expeditious handling of administrative functions, and access to regulatory "ombudsmen" can all play an important role in ensuring that procedural fairness is not just a fiction. Last but certainly not least, administrative simplicity greatly facilitates effective oversight and evaluation by making it much harder to mask regulatory misdirection and capture.

III.3 Airline Transport Regulation and Deregulation

The U.S. Civil Aeronautics Act of 1938 established the Civil Aeronautics Board (CAB) and gave the CAB authority to regulate interstate airline fares, to regulate entry into the interstate airline transport sector, and to provide subsidies to promote the industry.

In this section we analyze the origins and consequences of air transport regulation and deregulation in the United States, and derive some implications for regulatory policy planners. As in the previous cases we have examined, we will argue that the regulatory apparatus evolved fairly rapidly into a mechanism whose objective function was weighted heavily toward protecting the economic rents of incumbent regulated entities, and that directive regulation ceased to be welfare enhancing.

Why Regulate Airline Transport?

The early motives for airline regulation differ from those that led to motor or rail regulation. In particular, air transport was viewed as an infant industry that merited government assistance: air transport had

obvious military applications, and there was also a link between private air transport and the U.S. Postal System. Nevertheless, the CAB was given rate regulation authority right from the beginning. It is probably correct to say that the overall regulatory goal was to encourage the growth of the industry by ensuring that suppliers had adequate financial incentives to provide air transport services while simultaneously keeping fares low enough to maintain public access to air transport (Breyer, 1982, pp. 199-200).

Political-economic conditions were strongly conducive to the establishment of industry-promoting regulation of airlines: the few firms involved in the air transport sector stood to gain from such regulation; firms in other transport sectors saw no immediate gain from opposing air transport's promotion because it was still very much a nascent industry; and for the same reason, whether or not it was regulated and\or promoted was not of great concern to most other parties. In addition, as we mentioned earlier, the turmoil of the Great Depression created a pro-regulatory political environment.

If the objective was to promote air transport, it is not obvious why price and entry regulation were part of the program. There was fear of destructive competition in the 1930's, and this may have played a role. However, air transport in the 1930's, like trucking, was not an obvious candidate for such regulation: air transport was not a natural monopoly, infrastructure was funded publicly, and there were relatively low sunk costs

and only modest economies of scale[86] (Breyer, p. 198). It is possible that the air transport industry itself favored and encouraged price regulation, in much the same that Kolko (1965) has argued the railroads did.

Unlike trucking, for air transport, safety is a major concern. This is certainly a legitimate reason for regulation, and one that perhaps might require limits on entry.[87] However, it is not clear why prices would have to be regulated to promote safety.

How Well Did Airline Regulation Function?

Determining the success of airline regulation requires a clear statement of the regulatory objectives. It is certainly true that the U.S. air transport sector grew rapidly in the decades after 1938, although we cannot know how much of this can be attributed to the effects of regulation: the second World War played a very powerful role in increasing the supply of personnel skilled in aircraft design, construction, flight, navigation, and maintenance; technical innovation led to declining costs of providing air transport services; and in addition, secular trends in the economy greatly increased the demand for rapid long distance travel.

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[86] As in the case of trucking, air transport is characterized by economies of density and perhaps economies of scope. It is very doubtful that either of these played a role in the decision to regulate air travel.

[87] There are negative externalities affecting safety that are associated with air traffic congestion; these could require limits on entry in some circumstances. In addition, if the supply of personnel to monitor safe-practices compliance is fixed, limits on entry might be optimal until the regulatory personnel constraint is relaxed. As it happens, in the U.S., regulation of airline safety is carried out by the Federal Aviation Administration, a separate agency from that responsible for economic regulation (Breyer, p. 199).

CAB regulatory authority was not limited to assisting in the development of air transport. Although the other statutory goals of CAB regulation were somewhat vague and in some cases contradictory[88], they can generally be described as the following: encouraging competition, ensuring that carriers provide adequate and efficient service at reasonable prices, avoiding "unjust" price discrimination, and promoting "sound economic conditions" in the industry. In addition, the agency itself was expected to function in a procedurally fair manner (Breyer, Chap. 11).

Air transport regulation was less successful in contributing to these other regulatory objectives. Assessments of the CAB regulatory apparatus range from mildly to blisteringly critical (Dempsey, 1990; Breyer, Chapter 11). Let us begin with the goal of encouraging competition. Competitive forces operate through price and quality rivalry of incumbent firms, through the price and quality offerings of new firms that enter in response to opportunities for profit, and through the threat imposed by potential entrants. Most of these competitive forces were suppressed by the CAB. In the period from 1950 to 1974, the CAB did not permit one single new airline to enter the market for scheduled airline service, despite receipt of almost eighty applications (Breyer, p. 205). Even existing airlines were almost never granted permission to serve new routes. Thus, the market discipline imposed by actual and potential entry was eliminated.

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[88] An example of contradictory goals might be having efficient pricing and avoiding price discrimination; depending upon the time frame adopted, promoting competition and ensuring that <u>each</u> carrier be able to earn a profit if it operated efficiently might be another example.

Rivalry between the 10 to 20 incumbent licensed trunk carriers might have provided sufficient competition to the industry, but here too the CAB acted to blunt or distort its effect. As mentioned above, the CAB almost never allowed the incumbent airlines to invade each others' routes. In addition, its rate setting policies[89] effectively prevented price competition.

All of this suggests regulatory misdirection if not capture. The CAB appeared to be more concerned with protecting the existing competitors in the market rather than promoting air transport competition.

Interestingly, the CAB did not attempt to regulate non-price competition that took place within the constraints of CAB route assignments. Even simple models such as Chamberlin's monopolistic competition model adequately predict the consequence. With prices held fixed and "entry" permitted in the form of greater number of flights per route, the licensed carriers increased capacity to the point where many planes were flying less than half-full. Other forms of non-price competition also flourished, including provision of lavish food, in-flight entertainment, and extraordinarily flexible and forgiving reservation systems (Breyer, pp. 200-206). The result: service competition exhausted the potential profits.

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[89] One requirement was that carriers had to submit price changes to the CAB one month in advance of their taking effect. This was to allow time for rivals to file challenges and/or for the CAB to give regulatory approval or denial; in the event the competitor challenge was plausible, the CAB had to suspend the new tariff. The transaction costs of requesting a fare decrease combined with the unlikelihood of its receiving approval significantly reduced the incentives for fare cutting. In addition, the pre-notification of the rival meant that the rival could respond to the price cut before it took effect, substantially reducing the benefit from the price cut (Breyer, p. 210).

Events in 1971[90] suggest that the CAB's failure to regulate non-price competition was not the result of a positive desire for such competition but instead the consequence of its inability to convince the carriers to eschew service competition.

The outcome of this system was almost certainly inefficient (if, as discussed below, perhaps not to the point of regulatory failure). Because the services provided by airlines in the course of their quality competition all had some value to consumers (else they would not have been vehicles of competition) it is difficult to say with certainty that the service/price equilibrium reflected excessive levels of both. However, revealed consumer preferences do offer fairly convincing evidence: when consumers were offered lower-fare no-frills flights following deregulation (or in unregulated intrastate travel prior to deregulation) they chose them in preference to high service/price offerings (Breyer, p. 205). If consumers' marginal valuation of service was lower than its marginal cost, which appears to be the case, the regulated outcome was by definition allocatively inefficient. It is less clear that airlines were inefficient in the production of airline services, i.e. technically inefficient, but the lack of competitive pressures makes it rather likely to be the case (Breyer, p. 206).

Finally, there is strong evidence that the CAB did not function in a procedurally fair manner. In particular, its practice of denying entry opportunities to new airlines and its method of doing so both seem

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[90] In 1971 the CAB permitted the licensed carriers to establish agreements restricting the number of flights on routes; these did succeed in reducing excess capacity, but did not result in lower fares.

inconsistent with reasonable standards of regulatory fairness (Breyer,pp. 206-209).

By the mid-1970s it was widely apparent that airline regulation was not functioning as it should. Calls for deregulation became common, and the Carter administration's choice of Alfred Kahn, a strong critic of CAB regulation, to head the CAB led further impetus for airline deregulation. By 1977, the CAB was relaxing restrictions of entry, and in 1978 the Airline Deregulation Act was passed, removing most price and entry restrictions and abolishing the CAB as of January 1985 (Kaplan, 1986, pp. 50-51). Given CAB behavior, for all intents and purposes, airline deregulation began in 1977 or 1978. Authority for regulating airline mergers was transferred to the Department of Transportation effective December 31, 1984 and to the Department of Justice in 1989.

Effects of Airline Deregulation:

Early assessments of airline deregulation tended to be very positive. In the early years of deregulation, there was a flurry of new entry, and fares fell dramatically (U.S. General Accounting Office, 1985; Dempsey, 1990, pp. 1-5). New entrants offered low cost "no-frills" service that was extremely popular; entrants' share of the market rose dramatically, and established airlines responded by cutting prices on full-service flights and by offering more attractive service\price combinations to consumers. Airline deregulation was viewed so positively that it played a significant role in encouraging deregulatory legislation affecting many types of regulation governing diverse sectors of the U.S. economy.

With the passage of time, airline deregulation no longer receives ubiquitous support. Some of those who have studied airline deregulation remain quite positive (Kahn, 1988; Morrison and Winston, 1990) while others feel that it has already led to an outcome worse than the regulatory outcome, or that conditions are evolving in a way that will cause this to be true in the future (Dempsey, 1990; Brenner, 1988).[91]

Essentially, the issue here has to do with the contestability of the air travel market and with airline merger policy. In the later 1970s and early 1980s, economists (and those they influenced) viewed air transport as a "contestable market," that is, one in which there were few or no sunk costs and no significant economies of scale (Kahn, 1988). Such conditions imply that new competitors can enter the market any time price is above marginal cost, and this, by extension, implies that even if a route has few existing firms, or even only one, the firms have no market power, and that the allocatively efficient outcome will occur. Clearly, under such conditions, there is no welfare gain from regulating airline mergers, and in fact, the U.S. Department of Transportation (DOT) approved every single airline merger submitted to it after December 31, 1984 when it assumed responsibility for merger oversight (Dempsey, 1990, p. 13), even though the U.S. Department of Justice recommended against many mergers on the grounds that they would prove

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[91] In fairness to early advocates of deregulation, it is important to note that current critics of deregulation do not appear to be using an appropriate counterfactual with which to compare the present situation. CAB regulation was failing, and we do not know how it would have changed had deregulation not occurred. If the history of the ICC is any guide, the changes probably would not have been fortuitous.

anticompetitive.[92]

In retrospect, the air travel market has not proven to be a perfectly contestable one. Several factors intervene, and most carry lessons for deregulatory programs. First, many important airports are operating at capacity, with all desirable landing and takeoff slots already allocated to existing carriers. There is consequently a significant entry barrier because entrants must in effect acquire a slot from their future rival.

Second, providing air travel service requires more than just a plane and a landing slot, and there can be significant sunk costs in establishing ground support services, reservation systems, and marketing efforts.

Third, the hub-and-spoke system adopted by large carriers following deregulation, though efficient, also offers established carriers the opportunity to cluster flights around those of would-be competitors so that their every flight faces significant competition.

A fourth problem is that the airline computer reservation systems, which have become almost indispensable to air travellers and travel agents[93],

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[92] The U.S. Department of Justice assumed responsibility for overseeing merger activity on January 1, 1989, and has more vigorously regulated airline merger activity than the DOT. However, this may be a case of shutting the barn door after the horses have left.

[93] Without them, information search is simply too costly to be practical, particularly in a system in which there are frequent fare changes. According to Brenner (1988), in 1988 there were on average 40,000 daily changes in airline fares!

are owned by major airlines, giving them an advantage in selling tickets.[94] The systems can be biased to favor one airline over another when route/fare information requests are made; equally important, they can also be used to track fares, scheduled flight offerings and ticket sales, allowing the owning airlines to determine just where to offer discounts so as to disadvantage rivals (Asch and Seneca, p. 407).

Finally, the largest airlines have substantially increased their relative advantage over rival firms and potential entrants through widespread use of "incentive schemes" such as frequent flier programs and travel agent bonus systems. Airlines' frequent flier programs offer travellers free or discounted travel (including car rentals, overnight accommodations, etc.) if they accumulate various threshold levels of travelled miles on a particular airline. Accumulating small amounts of frequent flier miles on many airlines is not as advantageous to the traveller as concentrating frequent flier miles on one airline; consequently, even where fliers might find a particular fare/service offering by a small or new airline to be more attractive than a large incumbent's offering, the difference in the value of the frequent flier points may tip the overall advantage to the latter. A similar mechanism operates in the case of travel agent bonus schemes.

Ordinarily, we might not expect such incentive schemes to have very powerful effects; however, two factors operate to make their effect stronger than normal. Many of the schemes offer rewards that increase ron-

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[94] The two largest reservation systems, which together account for over 90% of tickets sold, are wholly or partly owned by the two largest airlines, United and American (Dempsey, 1990, p. 22).

linearly with "mileage points." This increases the relative benefits of concentrating travel in one or a few airlines. Also, because there is imperfect information regarding fares, schedules, etc., opportunities exist for travel agents and/or business travellers to select the airline/flight that benefits them rather than the ultimate payer of the fare. This principal-agent problem distorts the relative weights that would ordinarily be given to fares and mileage points, and functions to increase the power of the incentive schemes.

These five factors together give large incumbent airlines a substantial advantage over smaller and/or newer firms. In consequence, what was thought to be a contestable market is not. Consistent with the hypothesis that air travel is not a contestable market, studies have found that decreases in competition lead to increases in fares (Morrison and Winston, 1990).[95]

The DOT's airline merger policies, perfectly sensible in the context of contestable markets, are not so clearly appropriate under the actual conditions in the market. The increases in market concentration since the period immediately following deregulation--nationally, and at many important hubs (Brenner, 1988; Dempsey, 1990)--suggest that the long run consumer gains from airline deregulation may be substantially less than they

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[95] In the very early days of deregulation, there was a enormous amount of very visible entry into the airline travel market, and this appears to have masked the true conditions in the market. Over time, the advantages of the large firms have had their effect, and most of the firms that entered following deregulation have since gone bankrupt or have averted bankruptcy by being acquired by other airlines. Since deregulation, 200 airlines have gone bankrupt, and only 74 carriers remained as of early 1990 (Dempsey, 1990, p. 11).

originally appeared to be.[96] Airline concentration is now similar to what it was prior to deregulation: the difference is that the market is no longer regulated (Dempsey, pp. 16-21).

In assessing airline deregulation, we must be careful to avoid focusing on whether it has led to lower fares (increased consumer surplus) but instead consider whether it has increased total surplus.[97] Even if post-deregulation fares are higher, efficiency gains may cause total surplus to be greater. Therefore, a correct evaluation must examine fares, airline profitability, labor gains or losses, and gains or losses of other parties.

Assessments of the consumer benefits of airline deregulation differ. Some studies (Dempsey, 1990) argue that fares are currently on average higher than they would have been under the old regulatory system. Other, more sophisticated studies, argue that fares are lower (Morrison and Winston, 1990). All agree that fares between distant large cities are lower than they would have been, particularly for those travellers with flexible schedules; however, many fares between smaller and/or less distant destinations are higher, as are fares on some routes for travellers with inflexible schedules. There has clearly been a redistribution of surplus among passengers. Fares are not the only factor affecting consumers. Travel delays caused by greater airport congestion at major hubs have probably increased the less-easily measured costs of travel, and these costs should be

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[96] The fragile health of many airlines (Dempsey, 1990, pp. 10-11) suggests that further increases in concentration are not unlikely.

[97] Dempsey's (1990) negative evaluation of the effects of deregulation focuses on fares.

subtracted from gain calculations.[98]

The airlines themselves have not fared very well since deregulation. However, we do not know the counterfactual: the U.S. Federal Trade Commission's study of airline deregulation concluded that it had the effect of raising profitability relative to the counterfactual (FTC, 1988, p. 10); others (Dempsey, 1990) have claimed it has lowered profitability. It does not appear that deregulation has simply involved a redistribution from consumers to producers. The increased use of hub-and-spoke systems has almost certainly led to reduced direct costs of air travel, and this should count among the deregulatory gains.

Airline labor has almost certainly suffered losses as a result of deregulation. Due to the more competitive environment following deregulation, and the fact that many of the new entrants to the market used non-union labor, unions were forced to make salary and workrule concessions (Hawk, 1989, p. 271). As in the case of trucking, however, we may appropriately ask whether preservation of above-competitive wages in an industry should be a desideratum.

Interestingly, travel agents appear to have benefited from deregulation. Commissions were effectively deregulated when the airlines were, and as each airline made efforts to induce travel agents to book customers' flights on its flights, average commissions increased dramatically

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[98] Even here the issues are clouded. Air travel has increased dramatically since deregulation (Hawk, 1989). This in itself would increase congestion and delays, and therefore it is difficult to asses deregulation's contribution to increased delays.

(Hawk, 1989, p. 288).

All this raises a very interesting question. If there were increases in total surplus consequent to deregulation, where did they go? Consumers as a group enjoyed only modest gains; labor suffered losses; travel agents gained, but this is only a modest absolute amount; and airlines profits appear not to have increased substantially. One possible answer is that deregulation did lead to gains, but they are modest. Another possible answer is that gains occurred, but they are difficult to measure, in large part because of the difficulties of measuring profits. If airlines recapitalized following deregulation and increased their debt/equity ratios in the process, measured profitability would be depressed by the increased interest payments, even if deregulation had caused an increase in "real profitability.

There is controversy over whether airline safety has declined since deregulation. Some claim that safety has dropped as a result of the greater financial pressures faced by airlines (Dempsey, 1990), while others have argued that deregulation has improved air safety (FTC, 1988, pp. 86-87).[99] It is difficult to make comparative assessments of safety before and after deregulation, however, because although they occurred independently, deregulation coincided with significant personnel reductions and turnover among air traffic controllers. Total airline departures have also increased. The safety issue, though surely an important one, is therefore unresolved.

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[99] With somewhat reduced constraints on entry into new routes under deregulation, incentives to improve safety could conceivably be enhanced if airlines' safety reputations became important in marketing. Lufthansa, which stresses the newness of its planes in its advertisements, is an example of this.

Lessons from Airline Regulation and Deregulation:

There are several lessons that emerge from analyzing airline regulation and deregulation. The first lesson derives from the fact that within a relatively short time following regulation, the CAB acted to protect the interests of a relatively small group of incumbent competitors, not to encourage the process of competition. Regulatory misdirection clearly occurred in the airline industry, as it did in other industries we have examined, supporting the view that this behavior should not be unexpected.[100]

Hawk (1989) and many others have argued persuasively that the extent of mergers following deregulation has imperiled the gains (relative to the regulated outcome) achieved early in the deregulatory era. The lesson here is that dismantling of an industry-specific regulatory apparatus should not be accompanied by an unwillingness to apply whatever general antitrust regulation governs the rest of the economy.[101] Producers in regulated industries are frequently exempt from the limits on behavior ordinarily

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[100] With demand growing, and entry of new firms blocked by the CAB, one might have expected airline industry to have earned above normal returns. But this was not the case in airlines, just as it was not the case for railroads. In effect, economic rents were dissipated through forms of competition the regulators could not control, and also as a result of rent capture by labor and politically powerful groups of consumers. (As was true in the case of railroads, airlines were unable to exit from unprofitable routes, typically small communities that did not generate sufficient business to warrant frequent service.) The airline experience suggests that comparing producer profitability prior to and following deregulation is not likely to be very informative as a measure of either regulatory capture or the efficacy of regulation in limiting allocative inefficiency.

[101] Recall that our list of recommended antitrust enforcement activities included regulating horizontal mergers in concentrated non-tradeables markets and also prosecuting price-fixing agreements.

imposed by antitrust. There is no reason for this to persist after deregulation, however. In fact, because cooperative behavior, once established, tends to persist, the collaborative behavior that is fostered under regulation may well extend into the deregulated environment, suggesting the need for vigilant antitrust enforcement (Bradburd and Over, 1982). This is yet another hysteresis effect of regulation.

The third lesson is that deregulation requires careful analysis of the role of various economic institutions in the regulated market, and that successful deregulation may in some cases require adjustments in firms' asset ownership patterns. As we have seen in the case of the airline industry, new entrants have to overcome many advantages enjoyed by incumbent firms. In the current case, these include, but are not limited to, the large airlines' ownership of computer reservation systems, the effects of frequent flier and travel agent incentive schemes, and the fact that the incumbent airlines own the landing and takeoff slots at airports. In the case of landing and takeoff slots, for example, it would clearly be preferable for airports to auction off temporary rights to landing slots rather than give them out on the basis of "grandfathering" as has been done in many important U.S. airports (Hawk, 1989, pp. 277-8). This would not only increase the efficiency with which slots are used, but would also remove an important impediment to entry. (One might well ask the rationale for grandfathering of slots; as so frequently occurs under regulation, it would appear to be regulated entities' property rights in the status quo.)

A final lesson concerns the relation between regulatory inefficiency and market complexity. Stephen Breyer (1982, pp. 196-99), has

argued that the airline industry was just too complicated to regulate effectively. Breyer maintains that if it is hard to regulate electricity production, a single homogeneous product produced by a monopolistic firm under a relatively constant technology, one would expect it to be next to impossible to properly regulate air transport, involving as it does many competitors, hundreds or thousands of routes each with its own demand and cost characteristics, and changing technology. The airline industry is certainly complex, but it is by no means the most complex of industries. The experience of CAB airline regulation suggests that there is only a limited set of economic activities with fair prospects for successful traditional regulation.

Recently, there have been calls for re-regulation of airline transport. These calls have come partly (and predictably) from those who have experienced losses due to deregulation: airline labor groups, communities that have suffered reduced service, business travellers, and travellers on the less densely travelled and served routes. They have also come from those concerned with the evolution of deregulated monopoly. However, we should be wary of pleas for re-regulation. Those who seek regulation (and re-regulation) frequently make mental comparisons between an imperfect market and perfect regulation; the regulatory functioning of the CAB was anything but perfect, and there is no particular reason to believe that "new" regulation would function any better than the old.

Replacing directive regulation with antitrust regulation may not yield the competitive optimum, but it is still likely to yield a superior outcome. If airport landing slot rights (for finite periods of short duration) were allocated to airlines through auction, horizontal mergers

creating route monopolies regulated through antitrust,[102] and perhaps vertical ties between airlines and travel agents severed, the market should function in a reasonably competitive fashion. And of course, there would be far fewer opportunities for regulatory misdirection and government limitations on the power of competitive forces.

III.4 Telephone Communications Regulation and Deregulation[103]

Telepnone regulation may be seen as a system that functioned with moderate success for an extended period, but that gradually became too difficult to maintain, in part due to changing technologies and in part due to the cumulative effects of regulatory decisions that undermined the regulatory system. We discuss the forces leading to telephone regulation in the U.S., and provide an evaluation of how well the regulatory system functioned. We follow this with an analysis of the factors leading to the partial deregulation of telephony and an assessment of the deregulatory program. We conclude with the policy implications of the U.S. experience with telephone regulation and deregulation.

We will argue that the partial deregulation of the 1970s and 80s have been welfare improving. Uncertainty about trends in technology and competitive conditions suggest that neither greater deregulation nor reregulation is likely to be welfare improving in the short run. However, it

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[102] It would be difficult to effectively regulate the use of incentive schemes for travel agents and frequent fliers.

[103] The historical material in this section relies heavily on three sources: Asch and Seneca (1989), pp. 411-434; Breyer (1982), pp. 285-314; Horwitz (1989) pp. 221-263.

is clear that in the long run, the growing product and process complexity of the market will make telephony less and less well-suited for traditional rate-and-entry regulation.

Why Regulate Telephone Communications?

We limit our discussion of the telephone communication industry to the provision of telecommunications services among households and firms--telephony. The cost conditions of telephony during the first half of this century made it a classic case of natural monopoly. The marginal costs of telephony are quite low, but there are very high fixed costs for infrastructure--primarily switching systems and transmission lines. The resulting significant economies of scale and of density made it inefficient to have two or more competing firms each with its own infrastructure. The quantity and variety of signals that can be carried on telephone equipment is such that the industry appears also to be characterized by economies of scope.[104]

Not all natural monopolies should be regulated: in some cases, the market is too small to warrant establishing a regulatory apparatus; in others, elastic industry demand offers the monopolist little power to capitalize on a its position. Neither of these holds true in the case of telephony, a vitally important industry where limited substitution possibilities make the elasticity of demand fairly low. On economic grounds, demand and cost

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[104]Economies of scope describe a situation in which a single multiple-product firm can supply a group of useful goods\services at lower cost than is possible with multiple single-product firms.

conditions made and make telephony at least a plausible candidate for classic rate of return regulation.

Political factors may also play a role in the decision to regulate industries, and as the history of telephone regulation indicates, clearly did so in this case. "Affordable" access to a local telephone network came to be viewed as an important political/social goal relatively early in telephony's history. Price and entry regulation offered a means first of promoting "universal" access--an important economic and political externality--and second of subsidizing users of local services--called POTS for plain old telephone service.

Modern telephone systems consist of collections of neighboring homes and businesses connected to a local switching office. Switching offices are connected in community and regional networks. Finally, the regional networks are interconnected into national and international systems.

Telephone service in the U.S. was originally provided by local operating companies whose (region-based) markets in the main did not interconnect. American Telephone and Telegraph (AT&T) was formed in 1885 as a subsidiary of American Bell, and we might usefully think of the telephone system from that point as consisting of Bell operating companies, providing POTS and regional service, interconnected through Bell's subsidiary AT&T to provide long distance service.[105]

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[105] This is a simplification of the true industry structure. We are ignoring the independent or "non-Bell" local operating companies, whose numbers have at times been very large but whose importance dwindled over time; we are also ignoring the non-Bell companies providing private-line service and

Initially, telephone services were regulated by the states, but two constraints on state regulators coincided to render this regulation ineffective: first, the states did not have jurisdiction over interstate telephony; and second, the same equipment was used for both local and long-distance telephony, and state regulators had too little information and expertise to allocate these joint costs between the two activities. In part, the latter problem was due to AT&T's refusal to provide the regulators allocation of the joint costs. However, this was not a simple case of information asymmetry: allocating common costs in multiproduct firms is not a trivial problem, and it is rendered even more difficult when economies of scale, density, and scope are present (Baumol, Panzar and Willig, 1982).

In 1934 the U.S. Congress passed the Communications Act of 1934, creating the Federal Communications Commission (FCC) and empowering it to regulate both rates and entry for interstate telephony while state commissions retained intrastate entry and rate setting authority. This was a critical juncture in the history of telephone regulation: With the regulatory responsibilities now divided in this way, some allocation of joint costs between local and long-distance service was now unavoidable.
Consistent with the goal of offering affordable access to local telephone services, the joint-cost allocation process disproportionately assigned joint costs to long distance service. With long distance rates set on the basis of too-high an assessment of costs, and local rates on too-low an assessment of costs, local telephone service was effectively subsidized by long distance

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general long distance service. The importance of the latter increased greatly in the 1970's.

service. This was to have a profound effect on telephony regulation in the United States.

How Well Did Telephone Regulation Function?

In assessing the success of regulation, it is necessary as usual to stress both the difficulty of constructing a convincing counterfactual and the importance of recognizing that the success of regulation must be judged in light of its objectives. The latter is particularly significant in this instance, because the importance attached to offering near universal access to low-cost residential local telephone service affected the entire regulatory system. The framers of telephony regulation failed to articulate guidelines for balancing the efficiency promoting goals of rate of return regulation with the necessary inefficiencies of cross subsidization strategies.

Whether because of or in spite of regulation, telephone communications grew rapidly as a sector; further, the quality of basic service was by world standards excellent. Regulated telephony's contribution to dynamic efficiency was notable; in particular, the output of basic research was outstanding. The record on product innovation was more mixed: the experience since telephone deregulation suggests that regulation may have retarded the introduction of new products/services. Without question, regulation reduced the Bell System's ability to extract surplus from consumers, but given Bell's ability to devise and implement sophisticated price discrimination schemes in the absence of regulation, it is not clear whether the extraction of surplus would have been accompanied by large welfare losses.

It is almost certainly the case that regulation led to allocative inefficiency in the use of telephony services. First, regulatory agencies have tended to be somewhat unsympathetic to non-linear pricing schemes, many of which could have been welfare enhancing. This may have occurred because such schemes rely on sophisticated economic reasoning with which some regulators are unfamiliar, or possibly because regulators may be conditioned to believe that anything that increases producer revenues must make consumers worse off.

Second, as noted, the price of local telephone service was set artificially low while that of long distance service artificially high, and this distorted consumption patterns in a predictable manner. Also, rates for business telephone service were set higher than residential service, again as a means of subsidizing local residential service; however, because business telephone use was historically relatively price inelastic, this may not have produced significant welfare losses. Nevertheless, the artificially high prices for long distance and business services almost certainly retarded the pace of development and use of advanced telephony services, creating significant welfare losses in the process.

This cross-subsidization was facilitated by technologically-driven falling costs in all segments of the industry. It is much easier for regulators to shift the revenue burden to a class of customers by reducing the size of price cuts than by inflicting disproportionate price hikes.[106]

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[106]In fact, costs of providing long distance and business services fell more rapidly than did costs of providing residential services.

"Deregulation" of Telephone Services

Unlike the three previous case studies we have presented, telephone regulation was not a conspicuous failure, and the deregulation that occurred did not come about in response to either general public unhappiness with regulation, as in the case of trucking and airlines, or the financial failure of the regulated producers, as in the case of railroads. Rather, it was brought about by the sometimes myopic response of regulators to changing technologies that for the first time raised the specter of substantial entry into telephony.

By the late 1960's, microwave and satellite transmission technologies made it possible for small firms to undercut AT&T's prices for long distance services. Initially, this took the form of large firms setting up "private line" services connecting field offices and plants. However, when Microwave Communications, Inc. (MCI) sought permission to provide microwave telecommunication services to other companies for a fee, it confronted the FCC with a dilemma. In effect, MCI sought to become a telecommunications carrier, albeit a limited one.

Did the new technologies eliminate the natural monopoly justification for regulation of telephony? Or, did the new technologies merely permit MCI and the other "specialized common carriers" to profitably enter the industry through cream-skimming strategies that were contingent upon AT&T's regulator-enforced high prices.

These questions have not yet been definitively answered. It does not appear that either FCC or other policy-making bodies made much headway in answering these questions during the late 1970s and early 1980s--the period in which the deregulatory debate took place. Rather, events proceeded in an ad hoc incremental fashion.

There is no evidence to suggest that the FCC intentionally embarked on a process of deregulation because it reasoned that, given its marginal rate of substitution between cross-subsidization to obtain inexpensive local service on the one-hand and willingness to accept monopoly in long distance service, technological changes had shifted the optimal equilibrium toward less cross-subsidization and more competition. The FCC's movement toward deregulation in response to technological change appears more inadvertent.

The FCC did recognize that AT&T s high prices for long distance and business services, and the profits derived from them, were essential to the continued subsidization of local residential service. It is less clear that it recognized that these high profits encouraged "creamskimming" specialized common carriers' to enter the markets for these very profitable services, and that this entry, if it continued unchecked, could ultimately reduce AT&T's profitability to the point where the subsidy to local residential service was no longer sustainable.

AT&T still retained one crucial competitive advantage, however: its specialized common carrier competitors, though capable of skimming off business in AT&T's most profitable market segments, still could not interlink

their systems with the AT&T network, and this greatly limited the market for their services. Not surprisingly, AT&T resisted creating such network connections.

Matters came to a head in 1974 when MCI sued AT&T for damages, arguing that AT&T had violated antitrust laws in refusing to allow MCI to interconnect with its system. The Justice Department filed an antitrust suit as well, charging that AT&T's refusal to interlink other microwave telephony carriers with the Bell system violated the Sherman Act prohibition of monopolization (Section 2). This set the stage for the famous 1982 consent decree under which AT&T agreed to divest itself of its local operating companies (and the exclusive right to interlink with them) in return for the right to enter the computer business.[107] Other common carriers could now compete with AT&T in providing the long distance links between local operating companies, and MCI, Sprint and other companies soon entered the market.

Popular misconceptions notwithstanding, the 1982 consent decree did not "deregulate" telephone service. The local operating companies[108] are still regulated by state commissions that set rates, regulate entry, and so on, as before, and local service is still subsidized, though to lesser degree than before. And the FCC continues to hold regulatory authority over interstate long distance rates. It has tended to view its role as standing by while the industry moves from monopoly to oligopoly. Initially, it chose to allow the non-AT&T common carriers to set their own rates in interstate

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[107] There were some other matters dealt with in the consent decree, but they need not concern us here.

[108] Now called Local Access and Transport Areas, or LATAs.

service, while limiting AT&T's ability to raise or lower rates. In the past year, the FCC has relaxed some of the constraints on AT&T pricing of long distance services, moving to a "Price Cap" system under which AT&T can set its own fares subject to a price ceiling set by the FCC. While AT&T has lost market share, it remains the dominant firm.

The price cap system now in place has the advantage of not constraining rivalrous pricing (as do FCC-set rates) while still constraining AT&T's ability to set monopoly prices; it is likely to lead to lower fares, at least in the short run. A second, well-known, advantage of a price cap is that because it equalizes marginal and average revenue for all prices above the cap, setting the right rate will induce the monopolist to produce the socially optimal output.[109]

Effects of Telephone "Deregulation"

The partial deregulation of telephone service did result in a reallocation of the joint costs of long distance and local telephone service, placing more of the burden of the common costs on local service and less on long distance service. This required increases in rates for local service. Although efficient pricing seemed to suggest adoption of a two-part non-linear tariff with a higher access fee and lower marginal rates, political opposition thwarted implementation of this policy in most states.

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[109] The use of price ceilings to optimally regulate a monopoly is obviously not a new idea. The trick is to find the right price, and we thus return to the information issues addressed by Stiglitz and Sappington (1987).

We would have expected deregulation to be followed by large decreases in rates for long distance telephone services, both because of the lower rate base and because of heightened competition, and significant rate reduction certainly occurred.[110] However, rates did fall not as much as they would have with full deregulation: the FCC was afraid that AT&T would set rates that would drive its new rivals out of business and therefore did not permit it to lower its long distance rates as much as it wished to. This relieved AT&T's rivals of competitive pressures to lower their rates, and consequently reduced the welfare gains obtainable from moving closer to marginal cost pricing; nevertheless, long distance rates did drop, and improved non-linear pricing schemes were permitted that have led to gains in allocative efficiency.

In addition to improved pricing policies for existing services, the period since the partial deregulation of telephony has also been one of significant product innovation, most notably the growth of cellular telephone services, customer services such as call forwarding, and a variety of business telephony services. The interfirm competition following partial deregulation has apparently played a significant role in fostering the development of such services.

As in the other instances of deregulation we have surveyed, labor interests have on the whole been harmed. AT&T and the operating companies have laid off substantial numbers of employees and increases in pay and

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[110] It is worth noting that because of technological change, real prices of long distance telephone service were falling consistently long before deregulation. See Asch and Seneca, p. 430 for data.

benefits have been slowed. These effects have been offset at least partially by the expansion of (generally) lower paying jobs with the new entrants into telephony.

In sum, the limited telephone deregulation that has occurred to date has been a modest though not an overwhelming success. However, some recent regulatory and market developments suggest that the current state of affairs is a fluid one.

As we observed earlier, no one knows whether microwave and satellite technologies are capable of transforming the industry into a workably competitive oligopoly. Mergers among the second-tier common carriers and hints that Sprint may exit the market raise the issue of whether multi-firm telephony will prove sustainable. However, other changes in the telephony market may make it very difficult to establish successful regulation. The range of telephone and telephone-related services has increased greatly in the past decade, and if the difficulties encountered in airline regulation are any guide, a more complex telephony services market is a less likely candidate for welfare-increasing regulation. In addition, the pace of product and process innovation appears relatively rapid at present, creating a difficult environment in which to establish and maintain a good regulatory system.

On the whole, the pace of technological change in telephony, particularly developments in cellular phone technology that will substantially lower capital requirements for entry, suggests a continued trend away from the natural monopoly conditions of the 50 years ago. Full development of the new

cellular technologies would require adjustments in, and regulation of, the allocation of broadcast frequencies, but this may occur in any event as the lines between voice, data, video and audio transmission become blurred.

There have been calls for re-regulation of the long distance telephone market recently. However, barring a significant deterioration of either the level of service or the financial condition of those companies providing telephone services, AT&T's continued opposition to re-regulation, along with that of the local operating companies and business users of telephony services, makes it politically unlikely. At the same time, there appears to be no movement toward deregulation of intrastate phone service. This hybrid telephone system, partially regulated and partially deregulated, may persist for some time.

Lessons from Telephone Deregulation

It is difficult to draw lessons from the regulation and deregulation of the telephone market because the extent of actual deregulation has been limited: intrastate service has not been deregulated, and even within the supposedly deregulated interstate segment of the market, the dominant firm's rates have been regulated for most of the post "deregulation" period. Nevertheless, some lessons emerge.

Unlike our other case studies, telephony does not appear to be an example of regulatory failure. This is not an insignificant finding. Thus, the first lesson from the telephony regulation experience is that in the right

circumstances, regulation can be welfare enhancing.[111]

The lack of regulatory failure does not imply that there was no regulatory inefficiency, however. Although regulatory reform did occur, it occurred slowly. Further, the fact that reform did occur may say less about the importance of regulatory property rights as barriers to necessary change than it does about the role of serendipity in human affairs. The initial FCC movement toward deregulation appears to have been largely inadvertent; and the confluence of the Justice Department's involvement in the case and AT&T's anxiousness to enter the computer market (which created the basis for the "settlement" that led to deregulation) is surely not to be anticipated in most regulatory situations.

The second lesson is that regulatory systems, like markets, must be capable of adapting to changing technological and economic circumstances. Technological developments such as microwave transmission and satellite-based telephony can alter the elasticities of demand and supply in ways that severely challenge regulatory systems, or even call into existence the very need for their existence. Regulatory enabling legislation must have built into it procedures for dealing with fundamental change. The characteristics that make a particular market a good candidate for regulation must be clearly stated at the outset, and procedures established to monitor changes in these circumstances from within, and perhaps outside, the regulatory agency. There

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[111] It can be argued that telephony is a special case because there is no competition and because demand is inelastic. However, caution is necessary here. While demand may be inelastic for some services, it is clearly not inelastic for all services. Even the issue of competition is clouded by private users' ability to use microwave, dedicated line, or other technologies to circumvent telephone company monopoly power.

should be the presumption that the occurrence of certain changes would be a signal for deregulation.

At a lower level, the regulatory mechanisms established administratively must also be sufficiently flexible to accommodate less fundamental changes in technological and economic circumstances such as the modest year-to-year changes in costs that accompany productivity growth. However, here too, there must be periodic review to ensure that regulatory changes do not create a complex system whose component parts are more geared toward holding each other in check and in place than in actually serving the original regulatory objective.

Third, as is so clearly demonstrated by the effects of microwave-telephony entry on FCC telephone regulation, regulatory systems are frequently very fragile, involving complex interrelationships reminiscent of ecological systems: a modest change in one aspect of the environment can produce a cascade of effects that can undermine the viability of a whole system. The less transparent the objectives and functioning of the regulatory apparatus, the less easy it is to anticipate the systemic effects of modest alterations in regulatory practices or general market conditions, and the more vulnerable the whole process.

A final lesson relates to the regulatory weight placed on encouraging local residential access through long-distance and business telephony cross-subsidies. One might argue that this encouragement was an explicit political regulatory goal, and that achieving it cannot be regarded as any sort of regulatory inefficiency even though it may have produced

allocative inefficiency. This raises an interesting political economy issue. Legislation to establish regulation frequently embodies multiple objectives, often wit' an implicit priority ranking, but (to our knowledge) it never indicates the acceptable limits of trade-offs among them. As a consequence, when economic and technological changes occur that significantly alter the opportunity costs of one objective in terms of the others, the regulatory system is unlikely to respond appropriately.

Clearly, it would be unrealistic to expect lawmakers to draft legislation containing marginal rates of substitution among objectives. However, periodic reviews of regulatory objectives, alternative mays of achieving them, and their opportunity costs, could be an effective alternative.

IV: LESSONS

Basic microeconomic theory informs us that imperfectly competitive markets should be regulated to the point where the marginal costs of market failures are equal to the marginal costs of the regulatory efforts employed to eliminate them. In some cases, this will make a laissez-faire response optimal; in others, a greater degree of intervention will be warranted. Ceteris paribus, factors that increase the welfare costs of market failure increase the optimal level of regulation; factors that increase the social costs of regulation reduce it.

In the preceding sections we described and evaluated the major components of antitrust regulation in the United States; we also considered

four case studies of directive regulation and deregulation: railroad freight transportation, trucking, air passenger service, and telephone communications. The U.S. experience with these regulatory and deregulatory efforts provides guidance for establishing policy responses to imperfect competition in LDCs.

Given the likely relative levels of market inefficiency and regulatory inefficiency in the United States and most developing countries, the optimal level of government regulation in the United States is arguably no lower than in most LDCs and perhaps significantly higher. Although demand and cost conditions in individual markets in the United States may make the welfare costs of imperfect competition somewhat smaller in the U.S. than in most developing countries[112], the level of regulatory inefficiency is likely to be substantially lower. In the U.S., the government can draw upon a large pool of highly skilled personnel to man its regulatory agencies; accurate information on individual sectors of the economy is easier to obtain than almost anywhere in the world; and bureaucratic corruption, at least at the federal level, is relatively rare.

Given these conditions, if regulation has not been successful in the United States, it is unlikely to be so in LDCs. Our analysis showed that regulation of imperfect competition in the U.S. was excessive; that regulatory systems were prone to misdirection if not capture, often in ways that are difficult to combat; and that many regulatory efforts were so inefficient as to yield a regulatory failure, i.e., a regulatory outcome worse than laissez-faire. This suggests that LDCs should be exceedingly cautious in

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[112] Here we are measuring the welfare costs of imperfect competition relative to total output.

establishing regulatory institutions intended to reduce welfare losses from imperfect competition.

The lessons of the U.S. regulatory experience allow us to identify some general conditions that tend to foster regulatory misdirection (and/or capture) and hence inefficiency. Knowledge of these conditions can help policy planners avoid attempting to regulate sectors where it is likely to be welfare reducing, and to design mechanisms of regulation that are least likely to suffer from misdirection.

We recommend the following hierarchy of regulatory responses to imperfect competition in LDCs: First, and critically important, keep domestic markets open to import competition. Second, determine if market forces themselves (including import competition) significantly limit the welfare losses in domestic markets whose structure suggests that an imperfectly competitive market equilibrium is likely. If so, eschew regulatory efforts intended to "eliminate" any remaining welfare losses. Third, if market forces cannot function to effectively limit welfare losses due to imperfect competition, attempt to use antitrust regulation to create and preserve market structures and behavior that will do so. Finally, and only as a last resort, in cases where demand and cost conditions necessitate natural monopoly or tight oligopoly, policy planners should consider the option of directive regulatory institutions.[113] The remainder of this section discusses each of these options in turn.

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[113] Consistent with our earlier statements, laissez-faire may sometimes be the preferred regulatory option even in cases of natural monopoly: directive regulation should be employed only under conditions that make it likely to be welfare enhancing.

IV.1 International Trade as a Regulatory Mechanism

The best of all regulatory mechanisms would be invulnerable to regulatory misdirection, and would be able to eliminate imperfect competition's welfare losses without any need for resource inputs. Such a mechanism would clearly be cost-effective, and it would also preclude the problems of regulatory misdirection that so pervaded the U.S. regulatory experience.

When domestic cost and demand conditions are such as to yield a purely competitive market equilibrium, the market itself provides this ideal regulatory mechanism. Unfortunately, few if any industries have domestic cost and demand conditions consistent with perfect competition or anything close to it. However, as the recent industrial organization literature informs us, if a market is perfectly contestable, entry of new firms (or the threat of it) suffices to ensure that allocatively efficient prices are set (Baumol, Panzar, Willig, 1982).

If domestic markets are kept freely open to import competition, domestic monopolies and oligopolies in markets for tradeable goods face an effectively limitless number of potential entrants whose only market disadvantage relative to domestic incumbents is transportation costs.[114]

It is true that no domestic markets are perfectly contestable in

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[114] Even this disadvantage may be offset by other advantages enjoyed by foreign producers.

LDCs; however, in the case of tradeable goods, opening domestic markets to imported goods limits the exercise of domestic market power almost as effectively as would be the case under perfect contestability.

Import competition is not only very powerful as a "regulatory" device, it is very efficient as well. Unlike other regulatory mechanisms that drain government coffers, consume scarce administrative and technical resources, are ineffective, and are constantly vulnerable to capture by regulated entities or by self-interested regulators,[115] this regulatory device operates powerfully, impartially, and virtually costlessly, and it is extremely flexible in the face of changing market conditions.[116] For tradeable goods, import competition is very close to the regulatory ideal.

Our first and strongest recommendation therefore is that LDCs resort first to open markets as a means of regulating domestic imperfectly competitive markets. Other means of regulation should only be considered in the case of non-tradeable goods or if there is some unbreachable political or cultural barrier to import competition.[117]

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[115] For imports to play an effective role in maintaining competitive-like prices, there must be no artificial barriers to engaging in importing activities. If foreign-produced goods must pass through the hands of monopolistic or oligopolistic importers who themselves are protected by entry barriers, import competition is much less likely to play its intended beneficial role.

[116] Spiller (1980 B, p.30) discusses the advantages of an open economy in reducing domestic monopoly power, including those associated with flexibility. Of course, for such a policy to function optimally, the exchange rate must be the correct one.

[117] It can be argued that domestic producers are hurt by import competition. We will not reproduce here the well-known arguments concerning the costs of protecting specific industries from imports or of using general import tariffs to protect all tradeable goods industries.

IV.2 Antitrust Regulation

The second line of defense against domestic monopoly power should be antitrust regulation. Antitrust has advantages relative to more intrusive forms of regulation that make it preferable to them. First, it leaves most business decisions in the hands of those with the information and incentive to make them intelligently. Second, because it is a general set of rules defining the permissible limits of behavior for all firms, it is less subject to regulatory misdirection and capture than industry-specific directive regulation. However, as the mixed results of U.S. antitrust efforts indicate, antitrust can consume scarce financial and human resources, and it can be misguided in its thrust and misdirected in its enforcement. An antitrust system has to be carefully designed in order to be part of the solution rather than part of the problem.

Simplicity is the key to successful antitrust regulation. Antitrust regulation should have one objective: efficiently minimizing welfare losses resulting from imperfect competition. It should be enforced by economically knowledgeable personnel in a single specialized agency. Further, antitrust regulation should focus on a very narrow range of behaviors: price-fixing, the vertical restrictive practice of full-line forcing, and horizontal mergers that lead to very high domestic concentration in markets for non-tradeables. If it requires a sophisticated economic analysis to determine whether some business practice is welfare enhancing or welfare reducing, that practice should almost certainly not be regulated: a sophisticated analysis is costly, and unless it is performed by highly skilled personnel, not infrequently will arrive at an incorrect conclusion.

To economize on adjudication costs and to reduce the uncertainty faced by businesses, price fixing and full-line forcing should be adjudicated under a per se illegality standard. For mergers, a rule of reason is appropriate, with pre-notification requirements as in the U.S., with published guidelines indicating the level of concentration and other market conditions that would trigger an antitrust response, and with clear limits placed on the discretionary powers of the enforcement agency.

To limit the potential for abuse of the agency's enforcement powers for political or personal means, penalties for antitrust infractions should be limited to fines. Finally, to ensure that the budgetary costs of antitrust are clearly visible and that the enforcement agency does not become an independent power center, payment of fines should be made directly to the central treasury.

Taken together, these recommendations imply a minimalist approach to antitrust. We feel that this is appropriate for LDCs, and quite possibly, for industrialized countries as well.

IV.3 Directive Regulation

There are circumstances in which antitrust is either powerless or inappropriate as a means of effecting a competitive market equilibrium or something close to one. Natural monopoly is the best example of this. Under

conditions of natural monopoly[118] it is inefficient to have more than one firm in the market; and yet with only one firm in the market, the competitive equilibrium output will not in general be produced.

Faced with a domestic natural monopoly in a non-tradeable good, policy planners have two choices: to accept any welfare losses from allocative inefficiency due to monopoly pricing, or to establish directive regulation of the natural monopoly. Some conditions virtually preclude successful directive regulation; in other circumstances, regulatory systems may be welfare enhancing if they are properly designed and implemented. In the remainder of this section, we will consider first the conditions under which accepting the welfare losses from unregulated natural monopoly is likely to be the "optimally imperfect" outcome. Next, we will discuss how best to structure regulatory systems so that when used in appropriate circumstances, they can best serve the long run public interest.

IV.3.1 Conditions Where Unregulated Natural Monopoly is "Optimally Imperfect"

Even the most cleverly designed apparatus for directive regulation will entail significant costs. Directive regulation obviously entails bureaucratic administration; it requires "fair hearing" procedures for consumers and regulated producers; it requires collection, processing, and analysis of information internal and external to the regulated entities; and it also requires oversight mechanisms. Clearly, unless the natural monopoly

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[118] A sufficiently concentrated oligopoly could in some circumstances function little differently than a monopoly. Though our analysis is couched in terms of a natural monopoly, it can apply as well to a natural oligopoly.

to be regulated is an important one in the domestic economy, the directive regulation's costs are likely to outweigh its benefits, and it therefore will not be the optimal policy approach.[119]

For directive regulation to be welfare enhancing, it is almost certainly a necessary condition that the natural monopoly to be regulated be economically important; however, that is not a sufficient condition. Regulation cannot be expected to be welfare enhancing unless the regulatory agencies can be staffed by technically competent and ncn-corrupt personnel. Absent such personnel, regulation should not be attempted.

Even if the sector to be regulated is an important one and regulatory personnel requirements can be satisfied, directive regulation still may not be optimal. Some market conditions are particularly conducive to regulatory inefficiency, and here too, directive regulation is a poor policy choice.

Efficient directive regulation is not easy to achieve even in industries producing one or a few homogenous goods under relatively static conditions. As our case studies of the U.S. air passenger transport and telephony industries illustrate, it is almost impossible to effectively regulate industries producing a complex mix of products/services or industries

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[119] For example, even if provision of cable television services is a natural monopoly, LDCs are unlikely to find this sector to be a good candidate for directive regulation.

undergoing rapid changes in cost and/or demand conditions.[120] Directive regulation, by definition, requires that the regulatory authorities set regulated producers' price, output, and/or level of service. To set the values of these decision variables at allocatively efficient levels requires detailed and accurate demand and cost condition information which are most unlikely to be available given the problem of information asymmetry and the incentives of regulated entities to distort information to their own advantage.

The greater the number and heterogeneity of the goods offered in a market, the greater, in effect, is the true number of "markets" to be regulated. This implies either a great expansion of the resources devoted to regulation or a reduction in the care devoted to each regulatory decision, or some combination of the two. The former is associated with inefficiently excessive regulation, the latter with non-optimal regulatory decisions.

Rapidly changing cost and demand conditions also wreak havoc with efficient regulation. Regulatory agencies need safeguards to ensure procedural fairness. They must also mediate between the often-opposing interests of consumers and producers. Consequently, regulators must take pains to fully document their decisions, and must try to avoid taking action on the basis of incomplete information that "unfairly" disadvantages either producers or consumers or subsets of each. In practice, this means that there will always be regulatory lag in responding to changes in underlying market

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[120] Cost conditions can change due to product or process innovation. They can also be variable when the prices of important inputs fluctuate significantly over time.

forces.

As the pace of change in underlying conditions increases, regulatory decision-making becomes more expensive because of the need for frequent re-evaluation of regulatory decisions. In addition, because of regulatory lag, the decisions made will more frequently be non-optimal. Thus, even if regulators can avoid the political pressures that favor maintaining the regulatory status quo (which is difficult, as we will argue below) regulation still is unlikely to be successful in dynamic industries.[121] For example, even though computer production might be a natural monopoly in some countries, the unregulated market outcome is almost certainly preferred to any attempt at regulation, and thus would be considered an "optimally imperfect" outcome.

IV.3.2 Design of Regulatory Institutions for Important Non-tradeable-Goods Natural Monopolies

Our four case studies of directive regulation in the United States present a sobering picture of the difficulties of designing regulatory systems that will turn out in practice to be welfare enhancing. Misdirection and capture are a constant threat to any regulatory system. Directive regulation is a potentially powerful vehicle for rent extraction and redistribution, and producers and consumers--and even regulators--will structure their individual

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[121] This clearly indicates that industry regulatory systems should not be established in response to conditions arising out of short term macroeconomic events. Macroeconomic conditions are sure to alter over time, but regulatory systems, once established, are highly resistant to change. The U.S. has still not dismantled all the regulatory systems established in response to the Great Depression.

market responses and group political responses to it so as to acquire and defend economic rents. Because information is costly to obtain, and because the benefits of misdirected and captured regulation are concentrated and the costs more diffuse, it cannot be presumed that opposing interest groups' countervailing power will operate to prevent misdirection. Thus, no matter how carefully crafted to minimize such problems, the design of directive regulatory mechanisms should reflect the presumption that sooner or later, regulatory misdirection or capture will occur. The likelihood and costs of regulatory misdirection suggest a number of important desiderata for mechanisms of directive regulation.

Adequate Compensation for Regulatory Personnel

It is essential to provide sufficient compensation to regulatory personnel to ensure that they are competent and to reduce the temptation of corruption. It is better to employ a smaller number of well-compensated people to competently and honestly regulate a small number of markets than to have a large number of ill-paid, ill-trained and poorly motivated people regulate a large number of markets.

Clear and Consistent Goals

The objectives of regulation should be specific and very clearly articulated. If there are multiple objectives, which should be avoided if possible, they should be mutually consistent. Vague and inconsistent goals complicate enormously the task of monitoring and evaluating the efficacy of regulatory activity, and therefore are an invitation to misdirection and

capture of the regulatory apparatus. If the goals of U.S. railroad regulation had been clearly stated and ICC performance subject to periodic review, the metamorphosis of its rail regulation would not likely have occurred.

Clear Statement of Regulatory Rationale

If directive regulation occurs at all, it should be in response to some clearly identifiable market failure. The enabling legislation should contain a statement of exactly what market conditions are responsible for the occurrence of market failure, and how they bring it about. These conditions should be monitored on a regular basis by both the regulatory agency and whatever group has oversight responsibility. If it is determined that the market conditions that led to market failure have ceased to exist, there should be a presumption that regulation will be abandoned.

Avoid Regulation for Redistributive Purposes

Regulation frequently functions largely or purely as a redistributive mechanism. This may be viewed as occurring as one of the legitimate functions of government or as a response to rent seeking activities by interest groups, although the formal distinction is not clear.[122]

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[122] Whether or not redistributive regulation is viewed purely as a response to rent seeking activities depends upon one's view of the process of policy formation. However, with the exception of an absolute ruler with unthreatenable sovereignty, any redistributive act by government can be viewed as a response to either direct or indirect pressure by the interest group representing the redistribution's recipients, which pressure must be classed as rent seeking.

In some cases, the explicit reason for initiating regulation is to shift surplus from one economic interest to another; in others, a veneer of efficiency arguments overlays the redistributive intent of the enabling regulatory legislation, making otherwise politically difficult redistribution possible. There is little disagreement among economists that directive regulation is not the best mechanism for income redistribution: it is almost always accompanied by a non-trivial regulatory burden of enforcement and compliance costs, and frequently by costs of misdirection and capture.

Sunset Provisions

All regulatory institutions should incorporate a five-year[123] sunset provision, under which renewal of an agency's regulatory authority requires a non-routine positive assessment of its activities by an outside agency. Sunset provisions ensure that regulatory systems do not simply acquire a life of their own, effectively immune from all but perfunctory outside monitoring except in cases of egregious disregard of their regulatory mandate.

The spirit of sunset provisions is to shift the burden of proof from having to establish that regulation is welfare reducing in order to

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[123] It might be argued that in some cases, five years may be too short a time to allow proper evaluation of how an agency would function once it is "up to speed." The sunset provision period could be lengthened if there is a compelling reason for believing that a longer time frame is appropriate; however, the period should be as hort as possible, and must be definit and set in advance: "infant agencies," like infant industries, are likely to be always just a bit shy of maturity.

eliminate it, to having to establish that it is welfare enhancing in order to continue it. This is an essential feature of sunset provisions. It is hardly credible that ICC trucking regulation would have persisted as long as it did in the U.S. if legislators had actually been required to vote it into existence each five years on the basis of hearings that established beyond reasonable doubt that it was welfare enhancing; on the other hand, the persistence of ICC trucking regulation is quite unsurprising in the absence of such a requirement.

Another advantage of sunset provisions is that they serve to reduce the extent of regulated entities' property rights in existing regulatory institutions. When consumers and producers make investment decisions predicated on the existence of specific regulations, it may seem to violate the requirements of procedural fairness to make changes in the regulations that impose losses on them or threaten their economic survival. Sunset provisions make clear that the government's obligation to maintain a particular regulatory institution is temporally bounded.

Readily Observable Costs

Regulatory costs must be on-budget and readily observed. This is particularly important in light of the typical pattern of concentrated benefits and diffuse costs of regulation. If regulatory agencies are self-financing through receipts of fees from producers and\or consumers, or are in some other way budgetarily invisible, pressures for scrutiny are blunted and the regulatory burden of proof becomes that of establishing that regulation is welfare reducing. As we have indicated, this is not the appropriate standard.

If those who suffer harm from regulation each only lose a small amount, they are unlikely to mount the effort necessary to do this.[124]

Regulatory Simplicity

Regulatory mechanisms should be as simple and transparent as possible. The importance of this is made painfully apparent in our case studies of U.S. directive regulation. Regulatory simplicity economizes on the need for scarce administrative, economic, accounting, and judicial skills within the regulatory agency, an even more important factor in LDCs than in the United States. Further, it greatly reduces the risk of regulatory capture.

Oversight is clearly easier when regulatory procedures are simple. The U.S. experience with trucking regulation illustrates this clearly: this inefficient, producer-captured, and quite possibly corrupt system persisted for decades in no small part because the very complexity of the regulatory system made it exceedingly difficult to determine how it functioned, much less to determine if it functioned to enhance social welfare.

Extremely complex regulatory systems not only encourage capture by blunting oversight capacities, they also tend to disenfranchise smaller producers and potential entrants who lack the resources to pursue their

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[124] The U.S. experience with sugar quotas is instructive here. It is difficult to conceive of a regulatory program achieving a greater level of misdirection, and yet the program survives to this day. The fact that the program is self-financing through sugar import duties has made it exceedingly difficult to muster sufficient legislative support to eliminate it. See Krueger (1990) for an analysis of the U.S. sugar program.

interests through administrative and procedural mazes. ICC trucking regulation vividly illustrates this regulatory problem as well.

Complex regulations encourage regulatory misdirection and capture in yet another way by fostering development of regulatory specialists. Regulators with such specific human capital are likely to resist regulatory reform. Worse still, in these situations, regulatory agencies are tempted to turn to the regulatee/regulator revolving door in order to find personnel who can fathom the functioning of the regulatory apparatus. This greatly increases the likelihood of regulatory capture.

Minimize Rents Conferred

Producers and consumers will attempt to defend the rents they receive under regulation. Further, barring the unusual, greater rents will be defended with greater vigor. This suggests that regulatory flexibility can be better maintained if mechanisms of regulation are structured so as to minimize from the very start the rents they confer on regulated entities. Efforts to block regulatory reform will decline as regulated entities have less to gain from them.

If it is essential to control entry through licensing requirements, operating licenses should have the shortest duration consistent with achieving regulatory objectives and should be auctioned off rather than given away.

Broad Based Oversight

We have emphasized the need for each regulatory system to incorporate sunset provisions that mandate an impartial evaluation of its performance at regular intervals. For this to function as it should, it is clearly essential that the group charged with evaluation/oversight itself not be captured by any regulatory interest group. This suggests the need for broadly-based oversight groups.

Oversight is important not merely to ensure that regulation is necessary and/or efficient, but also to safeguard against abuse of regulatory agency power for political or personal purposes. Broad-based oversight is of critical importance here.

Caution

Regulatory capture can be contained if the will exists to do so; it is much more difficult to prevent other forms of misdirection. Regulations will never be devised using perfect information and full general equilibrium models; regulators will never anticipate all exogenous changes in the economy; and producers and consumers are sure to devise strategic responses to the regulatory apparatus that its architects would never have anticipated. Further, regulators are most unlikely to abandon the notions of procedural fairness that provide the basis for producer and consumer regulatory property rights.

All of this suggests that directive regulation is virtually

certain to function imperfectly. Unfortunately, as the U.S. experience so clearly illustrates, imperfect regulation can be every bit as bad as imperfect competition.

In a world in which producers, consumers and regulators develop property rights in regulatory institutions, it is exceedingly difficult to effect regulatory reform. Thus, there are great advantages to proceeding cautiously in establishing regulatory institutions.

BIBLIOGRAPHY

Adams, Walter, ed.. The Structure of American Industry, 8th ed. (New York: MacMillan Publishing Co., 1990).

Adams, Walter and James Brock. Dangerous Pursuits: Mergers and Acquisitions in the Age of Wall Street, (New York: Pantheon Books, 1989).

Adams, Walter J. and Janet Yellen. "Commodity Bundling and the Burden of Monopoly," Quarterly Journal of Economics, 90 August 1976: 475-498.

American Bar Association, Antitrust and Trade Regulation Report: Special Supplement, Report of the American Bar Association Section of Antitrust Law Special Committee to Study the Role of the Federal Trade Commission, April 1989. (A)

American Bar Association, Antitrust and Trade Regulation Report: Special Supplement, Report of the American Bar Association Section of Antitrust Law Task Force on the Antitrust Division of the U.S. Department of Justice, July 1989. (B)

Anderson, Kym. "Rent-Seeking and Price-Distorting Policies in Rich and Poor Countries." Institute for International Economic Studies, Seminar Paper No. 428. January, 1989.

Asch, Peter, and Rosalind Seneca. Government and the Marketplace, 2nd edition. (Chicago, The Dryden Press, 1989).

Bailey, Elizabeth E., ed. Public Regulation: New Perspectives on Institutions and Policies. (Cambridge, MA: MIT Press, 1987).

Baumol William. "Quasi-Permanence of Price-Reductions: A Policy for Prevention of Predatory Pricing," Yale Law Journal, 89 November 1979 :1-26.

Baumol, William and David Bradford. "Optimal Departures from Marginal Cost Pricing," American Economic REview. 60 June 1970 :265-283.

Baumol, William J., John C. Panzer, and Robert D. Willig. Contestable Markets and the Theory of Industry Structure. (San Diego: Harcourt Brace Jovanovich, 1982).

Berg, Sanford V. and John Tschirhart. Natural Monopoly Regulation: Principles and Practice. (New York: Cambridge University Press, 1988).

Bernstein, Marvar. Regulating Business by Independent Commission. (Princeton: Princeton University Press, 1955).

Bork, Robert. The Antitrust Paradox: A Policy at War With Itself. (New York: Basic Books, 1978).

Bös, Dieter. Public Enterprise Economics: Theory and Application. (New York: North-Holland, 1986).

Boyer, K.D.. The Costs of Price Regulation: Lessons from Railroad Deregulation," Rand Journal of Economics, 18 (Autumn 1987): 408-415.

Bradburd, Ralph and A. Mead Over, Jr.. "Organizational Costs, Sticky Equilibria and Critical Levels of Concentration," Review of Economics and Statistics, 64, February, 1982: 50-58.

Brenner, Melvin A. "Action Needed to Correct Pricing and Service Distortions of Airline Deregulation." Transportation Quarterly. July, 1989.

Brett, Barry. "Monsanto: Great Expectations Unfulfilled," Antitrust Bulletin, 30 Spring 1985.

Breyer, Stephen. Regulation and its Reform. (Cambridge, MA: Harvard University Press, 1982).

Button, Kenneth and Dennis Swann. The Age of Regulatory Reform. (Oxford: Clarendon Press, 1989).

Button, Kenneth and Dennis Swann. "European Community Airlines - Deregulation and its Problems." Journal of Common Market Studies. June, 1989.

Caves, Richard E. and Ralph Bradburd, "The Empirical Determinants of Vertical Integration," Journal of Economic Behavior and Organization, April, 1988.

Competition Policy in OECD Countries: 1987-1988. (Paris: Organization for Economic Co-operation and Development, 1989).

Dempsey, Paul Stephen. Flying Blind: The Failure of Airline Deregulation. (Washington: Economic Policy Institute, 1990).

Demsetz, Harold. "The Trust Behind Antitrust," in Fox, Eleanor and James Halverson, eds., Industrial Concentration and the Market System, Section of Antitrust Law, American Bar Association, 1979.

Derthick, Martha and Paul J. Quirk. The Politics of Deregulation. (Washington, D.C.: The Brookings Institution, 1985).

Dewey, Donald. "The New Learning: One Man's View," in Goldschmid, Harvey, Mann, Michael, and Weston, J. Fred, eds, Industrial Concentration: The New Learning (Boston: Little, Brown and Co., 1974): 1-14.

Douglas, Neil J. A Welfare Assessment of Transport Deregulation: The Case of the Express Coach Market in 1980. (Brookfield, VT: Gower Publishing Company, 1987).

Eads, George C. and Michael Fix. Relief or Reform? Reagan's Regulatory Dilemma. (Washington, D.C.: Urban Institute Press, 1984).

Economic Report of the President Transmitted to the Congress January, 1989. (Washington: United States Government Printing Office, 1989).

Felton, John Richard and Dale G. Anderson, ed. Regulation and Deregulation of the Motor Carrier Industry. (Ames, Iowa: Iowa State University Press, 1989).

Fleming, Michael and Kenneth Button. "Regulatory Reform in the U.K.," in Button, Kenneth and Dennis Swann, eds., The Age of Regulatory Reform (Oxford: Clarendon Press, 1989).

Fromm, Gary, ed. Studies in Public Regulation. (Cambridge, MA: MIT Press, 1981).

Friedlaender, Ann. The Dilemma of Freight Transportation Regulation. (Washington: The Brookings Institution, 1969).

Friedlaender, Ann. "Equity, Efficiency, and Regulation in the Rail and Trucking Industries," in Leonard Weiss and Michael W. Klass, ed. Case Studies in Regulation: Revolution and Reform. (Boston: Little, Brown and Company, 1981).

Gallo, Joseph C., Joseph Craycroft, and Stephen Bush. "Guess Who Came to Dinner: An Empirical Study of Federal Antitrust Enforcement for the Period 1963-1984," Review of Industrial Organization, 2 1985.

Geis, Gilbert. White Collar Criminal. (New York: Atherton Press, 1968).

Gilligan, Thomas W., William J. Marshall, and Barry R. Weingast. "The Economic Incidence of the Interstate Commerce Act of 1887: A Theoretical and Empirical Analysis of the Shorthaul Pricing Constraint." Hoover Institute, Stanford University. Working Papers in Political Science P-90-6. April, 1990.

Goldberg, Victor. "Institutional Change and the Quasi-Invisible Hand," Journal of Law and Economics. 17 1974 :461-492.

Gwilliam, Ken M. "Setting the Market Free: Deregulation of the Bus Industry." Journal of Transport Economics and Policy. January, 1989.

Harris, Robert G. "Economies of Traffic Density in the Rail Freight Industry," Bell Journal of Economics, 8 Autumn, 1977.

Harris, Robert G., and Clifford Winston. "Potential Benefits of Rail Mergers: An Econometric Analysis of Network Effects of Service Quality," Review of Economics and Statistics, 65 February 1983, :32-40.

Hawk, Barry E. "Airline Deregulation after Ten Years: The Need for Vigorous Antitrust Enforcement and Intergovernmental Agreements." The Antitrust Bulletin. Summer, 1989.

Hildebrand, George H. American Unionism: An Historical and Analytical Survey. (Reading, MA: Addison-Wesley Publishing Co., 1979).

Hochman, Harold and George E. Peterson. Redistribution Through Public Choice. (New York: Columbia University Press, 1974).

Horwitz, Robert Britt. The Irony of Regulatory Reform: The Deregulation of American Telecommunications. (New York: Oxford University Press, 1989).

Jun-ji, Shih, Chao-cheng Mai and Jung-chao Liu, "A General Analysis of the Output Effect under Third Degree Price Discrimination," Economic Journal, 98 (March 1988) : 149-158.

Kahn, Alfred. "Airline Deregulation: A Mixed Bag, But A Clear Success Nevertheless." Transportation Law Journal. 16 1988: 229-251.

Kahn, Alfred. "Surprises of Airline Deregulation," American Economic Review: Papers and Proceedings, 78 May 1988: 316-322.

Kahn, Alfred and W. B. Shew. "Current Issues in Telecommunications Regulation: Pricing," Yale Journal on Regulation 4 (Spring 1987).

Kaplan, Daniel. "The Changing Airline Industry," in Weiss, Leonard and Michael Klass, eds., Regulatory Reform: What Actually Happened. (Boston: Little, Brown and Co, 1986).

Kaplan, Harold. Policy and Rationality: The Regulation of Canadian Trucking. (Toronto: University of Toronto Press, 1989).

Kolko, Gabriel. Railroads and Regulation, 1877-1916. (Princeton: Princeton University Press, 1965).

Krueger, Ann O. "Government Failures in Development," Journal of Economic Perspectives, 4 (Summer 1990): 9-24.

Landes, William. "Optimal Sanctions for Antitrust Violations," University of Chicago Law Review, 50 Spring 1983: 652-678.

Lipsey, Robert and Kelvin Lancaster. "The General Theory of Second Best," Review of Economic Studies, 24 1956: 11-32.

MacAvoy, Paul W. The Economic Effects of Regulation: The Trunk-Line Railroad Cartels and the Interstate Commerce Commission Before 1900, 1965.

MacDonald, James M. "Railroad Deregulation, Innovation, and Competition: Effects of the Staggers Act on Grain Transportation." The Journal of Law and Economics. April, 1989.

Mackay, Robert J., James C. Miller III, and Bruce Yandle, ed. Public Choice and Regulation: A View from Inside the Federal Trade Commission. (Stanford: Stanford University Press, 1987).

Martin, Stephen. Industrial Economics: Economic Analysis and Public Policy. (New York: MacMillan Publishing Co., 1988).

McGee, John. "Predatory Price Cutting: The Standard Oil (N.J) Case," Journal of Law and Economics 1 October 1958 :137-69.

Meyer, John R. and William B. Tye, "Toward Achieving Workable Competition in Industries Undergoing a Transition to Deregulation: A Contractual Equilibrium Approach." Yale Journal of Regulation, Summer, 1988: 273-297.

Modigliani, Franco. "New Developments on the Oligopoly Front," Journal of Political Economy, 66 June 1958 :251-232.

Monsen, R. J. and Anthony Downs. "A Theory of Large Managerial Firms," Journal of Political Economy, 73, June 1965: 221-236.

Moore, T. Gale. "The Beneficiaries of Trucking Regulation," Journal of Law and Economics, 21 October, 1978: 327-43.

Moore, T. Gale. "Rail and Trucking Deregulation," in Leonard Weiss and Michael Klass, eds., Regulatory Reform: What Actually Happened (Boston: Little, Brown, and Co., 1986): 14-36.

Morrison, Steven A. and Clifford Winston. "The Dynamics of Airline Pricing and Competition," American Economic Review, 80 May 1990: 389-393.

Nelson, Jon C. "The Changing Economic Case for Surface Transport Regulation," in J.C. MIller, ed., Perspectives on Federal Transportation Policy (Washington, D.C.: American Enterprise Institute, 1975).

Olson, Mancur. The Logic of Collective Action. (Cambridge, Harvard University Press, 1965).

Phlips, Louis. The Economics of Price Discrimination. (Cambridge: Cambridge University Press, 1983).

Posner, Richard A. Antitrust Law: An Economic Perspective. (Chicago: University of Chicago Press, 1976).

Prager, Robin A. "Using Stock Price Data to Measure the Effects of Regulation: The Interstate Commerce Act and the Railroad Industry." RAND Journal of Economics. Summer, 1989.

Rehner, Maria, "An Overview of the Rail Provisions in the National Transportation Act, 1987," Transportation Practitioners Journal, 55 1988: 328-41.

Robyn, Dorothy. Braking the Special Interests: Trucking Deregulation and the Politics of Policy Reform. (Chicago: University of Chicago Press, 1987).

Ross, David R. "Learning to Dominate," Journal of Industrial Economics, 34 June 1986:337-353.

Rowley, Charles K., Robert D. Tollison, and Gordon Tullock, ed. The Political

Economy of Rent Seeking. (Boston: Kluwer Academic Publishers, 1988).

Salop, Steven and Lawrence White. "Economic Analysis of Private Antitrust Litigation," Georgetown Law Review. 74 April 1986: 1001-1064.

Sappington, David E.M. and Joseph E. Stiglitz, "Information and Regulation," in Public Regulation: New Perspectives on Institutions and Policies, ed. by Elizabeth E. Bailey (Cambridge, MA: MIT Press, 1987).

Scherer, F. M. and David Ross. Industrial Market Structure and Economic Performance. (Boston: Houghton-Mifflin , 1990).

Schmalensee, Richard. "Antitrust and the New Industrial Economics," mimeo, 1982? (A)

Schmalensee, Richard. "Product Differentiation Advantages of Pioneering Brands," American Economic Review 72 June 1982: 349-365. (B)

Schmalensee, Richard. The Control of Natural Monopolies. (Lexington, Mass.: Lexington Books, 1979).

Shapiro, Carl and Robert D. Willig. "Economic Rationales for the Scope of Privatization." Woodrow Wilson School of Public and International Affairs, Princeton University. Discussion Paper No. 41. January, 1990.

Sharkey, William W. The Theory of Natural Monopoly. (Cambridge, England: Cambridge University Press, 1982).

Sherman, Roger. The Regulation of Monopoly. (New York: Cambridge University Press, 1989).

Spence, A. Michael. "The Learning Curve and Competition," Bell Journal of Economics, 12 Spring 1981:522-530.

Spiller, Pablo T.. "The Political Economy of Industrial Regulations: A Survey with Implications for Regulation Studies in Developing Countries," Development Research Department, World Bank, January 1986. (A)

Spiller, Pablo T.. "Industrial Regulations in Developing Countries: Causes and Consequences." mimeo. October 1986. (B)

Srinagesh, Padmanabhan, and Ralph Bradburd, "Quality Distortion by a Discriminating Monopolist," American Economic Review, 79, March 1989: 96-105.

Swann, Dennis. The Retreat of the State: Deregulation and Privatization in the U.K. and U.S. (Ann Arbor: University of Michigan Press, 1988).

Tirole, Jean. The Theory of Industrial Organization. (Cambridge, MA: The MIT Press, 1988)

U.S. Federal Trade Commission. The Deregulated Airline Industry: A Review of the Evidence, 1988.

U.S. General Accounting Office. Deregulation: Increased Competition in Making Airlines More Efficient and Responsive to Consumers. (Washington: USGPO, 1985),

Weiss, Leonard W. and Michael W. Klass, ed. Case Studies in Regulation: Revolution and Reform. (Boston: Little, Brown and Company, 1981).

Werden, Gregory J., Andrew S. Joskow, and Richard L. Johnson. "The Effects of Mergers on Economic Performance: Two Case Studies from the Airline Industry." Antitrust Division, U.S. Department of Justice. Economic Analysis Group Discussion Paper. October 2, 1989.

Whinston, Michael D. and Scott C. Collins. "Entry, Contestability, and Deregulated Airline Markets: An Event Study Analysis of People Express." National Bureau of Economic Research, Inc., Working Paper No. 3318. April, 1990.

White, Alice P. "The Evolution of the Thrift Industry Crisis." Federal Reserve Board. Finance and Economics Discussion Series, 101. December, 1989.

White, Lawrence J. Reforming Regulation: Processes and Problems. (Englewood Cliffs, NJ: Prentice-Hall, Inc., 1981).

Williamson, Oliver. "Antitrust Enforcement: Where It's Been; Where It's Going," mimeo, March 1981.

Williamson, Oliver. "Transaction-Cost Economics: The Governance of Contractual Relations," Journal of Law and Economics, 22 October 1979: 233-61.

Williamson, Oliver. The Economics of Discretionary Behavior. (Englewood Cliffs: Prentice-Hall, 1964).

Williamson, Oliver. The Economic Institutions of Capitalism. (New York: The Free Press, 1985).

Wilson, James Q., ed. The Politics of Regulation. (New York: Basic Books, Inc., 1980).

Winston, Clifford, et al. The Economic Effects of Surface Freight Deregulation. (Washington, D.C.: The Brookings Institution, 1990).

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