

## **An End to Economic Regulation?**

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The end of the Cold War and the collapse of Communism in the 1990s have been attributed in part to the triumph of markets over government control of resources. Despite the Central Intelligence Agency's best efforts to overstate the national output of the Soviet Union, by the 1980's it had become evident to everyone – particularly to its own citizens -- that the Soviet system could no longer continue to support an army and provide ordinary citizens a modern standard of living. This remarkable “end of history”<sup>1</sup> came only about a decade after the beginning of the wave of deregulation that first gripped the United States, but then spread to the United Kingdom and – to a lesser extent – to the European continent. This suggests that, even in the West, the importance of markets was not fully appreciated until very recently.<sup>2</sup>

Despite its enormous success, the deregulatory movement may be stalled and even subject to reversal in the wake of the spectacular failure of California electricity “deregulation,” doubts about the United Kingdom's electricity and rail privatization/deregulation policies, and the spectacular collapse of the Enron Corporation.

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<sup>1</sup> Francis Fukuyama (1993).

<sup>2</sup> As late as 1985, the most influential U.S. basic economics textbook, Samuelson and Nordhaus (1985) offered the view that, “The planned Soviet economy since 1928 has grown more rapidly than the economy of Czarist Russia and has outpaced the long-term growth of the major market economies. Only Japan and the United States in its rapid growth phase approach Soviet economic growth.” Six years later, the Soviet Union collapsed, and no one could find the accumulated benefits of this 55-year period of . such astounding growth. Surely it was a chimera.

In this paper, I examine the case for eliminating the remaining pockets of regulation in the United States, but in doing so I look beyond the policies that we usually categorize as “regulation.” There simply is not much left of traditional economic regulation except for telecommunications and electricity, and complete deregulation in either of these two sectors would be impossible in the current political environment. On the other hand, a wider assault against the myriad forms of inefficient government intervention in markets that continue in the United States, as in most developed economies, might prove more successful in mustering longer term political support than would debates that focused solely on telecom or electricity. Trade protection, agricultural price supports, non-price allocation of water, regulation of airport landing rights, and government allocation of the electromagnetic spectrum could be targeted at the same time to build this broader reform coalition.<sup>3</sup>

## ***I. Where Has All the Regulation Gone?***

Economists generally distinguish between “economic” and “social” regulation. The former is the control of prices, service quality, and entry conditions in specific sectors, such as transportation, communications, and energy. The latter is the regulation of risks to health, safety, and the environment. This paper deals primarily with economic regulation. I do not propose an end to health, safety, and environmental regulation even though substantial rollbacks or reform would surely be justified even in these areas of public policy.

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<sup>3</sup> In the United States, a large number of deregulatory measures swept through the Congress in the era of “stagflation” that began during the Viet Nam war and continued through the two major oil shocks into the 1980’s. These laws were part of a package (misleadingly) promoted to reduce inflation.

## **A. Traditional Economic Regulation**

The deregulation movement of the 1980s and 1990s had a remarkable impact on the United States and many other countries. In the United States, which I know best, the entire national transportation sector was essentially deregulated,<sup>4</sup> the energy, financial and video distribution sectors were largely deregulated,<sup>5</sup> and even telecommunications saw a modicum of deregulation and substantial regulatory “reform.” In some local jurisdictions, even taxi services were deregulated.

A list of the regulated and deregulated sectors of the U.S. economy is shown in Table 1. I exclude some sectors that are regulated by local and state authorities, such as taxicab and limousine services. I also rather arbitrarily assume that half of the communications sector’s value added has been deregulated – long distance services, telephone terminal equipment, and cable television – because local telecommunications and broadcasting are still heavily regulated. This tabulation suggests that the amount of regulation has fallen by roughly 70 percent.

## **B. Other Sectors**

Before concluding from the above discussion that government intervention in the operation of markets has withered away in the United States, one should recognize that many other forms of economic “regulation” of markets continue to survive despite the deregulatory political trend. I will exclude labor market regulation though perhaps this reflects an American perspective. On the European continent, labor-market regulation may well be the most costly form of economic regulation.

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<sup>4</sup> See Winston (1993), for a discussion of transport deregulation.

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**Table 1**  
**The Scope of Economic Regulation in the United States, 1975 and 2001**

<b>Sector or Industry:</b>	Regulated In 1975	Regulated in 2001	Share of 1999 GDP Regulated in 1975	Share of 1999 GDP Regulated in 2001
Oil and gas extraction	Yes	No	0.0089	0
Railroads	Yes	No*	0.0025	0
Trucking	Yes	No	0.0125	0
Air Transport	Yes	No	0.0102	0
Pipelines	Yes	Yes	0.0007	0.0007
Electricity	Yes	Yes	0.0119	0.0119
Telecommunications	Yes	Partially	0.0210	0.0105**
Radio and Television	Yes	Partially	0.0070	0.0035**
Financial Depository Institutions	Yes	No***	0.0328	0
Insurance	Yes	Yes	0.0077	0.0077
<b>Total</b>			<b>0.1152</b>	<b>0.0343</b>

Notes \* - Still some, largely irrelevant rate regulation.

\*\* - Assumes half of industry output is deregulated.

\*\*\* - Interest rates and entry are no longer regulated; solvency regulation remains.

Source: For share of GDP: U.S. Department of Commerce, Bureau of Economic Analysis

The sectors of the United States economy that are subject to some form of government control of prices and output are in fact quite numerous. Although we rarely consider such government intervention as economic “regulation,” these interventions generally involve direct or indirect control of prices or output. The obvious examples in the United States are:

- *Housing* – rent control
- *Housing finance* – government guarantees (subsidies) to home mortgage financing. (FNMA, FHA, Freddie Mac)
- *Agriculture* – Price supports; marketing agreements

- *Trade protection* – regulation of minimum import prices under “constructed value” provision of 1974 Trade Act (applying mainly to metals and chemicals)
- *Water supply* – government prohibition on the use of market prices to ration water among competing uses
- *Airport access* – Regulation of landing rights without regard to cost
- *Health care* – regulation of hospital rates and physician fees through public insurance programs that affect rates for services not insured by government
- *Electromagnetic spectrum* – government control of a large share of this valuable resource and non-price allocation of much of the rest of it.

This is a partial list -- but a large and important one nonetheless – of government policies that we do not typically categorize as economic regulation even though the deregulatory movement has led to a modest amount of progress in reining in some of these programs in the United States. Unfortunately, much remains to be done in freeing water, spectrum, and land from inefficient government controls. I return to the likely benefits from doing so later in the paper.

## ***II. Why Regulation? The Modern Theory Of Regulation***

The University of Chicago is largely responsible for the modern theory of economic regulation. Stigler (1971), Posner (1971) and (1974), and Peltzman (1976) provided a political-economy perspective on the demand for and supply of regulation.

Politicians respond favorably to the demand for regulation by various interest groups – not only producers – as long as regulation’s effect on the politicians’ probability of being elected is not more than offset by the loss of votes from those who lose from the regulatory game.

Later, Becker (1983) provided a theoretical addendum that explained that there are stringent limits to the deadweight losses from regulation: such losses attenuate the political winners’ gains or exacerbate the losers’ losses or both. The winners and their agents, the regulators, do not wish to see their gains dissipated in foolishly inefficient regulatory policies. However, relatively efficient regulatory interventions can become exceedingly inefficient over time due to technological or other market changes, and such policies may be difficult to adjust because of political inertia. The allocation of valuable electromagnetic spectrum to broadcasting is an outstanding example. At first, too little spectrum was devoted to broadcasting. Today, none should be wasted on this use.

In a later article Winston and Crandall (1994) provided an empirical analysis of the political response of voters to regulatory policies in the United States in the spirit of Peltzman (1992). Looking at presidential elections only, we found that an increase in *economic* regulation in 1952-92 generally inured to the disadvantage of the incumbent party or candidate, *ceteris paribus*, but that an increase in health, safety, and environmental regulation had the opposite effect. This is consistent with the fact that the latter type of regulation increased during this period while the former became increasingly unpopular and declined.

The political sentiments were quite different in the 1900-48 U.S. presidential elections. During this period, Winston and Crandall found that an increase in economic regulation had substantial and positive effects on the incumbent's probability of election, but an increase health-safety-environmental regulation had negative effects. This was precisely the period in which economic regulation grew most rapidly in the United States. It was coincident with the movement to enact a highly-progressive tax system, institute a large tax-supported retirement system, and institute massive agricultural and industrial price supports.<sup>6</sup> The driving force behind most of these policies was the redistribution of income, not economic efficiency.

The deregulatory movement in the United States began in the 1970's and continued through the 1990's, yielding partial electricity deregulation in many states, the opening of all telecommunications markets to competition,<sup>7</sup> and even proposals to privatize the nation's air-traffic control system. Whether this continues in the face of the prospective economic downturn, the California electricity fiasco, and the Enron debacle remains to be seen.

### ***III. The Benefits of Deregulation – Why Markets?***

I turn now to the bright side – to the sectors of the U.S. economy in which deregulation has occurred. How much do we know about the effects of this deregulation? My colleague, Clifford Winston, shows that our knowledge is far from perfect, but that deregulation generally improved economic welfare by much more than economists would

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<sup>6</sup> The attempt to legislate far-reaching industrial price and output controls through the National Industrial Recovery Act was overturned by the U.S. Supreme Court

<sup>7</sup> Unfortunately, liberalization of local telecommunications was not accompanied by rate deregulation. See the discussion below.

have predicted *ex ante*.<sup>8</sup> The reason: economists had imperfect knowledge of how unregulated markets would operate, given decades of the distortions caused by government regulation. Furthermore, Winston argues that the movement to a new unregulated equilibrium can take years or even decades. For example, the U.S. airline industry is still adjusting to an environment of unregulated competition twenty-three years after the passage of the Airline Deregulation Act.

The gains from deregulation have been impressive in the United States. In virtually every deregulated industry, there are substantial gains in both allocative and productive efficiency. The firms supplying the service – entrants and incumbents alike – produce this service at costs that are an average of 30 percent below the costs that would have been incurred under the previous regulatory regime.<sup>9</sup> But the relative prices also change because firms are no longer restrained by regulators from moving prices toward costs, and service quality improves. Finally, although earlier versions of the “capture theory” of regulation might have predicted that deregulation would redistribute income from producers (and their employees and equity holders) to consumers, there is no general pattern of such redistribution. Some incumbents thrive, others fail, and new entrants emerge, but there is no *general* pattern of a decline in producer rents. A summary of the estimated effects of deregulation, drawn from Winston (1993) and (1998) and Crandall and Ellig (1997) is shown in Table 2.

In his survey, Winston (1993) shows that economists generally were unable to predict the magnitude of the gains from deregulation. Morrison and Winston (1995) and Winston, *et.al.* (1990) find that deregulation led to savings in airline, trucking, and

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<sup>8</sup> Winston (1993), (1997).

<sup>9</sup> Winston (1997).



railroad transportation costs to consumers of about \$35 billion per year (1995\$), and that these gains came almost entirely from improvements in efficiency rather than transfers from producers.<sup>10</sup> Similarly, the reductions in long-distance telephone rates derived from improvements in productive efficiency and from the FCC's more efficient pricing of interstate carrier access, not simply from reduced producer profits in supplying the service.

**Table 2.**  
**The Effects of Deregulation in the United States**

<b>Sector</b>	<b>Nature of Deregulation</b>	<b>Consumer Benefits</b>
<b>Airlines</b>	<b>Total</b>	<b>33 percent reduction in real fares</b>
<b>Trucking</b>	<b>Total</b>	<b>35 to 75 percent reduction in real rates</b>
<b>Railroads</b>	<b>Partial; rate ceilings and floors on "monopoly" routes</b>	<b>More than 50 percent decline in real rates</b>
<b>Natural Gas</b>	<b>Partial; distribution still regulated</b>	<b>30 percent decline in consumer prices</b>
<b>Telecommunications</b>	<b>Partial; local rates and interstate access still regulated</b>	<b>More than 50 percent decline in long distance rates</b>
<b>Banking</b>	<b>Consumer rates deregulated; entry liberalized</b>	<b>Increase in rates on consumer deposits; improved productivity</b>

Sources: Winston (1993) and (1998); Crandall and Ellig (1997)

A recent study of natural-gas regulation by MacAvoy (2000) concludes that the United States' inadvertent foray into controlling the field price of natural gas in the 1960s resulted in huge losses in economic welfare. Between 1968 and 1977, regulators kept natural gas prices artificially low and thereby transferred \$38.7 billion from producers to consumers. However, this regulation created shortages in natural gas that subsequently

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<sup>10</sup> The exception is less-than-truckload trucking in which producers lost a substantial amount of capitalized

cost consumers and producers \$58.7 billion (1982\$). Subsequently, natural gas deregulation was phased in over the 1978-84 period, and prices were kept artificially high during most of this period. As a result, ultimately there was a “sell off” of gas at artificially low prices that cost producers \$45 billion (1982\$) more than the gains to consumers. Thus, 17 years of regulating a competitive natural gas extraction industry cost the U.S. more than \$9.5 billion per year in 1995 dollars.

#### ***IV. What Would Complete Deregulation Mean?***

The successes of the deregulatory policies launched over the past quarter century should lead us to ask, “Why not more deregulation?” Indeed, more than 40 years ago, Harold Demsetz (1958) asked an even more fundamental question, “Why regulate utilities?” His question implicitly assumed that economic regulation was a response to the market failure of natural monopoly. His solution was to have the government auction off the right to dispense the natural monopoly service rather than to install government regulation. Competition for the monopoly privilege would replace ongoing government regulation.

At the time Demsetz wrote, however, the federal and state governments regulated financial services, trucking, airlines, radio and television broadcasting, consumer telephone equipment, air cargo, crude oil (through import quotas), natural gas extraction, and long-distance telecommunications. All of these industries would have been highly competitive but for the heavy hand of government, as subsequent experience has shown.

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economic rents when entry was liberalized in 1980.

Demsetz's question is much more relevant today because the residue of formal economic regulation is largely in industries widely believed to be natural monopolies.

But how "natural" are these monopolies? If we had no government control of entry and prices, would natural gas and electricity distribution or local telecommunications be natural monopolies? And even if they were, would the loss in economic welfare be very great relative to the losses due to regulation? Sadly, we cannot answer such a question definitively because there have been no experiments in total deregulation of these sectors.<sup>11</sup> Nor are there even empirical "guesstimates" from economic studies of such potential welfare losses.

There is reason to believe, however, that the "natural" monopoly problem is neither severe nor extensive. Such economies derive either from economies of scale, large initial sunk costs, or economies of density. For the most part, these economies are in the distribution of energy, water, or communications services, not in production. Even in these distribution functions, it is not obvious that there are large *scale* economies. For instance, Shin and Ying (1992) find that scale economies are not important in the provision of local wireline telecommunications services. The natural monopoly problem in most such industries derives instead from economies of density or fill. It is widely believed that replication of the fixed assets required to compete with existing regulated distribution monopolies is simply too costly to assure that entry or the threat of entry can discipline incumbent behavior. But this belief has rarely been tested in many sectors, either because of government ownership or regulation. Given the rapid rate of technical

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<sup>11</sup> New Zealand attempted to deregulate telecommunications fully, but years of legal wrangling resulted. As this is being written, New Zealand is debating the restoration of telecommunications regulation.

change in many of these sectors, such as telecommunications, such a test may yield surprising results.

The natural monopoly problem, however small, is undoubtedly becoming even less severe due to improvements in information, increased consumer mobility, and rapid technical change. Simply put, few of us are as hostage to any monopolist as we might have been a century ago. If local telephone rates rise, we can switch to a cellular service, a fixed wireless service, or – in some situations – cable telephony. If electricity rates rise or the utility service becomes unreliable, we can switch to our own generators or even begin to form a small collective to operate a small gas turbine. Certainly, large electricity customers have such self-generation opportunities. Were price discrimination impossible, these customers might be able to defeat a price increase, thereby eliminating the need for regulation. If my natural-gas utility exerts market power, I can switch to locally-delivered propane or heating oil or even to electric heating. A water utility's market power is obviously constrained by its customers' ability to engage in self supply, principally through drilling their own wells or purchasing water from other sources.

The degree of service substitution available to defeat attempted exertion of monopoly power by erstwhile regulated monopolists has clearly been increasing over time. For instance, U.S. railroads may have had monopoly power on some routes 114 years ago when they were brought under regulation. However, they have been noticeably unable to exert it in the past 20 years under deregulation.<sup>12</sup> Trucks and airplanes have

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<sup>12</sup> See Winston (1993) and Crandall and Ellig (1997).

been added to waterways as significant competitors to the railroads. Regulation is therefore no longer necessary in transportation – if it ever was.<sup>13</sup>

### **A. Deregulation of the Cable Television Monopoly in the United States**

It is instructive to begin with one example of recent deregulation in an ostensibly “natural” monopoly industry – cable television in the United States. Because of a protectionist spectrum allocation policy, competition in the distribution of video programming was limited to three or four national broadcast services prior to the development of coaxial-cable distribution. Cable systems developed in the 1950s in local markets whose topography created reception problems. These cable systems quickly discovered that they could offer more than the local signals, but they were soon blocked in attempts to pull in distant signals by the Federal Communications Commission, which acted to protect the local broadcasting monopolies. Eventually, these restrictions were removed, and in the 1980s cable systems expanded their channel capacity and grew rapidly. By the early 1990s, cable provided dozens of channels to 60 percent of the country’s households.

Having displaced one “unnatural” monopoly – off-air broadcasting, cable soon came under attack as the newest communications monopoly. Most cable systems had been granted monopoly franchises by local governments, and their rates were at least informally regulated by these municipal or state authorities. Although such exclusive franchises were barred in 1984 by a federal law that also deregulated cable rates, very few markets experienced competitive entry -- “overbuilding” by new cable companies. In

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<sup>13</sup> There is a considerable literature on railroad pricing and regulation, much of which suggests that U.S. railroads had overbuilt their networks and were engaged in aggressive price competition before 1887 when

this deregulated environment, cable companies raised rates sharply after 1984, but they also greatly expanded service now that they were free from FCC restrictions on signal carriage.<sup>14</sup>

The sharp increase in rates led to a popular demand to regulate this apparent monopoly, and Congress obliged in 1992, voting to override the President's veto. Rate regulation was placed in the hands of the FCC, and the result was disastrous. With no cost basis for setting permissible rates, the Commission used regression analysis to measure the extent to which competition would have reduced rates – defining “competition” as the existence of a second cable system in a market, the provision of the only service by a municipal authority, or the subscription to cable by fewer than 35 percent of households. Rates were rolled back to this estimated level for a few years, and cable companies responded by reducing the rate at which they expanded the quality of their service – *i.e.*, by reducing the expansion of channel capacity.

The overall loss of consumer surplus due to this reduction in service quality was about \$5 billion per year.<sup>15</sup> Regulating a “natural” monopoly succeeded in reducing output by suppressing overall rates because regulators could not mandate service levels in an industry that delivers highly-differentiated entertainment products. Fortunately, the FCC began to reverse course by simply ignoring rate increases, and later Congress ratified this decision by deregulating virtually all cable television rates in the 1996 Telecommunications Act. The result has been an increase in rates, but there has also been a resumption in the growth of service quality, spurred by the entry of high-powered

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federal regulation was first established. See MacAvoy (1962) and Kolko (1965 ).

<sup>14</sup> U.S. Government Accounting Office (1989).

<sup>15</sup> Crandall and Furchtgott-Roth (1996). See also Hazlett and Spitzer (1997).

satellite service, rate deregulation, and the need to upgrade system capacity to offer (unregulated) cable modem service.

There is more to this story. The political movement to regulate cable television in 1992 derived from the popular view that cable television is a monopoly —even perhaps a natural monopoly – that shifted wealth from consumers to cable system owners.<sup>16</sup> But this monopoly status derived in no small part from regulation itself, namely, the restrictions placed on telephone-company “video platforms” and the slowness of the FCC to license spectrum for high-power satellite broadcasting. These limitations on the telephone companies, in turn, derived from regulators’ fear that these companies might leverage their local telephone monopoly positions into other markets, but these monopoly positions reflect decades of entry barriers and cross-subsidies erected by the regulators themselves.<sup>17</sup> Regulators not only blocked entry into the telephone sector by new wireline carriers, but they limited wireless competition by initially allocating only two 25 MHz blocks of spectrum to commercial wireless (cellular) uses while allowing hundreds of MHz to remain unused as UHF television spectrum, a policy dutifully by other countries in the ensuing years.

The moral to the cable television story in the United States is clear. There is no reason to believe that multi-channel video distribution is a “natural” monopoly, nor even to believe that it ever was. Even if it is, however, we now have convincing evidence that regulating cable rates is a grievous error. It costs consumers more than it benefits them.

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<sup>16</sup> There was no popular discussion of the effects of this monopoly on output and resource allocation. Government investigators counted the number of channels of service provided only to address the cable system owners’ contentions that they had not raised the price per *channel* offered.

<sup>17</sup> See the discussion in the next section.

Unregulated monopoly is better than regulated monopoly in this market with its highly differentiated products.

## **B. The Likely Effects of Further Deregulation in “Monopoly” Industries**

The most important of the sectors that continue under formal government economic regulation are telecommunications and electricity. How might total deregulation of each affect economic welfare?

### **1. Telecommunications.**

Although one cannot foresee how the telecommunications sector will evolve under continued regulation or deregulation because of the incredible rate of technical change that affects it, it is difficult to see how total deregulation could possibly reduce economic welfare. The principal remaining potential locus of monopoly power is in the provision of local access to residential and small business subscribers. Even this market might be competitive if rates were set at levels that are close to long run average incremental cost and if all regulatory barriers were eliminated.

In the United States, there are approximately 195 million switched access lines, of which 150 million are residential or small-business lines. Most of the large business lines are likely to be in dense business districts in which competition now thrives. Thus, full deregulation of local access/exchange service would affect 150 million lines, 20 million of which are small business lines. Two important factors limit the economic welfare loss from any attempt by deregulated incumbents to raise rates. First, the demand for access is extraordinarily price insensitive, meaning that rate increases would transfer income from



consumers to producers but would have little effect on output and the allocation of resources.

Second, any attempt to raise local rates very much would induce substantial substitution of cellular, fixed wireless, cable telephone, or competitive local exchange carrier services. As an extreme assumption, assume that subscribers would not switch in large numbers to these alternatives until incumbents *trebled* local rates – from approximately \$20 per month today for residences and perhaps \$40 for small businesses to \$60 and \$120 per month, respectively. At these rates, subscribers could switch to national wireless plans that offer 1500 or more minutes per month without any further increase in telephone expenditures. If the price elasticity of demand for local service is -0.05, surely the upper end of recent estimates, a trebling of residential rates would result in a loss of just 7 million lines and \$1.68 billion in annual deadweight economic loss. A trebling of small business rates would result in the loss of 1.1 million lines and a deadweight loss of \$530 million per year, again assuming a price elasticity of demand of -0.05. Thus, even under these extreme assumptions, local telephone regulation creates only \$2.2 billion in net annual economic welfare gains in the local market, *ceteris paribus*. Of course, under these assumptions regulation transfers substantial rents from producers to consumers – about \$77 billion per year.

It is likely, however, that consumers would begin shifting to other forms of network access long before local residential rates reached \$60 per month. Subscribers who use their phones very little and younger users are already substituting cellular service for wireline access. At a monthly rate of \$40 to \$60 per month, cellular subscribers may now purchase “national” plans that provide free national calling to all 50

U.S. states. Moreover, if local rates were to rise to \$30 or \$40 per month, cable television systems would surely accelerate their deployment of cable telephony and Internet telephony. Thus, the above estimate of the potential welfare cost of local telephone deregulation is surely much too high. Nevertheless, even this estimate pales in comparison to recent estimates of the cost that continued regulation imposes on us.

Full deregulation would convey enormous offsetting benefits in two ways. First, regulators' inefficient pricing of local and long-distance services, defended as "universal service" policy would end. Deregulated firms would not pursue these reverse "Ramsey" prices. The gains to the economy from just this change would be as much as \$7 billion per year. [Crandall and Waverman (2000)] Second, regulation inhibits entry and investment in new services. Hausman (1997) has estimated that regulatory delays in licensing cellular systems and in approving Bell-company offerings of voice messaging in the United States cost consumers as much as \$51 billion per year for each year of regulatory delay. These estimates, even if high by a factor of ten, surely swamp any potential gains from continuing telecommunications regulation.<sup>18</sup>

## **2. Electricity**

I am on less firm grounds in providing a rough estimate of the cost or benefit to economic welfare from full electricity deregulation. Full deregulation without any attention to the structure of electricity distribution would surely be unwise. There is no evidence of which I am aware of the potential for competitive transmission grids or competitive local distribution networks. However, as I write this essay, I look out on

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<sup>18</sup> Even under this extreme assumption of a trebling of local rates due to deregulation, the total transfer of income from consumers to producers is only about \$77 billion per year. If the efficiency costs of regulation

utility poles that now carry three communications lines past my home – two fiber-coaxial cable lines and one copper telephone wire. I cannot see the fourth network, but my cellular phone can! For some reason, only one set of electrical lines passes my home. It is not obvious to me that a second electrical line could not be strung over this pole line or through underground conduits.

Unfortunately, we have no experience with full deregulation in electricity. Competition exists in some jurisdictions in the supply (generation) of electrical energy, but the transmission grid generally remains a public or private monopoly or a set of interconnected public/private monopolies.

The facile answer to the monopoly distribution problem in electricity is long-term contracting, as Demsetz suggested nearly fifty years ago. But as Newberry (1999) points out, it is likely that an *existing* grid operator would obtain large monopoly rents in such a contracting process. Without a competitive alternative, there is no reason that to expect the monopolist not to exploit its market power in such a contracting process, and it is unlikely that anyone would build a parallel grid to wrest the contract from him in ten, twenty, or thirty years when the contract expires.

One of the lessons from twenty-five years of deregulation in other sectors, however, is that we cannot predict how a deregulated market will evolve from observations drawn solely from a politically controlled marketplace. In the case of electricity, some contend that deregulation would lead to a much more decentralized system of electricity supply and distribution. It may be that no one would respond to deregulation by building a second regional distribution network in the eastern United

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designed to prevent such a transfer are as much as \$58 billion, this is an extremely inefficient mechanism for redistributing income.

States to connect large numbers of generators to me and my neighbors. But 50 or 100 of my neighbors and I might invest in a small combined cycle gas-fired turbine to provide our own electricity through wires strung in parallel with our current distributor if we could get access to the poles. Alternatively, we might confront our distributor with the threat to build our own small network if he does not enter into a long-term contract with us at competitive rates. In turn, the bargaining power of large numbers of such potential sub-networks might cause the grid operator to grant relatively competitive rates for transmitting power from large, distant generators.

I do not mean to suggest that operating an electricity network and pricing access is simple, nor that we understand how a more fragmented electricity market could work without some regulation. Indeed, California's recent experience with limited deregulation and the substitution of spot market transactions between generators and utilities for the formerly integrated structure shows how a simple error can translate into enormous transfers of wealth in an industry in which the short-term price elasticity of demand and supply are very low.

One might argue that California provides a good basis for estimating the "cost" of deregulation in the short term under the most pessimistic assumptions. Could complete deregulation possibly be worse? In 2000-01, California's failed approach to deregulation allowed generators to exploit the short-term scarcity of power created by natural forces, such as a shortfall in precipitation and a rise in fossil fuel prices, because California forbade utilities to enter into long-term contracts. The result was an increase in the state's

electricity bill of approximately \$12 billion per year.<sup>19</sup> Since the total bill in 1999 had been about \$22 billion, the increase due to the failures of deregulation was about 55 percent. Assume that this is a worst case for the effects of full deregulation, *i.e.*, that rates would increase by 55 percent in the short run if regulators were simply to walk away. Moreover, assume that this increase would decline steadily over subsequent years as technologies, distribution networks, and energy substitution would mitigate but not eliminate the monopoly problem. For the United States as a whole, the transfer from consumers to producers would be about \$142 billion per year in the short run.

The net cost to the economy would be much less. With a short-term demand elasticity of -0.15,<sup>20</sup> the annual deadweight loss (additional loss in consumer welfare) would be only \$5.5 billion in the short run. The deadweight loss might well *increase* even as prices fell because consumers might substitute socially more expensive electricity for the electricity available from incumbent suppliers at prices above marginal cost. Ultimately, the cost to the economy would depend on how much efficiency was sacrificed by moving away from regulation to new institutional arrangements.

Even this rather superficial projection of the potential adverse effects of full electricity deregulation serves to emphasize an important point: regulation is generally more effective as a device to transfer rents than one to increase economic efficiency. The deadweight loss of allowing electricity monopoly pricing is swamped by the transfer from consumers to producers. But even this deadweight loss might be overestimated if our experience with deregulation in other sectors is any guide. Regulation stunts

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<sup>19</sup> The total increase appears to have been about \$20 billion, but about \$8 billion of this increase would have occurred due to drought and fossil-fuel price increases. See Joskow (2001) for a discussion of California's travails.

<sup>20</sup> Taylor (1975).

incentives to invest and innovate. An unregulated market might result in substantial pockets of market power, but the unregulated firms might have much lower costs than the regulated firms. Indeed, one of the underlying goals of the California “deregulation” of electricity was to allow utilities to shed billions of dollars of wasteful expenditures and unproductive assets accumulated during decades of regulation.

### **3. Summing Up**

Although it is highly unlikely that we shall experience total telecommunications and electricity deregulation anytime soon, even a worst-case scenario would suggest that total deregulation in these two sectors would be beneficial. The gains from telecom deregulation would likely offset any prospective short-term losses from electricity deregulation even if competitive electricity transmission and distribution networks did not materialize. The worst-case scenario in electricity would, however, result in politically unacceptable transfers of wealth from consumers to producers, as the Governor of California recently discovered.

## ***V. The Cost of Government Controls in Other Sectors***

It is certainly possible that complete economic deregulation might lead to short-term losses in economic welfare in certain sectors, particularly in electricity. If complete deregulation were to be part of a constitutional compact that forbade government intervention in controlling prices and output in other sectors, however, the net gains could be enormous. In this section, I try to summarize the prospective gains that can be identified from the existing literature.

## A. The electromagnetic spectrum.

Only recently have governments begun to privatize the electromagnetic spectrum by auctioning rights to it for various commercial purposes. Unfortunately, only a very small share of commercially-usable spectrum has been auctioned; the remainder is still allocated by governments without regard to its economic value in alternative uses. The potential gains from freeing the remaining spectrum from government management, particularly that set aside for defense and public safety, are extremely large. The recent prices paid for the rights to use the spectrum in the United States provide at least a starting point for estimating this value.

In the most recent U.S. auction for cellular spectrum, bidders paid an average of \$4.18 per MHz per person in the population.<sup>21</sup> Given a population of 275 million, this translates into \$1.15 billion per MHz. A single cellular band generally has 30 MHz; therefore, bidders were willing to pay \$34.5 billion for a cellular band in the United States. Since these bids are generally for spectrum that is currently occupied by various other users, the winning bidder incurs the liability for moving these incumbents to other parts of the spectrum or simply compensating them for abandoning the spectrum. Thus, the \$34.5 billion value is a measure of the *net* value of this resource from improved allocation of it.

The amount of usable spectrum is enormous, but it is not all of equal value for all uses. Nor would the above estimate of the marginal value of just 30 MHz be invariant against the amount of spectrum allocated by auctions. If the United States government

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<sup>21</sup> These data may be found at <http://www.fcc.gov/wtb/auctions/35/>.

were to auction immediately all spectrum that has not yet been sold by auction, the marginal value would presumably decline substantially. No one has an estimate of the demand for all such spectrum. However, assume that all of the U.S. *commercial television* spectrum were to be auctioned tomorrow. There is about 400 MHz of such spectrum in very desirable bands. It is not unreasonable to assume that the \$1.15 billion per MHz value realized at the last auction is the value of this spectrum also. This translates into about \$460 billion in total value.

The abandonment of television broadcasting would leave some households with dark television sets. However, given that only 15 percent of U.S. households now watch television off the air, it would not cost much to shift them to cable television or direct broadcast satellites. Assuming that the marginal cost of shifting these households would be \$20 per month, the annual cost would be \$240 per household, and the present value of these costs in perpetuity, evaluated at a 5 percent discount rate, would be \$4,800. With just 15 million households to move, the total cost would be \$72 billion. Therefore, the net gain from moving a small part of the spectrum to a higher-valued use would be nearly \$400 billion. It is obvious that a total shift to a market allocation of spectrum would be enormous.

## **B. Water.**

Water might be even more important than the electromagnetic spectrum. Most of us recall the early economists' discussions of the difference between marginal and total value! Unfortunately, despite the volumes that have been written on cost-benefit analysis of water-resource projects, such as dams, and many individual studies of the inefficiency



of government allocation of water, I am unable to find a comprehensive estimate of the social cost of failing to use the price mechanism for this scarce resource. I can only assume that it is quite large and move on to other government failures.

### **C. Airport landing rights**

Air space is an abundant resource whose scarcity is largely contrived by those who regulate it. In many countries, the air traffic control system has been privatized. In the United States, the Federal Aviation Administration controls air traffic and government-owned airports impose weight-based landing fees. The combination of FAA and airport regulation of the use of the air-traffic infrastructure has created much more congestion than is necessary or optimal. Morrison and Winston (1989) estimate that a shift to congestion fees for air traffic, better pricing of aircraft landings, and improved investment decisions in building runways could lead to an annual increase in economic welfare of \$11 billion (1988\$). In current dollars, even with only the 1988 traffic, this estimate rises to more than \$16 billion per year.

### **D. Rent control.**

There is some new theoretical literature that suggests that the cost of limiting rents on residential properties has been overstated. Nevertheless, it is well known that such controls have a deleterious effect on the supply of new housing although the magnitude of this effect is subject to some debate. In addition, Glaeser and Ruttmer (1997) find that the cost of misallocation of the existing housing stock across consumers due to rent control is likely to be more than \$500 million per year in New York City alone.

Fortunately, most U.S. cities have avoided the folly of rent control, but the cost in those where it exists is likely to be substantial. Unfortunately, there is no comprehensive study of rent control for the entire country.

### **E. Trade protection.**

Despite a general movement toward free trade since World War II, many countries still resort to trade protection in response to special pleas from various industries or labor groups. In the United States, a protectionist trend began with the passage of the Trade Act of 1974, which allowed the use of “constructed value” as a benchmark for evaluating allegations of dumping charges. In addition, the maritime, apparel, and textile industries enjoy direct protection from a variety of direct and indirect quotas. The President of the United States has now very unwisely added steel to this list, attempting to protect many of the declining U.S. integrated companies from extinction for one more election cycle.<sup>22</sup> Hufbauer and Elliott (1994) estimate that the cost to consumers of trade protection in 21 large U.S. industries was \$10.4 billion in 1990. The President’s recent steel decision will increase these costs. Were the costs to be estimated across all industries, it surely would be much larger.

### **F. Agricultural price supports.**

The United States, like many other countries, has had some form of intervention in agricultural markets to increase farmer incomes for decades. These programs transfer roughly \$20 billion per year from consumers to producers. In the 1980s, these programs

cost the American economy about \$5 billion per year in lost output because the programs used acreage controls and reduced output to generate the income redistribution.<sup>23</sup> Since 1996, however, these payments have come directly from the U.S. Treasury. The net cost of the various agricultural programs has fallen to \$0.8 billion per year, but – ominously – there is now political pressure to return to the older system in order to reduce the overt cost to U.S. taxpayers, but such a change will sharply increase the real economic cost of the program.<sup>24</sup>

### **G. Adding Up the Costs**

Although I cannot neatly tote up the cost of the U.S. government's mismanagement of resources through these various programs, it is clear that the annual costs run into the scores of billions of dollars.<sup>25</sup> Simply using the price mechanism to allocate the broadcast spectrum would be worth at least \$10 to \$15 billion per year, depending on one's estimate of the social cost of capital. Eliminating trade protection, government control of airport landing rights, and agricultural price supports would generate another \$26 billion in net economic benefits. Extending market mechanisms to the allocation of water and the rest of the electromagnetic spectrum would surely add substantially to these estimates of the gains from an expansive program of "deregulation."

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<sup>22</sup> This decision was announced on March 6, 2002, at the end of a lengthy "escape clause" (Section 201) process.

<sup>23</sup> Gardner (2001).

<sup>24</sup> *Id.*

<sup>25</sup> The largest cost of government intervention may be in the health-care sector, but there is simply no comprehensive estimate of these costs. Nor is there a consensus on the effects of implicit government guarantees of securities backed by home mortgages.

## **VI. *Avoiding Costly New Regulation***

A policy of complete economic deregulation would not only rid of us some very costly and unfortunate current government interventions in markets, but it would protect us from new ones. We hardly need a course in current events to remind us of the dangers of government intervention during periods of instability. Recent events in the United States surely portend of substantial instability and the prospect of political lurches into renewed regulation. Even more troubling is the view spreading across OECD governments that regulators can accelerate competition in sectors where they had been responsible for blocking it for decades!

### **A. Regulation in Response to International Disruptions.**

The recent terrorist events in the United States have opened the door for a vast new set of regulatory and other interventionist proposals. The Federal Aviation Administration – after years of mismanaging air traffic – was close to political extinction before September 11. Now, it is likely to get vast new powers in the name of controlling airport and in-flight safety. New programs to subsidize airlines, steel companies, and agriculture appear daily.

One only has to recall the U.S. response to the OPEC oil shock in 1973-4 to see how governments resort to new exercises in regulation in the name of protecting the public. The United States enacted a vast new program of oil and refined-product price controls during 1973-5, and established an “entitlements” program that allowed refiners with no domestic oil to share in the regulated low-priced oil developed by the more far-sighted integrated producers. Because the entitlement was tied to the amount of imported

oil used, this program increased the demand for OPEC oil, increasing the cartel equilibrium price and transferring even more of U.S. resources to the Arab oil producers. This surely was a curious form of income redistribution for the *United States* Congress to support.

## **B. Regulation and Economic Recessions**

In the United States, some of our worst regulatory interventions began during difficult and unstable economic periods. Railroads were first regulated in the late 1880's after they had woefully over-invested in infrastructure and during a period of an unstable macro-economy. The regulation of trucking began in the depths of the 1930's Great Depression when the railroads and truckers were under enormous financial pressures. The regulation of communications also began in the Depression, fed by erroneous concerns of "chaos" in using the electromagnetic spectrum without government controls. Airline regulation began in 1938 after allegedly "ruinous" competition for postal air mail contracts in the Depression. Oil price controls and "entitlements" – a government policy of increasing the transfer of income from the U.S. to OPEC --were established in 1974-75 after oil prices soared, inflation accelerated, and the economy became quite unstable.

## **C. The New Threat -- Regulation to Promote Competition.**

Each of the above examples of new regulatory regimes began, in part, because firms and their employees sought government assistance to ease market pressures that were exacerbated by a weak economy or international disruptions. However, such pleas are not confined to periods of instability. The recent specter of firms appearing before the

European Union's competition authority or the United States Justice Department to inflict damage upon their rivals, such as occurred in the Boeing-McDonnell/Douglas or General Electric-Honeywell mergers or in repeated sorties against Microsoft are but selected cases in point. At one time, these self-interested protestations from rival firms, rather than customers, would have been treated very skeptically by U.S. antitrust authorities. In the last eight years, however, the competition authorities have been much more receptive to complaints from competitors.

This type of behavior is repeated every day before the various OECD countries' telecommunications regulatory commissions. Given the likely importance of telecommunications in the continued growth of developed economies, we should be extremely concerned about preventing further regulatory incursions in this sector. For more than a decade, telecom regulators had been moving in the right directions -- substituting price caps for "cost-based" regulation and exercising regulatory forbearance. As markets became contestable, regulation was substantially lightened or eliminated altogether. Now, just as new technologies are wreaking havoc with incumbents, regulators are leaping into the fray with new vigor, imposing wholesale regulation on incumbents and looking earnestly for other ways to restrain these old-line firms from engaging in aggressive price competition. The result is already becoming apparent in the United States.

In the 1996 Telecommunications Act, the U.S. Congress devised a very complicated scheme of wholesale regulation for incumbents, described as "interconnection policy" by the *cognoscenti*. This approach has been copied to some extent by many other OECD countries as the result of multi-lateral trade negotiations.

Indeed, the United States has spent most of the last five years trying to force this type of regime on Japan and other countries.

The new regulatory regime has two related problems: an extensive “unbundling” regime and a new policy to set rates on the basis of detailed cost estimates. As entry into telecommunications has become much easier because of technical change in wireless systems, satellite systems, and fiber optics, regulators now worry that the cost of the “last mile” may prove to be an insuperable entry barrier. Their response might have been manageable if it had been limited to apparently essential facilities and if it had been limited to, say, five or ten years.<sup>26</sup> Unfortunately, despite some dissenting views from the U.S. Supreme Court, the Federal Communications Commission was successful in requiring the unbundling of virtually *everything* in the incumbents’ networks. And if this were not enough to satisfy the new entrants, the FCC even imposed conditions on incumbent mergers that required these unbundled elements to be re-bundled into a single “platform” at low, wholesale rates.

Requiring that incumbents provide entrants access to their networks is of little consequence unless the regulators specify a price for such access. In a surge of theoretical elegance, the U.S. regulator, the FCC, decided that it should attempt to replicate the operation of a frictionless, competitive market. It decided that the wholesale rates for network elements should be based on the reproduction cost of those assets, and it therefore established Total Element Long Run Incremental Cost (TELRIC) as its standard. Of course, it could not know what such costs are since it could not find cost data for a network that was built just yesterday. The result was a four-year effort to

develop an engineering cost model of a local exchange network designed to deliver yesterday's services with today's technology from switching centers that were sited decades ago – all of this guided by thousands of interventions by interested parties. But why would anyone build a network to deliver the old mix of voice and data services over copper wires?

Even if it had been possible to divine the costs of building this essentially obsolete network at today's cost, there remained a fundamental problem. No one would build an expensive network with enormous sunk costs to lease to its rivals on a month-to-month basis at rates that are calculated to return the investment and the opportunity cost of capital over the full anticipated useful life of the assets. Leasing network facilities at these rates allows the lessee to obtain a “free option” on the investment, delaying indefinitely the need to build its own plant.<sup>27</sup> For instance, why would anyone build a new steel mill at a cost of perhaps \$10 billion if it could persuade the government to force someone else to build it for him and lease it to him on a month-to-month basis at, say, \$100 million per month? The lessee could force the builder to assume the risk that steel mills will be redundant in three or five years – many of the newest ones already are.

This approach to regulating “interconnection” so as to encourage entry is too new in most countries for one to assess whether it has worked. However, in the United States we have had five years of entry and continuous regulatory skirmishing. The result has been less than satisfactory. Most of the new entrants who rushed in to offer telecom services are either failing or have failed. Those that have relied heavily on the wholesale

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<sup>26</sup> This is the approach taken by the Canadian regulator, the Canadian Radio-Television and Telecommunications Commission (CRTC), in 1997. Predictably, the new competitors are now petitioning the CRTC for an extension of time and lower rates for unbundled elements.

<sup>27</sup> See Hausman (1999).



services or facilities of the incumbents have been most likely to fail. At one time, the new entrants had a market capitalization that totaled nearly \$100 billion, as investors subscribed them capital to exploit the FCC's regulatory largesse. When it became apparent that most of these new companies had little to offer their customers in terms of new or lower-cost services, their share prices began to fall. When the stock market declined severely in 2000, in no small part because investors began to realize that telecom firms had been over-capitalized, the rush for the exit accelerated. Today, these entrants' market value is less than \$10 billion.

Were the telecom industry not regulated, so many new entrants might never have appeared, and the failure of those that did would be treated much like the passing of Olivetti typewriters, Douglas DC-7s, or Betamax VCRs. But in a regulated industry, the losers have a forum in which to petition for more assistance – the regulatory commission. In the United States, AT&T tried to enter the local telecom market in various ways, including by paying \$110 billion for cable systems that are today worth perhaps \$60 billion and by trying to resell incumbent services. Now, it is fighting a rear-guard action at regulatory commissions, asking that the incumbent local companies be structurally separated into wholesale and retail operations so that wholesale rates can be pushed even lower.

There are enormous risks to this new, cost-based telecommunications regulation. First, evidence is already accumulating that low wholesale rates have depressed investment in fixed assets, allowing entrants to invest mostly in marketing instead.<sup>28</sup> Second, there is at least anecdotal evidence that this regulation has reduced the incumbents' investment in new facilities to deliver broadband. Third, to the extent that

many entrants use incumbents' facilities, leased at artificially low rates, those entrants who build their own facilities are less likely to thrive.

None of these results should be surprising. Trying to regulate a changing, rivalrous market creates enormous pressures to shield firms from market forces. In the 1930s, the regulators' clients were the incumbent transportation firms – the railroads and the airlines. Today, they are the new entrants in telecom and the incumbents in the television broadcasting sector.

## ***VII. Conclusion***

The United States has reaped substantial economic benefits from the deregulation of transportation, energy, communications, and financial markets over the past 25 years. Further deregulation, particularly in telecommunications, would likely add billions of dollars in annual net economic benefits to producers and consumers. Mustering the political support for such deregulation, however, will be difficult. If the net is cast more widely to include a variety of other forms of government intervention in markets – from trade protection to managing the electromagnetic spectrum – the benefits can be increased immeasurably and the narrow interest-group politics that supports continued regulation might be overcome. The interesting target for deregulation at present is electricity, but no one can be sure how a fully deregulated electricity market would operate. Whatever the short term economic losses from such deregulation, they are likely to be swamped by the short-term income redistribution it creates. Nevertheless, a decision to end government intervention in pricing and output decisions across the economy

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<sup>28</sup> See Eisner and Lehman (2001).

would surely yield large benefits to the economy – benefits that would surely swamp any short-term costs of electricity deregulation..

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