

Creating Effective  
Competition:  
What Has Worked, What  
Hasn't

by William Shepherd

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CREATING EFFECTIVE COMPETITION: WHAT HAS WORKED, WHAT HASN'T

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**CREATING EFFECTIVE COMPETITION: WHAT HAS WORKED, WHAT HASN'T**William G. Shepherd<sup>1</sup>

My point is a simple one. Regulation has been less harmful than the recent literature has claimed, and effective competition is harder to install. Therefore, the danger of premature deregulation is greater than has been admitted.

This volume is about a complex process: transferring regulated industries to a stable condition of effective competition. Deregulation succeeds only if the subsequent competition is fully effective.

Despite some hopeful claims, such a monopoly-to-effective-competition transfer has probably not yet been accomplished in any major utility market. For example, long-distance and local telephone service are not yet effectively competitive, even

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though there is some competition.<sup>2</sup> So the matter is still experimental, dealing with complicated and controversial conditions.<sup>3</sup>

Telecommunications has seemed to witness "revolutionary" changes since the 1960s, and some colleagues describe the sector as so dynamic and fluid that competition is already all-pervasive.<sup>4</sup> But the "revolutions" have mainly been mild (for example pay TV, a supposedly seismic 1960s innovation, is still slowly inching up to a modest status), and dominant positions seem to be long-lasting in market after market.

The creation of effective competition is quite difficult, for several reasons. Entry is a complicated matter, not a magic wand. New entrants may quickly be eliminated or stifled by the incumbent. After a few entrants do come in, the dominance may become entrenched.

Of course, the opposite might happen, yielding full competition. Entrants may be numerous and strong, applying

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<sup>2</sup> Some colleagues do say that effective competition has been created in these cases. That is the central controversy in the topic and in this paper.

As for transportation industries, airlines never were natural monopolies, and railroad deregulation occurred long after natural-monopoly conditions faded from much of the sector.

<sup>3</sup> As I pointed out two short decades ago, in William G. Shepherd, "Entry as a Substitute for Regulation," American Economic Review, May 1973, pp. 98-105. I noted then how difficult deregulation can be, with reasoning that may on the whole still be valid.

<sup>4</sup> See for instance Eli M. Noam, "From the Network of Networks to the System of Systems: An End of History in Telecommunications Regulation?" Regulation, no. 2, 1993, pp. 26-33.

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effective competition, while the incumbent may nonetheless remain vigorous and even become more efficient and innovative. The core functions of the network may be retained in the original monopolist, even though it has receded to be just another competitor. Or the core network may be divided off to be provided as a separate function, much as airports are provided separately for airlines to use.

The policy aim is to get the new competitive process in place, while retaining the advantages of the network function. In scores of local telephone markets around the U.S., this task is being attempted, with varying success.

We can call this direct entry, because it injects a new rival (an MCI, or a Teleport) which is seeking to match directly the incumbent's services. An alternative version of entry is new intermodal competition, which comes from the rise of a different form of service. For example, local telephone service seems (also) to be facing new intermodal forms of service competition, with the possibility of competition between cable TV systems and traditional local exchange switching systems: "cable versus telcos," as the business press puts it. ✓

Cable-telco competition may supersede the budding competition between telcos and direct entrants. Of course, the current fever for telco-cable mega-mergers (such as Bell Atlantic and TCI) seeks to preempt much of this competition, but that outcome is not yet certain. In any event, wireless competition - - from cellular phones and pocket phones -- may add to the

supposed "new era of local competition."

I will address both kinds of competition, because the same basic concepts apply to them both. My points will be:

1. Market dominance is inconsistent with effective competition. Small, fringe competitors cannot be expected to apply full competitive pressure to the dominant firm. A reasonable competitive parity is lacking. The result is either intimidation and dominance, resulting in weak competition; or a degree of collusion, also yielding weak competition. Or some of both.
2. Regulation can have important benefits. The supposedly severe costs of regulation -- so aggressively asserted in the 1970s and Reagan 1980s -- have never been proven to be large, outside perhaps of certain transportation industries.
3. Premature deregulation is the main danger. It permits monopoly to remain, but without restraint or protection for the public. Even when deregulation is not done prematurely, some forms of deregulation contain serious problems.
4. When the dominant firm not only 1. controls the core network system, but also 2. has opportunities for segmenting the market and price discriminating, then consumers will be vulnerable to monopoly abuses. Relying on a fringe of weak, small competitors to provide supposedly effective competition will not in fact suffice.

I will first set the stage in Section 1, by reviewing basic competitive concepts. Then in Section 2 I will draw some main historical lines of regulation and deregulation since the 1880s,

on to the developments since 1960. Section 3 reviews possible harms of regulation which were widely asserted in the 1970s and 1980s. I will suggest that they have been overstated, or even nonexistent.

In Section 4 I will note main problems in the deregulation of long-distance and local telephone service, to illustrate my general points. Section 5 concludes by summarizing the policy lessons.

## SECTION I. EFFECTIVE COMPETITION

### 1. Assumptions

The first point of analysis is about assumptions: it is not safe to assume away the existence of important market imperfections.

The recent literature in this field, and policies since about 1975, have done the opposite: they have assumed that markets generally possess few imperfections. Firms function quickly and costlessly to obtain full information, overcome irrationalities, enter markets, and adopt new technologies. Theoretical attention is then focused on the pure properties of static efficiency, or of game outcomes, that the rapid and full adjustments will provide.

In such a transparent and instantaneous world (often called a "Chicago world"), theory commonly suggests that market outcomes will come pretty close to the ideal, or even fit the ideal exactly. Monopoly or dominance is seen as a relatively rare and brief exception, and tight-oligopoly collusion will usually be

inconsistent with effective competition. The phenomenon of dominance is defined primarily by structure: one firm has over 40-50 percent of the market, there is no close rival, and entry is not easy. Dominance is inexorably a major transition phase in going from monopoly to competition. And it can be the minefield where the deregulatory wagon gets disabled.

Under dominance, two main principles of competition are violated:

1. there are not enough comparable rivals to assure against collusion. Generally, at least five comparable rivals are necessary for effective competition to operate, or else the tendencies to collusion will be too strong and frequently successful. In a homely analogy, one would not trustingly bet on a horse race with just two or three horses; nor would one wisely sell a house to an auction where only two bidders show up. Economic theory equally recognizes the need for numerous independent competitors.

And yet I frequently hear wordly-wise economists from the Windy City -- who would never bet on a race with less than six horses -- asserting the naive idea that two or three competitors are enough to guarantee effective competition. And that result holds, they declare, even if one of the firms has more than 80 percent of the market. In seminars they may modestly deny making such a claim; but in policy forums, they often assert it flatly.

The need for at least 5 comparable competitors is consistent with the standard 2,000 threshold for HHI values, as used by



scholars generally and the Antitrust Division in particular in its Merger Guidelines.<sup>5</sup> Five 20-percent-share firms give an HHI of 2000; any asymmetry among the firms will make the HHI index higher than 2000. Any economist who argues that two or three rivals is enough for effective competition is 1. ignoring valid theory and evidence and 2. a dangerous companion at the racetrack.

I now come to the second reason that dominance prevents effective competition:

2. parity among the rivals is lacking. Competition is effective only when competitors apply strong mutual pressure to restrain prices down to costs and to compel excellent performance. When one firm has an overwhelmingly larger market share, it can apply competitive actions that are not available to its little rivals. The situation is comparable to heavyweight boxers against flyweights. The dominant-firm heavyweight is not pressed to do well, and the flyweight little rivals are unable to compete evenly.

Exceptional cases may occur, of course, in which the smaller firm has some advantage that helps it to survive or outcompete a big rival. But the dominant firm will almost always have advantages of strategic choices, price discrimination, and manipulation of information. Hence the regrettable general

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<sup>5</sup> See the U.S. Department of Justice, "Merger Guidelines," reprinted in the Review of Industrial Organization, Vol. 8, No. 2, April 1993; see also the articles by Janusz Ordover and Robert D. Willig, Dennis C. Mueller, David Scheffman, and Willard F. Mueller in that issue.

truth: dominance prevents the necessary parity.

### 3. Counter-Arguments

There are interesting counter-arguments in defense of market dominance. One is that, as I often hear it claimed, "Market share really doesn't matter any more." That is often offered as part of a general rejection of "structuralism," often called "extreme structuralism" or "old-fashioned structuralism." But that claim is actually a mixture of overstatement and simple theorizing with a lack of full evidence.

In fact, no serious economist studying structure -- and all serious economists should study structure in some detail -- has ever claimed that structure (including market shares) is a tight determinant. Many mainstream economists have said and still say that structure (including market share) is often an important indicator of possible market power, setting likelihoods that can be rebutted by good evidence.

As for the high market shares themselves, they may lose significance if they are entirely vulnerable to small-firm attack; that is, if small firms or entrants can quickly oust the dominant firm. That situation is nowadays often called free entry. But the free-ness is a very demanding condition, to the point of perfect contestability.

Rather than reopen the contestability topic (which is noted further below), I will say here only that free entry cannot merely be asserted: it is a complicated matter whose existence must be proven with really convincing evidence. The proof must

also show that existing small firms (not just new entrants) are able to displace entirely the dominant firm, without delay. If not, the dominant firm still retains advantages which amount to market power.

A second counter-argument is that the dominant firm may possess greater efficiency, which is the true source of its dominance. Then a social trade-off may have to be made between efficiency and competition. Such cases may indeed happen (in single-product or multi-product dimensions), but they in turn call for two things: 1. genuine proof, by evidence, not just by assertion, and 2. a recognition that natural monopoly calls for regulatory constraints of some kind. ✓

A third counter-argument is that the small rivals may possess excess capacity, which allows them to take sales quickly from the dominant firm. That reduces the scope of the dominant firm's true market share, and perhaps nullifies all of its market power, if the excess capacity is large. Against that point, the excess capacity is in fact an economic and financial burden to the small rivals, which may reduce their ability to compete. ✓

Returning to my main theme; dominance tends to stabilize and persist, rather than to decline toward effective competition. The two or three small, fringe competitors often adopt passive, cooperative behavior as part of their joint maximizing approach. The result is soft competition or outright collusion, instead of hard, effective competition. I will offer AT&T, MCI and Sprint in Section 3 below as a good example of this.

But note that the market must evolve down not only away from dominance but also down through tight oligopoly to loose oligopoly, if fully effective competition is to be established. As a corollary, the dominant firm must soon become just another significant competitor, rather than remain as "the" telephone company or "the" electric company. That required shrinkage of market position jars with many economists, who wish to believe that AT&T, or the local electric utility, can somehow still "run the industry," even after fully effective competition arrives. Yet they would not assert the same of any other normal competitive market, where every firm is (properly) subject to risk of being diminished or eliminated. Indeed, often those economists who accept, or even extol, the harshness of competition seem unable to admit that the old monopolist must also face the chopping block like everyone else.

#### **4. Dominant-Firm Inefficiencies**

Dominant firms do encounter troubles, as IBM and GM since 1970 graphically show. By 1988-1992 they were in deep crisis, having failed to maintain efficiency and innovation, and by 1994 they are only emerging slowly from convulsive changes.

But such negative cases actually prove my point. Their poor performance was engendered precisely by the insulation from competitive pressure that their market power provided. "Snow White" (as the old IBM was called in the 1960s) was not forced by the Seven Dwarfs to perform well, and in fact it didn't. Yet IBM retained its dominance long after its internal efficiency had

deteriorated.<sup>6</sup>

Those of us who mounted the (ultimately unsuccessful) effort to cure IBM's dominance via the Antitrust Division's suit knew quite well that we were trying to rescue IBM from itself -- and particularly from its bellicose lawyers.<sup>7</sup> But their lawyers won; the IBM company itself, its shareholders, its workers and its suppliers, ended up losing heavily. The same happened to General Motors. The shareholders of each company suffered by 1992 a drop in stock market value of approximately \$100 billion. Breaking up the Bell System provided a starkly contrasting result, where nearly everybody gained because market dominance was eliminated. The stockholders of the Bell System gained approximately \$100 billion from 1984 to 1992.

Accordingly it is of cardinal importance to prevent the entrenchment of market dominance under deregulation. Once the dominance is hardened, antitrust can do little about it without resorting to quixotic structural litigation and remedies. Claims about free entry in particular must be ruthlessly doubted and, unless overwhelming evidence is present, rejected. IBM and GM claimed to be under competitive pressure and entry. Accepting those claims was an error that we can now avoid.

I stress this because there has been endless loose,

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<sup>6</sup> See the discussion of IBM's deep problems in my The Economics of Industrial Organization, 3d ed., Englewood Cliffs, N.J.: Prentice-Hall, 1990.

<sup>7</sup> "Antitrust Repelled, Inefficiency Endured: Lessons of IBM and General Motors for Future Antitrust Policies," Antitrust Bulletin, Spring, 1994, in process.

irresponsible talk about free entry in the deregulatory literature and in actual proceedings. Economists who are meticulously careful theorists sometimes become emphatically sure -- in the heat of testimony in regulatory hearings -- that entry is definitely, entirely free. Hence, they declare, the overwhelming dominance of the former monopolist can be utterly ignored, along with sustained very high profit rates. That is true, they say, even in the absence of any new entry or any rise in market positions by little rivals. Yet these experts often lack any evidence of free entry other than that there are no legal barriers.

#### **4. Economic Entry Barriers**

So I turn to the question of economic entry barriers. It is a childish error to equate physical ease of connection ("Merely turn the On switch") or legal openness ("Anybody has the legal right to enter this business") to economic free entry. Economic barriers can arise from at least 14 sources, which I have frequently enumerated as in Table 2. Perhaps the main barrier to a firm facing a dominant firm is that a majority of business in the market is -- by definition -- already in the dominant firm's customer base. Although theoretically those customers can be lured away, in practice the luring is usually extremely difficult. The dominant firm usually has customer inertia, past reputation, long-standing physical arrangements, far-more-extensive network facilities, and superior knowledge on its side.

[ Table 2 goes about here. ]

Moreover, it can usually segment its wide variety of consumers so as to extract a maximum of revenue and to use pin-point pricing to target and deter specific competitors in submarkets. AT&T in long-distance offers a superb example of these things, with over 100 tailored discount deals with major corporations. As a result, it has stabilized its dominance at about 65 percent of the market, inducing MCI and Sprint to stop serious price competition.

So barriers are usually hard to define and harder to measure, in assessing many elements of possible barriers. Cautious economists will reject glib statements about easy entry. Moreover, entry itself is complex and often obscure to define and measure. Entry involves the significant, rapid taking of market share, so that the newcomer is fully established and able to compete with the leading firms. Niche entry doesn't really count. Nor does shallow entry, such as reselling capacity in telecommunications. And any entry must be netted against exit during the same period.

Obviously, merely counting entrants will not do, because trivial entrants don't matter. A churning among the fringe is of little significance. One must consider the market share taken firmly by newcomers, as it comes out of the leading firms' market shares.

Now we come to potential entry, emphasized since 1981. In theory, it can discipline existing, and in the extreme, under contestability, it might nullify even pure monopoly. I have

dealt elsewhere with contestability's abstract and applied flaws. Its authors, including Bailey and Baumol and Baumol and Willig, have since 1983 praised the theory mainly for its insights and interest as theory. But the antitrust guidelines literature has elevated potential entry to unrealistic notions of potency.

Firms in adjacent markets, or with similar technology, are referred to as "uncommitted entrants." This is either mere confusion or an attempt to distort the meaning of defining markets. Either firms are in the market or they aren't. If they aren't, they might of course consider going in, but that is a matter of complex technology, intentions, alternative profit alternatives, likely retaliation by incumbents, and uncertainty.<sup>8</sup>

For example, entry against a dominant firm is far more hazardous than against an array of little competitors, but "uncommitted entrants" does not make that large distinction. To group all such cases as "uncommitted entrants" seems calculatedly biased, an attempt to make such firms seem far more likely to enter than they often are.

Potential entry is a matter of evidence, of course, often extremely difficult to gather and interpret. After all, these outside firms have chosen not to go into this market. Yet the Guidelines seem to turn it into a relatively simple matter, in

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<sup>8</sup> For example, entry against a dominant firm is far more hazardous than against an array of little competitors, but "uncommitted entrants" does not make that critical distinction. To group all such cases under the euphemism "uncommitted entrants" is biased, an attempt to exaggerate the role of such firms.



which the adjacency itself makes all such firms into "entrants" (though they are "uncommitted").

In sum, market dominance (and tight oligopoly) involve ineffective competition. Entry into such cases is not free, unless there is strong contrary evidence. Therefore, to deregulate such cases usually commits premature deregulation. It leaves customers and the public exposed to high degrees of monopoly, which may be virtually perpetual. A main escape from such traps will be if the dominant firm's quality and performance deteriorate so seriously that small rivals can begin to overcome their inherent disadvantages.

#### **5. Innovation and X-efficiency**

This leads me to another basic point: innovation and X-efficiency are usually more important goals than allocative efficiency. It is well known that monopoly power tends to retard innovation (though possibly not invention) and to breed X-inefficiency. Yet much (perhaps most) of the "new IO" theorizing about regulated monopoly, dominant firms and free entry simply ignores innovation and X-efficiency. Hence the "new IO" lessons for policy are often unreliable.

Altogether, the transition to effective competition is a complex, often lengthy process, which may get trapped in dominance or tight oligopoly. The leading firms will declare that competition is entirely effective, even when it is not. Policy hearings will resound with expert claims that the dominant firms are actually facing immediate ouster, when in fact their

dominance is entrenched, their profits are at high rates, their actual competitors are small and weak, and there are strong barriers against new entrants.

## 6. Core Services

The industry may contain core services, which are necessary as the platform or conduit for the rest of the services.<sup>9</sup> Examples are airports for airlines, rails for railroads, and a backup network for telephony. That core is the responsibility of the monopolist, as part of its position as a ratified natural monopolist.

As competition rises and the monopolist's dominance shrinks, the status of the core services may come in doubt. The dominant firm's obligation to provide the core has faded, and as dominance is eliminated the responsibility may disappear. Then no-one is responsible for the core, and that may seem intolerably risky.

Two solutions are:

1. separate out the core for provision by a separate body, perhaps a neutral public enterprise or set of local such firms. That is done with the air control system (the FAA) and by the system of local/regional airport authorities.
2. let "the market" collectively provide the coverage. All

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<sup>9</sup> For more detailed discussion of core services, see William G. Shepherd, "Concepts of Competition and Efficient Policy in the Telecommunications Sector," in Eli Noam, ed., Regulation and New Telecommunications Networks, New York: Columbia University Press, 1983; and "Converting Dominance to Competition: Criteria for Effective Deregulation," in Harry M. Trebing, ed., New Regulatory and Management Strategies in a Changing Market Environment, East Lansing: Institute of Public Utilities, Michigan State University, 1987.

normal competitive markets have no required provider of the core (if there is a core). Together, all the firms provide sufficient coverage. If one fails, there are all the others to turn to.

These two choices may of course be complicated to arrange in practice. For example, if AT&T were to sink to only 30 percent of the long-distance market, there would need to be careful discussion about the provision of back-up capacity; it might be necessary, or not, but the issue would be important and the discussion might be complicated. The same applies of course to transmission grids for bulk power. Currently they are provided under complex wheeling contracts, but it might be better to create a national grid to provide that bulk transmission as a separate and neutral function, just as the highways provide that for truckers. ✓

## **7. Later Mergers**

Deregulation is not the end of the policy problem; it just ushers in the need to retain competition, primarily by applying antitrust policy. It seems universally true that the rise of competition in an industry will stimulate powerful, even compulsive efforts by firms to merge, so as to reduce the competition.

The mergers may be forced ahead in advance of the deregulation, as appears to be happening now in the telephone-cable sectors. Or the mergers may come later, as in airlines during 1985-1989. Regardless, strict antitrust criteria need to be applied, or else the deregulation will turn into a cover for

new, unregulated monopoly.

Merger policies can be weak and inadequate, rather than optimal. That clearly happened during the airline and other mergers during much of the 1980s. Of course Reagan officials and experts insist that the decisions were optimal, but there do seem to have been important mistakes. Each case will need care, and extremism on both sides should be avoided. But a recent Antitrust Division decision to allow a merger creating a pure monopoly in airline schedule guides (between Official Airlines Guide and Reed Group) is a disturbing clash with supposedly "strict" new policies since 1992. The actions or inactions toward the current telco-cable mergers will be an important test whether dominance and entry barriers will be taken seriously by current economists and officials.

## SECTION II. HISTORICAL EXPERIENCE<sup>10</sup>

Regulatory policies and research have both gone through distinct historical phases. Standard utility regulation began roughly after 1905, spread in the 1930s, and by the 1960s was being applied moderately well.<sup>11</sup> Economic criticisms of transport regulation began in the 1950s and grew. The

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<sup>10</sup> Sections II and III draw heavily on my Regulation and Efficiency: A Reappraisal of Research and Policies, Occasional Paper number 14, Columbus, Ohio: National Regulatory Research Institute, July 1992.

<sup>11</sup> Though the Interstate Commerce Commission was first authorized in 1888, it did not acquire genuine powers until 1906 under the Hepburn Act. Wisconsin created the first state regulatory commission in 1907. See James C. Bonbright, 1962, and Alfred E. Kahn, 1971,

spectacular watershed year of 1968 brought sharp new pressures, economic criticisms and rapid changes.<sup>12</sup>

Yet the utilities defended regulation and tried to strengthen its protections for their monopolies, as with the notorious "Bell Bill" of 1976. But finally, after about 1975, economists, politicians, companies and other groups developed a crusade for deregulation. It spread to gas, telephones, cable TV, railroads, trucking, airlines, buses, electricity, and other sectors. After all these upheavals, the 1990s are a period of reassessment and further deregulation.<sup>13</sup>

Research about regulation has paralleled, and sometimes led, the policy choices. The 1900-1930 period explored most of the important concepts of regulation: monopoly, natural monopoly, scale economies, complex discriminatory pricing, costing, dangers of over-investment and inefficiency, rates of return, risk and return, vertical integration, bottlenecks, potential competition, etc.. The 1930s-1950s interval was mainly fallow, except for largely sterile discussions of rate-base valuation. Serious

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<sup>12</sup> See William M. Capron, ed., Technological Change in Regulated Industries, Washington, D.C.: Brookings Institution, 1971; and Almarin Phillips, ed., Promoting Competition in Regulated Industries, Washington, D.C.: Brookings Institution, 1975, for research and policy advice strongly promoting deregulation and the creation of effective competition.

<sup>13</sup> The partial re-regulation of cable TV during 1992-93 is an exception, which has encountered enough troubles to lead probably to still more adjustments.

economic criticisms arose from 1955 on.<sup>14</sup>

Far from being "new," much of the post-1960 analysis of regulation's costs merely revived and refined (and sometimes even distorted) important ideas that had originated before 1930.

After 1975, a "new" literature developed on two levels. One part was led by theorists, who extended and refined the pure theory of allocation under regulation.<sup>15</sup> Other writers sought frankly to eliminate traditional regulation, replacing it with "incentive regulation" and free entry.

### **1. The Early and Mature Eras of Regulation**

Conventional regulation developed during 1885 to 1915, starting with the Interstate Commerce Commission in 1888. By 1915, many states had established regulatory commissions or were in the process. By the 1930s most states had commissions and the Federal Power Commission, Federal Communications Commission, and the Civil Aeronautics Board were created at the federal level. The high decades of regulation, with its standardized forms, were from the 1930s through the 1960s.

Regulatory activities had their direct costs, but they were moderate compared to the scale of utility-firm resources which they were meant to control. The commissions' costs, plus the companies' regulatory spending, have probably been below 0.2 percent of company revenues in nearly all cases and time periods.

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<sup>14</sup> But see Horace Gray, 1940, for an important prescient critique, and Walter Adams and Horace Gray, 1955, for a more extensive attack.

<sup>15</sup> Among others, see Baumol, Panzar and Willig, 1982.

Therefore the indirect costs of regulation -- the possible inefficiency costs -- are the only really significant targets of economic criticism.

Early experience with the Interstate Commerce Commission after 1888 suggested that regulators might have little impact at all. Only after 1906 did the ICC gain substantial powers, and by the 1920s trucking and buses had already begun to erode the railroads' power and profitability.

The possibility of inefficiency under regulation was well recognized from the start, and many of the new commissions sought to prevent excess costs. Numerous early discussants dealt with the possibility that sheltered, regulated monopolists would incur excess costs and investment.<sup>16</sup> The need to enforce "prudent investment" standards was known and acted on, as in the Bluefield Waterworks case (1923). And J.M. Clark in 1923 defined efficient pricing for utilities, anticipating much of the marginal-cost pricing of the 1960s and the "Ramsey" pricing of the 1980s (see also Nowotney, Smith and Trebing, 1989).

During the 1940s and 1950s, regulation was favored by the downtrends in costs in electricity and telephones, as growth made it possible to achieve scale economies and cost-saving new technologies. Commissions needed to do little but accept a series of company-initiated rate cuts.

The FCC labelled its passive "regulation" as "continuous

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<sup>16</sup> See the review in Kahn, 1971.

surveillance." There was in fact no formal FCC regulatory hearing on AT&T's prices from the 1930s to 1964 and little formal regulation by state commissions. State commissions and the Federal Power Commission were largely passive to electric firms, and rate cases lagged behind the falling costs. The companies, on their part, could pocket much of the cost savings, because of the regulatory lag (influenced by the firms themselves) in cutting the prices.

States displayed marked variations in the quality and tightness of regulation. Wisconsin, New York and California were known as leaders, followed by a number of northern and northeastern states. Regulation in the southeast was generally regarded as moderate or passive at best.

In short, only moderate, slow and liberal economic regulation occurred, even during the 1930s to the 1960s. There was extensive regulatory lag, which was well known and understood to help encourage efficiency.

But the regulation of transportation cartels was different. Adams and Gray (1955) attacked the competition-blocking effects of transportation regulation. Meyer, Peck, Stenason and Zwick (1959) presented forcefully the case for deregulating railroads and trucking. Virtually all observers noted that the regulation of most railroads and all trucking were unsuitable and probably highly inefficient.

There was little empirical study of natural-monopoly regulation's effects, in telephones, electricity, and the like.



The regulatory process appeared in the 1950s to be slow and highly formalized, even ritualistic, and possibly empty of economic impact.

Yet instead, regulation may well have been reasonably suited to the favorable cost trends in telephones and electricity. If so, regulation provided a relatively efficient balance between industrial conditions and policy needs.

The outcomes were mainly benign, because costs were declining, and regulatory lag permitted the firms to keep much of the cost savings. Firms had strong incentives to cut costs and install new equipment. Therefore an important degree of "incentive regulation" existed in those sectors, long before the current popularity of the phrase. Regulation could be regarded as successful, both despite the fact that it was moderate and because it was moderate. As the 1950s continued, the regulators and the regulatory literature muted its earlier concern about efficiency in standard utilities. Efficiency was assumed (perhaps rightly) to be reasonably well achieved.

## 2. Economic Criticisms

Transport regulation attracted harsh criticism, and the harms were obvious.<sup>17</sup> As for natural monopoly regulation

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<sup>17</sup> Other observers reinforced Meyer, Peck, Stenason and Zwick's argument (e.g., Wilson, 1964), and MacAvoy and Sloss (1967) argued persuasively that ICC policies had blocked major innovations in the railroad sector.

Also, critical attention began to be directed at the CAB's passive regulation of airlines, combined with its rigid blockage of entry and competition in airline markets (Caves, 1962). By 1965, there were strong calls for abolition of the ICC and a competitive unleashing of the railroad, trucking and airlines industries.

(e.g., telephones, electricity), some economists revived the old question whether regulation had any effects at all. Stigler and Friedland (1963) concluded that it did not, and Stigler went on to foster a series of studies in the Journal of Law & Economics, all of which argued that regulation was either irrelevant or costly to economic welfare.

Discontent with AT&T's monopoly power was also rising, driven by antitrust concerns about excessive monopoly unconstrained by regulation. The Kingsbury Commitment of 1913 had permitted AT&T to keep Western Electric. In 1949 a federal antitrust suit against that vertical monopoly was filed, but it was withdrawn in 1955, under a shadow of political intrigue.

Then came the Averch-Johnson (1963) critique of utility's tendency to over-invest and to capture adjacent markets via cross-subsidizing. The argument was directed partly at AT&T, because of its history of extending its activities beyond the natural-monopoly borders. But the A-J study was more provocative than practical. It rested on a formal analysis of supposedly tight, effective regulation (the analysis is discussed below). But, as I have noted, most federal and state commissions applied soft and lagged regulation to electricity and telephone service.

The 1960-1975 analysis was primarily scientific in spirit, seeking to clarify possible distortions. Moreover, the worst cases (railroads, trucking, airlines, and AT&T's unnecessary elements of vertical monopoly) were distinguished from lesser problems. The moderate and pointed criticisms soon had effects,

by encouraging the deregulation of railroads, trucking, and airlines and the break-up of the Bell System (by a case filed in 1974).

In addition to the A-J "rate-base" or "gold-plating" effect, economists noted that regulation contained a general "cost-plus" tendency toward an over-use of all inputs (e.g., toward "X-inefficiency" and excess cost).<sup>18</sup>

The Averch-Johnson paper stirred excitement among economists and consternation among utility firms. It stimulated a growing debate.<sup>19</sup> At first, utilities vigorously denied that they were causing waste. Then, after 1975, they reversed direction. Now they claimed that regulation was particularly reprehensible: it was making them waste large volumes of resources.

The possibility of "X-inefficiency," also long recognized, rested on extreme assumptions about regulatory strictness. Only if regulation were perfect would it remove all excess profits immediately. But if regulation were not perfect, then the firm could keep some cost savings and it would be motivated to achieve them.

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<sup>18</sup> "X-inefficiency" is a term coined by Leibenstein (see Harvey J. Leibenstein, Beyond Economic Man, Cambridge, Mass.: Harvard University Press, 1976) to denote all inefficiency other than allocational inefficiency. It corresponds to familiar notions of "business inefficiency" or slackness in controlling costs.

<sup>19</sup> See, among others, William G. Shepherd, 1966, Alfred E. Kahn, 1971, George R. Cory, 1971, Noel M. Edelson, 1971, Elizabeth E. Bailey, 1973, David Dayan, 1975, and Roger Sherman, 1985.

Indeed, the Bell Journal of Economics (now the Rand Journal of Economics) was founded and financed by AT&T partly in order to provide a forum for articles dealing with this issue.

In any event, the 1960s saw a rebirth of economists' doubts about regulation as a cause of inefficiency. The resulting new literature about the possible anti-efficiency effects of regulation soon broadened in the 1970s into a general crusade against the costs of regulation. Younger scholars provided by 1974 several empirical tests of the rate-base effect (discussed below). Some research focused on electricity, while others dealt with railroads and airlines.

Other researchers offered a range of more general evaluations, varying widely among utility sectors.<sup>20</sup> Generally, the regulation of transportation industries was found to be harmful. Electric regulation appeared to be relatively beneficial, on balance, and the efficiency losses were marginal, not large. Telephone regulation's impacts have not been directly quantified.<sup>21</sup> More recently, Richard Schmalensee (1989) has provided an important general analysis of the conditions under which traditional regulation may be superior or inferior to specified alternative methods.

### 3. From Analysis to Ideology

But the criticisms of regulation changed from valid warnings

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<sup>20</sup> See Stephen Breyer and Paul W. MacAvoy, 1974, Almarin Phillips, 1975, Roger G. Noll, 1976, Jeffrey Callen, Michael W. Pustav, 1978, Richard Schmalensee, 1979, Robert Litan and William Nordhaus, 1983, Theodore E. Keeler, 1984, Paul L. Joskow and Nancy L. Rose, 1989, Robert W. Hahn and John A. Hird, 1990.

<sup>21</sup> Wenders offered an appraisal, but it was based mainly on the lack of marginal-cost pricing, rather than the rate-base and X-inefficiency effects.

to bald declarations that all regulation was hugely costly.<sup>22</sup> Particularly in the Federal Communications Commission, there was a crusade to remove all regulation, even from natural monopolies.

Much of the rhetoric and pressure for the campaign came from the regulated companies themselves and their expert witnesses, particularly those who were retained by AT&T and its affiliates. The AT&T impact upon its own regulation, as well upon regulation generally, has been large.

As the campaign progressed, by 1980 a tone of hysteria crept in: regulation was portrayed as an evil, to be eliminated at any cost. Some of that apocalyptic rhetoric is still heard.

Meanwhile, in Britain the Conservative government's privatization program was influenced by the extreme criticisms of U.S. regulation.<sup>23</sup> Indeed, the anti-regulation crusade carried into many other countries, urging that regulation be abandoned and that free entry alone would guarantee efficient results, even from dominant firms.

By the 1990s, the crusade's rhetoric had influenced many state commissions and the remaining federal commissions. Even in virtual-monopoly markets such as local electricity distribution

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<sup>22</sup> Good examples can be found in the various issues of Regulation, as well as in the public press.

<sup>23</sup> In order to avoid the supposedly monstrous U.S.-style regulation, the newly-privatized telephone, bus, gas and electricity monopolies were subjected only to formal rules permitting new entry and to newly designed "price caps." The policies also relied on the new theories of "contestability," whereby the possibility of new competition would nullify the private monopolies' market power.

and telephone service, many commissions were courting premature deregulation.

#### 4. The Shrinkage of Natural Monopoly

While these ideas have been debated, the scope of actual natural monopolies has receded. But it is a long way from natural monopoly to natural competition. When optimal scale shrinks below the level of pure natural monopoly, it may stop at "natural dominance" or "natural tight oligopoly," rather than jump all the way to the "natural-effective-competition" extreme. Also the dominant firm may exploit imperfections, so as to deter effective competition.<sup>24</sup> That may entrench dominance even when the technology would permit full competition.

During the period from 1900 to 1960, natural-monopoly thinking was expansive, to include large blocks of the economy, particularly in three sectors: energy (electricity and natural gas), communications (telephones, postal services, and cable TV), and transportation (railroads, airlines, intercity buses). Also, a range of urban services (such as water and transit services) were regarded as natural monopolies requiring regulation and/or public ownership.<sup>25</sup>

Natural monopoly was thought to justify regulating whole sectors, including most or all of the telephone and electricity sectors. But by 1960 the natural-monopoly conditions were

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<sup>24</sup> For discussions of the concepts of natural monopolies and the proper scope of regulation, see Bonbright, 1962, Kahn, 1971, Schmalensee, 1979, and Baumol, Panzar and Willig, 1982.

<sup>25</sup> See Bonbright, 1962, Kahn, 1971, and Schmalensee, 1979.

receding in some sectors, while other regulated industries (airlines, trucking, many railroads, natural gas production) had never had them. By the 1970s, a new realism about natural monopoly had spread (Capron, 1970), Phillips, 1975). The 1980s brought further technology shifts away from natural monopoly.

By 1993, the situations of complete natural monopoly may have dwindled down to include mainly just certain urban services (especially electricity, telephone, water, gas, cable TV, transit, etc.).<sup>26</sup> Even some of these pure natural monopolies have been claimed to be suitable for deregulation.

Yet, dominance is also entrenched in long-distance telecommunications, some experts have declared to be natural competition. Therefore, the wise observer will distrust the tendency to label all sectors as natural competition.

The Ultra-free Entry Rationale. The rationale for doing so is to turn away from monopoly in the market and, instead, focus on extremely free entry. If potential competition can destroy monopoly completely and instantly, then monopoly is theoretically powerless. If entry is "perfectly contestable," then free entry converts even natural monopolies into effectively-competitive situations (see especially Baumol, Panzar and Willig, 1982). Even if scale economies permit "room" for only one firm in the market, contestability seems to assure an efficient result. Whether there is competition or monopoly inside the market

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<sup>26</sup> See the discussions in Shepherd, 1991, Posner, 1969, and Noll, 1983.

becomes irrelevant.

An equally optimistic "new" view applies to mixed monopoly-competitive situations. Consider the firm that holds varying degrees of monopoly power in selling to a range of customers. That leads to discriminatory prices, a traditional target of regulation.

But perfect contestability banishes that danger. If total profits can be kept at competitive levels, then price discrimination is relabelled as desirable, efficient ("Ramsey") pricing.<sup>27</sup> Cross-subsidizing and strategic pricing are now to be welcomed (or at least tolerated) rather than prevented.

But contestability theory remains controversial, and its assumptions appear do not apply to telephone and electric markets. Therefore, natural monopoly remains an important

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<sup>27</sup> The reasoning is as follows. The firm is assumed to be a natural monopoly, so that its marginal costs are below average costs on many or all outputs. The firm will then suffer a financial deficit if all of its prices are set at marginal costs. Some prices must be set above marginal costs, and the inverse-elasticity rule (given by price discrimination) will minimize the resulting inefficiency; see Kahn, 1971, and Baumol, Panzar and Willig, 1982. The firm will automatically set the efficient array of discriminatory prices as a by-product of its efforts to maximize its profits (or at least to survive). If the resulting set of prices just allows the firm to break even financially, then they are so-called "Ramsey" prices.

The theory has several limits and defects. One is that it applies only to firms with natural-monopoly conditions over much or all of their output. Otherwise, Ramsey prices are merely a nice label for monopoly price discrimination. A second limit is that the theory is strictly static. It provides only static efficiency, not innovation, fairness, and other economic values. Nor does it recognize that much price discrimination is strategic, to accomplish deterrence of competition in a dynamic setting. Another problem is that the firm's total profits must be precisely at zero. If any excess profits occur, then the pricing is not efficient.



problem.

Control over Specific Bottleneck Facilities. Even under "natural competition," there may be some other specific monopoly-creating condition. Monopoly and/or dominance can also be created or enforced by specific controls, such as ownership of a bottleneck facility which competitors must use in order to compete. Even if "natural competition" conditions exist, the control of a bottleneck may make the competition ineffective.

In sum, the conditions which justify some degree of regulation include:

- (a) technology-dictated natural monopoly, or
- (b) a utility firm that retains dominance or leadership of a tight oligopoly that is likely to continue, or
- (3) dominance or tight oligopoly with specific control over access to the market by means of bottleneck facilities.

As of 1994, such cases probably include virtually all local services (electric, telephone, postal delivery, water, gas, cable TV, and transit), long-distance telephone service, and bulk power in some areas.

The mixed monopoly-competitive cases are a leading problem, with possible cross-subsidizing and the blocking of competition. The correct policy choices require a complex balancing among judgments about: (1) the relative importance of each part, within the whole, (2) how monopoly power in one part may affect performance in the whole market, and (3) the prospects for further competition in each part and in the whole market.

### SECTION III. THE COSTS OF REGULATION

Now I turn to the actual costs of regulation, in reducing efficiency, innovation and equity (a fuller coverage is given in Shepherd, 1992).

The recent literature has centered on static efficiency, defined by maximizing consumer and producer surplus. But that is too narrow; it leaves out innovation and equity, whose importance may exceed all the others. Also, competition itself offers important social values. Therefore, pure theories of static efficiency are not a reliable basis for policy choices.

#### 1. Logic

Regulation-caused inefficiency has always been finite, debatable and subject to practical cures. Recall that loose or imperfect regulation will inject incentives for efficiency, thanks to a sharing of cost savings. Regulatory lag may apply strong incentives for full efficiency and innovation.

If extra costs do occur, they may actually provide a higher quality of service, including higher degrees of reliability thanks to the enlarged capacity. Also, any cost bloating may be kept low by good management practices. In any event, the firm's monopoly position may be the true cause of distortions, while regulation is neutral to them.

Also, any cost bloating may be kept low by good management practices. Managers' training leans against permitting inefficiency, and so (as Bell-oriented writers urged in the 1960s!), any cost-plus tendencies may be constrained by customary

standards of good management.

In any event, the firm's monopoly position may be the true cause of distortions, while regulation is neutral to them. Regulation may have the duty of reducing the X-inefficiency -- and it may fail to do so -- but regulation may not be its cause.

The A-J Rate-base Effect Toward Higher Investment.

The Averch-Johnson study noted that if the firm is allowed a profit-rate increment above the cost of its capital, then the firm will have an incentive to use more capital. The analysis merely restated and refined the earlier 1920s concern about prudent investment. But it suggested very large distortions; in the Averch-Johnson paper's illustration, capital was induced to overexpand by 120 percent and costs were increased by 25 percent.

Also, regulated firms would be induced to capture adjacent markets even when its costs exceeded those of firms already in those markets.

The Averch-Johnson paper stirred sharp responses. Edward Zajac (1972), a senior economist at AT&T, noted that the effects on capital might be small.

Several arguments against large A-J effects are immediately apparent, and they were advanced in the literature:

1. Good Engineering Practice. Many observers and participants have noted that engineers and company officials would not overtly choose wastefully-large investments. Their training instead instills an avoidance of waste.

2. Actual Regulation Is Not Ideal. Scherer, Baumol and

others argued that if regulation were relatively weak and/or slow in practice, then the rate-base incentives would be attenuated, perhaps to negligible levels. And, as noted earlier, regulation has indeed been weak and/or slow in many cases.

A prime cause of weak regulation is overstatement of needs in the regulatory "game." Firms may overstate their needs, expecting that regulators will routinely permit less than is asked. Accordingly, the firm may obtain what it really wanted, by inflating its demands.

3. Accounting Adjustments, Not Real Resources. I've noted elsewhere that some rate-base padding might be merely nominal, not real. It would occur through accounting decisions about depreciation, and by other adjustments in valuations, rather than actual expenditures on real capital. Yet the logical core of the rate-base hypothesis has survived intact, and regulation may in principle encourage over-investment. The real question then remaining is a factual one: how large are the real rate-base effects?

In judging that, there are several more points to consider:

4. A-J Effects May Offset the Monopoly's Restraints. The monopoly firm will restrain output and investment in order to maximize profits. If it is price-constrained, then it will prefer to under-invest because the marginal returns on investment will be low. The monopoly will also tend to reduce the rate of innovation, and its excess profits will reduce fairness.

The A-J effect would tend to offset the first two

distortions, while the regulatory constraint itself would prevent the third effect. If the A-J effect raises investment, it may tend to increase the adoption of the new technology embodied in investment.

This point deserves particular emphasis, because it injects an automatic offset. When regulation permits a substantial margin of extra profit (which then induces a higher level of investment), the higher prices will automatically reduce the level of required output.<sup>28</sup>

#### Regulatory Lag.

Again, if regulatory lag is large, it may provide incentives for efficiency and innovation. And the regulators' actions may promote fairness. Therefore lagged, moderate regulation may give a realistic approximation of an efficient, innovative and fair optimum.

Consider regulatory lag more closely. It can be extremely important. It operates when there are intervals between actual changes in costs and the firms' ability to change revenues so as to cover the costs. The lag can have many alternative causes. Commissions can have slow procedures, or they may cut the requested price rises too deeply. Exogenous cost trends may be too rapid. Companies' rate requests may be patently inflated or not believable for other reasons.

Moreover, regulatory lag may work in opposite ways,

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<sup>28</sup> The only exceptions to this would be if demand is totally inelastic or if the firm adopts differential pricing which over-stimulates peak-load usage.

depending on whether costs trends are rising or falling. When costs are falling, the firms want lags to be long. Lags give higher profits, which are a desirable but not compelling result.

When costs are rising, the firms suffer from regulatory delay. The lags cut profits, perhaps causing actual losses; that is undesirable and it is compelling. In both cases, the cost-sharing ratio will vary directly with the length of the lag.

Regulatory lag's effects can be presented in a simple equation, which shows the fraction of cost savings which the firm gets to keep.

$$\text{ACTUAL PROFITS} = \text{PROFITSR} + S (\text{Expected Costs} - \text{Actual Costs})$$

The firm's total actual profit consists of the formally-permitted profits, PROFITSR, plus a portion of any cost savings or cost over-runs. The coefficient S is a percent between 0 and 100 percent. In perfect regulation, S would be zero: all cost savings would be passed on to customers. If there were no regulation, S would be 100 percent: the monopoly firm would keep all cost savings.

The S coefficient varies directly with regulatory lag. Regulators apply (knowingly or not) an incentive factor (S) by the delay from their actions. The degree of incentive may range from zero up to a strong maximum. Even when it is less than maximum, it may still be strong enough to offset the other incentives toward inefficiency.

#### Marginal-Cost Pricing.

The effects on efficiency are also related to price-

structure issues, because peak-load pricing can be a crucial device to offset any tendencies toward overexpanded peak-load production and investment.<sup>29</sup> Where utilities have reasonably efficient marginal-cost pricing in line with peak costs, the A-J effects will tend to be minimized.

So far, the topic has been efficiency: allocation and X-efficiency. Innovation and equity are two other possible effects.

### Innovation.

Innovation lies largely outside the economic literature on regulation. If regulation discourages cost-saving actions, then it may discourage (1) product innovations, which create new goods and services, and/or (2) process innovations, which reduce costs for existing products.

Regulation may discourage innovation in several ways. It may be slow in approving new products. It may permit too much monopoly (by extending the monopoly franchise too far), and that excess monopoly may retard innovation.<sup>30</sup>

Yet regulation may instead promote innovation. When prices are constrained, the firm may turn to innovation to modify or create products so as to escape the constraints. Also, process innovations will be pursued if regulatory lag permits retaining

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<sup>29</sup> See Nelson, 1964, Shepherd and Geis, 1965, Shepherd, 1966, Kahn, 1971, and Schmalensee, 1979.

<sup>30</sup> There is an extensive literature on monopoly retardations of innovation. See Scherer and Ross, 1991, Chapter 17, Shepherd, 1990, Chapter 6, and sources cited there.

cost gains. In these ways, actual regulation may be pro-innovation even though theoretical regulation is not.

Also, the regulators may act quickly to approve product innovations. And the franchise may be fitted tightly to the natural-monopoly conditions, so that competition has a maximum role for promoting innovation in other parts. Finally, if the A-J effect does occur and real investment is enlarged, that added margin of new investment may increase the rate at which new technology is adopted.<sup>31</sup>

#### Equity.

One of regulation's original goals was to promote fairness, or equity. The equity gains from regulation may range from negative (shifts reducing fairness) to positive (shifts increasing fairness). They are usually expected to be positive, by preventing monopoly exploitation by the franchised utility. But since 1970, Chicago School analysts have urged that equity is merely ethics, where no scientific answers are possible. Transfers are merely transfers, and judgments about them only reflect personal tastes.

Yet if equity is a genuine social goal, then the prevention of monopoly exploitation is unambiguously positive. The value may be large.

In sum, one may expect that any A-J effect on real investment levels may be prevented from causing substantial welfare losses. And if static inefficiencies do occur, they may

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<sup>31</sup> This point was first made by Kahn, 1971.



promote innovation, so that the net results are positive. If equity is also served, then the whole outcome may be unambiguously positive.

## **2. Reviewing the Possible Inefficiencies of Regulation**

All this theory leaves the issues open. Some inefficiencies might occur, but there are counter-forces. I turn now to some of the empirical evidence of actual effects.

First, we need to consider two basic facts of traditional regulation before 1970. One is the extent of regulatory lag, and the other is the rates of return actually earned by regulated firms.

Regulatory Lag. Although there is no standardized measure of the length of regulatory lag, it is well known that the lag was extensive for both telephones and electricity. In telephones, AT&T essentially set the pace of price reductions for service. The FCC merely supervised the industry and approved when AT&T periodically cut prices. In electricity, regulation before 1960 was generally regarded as passive, with slow procedures. Rates were cut as costs fell, but only after significant delays. After 1960, under Joseph Swidler, the Federal Power Commission became more active, but even then the lags remained long.

Actual Rates of Return. The two main indicators of profitability are rates of return on equity capital and total rates of return on assets. By either measure, profits of telephone and electric firms before 1970 were

1. constrained below pure-monopoly rates, but
2. not significantly different from profit rates of comparable-sized unregulated firms, with comparable risks (see for example Posner, 1969).

The utility firms' actual profit rates on equity were well above their costs of equity capital.

Regulation did exert some constraints on profits, usually preventing high monopoly profit rates. But the firms often obtained profit rates that were well above the formal competitive, cost-of-capital criteria.

Altogether, actual regulation departed widely from the A-J assumptions, because it had long lags and generous profit rates. The effective cost-sharing ratio was probably high, and so any effects toward rate-base padding may well have been small.

### **3. Affirmative Defenses of Regulation.**

Since 1970, a series of papers has provided analysis that notes the strengths of rate-of-return regulation, along with its possible inefficiencies. Consider several leading papers.

Gordon R. Cory (1971) contradicted the Averch-Johnson conclusions by rejecting the assumptions underlying the Averch-Johnson analysis as being "invalid" (p. 358). He stressed that real regulation does not fit the formal model used by Averch-Johnson and that it would be more likely to reduce investment than to enlarge it too far.

Alfred E. Kahn considered the A-J effect relatively briefly in his treatise on regulation (1971, reissued 1988). He

suggested that any investment-stimulating effect might yield positive benefits, rather than economic losses. If the firm did actually enlarge its use of capital, technological progress would be advanced, and those gains might overbalance the current static-efficiency losses.

Bruce C. Greenwald (1984) adopted a dynamic framework to assess regulation as a process of adjustment, rather than a merely static phenomenon. He found that "rate of return regulation as now practiced is effectively equivalent to an almost ideally flexible system of sequential market value promises" (p. 94).

Jeffrey Callen, G. Frank Mathewson and Herbert Mohring (1976) analyzed the effects of regulation under a range of alternative conditions. They found that under common conditions, regulation would yield substantial net benefits. Though regulation provides large benefits even when it is liberal, regulation approaches the ideal results most closely when the rate-of-return constraint is tight.

#### **4. Comparisons with Incentive Regulation.**

During the 1980s, the discussion of regulation's possible inefficiencies merged with the increasing study of "incentive regulation." Actually, incentives had been discussed all along, including in the 1960s (e.g., in Shepherd, 1966b). By the 1970s, a number of practical efforts were being mounted to reward efficient companies directly. Also, direct audits of efficiency were used by a number of regulatory commissions.

The 1980s discussions extended the formal analysis, and they focused on "price caps" as the main new alternative. Previously, price ceilings had been widely regarded as inappropriate and impractical, because the array of utility services was so numerous, complex, and subject to arbitrary changes in quality. The utility firm would be able to manipulate price changes and it could degrade service quality, in order to maximize profits by evading the price controls. Moreover, price discrimination among these services was seen as an obvious danger, because the firm could use predatory pricing on specific items.

The new literature swept away these issues, arguing instead that:

1. discrimination was actually favorable, because Ramsey prices were efficient, under the new Baumol et al analysis.
2. by separating services into "baskets" of related services, price ceilings could be sufficiently detailed.
3. the price caps approach could be fitted precisely and reliably to costs and productivity trends.
4. there would be no significant imperfections nor strategic uses of prices in order to suppress competition.

These four points were advanced with extreme confidence by price-cap advocates. Yet all four are dubious, as I will discuss below.

Joskow and Schmalensee. In the mid-1980s, Paul L. Joskow and Richard Schmalensee (1986) reviewed this growing literature, particularly toward the electricity industry. They noted the

theoretical reasons why regulation may reduce efficiency, especially because of the "cost-plus" aspect, and that regulatory lag has beneficial incentive effects. They also concluded that setting the "sharing fraction" remains a critical task for incentive regulation.

They concluded that the theoretical case for price constraints -- in place of rate-of-return regulation -- was attractive, but that there exists no general optimal "incentive" approach. Instead, specific conditions will affect the choice of best regulatory methods. That caution undercuts the view that price caps are an easy, superior approach. It also contrasts with the general strength and flexibility of rate-of-return regulation, as discussed above.

Moreover, Joskow and Schmalensee noted that practical problems with incentive regulation were still severe. Some 31 "incentive programs" had been applied in 20 states, and the Federal Energy Regulatory Commission had adopted some incentive payments. Yet Joskow and Schmalensee found that the programs relied too heavily on specific productivity measures (e.g., for generating stations and for fuel costs alone) rather than on comprehensive measures of productivity. Joskow and Schmalensee noted that such a "narrow definition of performance" would tend to "distort decisions" in several ways.

Generally, Joskow and Schmalensee found major limits and poor design in these applied "incentive regulation" programs. They also saw limited opportunities for future improvements in

them. The standard regulation of electricity emerged as a relatively effective alternative.

Schmalensee. Schmalensee (1989) has later extended these ideas further in a major paper on "good regulatory regimes." He compares "cost-plus" and "price-cap" methods of regulation, with special attention to the assumption that future costs are not known with certainty and that regulated firms react to the constraints put on them. His discussion also focuses upon the cost-sharing fraction.

He evaluates numerically the comparative benefits of cost-plus and price-cap regulation for a wide range of values of uncertainty and other parameters. The results are striking. Cost-plus regulation emerges as superior to price caps when future costs are relatively uncertain. When uncertainty is high, then the price cap must be set high to allow for possible unpredictable exogenous cost rises. That high level of the price caps means that the eventual price-cost ratio is likely to be high, thereby transferring large amounts of profits from consumers to the firm's shareholders. Only when future costs are known with relative certainty are price caps to be preferred. But such certainty is rare; also, it is analytically not interesting because then any regulatory approach would work well.

Moreover, price caps tend to benefit the firm's shareholders rather than its consumers. Therefore, when maximizing consumer surplus is the goal of good public policy -- rather than consumer plus producer surplus -- then cost-plus regulation does

even better on a comparative basis. Since Schmalensee does not include regulatory lag as an important element, his results actually understate the relative effectiveness of conventional regulation.

As Schmalensee puts it, "Generally, this study suggests that price caps have been oversold relative to simple alternatives, particularly if regulators are (or should be) more concerned with consumers' surplus than with the profits of regulated firms" (page 434). Standard regulation with an element of cost sharing via regulatory lag emerges as generally the best approach. That is close to what actually happens in real regulation, with its moderate regulatory lags.

Braeutigam and Panzar. Also in 1989, Ronald R. Braeutigam and John C. Panzar (1989) compared "cost-based" and "price-based" regulation, in an extensive theoretical analysis. They identified a number of distorted incentives which cost-based regulation would cause, when the firm operates both in a natural-monopoly for "core service" and in a competitive market for a "non-core service." For examples of such services: a core service might be local telephone service, while a non-core service might be directory services or Yellow Pages services.

Unfortunately, the assumptions underlying their analysis make it narrow and inconclusive for real cases. They assume that there is a natural-monopoly situation in the core service. If that is true, then Ramsey prices (that is, price discrimination within a zero-total-profit constraint) would give efficient

outcomes. Braeutigam and Panzar assume that there is a binding zero-profit constraint at all times. Yet that is a highly restrictive assumption, given the performance of actual lagged regulation, which is usually moderately liberal.

If the zero-profit constraint holds, then departing from Ramsey prices might be an inefficient distortion. But if natural-monopoly conditions and/or the zero-profit constraint don't hold, then Ramsey prices are not efficient.

Another assumption made by Braeutigam and Panzar is also doubtful: that there is perfect competition in the non-core service. If so, then the firm is forced to be merely a price-taker, passive to the market-wide setting of price. That assumption, while convenient for analysis, assumes away much of the content of the problem. When the dominant firm can adopt below-cost predatory pricing or other strategic actions to defeat competitors in the non-core market, it may retain or increase its market power. By assuming perfect competition at the start, Braeutigam and Panzar eliminate that set of possibilities.

In sum, theory has identified several possible costs of regulation, but the recent literature has reduced the apparent costs, particularly when actual regulation is compared with price caps or ineffective competition in typical real situations.

## **5. Studies and Reviews**

Robert W. Hahn and John A. Hird's (1991) review of research findings notes "that existing tools for estimating regulatory impacts are extremely imprecise, and that most estimates more



properly are viewed as guess-timates" (p. 236). They find generally that regulation's costs have been modest and the benefits may be large. They find little hard evidence about telephones and electricity.

Hahn and Hird report regulatory "costs" for telecommunications at both periods, but the costs are based mainly on John Wenders' (1987) estimates. Those values reflect the apparent lack of marginal-cost pricing in several dimensions of telephone service. Such pricing impacts may be substantial (Wenders rates them at \$14.1 billion in 1988 dollars). But they are quite different from the inefficiency "costs" that may be caused by the control of monopoly, as discussed earlier.

Hahn and Hird note that deregulation would not guarantee the adoption of efficient marginal-cost-based pricing. Indeed, the resulting price discrimination (or Ramsey prices) might be highly distorted from cost patterns. Still, they report that the costs from distorted pricing have been moderate rather than large.

To summarize, Hahn and Hird suggest that:

1. There were substantial costs in transportation and miscellaneous other industries, from a range of dubious interferences which were not standard natural-monopoly regulation, and
2. There is little clear evidence of cost-plus and rate-base inefficiencies under natural-monopoly regulation. And regulation's benefits may have exceeded the costs.

Turning to airline regulation, its costs have been estimated at high levels, especially by Morrison and Winston. Deregulation

removed much of those costs during the 1978-1984 period. Yet the return of market dominance to many airline markets during the 1980s may have erased some of those gains. For example, Morrison and Winston recently estimated the losses caused by control over scarce airport gates and slots at some \$3.8 billion in 1988. That would offset a share of the earlier gains from deregulation. Therefore, the comparison of airlines (under regulation) with airlines (now under imperfect competition) is less favorable to deregulation than the comparison for 1979-1984, when competition was effective.

On telecommunications, little empirical research has been done, other than the pricing patterns discussed by Wenders (1987) and Crandall (1989). The electricity industry has been the main target of research. The five studies focus only on A-J effects: see Thomas G. Moore (19720), Robert M. Spann (1974), Leon Courville (1974), H. Craig Peterson (1975), and William J. Boyes (1978).<sup>32</sup> They have been widely cited as showing that the A-J effect was large.

The studies generally compared regulation with ideal results that full competition and technical perfection would have given, rather than with market dominance or with imperfect other forms of regulation. To that extent, they are biased toward finding an appearance of inefficiency.

If these results are evaluated carefully, one might infer that a mild A-J effect may have existed in electric generation

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<sup>32</sup> For a review of these studies, see Shepherd, 1992.

during the 1960s, but not after 1973. The one study (Courville's) that offered estimates of the cost effects was particularly marked by technical problems and weak data. Other studies (Spann, Peterson) also contained weaknesses, but they only suggested that, at most, some effect (of unspecified size) might be present.

Further, Joskow and Mishkin (1977) studied the choices of utilities in choosing between coal, oil, natural gas and multi-fuel methods of generation. During the 1952-67 period, they found that in 75 percent of cases the least-cost plant type was chosen. Again, any biases were apparently small.

As a final wrinkle, Boyes (1976, p. 31) notes that the utilities' adoption of pollution control equipment may have been speeded by the existence of an A-J effect. To that degree, the A-J effect would have promoted total efficiency, rather than hindered it.

In any event, none of the studies provided evidence that the possible costs were larger than the probable benefits of regulation.

## **6. Summary.**

There is little evidence that standard regulation has caused more than mild possible harms to efficiency in natural-monopoly cases, and any losses of innovation are debatable. In some cases regulation may have promoted efficiency, rather than undercut it. Any serious harms to efficiency in transportation industries have been irrelevant to natural-monopoly cases such as electricity and

telephones.

Meanwhile, regulation has commonly provided significant improvements in equity. In contrast, two main alternatives to traditional regulation -- (1) price-cap methods of regulation and (2) deregulation which leads to market dominance -- tend to confer benefits on stockholders at the expense of consumers. If equity is a goal, then regulation's comparative performance may be even stronger.

#### **SECTION IV. RESULTS OF DEREGULATION**

The leading cases of network industries are airlines and long distance telephone service.

##### **1. Airline Deregulation.**

Deregulation began in 1977, and strong competition probably yielded major gains in efficiency by 1984, though there is debate about the amounts of the benefits.<sup>33</sup> Unfortunately, major mergers among airlines were then permitted, and systematic price discrimination become common. Fortress hubs emerged at many major airports, with high degrees of market dominance.

These dominant airlines raised air fares significantly, compared to fares elsewhere. These hubs proved to be largely immune from new entry. That belied the "contestability" theorists. It also helped the airlines in avoiding major gains in efficiency via cost cutting. In the 1990s, there were still large variations among airlines in their cost levels. The airlines also developed fantastically thorough abilities to set

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<sup>33</sup> See Winston, 1993, and Morrison and Winston, 1994.

and adjust discriminatory pricing.

In these ways -- local monopolies, price raising, a lack of free entry, persistence of X-inefficiency, and systematic price discrimination -- the industry deviated from the earlier predictions of deregulation's results. But the deviations were based on the fortress hubs, and those in turn stemmed partly from mergers which should have been prevented under the antitrust laws.

The high costs and fares of major airlines have finally attracted effective competition from Southwest Airlines and a few new small airlines. How marked the changes will be is still unknown.

## 2. Long Distance Competition<sup>34</sup>

The main pattern has been the opening of entry in the 1970s, forced by MCI. It led to the presence of MCI, US Sprint, and a variety of tiny firms and re-sellers. AT&T's market share dropped by about 4 points per year during 1984-1989, to the middle 60-percent range. Then it stabilized, and in 1994 it remains above 60 percent. With MCI near 20 percent and US Sprint at about 10 percent, we now have a classic dominant-firm case, apparently stable for years to come.

No substantial entry has recently occurred or is in

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<sup>34</sup> This section draws on William G. Shepherd and Robert J. Graniere, Dominance, Non-Dominance, and Contestability in a Telecommunications Market: A Critical Assessment, Columbus, Ohio: National Regulatory Research Institute, March 1990; and my chapter on telecommunications in Larry L. Deutsch, ed., Industry Studies, Englewood Cliffs, N.J.: Prentice-Hall, 1993.

prospect. MCI and US Sprint are as dedicated to deterring new entry as is AT&T. It is fair to say that entry has been effectively blocked for at least five years.

Price competition has virtually ceased in this market, regardless of lively advertising rivalry on television. The three firms' prices have been virtually identical since 1986, after an initial period of price cutting by MCI and US Sprint. The behavior can be considered to be passive pricing by MCI and US Sprint, under AT&T dominance. Or it may be cozy tight-oligopoly quasi-collusion, of the standard sort. In either event, competition is not fully effective or vigorous.

Of course there is still strategic pricing by AT&T for specific customers. Pricing now involves complex price discrimination among significant business customers, especially by AT&T. Under Tariffs 12 and 15, AT&T has made separate-price deals with at least 80 major companies. This allows it to target specific customers and to try to block MCI and US Sprint from those customers. All this fits the standard pattern under dominance, leading to ineffective competition.

AT&T's profitability is very high, probably well over 20 percent on investment, while MCI and US Sprint have only recently approached minimal profitability. AT&T faces less risk, and so its comparative profitability is even higher.

These conditions all reject the hypothesis that entry is free, easy or even reasonably possible at all. Apart from little niche firms, entry has been closed for some five years. The

existing rivals seem unable to take much market share from AT&T. AT&T has a fine situation, with two relatively non-threatening smaller rivals but the appearance of strong competition.

There are counter-arguments. First, AT&T claims that the rivals have overbuilt capacity, so that they might be able to take away AT&T customers. Yet, as noted earlier, the excess capacity is primarily a burden, rather than a competitive force. It is excess precisely because the AT&T can still protect its customer base. Moreover, the customers that they have lost are the relatively easy, price-sensitive ones. AT&T's remaining customer base contains its more loyal, inelastic-demand customers, who will be progressively harder to lure away.

Second, the pin-point pricing by AT&T is competition, but its effect may generally not provide effective competition. Such strategic pricing is part of the dynamic process of interactive competition, which is not dealt with by static theories of allocation. The pricing has helped to stabilize AT&T's market position, by deterring the loss of specific customers while keeping the revenue loss to the minimum. The FCC has encouraged this pin-point pricing by applying price caps which permit it, as well as by adopting Tariffs 12 and 15.

In sum, the deregulation of long-distance service has not succeeded. The market has stalled at a situation of market dominance, without even progressing to tight oligopoly. AT&T's extremely profitable long-distance dominance, which is paralleled by comparable conditions in many states, now stands as a leading

problem for antitrust, comparable to IBM and General Motors in earlier decades -- and even to Standard Oil and US Steel much earlier. The FCC's and many states' deregulation was premature, before the pre-conditions of effective competition were in place, and the new price-cap regulation was not suited to the true problems. Antitrust has its greatest difficulties with single-firm dominance. It is not clear if there can be a reasonable solution for this case.

### 3. Local-Service Competition

Local markets are developing possibilities of competition, but they are even much more embryonic than in long distance markets. Some major cities are undergoing specific entry by new providers, such as Teleport. But elsewhere the new competition is only in prospect or even less possible.

In addition, there is some degree of cellular-phone competition, plus the possibilities of "personal communications systems" and of cable entry into the local switching activity. Here it is important to be realistic about the degree and timing of these new "entrants." All of them appear so far to be marginal and vulnerable. None of them offers full competition, nor are they likely to do so very soon. They are likely to nibble at corners of the market for many years before becoming full challengers to the local systems.

Of course, one can be optimistic, hoping that they will make rapid inroads. Seeing such "free entry," one might press now for deregulation. Yet that would be hazardous and premature, for all



the reasons I have noted in the preceding pages.

1. Entry is a matter of economics, not just technology and legal provisions. Currently, newcomers have little chance for substantial inroads in these markets.

2. The dominant firms can take steps to make entry even more difficult, through pin-point pricing strategies, legal tactics, and advertising. They can try to co-opt the technology itself. They can also seek rapid mergers and alliances with potential competitors, just as is happening now with cable TV owners.

So local-service competition may be pre-empted by mergers, among the various modes (telephone exchanges firms and entrants, cable TV firms, cellular systems, and personal communications devices). That is the near-universal response to new competition. The only barrier to it would be actions by antitrust and regulatory agencies.

The incumbents' aim will be to permit a modicum of entry, so that a little competition comes into being. Then the incumbents will take steps to keep the rivals small and deter any further entry. The entrants in turn will join in actions to prevent any added entry, so as to survive. For political advantage, the situation will seem to have competition, though it will be ineffective.

These restraints will not succeed if revolutions really are sweeping technology and customer attitudes more forcefully than AT&T and the Bell companies can take steps to deal with them. But the "revolutions" have been grossly over-hyped since the

1950s, and now may be no different.

There is an urgent need to appraise the current crop of "revolutions" and mergers coldly. Over-optimism has bred unwise actions before in long-distance markets. It would be regrettable, even embarrassing, to be misled again into naive policy actions.

#### **4. Electricity Markets**

I will mention electricity markets only briefly. Some bulk power markets have moved toward effective competition since the 1970s.<sup>35</sup> Congress has made major policy changes to promote competition, particularly by requiring electric utilities to accept power from cogeneration sources. Also, policies have moved toward requiring systems to wheel power from competing sources. That would keep large private systems from using their control of transmission lines so as to quell competition for bulk supplies.

But it is not yet clear that many regions have developed fully effective competition in bulk power. Many customers for power have a limited selection among few comparably-priced rivals. There has been substantial deregulation of bulk power as competition has developed.

But for local power, natural monopoly conditions are still in place. Deregulation is premature, and yet some state-level

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<sup>35</sup> For early analyses, see James Meeks, "Concentration in the Electric Power Industry: The Impact of Antitrust Policy," Columbia Law Review, January 1972, pp. 64-130; and Leonard W. Weiss, "Antitrust in the Electric Power Industry," chapter in Almarin Phillips, ed., 1975; see also Joskow and Schmalensee, 1984.

deregulation has occurred. That is premature, and it exposes most local customers to monopoly pricing. Some large final customers may be able to buy directly from competitive suppliers, but the rest cannot.

As in all other cases, deregulation must be followed by intense supervision and strong actions, in attempting to create effective competition. Otherwise the transition freezes in conditions of ineffective competition.

#### **SECTION V. SUMMARY**

The primary danger is premature deregulation. It is more likely to occur when:

1. regulation is wrongly seen as being more harmful than it is, and
2. competition is seen as being easier to create than it is.

Both of these illusions have existed and have distorted policies since the 1970s. As a result, markets may be trapped in a stable condition of market dominance, with soft competition, high profitability, pin-point pricing which blocks competition, and inadequate pressures for innovation.

I have reviewed the concepts of effective competition, noted the long-term historical trend toward competition since the 1940s -- but punctuated by a lunge toward premature deregulation in the 1980s. I've also noted that regulation's harms to efficiency have probably been much smaller than zealous politicians have said since the 1970s. And I have suggested that airline dominance and AT&T's dominance in long-distance telephone markets

provides sobering lessons about similar dangers in other markets.

**The Dangers to Deregulation.** The pressures toward premature deregulation are always strong and cleverly designed. Consider these universal elements:

1. The market is said to be naturally competitive, even if it isn't.
2. Market structure (including overwhelming dominance) is said to be quite irrelevant now, under the "new" conditions.
3. New technology is said to be under "revolutionary" change, sweeping away market boundaries and allowing totally free entry.
4. Market imperfections are said to be insignificant.
5. Dominant firms are said to be at the mercy even of tiny rivals. Entry is said to be free or even perfectly "contestable," even if it is closed.
6. Soft competition in pricing is said instead to be sharp competition, citing television advertising.
7. Pin-point pricing by the dominant firm is said to be harmless, or even necessary to optimality along "Ramsey pricing" lines.
8. Even if there is only one or two small competitors, any leading-firm actions that undermine the little rivals are said to be acceptable by definition, because harms to competitors "can never be harms to competition."
9. High profitability by dominant firms is said to be merely random, or transient, or irrelevant to efficiency, or well-deserved for the firms' innovative excellence.

In these ways, all of the standard indications of monopoly power and anticompetitive actions are simply denied, under supposed mandates of "new" conditions and concepts. And the current regulatory officials -- who often have little training or understanding of competitive issues and antitrust policies -- may be easily led to violate the basic guidelines of competitive policies.

Specific, difficult decisions are needed, while resisting the 9 distortion noted just above. Successful deregulation is a demanding task. You need to identify and apply the true elements of monopoly: high market share, fewness (collusion), and impeded entry (both within and into the market). New entry usually won't protect very much: new entrants may not get in, or they may just settle in as parts of a small, cozy group.

You must also be ready to prevent anticompetitive mergers, both before and after the competition gets started. You must also be ready to take strong steps to keep entry open and to require equal access. You must also continue to guarantee free access for later entrants, rather than just trust that if a few have entered then entry will be easy. You must also keep the dominant firm from having overwhelming advantages -- or for that matter, any decisive advantages. If it does, then competition is not effective. If the cause of major advantages is technology, then maybe naturally-competitive conditions do not exist after all, and the effort at competition is futile.

As for price caps, they may be ineffective or even

positively encourage anticompetitive behavior. In any event, the earnings test always looms in the background.

So policies need to fit a few basic rules. Officials need to:

1. **keep applying constraints to the pricing of a dominant firm until it no longer has dominance** (that is, until its market share recedes below 40 percent). Those constraints will especially cover pin-point pricing, excess profits, and mergers;
2. **require that there be at least five reasonably comparable rivals**, before accepting competition as being effective;
3. **prevent access to dominant firms in related services**, such as Yellow Pages, which can feed in profits which destabilize the network-service competition. In such cases the harm can also go the other way; the link to the utility monopoly provides anticompetitive advantages to the Yellow Pages monopolist as well.

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The whole topic is so complicated, error-prone and colorful that it actually evokes Biblical thoughts. I have seen these claims and follies come and go, and much of it now seems mere vanity, wind, and endless change. Or rather: fools rush in, where the wise will fear to tread. And: beware false prophets, who preach confidently of imminent competition. Once competition is gone from these markets, we may not see a second coming of it.

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